REMEDIAL INVESTIGATION REPORT

for

C Block

21 Freeman Street, 37 Freeman Street, and 209 West Street

Brooklyn, New York

NYSDEC BCP Site No. C224435

Prepared for:

GPLC HoldCo LLC, GPLC Member LLC and GPLC Owner LLC
535 Madison Avenue
New York, NY 10022

Prepared by:

Langan Engineering, Environmental, Surveying,
Landscape Architecture and Geology, D.P.C.
368 Ninth Avenue, 8th Floor
New York, New York 10001

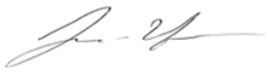
Jason Hayes, PE
Senior Principal

June 2, 2026
Langan Project No.: 170229030

LANGAN

CERTIFICATION

I, Jason Hayes, certify that I am currently a Qualified Environmental Professional as defined in 6 NYCRR Part 375 and that this Remedial Investigation Report was prepared in accordance with all applicable statutes and regulations and in substantial conformance with the Division of Environmental Remediation (DER) Technical Guidance for Site Investigation and Remediation (DER-10).



Jason Hayes, PE

TABLE OF CONTENTS

LIST OF ACRONYMS vi

1.0 INTRODUCTION 1

2.0 SITE PHYSICAL CHARACTERISTICS 3

2.1 Site Description 3

2.1.1 Description of Surrounding Properties 3
2.1.2 Topography 6
2.1.3 Stormwater Runoff and Drainage 6
2.1.4 Wetlands 6

2.2 Geology and Hydrogeology 6

2.2.1 Regional and Site Geology 6
2.2.2 Regional and Site Hydrogeology 7

3.0 SITE BACKGROUND 8

3.1 Historical Site Use 8
3.2 Redevelopment Plan 8
3.3 Previous Environmental Reports 9
3.4 Summary of Areas of Concern 11

4.0 FIELD INVESTIGATION 13

4.1 Geophysical Investigation and Utility Location 14
4.2 Soil Investigation 14

4.2.1 Soil Boring Investigation 14
4.2.2 Soil Sampling and Analysis 14

4.3 Groundwater Investigation 16

4.3.1 Monitoring Well Installation and Development 16
4.3.2 Groundwater Sampling and Analysis 16

4.4 Soil Vapor Investigation 17

4.4.1 Soil Vapor Point Installation 17
4.4.2 Soil Vapor Sampling and Analysis 18

4.5 Quality Assurance/Quality Control Sampling 18
4.6 Data Validation 20

4.6.1 Data Usability Summary Report Preparation 20

4.7 Air Monitoring 21
4.8 Field Equipment Decontamination 22
4.9 Investigation-Derived Waste Management 22

5.0 FIELD OBSERVATIONS AND ANALYTICAL RESULTS 23

5.1 Geophysical Investigation Findings 23
5.2 Geology and Hydrogeology 23

5.2.1 Non-native Historical Fill 23
5.2.2 Native Soil Layers 23
5.2.3 Bedrock 23
5.2.4 Hydrogeology 23

5.3 Soil Findings 24
5.3.1 Field Observations 24
5.3.2 Analytical Results 24
5.4 Groundwater Findings 29
5.4.1 Field Observations 29
5.4.2 Analytical Results 29
5.5 Soil Vapor Findings 32
5.5.1 Field Observations 32
5.5.2 Analytical Results 32
5.6 QA/QC Sample Results 35
5.7 Data Usability 35
5.8 Evaluation of Areas of Concern 35
5.8.1 RI AOC 1: Historical Site Use and Non-native Historical Fill 35
5.8.2 RI AOC 2: CVOC-Impacted Soil Vapor: Carbon Tetrachloride 38
5.8.3 RI AOC 3: CVOC-Impacted Soil Vapor: PCE 39
6.0 QUALITATIVE HUMAN AND FISH/WILDLIFE EXPOSURE ASSESSMENT 40
6.1 Current Conditions 40
6.2 Post Redevelopment Conditions 40
6.3 Conceptual Site Model 41
6.3.1 Potential Sources of Contamination 41
6.3.2 Exposure Media 41
6.3.3 Receptor Populations 41
6.4 Potential Exposure Pathways – On-Site 42
6.4.1 Current Conditions 42
6.4.2 Construction/Remediation Condition 42
6.4.3 Proposed Future Conditions 42
6.5 Potential Exposure Pathways – Off-Site 42
6.5.1 Current Conditions 42
6.5.2 Construction/Remediation Condition 43
6.5.3 Proposed Future Conditions 43
6.6 Evaluation of Human Health Exposure 43
6.6.1 Current Conditions 43
6.6.2 Remedial Construction Activities 44
6.6.3 Proposed Future Conditions 44
6.6.4 Human Health Exposure Assessment Conclusions 45
7.0 NATURE AND EXTENT OF CONTAMINATION 46
7.1 Soil Contamination 46
7.1.1 Historical Site Use and Non-native Historical Fill 46
7.2 Groundwater Contamination 46
7.2.1 Petroleum-Impacted Groundwater 47
7.2.2 SVOCs in Groundwater 47
7.2.3 Metals-impacted Groundwater 47
7.2.4 PFAS in Groundwater 47

7.3 Soil Vapor Contamination 48
8.0 CONCLUSIONS 49
9.0 REFERENCES 51

FIGURES

Figure 1 Site Location Map
Figure 2 Site Plan
Figure 3 Surrounding Land Use Map
Figure 4 Historical Site and Surrounding Property Usage Map
Figure 5 Groundwater Elevation Contour Map
Figure 6 Proposed Development Plan
Figure 7 Sample Location Map
Figure 8A Subsurface Profile A – A'
Figure 8B Subsurface Profile B – B'
Figure 9A Soil Sample Analytical Results Map
Figure 9B Soil Sample Analytical Results Map – TCLP Metals
Figure 10 Groundwater Sample Analytical Results Map
Figure 11 Soil Vapor Sample Analytical Results Map
Figure 12 Area of Concern Map

TABLES

Table 1 Sample Collection Summary
Table 2 Groundwater Elevation Summary
Table 3A Soil Sample Analytical Results
Table 3B Soil Sample Analytical Results – TCLP
Table 4 Groundwater Sample Analytical Results
Table 5 Soil Vapor Sample Analytical Results
Table 6 QA/QC Sample Analytical Results

APPENDICES

Appendix A Previous Environmental Reports
Appendix B Photograph Log
Appendix C Geophysical Survey Report
Appendix D Soil Boring Logs
Appendix E Monitoring Well Construction and Groundwater Sampling Logs
Appendix F Soil Vapor Construction and Sampling Logs
Appendix G Community Air Monitoring Summary Data
Appendix H Data Usability Summary Reports
Appendix I Laboratory Analytical Reports
Appendix J Fish and Wildlife Resources Impact Analysis

LIST OF ACRONYMS

Acronym	Definition
AARCO	AARCO Environmental Services Corp.
AOC	Areas of Concern
BCP	Brownfield Cleanup Program
bgs	Below grade surface
CAMP	Community Air Monitoring Program
CHASP	Construction Health and Safety Plan
COC	Certificate of Completion
CSM	Conceptual Site Model
CVOC	Chlorinated Volatile Organic Compounds
DER	Division of Environmental Remediation
DER-10	DER Technical Guidance for Site Investigation and Remediation
DUSR	Data Usability Summary Report
EC	Engineering Control
el	Elevation (NAVD88)
ELAP	Environmental Laboratory Approval Program
ESA	Environmental Site Assessment
FWRIA	Fish and Wildlife Resources Impact Analysis
HASP	Health and Safety Plan
IC	Institutional Control
Langan	Langan Engineering, Environmental, Surveying, Landscape Architecture and Geology, D.P.C.
mg/kg	Milligram per kilogram
MS/MSD	Matrix Spike/Matrix Spike Duplicate
NAVD88	North American Vertical Datum of 1988
NOVA	NOVA Geophysical Engineering
NTU	Nephelometric Turbidity Units
NYCOER	New York City Office of Environmental Remediation
NYSDEC	New York State Department of Environmental Conservation
NYSDEC SGVs	NYSDEC TOGS 1.1.1 Ambient Water Quality Standards and Guidance Values for Class GA water
NYSDOH	New York State Department of Health
PCB	Polychlorinated Biphenyl
PCE	Tetrachloroethene
PFAS	Per- and Poly-fluoroalkyl substances
PFOA	Perfluorooctanoic Acid
PFOS	Perfluorooctanesulfonic Acid
PGW	Protection of Groundwater
PID	Photoionization Detector

Acronym	Definition
PPE	Personal Protective Equipment
ppm	Parts per million
PVC	Polyvinyl Chloride
QA/QC	Quality Assurance/Quality Control
RAWP	Remedial Action Work Plan
RI	Remedial Investigation
RIR	Remedial Investigation Report
RL	Reporting limit
RURR	Restricted Use Restricted-Residential
SCO	Soil Cleanup Objective
SFMP	Soil/Fill Management Plan
SMP	Site Management Plan
SRI	Supplemental Remedial Investigation
SVOC	Semivolatile Organic Compound
TAL	Target Analyte List
TCL	Target Compound List
TCLP	Toxicity Characteristic Leaching Procedure
TOGS	Technical and Operational Guidance Series
UN/DOT	United Nations/Department of Transportation
USEPA	United States Environmental Protection Agency
USGS	United States Geological Survey
UST	Underground Storage Tanks
UU	Unrestricted Use
VOC	Volatile Organic Compound
µg/L	Micrograms per liter
$\mu g/m^3$	Micrograms per cubic meter
NYCRR	New York Codes, Rules, and Regulations

1.0 INTRODUCTION

Langan Engineering, Environmental, Surveying, Landscape Architecture and Geology, D.P.C. (Langan) prepared this Remedial Investigation Report (RIR) on behalf of GPLC HoldCo LLC, GPLC Member LLC and GPLC Owner LLC (the Participants) for the property at 21 Freeman Street (Building C1), 37 Freeman Street (Building C2), and 209 West Street (Building C3) in the Greenpoint neighborhood of Brooklyn, New York (the site). The Participants were accepted into the New York State Department of Environmental Conservation (NYSDEC) Brownfield Cleanup Program) BCP to investigate and remediate the site pursuant to the NYSDEC Brownfield Cleanup Agreement (BCA) executed on 9 December 2025 (Index No. C224435-09-25). BCP Site No. C224435 was assigned to the site.

This RIR presents environmental data and findings from the Remedial Investigation (RI) that was completed by Langan from July 25 to August 5, 2022, the first Supplemental Remedial Investigation (herein referred to as SRI No. 1) that was completed by Langan from January 12-14, 2026, and the second SRI (herein referred to as SRI No. 2) that was completed by Langan from March 18-19, 2026. The objective of the RIs was to investigate and characterize the nature and extent of environmental impacts at the site and to provide sufficient information to evaluate remedial alternatives and actual and potential threats to human health and the environment. In April 2023, the NYSDEC released new guidance for Sampling, Analysis, and Assessment of PFAS under NYSDEC's Part 375 Remedial Programs. Langan, on behalf of the Participants, performed SRI No. 1 to collect additional groundwater samples for analysis of the full suite of PFAS compounds outlined in the April 2023 guidance. SRI No. 1 was conducted in accordance with the NYSDEC-approved January 8, 2026 Supplemental Remedial Investigation Work Plan No. 1 (SRIWP No. 1). In response to the request from the NYSDEC on March 11, 2026, Langan performed a second SRI to delineate the extent of the carbon tetrachloride in soil vapor. SRI No. 2 was conducted in accordance with the NYSDEC-approved March 18, 2026 SRIWP No. 2.

This RIR is organized as follows:

- Section 2.0 describes the setting and physical characteristics of the site.
- Section 3.0 describes the site background, including results of previous investigations and identified areas of concern (AOCs).
- Section 4.0 presents the investigation field procedures.
- Section 5.0 describes field observations and analytical results.
- Section 6.0 presents an assessment of the exposure risks of site contaminants to human, fish, and wildlife receptors.
- Section 7.0 presents the nature and extent of contamination in site media as determined through field investigation and analysis of environmental samples.
- Section 8.0 summarizes the results of the investigation and presents conclusions based on field observations and analytical results.

- Section 9.0 presents the references used in preparation of this report.

2.0 SITE PHYSICAL CHARACTERISTICS

2.1 Site Description

The site is about 163,000 square feet (±3.737 acres) in area and is located at 21 Freeman Street (Building C1), 37 Freeman Street (Building C2), and 209 West Street (Building C3) in the Greenpoint neighborhood of Brooklyn, New York. The site is identified on the Brooklyn Borough Tax Map as Block 2502, part of (p/o) Lot 1 and p/o Lot 5, and Block 2510, p/o Lot 1 and p/o Lot 100. As of the date of this RIR, the site is a paved and vacant parcel of land. A site location map is presented as Figure 1 and a site plan is presented as Figure 2.

The site is under the regulatory jurisdiction of the New York City Office of Environmental Remediation (NYCOER) pursuant to the Greenpoint-Williamsburg Rezoning dated 11 May 2005 (CEQR No. 04DCP003K), which placed E-Designations for Hazardous Materials and Noise (E-138) on the tax lots comprising the site. The E-Designation includes environmental restrictions during development for hazardous materials and noise (i.e., window wall attenuation and alternate means of ventilation requirements).

The site is bound by Greenpoint Landing Parcel D (Block 2472, Lots 2, 3, 4, 21 and 23, Block 2502, Lot 2 and part of Lot 5) to the north; West Street to the east, a parking lot to the south, and the East River to the west. The northern-adjoining property (Greenpoint Landing Parcel D) was enrolled in the NYCOER Voluntary Cleanup Program (VCP) as Site No. 19CVCP053K. The Greenpoint Landing Parcel D site received its Certificate of Completion (COC) in February 2023.

2.1.1 Description of Surrounding Properties

According to the New York City Planning Commission Zoning Map 12c, the site is located within R6, R8, and C2-4 zoning districts. The following is a summary of surrounding property use:

Direction	Adjoining and Adjacent Properties			Surrounding Properties
	Block No.	Lot No.	Description	
North	2502	2, 5	Eagle Street	Open space & outdoor recreation and Newtown Creek
	2472	2, 3, 4, 21, and 23	Mixed residential & commercial buildings, open space & outdoor recreation, and part of Eagle Street	

Direction	Adjoining and Adjacent Properties			Surrounding Properties
	Block No.	Lot No.	Description	
East	2503	1	West Street followed by commercial & office buildings	Mixed residential & commercial buildings and multi-family walk-up buildings
South	2510	1	Miscellaneous - Other (Z9)	Industrial & manufacturing and mixed residential & commercial buildings
West	East River			

Major infrastructure (storm and sanitary sewers and other underground utilities) exists within the streets surrounding the site. Land use within a half-mile radius of the site is urban and includes residential, commercial, industrial, and institutional uses, and parks. The nearest ecological receptors are the East River (located adjoining to the west of the site) and Newtown Creek (located about 0.2 miles north/northeast of the site). Sensitive receptors, as defined in NYSDEC DER-10, within a half mile of the site include those listed below:

Number	Name (Approximate distance from site)	Address
1	Greenpoint Landing Esplanade (<1 foot northwest)	Near: 1 Eagle Street Brooklyn, New York
2	East River (<1 foot west; western site boundary)	N/A
3	Bunny Hill Greenpoint Daycare and Preschool (about 65 feet north)	213 West Street Brooklyn, New York
4	Greenpoint Childcare (about 0.1 miles south)	145 West Street Brooklyn, NY 11222
5	Newtown Barge Playground (about 0.1 miles north)	3 Commercial Street Brooklyn, New York
6	Green Point Public Park (about 0.1 miles south)	143 India Street Brooklyn, New York
7	Greenpoint Playground (about 0.1 miles northeast)	243 Franklin Street Brooklyn, New York

Number	Name (Approximate distance from site)	Address
8	Public Park Playground (about 0.1 miles south)	21 India Street Brooklyn, New York
9	WNYC Transmitter Park (about 0.1 miles south)	Greenpoint Ave, Brooklyn, NY 11222
10	Carrusel Child Care Center 2 (about 0.2 miles southeast)	167 Franklin Street Brooklyn, NY 11222
11	Newtown Creek (about 0.2 miles north)	N/A
12	Greenpoint Garden Playhouse (about 0.2 miles southeast)	53 India Street Brooklyn, New York
13	Hunter's Point South Park and Kayak Ramp (about 0.2 miles north)	Near: 5627 2nd Street Long Island City, New York
14	Java Street Community Garden (about 0.2 miles northeast)	59 Java St, Brooklyn, NY 11222
15	Building Blocks of Greenpoint (about 0.3 miles south)	44 Kent St, Brooklyn, NY 11222
16	American Playground (about 0.3 miles southeast)	Milton St & 81 Franklin St, Brooklyn, NY 11222
17	The Goddard School of Greenpoint (about 0.3 miles northeast)	85 Commercial Street, Brooklyn, NY 11222
18	Carrusel Child Care Center Brooklyn (about 0.36 miles southeast)	168 Java Street Brooklyn, NY 11222
19	Helen Owen Carey Residence (about 0.4 miles east)	174 Java St, Brooklyn NY 11222
20	Iglesia Pentecostal El Tabor (about 0.4 miles east)	256 Franklin St #2R, Brooklyn NY 11222
21	Greenpoint Reformed Church (about 0.4 miles southeast)	136 Milton St, Brooklyn, NY 11222
22	Greenpoint Shul (about 0.4 miles southeast)	108 Noble St, Brooklyn, NY 11222
23	Green Bean Day Care & Learning Center (about 0.46 miles southeast)	161 Greenpoint Avenue Brooklyn, NY 11222

A map showing the surrounding land uses is included as Figure 3 and a map showing the historical site and surrounding property uses is included as Figure 4.

2.1.2 Topography

The 2023 USGS 7.5-minute quadrangle topographic map for Brooklyn depicts the site at an elevation (el) of approximately 10 feet above mean sea level (msl). The general topographic gradient of the site and the surrounding properties slope gently towards the west in the direction of the East River. Based on available Langan surveys, the elevation of the site ranges from about el. 12 NAVD88 at West Street to about el. 7 NAVD88 at the shoreline of the East River.

2.1.3 Stormwater Runoff and Drainage

The site is covered by impervious asphalt pavement. Stormwater runoff from the site is expected to sheet flow towards the East River to the west.

2.1.4 Wetlands

Wetlands near the site were evaluated by reviewing the National Wetlands Inventory and NYSDEC regulated wetlands map. There are no wetlands on the site. The nearest wetlands are the East River (located adjoining to the west of the site) and Newtown Creek (located about 0.2 miles north/northeast of the site).

According to the preliminary National Flood Insurance Rate map for the City of New York published by the Federal Emergency Management Agency (Community Panel No. 3604970202G, dated 5 December 2013), the site falls within Zone AE, which is subject to inundation by the 1% annual chance flood and Zone X.

2.2 Geology and Hydrogeology

2.2.1 Regional and Site Geology

The surficial geology in the vicinity of the site generally consists of glacial and fluvial soil deposits, as well as anthropogenic fill. The glacial deposits, commonly referred to as outwash deposits, ground moraine, or till, are a widespread dense layer typically consisting of heterogeneous mixtures of clay, silt, sand, gravel, and boulders.

According to USGS "Bedrock and Engineering Geology Maps of New York County, and parts of Kings and Queens Counties, New York, and parts of Bergen and Hudson Counties, New Jersey", bedrock stratigraphy in the area consists of Ravenswood Granodiorite of the Middle Ordovician to Middle Cambrian Age and Hartland Formation of the Middle Ordovician to Lower Cambrian Age. Ravenswood Granodiorite typically consists of medium- to dark-gray, sillimanite-garnet-pink microcline-plagioclase-biotite-muscovite-quartz and biotite-hornblende-orthoclase layered gneiss. The Hartland formation typically consists of gray sillimanite-garnet-microcline gneiss and fine-grained biotite-muscovite-quartz schist interlayered with quartz-plagioclase-muscovite pegmatite, hornblende amphibolite, and coarse granoblastic-textured amphibolite gneiss. Bedrock was not encountered during the RI or previous environmental investigations; however, bedrock was encountered during a geotechnical investigation at about 55 to 108 feet below existing grade.

Based on RI observations, the site is underlain by non-native historical fill, predominantly consisting of tannish brown to black fine-grained sand with varying amounts of gravel, silt, clay, brick, asphalt, concrete, glass, coal, coal ash, slag, wood, mortar, ceramics, organics, and shell fragments that generally extends from surface grade to between about 7 and 19 feet below grade surface (bgs). The non-native historical fill is followed by glacial outwash deposits (sand layers with silt and/or clay lenses).

2.2.2 Regional and Site Hydrogeology

Groundwater flow is typically topographically influenced, as shallow groundwater tends to originate in areas of topographic highs and flows toward areas of topographic lows, such as rivers, stream valleys, ponds, and wetlands. A broader, interconnected hydrogeological network often governs groundwater flow at depth or in the bedrock aquifer. Groundwater depth and flow direction are also subject to hydrogeologic and anthropogenic variables such as precipitation, evaporation, extent of vegetation cover, and coverage by impervious surfaces. Other factors influencing groundwater include depth to bedrock, the presence of artificial fill, and variability in local geology and groundwater sources or sinks.

Infiltration of precipitation to the water table is likely minimal due to the presence of impervious surfaces throughout the site. Stormwater runoff is expected to flow towards the East River to the west. Groundwater in New York City is not used as a potable water source. Potable water provided to New York City is derived from surface impoundments in the Croton, Catskill, and Delaware watersheds.

Groundwater was observed at depths ranging from 5.64 to 9.50 feet bgs and groundwater elevations ranged from about el. 0.20 to 2.92[1] based on synoptic groundwater level measurements collected from 13 wells during the RI. During SRI No. 1, groundwater was observed at depths ranging from 7.75 to 9.90 feet bgs and groundwater elevations ranged from about el. -0.33 to 2.28 based on groundwater level measurements collected from 11 wells.[2] Groundwater flows to the west towards the East River. A groundwater elevation contour and flow direction map is presented as Figure 5.

[1] North American Vertical Datum of 1988 (NAVD88)

[2] Monitoring well MW07 could not be located and MW09 was not accessible at the time of gauging.

3.0 SITE BACKGROUND

3.1 Historical Site Use

Coal, lumber, and masonry materials storage were the primary uses of the site for more than 100 years from the late 1800s until circa 2000. In 1916, the southeastern part of the site was occupied by a manufacturing and packing facility. The Newton Creek Corporation occupied part of the site in 1922, and Newtown Creek Coal and Coke Co. Inc. occupied part of the site in 1928. Parts of the site appeared to have been vacant between 1916 through the 1940s. The site was again used for lumber storage from the early 1950s to circa 2000. The site has been used by various commercial and industrial tenants since the early 2000s, including Bay Crane and other tenants using the property for parking and storage of construction materials and equipment.

3.2 Redevelopment Plan

As currently conceived, the project would include construction of three new residential buildings named C1, C2, and C3:

- The C1 building will be a 451-foot tall (40-story plus bulkhead) high-rise residential tower with a 10-story podium and a partial cellar level for back-of-house space, storage, and a swimming pool.
- The C2 building will be a 348-foot-tall (30-story plus bulkhead) residential tower with a 3-story podium and two full-cellar levels used for vehicle parking, tenant storage, and/or building systems/maintenance.
- The C3 building will be an 87-foot tall, 9-story mixed-use residential and commercial building with a full-cellar level used for vehicle parking, amenities, tenant storage, and/or building systems/maintenance.

The cellar levels of Buildings C2 and C3 will be connected. The residential units in the C1, C2, and C3 buildings will be a mix of market-rate and affordable units under Affordable NY and inclusionary housing programs (overall approximately 70% market rate and 30% affordable). There will be new public access sidewalks and roadways along Freeman Street and a private internal connector road that will transect the site in a north-south direction to the adjoining cul-de-sac at the western end of Eagle Street. The sidewalks and roadways will include street lighting, trees, and plantings. The shoreline along the East River will be stabilized and the waterfront will be developed into a public park/esplanade, including 52,240-square-feet of public waterfront, shore public walkway, upland connection, and view corridor, that will be transferred to the City of New York upon completion. New utilities, including water, sewer, gas, electric, telecommunications, will be constructed to service the new buildings.

A proposed development plan is presented as Figure 6.

3.3 Previous Environmental Reports

Environmental reports prepared for the site include the following:

1. *Phase I Environmental Site Assessment Report – Greenpoint Lumber Yard, Brooklyn, New York, prepared by AKRF, Inc. dated July 2001*
2. *Phase II Site Investigation Report – Greenpoint Lumber Yard, Brooklyn, New York, prepared by AKRF, Inc. dated October 2001*
3. *Supplemental Subsurface (Phase II) Investigation Report – Greenpoint Lumber Yard, Brooklyn, New York, prepared by AKRF, Inc. dated April 2004*

Reports are summarized below, and available reports are included in Appendix A.

July 2001 Phase I ESA Report – Greenpoint Lumber Yard, Brooklyn, New York, prepared by AKRF, Inc.

AKRF, Inc. was retained by Park Tower Realty Corporation to perform an Environmental Site Assessment (ESA) of a 22-acre former lumber storage yard in the Greenpoint neighborhood of Brooklyn, New York (the subject property). The upland acres that comprise the former lumber storage yard are the Greenpoint Landing development property and include Parcel C.

Specific to the site, coal, lumber, and masonry material storage were the primary uses of the site for more than 100 years from the late 1800s until circa 2000. In 1916, the southeastern part of the site was occupied by a manufacturing and packing facility. Parts of the site appeared to have been vacant between 1916 through the 1940s. The site was again used for lumber storage from the early 1950s to circa 2000. At the time of the Phase I ESA, the site was used for the storage of construction materials and equipment and repossessed vehicles. Several 55-gallon drums of hydraulic oil, resins, and/or lubricators were observed at the site during the site reconnaissance.

The Phase I concluded that releases of petroleum or hazardous substances may be present on the former lumber storage yard (including the site) as the result of historical uses of the subject property and surrounding area.

October 2001 Phase II Site Investigation Report – Greenpoint Lumber Yard, Brooklyn, New York, prepared by AKRF, Inc.

This investigation was performed across the Greenpoint Landing development property and included the completion and sampling of two soil borings (B3 and MW-2) and the completion of and sampling of one monitoring well (MW-2) within Parcel C. Soil samples were analyzed for volatile organic compounds (VOCs), semivolatile organic compounds (SVOCs), and metals. Soil samples were not analyzed for polychlorinated biphenyls (PCBs), pesticides, or herbicides.

A summary of the observations and results of the soil and groundwater sampling is provided below:

- Non-native historical fill was identified in both borings completed at the site and was composed of varying amounts of sand and silt with ash, brick, coal, concrete, schist, slag, and wood. Non-native historical fill was observed immediately below the asphalt pavement to boring termination depths of about 10 feet below ground surface (bgs) in boring B3 and to about 7 feet bgs in boring MW2. Non-native historical fill was underlain by native soil composed of brown and black sandy silt. An organic/petroleum-like odor was observed between 5 feet bgs to boring termination depth (about 11 feet bgs) in boring MW2.
- One VOC, acetone (a common laboratory artifact), was detected above the NYSDEC Part 375-6.8(b) Unrestricted Use (UU) Soil Cleanup Objectives (SCOs) in soil samples collected from boring MW2. Eight SVOCs (di-n-butyl phthalate, benzo(a)anthracene, chrysene, benzo(b)fluoranthene, benzo(k)fluoranthene, benzo(a)pyrene, ideno(1,2,3-cd)pyrene, and dibenzo(a,h)anthracene) exceeded the UU and/or NYSDEC Part 375-6.8(b) Restricted Use Restricted-Residential (RRU) SCOs in soil samples collected from the two borings. Total SVOCS were detected at a maximum concentration of 12,992 milligrams per kilogram (mg/kg) in a sample collected from the 8- to 10-foot interval in boring B3. Three metals (copper, lead, and/or zinc) were detected above the UU SCOs in soil samples collected from the two borings.

VOCs and SVOCs were not detected in groundwater samples. Thirteen metals (antimony, barium, chromium, copper, iron, lead, magnesium, manganese, mercury, nickel, silver, sodium, and zinc) exceeded the NYSDEC Technical Operational and Guidance Series (TOGS) Ambient Water Quality Standards and Guidance Values (SGVs) for Class GA water at total concentrations and six metals (barium, iron, magnesium, manganese, sodium, and zinc) exceeded the NYSDEC SGVs at dissolved concentrations in the groundwater sample collected from MW2.

April 2004 Supplemental Subsurface (Phase II) Investigation Report- Greenpoint Lumber Yard, Brooklyn, New York, prepared by AKRF, Inc.

This investigation was also performed across the Greenpoint Landing development property and included the completion of four soil borings (B8, B9, B10, and B11) and collection of eight soil samples within Parcel C. Soil samples were analyzed for VOCs, SVOCs, PCBs, pesticides, and metals. Soil samples were not analyzed for herbicides.

Non-native historical fill was identified in all four borings and was composed of varying amounts of sand, silt, gravel, and clay with brick, coal, concrete, metal, slag, and wood. Non-native historical fill was observed directly below the asphalt cap to depths ranging from 6.5 to 15 feet bgs. Non-native historical fill was underlain by native soil composed of varying amounts of sand and silt. A petroleum-like odor was observed at about 6 feet bgs in boring B10 and about 2 feet bgs in boring B11.

No VOCs were detected above the UU or RRU SCOs. Sixteen SVOCs (acenaphthene, anthracene, benzo(a)anthracene, benzo(a)pyrene, benzo(b)fluoranthene, benzo(g,h,i)perylene, benzo(k)fluoranthene, chrysene, dibenzo(a,h)anthracene, dibenzofuran, fluoranthene, fluorene, ideno(1,2,3-c,d)pyrene, naphthalene, phenanthrene, and/or pyrene) exceeded the UU and/or RRU in soil samples collected from the four borings. Total SVOCs were detected at a maximum concentration of 4,691.36 mg/kg in a sample collected from the 5- to 7-foot interval in boring B10. Total PCBs exceeded the UU SCOs in soil samples collected from B9, B10, and B11. Three pesticides (4,4'-DDD, 4,4'-DDE, and/or 4,4'-DDT) exceeded the UU SCOs in soil samples collected from the four borings. Eight metals (arsenic, barium, cadmium, copper, lead, mercury, nickel, and zinc) exceeded the UU and/or RRU SCOs in soil samples collected from the four borings.

3.4 Summary of Areas of Concern

The following site-wide AOCs required further investigation and were developed based on site observations, the site development history, and the findings of the previous environmental reports. The pre-RI AOCs that were investigated include the following:

AOC 1: Historical Site Use

Coal, lumber, and masonry materials storage were the primary uses of the site for more than 100 years from the late 1800s until circa 2000. In 1916, the southeastern part of the site was occupied by a manufacturing and packing facility. The Newton Creek Corporation occupied part of the site in 1922, and Newtown Creek Coal and Coke Co. Inc. occupied part of the site in 1928. Parts of the site appeared to have been vacant between 1916 through the 1940s. The site was again used for lumber storage from the early 1950s to circa 2000. The site has been used by various commercial and industrial tenants since the early 2000s, including Bay Crane and other tenants using the property for parking and storage of construction materials and equipment. Releases from these historical operations might have affected soil, groundwater, and/or soil vapor quality.

AOC 2: Historical Use of Adjoining Properties

Historical uses of adjacent properties include, but are not limited to, lumber storage, storage of construction materials, heavy construction equipment, and machinery, a veneer factory, a machine shop, soap works, laundry and linen supply, garages, wood working, a shipping company, dye/wood extracting operations, and residential buildings. Releases from these historical operations might have migrated to and affected groundwater and/or soil vapor quality.

AOC 3: Non-native Historical Fill

Historical maps from the mid to late 1800s show the original shoreline of the East River crossed the site in a northeast-southwest orientation originating from a point near the present-day intersection of Eagle Street and West Street and extending out a point near the westernmost boundary of the site. This finding indicates about half or two-thirds of the site lies entirely on

reclaimed land, a result of historical filling activities. As documented by previous reports, non-native historical fill at the site contains SVOCs, metals, and pesticides.

4.0 FIELD INVESTIGATION

The RI was implemented from July 25 to August 5, 2022 to investigate and characterize the nature and extent of environmental impacts at the site and provide sufficient information to evaluate remedial alternatives and actual and potential threats to human health and the environment. SRI No. 1 was implemented from January 12-14, 2025 to collect additional groundwater samples for analysis of the full suite of PFAS parameters outlined in the April 2023 guidance for Sampling, Analysis, and Assessment of PFAS under NYSDEC's Part 375 Remedial Programs. SRI No. 2 was implemented from March 18-19, 2026 to collect additional soil vapor samples to delineate the extents of carbon tetrachloride in soil vapor south of Post-RI AOC 2 in the southwestern part of the site and to determine if carbon tetrachloride-impacted soil vapor is migrating off-site. The RI, SRI No. 1, and SRI No. 2 were conducted in accordance with Title 6 of the New York Codes, Rules, and Regulations (NYCRR) Part 375 and the NYSDEC DER-10 Technical Guidance for Site Investigation and Remediation (May 2010). A photograph log documenting this investigation is included as Appendix B.

The RI consisted of the following:

- Geophysical survey to identify subsurface anomalies consistent with utilities, substructures, physical obstructions, and underground storage tanks (USTs), and to pre-clear soil boring locations;
- Advancement of 28 soil borings (SB01 through SB28) and collection of 66 soil samples plus quality assurance/quality control (QA/QC) samples;
- Installation of 13 permanent groundwater monitoring wells and collection of 13 groundwater samples plus QA/QC samples;
- Installation of 12 temporary soil vapor points and collection of 12 soil vapor samples plus QA/QC samples; and
- Survey and synoptic groundwater gauging of newly installed monitoring wells to evaluate the elevation and flow of groundwater.

SRI No. 1 included the collection of 12 groundwater samples plus QA/QC samples from 12 existing groundwater monitoring wells.

SRI No. 2 consisted of the following:

- Geophysical and electromagnetic survey to identify subsurface anomalies consistent with utilities, substructures, physical obstructions, and USTs, and to pre-clear sample locations;
- Installation of 12 temporary soil vapor points and collection of 12 soil vapor samples; and
- Implementation of a Community Air Monitoring Plan (CAMP).

A summary of the samples collected for laboratory analysis is provided as Table 1 and sample locations are shown on Figure 7. Each remedial investigation component is further described in the following sections.

During the NYSDEC review of the BCP application, a petroleum spill was reported on October 15, 2025 based on the field observations recorded in several soil borings during the 2022 RI. The Department assigned Spill No. 25-06379 to the case.

4.1 Geophysical Investigation and Utility Location

NOVA Geophysical Engineering (NOVA) of Douglaston, New York conducted geophysical surveys during the July 2022 RI and the March 2026 SRI No. 2, prior to intrusive field activities. The surveys used ground-penetrating radar to identify potential USTs and locate buried utilities and subsurface structures in the work zone and clear all borings/sampling locations. Borings/sampling locations were relocated as necessary to avoid subsurface utilities and other identified anomalies during both remedial investigations. Copies of the geophysical survey reports are included as Appendix C.

4.2 Soil Investigation

4.2.1 Soil Boring Investigation

A total of 28 soil borings (SB01 through SB28) were advanced by Lakewood Environmental Services, Corp. between July 25 and August 3, 2022. Boring locations were selected to provide sufficient site coverage and to evaluate the AOCs listed in Section 3.4. A Geoprobe® 6610 drill rig was used to advance borings from surface grade to between about 15 to 25 feet bgs.

Soil was collected continuously from surface grade to the final depth of each soil boring into 5-foot-long acetate liners using a 2.25-inch diameter open-point or a closed-point MacroCore® sampler. Recovered soil was screened for visual, olfactory, and instrumental evidence of environmental impacts and was visually classified for soil type, grain size, color, texture, and moisture content. Instrument screening for the presence of VOCs was performed with a photoionization detector (PID) equipped with a 10.6 electron volt lamp. Soil boring logs are included as Appendix D.

4.2.2 Soil Sampling and Analysis

Sixty-six soil samples (plus QA/QC samples) were collected from the soil borings for laboratory analysis. Soil samples were collected as follows:

- One to two representative non-native historical fill samples were collected above the groundwater table in every boring.
- In borings SB01, SB08, SB16, SB20, SB22, and SB28, one soil sample was collected from native soil.

- One sample was collected from the intervals exhibiting petroleum-like contamination where observed (based on the presence of staining, odor, and/or PID readings above background) in borings SB03, SB10, SB17, SB18, and SB19.
- In borings SB03, SB10, SB17, SB18, and SB19, one sample was collected from the first interval below the where the impacts were observed where evidence of staining, odor, and/or PID readings were absent.
- One sample was collected midway within the non-native historical fill layer from SB18.

Grab samples submitted for VOC analysis were collected directly from the acetate sleeves via laboratory-supplied Terra Core® soil sample kits. The remaining sample volume was homogenized and placed into laboratory-supplied glassware. The sample containers were labeled, placed in a laboratory-supplied cooler, and packed with ice (to maintain a temperature of 4 ±2°C). The samples were relinquished, under standard chain-of-custody protocol, to a courier for delivery to Alpha Analytical Laboratories, Inc. (Alpha), a New York State Department of Health (NYSDOH) Environmental Laboratory Approval Program (ELAP)-certified laboratory in Westborough, Massachusetts (ELAP No. 11148), under chain of custody. Soil samples were analyzed using one or more of the following United States Environmental Protection Agency (USEPA) methods for NYSDEC Part 375 list and USEPA Target Compound List (TCL)/Target Analyte List (TAL) parameters:

- VOCs by USEPA methods 8260C
- SVOCs by USEPA method 8270D
- Pesticides by USEPA method 8081B
- Herbicides by USEPA method 8151A
- PCBs by USEPA method 8082A
- Metals by USEPA methods 6010D/7471B
- Toxicity Characteristic Leaching Procedure (TCLP) Metals by USEPA method 1311
- Hexavalent/trivalent chromium by USEPA method 7196A
- Total cyanide by USEPA method 9010C
- NYSDEC PFAS (21-compound list) by USEPA method 537[3]
- 1,4-Dioxane by USEPA method 8270 with SIM isotope dilution

A soil sample collection summary is included in Table 1.

[3] The investigation was completed using the NYSDEC's June 2022 Guidelines for Sampling and Analysis of PFAS as this was the established guidance at the time of the remedial investigation.

4.3 Groundwater Investigation

Groundwater monitoring wells were installed and sampled to characterize groundwater conditions and to investigate potential impacts to groundwater associated with the identified AOCs.

4.3.1 Monitoring Well Installation and Development

Thirteen soil borings were converted into permanent groundwater monitoring wells (SB01 through SB13 were converted to MW01 through MW13, respectively). The soil borings were over-drilled with 3.25-inch outer diameter direct push rods with an expendable 3.75-inch closed drive shoe. The monitoring wells were installed with 1-inch-diameter, threaded, flush-joint, polyvinyl chloride (PVC) casing and 0.01-inch-slot well screens set to straddle the groundwater table. The screens were set from 7 to 17 feet bgs or from 3 to 13 feet bgs; solid PVC risers were installed above the screens to extend each well to grade. The annulus of the borehole around the well screen (about 1.25 inches) was filled with No. 1 sand to about 2 feet above the top of the screen. Hydrated bentonite well seals (at least six inches thick) were installed above the filter sand. The remaining annulus above the bentonite seal was filled with No. 1 sand and the wells were finished with flush-mount access covers with a cement pad at the surface. Monitoring well construction logs are included in Appendix E.

Following installation, each well was developed by surging using a surge block and purging at least 3 well volumes with a peristaltic pump.

4.3.2 Groundwater Sampling and Analysis

During the RI, groundwater samples were collected from each newly installed well in accordance with NYSDEC DER-10, USEPA's Low Flow Purging and Sampling Procedures for the Collection of Groundwater Samples from Monitoring Wells (EQASOP-GW4 Revised Sep. 2017) and NYSDEC's June 2022 Guidelines for Sampling and Analysis of PFAS (the established PFAS sampling guidance at the time of the investigation). The groundwater samples from the RI were analyzed for twenty-one PFAS compounds. During SRI No. 1, groundwater samples were collected from twelve groundwater monitoring wells[4] in accordance with the NYSDEC's April 2023 guidance for Sampling, Analysis, and Assessment of PFAS under NYSDEC's Part 375 Remedial Programs. The groundwater samples from SRI No. 1 were analyzed for forty PFAS compounds.

Before RI and SRI No. 1 groundwater samples were collected, wells were continuously purged until groundwater quality parameters (pH, conductivity, turbidity, dissolved oxygen, temperature, and oxidation-reduction potential) stabilized, to the extent practical, in accordance with the USEPA low-flow guidance. A multi-parameter water-quality system was used to monitor the

[4] Monitoring well MW07 could not be located.

groundwater-quality parameters during sampling. Samples were collected with a peristaltic pump and dedicated polyethylene tubing.

During the RI, thirteen groundwater samples plus QA/QC samples were collected (one from each of the thirteen newly installed wells [MW01 through MW13]). Samples were collected into laboratory-supplied glassware and delivered via courier service to Alpha for analysis by one or more of the following USEPA methods for NYSDEC Part 375 list and USEPA TCL/TAL:

- VOCs by USEPA Method 8260C
- SVOCs (unfiltered and field-filtered) by USEPA Method 8270D/8270D SIM
- Pesticides by USEPA Method 8081B
- Herbicides by USEPA Method 8151A
- PCBs by USEPA Method 8082A
- Metals (unfiltered and field-filtered) by USEPA Method 6010D/6020B/7470A
- Hexavalent/Trivalent Chromium by USEPA Method 7196A
- Total cyanide by SM 4500
- 1,4-Dioxane by USEPA Method 8270D SIM
- PFAS by USEPA Method 537[5]

During SRI No. 1, twelve groundwater samples (one from each permanent monitoring well installed during the RI) plus QA/QC samples were collected for laboratory analysis. Monitoring well MW07 could not be located to sample during SRI No. 1. Samples were collected into laboratory-supplied glassware and delivered via courier service to York analytical laboratories for analysis of PFAS by USEPA Method 1633.

A groundwater sample collection summary is included in Table 1. Groundwater elevations are presented in Table 2 and a groundwater elevation contour and flow direction map is presented as Figure 5. Groundwater sampling logs are included in Appendix E.

4.4 Soil Vapor Investigation

4.4.1 Soil Vapor Point Installation

Twelve temporary soil vapor points (SV01 through SV09, SV14, SV15, and SV16) were installed with a Geoprobe® 6610 drilling rig to about 5 feet bgs during the 2022 RI. Twelve additional temporary soil vapor points (SV17, SV18, SV19A, and SV19B through SV27) were installed with a Geoprobe® 7822 drilling rig to about 5 feet bgs during the 2026 SRI No. 2. The soil vapor points were constructed with a dedicated 1-7/8-inch polyethylene implant threaded into polyethylene

[5] The investigation was completed using the NYSDEC's June 2022 Guidelines for Sampling and Analysis of PFAS as this was the established guidance at the time of the investigation.

tubing that extended to surface grade. A clean sand filter pack was placed around the screen implant and the remaining annular space was sealed with hydrated bentonite.

4.4.2 Soil Vapor Sampling and Analysis

Twelve soil vapor samples were collected between July 29 and August 3, 2022 during the RI, and 12 soil vapor samples were collected on March 19, 2026 during SRI No. 2 (one from each of the 24 total installed soil vapor points) in general accordance with the NYSDOH's Final Guidance for Evaluating Soil Vapor Intrusion in the State of New York (October 2006 and subsequent updates). The vapor samples are summarized in Table 1. Before collecting vapor samples, three soil vapor point volumes were purged from each sample location at a rate of less than 0.2 liters per minute using a RAE Systems MultiRAE® meter set at a low flow setting. The purged soil vapor was monitored for VOCs with the MultiRAE® during purging.

A helium tracer gas was used in accordance with the NYSDOH guidance to serve as a QA/QC technique to document the integrity of each soil vapor point seal before and after sampling. The tracer gas was introduced into a container, which shrouded the soil vapor point and seal. Helium was measured from the sampling tube and inside the container. Direct readings of less than 10% helium in the sampling tube were considered sufficient to verify a tight seal at each sample point.

One ambient air sample (designated AA01_080222) was collected concurrently with the soil vapor samples during the 2022 RI. Soil vapor and ambient air samples were collected using laboratory-provided, batch-certified clean, 6-liter air canisters equipped with 2-hour sample interval flow controllers. Soil vapor and ambient air samples were sealed, labeled, and transported via courier service to Alpha to be analyzed for VOCs by USEPA Method TO-15.

A soil vapor sample collection summary is included in Table 1. Soil vapor point construction and sampling logs are included as Appendix F.

4.5 Quality Assurance/Quality Control Sampling

Trip blanks, field blanks, field duplicate samples, and matrix spike/matrix spike duplicate (MS/MSD) samples were collected and submitted for laboratory analysis for QA/QC purposes. A QA/QC sample collection summary is included in Table 1. Matrix-specific QA/QC samples that were collected for the remedial investigations are summarized below:

Soil QA/QC Samples

- Three field duplicate samples;
- Three MS/MSD samples;
- Three field blank samples;
- Two field blank samples for PFAS; and

- Eight trip blanks.

RI Groundwater QA/QC Samples

- One field duplicate sample;
- One MS/MSD sample;
- One field blank sample;
- Four field blank samples for PFAS; and
- Five trip blanks.

RI Soil Vapor QA/QC Samples

- One ambient air sample

SRI No. 1 Groundwater QA/QC Samples

- One field duplicate sample;
- One MS/MSD sample; and
- Three field blank samples for PFAS

Field duplicate samples were collected to assess the precision of the analytical methods relative to the sample matrix. The duplicates were collected from the same material as the primary sample (i.e., parent sample) by splitting the volume of homogenized sample collected in the field into two sample containers.

MS/MSD samples were collected to assess the effect of the sample matrix on the recovery of target compounds or target analytes. Similarly to duplicate samples, MS/MSD samples were collected from the same material as the primary sample by splitting the volume of homogenized sample collected in the field into three sample containers.

Field blanks were collected to determine whether samples were affected by ambient contamination in the field during sampling. Field blank samples consisted of deionized, distilled water provided by the laboratory. Field blank samples were analyzed for the same list of analytes as the corresponding sampling event and sample matrix.

PFAS field blanks were collected to assess the potential for contamination of the sample containers and samples with PFAS during sample collection. Field blank samples consisted of PFAS-free, deionized, distilled water provided by the laboratory. PFAS field blank samples were analyzed for PFAS by USEPA Method 537.

Trip blank samples were collected to assess the potential for contamination of the sample containers and samples during transport from the laboratory to the field, and back to the laboratory for analysis. Trip blanks contain about 40 milliliters of acidic water (doped with hydrochloric acid) that is prepared and sealed by the laboratory when the empty sample

containers are shipped to the field, and then unsealed and analyzed for VOCs by the laboratory when the sample shipment is received from the field.

4.6 Data Validation

Analytical data was validated by a Langan validator in accordance with USEPA and NYSDEC validation protocols. Copies of the data usability summary reports (DUSR) are provided as Appendix H.

4.6.1 Data Usability Summary Report Preparation

A DUSR was prepared for each sampling matrix. The DUSR presents the results of data validation, including a summary assessment of laboratory data packages, sample preservation and chain of custody procedures, and a summary assessment of precision, accuracy, representativeness, comparability, and completeness for each analytical method.

For the soil and groundwater samples, the following items were assessed:

- Hold times
- Sample preservation
- Sample extraction and digestion
- Laboratory blanks
- Laboratory control samples
- System monitoring compounds
- MS/MSD recoveries
- Field duplicate, trip blank, and field blank sample results

For the soil vapor samples, the following items were assessed:

- Holding times
- Canister certification
- Laboratory blanks
- Laboratory control samples
- System monitoring compounds
- Target compound identification and qualification

Based on the results of data validation, the following qualifiers may be assigned to the data in accordance with the USEPA's guidelines and best professional judgment:

- "U" – The analyte was analyzed for but was not detected at a level greater than or equal to the reporting limit (RL) or the sample concentration or the sample concentration for results impacted by blank contamination.
- "UJ" – The analyte was not detected at a level greater than or equal to the RL; however, the reported RL is approximate and may be inaccurate or imprecise.
- "J" – The analyte was positively identified and the associated numerical value is the approximate concentration of the analyte in the sample.
- "R" – The sample results are not useable due to quality of the data generated because certain criteria were not met. The analyte may and may not be present in the sample.
- "B" – Analyte was found in the associated analysis batch blank.
- "D" – Result is from an analysis that required dilution.

Data was judged to be 100% valid, as qualified. After data validation activities were complete, validated data was used to prepare the tables and figures included in this report.

4.7 Air Monitoring

Community air monitoring was implemented during soil-intrusive work on March 19, 2026 in accordance with the NYSDEC-approved SRIWP No. 2 and the NYSDOH Generic Community Air Monitoring Program (CAMP). Continuous dust and VOC monitoring was conducted using one upwind and one downwind monitoring station at the site perimeter. Dust emissions were monitored using real-time monitoring equipment capable of measuring particulate matter less than 10 micrometers in size (PM-10). Organic vapors were monitored with a photoionization detector (PID). PIDs used were equipped with a 10.6 eV bulb. Odors were periodically monitored by site personnel at and beyond the site perimeter. Dust and odor suppression measures (e.g., water misting, odor suppressant) were implemented as needed.

Action levels used to monitor community and visitor exposure were set forth in the CAMP included in the Health and Safety Plan (HASP) (Attachment 1 in the SRIWP No. 2) and are summarized as:

- Particulate Action Level: 100 micrograms per cubic meter (µg/m^3) of air above background for a 15-minute average.
- VOC Action Level: 25 parts per million (ppm) for instantaneous readings above background or 5 ppm above background for a 15-minute average.

Aerosol monitors and PIDs recorded measurements on a continuous basis during intrusive activities. Fifteen-minute running averages were calculated from the recorded data, and averages

were compared to the action levels specified above. Action levels established in the HASP were not exceeded during SRI No. 2. Community air monitoring summary data is included as Appendix G.

4.8 Field Equipment Decontamination

Handheld sampling equipment, including oil/water interface probes and water quality meters were decontaminated using an Alconox®-based solution and triple rinsed with distilled water. Down-hole drilling equipment was decontaminated between each boring by rinsing with an Alconox®-based solution. Decontamination wastewater was placed into 55-gallon drums for off-site disposal.

4.9 Investigation-Derived Waste Management

Investigation derived waste generated during the RI included excess soil cuttings and purged groundwater. Soil cuttings were containerized in one labeled United Nations (UN)/ Department of Transportation (DOT)-approved 55-gallon steel drum. Purged groundwater and decontamination water were containerized in two labeled UN/DOT-approved 55-gallon steel drums. On September 8, 2022, the drums were transported by AARCO Environmental Services Corp. (AARCO), a licensed waste hauler, to the Dale Transfer Corp facility located in West Babylon, NY.

On February 2, 2026, purged groundwater and decontamination water generated during SRI No. 1 , containerized in one labeled UN/DOT-approved 55-gallon steel drum, and was transported by AARCO to the Dale Transfer Corp facility located in West Babylon, NY. Investigation derived waste was not generated during SRI No. 2.

5.0 FIELD OBSERVATIONS AND ANALYTICAL RESULTS

5.1 Geophysical Investigation Findings

NOVA identified anomalies suspected to be subsurface utilities. No anomalies consistent with USTs were identified during the geophysical investigations. Copies of the July 2022 and the March 2026 geophysical reports are included as Appendix C.

5.2 Geology and Hydrogeology

A summary of the geological and hydrogeologic observations made during the RI is provided below. A groundwater elevation contour map is included as Figure 5, subsurface profiles are included as figures 8A and 8B, and soil boring logs are provided as Appendix D.

5.2.1 Non-native Historical Fill

The site is underlain by a layer of non-native historical fill ranging from surface grade to between about 7 (SB20) and 19 feet bgs (SB01 and SB03). The layer is predominately characterized as tannish brown to black fine-grained sand with varying amounts of gravel, silt, clay, brick, asphalt, concrete, glass, coal, coal ash, slag, wood, mortar, ceramics, organics, and shell fragments.

5.2.2 Native Soil Layers

The non-native historical fill layer is underlain by tannish brown to dark-gray sand with varying amounts of silt, clay, gravel, mica, and shells.

5.2.3 Bedrock

The USGS "Bedrock and Engineering Geologic Maps of New York County and Parts Kings and Queens Counties, New York, and Parts of Bergen and Hudson Counties, New Jersey" indicates that the bedrock consists of Ravenswood Garnodiorite and parts of the Hartland Formation overlain by glacial and fluvial soil deposits. Bedrock was not encountered during this RI or during previous environmental site investigations; however, bedrock was encountered during a geotechnical investigation at between about 55 to 108 feet below existing grade.

5.2.4 Hydrogeology

Groundwater was observed between 5.64 and 9.50 feet bgs and groundwater elevations ranged from el. 0.20 to 2.92 NAVD88 based on synoptic groundwater level measurements collected during the RI. During SRI No. 1, groundwater was observed at depths ranging from 7.75 to 9.90 feet bgs and groundwater elevations ranged from about el. -0.33 to 2.28. Groundwater flows to

the west towards the East River. Groundwater elevations are shown in Table 2. A map showing groundwater elevation contours from the RI and flow direction is provided as Figure 5.

5.3 Soil Findings

5.3.1 Field Observations

Petroleum-like impacts, evidenced by odors, staining, and/or PID readings above background levels, were observed in the borings summarized in the table below.

Boring	Field Observation	Depth of Observed Impacts (ft bgs)	Highest Recorded PID Reading (parts per million [ppm])
SB03	Petroleum-like odor	14 to 16	84.9 ppm at 14.5 ft bgs
SB10	Petroleum-like odor and staining	13 to 14	0.0 ppm at 14 ft bgs
SB17	Petroleum-like odor and staining	18 to 20	0.0 ppm at 19 ft bgs
SB18	Staining	13 to 15	0.0 ppm at 14 ft bgs
SB19	Petroleum-like odor and staining	13 to 15	0.0 ppm at 14 ft bgs

Petroleum- or chemical-like impacts were not observed in the other RI borings. No non-aqueous phase liquid (NAPL) observed in soil recovered from any completed soil boring. There were only isolated occurrences of petroleum-like odors and stained soil. No source of petroleum was identified. No free-phase petroleum liquid were noted in the soil boring logs. Petroleum-related field observations are likely attributed to non-native historical fill quality based on the depths at which the impacts were observed in the borings. The field observations could also be related to historical (i.e., pre-2005) industrial land uses. There is also no documented history of petroleum bulk storage or discharges of petroleum at the site. Petroleum-related VOCs were not detected above UU SCOs in samples collected from these depth intervals.

A petroleum spill (Spill No. 25-06379) was reported on October 15, 2025 on account of these field observations and analytical data during the Department's review of the BCP application.

5.3.2 Analytical Results

A summary of laboratory detections for RI soil samples, with comparisons to NYSDEC Part 375 UU, Protection of Groundwater (PGW), and RURR SCOs, and the USEPA Maximum Concentration of Contaminants for the Toxicity Characteristic is provided as Tables 3A and 3B. Soil sample results that exceed UU, PGW, and/or RURR SCOs for samples collected during the RI are shown on Figures 9A and 9B. The PGW SCOs are applicable for analytes that were detected and exceeded groundwater regulatory standards in groundwater samples. Laboratory analytical data reports are included as Appendix I.

The following sections present summaries of RI soil sample results that exceeded UU, PGW, and/or RURR SCOs and are organized by analytical parameter.

VOCs

One or more of five VOCs were detected in 17 soil samples collected from surface grade to depths of up to 20 feet bgs at concentrations above the UU and PGW SCOs. VOCs were not detected in soil above the RURR SCOs. The results are summarized in the following table (the number of detections above criteria follow each VOC in parentheses, and the detected concentrations that exceed PGW SCOs are underlined):

Analyte	UU SCOs (mg/kg)	PGW SCOs (mg/kg)	RURR SCOs (mg/kg)	Minimum Detected Concentration above SCOs (mg/kg)		Maximum Detected Concentration above SCOs (mg/kg)	
Acetone* (15)	0.03	0.03	100	0.032	SB02_0-2 SB03_16-18	0.22	SB10_13-15
Benzene (2)	0.06	0.06	3.7	0.21	SB22_0-2	2.9	SB04_0-2
Naphthalene (1)	12	12	100	39	SB14_6-8	39	SB14_6-8
Toluene (1)	0.7	0.7	100	5.1	SB04_0-2	5.1	SB04_0-2
Total Xylenes (2)	0.26	1.2	100	1	SB22_0-2	5.7	SB04_0-2

*Acetone was not present in laboratory batch blanks, but is a common laboratory contaminant and therefore, its presence in soil results is not likely representative of site conditions.

SVOCs

One or more of 19 SVOCs were detected in 40 soil samples collected from surface grade to depths of up to 15 feet bgs at concentrations above the UU, PGW, and/or RURR SCOs as summarized in the following table (the number of detections above criteria follow each SVOC in parentheses, the detected concentrations that exceed RURR SCOs are bolded, and detected concentrations that exceed PGW SCOs are underlined):

Analyte	UU SCOs (mg/kg)	PGW SCOs (mg/kg)	RURR SCOs (mg/kg)	Minimum Detected Concentration above SCOs (mg/kg)		Maximum Detected Concentration above SCOs (mg/kg)	
2-Methylphenol (o-Cresol) (3)	0.33	0.33	100	0.48	SB12_0-2	1.7	SB14_6-8
3 & 4 Methylphenol (m&p Cresol) (4)	0.33	0.33	100	0.77	SB12_5-7	4.7	SB14_6-8
Acenaphthene (3)	20	98	100	38	SB14_6-8	58	SB19_13-15
Anthracene (1)	100	1,000	100	**150**	SB12_0-2	**150**	SB12_0-2
Benzo(a)anthracene (28)	1	1	1.4	1.1	SB18_0-2	**230**	SB12_0-2
Benzo(a)pyrene (27)	1	22	1	**1.3**	SB06_4-6 SB10_3-5 SB25_4-6	**230**	SB12_0-2
Benzo(b)fluoranthene (31)	1	2.1	1.4	1.1	SODUP02_072922	**250**	SB12_0-2
Benzo(g,h,i)Perylene (29)	0.64	1,000	4.9	0.65	SB02_0-2	**100**	SB12_0-2
Benzo(k)fluoranthene (18)	0.8	2	4.9	1.1	SB04_0-2	**32**	SB12_0-2
Chrysene (30)	1	1	4.9	1.2	SB02_0-2 SB07_0-2 SODUP02_072922 SB18_0-2	**190**	SB12_0-2
Dibenz(a,h)anthracene (19)	0.33	1,000	0.33	**0.38**	SB24_0-2	**31**	SB12_0-2
Dibenzofuran (9)	2.1	110	18	**2.2**	SB07_7-9	**48**	SB12_0-2
Fluoranthene (3)	85	1,000	100	**160**	SB19_13-15	**480**	SB12_0-2
Fluorene (3)	30	386	100	37	SB14_6-8	76	SB12_0-2
Indeno(1,2,3-cd)pyrene (34)	0.5	6.6	1.4	0.51	SB17_0-2	**130**	SB12_0-2
Naphthalene (3)	12	12	100	29	SB12_0-2	72	SB14_6-8
Phenanthrene (38)	1.1	1,000	4.9	1.2	SB02_0-2 SB05_0-2 SB11_6-8	**470**	SB12_0-2
Phenol (4)	0.33	0.33	100	0.5	SB12_5-7	2.4	SB14_6-8
Pyrene (3)	64	1,000	100	**140**	SB19_13-15	**400**	SB12_0-2

Pesticides

Three pesticides were detected at concentrations above the UU SCOs in 31 soil samples collected from surface grade to depths of up to 8 feet bgs, as summarized in the following table (the number of detections above criteria follow each pesticide in parentheses). Pesticides were not detected above PGW or RURR SCOs.

Analyte	UU SCOs (mg/kg)	PGW SCOs (mg/kg)	RURR SCOs (mg/kg)	Minimum Detected Concentration above SCOs (mg/kg)		Maximum Detected Concentration above SCOs (mg/kg)	
4,4'-DDD (29)	0.0033	14	5	0.00408	SB25_4-6	0.492	SB04_0-2
4,4'-DDE (24)	0.0033	9.3	3.4	0.00336	SB20_0-2	0.261	SB04_0-2
4,4'-DDT (20)	0.0033	135	3.8	0.00571	SB13_0-2	0.188	SB04_0-2 SB08_0-2

Herbicides

Herbicides were not detected in soil above regulatory criteria.

PCBs

Total PCB concentrations in 16 soil samples collected from surface grade to depths of up to 7 feet bgs were above the UU, PGW, and/or RURR SCOs as summarized in the following table (the number of detections above criteria follow the analyte in parentheses, the detected concentrations that exceed RURR SCOs are bolded and detected concentrations that exceed PGW SCOs are underlined):

Analyte	UU SCOs (mg/kg)	PGW SCOs (mg/kg)	RURR SCOs (mg/kg)	Minimum Detected Concentration above SCOs (mg/kg)		Maximum Detected Concentration above SCOs (mg/kg)	
Total PCBs (16)	0.1	3.2	1	0.114	SB15_0-2	**3.25**	SODUP03_080122

Metals

One or more of 11 metals were detected in 55 soil samples collected from surface grade to depths of up to 21 feet bgs at concentrations above the UU, PGW, and/or RURR SCOs as summarized in the following table (the number of detections above criteria follow each metal in

parentheses, the detected concentrations that exceed PGW SCOs are underlined, and the detected concentrations that exceed RURR SCOs are bolded):

Analyte	UU SCOs (mg/kg)	PGW SCOs (mg/kg)	RURR SCOs (mg/kg)	Minimum Detected Concentration above SCOs (mg/kg)		Maximum Detected Concentration above SCOs (mg/kg)	
Arsenic (31)	13	16	16	13.1	SB14_0-2	**180**	SB10_0-2
Barium (1)	410	820	410	**552**	SB06_0-2	**552**	SB06_0-2
Cadmium (19)	2.5	7.5	2.5	**2.51**	SB14_6-8	**54.9**	SB27_0-2
Chromium, Trivalent (21)	30	19	110	20	SB05_5-7 SB09_3-5 SB11_6-8 SB16_12-14 SB18_8-10	73	SB25_0-2
Copper (46)	50	1,720	280	50.2	SB13_2-4	**346**	SB14_6-8
Cyanide (1)	2.3	40	13	2.5	SB05_5-7	2.5	SB05_5-7
Lead (49)	63	450	400	64.7	SB12_5-7	**1,310**	SB06_0-2
Mercury (43)	0.18	0.73	0.3	0.192	SB03_0-2	**1.61**	SB01_0-2
Nickel (10)	30	130	320	30.3	SB25_0-2	200	SB10_0-2
Selenium (2)	3.9	4	110	5.88	SB15_6-8	6.28	SB13_0-2
Zinc (39)	109	2,480	6,600	120	SB16_0-2	**19,200**	SB09_3-5

TCLP Metals

TCLP lead was detected in one soil sample (SB05_0-2) above the maximum concentration for the toxicity characteristic. The sample was collected from the non-native historical fill.

PFAS

PFAS were not detected in soil at concentrations exceeding the UU, PGW, and/or RURR SCOs.

1,4-Dioxane

1,4-Dioxane was not detected in soil at concentrations exceeding the UU, PGW, and/or RURR SCOs.

5.4 Groundwater Findings

5.4.1 Field Observations

Prior to sampling, monitoring well headspaces were measured with a PID. During the RI, monitoring well headspace PID measurements ranged from 0.0 to 0.3 ppm (highest reading in MW09 and MW12) during sampling. A sulfur-like odor was noted while sampling MW01 and a petroleum-like odor and a faint sheen were observed while sampling MW03. A sheen was also observed in MW06. Turbidity values in all 13 RI wells prior to sample collection ranged from 0 to 298 Nephelometric Turbidity Units (NTU). No free phase petroleum was observed in groundwater monitoring wells during the RI.

During SRI No. 1, no detectable monitoring well headspace PID readings were observed during sampling. A sulfur-like odor was noted while sampling MW02 and MW04. Turbidity values in all 12 SRI No. 1 wells prior to sample collection ranged from 2 to 831 NTU. No free phase petroleum was observed in groundwater monitoring wells during SRI No.1.

5.4.2 Analytical Results

A summary of laboratory detections for RI and SRI No. 1 groundwater samples, with comparisons to NYSDEC SGVs, is presented in Table 4. Groundwater sample results that exceeded NYSDEC SGVs for RI and SRI No. 1 samples are shown on Figure 10. Groundwater sampling logs are included in Appendix E and laboratory analytical data reports are included as Appendix I.

The following sections present summaries of RI groundwater sample results that exceeded NYSDEC SGVs and are organized by analytical parameter.

VOCs

VOCs were not detected in groundwater at concentrations exceeding the NYSDEC SGVs.

Total SVOCs

One or more of 6 total SVOCs were detected in 8 groundwater samples at concentrations above the NYSDEC SGVs as summarized in the following table (number of detections above criteria follow each total SVOC in parentheses):

Analyte	NYSDEC SGVs (micrograms per liter [µg/L])	Minimum Detected Concentration above NYSDEC SGVs (µg/L)		Maximum Detected Concentration above NYSDEC SGVs (µg/L)	
Benzo(a)anthracene (3)	0.002	0.03	MW12_080122	1.4	MW05_080222
Benzo(a)pyrene (5)	0	0.02	MW01_080522	1.2	MW05_080222
Benzo(b)fluoranthene (3)	0.002	0.02	MW03_080222	2	MW05_080222
Benzo(k)fluoranthene (6)	0.002	0.01	MW01_080522 MW07_080422	0.67	MW05_080222
Chrysene (7)	0.002	0.02	MW01_080522 MW03_080222 MW07_080422	1.4	MW05_080222
Indeno(1,2,3-cd)pyrene (6)	0.002	0.01	MW07_080422	1.3	MW05_080222

Dissolved SVOCs

One or more of 5 dissolved-phase SVOCs were detected in 13 groundwater samples at concentrations above the NYSDEC SGVs as summarized in the following table (number of detections above criteria follow each dissolved-phase SVOC in parentheses):

Analyte	NYSDEC SGVs (µg/L)	Minimum Detected Concentration Above NYSDEC SGVs (µg/L)		Maximum Detected Concentration above NYSDEC SGVs (µg/L)	
Benzo(b)fluoranthene (1)	0.002	0.02	MW05_080222_FILTERED	0.02	MW05_080222_FILTERED
Benzo(k)fluoranthene (2)	0.002	0.01	MW08_080422_FILTERED MW10_080522_FILTERED	0.01	MW08_080422_FILTERED MW10_080522_FILTERED
Chrysene (1)	0.002	0.02	MW05_080222_FILTERED	0.02	MW05_080222_FILTERED
Indeno(1,2,3-cd)pyrene (1)	0.002	0.01	MW10_080522_FILTERED	0.01	MW10_080522_FILTERED
Phenol (13)	1	1.2	MW06_080322_FILTERED	46	MW04_080422_FILTERED

Total Metals

One or more of 5 total metals were detected in all groundwater samples at concentrations above the NYSDEC SGVs as summarized in the following table (number of detections above criteria follow each total metal in parentheses):

Analyte	NYSDEC SGVs (µg/L)	Minimum Detected Concentration above NYSDEC SGVs (µg/L)		Maximum Detected Concentration above NYSDEC SGVs (µg/L)	
Iron (13)	300	1,040	MW13_080322	48,200	MW06_080322
Lead (1)	25	32.89	MW10_080522	32.89	MW10_080522
Magnesium (8)	35,000	58,900	MW12_080122	964,000	MW13_080322
Manganese (11)	300	410.6	MW09_080122	4,344	MW07_080422
Sodium (13)	20,000	42,900	MW06_080322	8,020,000	MW13_080322

Dissolved Metals

One or more of 5 dissolved-phase metals were detected in all groundwater samples at concentrations above the NYSDEC SGVs as summarized in the following table (number of detections above criteria follow each dissolved-phase metal in parentheses):

Analyte	NYSDEC SGVs (µg/L)	Minimum Detected Concentration Above NYSDEC SGVs (µg/L)		Maximum Detected Concentration above NYDSEC SGVs (µg/L)	
Iron (10)	300	4,570	MW01_080522	44,000	MW06_080322
Magnesium (8)	35,000	59,000	MW12_080122	1,010,000	MW13_080322
Manganese (11)	300	393.6	MW09_080122	4,470	MW07_080422
Sodium (13)	20,000	42,100	MW06_080322	8,260,000	MW13_080322
Thallium (1)	0.5	3.2	MW13_080322	3.2	MW13_080322

Pesticides, Herbicides, and PCBs

Pesticides, herbicides, and PCBs were not detected in groundwater at concentrations exceeding the NYSDEC SGVs.

PFAS

PFAS concentrations in groundwater were compared to the NYSDEC SGVs. According to the April 2023 PFAS Guidance, groundwater samples should be compared to the human health criteria of 6.7 ng/L (ppt) for Perfluorooctanoic Acid (PFOA) and 2.7 ng/L (ppt) for Perfluorooctanesulfonic Acid (PFOS).

PFOA and PFOS were detected in groundwater samples above the NYSDEC SGVs in all monitoring wells during the RI, and in ten of the twelve monitoring wells during SRI No.1. Detected concentrations above the NYSDEC SGVs are summarized in the following tables (number of detections above criteria follow each PFAS in parentheses):

Analyte	NYSDEC SGVs (µg/L)	Minimum Detected Concentration above NYSDEC SGVs (µg/L)		Maximum Detected Concentration above NYSDEC SGVs (µg/L)	
RI					
PFOS (11)	0.0027	0.00273	MW03_080222	0.037	MW08_080422
PFOA (11)	0.0067	0.00726	MW12_080122	0.0675	MW06_080322
SRI No. 1					
PFOS (7)	0.0027	0.00286	MW03_011326	0.0207	MW08_011426
PFOA (10)	0.0067	0.00697	MW11_011326	0.0354	MW05_011226

1,4-Dioxane

1,4-Dioxane was not detected in groundwater at concentrations exceeding the NYSDEC SGVs.

5.5 Soil Vapor Findings

5.5.1 Field Observations

VOCs were not detected in post-purge PID measurements during the 2022 RI. Post-purge PID measurements ranged from 0.1 ppm in soil vapor sample SV19A_031926 to 0.9 ppm in SV20_031926 during SRI No. 2.

5.5.2 Analytical Results

Soil vapor sample results are summarized in Table 5 and shown on Figure 11.

Although no standards currently exist for soil vapor samples in New York State, the maximum VOC concentrations in soil vapor for the compounds addressed by the NYSDOH Guidance Decision Matrices for Sub-Slab Vapor and Indoor Air and Subsequent Updates (2017, updated 2024, referred to as the "NYSDOH Decision Matrices"), are presented in the table below:

Analyte	Maximum Detected Concentration (µg/m³)	
VOCS		
1,1,1-Trichloroethane	14.9	SV03_080222
1,1-Dichloroethane	2.02	SV02_080322
1,1-Dichloroethene	1.49	SV03_080222
1,2,4-Trimethylbenzene	24	SV26_031926
1,3,5-Trimethylbenzene (Mesitylene)	27.1	SV02_080322
1,3-Butadiene	16	SV21_031926
1,4-Dioxane (P-Dioxane)	4	SV19_A_031926
2,2,4-Trimethylpentane	57.5	SV25_031926
2-Hexanone (MBK)	20.9	SV15_080322
4-Ethyltoluene	6.4	SV19_A_031926 SV19_B_031926 SV23_031926 SV25_031926 SV26_031926
Acetone	2190	SV16_080322
Benzene	233	SV06_080322
Carbon Disulfide	486	SV01_072922
Carbon Tetrachloride	4230	SV05_080222
Chloroethane	1.7	SV20_031926
Chloroform	3080	SV03_080222
Chloromethane	3.3	SV17_031926 SV26_031926
Cyclohexane	478	SV22_031926
Dichlorodifluoromethane	3.91	SV07_072922
Ethanol	55	SV22_031926
Ethyl Acetate	30	SV23_031926
Ethylbenzene	60.8	SV27_031926
Isopropanol	31.5	SV16_080322
M,P-Xylene	222	SV27_031926
Methyl Ethyl Ketone (2-Butanone)	83.5	SV16_080322
Methyl Isobutyl Ketone (4-Methyl-2-Pentanone)	3.88	SV15_080322
Methylene Chloride	20.5	SV09_080222
n-Heptane	2860	SV01_072922
n-Hexane	2460	SV01_072922
o-Xylene (1,2-Dimethylbenzene)	72.5	SV27_031926
Propylene	806	SV27_031926
Styrene	2	SV19_A_031926
Tert-Butyl Alcohol	96.4	SV16_080322
Tert-Butyl Methyl Ether (MTBE)	12.8	SV07_072922
Tetrachloroethene (PCE)	1110	SV19_B_031926
Tetrahydrofuran	5.99	SV04_072922
Toluene	65.6	SV06_080322
Total Xylenes	294	SV27_031926
Trichloroethene (TCE)	2.5	SV17_031926
Trichlorofluoromethane	3.77	SV14_080222
Vinyl Chloride	1.73	SV04_072922

5.6 QA/QC Sample Results

Duplicate, field blank, emerging contaminant field blank, MS/MSD, and trip blank sample results are detailed in Table 6. Duplicate, field blank, and MS/MSD samples were generally collected at a frequency of about 1 per 20 primary soil and groundwater samples. Trip blank samples were generally collected for soil and groundwater at a frequency of 1 per day of VOC sampling. PFAS field blanks were generally collected at a frequency of 1 per day of emerging contaminant sampling. QA/QC sample results were evaluated as part of data validation.

5.7 Data Usability

New York Analytical Services Protocols Category B laboratory reports for the soil, groundwater, and soil vapor samples collected during the RI and SRIs were provided by Alpha and were reviewed by a Langan data validator. Completeness, defined as the percentage of analytical results that are judged to be valid, is 100% for each sample set. Copies of the DUSRs are provided in Appendix H.

5.8 Evaluation of Areas of Concern

This section discusses the results of the RI and presents new and/or redefined AOCs based on the field observations and the analytical results. Post-RI AOC locations are shown on Figure 12.

5.8.1 RI AOC 1: Historical Site Use and Non-native Historical Fill

During the RI, a non-native historical fill layer was encountered in all borings from site grade to depths ranging from about 7 to 19 feet bgs. Contaminants of concern associated with RI AOC 1 include petroleum-related VOCs, SVOCs, PCBs, and metals. Pesticides were detected at concentrations above the UU SCOs in non-native historical fill; however, the pesticide concentrations may be attributed to non-native historical fill quality and/or routine pesticide application during historical site use. AOC 1 also includes isolated field observations related to Spill No. 25-06379.

Findings Summary

RI AOC 1 is a site-wide AOC. Investigation of AOC 1 included the completion of all soil borings and monitoring wells.

Soil

Non-native historical fill was identified from surface grade to depths between about 7 and 19 feet bgs and is composed of tannish brown to black fine-grained sand with varying amounts of gravel, silt, clay, brick, asphalt, concrete, glass, coal, coal ash, slag, wood, mortar, ceramics, organics, and shell fragments. The non-native historical fill layer contains petroleum-related VOCs, SVOCs, PCBs, pesticides, and metals at concentrations above UU, PGW, and/or RURR SCOs.

Results of the on-site RI soil samples collected from within the non-native historical fill layer are summarized as follows:

- Four petroleum-related VOCs were detected at concentrations above the UU and PGW SCOs in six soil samples collected from the non-native historical fill layer. Petroleum-related VOC concentrations above the SCOs are likely associated with residual petroleum contamination in the non-native historical fill layer, which is substantiated by petroleum-like odors, staining, and/or PID readings above background that were observed in five soil borings in the western part of the site at depths ranging from about 13 to 20 feet bgs. There is no documented history of petroleum bulk storage or discharges of petroleum and geophysical anomalies that resemble USTs were not detected at the site, therefore, the residual petroleum-like contamination is likely attributed non-native historical fill quality and/or historical (i.e., pre-2005) industrial uses. While concentrations exceeded PGW SCOs, VOCs were not found in groundwater at concentrations exceeding the NYSDEC SGVs; this confirms that these areas are not a "source" to groundwater contamination, consistent with the analytical data. This also indicates that the PGW SCOs are not relevant for these constituents.
- Eighteen SVOCs were detected above UU, PGW, and/or RURR in 34 soil samples collected from the non-native historical fill layer. SVOC concentrations are likely attributed to non-native historical fill quality or historical industrial uses, including coal storage.
- Total PCB concentrations above the UU, PGW, and/or RURR SCOs were detected in 16 soil samples collected from the non-native historical fill layer. Total PCB concentrations are likely attributed to non-native historical fill quality or historical industrial uses.
- Ten metals were detected above the UU, PGW, and/or RURR SCOs in 53 soil samples collected from the non-native historical fill layer. The lead concentration in soil sample SB05_0-2 was also above the USEPA Maximum Concentration of Contaminants for the Toxicity Characteristic. Metal concentrations are likely attributed to non-native historical fill quality or historical industrial uses, including coal storage. Arsenic concentrations may also be attributed to historical site use as a lumber storage yard.

Groundwater

- Petroleum-related VOCs were not detected in groundwater; however, a petroleum-like odor was noted during sampling at MW03, and sheen was observed in MW03 and MW06. There is no documented history of petroleum bulk storage or discharges of petroleum at the site and geophysical anomalies resembling USTs were not identified. Therefore, the odor and sheens are likely attributed to non-native historical fill quality and/or historical (i.e., pre-2005) industrial uses; they could also be the result of organics derived from the site's former condition as marshland and/or iron bacteria. The lack of

petroleum-related VOCs in groundwater reflects the immobility of VOCs in non-native historical fill and the lack of impacts to groundwater resources.

- Six total SVOCs were detected above the NYSDEC SGVs in eight groundwater samples collected across the site and five dissolved-phase SVOCs were detected above the NYSDEC SGVs in thirteen groundwater samples collected across the site. SVOC concentrations (in both the total and dissolved state) are likely attributed to non-native historical fill quality.
- Total lead was detected above the NYSDEC SGV of 25 µg/L in groundwater collected from monitoring well MW10. Lead was not detected above the SGV in the filtered sample. The lead concentration is likely the result of suspended solids derived from non-native historical fill entrained in the groundwater sample.
- Four total metals (iron, magnesium, manganese, and sodium) and five dissolved-phase metals (iron, magnesium, manganese, sodium, and thallium) were detected above the NYSDEC SGVs in all groundwater samples collected across the site. Metals concentrations for iron, magnesium, manganese, sodium, and thallium (in both the total and dissolved state) are likely attributed to regional conditions. The presence of manganese is likely attributed to brackish groundwater conditions, is considered naturally occurring, and is related to the proximity of the site to the East River and Newtown Creek.

Soil Vapor

Several petroleum-related VOCs were detected in vapor samples collected across the site during the RI and SRI No. 2. The six petroleum-related VOCs detected at notable concentrations (benzene [max. 233 ug/m^3], cyclohexane [max. 187 ug/m^3], m,p-xylene [max. 222 ug/m^3], n-heptane [max. 2,860 ug/m^3], n-hexane [max. 2,460 ug/m^3], and propylene [max. 806 ug/m^3]) were detected in one or more of the 12 soil vapor sample locations in the western part and along the southern boundary of the site, and in one or more of the seven off-site soil vapor sample locations. In most on-site sample locations where petroleum-related VOCs were detected in soil vapor, petroleum-related VOCs were also detected in on-site soil samples. Therefore, the petroleum-related VOC concentrations in soil vapor are likely attributed to residual petroleum contamination in the non-native historical fill layer as there is no documented history of petroleum bulk storage or spills at the site. Based on the concentrations of petroleum-related VOCs in soil vapor in the off-site samples from the southern-adjoining property (collected/analyzed as part of SRI No. 2) and northern-adjoining property (collected/analyzed as part of the Greenpoint Landing Parcel D NYCOER VCP No. 19CVCP053K), the most noteworthy concentrations of petroleum-related VOCs in soil vapor are confined to the site and appear not to be migrating off-site.

RI AOC 1 Conclusions

Based on the analytical results and field observations, non-native historical fill was identified from surface grade to depths between about 7 and 19 feet bgs.

Contaminants commonly associated with non-native historical fill, including SVOCs, PCBs, pesticides, and metals were detected at concentrations above UU, PGW, and RURR SCOs and above the USEPA Maximum Concentration of Contaminants for the Toxicity Characteristic (lead only) in soil samples collected from the non-native historical fill layer and these contaminants are likely attributed to non-native historical fill quality and/or historical industrial uses, including coal and lumber storage.

Petroleum-related VOCs detected in soil and soil vapor and petroleum-related field observations in soil and groundwater are likely attributed to residual petroleum contamination from an unidentified source. There is no documented history of petroleum bulk storage or spills at the site and geophysical anomalies indicative of a UST were not identified, therefore, the residual petroleum contamination is likely attributed to an unidentified site source.

Lead was identified in non-native historical fill in soil sample SB05_0-2 above the USEPA Maximum Concentration of Contaminants for the Toxicity Characteristic. Additional delineation sampling in the vicinity of SB05 is anticipated in conjunction with the remedy. The lead concentration identified above regulatory criteria in groundwater at MW10 is likely the result of suspended solids derived from non-native historical fill entrained in the groundwater sample. The lead concentration in MW10 is not likely the result of lead concentration in soil sample SB05_0-2 that is above the USEPA Maximum Concentration of Contaminants for the Toxicity Characteristic, because SB05 is about 200 feet away from MW10 and is located cross-gradient and the sample was collected below impervious site cover. Other metals identified in groundwater above the regulatory criteria are likely attributed to regional conditions.

5.8.2 RI AOC 2: CVOC-Impacted Soil Vapor: Carbon Tetrachloride

During the 2022 RI, carbon tetrachloride was detected at concentrations ranging from 170 µg/m^3 and 4,230 µg/m^3 in four soil vapor sample locations in the western part of the site. This is likely attributed to an unknown on-site source. Other chlorinated volatile organic compounds (CVOCs) were detected in soil and groundwater, but concentrations were below the applicable regulatory criteria.

In response to a March 11, 2026 NYSDEC request, Langan performed SRI No. 2 to collect additional soil vapor samples to delineate the extents of carbon tetrachloride in soil vapor in the southwestern part of the site and to determine if carbon tetrachloride-impacted soil vapor is migrating off-site. Based on the results of the delineation, carbon tetrachloride was not detected in any off-site samples and does not appear to be migrating off-site.

5.8.3 RI AOC 3: CVOC-Impacted Soil Vapor: PCE

During SRI No. 2, PCE was detected in all on-site samples along the southern site boundary at concentrations ranging from 551 µg/m^3 to 1,110 µg/m^3 and all off-site soil vapor samples at concentrations ranging from 52 µg/m^3 to 895 µg/m^3. The full extent of PCE in soil vapor off-site will be delineated at a later date. The source of the PCE detected in on-site and off-site soil vapor is presently unknown; however, PCE was not detected in on-site groundwater nor was it detected in on-site soil above UU SCOs. The three detections of PCE in soil samples (below UU SCOs) from the site are not co-located with the soil vapor samples collected along the southern site boundary.

6.0 QUALITATIVE HUMAN AND FISH/WILDLIFE EXPOSURE ASSESSMENT

Human health exposure risk was evaluated for current and future site and off-site conditions, in accordance with the May 2010 NYSDEC Final DER-10 Technical Guidance for Site Investigation and Remediation. The assessment includes an evaluation of potential sources and migration pathways of site contamination, potential receptors, exposure media, and receptor intake routes and exposure pathways.

In addition to the human health exposure assessment, NYSDEC DER-10 requires an on-site and off-site Fish and Wildlife Resources Impact Analysis (FWRIA) if certain criteria are met. According to the requirements stipulated in Section 3.10 and Appendix 3C of DER-10, an FWRIA was completed for the site and is included in Appendix J.

6.1 Current Conditions

The site encompasses about 163,000 square-feet (±3.737 acres) and is currently a vacant parcel of land. The site footprint is covered by impervious asphalt pavement.

6.2 Post Redevelopment Conditions

As currently conceived, the project would include construction of three new residential buildings named C1, C2, and C3:

- The C1 building will be a 451-foot tall (40-story plus bulkhead) high-rise residential tower with a 10-story podium and a partial cellar level for back-of-house space, storage, and a swimming pool.
- The C2 building will be a 348-foot-tall (30-story plus bulkhead) residential tower with a 3-story podium and two full-cellar levels used for vehicle parking, tenant storage, and/or building systems/maintenance.
- The C3 building will be an 87-foot tall, 9-story mixed-use residential and commercial building with a full-cellar level used for vehicle parking, amenities, tenant storage, and/or building systems/maintenance.

The cellar levels of Buildings C2 and C3 will be connected. The residential units in the C1, C2, and C3 buildings will be a mix of market-rate and affordable units under Affordable NY and inclusionary housing programs (overall about 70% market rate and 30% affordable). There will be new public access sidewalks and roadways along Freeman Street and a private internal connector road that will transect the site in a north-south direction to the adjoining cul-de-sac at the western end of Eagle Street. The sidewalks and roadways will include street lighting, trees, and plantings. The shoreline along the East River will be stabilized and the waterfront will be developed into a public park/esplanade, including about 52,240-square-feet of public waterfront, shore public walkway, upland connection, and view corridor, that will be transferred to the City of New York upon completion. Shoreline stabilization also includes installation of a 450 linear-foot

steel bulkhead along the western edge of the BCP boundary. New utilities, including water, sanitary and storm sewers, gas, electricity, telecommunications, will be constructed to service the new buildings.

6.3 Conceptual Site Model

A conceptual site model (CSM) was developed based on the findings of the RIs and previous investigations to produce a simplified framework for understanding the distribution of impacted materials, potential migration pathways, and potentially complete exposure pathways.

6.3.1 Potential Sources of Contamination

Potential sources of contamination include non-native historical fill, historical site use, an unknown on-site source of carbon tetrachloride contamination in soil vapor (carbon tetrachloride was not identified in groundwater or soil), and an unknown source of PCE contamination in soil vapor (PCE was not detected in on-site groundwater nor was it was detected in on-site soil above UU SCOs).

Non-native Historical Fill - The site-wide presence of non-native historical fill was established as a source of petroleum-related VOCs, SVOCs, PCBs, and metals in soil, including detections of hazardous lead concentrations, a source of SVOCs in groundwater, and a source of petroleum-related VOCs in soil vapor.

Prior Site Use - Historical site use as a coal and lumber storage yard was established as a source of SVOCs and/or metals in soil.

Unknown Source of Carbon Tetrachloride – Carbon tetrachloride concentrations in soil vapor are likely attributed to an unknown on-site source.

Unknown Source of PCE – The source of PCE in soil vapor is presently unknown.

6.3.2 Exposure Media

Impacted media include soil, groundwater, and soil vapor. Soil contains VOCs, SVOCs, pesticides, PCBs, and metals at concentrations above regulatory standards. SVOCs, metals, and PFAS were identified in groundwater above regulatory criteria. VOCs, including petroleum-related VOCs and CVOCs, were detected in soil vapor at the site.

6.3.3 Receptor Populations

Site access is currently limited to authorized personnel. Under future construction conditions, human receptors may include construction and remediation workers, authorized guests, and the public adjacent to the site. Under future use conditions, human receptors include residents, visitors, and the public adjacent to the site.

6.4 Potential Exposure Pathways – On-Site

6.4.1 Current Conditions

The site footprint is covered by impervious asphalt pavement; therefore, exposure to contaminated soil/fill and soil vapor is not anticipated except through cracks or holes in asphalt via dermal absorption, inhalation, and/or ingestion pathways. Groundwater in this area of New York City is not used as a potable water source.

There is a potential exposure pathway to contaminated soil/fill, groundwater, and soil vapor during site investigation through dermal absorption, inhalation, and/or ingestion. Activity is limited to trained investigation personnel and is performed under a site-specific HASP with provisions to minimize exposure risk.

6.4.2 Construction/Remediation Condition

Construction and remediation may result in potential exposures to contaminated soil, groundwater, or soil vapor. The implementation of a HASP and a CAMP, as well as vapor and dust suppression techniques, will limit the exposure pathways presented by potential dermal absorption, ingestion, and inhalation.

6.4.3 Proposed Future Conditions

Exposure pathways to residual soil contamination will be incomplete unless the composite cover system is disturbed. The potential for soil vapor exposure risk can be mitigated through various vapor mitigation methods such as positive pressure HVAC systems, active depressurization systems, and/or installation of a vapor barrier beneath the building slabs.

There is no pathway for ingesting groundwater since the site and surrounding areas obtain their drinking water supply from surface water reservoirs located upstate. The City of New York Administrative Code prohibits the use of groundwater for drinking water and other potable purposes. Moreover, the site will have an easement/deed restriction for groundwater use to prevent exposure to any residual contamination remaining after the completion of the remedy.

6.5 Potential Exposure Pathways – Off-Site

6.5.1 Current Conditions

The site is covered with impervious asphalt pavement; thus, it is unlikely that contaminated site soil will be exposed or disturbed and migrate off-site in particulate form. Contaminated soil vapor that may migrate through concrete and asphalt cracks would be expected to dissipate readily in ambient air and not present an exposure risk to off-site receptors. While groundwater contaminants may migrate off-site, the contaminants and their concentrations are consistent with background/regional conditions. Moreover, groundwater in the surrounding area is not used as a potable water source, and therefore no complete exposure pathway exists.

6.5.2 Construction/Remediation Condition

Contaminated soil has the potential to be transported off-site by wind in the form of dust or by the tires of vehicles or equipment leaving the site during development and create an exposure risk to the public adjacent to the site during construction. Contaminated soil vapor would be expected to dissipate readily in ambient air and not present an exposure risk to off-site receptors. Nonetheless, air monitoring will be conducted for particulates (i.e., dust) and VOCs during all intrusive activities as part of a CAMP. Dust and/or vapor suppression techniques will be employed to limit the potential for off-site migration of soil and vapors. Vehicle tires and undercarriages will be washed as necessary prior to leaving the site to prevent tracking soil off-site. A soil erosion/sediment control plan will be implemented during construction to control off-site migration of soil.

Dewatering will be required during construction. Extracted groundwater will be containerized and treated before it is discharged to the East River under an individual NYSDEC State Pollutant Discharge Elimination System permit limiting any potential complete exposure pathways.

6.5.3 Proposed Future Conditions

The potential off-site migration of site contaminants in soil, groundwater, and soil vapor is not expected to result in a complete exposure pathway for future conditions because the site will be covered with a building, a capping system, or a vapor mitigation system that will prevent exposure to off-site receptors of soil and soil vapor. Further, groundwater in the area is not used as a potable water source; therefore, no complete exposure pathway to impacted groundwater would exist in the future condition.

6.6 Evaluation of Human Health Exposure

Based on the CSM and the review of environmental data, complete on-site and off-site exposure pathways appear to be present, in the absence of institutional controls (IC) and engineering controls (EC), under current, construction and remediation, and future conditions. The complete exposure pathways indicate there is a risk of exposure to humans from site contaminants via exposure to soil, groundwater, and potentially to soil vapor if ICs and ECs are not implemented.

Complete exposure pathways have the following five elements: 1) a contaminant source; 2) a contaminant release and transport mechanism; 3) a point of exposure; 4) a route of exposure; and 5) a receptor population. A discussion of the five elements comprising a complete pathway as they pertain to the site is provided below.

6.6.1 Current Conditions

Contaminant sources include 1) non-native historical fill with varying levels of petroleum-related VOCs, SVOCs, PCBs, and metals; 2) historical site uses that may have contributed to the presence of SVOCs and metals in non-native historical fill; and 3) an unidentified on-site source that contributed to CVOC contamination in soil vapor.

Contaminant release and transport mechanisms include contaminated soil transported as dust (dermal, ingestion, inhalation), contaminated groundwater flow (dermal contact), and volatilization of contaminants from the soil and groundwater matrices to the soil vapor phase (inhalation).

Under current conditions, the likelihood of soil, groundwater, or soil vapor exposure to on-site and off-site humans is limited, as the site is capped with impervious surface cover and no buildings are currently present on-site. Exposure to contaminants in soil, groundwater, and soil vapor via dermal contact, ingestion, or inhalation during site investigation is minimized, as these activities would occur under a HASP. In addition, groundwater is not used as a potable water source and therefore no complete exposure pathway to groundwater exists.

6.6.2 Remedial Construction Activities

During development and remediation, points of exposure will include disturbed and exposed non-native historical fill during excavation and dust and organic vapors generated during excavation. Potential routes of exposure will include ingestion and dermal absorption of non-native historical fill, inhalation of organic vapors arising from contaminated soil, and inhalation of dust derived from non-native historical fill. The receptor population includes construction and remediation workers and, to a lesser extent, the public adjacent to the site.

The potential for completed exposure pathways is present since all five elements exist; however, the risk will be minimized by the implementation of appropriate health and safety measures, such as monitoring the air for organic vapors and dust, using vapor and dust suppression measures, cleaning truck undercarriages before they leave the site to prevent off-site soil tracking, maintaining site security, and site workers wearing the appropriate personal protective equipment (PPE).

In accordance with a Remedial Action Work Plan (RAWP), which will include a Construction Health and Safety Plan (CHASP), a Soil/Fill Management Plan (SFMP), and a CAMP, measures such as conducting an air-monitoring program, donning PPE, covering soil stockpiles, altering work sequencing, maintaining a secure construction entrance, proper housekeeping, and applying vapor and dust suppression measures to prevent off-site migration of contaminants during construction will be implemented to prevent completion of these potential exposure pathways to both on- and off-site receptor populations.

6.6.3 Proposed Future Conditions

After construction, residual contamination will likely remain on-site in soil, groundwater, and soil vapor. ICs and ECs will be included as elements of the site remedy, including an engineered site-wide composite cover system and an EC along the southern site boundary. These controls will be maintained pursuant to a Site Management Plan (SMP) and will preclude exposure to on- and off-site receptor populations.

6.6.4 Human Health Exposure Assessment Conclusions

1. Under current conditions, there is a marginal risk for exposure. The primary exposure pathways are for dermal contact, ingestion, and inhalation of soil, soil vapor, or groundwater by site investigation and remediation workers. The exposure risks would be avoided or minimized by following the appropriate health and safety measures outlined in the site-specific HASP during ground-intrusive activities.
2. In the absence of a HASP and a CAMP, there is a moderate risk of exposure during construction and remediation. The primary exposure pathways would be:
    a. Dermal contact, ingestion, and inhalation of contaminated soil, groundwater, and soil vapor by construction workers.
    b. Dermal contact, ingestion, and inhalation of soil (airborne dust) and organic vapors by the community in the vicinity of the site.

    These exposure risks can be avoided or minimized by performing community air monitoring and by following the appropriate health and safety, vapor and dust suppression, and site security measures outlined in a site-specific HASP. As needed, extracted groundwater from construction dewatering will be pretreated and discharged off-site in accordance with appropriate permits.
3. The existence of a complete exposure pathway for site contaminants to human receptors during proposed future conditions is unlikely, as ECs and ICs will be implemented pursuant to the proposed remedy. Regional groundwater is not used as a potable water source in this part of New York City. The construction of ECs including a site cover system and/or any necessary vapor mitigation systems will mitigate the exposure pathway to contaminants in soil, groundwater, and/or soil vapor.
4. Regional groundwater is not used as potable water in Kings County so there is no complete exposure to regional groundwater contaminants.
5. Although it is possible (though unlikely) that complete exposure pathways exist for the migration of site contaminants to off-site human receptors for current, construction/remediation phase, or future conditions, monitoring and control measures have been and will continue to be used during investigation and construction to prevent completion of this pathway. Under future conditions, the site will be remediated, and ICs and ECs will be implemented to prevent completion of this pathway.

7.0 NATURE AND EXTENT OF CONTAMINATION

This section evaluates the nature and extent of soil, groundwater, and soil vapor contamination as derived from a combination of field observations and analytical data that were discussed in Section 5.0.

7.1 Soil Contamination

Soil contamination, characterized by field observations and soil sample analytical results exceeding UU, PGW, and/or RURR SCOs, is attributed to the presence of non-native historical fill and/or historical (i.e., pre-2005) industrial uses with the exception of acetone concentrations in soil. Acetone is a common laboratory contaminant and the presence of acetone in soil samples is unlikely to be related to non-native historical fill quality.

7.1.1 Historical Site Use and Non-native Historical Fill

Non-native historical fill, predominantly consisting of tannish brown to black fine-grained sand with varying amounts of gravel, silt, clay, brick, asphalt, concrete, glass, coal, coal ash, slag, wood, mortar, ceramics, organics, and shell fragments, was encountered from site grade to depths ranging between about 7 and 19 feet bgs. The non-native historical fill layer contains VOCs, SVOCs, pesticides, PCBs, and metals at concentrations above UU, PGW, and/or RURR SCOs and the USEPA Maximum Concentration of Contaminants for the Toxicity Characteristic and these contaminants are likely attributed to non-native historical fill quality or historical (i.e., pre-2005) industrial uses, including coal and lumber storage as a lumber storage yard. Petroleum-related VOCs detected in soil and petroleum-related field observations in soil are likely attributed non-native historical fill quality and/or historical (i.e., pre-2005) industrial use. There is no documented history of petroleum bulk storage or discharges of petroleum at the site and geophysical anomalies indicative of a UST were not identified. Petroleum–related VOCs were not identified in groundwater above the NYSDEC SGVs and therefore the petroleum-related VOCs detected in soil are not viewed as an on-site source.

A petroleum spill (Spill No. 25-06379) was reported on October 15, 2025 on account of field observations and the detection of petroleum-related VOCs in soil from the RI during the NYSDEC review of the BCP application for this site.

7.2 Groundwater Contamination

Groundwater contamination, characterized by field observations and groundwater sample analytical results exceeding NYSDEC SGVs, is attributed to non-native historical fill quality, historical (i.e., pre-2005) industrial uses, including coal and lumber storage, and/or regional groundwater conditions.

7.2.1 Petroleum-Impacted Groundwater

Petroleum-related VOCs were not detected in groundwater; however, a petroleum odor was noted during sampling at MW03, and sheen was observed in MW03 and MW06. No free phase petroleum was observed in groundwater monitoring wells. The field observations are most likely a result of non-native historical fill and/or historical (i.e., pre-2005) industrial use; it could also be the result of organics derived from the site's former condition as marshland and/or iron bacteria (note: no petroleum-related VOCs were identified in groundwater in the wells where the odors and sheens were observed). There is no documented history of petroleum bulk storage or discharges of petroleum at the site and geophysical anomalies indicative of a UST were not identified; therefore, the physical indicators of residual petroleum contamination are likely attributed to non-native historical fill quality and/or historical (i.e., pre-2005) industrial uses. The lack of petroleum-related VOCs in groundwater reflects the immobility of VOCs in non-native historical fill and the lack of impacts to groundwater resources.

7.2.2 SVOCs in Groundwater

Total and dissolved-phase SVOCs were detected above the NYSDEC SGVs in all groundwater monitoring wells across the site. SVOC concentrations (in both the total and dissolved-phase state) are likely attributed to non-native historical fill quality or historical (i.e., pre-2005) industrial uses, including coal storage.

7.2.3 Metals-impacted Groundwater

Five total metals (iron, lead, magnesium, manganese, and sodium) and five dissolved-phase metals (iron, magnesium, manganese, sodium, and thallium) were detected above the NYSDEC SGVs in all groundwater monitoring wells across the site. Total lead was detected above the NYSDEC SGV of 25 µg/L in groundwater collected from monitoring well MW10. The total lead concentration in groundwater sample MW10_080522 is likely the result of suspended solids derived from non-native historical fill entrained in the groundwater sample. Both total and dissolved-phase iron, magnesium, manganese, sodium, and thallium may be attributed to regional conditions. The presence of manganese is attributed to brackish groundwater conditions, is considered naturally occurring, and is related to the proximity of the site to the East River and Newtown Creek.

7.2.4 PFAS in Groundwater

PFOA and PFOS were detected above the NYSDEC SGVs in all groundwater samples collected for the RI and ten of the twelve groundwater samples collected for SRI No. 1. No historical uses or on-site source of PFOA or PFOS in soil was identified; therefore, the presence of PFOA and PFOS in groundwater is likely attributed to regional groundwater quality.

7.3 Soil Vapor Contamination

Several petroleum-related VOCs were detected in vapor samples collected across the site during the RI and SRI No. 2. The six petroleum-related VOCs detected at notable concentrations (benzene [max. 233 ug/m^3], cyclohexane [max. 187 ug/m^3], m,p-xylene [max. 222 ug/m^3], n-heptane [max. 2,860 ug/m^3], n-hexane [max. 2,460 ug/m^3], and propylene [max. 806 ug/m^3]) were detected in one or more of the 12 soil vapor sample locations in the western part and along the southern boundary of the site, and in one or more of the seven off-site soil vapor sample locations. In most on-site sample locations where petroleum-related VOCs were detected in soil vapor, petroleum-related VOCs were also detected in on-site nearby soil samples. Therefore, the petroleum-related VOC concentrations in soil vapor are likely attributed to residual petroleum contamination in the non-native historical fill layer as there is no documented history of petroleum bulk storage or spills at the site. Based on the concentrations of petroleum-related VOCs in soil vapor in the off-site samples from the southern-adjoining property (collected/analyzed as part of SRI No. 2) and northern-adjoining property (collected/analyzed as part of the Greenpoint Landing Parcel D NYCOER VCP No. 19CVCP053K), the most noteworthy concentrations of petroleum-related VOCs in soil vapor are confined to the site and appear not to be migrating off-site.

During the 2022 RI, carbon tetrachloride was detected at concentrations ranging from 170 micrograms per cubic meter (µg/m^3) to 4,230 µg/m^3 in four soil vapor sample locations in the western part of the site. During SRI No. 2, carbon tetrachloride was detected at concentrations between 8.8 µg/m^3 and 31 µg/m^3 along the southern site boundary; however, carbon tetrachloride was not detected off-site and it was concluded that carbon tetrachloride appears to have not migrated off-site. The carbon tetrachloride identified on-site may be attributed to an unknown on-site source. The results of the 2026 delineation confirm that carbon tetrachloride in soil vapor appears to have not migrated off-site.

PCE was detected in all on-site samples along the southern site boundary at concentrations ranging from 551 µg/m^3 to 1,110 µg/m^3 and in all off-site soil vapor samples at concentrations ranging from 52 µg/m^3 to 895 µg/m^3. The full extent of PCE in soil vapor off-site will be delineated at a later date. The source of the PCE detected in on-site and off-site soil vapor is presently unknown; however, PCE was not detected in on-site groundwater nor was it was detected in on-site soil above UU SCOs. The three detections of PCE in soil samples (below UU SCOs) from the site are not co-located with the soil vapor samples collected along the southern site boundary. Other CVOCs were detected in soil and groundwater, but concentrations were below the applicable regulatory criteria.

8.0 CONCLUSIONS

The RI was completed in August 2022. The findings summarized herein are based on both qualitative data (field observations and instrumental readings) and soil, groundwater, and vapor laboratory analytical results. Findings and conclusions are as follows:

1. Stratigraphy: A non-native historical fill layer was observed from surface grade to depths ranging from about 7 to 19 feet bgs and consisted of tannish brown to black fine-grained sand with varying amounts of gravel, silt, clay, brick, asphalt, concrete, glass, coal, coal ash, slag, wood, mortar, ceramics, organics, and shell fragments. The non-native historical fill layer is underlain by native soil consisting of tannish brown to dark-gray sand with varying amounts of silt, clay, gravel, mica, and shells. Bedrock was not encountered during the RI or previous environmental investigations conducted at the site; however, bedrock was encountered during a geotechnical investigation at about 55 to 108 feet below existing grade.

2. Hydrogeology: During the RI, groundwater was encountered between 5.64 and 9.50 feet bgs and groundwater elevations ranged from el. 0.20 to 2.92 NAVD88 in thirteen monitoring wells installed across the site. During SRI No.1, groundwater was observed at depths ranging from 7.75 to 9.90 feet bgs and groundwater elevations ranged from about el. -0.33 to 2.28 NAVD88 in eleven monitoring wells. Groundwater flows to the west towards the East River.

3. Non-native historical fill: Contaminants commonly associated with non-native historical fill, including VOCs, SVOCs, PCBs, pesticides, and metals, were detected at concentrations above UU, PGW, and/or RURR SCOs and lead was detected above the USEPA Maximum Concentration of Contaminants for the Toxicity Characteristic in soil samples collected from the non-native historical fill layer. These contaminants are likely attributed to non-native historical fill quality and/or historical (i.e., pre-2005) industrial uses, including coal and lumber storage.

   Hazardous concentrations of lead were identified in non-native historical fill in soil sample SB05_0-2. Additional delineation sampling in the vicinity of SB05 would be completed in conjunction with the remedy.

   Petroleum-related VOCs detected in soil and soil vapor and petroleum-related field observations in soil and groundwater are likely attributed to non-native historical fill quality and/or historical (i.e., pre-2005) industrial uses. There is no documented history of petroleum bulk storage or discharges of petroleum at the site and geophysical anomalies associated with USTs were not identified.

4. Metals in Groundwater: Total and dissolved-phase metals were detected above the NYSDEC SGVs in all groundwater monitoring wells across the site. The total lead

concentration in groundwater sample MW10_080522 is likely the result of suspended solids derived from non-native historical fill entrained in the groundwater sample. Both total and dissolved-phase iron, magnesium, manganese, sodium, and thallium may be attributed to regional conditions. The presence of manganese is attributed to brackish groundwater conditions, is considered naturally occurring, and is related to the proximity of the site to the East River and Newtown Creek.

5. PFAS in Groundwater: PFOA and PFOS were detected above the NYSDEC SGVs in all groundwater samples during the RI and ten of the twelve groundwater samples during SRI No. 1. No historical uses or on-site source of PFOA or PFOS was identified; therefore, the presence of PFOA and PFOS is likely attributed to regional groundwater quality.

6. CVOC contamination in Soil Vapor: During the 2022 RI, carbon tetrachloride was detected at concentrations ranging from 170 micrograms per cubic meter (µg/m^3) to 4,230 µg/m^3 in four soil vapor sample locations in the western part of the site. During SRI No. 2, carbon tetrachloride was detected at concentrations between 8.8 µg/m^3 and 31 µg/m^3 along the southern site boundary; however, carbon tetrachloride was not detected in off-site locations and it was concluded that carbon tetrachloride appears to not be migrating off-site. The carbon tetrachloride identified on-site is likely attributed to an unknown on-site source.

   During SRI No. 2, PCE was detected in all on-site soil vapor samples along the southern site boundary at concentrations ranging from 551 µg/m^3 to 1,110 µg/m^3 and all off-site soil vapor samples at concentrations ranging from 52 µg/m^3 to 895 µg/m^3. The full extent of PCE in off-site soil vapor will be delineated at a later date. The source of the PCE detected in on-site and off-site soil vapor is presently unknown; however, PCE was not detected in on-site groundwater nor was it detected in on-site soil above UU SCOs.

   Other CVOCs were detected in soil and groundwater on-site at concentrations below the applicable regulatory criteria.

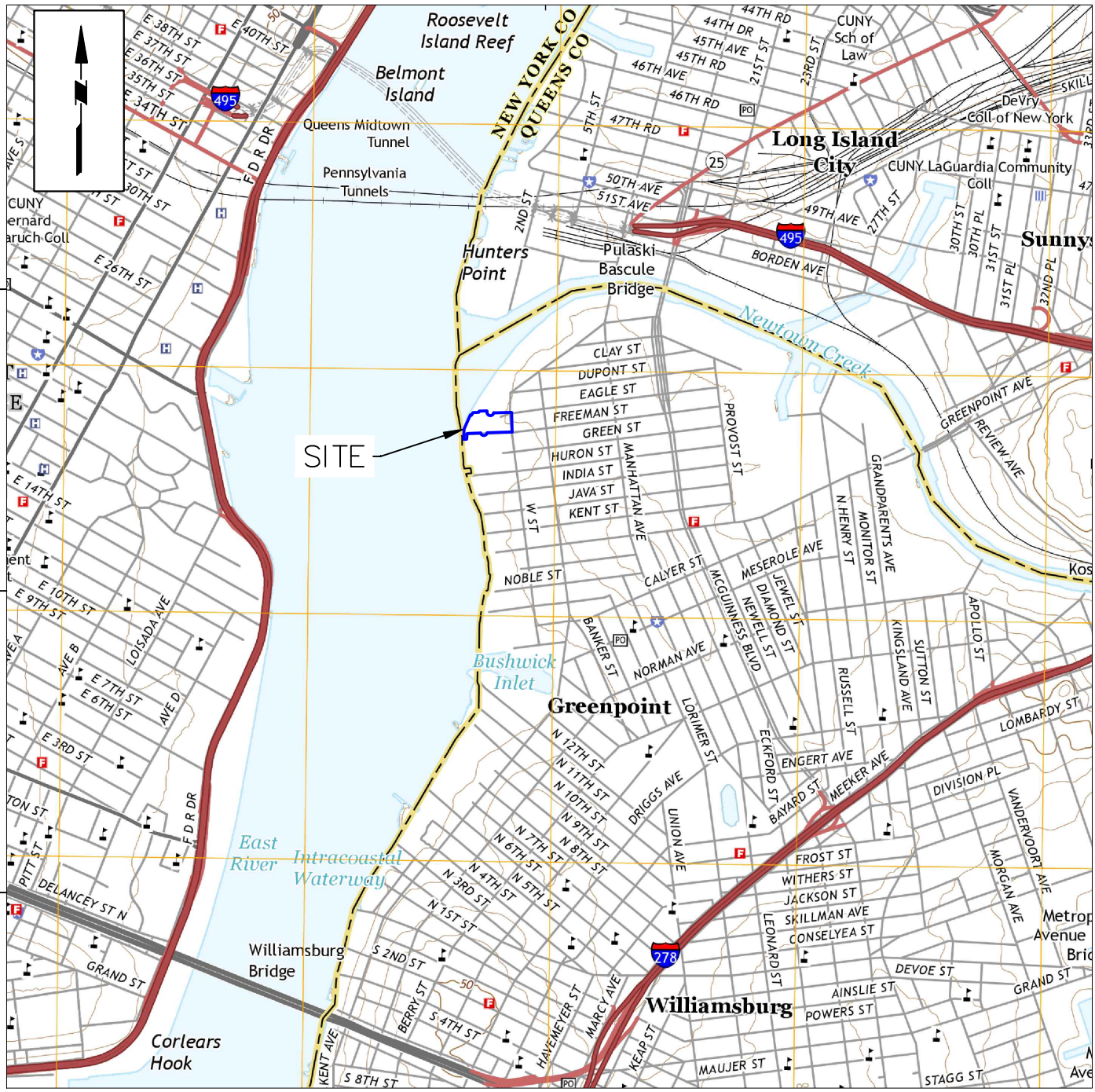
7. FWRIA: The preliminary FWRIA identified the East River as a sensitive natural resource in the area surrounding the site. However, soil contamination at the site is not expected to affect the East River because of the proposed remediation and site redevelopment plans. Based on a review of groundwater data, constituents in groundwater related to historical site operations are not migrating to the East River.

8. Sufficient analytical data were gathered during the RI to establish site-specific soil cleanup levels and to develop a remedy for the site. Based on the RIs, off-site investigation or remediation may be required. The final remedy will be described and evaluated in a RAWP to be prepared in accordance with BCP guidelines. The remedy will address contaminants in non-native historical fill and CVOCs in soil vapor.

9.0 REFERENCES

1. United States Geological Survey "Bedrock and Engineering Geologic Maps of New York County and Parts of Kings and Queens Counties, New York, and Parts of Bergen and Hudson Counties, New Jersey," dated 1994.
2. New York State Division of Water Technical and Operational Guidance Series (TOGS) (1.1.1) dated June 1998 and subsequent updates.
3. Phase I Environmental Site Assessment Report – Greenpoint Lumber Yard, Brooklyn, New York, prepared by AKRF, Inc. dated July 2001
4. Phase II Site Investigation Report – Greenpoint Lumber Yard, Brooklyn, New York, prepared by AKRF, Inc. dated October 2001
5. Supplemental Subsurface (Phase II) Investigation Report – Greenpoint Lumber Yard, Brooklyn, New York, prepared by AKRF, Inc. dated April 2004
6. New York State Department of Health, Final Guidance for the Evaluation of Soil Vapor Intrusion in the State of New York, dated October 2006 and subsequent updates.
7. New York State Department of Environmental Conservation, Part 375 of Title 6 of the New York Compilation of Codes, Rules, and Regulations, Effective 14 December 2006 and subsequent updates (including December 2025 amendment).
8. New York State Department of Environmental Conservation, DER-10 Technical Guidance for Site Investigation and Remediation, issued 3 May 2010; effective June 18, 2010.
9. United States Environmental Protection Agency, Low Flow Purging and Sampling Procedure for the Collection of Groundwater Samples from Monitoring Wells, EQASOP-GW 001, September 19, 2017.
10. New York State Department of Environmental Conservation, Sampling, Analysis, and Assessment of Per- and Polyfluoroalkyl Substances (PFAS), draft dated June 2022.
11. New York State Department of Environmental Conservation, Sampling, Analysis, and Assessment of Per-and Polyfluoroalkyl Substances (PFAS) under NYSDEC's Part 375 Remedial Programs, dated April 2023

FIGURES



NOTES

1. BASE MAP SOURCE: UNITED STATES GEOLOGICAL SURVEY (USGS) (2016) 7.5–MINUTE SERIES TOPOGRAPHICAL MAPS, BROOKLYN, NEW YORK, QUADRANGLE.
2. NORTH ARROW SHOWS TRUE NORTH.

LEGEND

APPROXIMATE SITE BOUNDARY

2000 0 1000 2000

SCALE: 1 INCH = 2000 FEET

LANGAN

Langan Engineering, Environmental, Surveying, Landscape Architecture and Geology, D.P.C.

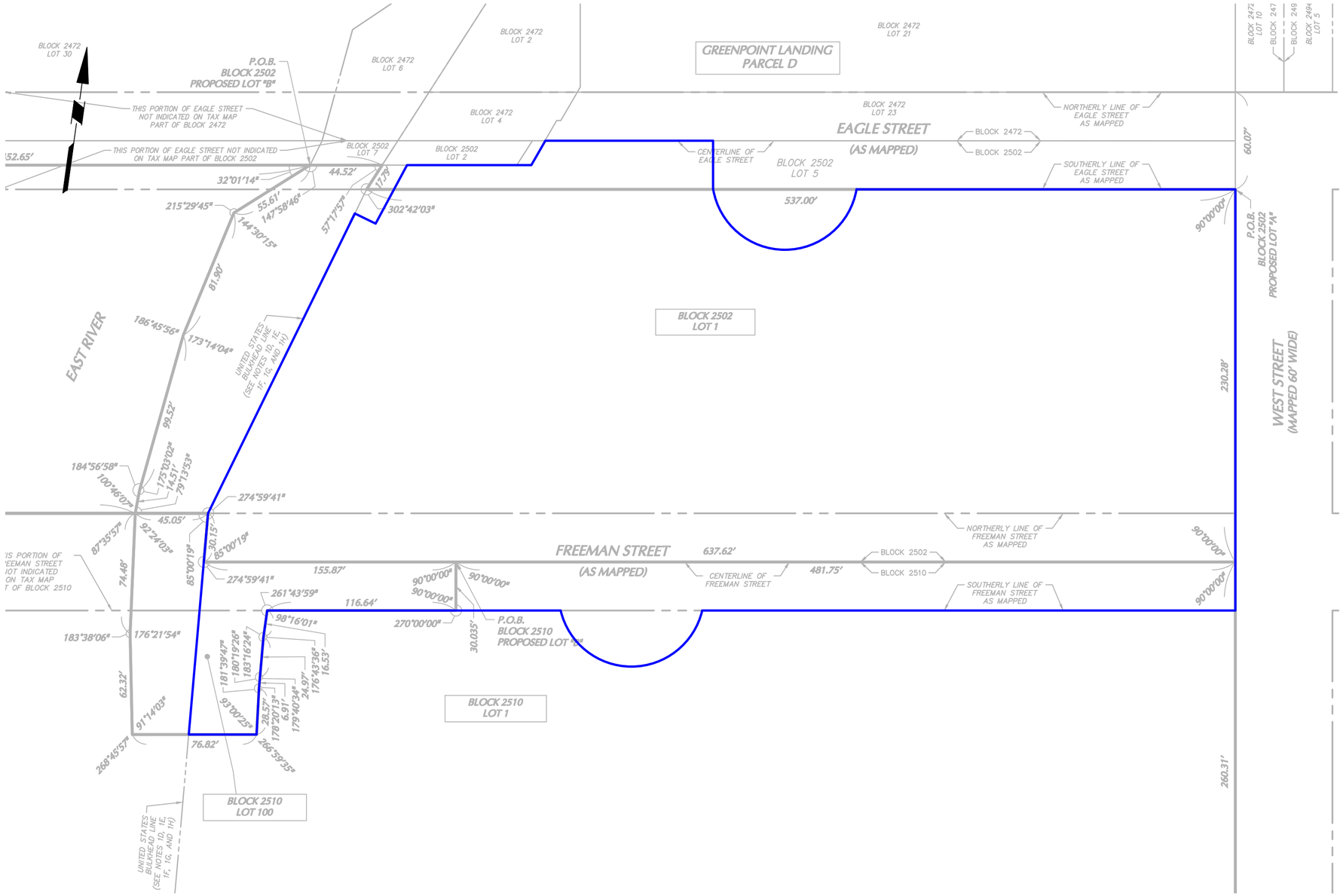
368 Ninth Avenue, 8th Floor
New York, NY 10001

T: 212.479.5400 F: 212.479.5444 www.langan.com

Project	C BLOCK BLOCK NO. 2502, p/o LOT NOs. 1 & 5, AND BLOCK NO. 2510, p/o LOT NOs. 1 & 100 KINGS NEW YORK
Figure Title	SITE LOCATION MAP
Project No.	170229030
Date	05/13/2025
Drawn By	VK
Checked By	GW
Figure	1
Sheet	1 of 13

© 2024 Langan

Filename: \\Langan.com\data\NYC\data0\170229030\Project Data\CAD\Sheet Files\Environmental\RIR Figures\Figure 1 - Site Location Map.dwg Date: 4/14/2026 Time: 15:32 User: vkanagaratnam Style Table: Langan.stb Layout: ANSIA-BP



LEGEND:

APPROXIMATE SITE BOUNDARY

NOTES:

1. BASE MAP IS TAKEN FROM "FINAL SURVEY', FIGURE FS103, PREPARED BY LANGAN, DATED FEBRUARY 26, 2025.

WARNING: IT IS A VIOLATION OF THE NYS EDUCATION LAW ARTICLE 145 FOR ANY PERSON, UNLESS HE IS ACTING UNDER THE DIRECTION OF A LICENSED PROFESSIONAL ENGINEER, LAND SURVEYOR OR GEOLOGIST, TO ALTER THIS ITEM IN ANY WAY.

50 0 25 50
SCALE: 1 INCH = 50 FEET

LANGAN
Langan Engineering, Environmental, Surveying, Landscape Architecture and Geology, D.P.C.
368 Ninth Avenue, 8th Floor
New York, NY 10001
T: 212.479.5400 F: 212.479.5444 www.langan.com

Project
C BLOCK
BLOCK NO. 2502, p/o LOT NOs. 1 & 5, AND BLOCK NO. 2510, p/o LOT NOs. 1 & 100
KINGS NEW YORK

Figure Title
SITE PLAN

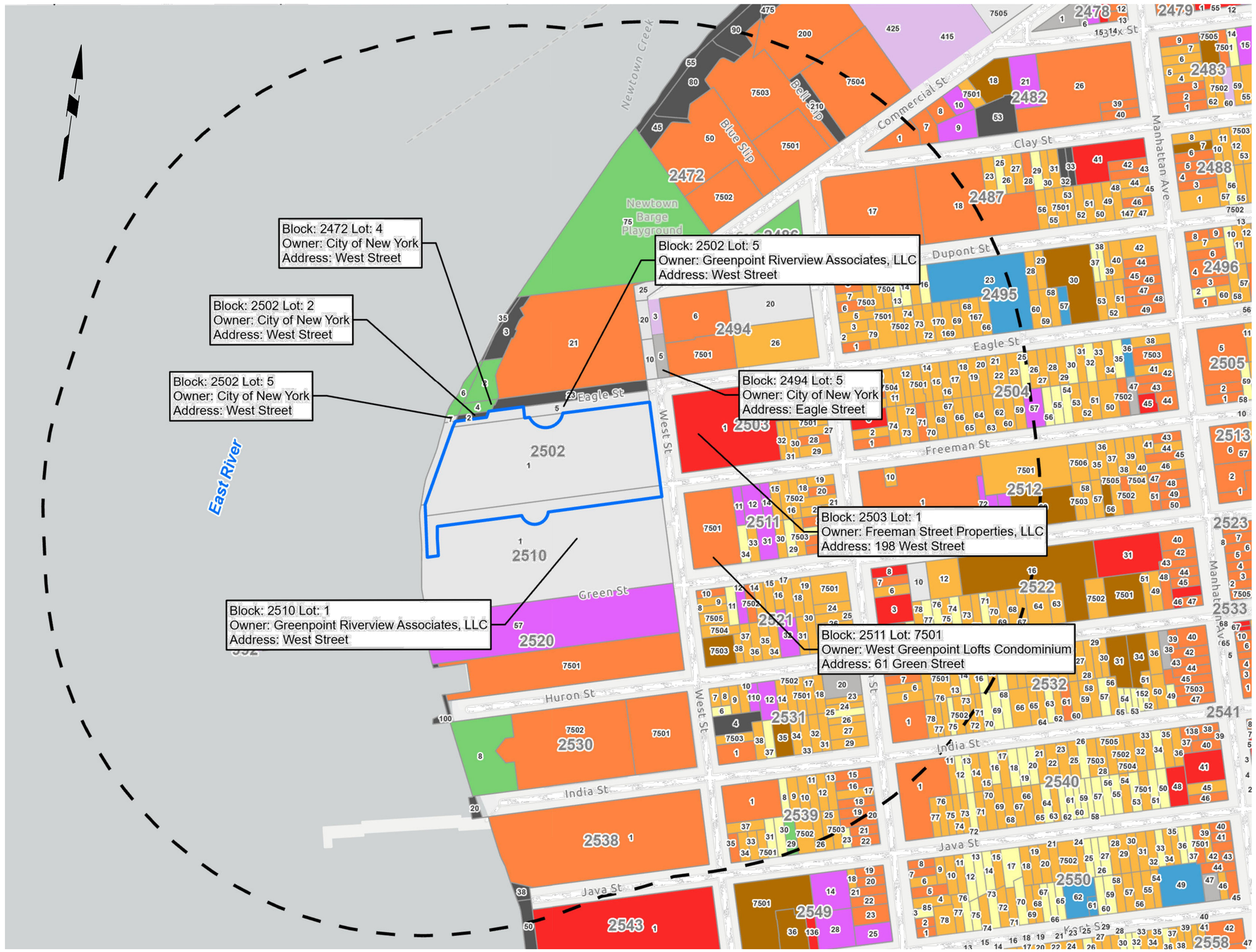
Project No.	170229030
Date	03/13/2026
Drawn By	VK
Checked By	GW

Figure 2
Sheet 2 of 1

PROJECT NO. 170229030 LANGAN

© 2024 Langan

Filename: \\Langan.com\data\NYC\data0\170229030\Project Data\CAD\Sheet Files\Environmental\RIR Figures\Figure 2 - 11 - Updated sample map post RIR.dwg Date: 4/14/2026 Time: 15:37 User: vkanagaratnam Style Table: Langan.stb Layout: Figure 2



LEGEND:

- APPROXIMATE SITE BOUNDARY
- 1,000 - FOOT RADIUS
- ONE AND TWO FAMILY BUILDINGS
- MULTI-FAMILY WALK-UP BUILDINGS
- MULTI-FAMILY ELEVATOR BUILDINGS
- MIXED RESIDENTIAL AND COMMERCIAL BUILDINGS
- COMMERCIAL AND OFFICE BUILDINGS
- INDUSTRIAL AND MANUFACTURING
- TRANSPORTATION AND UTILITY
- PUBLIC FACILITIES AND INSTITUTIONS
- OPEN SPACE AND OUTDOOR RECREATION
- PARKING FACILITIES
- VACANT LAND
- OTHER/NO DATA

NOTES:

1. TOPOGRAPHIC BASEMAP PROVIDED THROUGH LANGAN'S ESRI ARCGIS SOFTWARE LICENSING AND ARCGIS ONLINE.
2. TAX PARCEL AND LAND USE DATA PROVIDED BY THE NEW YORK CITY DEPARTMENT OF CITY PLANNING.

200 0 100 200
SCALE: 1 INCH = 200 FEET

WARNING: IT IS A VIOLATION OF THE NYS EDUCATION LAW ARTICLE 145 FOR ANY PERSON, UNLESS HE IS ACTING UNDER THE DIRECTION OF A LICENSED PROFESSIONAL ENGINEER, LAND SURVEYOR OR GEOLOGIST, TO ALTER THIS ITEM IN ANY WAY.

LANGAN
Langan Engineering, Environmental, Surveying, Landscape Architecture and Geology, D.P.C.
368 Ninth Avenue, 8th Floor
New York, NY 10001
T: 212.479.5400 F: 212.479.5444 www.langan.com

Project
C BLOCK
BLOCK NO. 2502, p/o LOT NOs. 1 & 5, AND BLOCK NO. 2510, p/o LOT NOs. 1 & 100
KINGS NEW YORK

Figure Title
SURROUNDING LAND USE MAP

Project No.	170229030
Date	05/13/2025
Drawn By	VK
Checked By	GW
Figure	3
Sheet	3 of 14

LANGAN PROJECT NO. 170229030

© 2024 Langan

Filename: \\Langan.com\data\NYC\data0\170229030\Project Data\CAD\Sheet Files\Environmental\RIR Figures\Figure 2 - 11.dwg Date: 5/13/2025 Time: 09:37 User: vkanagaratnam Style Table: Langan.stb Layout: Figure 3

BLOCK 2472, LOT 21

- LUMBER STORAGE (LATE 1800S TO 1980)
- CONSTRUCTION MATERIALS, HEAVY CONSTRUCTION EQUIPMENT, AND MACHINERY STORAGE (1980s TO 2011)
- SITE REMEDIATED UNDER THE NEW YORK CITY OFFICE OF ENVIRONMENTAL REMEDIATION VOLUNTEER CLEANUP PROGRAM (2019 TO 2022)
- MIXED RESIDENTIAL AND COMMERCIAL BUILDING (2022 TO PRESENT)

BLOCK 2503, LOT 1

- VENEER FACTORY, TIMBER STORAGE (1887)
- MACHINE SHOP (1887–1916)
- RESIDENTIAL BUILDINGS (1887–2007)
- TANKS AND COAL SHED, WOOD WORKING (1905)
- SOAP WORKS (1905–1916)
- BARREL SHED, GOTHAM CAN CO. (1916)
- LAUNDRY AND LINEN SUPPLY, GARAGE (1942–1988)
- SHIPPING COMPANY (1951–2007)

BLOCK 2502, PART OF (P/O) LOT 1 AND P/O LOT 5, AND BLOCK 2510, P/O LOT 1 AND P/O LOT 100

- COAL, LUMBER, AND MASONRY MATERIAL STORAGE (1800s TO 2000)
- MANUFACTURING AND PACKING FACILITY (1916)
- NEWTOWN CREEK CORPORATION (1922)
- NEWTOWN CREEK COAL AND COKE CO. INC. (1928)
- LUMBER STORAGE (EARLY 1950s TO CIRCA 2000)
- STORAGE OF CONSTRUCTION MATERIALS, EQUIPMENT, AND REPOSSESSED VEHICLES (CIRCA 2000)

BLOCK 2510, LOT 1

- NEW YORK DYE–WOOD EXTRACT AND CHEMICAL COMPANY (1887)
- NEW YORK BOSTON DYE WOOD WORKS (1905)
- NEW YORK QUEBRACHO EXTRACT CO. INC. (1916)
- LUMBER STORAGE (1942–2007)

LEGEND:

APPROXIMATE SITE BOUNDARY

NOTES:

1. BASE MAP IS TAKEN FROM "FINAL SURVEY', FIGURE FS103, PREPARED BY LANGAN, DATED FEBRUARY 26, 2025.

WARNING: IT IS A VIOLATION OF THE NYS EDUCATION LAW ARTICLE 145 FOR ANY PERSON, UNLESS HE IS ACTING UNDER THE DIRECTION OF A LICENSED PROFESSIONAL ENGINEER, LAND SURVEYOR OR GEOLOGIST, TO ALTER THIS ITEM IN ANY WAY.

SCALE: 1 INCH = 50 FEET

LANGAN
Langan Engineering, Environmental, Surveying, Landscape Architecture and Geology, D.P.C.
368 Ninth Avenue, 8th Floor
New York, NY 10001
T: 212.479.5400 F: 212.479.5444 www.langan.com

Project: C BLOCK
BLOCK NO. 2502, p/o LOT NOs. 1 & 5, AND BLOCK NO. 2510, p/o LOT NOs. 1 & 100
KINGS NEW YORK

Figure Title: HISTORICAL SITE AND SURROUNDING PROPERTY USE MAP

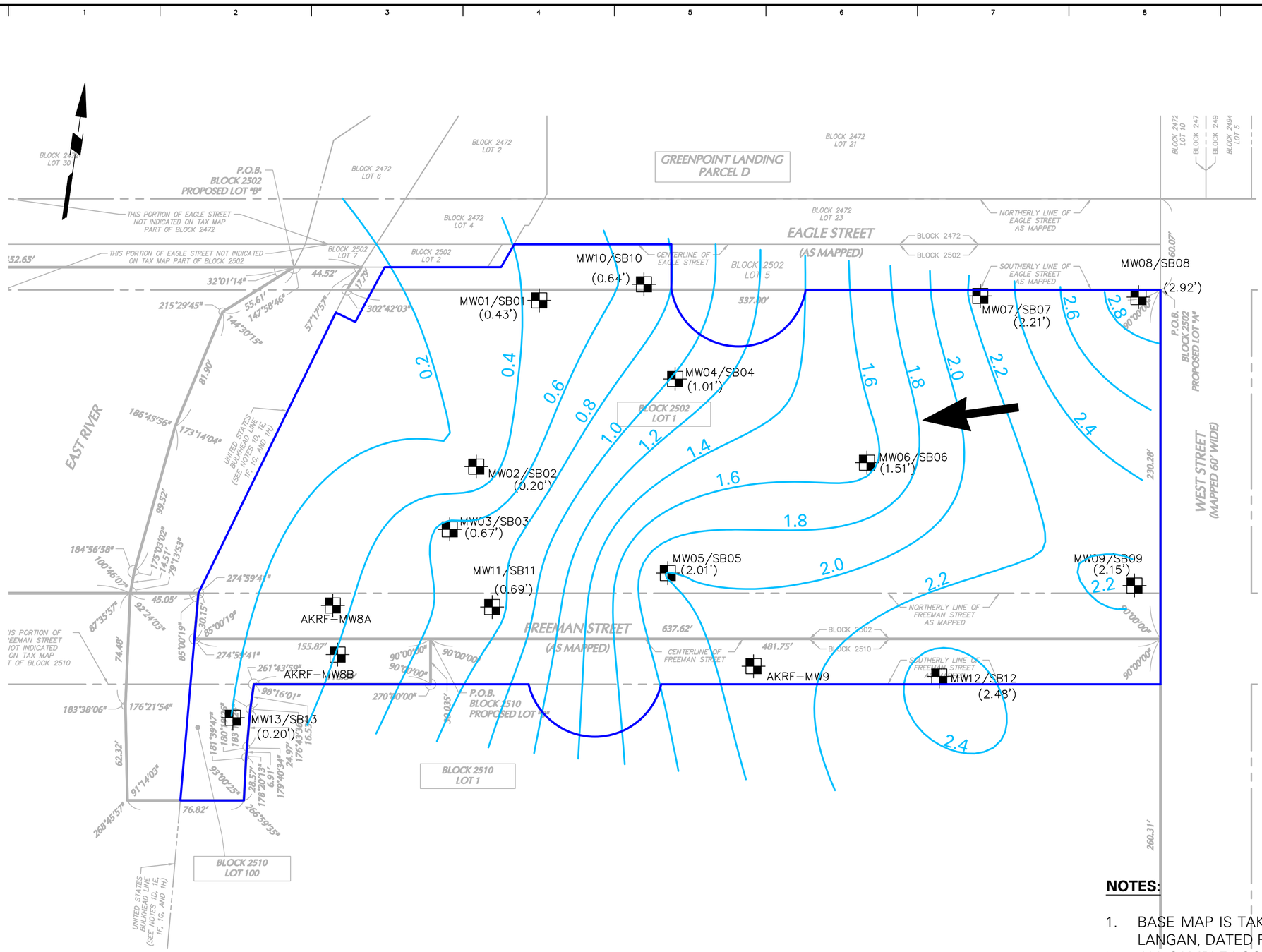
Project No. 170229030
Date 03/13/2026
Drawn By VK
Checked By GW

Figure 4
Sheet 4 of 1

PROJECT NO. 170229030 LANGAN

© 2024 Langan.

Filename: \\Langan.com\data\NYC\data0\170229030\Project Data\CAD\Sheet Files\Environmental\RIR Figures\Figure 2 - 11 - Updated sample map post RIR.dwg Date: 4/14/2026 Time: 15:38 User: vkanagaratnam Style Table: Langan.stb Layout: Figure 4



LEGEND:

- APPROXIMATE SITE BOUNDARY
- MW01/SB01 (0.43') — APPROXIMATE LOCATION OF SOIL BORING/ PERMANENT GROUNDWATER MONITORING WELL (GROUNDWATER ELEVATION)
- 2.6 — GROUNDWATER CONTOUR ELEVATION
- INFERRED GROUNDWATER FLOW DIRECTION

NOTES:

1. BASE MAP IS TAKEN FROM "FINAL SURVEY', FIGURE FS103, PREPARED BY LANGAN, DATED FEBRUARY 26, 2025.
2. ALL SAMPLE LOCATIONS ARE APPROXIMATE.
3. ELEVATIONS SHOWN IN THE FIGURE ARE BASED ON NORTH AMERICAN VERTICAL DATUM OF 1988 (NAVD88), WHICH IS APPROXIMATELY 1.1 FEET ABOVE MEAN SEA LEVEL DATUM AT SANDY HOOK, NEW JERSEY AS DEFINED BY THE UNITED STATES GEOLOGIC SURVEY (USGS NGVD 1929).
4. MONITORING WELL TOP OF CASING ELEVATIONS WERE SURVEYED BY LANGAN ON AUGUST 05, 2022.
5. GROUNDWATER ELEVATIONS ARE BASED ON A SYNOPTIC GROUNDWATER GAUGING EVENT PERFORMED BY LANGAN ON AUGUST 05, 2022.
6. GROUNDWATER CONTOUR INTERVAL IS 0.4 FEET.

WARNING: IT IS A VIOLATION OF THE NYS EDUCATION LAW ARTICLE 145 FOR ANY PERSON, UNLESS HE IS ACTING UNDER THE DIRECTION OF A LICENSED PROFESSIONAL ENGINEER, LAND SURVEYOR OR GEOLOGIST, TO ALTER THIS ITEM IN ANY WAY.

50 0 25 50
SCALE: 1 INCH = 50 FEET

LANGAN
Langan Engineering, Environmental, Surveying, Landscape Architecture and Geology, D.P.C.
368 Ninth Avenue, 8th Floor
New York, NY 10001
T: 212.479.5400 F: 212.479.5444 www.langan.com

Project
C BLOCK
BLOCK NO. 2502, p/o LOT NOs. 1 & 5, AND BLOCK NO. 2510, p/o LOT NOs. 1 & 100
KINGS NEW YORK

Figure Title
GROUNDWATER ELEVATION CONTOUR MAP

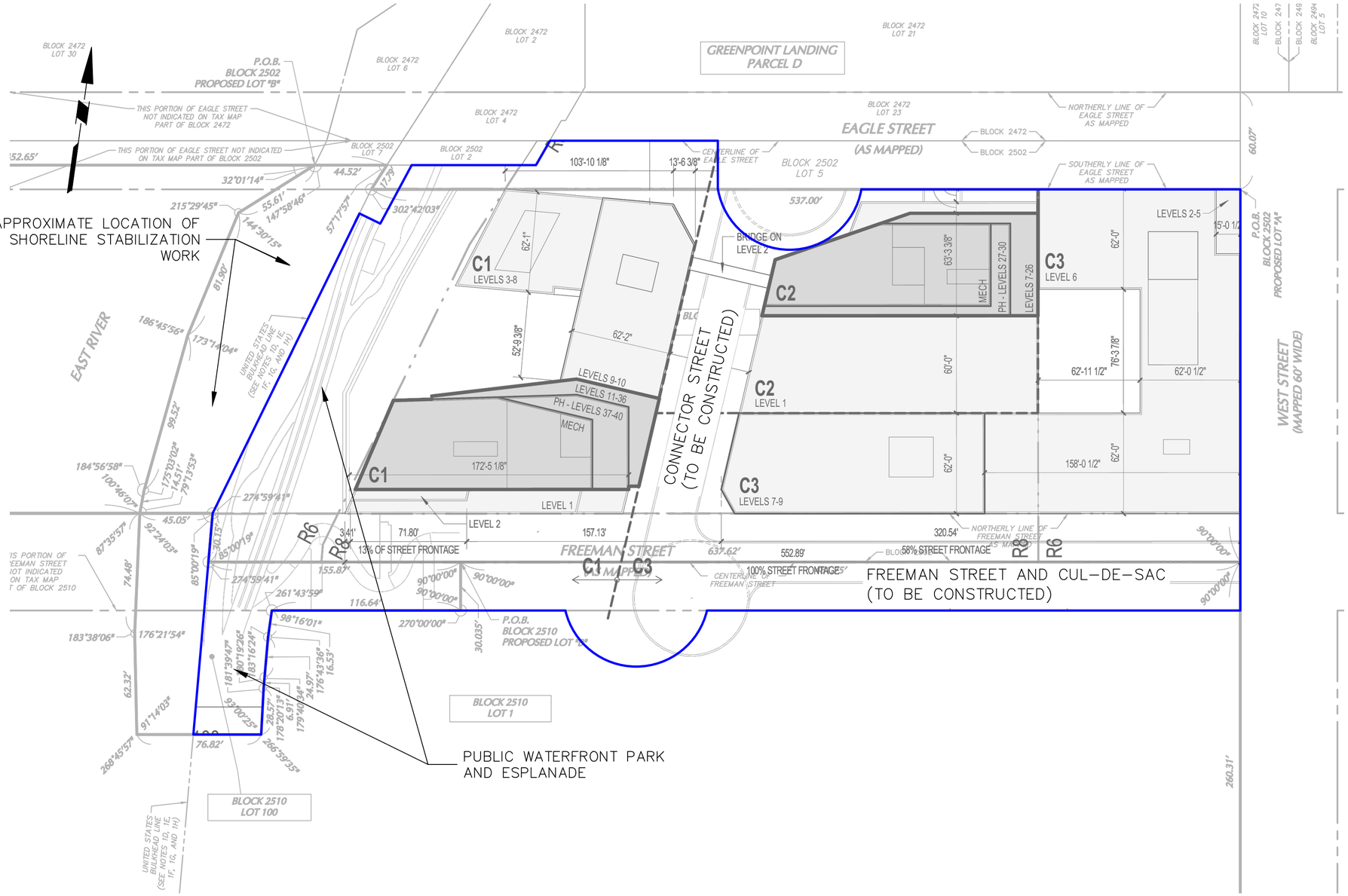
Project No.	170229030
Date	03/13/2026
Drawn By	VK
Checked By	GW

Figure 5
Sheet 5 of 1

LANGAN
PROJECT NO. 170229030

© 2024 Langan

Filename: \\Langan.com\data\NYC\data0\170229030\Project Data\CAD\Sheet Files\Environmental\RIR Figures\Figure 2 - 11 - Updated sample map post RIR.dwg Date: 4/14/2026 Time: 15:44 User: vkanagaratnam Style Table: Langan.stb Layout: Figure 5



NOTES:

1. BASE MAP IS TAKEN FROM "FINAL SURVEY", FIGURE FS103, PREPARED BY LANGAN, DATED FEBRUARY 26, 2025 AND FROM "SITE PLAN", FIGURE C-A-100, PREPARED BY HANDEL ARCHITECTS, DATED FEBRUARY 07, 2025.

WARNING: IT IS A VIOLATION OF THE NYS EDUCATION LAW ARTICLE 145 FOR ANY PERSON, UNLESS HE IS ACTING UNDER THE DIRECTION OF A LICENSED PROFESSIONAL ENGINEER, LAND SURVEYOR OR GEOLOGIST, TO ALTER THIS ITEM IN ANY WAY.

LANGAN
Langan Engineering, Environmental, Surveying, Landscape Architecture and Geology, D.P.C.
368 Ninth Avenue, 8th Floor
New York, NY 10001
T: 212.479.5400 F: 212.479.5444 www.langan.com

Project
C BLOCK
BLOCK NO. 2502, p/o LOT NOs. 1 & 5, AND BLOCK NO. 2510, p/o LOT NOs. 1 & 100
KINGS NEW YORK

Figure Title
PROPOSED DEVELOPMENT PLAN

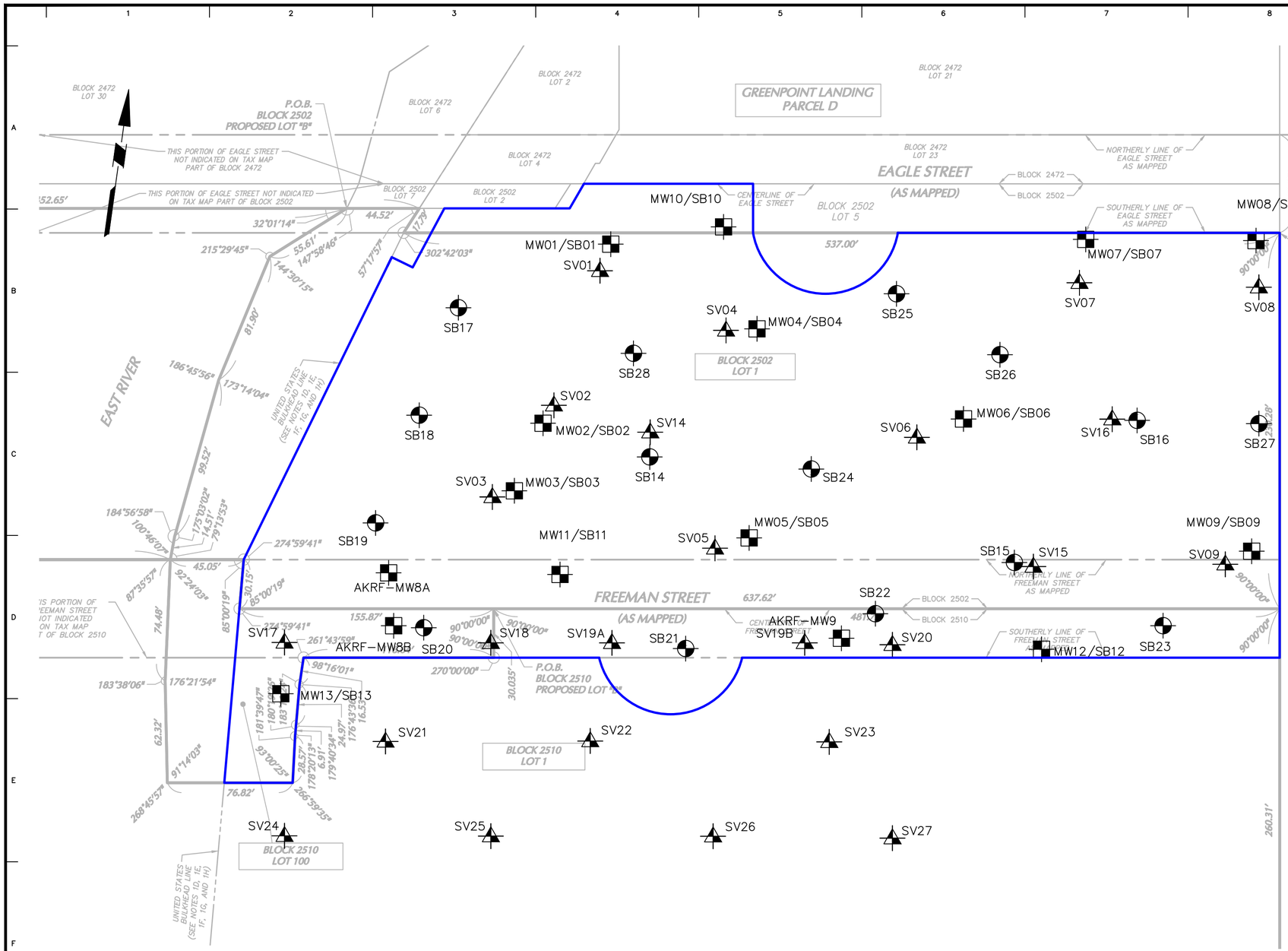
Project No. 170229030
Date 03/13/2026
Drawn By VK
Checked By GW

Figure 6
Sheet 6 of 1

PROJECT NO. 170229030 LANGAN

© 2024 Langan.

Filename: \\Langan.com\data\NYC\data0\170229030\Project Data\CAD\Sheet Files\Environmental\RIR Figures\Figure 2 - 11 - Updated sample map post RIR.dwg Date: 4/14/2026 Time: 15:50 User: vkanagaratnam Style Table: Langan.stb Layout: Figure 6



LEGEND:

- APPROXIMATE SITE BOUNDARY
- SB16 — APPROXIMATE LOCATION OF SOIL BORING
- MW01/SB01 — APPROXIMATE LOCATION OF SOIL BORING/ PERMANENT GROUNDWATER MONITORING WELL
- SV01 — APPROXIMATE LOCATION OF SOIL VAPOR POINT

NOTES:

1. BASE MAP IS TAKEN FROM "FINAL SURVEY', FIGURE FS103, PREPARED BY LANGAN, DATED FEBRUARY 26, 2025.
2. ALL LOCATIONS ARE APPROXIMATE.

WARNING: IT IS A VIOLATION OF THE NYS EDUCATION LAW ARTICLE 145 FOR ANY PERSON, UNLESS HE IS ACTING UNDER THE DIRECTION OF A LICENSED PROFESSIONAL ENGINEER, LAND SURVEYOR OR GEOLOGIST, TO ALTER THIS ITEM IN ANY WAY.

50 0 25 50
SCALE: 1 INCH = 50 FEET

LANGAN
Langan Engineering, Environmental, Surveying, Landscape Architecture and Geology, D.P.C.
368 Ninth Avenue, 8th Floor
New York, NY 10001
T: 212.479.5400 F: 212.479.5444 www.langan.com

Project
C BLOCK
BLOCK NO. 2502, p/o LOT NOs. 1 & 5, AND BLOCK NO. 2510, p/o LOT NOs. 1 & 100
KINGS NEW YORK

Figure Title
SAMPLE LOCATION MAP

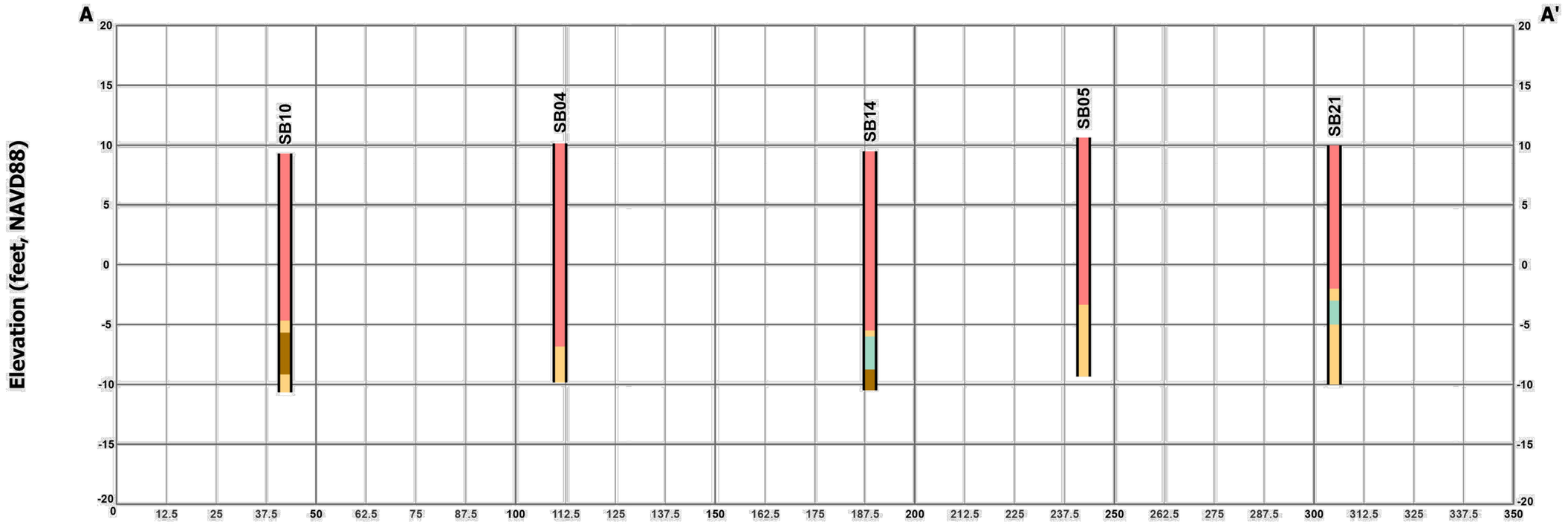
Project No.	170229030
Date	06/11/2025
Drawn By	VK
Checked By	GW

Figure 7
Sheet 7 of 14

LANGAN
PROJECT NO. 170229030

© 2024 Langan

Filename: \\Langan.com\data\NYC\data0\170229030\Project Data\CAD\Sheet Files\Environmental\RIR Figures\Figure 2 - 11 - SRIWP No. 2 Sample Location Map.dwg Date: 4/15/2026 Time: 12:45 User: cquick Style Table: Langan.stb Layout: Figure 7



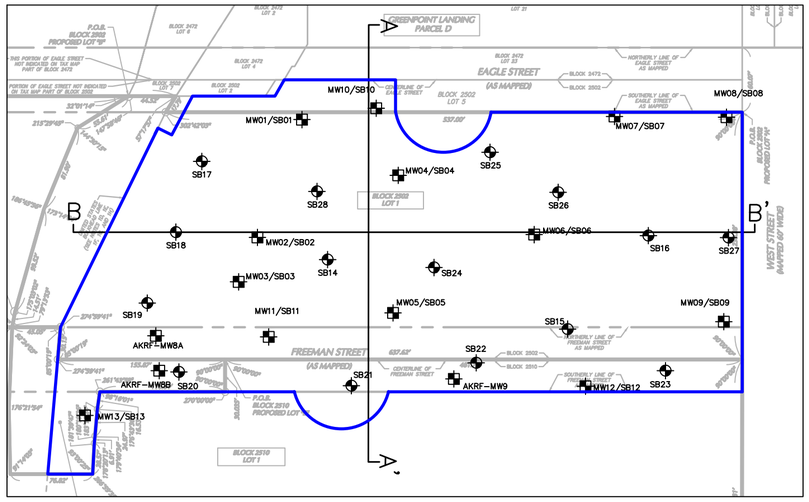
Distance along Cross Section (feet, NAD83)

LEGEND:

- APPROXIMATE SITE BOUNDARY
- NON-NATIVE FILL
- CLAY
- SILT
- SAND
- SB16 — APPROXIMATE LOCATION OF SOIL BORING
- MW01/SB01 — APPROXIMATE LOCATION OF SOIL BORING/ PERMANENT GROUNDWATER MONITORING WELL
- A — A' CROSS SECTION MARKER

KEY MAP:

SCALE 1:100



NOTES:

1. VERTICAL EXAGGERATION 3:1.
2. ALL LOCATIONS AND ELEVATIONS ARE APPROXIMATE.
3. THIS PROFILE REPRESENTS A GENERALIZED SOIL CROSS SECTION DEPICTING LOCATION, ELEVATION, AND ENVIRONMENTAL AND ENGINEERING PROPERTIES BETWEEN POINTS OF EXPLORATION. VARIATIONS IN SUBSURFACE CONDITIONS SHOULD BE EXPECTED BETWEEN BORINGS.
4. ELEVATIONS ARE BASED ON NORTH AMERICAN VERTICAL DATUM OF 1988 (NAVD88), WHICH IS APPROXIMATELY 1.1 FEET ABOVE MEAN SEA LEVEL DATUM AT SANDY HOOK, NEW JERSEY AS DEFINED BY THE UNITED STATES GEOLOGIC SURVEY (USGS NGVD 1929).
5. NAD83 = NORTH AMERICAN DATUM OF 1983

WARNING: IT IS A VIOLATION OF THE NYS EDUCATION LAW ARTICLE 145 FOR ANY PERSON, UNLESS HE IS ACTING UNDER THE DIRECTION OF A LICENSED PROFESSIONAL ENGINEER, LAND SURVEYOR OR GEOLOGIST, TO ALTER THIS ITEM IN ANY WAY.

20 0 5 10 20
SCALE: 1 INCH = 20 FEET

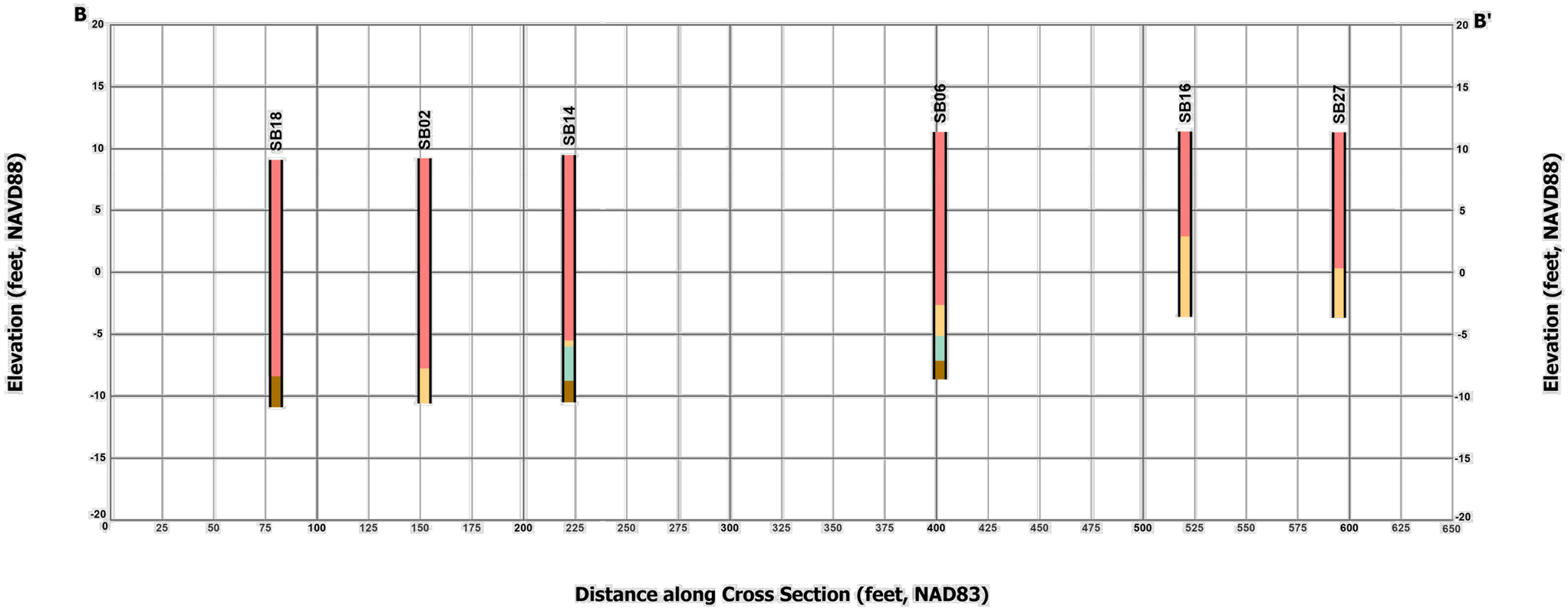
LANGAN
Langan Engineering, Environmental, Surveying, Landscape Architecture and Geology, D.P.C.
368 Ninth Avenue, 8th Floor
New York, NY 10001
T: 212.479.5400 F: 212.479.5444 www.langan.com

Project	C BLOCK BLOCK NO. 2502, p/o LOT NOs. 1 & 5, AND BLOCK NO. 2510, p/o LOT NOs. 1 & 100 KINGS NEW YORK
Figure Title	SUBSURFACE PROFILE A-A'
Project No.	170229030
Date	03/13/2026
Drawn By	VK
Checked By	GW
Figure	8A
Sheet	8 of 1

LANGAN
PROJECT NO. 170229030

© 2024 Langan

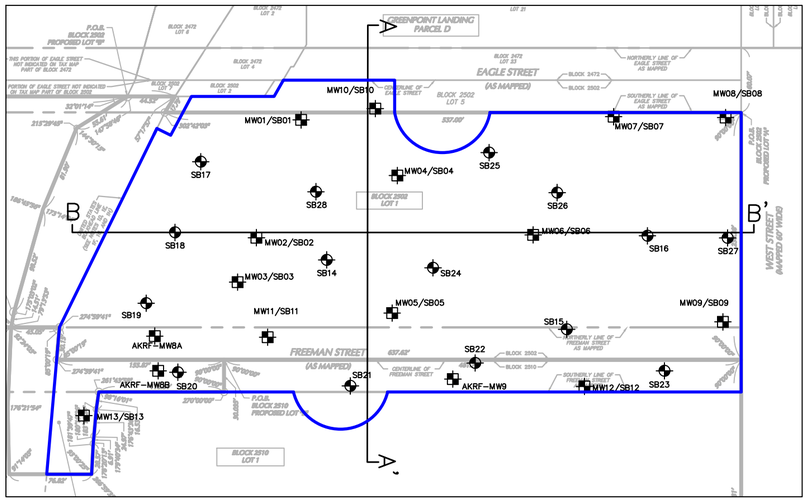
Filename: \\Langan.com\data\NYC\data0\170229030\Project Data\CAD\Sheet Files\Environmental\RIR Figures\Figure 2 - 11 - Updated sample map post RIR.dwg Date: 4/14/2026 Time: 15:51 User: vkanagaratnam Style Table: Langan.stb Layout: Figure 8A



LEGEND:

- APPROXIMATE SITE BOUNDARY
- NON-NATIVE FILL
- CLAY
- SILT
- SAND
- SB16 — APPROXIMATE LOCATION OF SOIL BORING
- MW01/SB01 — APPROXIMATE LOCATION OF SOIL BORING/ PERMANENT GROUNDWATER MONITORING WELL
- B — B' — CROSS SECTION MARKER

KEY MAP:
SCALE 1:100



NOTES:

1. VERTICAL EXAGGERATION 6:1.
2. ALL LOCATIONS AND ELEVATIONS ARE APPROXIMATE.
3. THIS PROFILE REPRESENTS A GENERALIZED SOIL CROSS SECTION DEPICTING LOCATION, ELEVATION, AND ENVIRONMENTAL AND ENGINEERING PROPERTIES BETWEEN POINTS OF EXPLORATION. VARIATIONS IN SUBSURFACE CONDITIONS SHOULD BE EXPECTED BETWEEN BORINGS.
4. ELEVATIONS ARE BASED ON NORTH AMERICAN VERTICAL DATUM OF 1988 (NAVD88), WHICH IS APPROXIMATELY 1.1 FEET ABOVE MEAN SEA LEVEL DATUM AT SANDY HOOK, NEW JERSEY AS DEFINED BY THE UNITED STATES GEOLOGIC SURVEY (USGS NGVD 1929).
5. NAD83 = NORTH AMERICAN DATUM OF 1983

WARNING: IT IS A VIOLATION OF THE NYS EDUCATION LAW ARTICLE 145 FOR ANY PERSON, UNLESS HE IS ACTING UNDER THE DIRECTION OF A LICENSED PROFESSIONAL ENGINEER, LAND SURVEYOR OR GEOLOGIST, TO ALTER THIS ITEM IN ANY WAY.

40 0 10 25 40
SCALE: 1 INCH = 40 FEET

LANGAN
Langan Engineering, Environmental, Surveying, Landscape Architecture and Geology, D.P.C.
368 Ninth Avenue, 8th Floor
New York, NY 10001
T: 212.479.5400 F: 212.479.5444 www.langan.com

Project
C BLOCK
BLOCK NO. 2502, p/o LOT NOs. 1 & 5, AND BLOCK NO. 2510, p/o LOT NOs. 1 & 100
KINGS NEW YORK

Figure Title
SUBSURFACE PROFILE B-B'

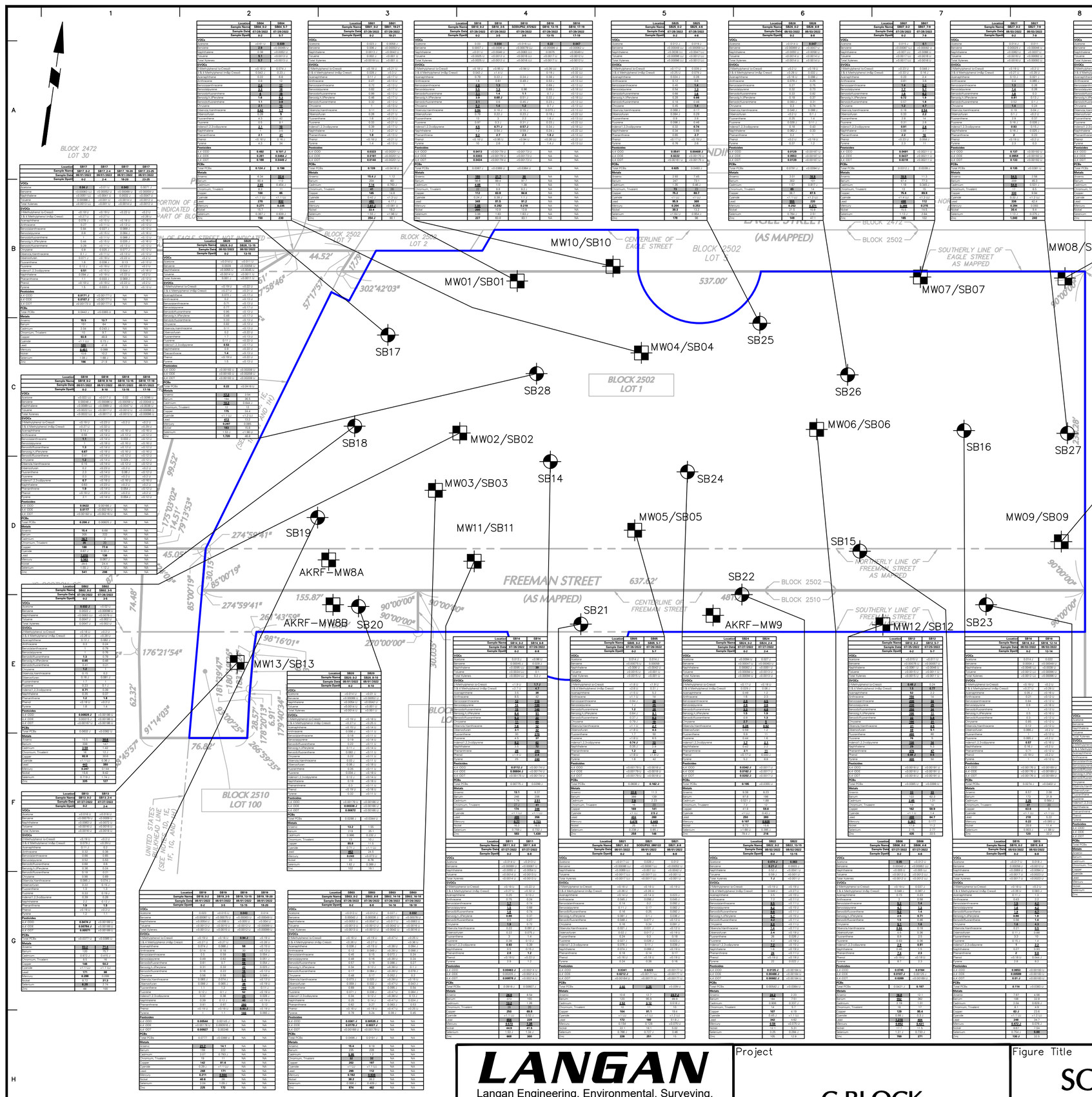
Project No. 170229030
Date 03/13/2026
Drawn By VK
Checked By GW

Figure 8B
Sheet 9 of 1

LANGAN
PROJECT NO. 170229030

© 2024 Langan

Filename: \\Langan.com\data\NYC\data0\170229030\Project Data\CAD\Sheet Files\Environmental\RIR Figures\Figure 2 - 11 - Updated sample map post RIR.dwg Date: 4/14/2026 Time: 15:53 User: vkanagaratnam Style Table: Langan.stb Layout: Figure 8B



Location	SB01	SB01
Sample Name	SB01 0-2	SB01 19-21
Sample Date	07/26/2022	07/26/2022
Sample Depth	0-2	19-21
VOCs		
Acetone	0.0111 U	0.0111 U
Benzene	0.006 J	<0.00568 U
Naphthalene	0.0631 J	<0.0568 U
Toluene	0.082 J	<0.001 U
Total Xylenes	<0.0019 U	<0.0011 U
SVOCs		
2-Methylphenol (o-Cresol)	<0.18 U	<0.21 U
3 & 4 Methylphenol (m&p Cresol)	0.042 J	<0.32 U
Acenaphthene	0.07 J	<0.18 U
Anthracene	0.07 J	<0.13 U
Benzo(a)anthracene	0.2 J	<0.12 U
Benzo(a)pyrene	0.2 J	<0.12 U
Benzo(b)fluoranthene	0.2 J	<0.12 U
Benzo(g,h,i)Perylene	0.1 J	<0.12 U
Benzo(k)fluoranthene	0.1 J	<0.12 U
Chrysene	0.2 J	<0.12 U
Dibenz(a,h)anthracene	<0.12 U	<0.12 U
Dibenzofuran	0.04 J	<0.18 U
Fluoranthene	0.3 J	<0.12 U
Fluorene	0.05 J	<0.18 U
Indeno(1,2,3-cd)pyrene	0.1 J	<0.12 U
Naphthalene	0.04 J	<0.18 U
Phenanthrene	0.2 J	<0.12 U
Phenol	<0.18 U	<0.21 U
Pyrene	0.3 J	<0.12 U
Pesticides		
4,4'-DDD	0.00022 J	<0.00188 U
4,4'-DDE	0.00213 J	<0.00188 U
4,4'-DDT	<0.00187 U	<0.00188 U
PCBs		
Total PCBs	0.0822 J	<0.0382 U
Metals		
Arsenic	12.5	10.5
Barium	169	137
Cadmium	0.27 J	0.129 J
Chromium, Trivalent	18.7	12.2
Copper	82.4	30.6
Cyanide	<1.1 U	0.36 J
Lead	551	360
Mercury	0.247	0.149
Nickel	19.8	9.82
Selenium	0.179 J	1.24 J
Zinc	541	327

Location	SB02	SB02
Sample Name	SB02 0-2	SB02 3-5
Sample Date	07/26/2022	07/26/2022
Sample Depth	0-2	3-5
VOCs		
Acetone	0.0322 J	<0.0114 U
Benzene	0.0022 J	<0.00568 U
Naphthalene	<0.0568 U	<0.0578 U
Toluene	0.0047 J	<0.002 U
Total Xylenes		<0.0034 U
SVOCs		
2-Methylphenol (o-Cresol)	<0.18 U	<0.21 U
3 & 4 Methylphenol (m&p Cresol)	0.31 J	0.39 J
Acenaphthene	0.07 J	<0.18 U
Anthracene	0.2 J	0.23 J
Benzo(a)anthracene	1.2	1.8
Benzo(a)pyrene	1.1	1.4
Benzo(b)fluoranthene	1.3	1.6
Benzo(g,h,i)Perylene	0.65	0.68
Benzo(k)fluoranthene	0.41	0.51
Chrysene	1.2	1.7
Dibenz(a,h)anthracene	0.15	0.2 J
Dibenzofuran	0.12	0.1 J
Fluoranthene	2.3	3.2
Fluorene	0.1 J	0.13 J
Indeno(1,2,3-cd)pyrene	0.71	0.89
Naphthalene	0.06 J	0.07 J
Phenanthrene	1.8	2.6
Phenol	<0.18 U	<0.21 U
Pyrene	1.8	1.4
Pesticides		
4,4'-DDD	0.00022 J	<0.00188 U
4,4'-DDE	0.00213 J	<0.00188 U
4,4'-DDT	<0.00187 U	<0.00188 U
PCBs		
Total PCBs	0.0822 J	<0.0382 U
Metals		
Arsenic	12.5	10.5
Barium	169	137
Cadmium	0.27 J	0.129 J
Chromium, Trivalent	18.7	12.2
Copper	82.4	30.6
Cyanide	<1.1 U	0.36 J
Lead	551	360
Mercury	0.247	0.149
Nickel	19.8	9.82
Selenium	0.179 J	1.24 J
Zinc	541	327

Location	SB03	SB03	SB03	SB03
Sample Name	SB03 0-2	SB03 8-8	SB03 14-16	SB03 16-18
Sample Date	07/26/2022	07/26/2022	07/26/2022	07/26/2022
Sample Depth	0-2	8-8	14-16	16-18
VOCs				
Acetone	<0.0114 U	<0.012 U	0.0277 J	0.0322 J
Benzene	<0.00568 U	<0.00568 U	<0.0031 U	<0.00313 U
Naphthalene	<0.0053 U	<0.0047 U	<0.0713 U	<0.0063 U
Toluene	<0.002 U	<0.002 U	<0.0031 U	<0.00313 U
Total Xylenes	<0.0034 U	<0.0013 U	<0.0042 U	<0.00419 U
SVOCs				
2-Methylphenol (o-Cresol)	<0.18 U	<0.19 U	<0.21 U	<0.21 U
3 & 4 Methylphenol (m&p Cresol)	<0.29 U	<0.21 U	<0.26 U	<0.26 U
Acenaphthene	0.07 J	0.08 J	<0.18 U	<0.18 U
Anthracene	0.2 J	0.2 J	<0.13 U	<0.13 U
Benzo(a)anthracene	1.2	1.2	<0.12 U	<0.12 U
Benzo(a)pyrene	1.1	1.1	<0.12 U	<0.12 U
Benzo(b)fluoranthene	1.3	1.3	<0.12 U	<0.12 U
Benzo(g,h,i)Perylene	0.67	0.7	<0.18 U	<0.18 U
Benzo(k)fluoranthene	0.41	0.5	<0.12 U	<0.12 U
Chrysene	1.2	1.3	<0.12 U	<0.12 U
Dibenz(a,h)anthracene	0.15	0.2 J	<0.12 U	<0.12 U
Dibenzofuran	0.12	0.1 J	<0.18 U	<0.18 U
Fluoranthene	2.3	2.5	<0.12 U	<0.12 U
Fluorene	0.1 J	0.1 J	<0.18 U	<0.18 U
Indeno(1,2,3-cd)pyrene	0.7	0.8	<0.12 U	<0.12 U
Naphthalene	0.06 J	0.06 J	<0.18 U	<0.18 U
Phenanthrene	1.8	2	<0.12 U	<0.12 U
Phenol	<0.18 U	<0.19 U	<0.21 U	<0.21 U
Pyrene	1.8	1.6	<0.12 U	<0.12 U
Pesticides				
4,4'-DDD	0.00422 J	<0.00188 U	NA	NA
4,4'-DDE	0.0117 J	<0.00188 U	NA	NA
4,4'-DDT	<0.00187 U	<0.00188 U	NA	NA
PCBs				
Total PCBs	0.206 J	0.0382 U	NA	NA
Metals				
Arsenic	15.4	8.68	NA	NA
Barium	305	222	NA	NA
Cadmium	0.7 J	0.2 J	NA	NA
Chromium, Trivalent	26	20	NA	NA
Copper	59.7	7	NA	NA
Cyanide	0.36 J	<1.1 U	NA	NA
Lead	398	77.5	NA	NA
Mercury	0.412 J	0.03 J	NA	NA
Nickel	24.5	106	NA	NA
Selenium	0.76 J	0.38 J	NA	NA
Zinc	341	206	NA	NA

Location	SB04	SB04
Sample Name	SB04 0-2	SB04 5-7
Sample Date	07/26/2022	07/26/2022
Sample Depth	0-2	5-7
VOCs		
Acetone	0.0111 U	0.009 J
Benzene	0.0068 J	<0.00568 U
Naphthalene	2.9	<0.00568 U
Toluene	0.0021 J	<0.002 U
Total Xylenes	9.1	<0.0013 U
	0.0019 U	<0.0023 U
SVOCs		
2-Methylphenol (o-Cresol)	<0.18 U	0.078 J
3 & 4 Methylphenol (m&p Cresol)	0.042 J	0.33 J
Acenaphthene	0.23 J	6.6
Anthracene	0.6	1.1
Benzo(a)anthracene	2.4	3.2
Benzo(a)pyrene	2.1	2.5
Benzo(b)fluoranthene	2.3	2.6
Benzo(g,h,i)Perylene	1.1	1.2
Benzo(k)fluoranthene	0.72	0.9
Chrysene	2.1	2.6
Dibenz(a,h)anthracene	0.23	0.3 J
Dibenzofuran	0.2 J	3.4
Fluoranthene	4.3	6.1
Fluorene	0.2 J	4.7
Indeno(1,2,3-cd)pyrene	1.1	1.4
Naphthalene	0.1 J	2.1
Phenanthrene	2.1	20
Phenol	<0.18 U	0.078 J
Pyrene	4.3	5.7
Pesticides		
4,4'-DDD	0.482	0.107 J
4,4'-DDE	0.393	0.0466 J
4,4'-DDT	0.166	0.0458 J
PCBs		
Total PCBs	0.134 J	0.196
Metals		
Arsenic	9.34	22.4
Barium	90.6	117
Cadmium	1.85	0.472 J
Chromium, Trivalent	9.3	16
Copper	195	66
Cyanide	<1.1 U	0.38 J
Lead	276	832
Mercury	0.272	0.129
Nickel	15.7	11
Selenium	0.36 J	0.821 J
Zinc	150	230

Location	SB05	SB05
Sample Name	SB05 0-2	SB05 4-6
Sample Date	07/26/2022	07/26/2022
Sample Depth	0-2	4-6
VOCs		
Acetone	0.0111 U	0.0111 U
Benzene	0.0057 J	<0.00568 U
Naphthalene	<0.0568 U	<0.0568 U
Toluene	<0.0025 U	<0.0012 U
Total Xylenes	<0.0019 U	<0.0023 U
SVOCs		
2-Methylphenol (o-Cresol)	<0.18 U	<0.18 U
3 & 4 Methylphenol (m&p Cresol)	0.043 J	<1.4 U
Acenaphthene	0.19 J	0.22 J
Anthracene	1.4	0.61
Benzo(a)anthracene	5.5	2.4
Benzo(a)pyrene	4.5	1.8
Benzo(b)fluoranthene	5.2	2.1
Benzo(g,h,i)Perylene	2.1	1.2
Benzo(k)fluoranthene	1.9	0.8
Chrysene	5.3	2.2
Dibenz(a,h)anthracene	0.84	0.3 J
Dibenzofuran	0.2 J	0.2 J
Fluoranthene	11	4.3
Fluorene	0.3 J	0.3 J
Indeno(1,2,3-cd)pyrene	2.5	1
Naphthalene	0.1 J	0.1 J
Phenanthrene	10	3.5
Phenol	<0.18 U	<0.18 U
Pyrene	9.2	3.7
Pesticides		
4,4'-DDD	0.0112 J	<0.00188 U
4,4'-DDE	0.00931 J	<0.00188 U
4,4'-DDT	0.00418 J	<0.00188 U
PCBs		
Total PCBs	0.0597 J	<0.0382 U
Metals		
Arsenic	15.4 J	7.12
Barium	304	165
Cadmium	2.43 J	0.281 J
Chromium, Trivalent	41	26
Copper	140	79.2
Cyanide	<1.1 U	<1.1 U
Lead	492	147
Mercury	0.414 J	0.101 J
Nickel	33.4	18.2
Selenium	0.39 J	0.821 J
Zinc	354 J	161

Location	SB10	SB10	SB10	SB10	SB10
Sample Name	SB10 0-2	SB10 3-5	SB10(DUP) 072922	SB10 13-15	SB10 17-19
Sample Date	07/26/2022	07/26/2022	07/26/2022	07/26/2022	07/26/2022
Sample Depth	0-2	3-5	3-5	13-15	17-19
VOCs					
Acetone	<0.0114 U	0.0114 J	<0.0114 U	0.02 J	0.0387 J
Benzene	0.0057 J	<0.00568 U	<0.00568 U	<0.00568 U	<0.00568 U
Naphthalene	<0.0568 U	<0.0568 U	<0.0568 U	<0.0568 U	<0.0568 U
Toluene	0.0028 J	<0.002 U	<0.002 U	<0.002 U	<0.002 U
Total Xylenes	<0.0019 U	<0.0023 U	<0.0023 U	<0.0013 U	<0.0023 U
SVOCs					
2-Methylphenol (o-Cresol)	<0.18 U	<0.18 U	<0.18 U	<0.18 U	<0.18 U
3 & 4 Methylphenol (m&p Cresol)	0.028 J	<0.2 U	<0.2 U	<0.2 U	<0.2 U
Acenaphthene	0.13 J	0.11 J	0.09 J	0.26 J	0.32 J
Anthracene	0.77	<0.13 U	<0.13 U	0.49 J	<0.13 U
Benzo(a)anthracene	2.6	0.13 J	0.13 J	1.4	0.13 J
Benzo(a)pyrene	2.2	0.12 J	0.12 J	1.2	0.12 J
Benzo(b)fluoranthene	2.5	0.14 J	0.14 J	1.4	0.14 J
Benzo(g,h,i)Perylene	1.2	0.12 J	0.12 J	0.68 J	0.12 J
Benzo(k)fluoranthene	0.92	<0.13 U	<0.13 U	0.48 J	<0.13 U
Chrysene	2.5	0.13 J	0.13 J	1.4	0.13 J
Dibenz(a,h)anthracene	0.4 J	<0.12 U	<0.12 U	0.23 J	<0.12 U
Dibenzofuran	0.11 J	<0.18 U	<0.18 U	0.22 J	<0.18 U
Fluoranthene	5.3	0.24 J	0.23 J	3.1	0.24 J
Fluorene	0.2 J	<0.18 U	<0.18 U	0.27 J	<0.18 U
Indeno(1,2,3-cd)pyrene	0.74 J	<0.13 U	<0.13 U	0.42 J	<0.13 U
Naphthalene	0.11 J	<0.18 U	<0.18 U	0.13 J	<0.18 U
Phenanthrene	1.2	0.1 J	0.1 J	0.9 J	0.1 J
Phenol	<0.18 U	<0.2 U	<0.2 U	<0.2 U	<0.2 U
Pyrene	4.6	0.2 J	0.2 J	2.6	0.2 J
Pesticides					
4,4'-DDD	0.0133 J	<0.00188 U	<0.00377 U	NA	NA
4,4'-DDE	0.0165 J	<0.00188 U	<0.00377 U	NA	NA
4,4'-DDT	0.0144 J	<0.00377 U	<0.00377 U	NA	NA
PCBs					
Total PCBs	0.139	<0.0419 U	<0.0384 U	NA	NA
Metals					
Arsenic	15.4 J	7.12	6.68 J	NA	NA
Barium	304	165	155	NA	NA
Cadmium	2.43 J	0.281 J	0.219 J	NA	NA
Chromium, Trivalent	41	26	24	NA	NA
Copper	140	79.2	68.2	NA	NA
Cyanide	<1.1 U	<1.1 U	<1.1 U	NA	NA
Lead	492	147	127	NA	NA
Mercury	0.414 J	0.101 J	0.0918 J	NA	NA
Nickel	33.4	18.2	15.7	NA	NA
Selenium	0.39 J	0.821 J	0.744 J	NA	NA
Zinc	354 J	161	134	NA	NA

Location	SB14	SB14
Sample Name	SB14 0-2	SB14 6-8
Sample Date	07/26/2022	07/26/2022
Sample Depth	0-2	6-8
VOCs		
Acetone	0.0112 J	<0.96 U
Benzene	<0.00568 U	<0.048 U
Naphthalene	<0.0568 U	39
Toluene	<0.002 U	0.11
Total Xylenes	<0.0023 U	0.11
SVOCs		
2-Methylphenol (o-Cresol)	<1.8 U	1.7 J
3 & 4 Methylphenol (m&p Cresol)	<2.1 U	4.7
Acenaphthene	0.5 J	42
Anthracene	0.9 J	120
Benzo(a)anthracene	1.4	120
Benzo(a)pyrene	0.9 J	81
Benzo(b)fluoranthene	1.1 J	81
Benzo(g,h,i)Perylene	0.4 J	41
Benzo(k)fluoranthene	0.4 J	47
Chrysene	1.3	110
Dibenz(a,h)anthracene	0.2 J	20 J
Dibenzofuran	0.3 J	25 J
Fluoranthene	2.7	210
Fluorene	0.4 J	65
Indeno(1,2,3-cd)pyrene	0.5 J	45
Naphthalene	0.2 J	120
Phenanthrene	1.2	140
Phenol	<1.8 U	1.7 J
Pyrene	2.5	190
Pesticides		
4,4'-DDD	0.0112 J	<0.00188 U
4,4'-DDE	0.00931 J	<0.00188 U
4,4'-DDT	0.0144 J	<0.00377 U
PCBs		
Total PCBs	0.0597 J	<0.0384 U
Metals		
Arsenic	13.1	9.37
Barium	169	326
Cadmium	1.61 J	0.61 J
Chromium, Trivalent	37	41
Copper	176	326
Cyanide	<1.1 U	0.43 J
Lead	255	266
Mercury	0.77	0.731
Nickel	29.4	30.1
Selenium	0.39 J	0.821 J
Zinc	583	1,430

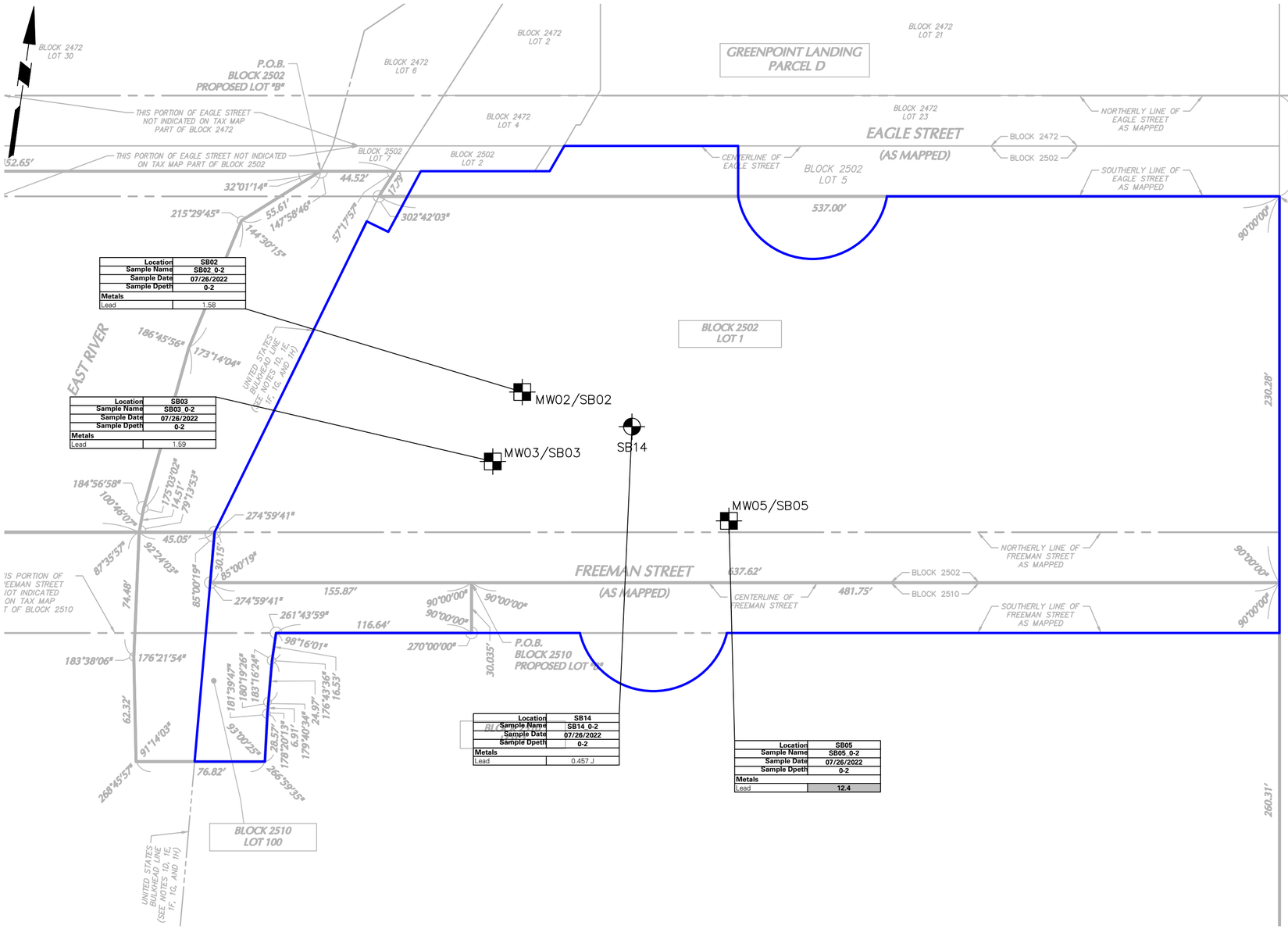
Location	SB15	SB15	SB15	SB15
Sample Name	SB15 0-2	SB15 3-5	SB15 13-15	SB15 18-20
Sample Date	08/01/2022	08/01/2022	08/01/2022	08/01/2022
Sample Depth	0-2	3-5	13-15	18-20
VOCs				
Acetone	<0.022 U	<0.0115 U	0.043 J	0.014 J
Benzene	<0.00568 U	<0.00568 U	<0.00568 U	<0.00568 U
Naphthalene	<0.0054 U	<0.006 U	<0.005 U	<0.004 U
Toluene	<0.0031 U	<0.0031 U	<0.0012 U	<0.00568 U
Total Xylenes	<0.0013 U	<0.0031 U	<0.0012 U	<0.00568 U
SVOCs				
2-Methylphenol (o-Cresol)	<0.19 U	<0.21 U	<0.18 U	<0.18 U
3 & 4 Methylphenol (m&p Cresol)	<0.21 U	<0.21 U	0.042 J	<0.35 U
Acenaphthene	0.072 J	0.088 J	56	0.094 J
Anthracene	0.14	0.18	30	<0.13 U
Benzo(a)anthracene	0.5	0.6	91	0.26 J
Benzo(a)pyrene	0.49	0.62	85	0.21 J
Benzo(b)fluoranthene	0.61	0.7	92	0.22 J
Benzo(g,h,i)Perylene	0.3 J	0.36 J	45	<0.19 U
Benzo(k)fluoranthene	0.2 J	0.25 J	51	0.08 J
Chrysene	0.52	0.64	87	0.24 J
Dibenz(a,h)anthracene	0.09 J	0.11 J	16	<0.19 U
Dibenzofuran	0.09 J	0.11 J	25	<0.19 U
Fluoranthene	1.1	1.4	140	0.49 J
Fluorene	0.1 J	0.12 J	34	<0.19 U
Indeno(1,2,3-cd)pyrene	0.33	0.38	54	0.09 J
Naphthalene	0.06 J	0.12 J	40	<0.19 U
Phenanthrene	0.81	0.97	220	0.33
Phenol	<0.19 U	<0.19 U	0.057 J	<0.19 U
Pyrene	1	1.1	180	0.59 J
Pesticides				
4,4'-DDD	0.00544 J	0.00145 J	NA	NA
4,4'-DDE	0.00119 J	0.00145 J	NA	NA
4,4'-DDT	0.00827 J	0.00248	NA	NA
PCBs				
Total PCBs	0.0717 J	<0.0384 U	NA	NA
Metals				
Arsenic	13.2	14.1	NA	NA
Barium	169	232	NA	NA
Cadmium	2.07 J	0.793 J	NA	NA
Chromium, Trivalent	19	21	NA	NA
Copper	142	81.6	NA	NA
Cyanide	0.29 J	<1.1 U	NA	NA
Lead	288	171	NA	NA
Mercury	0.211	0.165	NA	NA
Nickel	40.6	39	NA	NA
Selenium	0.54	1.09	NA	NA
Zinc	226	172	NA	NA

Location	SB16	SB16
Sample Name	SB16 0-2	SB16 12-14
Sample Date	08/01/2022	08/01/2022
Sample Depth	0-2	12-14
VOCs		
Acetone	0.014 J	0.022
Benzene	<0.00568 U	<0.00568 U
Naphthalene	<0.0061 U	<0.0058 U
Toluene	<0.0031 U	<0.0031 U
Total Xylenes	<0.0031 U	<0.0031 U
SVOCs		
2-Methylphenol (o-Cresol)	<0.19 U	<0.21 U
3 & 4 Methylphenol (m&p Cresol)	<0.27 U	<0.29 U
Acenaphthene	0.14 J	0.16 J
Anthracene	0.31	<0.13 U
Benzo(a)anthracene	1.1	0.28
Benzo(a)pyrene	0.9	<0.18 U
Benzo(b)fluoranthene	1.1	0.2
Benzo(g,h,i)Perylene	0.6	<0.18 U
Benzo(k)fluoranthene	0.4	0.1 J
Chrysene	1.1	0.24
Dibenz(a,h)anthracene	0.23	<0.12 U
Dibenzofuran	0.2 J	<0.18 U
Fluoranthene	2.2	0.5
Fluorene	0.2 J	<0.18 U
Indeno(1,2,3-cd)pyrene	0.67	<0.13 U
Naphthalene	0.1 J	<0.18 U
Phenanthrene	1.2	0.3 J
Phenol	<0.19 U	<0.21 U
Pyrene	2.1	0.4 J
Pesticides		
4,4'-DDD	0.0145 J	0.0168
4,4'-DDE	0.0212 J	0.0135
4,4'-DDT	0.0295	<0.00189 U
PCBs		
Total PCBs	0.144 J	<0.0382 U
Metals		
Arsenic	7.82	4.58
Barium	106	66.3
Cadmium	0.34	0.629 J
Chromium, Trivalent	14	9.1
Copper	129	65.2
Cyanide	0.33 J	0.33 J
Lead	144	34.7
Mercury	0.212 J	0.0413
Nickel	21.3	13.6
Selenium	0.564 J	0.88
Zinc	726 J	313

Location	SB17	SB17	SB17	SB17
Sample Name	SB17 0-2	SB17 2-4	SB17 18-20	SB17 22-25
Sample Date	08/01/2022	08/01/2022	08/01/2022	08/01/2022
Sample Depth	0-2	2-4	18-20	22-25
VOCs				
Acetone	0.0111 U	0.0111 U	0.0361 J	0.0111 U
Benzene	<0.00568 U	<0.00568 U	<0.00568 U	<0.00568 U
Naphthalene	<0.0061 U	<0.0061 U	<0.0053 U	<0.0061 U
Toluene	0.00568 J	<0.002 U	<0.0014 U	<0.0012 U
Total Xylenes	<0.0023 U	<0.0023 U	<0.0013 U	<0.0013 U
SVOCs				
2-Methylphenol (o-Cresol)	<0.18 U	<0.19 U	<0.22 U	<0.2 U
3 & 4 Methylphenol (m&p Cresol)	<0.27 U	<0.27 U	<0.33 U	<0.28 U
Acenaphthene	0.09 J	<0.18 U	<0.18 U	<0.18 U
Anthracene	0.07	<0.13 U	<0.13 U	<0.12 U
Benzo(a)anthracene	0.3 J	<0.12 U	<0.12 U	<0.12 U
Benzo(a)pyrene	0.3 J	<0.12 U	<0.12 U	<0.12 U
Benzo(b)fluoranthene	1	<0.12 U	0.084 J	<0.12 U
Benzo(g,h,i)Perylene	0.2 J	<0.18 U	<0.18 U	<0.18 U
Benzo(k)fluoranthene	0.1 J	<0.12 U	<0.12 U	<0.12 U
Chrysene	0.3 J	<0.12 U	<0.12 U	<0.12 U
Dibenz(a,h)anthracene	0.1 J	<0.12 U	<0.12 U	<0.12 U
Dibenzofuran	0.1 J	<0.18 U	<0.18 U	<0.18 U
Fluoranthene	0.6	<0.12 U	<0.12 U	<0.12 U
Fluorene	0.1 J	<0.18 U	<0.18 U	<0.18 U
Indeno(1,2,3-cd)pyrene	0.2 J	<0.13 U	<0.13 U	<0.12 U
Naphthalene	0.1 J	<0.18 U	<0.18 U	<0.18 U
Phenanthrene	0.4	<0.12 U	<0.12 U	<0.12 U
Phenol	<0.18 U	<0.19 U	<0.22 U	<0.2 U
Pyrene	0.6	<0.12 U	<0.12 U	<0.12 U
Pesticides				
4,4'-DDD	0.00188 J	<0.00188 U	NA	NA
4,4'-DDE	0.00188 J	<0.00188 U	NA	NA
4,4'-DDT	0.00377 J	<0.00377 U	NA	NA
PCBs				
Total PCBs	0.0382 J	0.0382 U	NA	NA
Metals				
Arsenic	11.1	9.37	NA	NA
Barium	109	326	NA	NA
Cadmium	0.2 J	0.61 J	NA	NA
Chromium, Trivalent	16	41	NA	NA
Copper	183	326	NA	NA
Cyanide	<1.1 U	0.43 J	NA	NA
Lead	266	266	NA	NA
Mercury	0.078	0.731	NA	NA
Nickel	21.5	30.1	NA	NA
Selenium	0.389 J	0.821 J	NA	NA
Zinc	152	1,430	NA	NA

Location	SB18	SB18	SB18	SB18
Sample Name	SB18 0-2	SB18 8-10	SB18 13-15	SB18 17-19
Sample Date	08/01/2022	08/01/2022	08/01/2022	08/01/2022
Sample Depth	0-2	8-10	13-15	17-19
VOCs				
Acetone	<0.022 U	<0.0117 U	0.02	<0.0056 U
Benzene	<0.00568 U	<0.00568 U	<0.00553 U	<0.00549 U
Naphthalene	<0.0059 U	<0.0069 U	<0.0017 U	<0.0038 U
Toluene	<0.0031 U	<0.0031 U	<0.0012 U	<0.00568 U
Total Xylenes	<0.0031 U	<0.0031 U	<0.0012 U	<0.00568 U
SVOCs				
2-Methylphenol (o-Cresol)	<0.19 U	<0.19 U	<0.18 U	<0.18 U
3 & 4 Methylphenol (m&p Cresol)	<0.27 U	<0.27 U	<0.18 U	<0.35 U
Acenaphthene	0.14 J	0.088 J	56	0.094 J
Anthracene	0.14	0.18	30	<0.13 U
Benzo(a)anthracene	0.5	0.6	91	0.26 J
Benzo(a)pyrene	0.49	0.62	85	0.21 J
Benzo(b)fluoranthene	0.61	0.7	92	0.22 J
Benzo(g,h,i)Perylene	0.3 J	0.36 J	45	<0.19 U
Benzo(k)fluoranthene	0.2 J	0.25 J	51	0.08 J
Chrysene	0.52	0.64	87	0.24 J
Dibenz(a,h)anthracene	0.09 J	0.11 J	16	<0.19 U
Dibenzofuran	0.09 J	0.11 J	25	<0.19 U
Fluoranthene	1.1	1.4	140	0.49 J
Fluorene	0.1 J	0.12 J	34	<0.19 U
Indeno(1,2,3-cd)pyrene	0.33	0.38	54	0.09 J
Naphthalene	0.06 J	0.12 J	40	<0.19 U
Phenanthrene	0.81	0.97	220	0.33
Phenol	<0.19 U	<0.19 U	0.057 J	<0.19 U
Pyrene	1	1.1	180	0.59 J
Pesticides				
4,4'-DDD	0.00544 J	0.00145 J	NA	NA
4,4'-DDE	0.00119 J	0.00145 J	NA	NA
4,4'-DDT	0.00827 J	0.00248	NA	NA
PCBs				
Total PCBs	0.0717 J	<0.0384 U	NA	NA
Metals				
Arsenic	13.2	14.1	NA	NA
Barium	169	232	NA	NA
Cadmium	2.07 J	0.793 J	NA	NA
Chromium, Trivalent	19	21	NA	NA
Copper	142	81.6	NA	NA
Cyanide	0.29 J	<1.1 U	NA	NA
Lead	288	171	NA	NA
Mercury	0.211	0.165	NA	NA
Nickel	40.6	39	NA	NA
Selenium	0.54	1.09	NA	NA
Zinc	226	172	NA	NA

Location	SB19	SB19	SB19	SB19
Sample Name	SB19 0-2	SB19 3-5	SB19 13-15	SB19 18-20
Sample Date	08/01/2022	08/01/2022	08/01/2022	08/01/2022
Sample Depth	0-2	3-5	13-15	18-20
VOCs				
Acetone	<0.022 U	<0.0115 U	0.043 J	0.014 J
Benzene	<0.00568 U	<0.00568 U	<0.00553 U	<0.00549 U
Naphthalene	<0.0054 U	<0.006 U	<0.005 U	<0.004 U
Toluene	<0.0031 U	<0.0031 U	<0.0012 U	<0.00568 U
Total Xylenes	<0.0013 U	<0.0031 U	<0.0012 U	<0.00568 U
SVOCs				
2-Methylphenol (o-Cresol)	<0.19 U	<0.21 U	<0.18 U	<0.18 U
3 & 4 Methylphenol (m&p Cresol)	<0.21 U	<0.21 U	<0.18 U	<0.35 U
Acenaphthene	0.072 J	0.088 J	56	0.094 J
Anthracene	0.14	0.18	30	<0.13 U
Benzo(a)anthracene	0.5	0.6	91	0.26 J
Benzo(a)pyrene	0.49	0.62	85	0.21 J
Benzo(b)fluoranthene	0.61	0.7	92	0.22 J
Benzo(g,h,i)Perylene	0.3 J	0.36 J	45	<0.19 U
Benzo(k)fluoranthene	0.2 J	0.25



LEGEND:

- APPROXIMATE SITE BOUNDARY
- SB16 — APPROXIMATE LOCATION OF SOIL BORING
- MW01/SB01 — APPROXIMATE LOCATION OF SOIL BORING/ PERMANENT GROUNDWATER MONITORING WELL

Analyte	RCRA Characteristics of Hazardous Waste
Metals	
Lead	5

Exceedance Summary:

10 - Result exceeds the RCRA Maximum Concentration of Contaminants for the Toxicity Characteristic

NOTES:

1. BASE MAP IS TAKEN FROM "FINAL SURVEY', FIGURE FS103, PREPARED BY LANGAN, DATED FEBRUARY 26, 2025.
2. ALL LOCATIONS ARE APPROXIMATE.
3. SOIL SAMPLE ANALYTICAL RESULTS ARE COMPARED TO THE TITLE 6 NEW YORK CODES RULES AND REGULATIONS (NYCRR) PART 371.3 AND 40 CFR 261 SUBPART C AND TABLE 1 OF 40 CFR 261.24 - ENVIRONMENTAL PROTECTION AGENCY (EPA) RESOURCE CONSERVATION AND RECOVERY ACT (RCRA) CHARACTERISTIC OF HAZARDOUS WASTE.
4. J = THE ANALYTE WAS POSITIVELY IDENTIFIED AND THE ASSOCIATED NUMERICAL VALUE IS THE APPROXIMATE CONCENTRATION OF THE ANALYTE IN THE SAMPLE.

WARNING: IT IS A VIOLATION OF THE NYS EDUCATION LAW ARTICLE 145 FOR ANY PERSON, UNLESS HE IS ACTING UNDER THE DIRECTION OF A LICENSED PROFESSIONAL ENGINEER, LAND SURVEYOR OR GEOLOGIST, TO ALTER THIS ITEM IN ANY WAY.

50 0 25 50
SCALE: 1 INCH = 50 FEET

LANGAN
Langan Engineering, Environmental, Surveying, Landscape Architecture and Geology, D.P.C.
368 Ninth Avenue, 8th Floor
New York, NY 10001
T: 212.479.5400 F: 212.479.5444 www.langan.com

Project
C BLOCK
BLOCK NO. 2502, p/o LOT NOs. 1 & 5, AND BLOCK NO. 2510, p/o LOT NOs. 1 & 100
KINGS NEW YORK

Figure Title
SOIL SAMPLE ANALYTICAL RESULTS MAP - TCLP

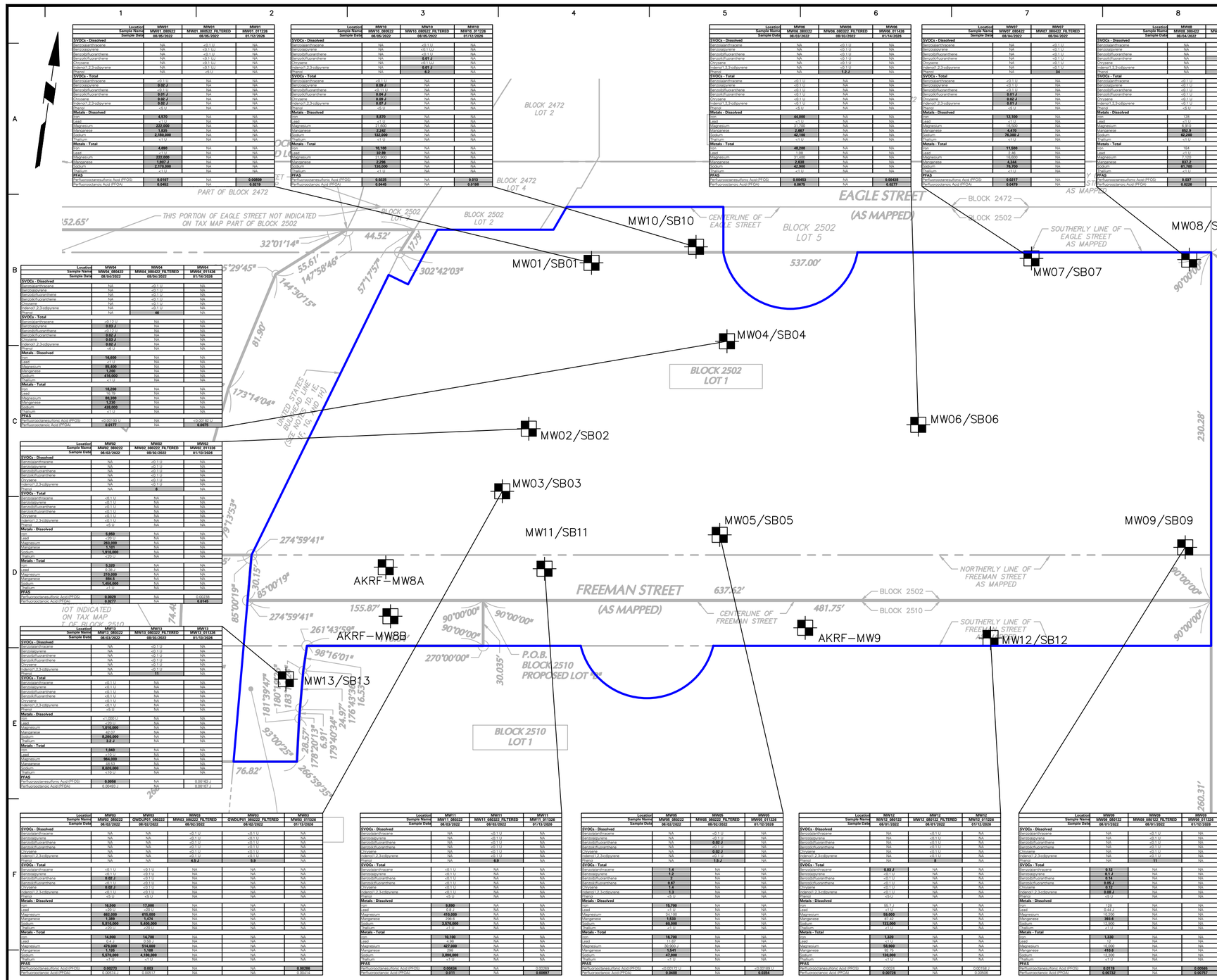
Project No. 170229030
Date 03/13/2026
Drawn By VK
Checked By GW

Figure 9B
Sheet 11 of 14

LANGAN
PROJECT NO. 170229030

© 2024 Langan

Filename: \\Langan.com\data\NYC\data0\170229030\Project Data\CAD\Sheet Files\Environmental\RIR Figures\Figure 2 - 11 - Updated sample map post RIR.dwg Date: 4/14/2026 Time: 16:02 User: vkanagaratnam Style Table: Langan.stb Layout: Figure 9B



Location	MW01	MW01	MW01
Sample Name	MW01_080522	MW01_080522_FILTERED	MW01_011226
Sample Date	08/05/2022	08/05/2022	01/12/2026
SVOCs - Dissolved			
Benzo(a)anthracene	NA	<0.1 U	NA
Benzo(a)pyrene	NA	<0.1 U	NA
Benzo(b)fluoranthene	NA	<0.1 U	NA
Benzo(k)fluoranthene	NA	<0.1 U	NA
Chrysene	NA	<0.1 U	NA
Indeno(1,2,3-cd)pyrene	NA	<0.1 U	NA
Phenol	NA	<5 U	NA
SVOCs - Total			
Benzo(a)anthracene	<0.1 U	NA	NA
Benzo(a)pyrene	**0.02 J**	NA	NA
Benzo(b)fluoranthene	<0.1 U	NA	NA
Benzo(k)fluoranthene	**0.01 J**	NA	NA
Chrysene	**0.02 J**	NA	NA
Indeno(1,2,3-cd)pyrene	**0.02 J**	NA	NA
Phenol	<5 U	NA	NA
Metals - Dissolved			
Iron	**4,570**	NA	NA
Lead	<3 U	NA	NA
Magnesium	**222,000**	NA	NA
Manganese	**2,160**	NA	NA
Sodium	**2,160,000**	NA	NA
Thallium	<1 U	NA	NA
Metals - Total			
Iron	**4,690**	NA	NA
Lead	<3 U	NA	NA
Magnesium	**222,000**	NA	NA
Manganese	**1,907 J**	NA	NA
Sodium	**2,170,000**	NA	NA
Thallium	<1 U	NA	NA
PFAS			
Perfluorooctanesulfonic Acid (PFOS)	**0.0107**	NA	**0.00808**
Perfluorooctanoic Acid (PFOA)	**0.0452**	NA	**0.0219**

Location	MW10	MW10	MW10
Sample Name	MW10_080522	MW10_080522_FILTERED	MW10_011226
Sample Date	08/05/2022	08/05/2022	01/12/2026
SVOCs - Dissolved			
Benzo(a)anthracene	NA	<0.1 U	NA
Benzo(a)pyrene	NA	<0.1 U	NA
Benzo(b)fluoranthene	NA	<0.1 U	NA
Benzo(k)fluoranthene	NA	**0.01 J**	NA
Chrysene	NA	<0.1 U	NA
Indeno(1,2,3-cd)pyrene	NA	**0.01 J**	NA
Phenol	NA	**8.2**	NA
SVOCs - Total			
Benzo(a)anthracene	<0.1 U	NA	NA
Benzo(a)pyrene	**0.06 J**	NA	NA
Benzo(b)fluoranthene	<0.1 U	NA	NA
Benzo(k)fluoranthene	**0.04 J**	NA	NA
Chrysene	**0.09 J**	NA	NA
Indeno(1,2,3-cd)pyrene	**0.07 J**	NA	NA
Phenol	<5 U	NA	NA
Metals - Dissolved			
Iron	**8,870**	NA	NA
Lead	<3 U	NA	NA
Magnesium	**31,800**	NA	NA
Manganese	**1,040**	NA	NA
Sodium	**152,000**	NA	NA
Thallium	<1 U	NA	NA
Metals - Total			
Iron	**10,100**	NA	NA
Lead	**32.8**	NA	NA
Magnesium	**31,900**	NA	NA
Manganese	**1,230**	NA	NA
Sodium	**130,000**	NA	NA
Thallium	<1 U	NA	NA
PFAS			
Perfluorooctanesulfonic Acid (PFOS)	**0.0025**	NA	**0.013**
Perfluorooctanoic Acid (PFOA)	**0.0046**	NA	**0.0199**

Location	MW06	MW06	MW06
Sample Name	MW06_080322	MW06_080322_FILTERED	MW06_011426
Sample Date	08/03/2022	08/03/2022	01/14/2026
SVOCs - Dissolved			
Benzo(a)anthracene	NA	<0.1 U	NA
Benzo(a)pyrene	NA	<0.1 U	NA
Benzo(b)fluoranthene	NA	<0.1 U	NA
Benzo(k)fluoranthene	NA	<0.1 U	NA
Chrysene	NA	<0.1 U	NA
Indeno(1,2,3-cd)pyrene	NA	<0.1 U	NA
Phenol	NA	**1.2 J**	NA
SVOCs - Total			
Benzo(a)anthracene	<0.1 U	NA	NA
Benzo(a)pyrene	<0.1 U	NA	NA
Benzo(b)fluoranthene	<0.1 U	NA	NA
Benzo(k)fluoranthene	<0.1 U	NA	NA
Chrysene	<0.1 U	NA	NA
Indeno(1,2,3-cd)pyrene	<0.1 U	NA	NA
Phenol	<5 U	NA	NA
Metals - Dissolved			
Iron	**44,000**	NA	NA
Lead	<3 U	NA	NA
Magnesium	**31,400**	NA	NA
Manganese	**2,020**	NA	NA
Sodium	**42,100**	NA	NA
Thallium	<1 U	NA	NA
Metals - Total			
Iron	**46,200**	NA	NA
Lead	**3.00**	NA	NA
Magnesium	**31,400**	NA	NA
Manganese	**2,030**	NA	NA
Sodium	**42,900**	NA	NA
Thallium	<1 U	NA	NA
PFAS			
Perfluorooctanesulfonic Acid (PFOS)	**0.00453**	NA	**0.00439**
Perfluorooctanoic Acid (PFOA)	**0.0075**	NA	**0.0077**

Location	MW07	MW07	MW07
Sample Name	MW07_080422	MW07_080422_FILTERED	MW07_011426
Sample Date	08/04/2022	08/04/2022	01/14/2026
SVOCs - Dissolved			
Benzo(a)anthracene	NA	<0.1 U	NA
Benzo(a)pyrene	NA	<0.1 U	NA
Benzo(b)fluoranthene	NA	<0.1 U	NA
Benzo(k)fluoranthene	NA	<0.1 U	NA
Chrysene	NA	<0.1 U	NA
Indeno(1,2,3-cd)pyrene	NA	<0.1 U	NA
Phenol	NA	**24**	NA
SVOCs - Total			
Benzo(a)anthracene	<0.1 U	NA	NA
Benzo(a)pyrene	<0.1 U	NA	NA
Benzo(b)fluoranthene	<0.1 U	NA	NA
Benzo(k)fluoranthene	<0.1 U	NA	NA
Chrysene	**0.02 J**	NA	NA
Indeno(1,2,3-cd)pyrene	**0.01 J**	NA	NA
Phenol	<5 U	NA	NA
Metals - Dissolved			
Iron	**12,100**	NA	NA
Lead	<3 U	NA	NA
Magnesium	**16,500**	NA	NA
Manganese	**1,010**	NA	NA
Sodium	**76,200 J**	NA	NA
Thallium	<1 U	NA	NA
Metals - Total			
Iron	**11,500**	NA	NA
Lead	<3.00	NA	NA
Magnesium	**16,600**	NA	NA
Manganese	**1,010**	NA	NA
Sodium	**76,700**	NA	NA
Thallium	<1 U	NA	NA
PFAS			
Perfluorooctanesulfonic Acid (PFOS)	**0.0017**	NA	**0.0027**
Perfluorooctanoic Acid (PFOA)	**0.0479**	NA	**0.0067**

Location	MW08	MW08	MW08
Sample Name	MW08_080422	MW08_080422_FILTERED	MW08_011426
Sample Date	08/04/2022	08/04/2022	01/14/2026
SVOCs - Dissolved			
Benzo(a)anthracene	NA	<0.1 U	NA
Benzo(a)pyrene	NA	<0.1 U	NA
Benzo(b)fluoranthene	NA	<0.1 U	NA
Benzo(k)fluoranthene	NA	**0.01 J**	NA
Chrysene	NA	<0.1 U	NA
Indeno(1,2,3-cd)pyrene	NA	<0.1 U	NA
Phenol	NA	**9.1**	NA
SVOCs - Total			
Benzo(a)anthracene	<0.1 U	NA	NA
Benzo(a)pyrene	<0.1 U	NA	NA
Benzo(b)fluoranthene	<0.1 U	NA	NA
Benzo(k)fluoranthene	<0.1 U	NA	NA
Chrysene	<0.1 U	NA	NA
Indeno(1,2,3-cd)pyrene	<0.1 U	NA	NA
Phenol	<5 U	NA	NA
Metals - Dissolved			
Iron	728	NA	NA
Lead	<3 U	NA	NA
Magnesium	4,810	NA	NA
Manganese	**82.2**	NA	NA
Sodium	**82,200**	NA	NA
Thallium	<3 U	NA	NA
Metals - Total			
Iron	764	NA	NA
Lead	<3 U	NA	NA
Magnesium	4,920	NA	NA
Manganese	**83.2**	NA	NA
Sodium	**81,700**	NA	NA
Thallium	<3 U	NA	NA
PFAS			
Perfluorooctanesulfonic Acid (PFOS)	**0.007**	NA	**0.0097**
Perfluorooctanoic Acid (PFOA)	**0.0029**	NA	**0.0078**

Location	MW04	MW04	MW04
Sample Name	MW04_080422	MW04_080422_FILTERED	MW04_011426
Sample Date	08/04/2022	08/04/2022	01/14/2026
SVOCs - Dissolved			
Benzo(a)anthracene	NA	<0.1 U	NA
Benzo(a)pyrene	NA	<0.1 U	NA
Benzo(b)fluoranthene	NA	<0.1 U	NA
Benzo(k)fluoranthene	NA	<0.1 U	NA
Chrysene	NA	<0.1 U	NA
Indeno(1,2,3-cd)pyrene	NA	<0.1 U	NA
Phenol	NA	<5 U	NA
SVOCs - Total			
Benzo(a)anthracene	<0.13 U	NA	NA
Benzo(a)pyrene	**0.03 J**	NA	NA
Benzo(b)fluoranthene	<0.13 U	NA	NA
Benzo(k)fluoranthene	**0.02 J**	NA	NA
Chrysene	**0.03 J**	NA	NA
Indeno(1,2,3-cd)pyrene	**0.02 J**	NA	NA
Phenol	<5 U	NA	NA
Metals - Dissolved			
Iron	**18,600**	NA	NA
Lead	<3 U	NA	NA
Magnesium	**89,400**	NA	NA
Manganese	**1,200**	NA	NA
Sodium	**416,000**	NA	NA
Thallium	<1 U	NA	NA
Metals - Total			
Iron	**18,200**	NA	NA
Lead	16.79	NA	NA
Magnesium	**85,300**	NA	NA
Manganese	**1,220**	NA	NA
Sodium	**438,000**	NA	NA
Thallium	<1 U	NA	NA
PFAS			
Perfluorooctanesulfonic Acid (PFOS)	<0.00132 U	NA	<0.00130 U
Perfluorooctanoic Acid (PFOA)	**0.0177**	NA	**0.0075**

Location	MW02	MW02	MW02
Sample Name	MW02_080222	MW02_080222_FILTERED	MW02_011326
Sample Date	08/02/2022	08/02/2022	01/13/2026
SVOCs - Dissolved			
Benzo(a)anthracene	NA	<0.1 U	NA
Benzo(a)pyrene	NA	<0.1 U	NA
Benzo(b)fluoranthene	NA	<0.1 U	NA
Benzo(k)fluoranthene	NA	<0.1 U	NA
Chrysene	NA	<0.1 U	NA
Indeno(1,2,3-cd)pyrene	NA	<0.1 U	NA
Phenol	NA	**8**	NA
SVOCs - Total			
Benzo(a)anthracene	<0.1 U	NA	NA
Benzo(a)pyrene	<0.1 U	NA	NA
Benzo(b)fluoranthene	<0.1 U	NA	NA
Benzo(k)fluoranthene	<0.1 U	NA	NA
Chrysene	<0.1 U	NA	NA
Indeno(1,2,3-cd)pyrene	<0.1 U	NA	NA
Phenol	NA	**8**	NA
Metals - Dissolved			
Iron	**5,850**	NA	NA
Lead	<3 U	NA	NA
Magnesium	**263,000**	NA	NA
Manganese	**1,161**	NA	NA
Sodium	**1,810,000**	NA	NA
Thallium	<20 U	NA	NA
Metals - Total			
Iron	**5,320**	NA	NA
Lead	<3 U	NA	NA
Magnesium	**274,000**	NA	NA
Manganese	**1,190**	NA	NA
Sodium	**1,850,000**	NA	NA
Thallium	<20 U	NA	NA
PFAS			
Perfluorooctanesulfonic Acid (PFOS)	**0.0029**	NA	0.00228
Perfluorooctanoic Acid (PFOA)	**0.0277**	NA	**0.0148**

Location	MW13	MW13	MW13
Sample Name	MW13_080322	MW13_080322_FILTERED	MW13_011326
Sample Date	08/03/2022	08/03/2022	01/13/2026
SVOCs - Dissolved			
Benzo(a)anthracene	NA	<0.1 U	NA
Benzo(a)pyrene	NA	<0.1 U	NA
Benzo(b)fluoranthene	NA	<0.1 U	NA
Benzo(k)fluoranthene	NA	<0.1 U	NA
Chrysene	NA	<0.1 U	NA
Indeno(1,2,3-cd)pyrene	NA	<0.1 U	NA
Phenol	NA	**11**	NA
SVOCs - Total			
Benzo(a)anthracene	<0.1 U	NA	NA
Benzo(a)pyrene	<0.1 U	NA	NA
Benzo(b)fluoranthene	<0.1 U	NA	NA
Benzo(k)fluoranthene	<0.1 U	NA	NA
Chrysene	<0.1 U	NA	NA
Indeno(1,2,3-cd)pyrene	<0.1 U	NA	NA
Phenol	<5 U	NA	NA
Metals - Dissolved			
Iron	<1,000 U	NA	NA
Lead	<20 U	NA	NA
Magnesium	**1,010,000**	NA	NA
Manganese	49.00	NA	NA
Sodium	**8,960,000**	NA	NA
Thallium	**37.2**	NA	NA
Metals - Total			
Iron	**1,040**	NA	NA
Lead	<20 U	NA	NA
Magnesium	**964,000**	NA	NA
Manganese	48.63	NA	NA
Sodium	**8,820,000**	NA	NA
Thallium	<19 U	NA	NA
PFAS			
Perfluorooctanesulfonic Acid (PFOS)	**0.0056**	NA	0.00183 J
Perfluorooctanoic Acid (PFOA)	0.00459 J	NA	0.00107 J

Location	MW03	MW03	MW03	MW03	MW03
Sample Name	MW03_080222	GWDUP01_080222	MW03_080222_FILTERED	GWDUP01_080222_FILTERED	MW03_011326
Sample Date	08/02/2022	08/02/2022	08/02/2022	08/02/2022	01/13/2026
SVOCs - Dissolved					
Benzo(a)anthracene	NA	NA	<0.1 U	<0.1 U	NA
Benzo(a)pyrene	NA	NA	<0.1 U	<0.1 U	NA
Benzo(b)fluoranthene	NA	NA	<0.1 U	<0.1 U	NA
Benzo(k)fluoranthene	NA	NA	<0.1 U	<0.1 U	NA
Chrysene	NA	NA	<0.1 U	<0.1 U	NA
Indeno(1,2,3-cd)pyrene	NA	NA	<0.1 U	<0.1 U	NA
Phenol	NA	NA	**4.5 J**	**5.9**	NA
SVOCs - Total					
Benzo(a)anthracene	<0.1 U	<0.1 U	NA	NA	NA
Benzo(a)pyrene	**0.03 J**	<0.1 U	NA	NA	NA
Benzo(b)fluoranthene	<0.1 U	<0.1 U	NA	NA	NA
Benzo(k)fluoranthene	**0.02 J**	<0.1 U	NA	NA	NA
Chrysene	**0.02 J**	<0.1 U	NA	NA	NA
Indeno(1,2,3-cd)pyrene	<0.1 U	<0.1 U	NA	NA	NA
Phenol	<5 U	<5 U	NA	NA	NA
Metals - Dissolved					
Iron	**16,500**	**17,000**	NA	NA	NA
Lead	<20 U	<20 U	NA	NA	NA
Magnesium	**862,000**	**815,000**	NA	NA	NA
Manganese	**1,389**	**1,474**	NA	NA	NA
Sodium	**8,810,000**	**8,490,000**	NA	NA	NA
Thallium	<19 U	<19 U	NA	NA	NA
Metals - Total					
Iron	**16,900**	**16,700**	NA	NA	NA
Lead	21.2	19.2	NA	NA	NA
Magnesium	**876,000**	**814,000**	NA	NA	NA
Manganese	**1,335**	**1,398**	NA	NA	NA
Sodium	**8,570,000**	**8,180,000**	NA	NA	NA
Thallium	<1 U	<1 U	NA	NA	NA
PFAS					
Perfluorooctanesulfonic Acid (PFOS)	**0.00273**	**0.003**	NA	NA	**0.00286**
Perfluorooctanoic Acid (PFOA)	0.00574 J	0.00617	NA	NA	0.00414

Location	MW11	MW11	MW11
Sample Name	MW11_080222	MW11_080222_FILTERED	MW11_011226
Sample Date	08/02/2022	08/02/2022	01/13/2026
SVOCs - Dissolved			
Benzo(a)anthracene	NA	<0.1 U	NA
Benzo(a)pyrene	NA	<0.1 U	NA
Benzo(b)fluoranthene	NA	<0.1 U	NA
Benzo(k)fluoranthene	NA	<0.1 U	NA
Chrysene	NA	<0.1 U	NA
Indeno(1,2,3-cd)pyrene	NA	<0.1 U	NA
Phenol	NA	**6.9**	NA
SVOCs - Total			
Benzo(a)anthracene	**1.4**	<0.1 U	NA
Benzo(a)pyrene	**1.4**	<0.1 U	NA
Benzo(b)fluoranthene	**1.7**	<0.1 U	NA
Benzo(k)fluoranthene	**0.67**	<0.1 U	NA
Chrysene	**1.4**	<0.1 U	NA
Indeno(1,2,3-cd)pyrene	**1.3**	<0.1 U	NA
Phenol	NA	<5 U	NA
Metals - Dissolved			
Iron	**15,700**	NA	NA
Lead	<3 U	NA	NA
Magnesium	**34,100**	NA	NA
Manganese	**1,033**	NA	NA
Sodium	**85,000**	NA	NA
Thallium	<1 U	NA	NA
Metals - Total			
Iron	**16,700**	NA	NA
Lead	11.67	NA	NA
Magnesium	20,900 J	NA	NA
Manganese	**1,041**	NA	NA
Sodium	**47,000**	NA	NA
Thallium	<1 U	NA	NA
PFAS			
Perfluorooctanesulfonic Acid (PFOS)	<0.00172 U	NA	<0.00183 U
Perfluorooctanoic Acid (PFOA)	**0.0408**	NA	**0.0354**

Location	MW05	MW05	MW05
Sample Name	MW05_080222	MW05_080222_FILTERED	MW05_011226
Sample Date	08/02/2022	08/02/2022	01/13/2026
SVOCs - Dissolved			
Benzo(a)anthracene	NA	<0.1 U	NA
Benzo(a)pyrene	NA	<0.1 U	NA
Benzo(b)fluoranthene	NA	**0.02 J**	NA
Benzo(k)fluoranthene	NA	<0.1 U	NA
Chrysene	NA	**0.02 J**	NA
Indeno(1,2,3-cd)pyrene	NA	<0.1 U	NA
Phenol	NA	**1.5 J**	NA
SVOCs - Total			
Benzo(a)anthracene	**1.4**	<0.1 U	NA
Benzo(a)pyrene	**1.4**	<0.1 U	NA
Benzo(b)fluoranthene	**1.7**	<0.1 U	NA
Benzo(k)fluoranthene	**0.67**	<0.1 U	NA
Chrysene	**1.4**	<0.1 U	NA
Indeno(1,2,3-cd)pyrene	**1.3**	<0.1 U	NA
Phenol	NA	<5 U	NA
Metals - Dissolved			
Iron	**15,700**	NA	NA
Lead	<3 U	NA	NA
Magnesium	**34,100**	NA	NA
Manganese	**1,033**	NA	NA
Sodium	**85,000**	NA	NA
Thallium	<1 U	NA	NA
Metals - Total			
Iron	**16,700**	NA	NA
Lead	11.67	NA	NA
Magnesium	20,900 J	NA	NA
Manganese	**1,041**	NA	NA
Sodium	**47,000**	NA	NA
Thallium	<1 U	NA	NA
PFAS			
Perfluorooctanesulfonic Acid (PFOS)	<0.00172 U	NA	<0.00183 U
Perfluorooctanoic Acid (PFOA)	**0.0408**	NA	**0.0354**

Location	MW12	MW12	MW12
Sample Name	MW12_080122	MW12_080122_FILTERED	MW12_011226
Sample Date	08/01/2022	08/01/2022	01/12/2026
SVOCs - Dissolved			
Benzo(a)anthracene	NA	<0.1 U	NA
Benzo(a)pyrene	NA	<0.1 U	NA
Benzo(b)fluoranthene	NA	<0.1 U	NA
Benzo(k)fluoranthene	NA	<0.1 U	NA
Chrysene	NA	<0.1 U	NA
Indeno(1,2,3-cd)pyrene	NA	<0.1 U	NA
Phenol	NA	**8**	NA
SVOCs - Total			
Benzo(a)anthracene	**0.02 J**	NA	NA
Benzo(a)pyrene	<0.1 U	NA	NA
Benzo(b)fluoranthene	**0.02 J**	NA	NA
Benzo(k)fluoranthene	<0.1 U	NA	NA
Chrysene	<0.1 U	NA	NA
Indeno(1,2,3-cd)pyrene	<0.1 U	NA	NA
Phenol	NA	**8**	NA
Metals - Dissolved			
Iron	60.7 J	NA	NA
Lead	<3 U	NA	NA
Magnesium	16,400	NA	NA
Manganese	**1,320**	NA	NA
Sodium	**133,000**	NA	NA
Thallium	<1 U	NA	NA
Metals - Total			
Iron	**1,320**	NA	NA
Lead	1.92	NA	NA
Magnesium	16,900	NA	NA
Manganese	**58,900**	NA	NA
Sodium	**130,000**	NA	NA
Thallium	<1 U	NA	NA
PFAS			
Perfluorooctanesulfonic Acid (PFOS)	0.0021	NA	0.00183 J
Perfluorooctanoic Acid (PFOA)	**0.00728**	NA	0.00506

Location	MW09	MW09	MW09	MW09
Sample Name	MW09_080122	MW09_080122_FILTERED	MW09_011226	GWDUP01_011226
Sample Date	08/01/2022	08/01/2022	01/12/2026	01/12/2026
SVOCs - Dissolved				
Benzo(a)anthracene	NA	<0.1 U	NA	NA
Benzo(a)pyrene	NA	<0.1 U	NA	NA
Benzo(b)fluoranthene	NA	<0.1 U	NA	NA
Benzo(k)fluoranthene	NA	<0.1 U	NA	NA
Chrysene	NA	<0.1 U	NA	NA
Indeno(1,2,3-cd)pyrene	NA	<0.1 U	NA	NA
Phenol	NA	**11**	NA	NA
SVOCs - Total				
Benzo(a)anthracene	**0.13**	NA	NA	NA
Benzo(a)pyrene	**0.14**	NA	NA	NA
Benzo(b)fluoranthene	**0.14**	NA	NA	NA
Benzo(k)fluoranthene	**0.05 J**	NA	NA	NA
Chrysene	**0.12**	NA	NA	NA
Indeno(1,2,3-cd)pyrene	**0.08 J**	NA	NA	NA
Phenol	<5 U	NA	NA	NA
Metals - Dissolved				
Iron	728	NA	NA	NA
Lead	0.44 J	NA	NA	NA
Magnesium	4,810	NA	NA	NA
Manganese	**393 E**	NA	NA	NA
Sodium	14,900	NA	NA	NA
Thallium	<3 U	NA	NA	NA
Metals - Total				
Iron	**1,330**	NA	NA	NA
Lead	1.2	NA	NA	NA
Magnesium	10,000	NA	NA	NA
Manganese	**410 E**	NA	NA	NA
Sodium	14,900	NA	NA	NA
Thallium	<1 U	NA	NA	NA
PFAS				
Perfluorooctanesulfonic Acid (PFOS)	**0.0119**	NA	**0.00565**	**0.00539**
Perfluorooctanoic Acid (PFOA)	**0.00722**	NA	**0.00767**	**0.00681**

Analyte	NYSDEC SGVs
SVOCs - Dissolved	
Benzo(a)anthracene	0.002
Benzo(a)pyrene	0
Benzo(b)fluoranthene	0.002
Benzo(k)fluoranthene	0.002
Chrysene	0.002
Indeno(1,2,3-cd)pyrene	0.002
Phenol	1
SVOCs - Total	
Benzo(a)anthracene	0.002
Benzo(a)pyrene	0
Benzo(b)fluoranthene	0.002
Benzo(k)fluoranthene	0.002
Chrysene	0.002
Indeno(1,2,3-cd)pyrene	0.002
Phenol	1
Metals - Dissolved	
Iron	300
Lead	25
Magnesium	35000
Manganese	300
Sodium	20000
Thallium	0.5
Metals - Total	
Iron	300
Lead	25
Magnesium	35000
Manganese	300
Sodium	20000
Thallium	0.5
PFAS	
Perfluorooctanesulfonic Acid (PFOS)	0.0027
Perfluorooctanoic Acid (PFOA)	0.0067

Exceedance Summary:

10 - Result exceeds NYSDEC SGVs

LEGEND:

APPROXIMATE SITE BOUNDARY

MW01/SB01 APPROXIMATE LOCATION OF SOIL BORING/ PERMANENT GROUNDWATER MONITORING WELL

NOTES:

1. BASE MAP IS TAKEN FROM "FINAL SURVEY', FIGURE FS103, PREPARED BY LANGAN, DATED FEBRUARY 26, 2025.
2. ALL LOCATIONS ARE APPROXIMATE.
3. GROUNDWATER SAMPLE ANALYTICAL RESULTS ARE COMPARED TO THE NEW YORK STATE DEPARTMENT OF ENVIRONMENTAL CONSERVATION (NYSDEC) TITLE 6 NEW YORK CODES RULES AND REGULATIONS (NYCRR) PART 703.5 AND THE NYSDEC TECHNICAL AND OPERATION GUIDANCE SERIES (TOGS) 1.1.1 AMBIENT WATER QUALITY STANDARDS AND GUIDANCE VALUES FOR CLASS GA WATER AND PUBLISHED ADDENDA (HEREIN COLLECTIVELY REFERENCED AS "NYSDEC SGVS".
4. J = THE ANALYTE WAS POSITIVELY IDENTIFIED AND THE ASSOCIATED NUMERICAL VALUE IS THE APPROXIMATE CONCENTRATION OF THE ANALYTE IN THE SAMPLE.
5. UJ = THE ANALYTE WAS NOT DETECTED AT A LEVEL GREATER THAN OR EQUAL TO THE REPORTING LIMIT (RL); HOWEVER, THE REPORTED RL IS APPROXIMATE AND MAY BE INACCURATE OR IMPRECISE.
6. U = THE ANALYTE WAS ANALYZED FOR, BUT WAS NOT DETECTED AT A LEVEL GREATER THAN OR EQUAL TO THE LEVEL OF THE RL OR THE SAMPLE CONCENTRATION FOR RESULTS IMPACTED BY BLANK CONTAMINATION.

WARNING: IT IS A VIOLATION OF THE NYS EDUCATION LAW ARTICLE 145 FOR ANY PERSON, UNLESS HE IS ACTING UNDER THE DIRECTION OF A LICENSED PROFESSIONAL ENGINEER, LAND SURVEYOR OR GEOLOGIST, TO ALTER THIS ITEM IN ANY WAY.

50 0 25 50
SCALE: 1 INCH = 50 FEET

LANGAN
Langan Engineering, Environmental, Surveying, Landscape Architecture and Geology, D.P.C.
368 Ninth Avenue, 8th Floor
New York, NY 10001
T: 212.479.5400 F: 212.479.5444 www.langan.com

Project
C BLOCK
BLOCK NO. 2502, p/o LOT NOs. 1 & 5, AND BLOCK NO. 2510, p/o LOT NOs. 1 & 100
KINGS NEW YORK

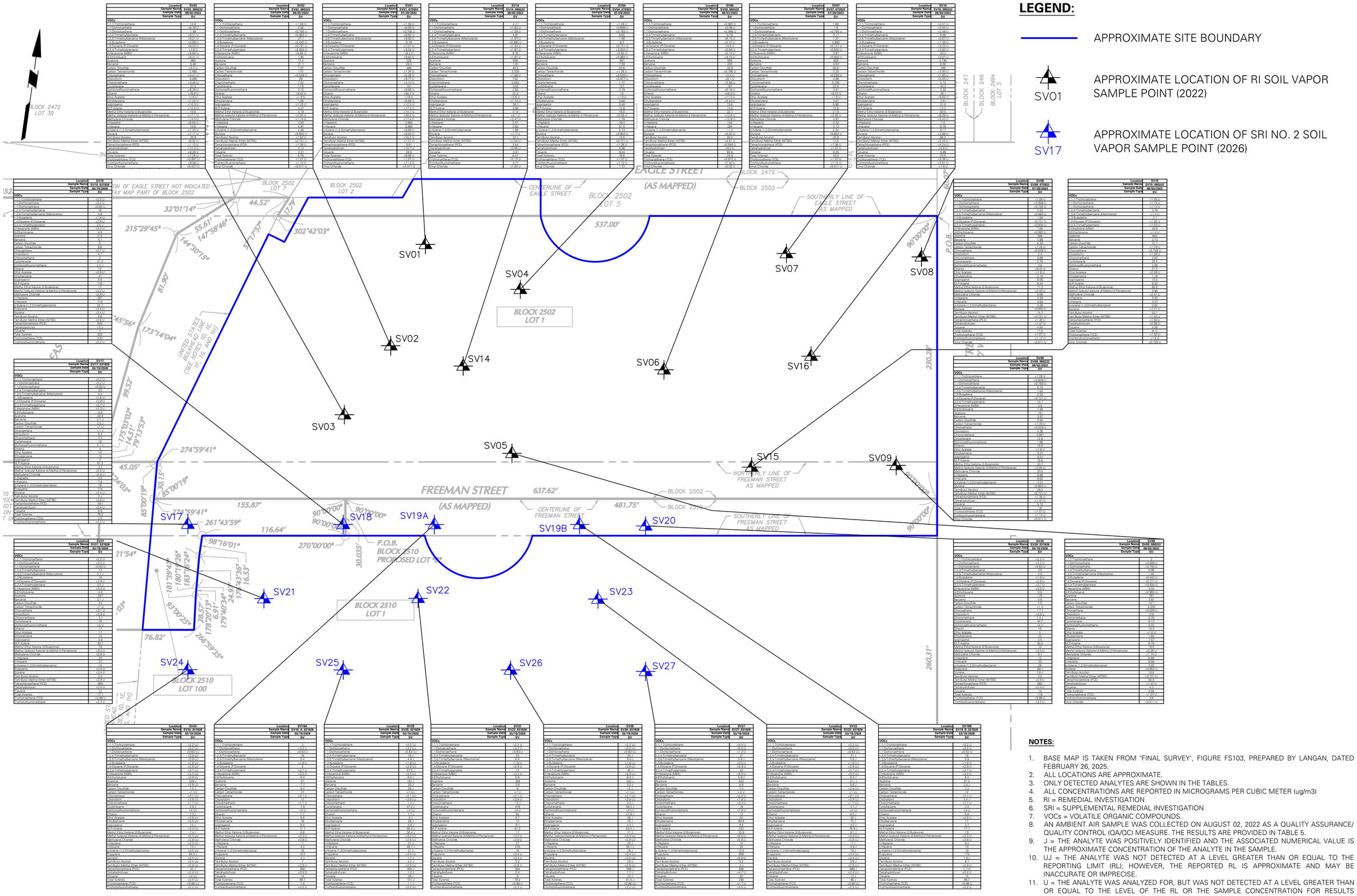
Figure Title
GROUNDWATER SAMPLE ANALYTICAL RESULTS MAP

Project No. 170229030
Date 03/13/2026
Drawn By VK
Checked By GW

Figure 10
Sheet 12 of 14

LANGAN
PROJECT NO. 170229030

© 2024 Langan



Location	SV03
Sample Name	SV03_080222
Sample Date	08/02/2022
Sample Type	SV
VOCs	
1,1,1-Trichloroethane	1.9
1,1-Dichloroethane	<0.16 U
1,1-Dichloroethene	<0.16 U
1,2,4-Trimethylbenzene	2.31 J
1,3,5-Trimethylbenzene (Mesitylene)	<0.911 U
1,3-Butadiene	<3.69 U
1,4-Dioxane (P-Dioxane)	<0.910 U
2,2,4-Trimethylpentane	<7.81 U
2-Hexanone (MBK)	<6.84 U
4-Ethyltoluene	<0.983 U
Acetone	980
Benzene	5.46
Carbon Disulfide	<9.2 U
Carbon Tetrachloride	<0.627 U
Chloroform	<0.488 U
Chloromethane	3.080
Cyclohexane	<3.45 U
Dichlorodifluoromethane	27.2
Ethanol	<3.76 U
Ethyl Acetate	<78.6 U
Ethylbenzene	<19.0 U
Isopropanol	<7.25 U
m,p-Xylene	<7.25 U
Methyl Ethyl Ketone (2-Butanone)	<14.5 U
Methyl Isobutyl Ketone (4-Methyl-2-Pentanone)	<11.4 U
Methylene Chloride	<14.5 U
n-Heptane	<3.69 U
n-Hexane	19.8
o-Xylene (1,2-Dimethylbenzene)	<7.25 U
Propylene	<7.11 U
Styrene	30.9
Tert-Butyl Alcohol	<7.25 U
Tert-Butyl Methyl Ether (MTBE)	<6.02 U
Tetrachloroethene (PCE)	<0.889 U
Tetrahydrofuran	<12.3 U
Toluene	9.21
Total Xylenes	<21.7 U
Trichloroethene (TCE)	<0.627 U
Trichlorofluoromethane	<0.911 U

Location	SV02
Sample Name	SV02_080222
Sample Date	08/02/2022
Sample Type	SV
VOCs	
1,1,1-Trichloroethane	<1.09 U
1,1-Dichloroethane	<0.809 U
1,1-Dichloroethene	<0.793 U
1,2,4-Trimethylbenzene	<0.983 U
1,3,5-Trimethylbenzene (Mesitylene)	<0.983 U
1,3-Butadiene	<0.442 U
1,4-Dioxane (P-Dioxane)	<5.721 U
2,2,4-Trimethylpentane	<0.934 U
2-Hexanone (MBK)	<0.82 U
4-Ethyltoluene	<0.983 U
Acetone	1,190
Benzene	2.1
Carbon Disulfide	7.07
Carbon Tetrachloride	<0.627 U
Chloroform	<0.488 U
Chloromethane	1.09
Cyclohexane	<1.03 U
Dichlorodifluoromethane	4.77
Ethanol	<18.8 U
Ethyl Acetate	<18.9 U
Ethylbenzene	1.09
Isopropanol	<1.81 U
m,p-Xylene	4.77
Methyl Ethyl Ketone (2-Butanone)	<14.5 U
Methyl Isobutyl Ketone (4-Methyl-2-Pentanone)	<11.4 U
Methylene Chloride	<14.5 U
n-Heptane	2.83
n-Hexane	19.8
o-Xylene (1,2-Dimethylbenzene)	1.89
Propylene	<7.11 U
Styrene	<8.68 U
Tert-Butyl Alcohol	30.9
Tert-Butyl Methyl Ether (MTBE)	<6.02 U
Tetrachloroethene (PCE)	<0.889 U
Tetrahydrofuran	<12.3 U
Toluene	3.13
Total Xylenes	6.66
Trichloroethene (TCE)	<0.627 U
Trichlorofluoromethane	<0.911 U

Location	SV01
Sample Name	SV01_072822
Sample Date	07/28/2022
Sample Type	SV
VOCs	
1,1,1-Trichloroethane	<1.09 U
1,1-Dichloroethane	<0.809 U
1,1-Dichloroethene	<0.793 U
1,2,4-Trimethylbenzene	<0.983 U
1,3,5-Trimethylbenzene (Mesitylene)	<0.983 U
1,3-Butadiene	9.78
1,4-Dioxane (P-Dioxane)	<7.21 U
2,2,4-Trimethylpentane	<9.34 U
2-Hexanone (MBK)	<8.2 U
4-Ethyltoluene	<0.983 U
Acetone	329
Benzene	21.7
Carbon Disulfide	496
Carbon Tetrachloride	<0.627 U
Chloroform	<0.488 U
Chloromethane	1.09
Cyclohexane	135
Dichlorodifluoromethane	<0.911 U
Ethanol	<94.2 U
Ethyl Acetate	<18.9 U
Ethylbenzene	<0.69 U
Isopropanol	<1.81 U
m,p-Xylene	<17.4 U
Methyl Ethyl Ketone (2-Butanone)	<14.5 U
Methyl Isobutyl Ketone (4-Methyl-2-Pentanone)	<11.4 U
Methylene Chloride	<17.4 U
n-Heptane	2.860
n-Hexane	2.460
o-Xylene (1,2-Dimethylbenzene)	<0.69 U
Propylene	<8.82 U
Styrene	<8.68 U
Tert-Butyl Alcohol	<19.2 U
Tert-Butyl Methyl Ether (MTBE)	<7.21 U
Tetrachloroethene (PCE)	8.61
Tetrahydrofuran	<14.7 U
Toluene	8.82
Total Xylenes	<17.4 U
Trichloroethene (TCE)	<1.09 U
Trichlorofluoromethane	<0.911 U
Vinyl Chloride	<0.511 U

Location	SV14
Sample Name	SV14_080222
Sample Date	08/02/2022
Sample Type	SV
VOCs	
1,1,1-Trichloroethane	6.31
1,1-Dichloroethane	<1.62 U
1,1-Dichloroethene	<1.59 U
1,2,4-Trimethylbenzene	4.87
1,3,5-Trimethylbenzene (Mesitylene)	<1.97 U
1,3-Butadiene	<0.885 U
1,4-Dioxane (P-Dioxane)	<1.44 U
2,2,4-Trimethylpentane	<1.87 U
2-Hexanone (MBK)	6.76
4-Ethyltoluene	<1.97 U
Acetone	848
Benzene	11.5
Carbon Disulfide	40.5
Carbon Tetrachloride	<1.25 U
Chloroform	<0.98 U
Chloromethane	743
Cyclohexane	0.943
Dichlorodifluoromethane	3.62
Ethanol	2.90
Ethyl Acetate	29.2
Ethylbenzene	<3.81 U
Isopropanol	<3.63 U
m,p-Xylene	<1.74 U
Methyl Ethyl Ketone (2-Butanone)	26.1
Methyl Isobutyl Ketone (4-Methyl-2-Pentanone)	4.56
Methylene Chloride	<3.47 U
n-Heptane	2.42
n-Hexane	2.82
o-Xylene (1,2-Dimethylbenzene)	<1.74 U
Propylene	99.9
Styrene	3.68
Tert-Butyl Alcohol	<3.84 U
Tert-Butyl Methyl Ether (MTBE)	<1.44 U
Tetrachloroethene (PCE)	3.68
Tetrahydrofuran	5.99
Toluene	8.01
Total Xylenes	<3.47 U
Trichloroethene (TCE)	<0.25 U
Trichlorofluoromethane	3.77
Vinyl Chloride	<1.02 U

Location	SV04
Sample Name	SV04_072822
Sample Date	07/28/2022
Sample Type	SV
VOCs	
1,1,1-Trichloroethane	<1.09 U
1,1-Dichloroethane	<0.809 U
1,1-Dichloroethene	<0.793 U
1,2,4-Trimethylbenzene	1.68
1,3,5-Trimethylbenzene (Mesitylene)	<0.983 U
1,3-Butadiene	6.3
1,4-Dioxane (P-Dioxane)	<5.721 U
2,2,4-Trimethylpentane	<0.934 U
2-Hexanone (MBK)	<0.82 U
4-Ethyltoluene	<0.983 U
Acetone	601
Benzene	4.65
Carbon Disulfide	63.6
Carbon Tetrachloride	<0.627 U
Chloroform	<0.488 U
Chloromethane	1.77
Cyclohexane	127
Dichlorodifluoromethane	3.78
Ethanol	14
Ethyl Acetate	<18.9 U
Ethylbenzene	3.68
Isopropanol	13.6
m,p-Xylene	12.9
Methyl Ethyl Ketone (2-Butanone)	14.6
Methyl Isobutyl Ketone (4-Methyl-2-Pentanone)	<11.4 U
Methylene Chloride	1.39
n-Heptane	29.4
n-Hexane	61.5
o-Xylene (1,2-Dimethylbenzene)	5.71
Propylene	<0.882 U
Styrene	98.5
Tert-Butyl Alcohol	<4.81 U
Tert-Butyl Methyl Ether (MTBE)	<1.81 U
Tetrachloroethene (PCE)	<0.889 U
Tetrahydrofuran	9.21
Toluene	19.2
Total Xylenes	18.6
Trichloroethene (TCE)	<0.627 U
Trichlorofluoromethane	<0.911 U
Vinyl Chloride	<0.511 U

Location	SV06
Sample Name	SV06_080322
Sample Date	08/03/2022
Sample Type	SV
VOCs	
1,1,1-Trichloroethane	<0.660 U
1,1-Dichloroethane	<0.486 U
1,1-Dichloroethene	<0.476 U
1,2,4-Trimethylbenzene	6.78
1,3,5-Trimethylbenzene (Mesitylene)	1.83
1,3-Butadiene	<0.272 U
1,4-Dioxane (P-Dioxane)	<3.512 U
2,2,4-Trimethylpentane	<0.564 U
2-Hexanone (MBK)	<0.492 U
4-Ethyltoluene	<0.590 U
Acetone	1,180
Benzene	4.63
Carbon Disulfide	33.9
Carbon Tetrachloride	<0.376 U
Chloroform	<0.293 U
Chloromethane	<0.681 U
Cyclohexane	187
Dichlorodifluoromethane	<0.547 U
Ethanol	<56.6 U
Ethyl Acetate	<11.3 U
Ethylbenzene	<5.43 U
Isopropanol	13.6
m,p-Xylene	13.6
Methyl Ethyl Ketone (2-Butanone)	12.9
Methyl Isobutyl Ketone (4-Methyl-2-Pentanone)	<6.84 U
Methylene Chloride	<10.8 U
n-Heptane	39.2
n-Hexane	69.5
o-Xylene (1,2-Dimethylbenzene)	5.71
Propylene	113
Styrene	<5.302 U
Tert-Butyl Alcohol	99.5
Tert-Butyl Methyl Ether (MTBE)	<4.51 U
Tetrachloroethene (PCE)	<0.848 U
Tetrahydrofuran	9.21
Toluene	19.2
Total Xylenes	19.5
Trichloroethene (TCE)	<0.376 U
Trichlorofluoromethane	<0.547 U
Vinyl Chloride	<0.307 U

Location	SV07
Sample Name	SV07_072822
Sample Date	07/28/2022
Sample Type	SV
VOCs	
1,1,1-Trichloroethane	1.68
1,1-Dichloroethane	<0.809 U
1,1-Dichloroethene	<0.793 U
1,2,4-Trimethylbenzene	3.31
1,3,5-Trimethylbenzene (Mesitylene)	1.37
1,3-Butadiene	0.993
1,4-Dioxane (P-Dioxane)	<0.721 U
2,2,4-Trimethylpentane	<0.934 U
2-Hexanone (MBK)	3.97
4-Ethyltoluene	<0.983 U
Acetone	809
Benzene	4.63
Carbon Disulfide	85.6
Carbon Tetrachloride	<0.627 U
Chloroform	<0.488 U
Chloromethane	4.98
Cyclohexane	6.76
Dichlorodifluoromethane	2.14
Ethanol	<9.42 U
Ethyl Acetate	<18.9 U
Ethylbenzene	3.81
Isopropanol	6.86
m,p-Xylene	12.9
Methyl Ethyl Ketone (2-Butanone)	4.65
Methyl Isobutyl Ketone (4-Methyl-2-Pentanone)	<11.4 U
Methylene Chloride	4.97
n-Heptane	7.15
n-Hexane	4.13
o-Xylene (1,2-Dimethylbenzene)	5.71
Propylene	<0.882 U
Styrene	20.5
Tert-Butyl Alcohol	12.9
Tert-Butyl Methyl Ether (MTBE)	<1.81 U
Tetrachloroethene (PCE)	4.14
Tetrahydrofuran	3.81
Toluene	13.6
Total Xylenes	18.6
Trichloroethene (TCE)	<0.627 U
Trichlorofluoromethane	<0.911 U
Vinyl Chloride	<0.511 U

Location	SV18
Sample Name	SV18_080222
Sample Date	08/02/2022
Sample Type	SV
VOCs	
1,1,1-Trichloroethane	<3.41 U
1,1-Dichloroethane	<2.53 U
1,1-Dichloroethene	<2.48 U
1,2,4-Trimethylbenzene	6.88
1,3,5-Trimethylbenzene (Mesitylene)	<3.07 U
1,3-Butadiene	<1.38 U
1,4-Dioxane (P-Dioxane)	<2.25 U
2,2,4-Trimethylpentane	<2.92 U
2-Hexanone (MBK)	20.7
4-Ethyltoluene	<3.07 U
Acetone	2,190
Benzene	8.04
Carbon Disulfide	105
Carbon Tetrachloride	<1.96 U
Chloroform	<1.52 U
Chloromethane	<3.55 U
Cyclohexane	5.14
Dichlorodifluoromethane	69.4
Ethanol	49.1
Ethyl Acetate	<5.92 U
Ethylbenzene	9.61
Isopropanol	5.43
m,p-Xylene	19.2
Methyl Ethyl Ketone (2-Butanone)	<36.2 U
Methyl Isobutyl Ketone (4-Methyl-2-Pentanone)	<35.6 U
Methylene Chloride	<54.2 U
n-Heptane	7.79
n-Hexane	8.78
o-Xylene (1,2-Dimethylbenzene)	9.61
Propylene	<2.76 U
Styrene	<2.46 U
Tert-Butyl Alcohol	66.4
Tert-Butyl Methyl Ether (MTBE)	<2.25 U
Tetrachloroethene (PCE)	<2.77 U
Tetrahydrofuran	<4.6 U
Toluene	9.85
Total Xylenes	29.1
Trichloroethene (TCE)	<1.96 U
Trichlorofluoromethane	<2.85 U
Vinyl Chloride	<1.6 U

Location	SV17
Sample Name	SV17_031926
Sample Date	03/19/2026
Sample Type	SV
VOCs	
1,1,1-Trichloroethane	<3.21 U
1,1-Dichloroethane	<2.38 U
1,1-Dichloroethene	<2.33 U
1,2,4-Trimethylbenzene	5.6
1,3,5-Trimethylbenzene (Mesitylene)	5.5
1,3-Butadiene	<1.3 U
1,4-Dioxane (P-Dioxane)	<2.9 U
2,2,4-Trimethylpentane	<3.7 U
2-Hexanone (MBK)	<3.1 U
4-Ethyltoluene	4.9
Acetone	1,140
Benzene	21.7
Carbon Disulfide	24.7
Carbon Tetrachloride	<1.9 U
Chloroform	1.57
Chloromethane	9.5
Cyclohexane	3.3
Dichlorodifluoromethane	2.17
Ethanol	6
Ethyl Acetate	14
Ethylbenzene	7.6
Isopropanol	60.2
m,p-Xylene	32
Methyl Ethyl Ketone (2-Butanone)	24.1
Methyl Isobutyl Ketone (4-Methyl-2-Pentanone)	<3.3 U
Methylene Chloride	<2.8 U
n-Heptane	4.5
n-Hexane	14
o-Xylene (1,2-Dimethylbenzene)	10
Propylene	114
Styrene	<3.4 U
Tert-Butyl Alcohol	7.4
Tert-Butyl Methyl Ether (MTBE)	<2.8 U
Tetrachloroethene (PCE)	52.7
Tetrahydrofuran	<2.4 U
Toluene	<3.1 U
Total Xylenes	42
Trichloroethene (TCE)	<0.86 U
Trichlorofluoromethane	<3.1 U

Location	SV21
Sample Name	SV21_031926
Sample Date	03/19/2026
Sample Type	SV
VOCs	
1,1,1-Trichloroethane	<2.2 U
1,1-Dichloroethane	<1.63 U
1,1-Dichloroethene	<1.60 U
1,2,4-Trimethylbenzene	10
1,3,5-Trimethylbenzene (Mesitylene)	3.7
1,3-Butadiene	14
1,4-Dioxane (P-Dioxane)	<2.9 U
2,2,4-Trimethylpentane	2.5 J
2-Hexanone (MBK)	<2.1 U
4-Ethyltoluene	4.5
Acetone	267
Benzene	2.7
Carbon Disulfide	1,200
Carbon Tetrachloride	<1.3 U
Chloroform	<3.3 U
Chloromethane	3.1
Cyclohexane	16
Dichlorodifluoromethane	<4 U
Ethanol	17
Ethyl Acetate	12
Ethylbenzene	10
Isopropanol	8.9
m,p-Xylene	60
Methyl Ethyl Ketone (2-Butanone)	8.1
Methyl Isobutyl Ketone (4-Methyl-2-Pentanone)	<3.3 U
Methylene Chloride	<2.8 U
n-Heptane	30
n-Hexane	31
o-Xylene (1,2-Dimethylbenzene)	19
Propylene	74
Styrene	<3.4 U
Tert-Butyl Alcohol	9.3
Tert-Butyl Methyl Ether (MTBE)	<2.8 U
Tetrachloroethene (PCE)	200
Tetrahydrofuran	<2.4 U
Toluene	22
Total Xylenes	79
Trichloroethene (TCE)	<0.86 U
Trichlorofluoromethane	<3.1 U

Location	SV24
Sample Name	SV24_031926
Sample Date	03/19/2026
Sample Type	SV
VOCs	
1,1,1-Trichloroethane	<2.2 U
1,1-Dichloroethane	<1.63 U
1,1-Dichloroethene	<1.60 U
1,2,4-Trimethylbenzene	4.5 J
1,3,5-Trimethylbenzene (Mesitylene)	1.8 U
1,3-Butadiene	<0.89 U
1,4-Dioxane (P-Dioxane)	<2.9 U
2,2,4-Trimethylpentane	<3.8 U
2-Hexanone (MBK)	<3.2 U
4-Ethyltoluene	1.9 J
Acetone	31
Benzene	<2.6 U
Carbon Disulfide	9.8 J
Carbon Tetrachloride	<1.3 U
Chloroform	<3.3 U
Chloromethane	<1.7 U
Cyclohexane	1.9 J
Dichlorodifluoromethane	<3 U
Ethanol	7.7
Ethyl Acetate	9.6
Ethylbenzene	1.9 J
Isopropanol	8.4
m,p-Xylene	11 J
Methyl Ethyl Ketone (2-Butanone)	8.8
Methyl Isobutyl Ketone (4-Methyl-2-Pentanone)	<3.3 U
Methylene Chloride	<2.8 U
n-Heptane	6.2
n-Hexane	18.7
o-Xylene (1,2-Dimethylbenzene)	3.8 J
Propylene	38.3 J
Styrene	<3.4 U
Tert-Butyl Alcohol	4.9 J
Tert-Butyl Methyl Ether (MTBE)	<2.8 U
Tetrachloroethene (PCE)	92 J
Tetrahydrofuran	<2.4 U
Toluene	7
Total Xylenes	14.8 J
Trichloroethene (TCE)	<0.86 U
Trichlorofluoromethane	<3.1 U

Location	SV19A
Sample Name	SV19_A_031926
Sample Date	03/19/2026
Sample Type	SV
VOCs	
1,1,1-Trichloroethane	3
1,1-Dichloroethane	<2.2 U
1,1-Dichloroethene	<0.63 U
1,2,4-Trimethylbenzene	13
1,3,5-Trimethylbenzene (Mesitylene)	4.1
1,3-Butadiene	<1.8 U
1,4-Dioxane (P-Dioxane)	<2.9 U
2,2,4-Trimethylpentane	53 J
2-Hexanone (MBK)	<3.2 U
4-Ethyltoluene	6.4
Acetone	85
Benzene	7.7
Carbon Disulfide	20 J
Carbon Tetrachloride	1.8
Chloroform	31
Chloromethane	<1.7 U
Cyclohexane	17
Dichlorodifluoromethane	<2.3 U
Ethanol	<3 U
Ethyl Acetate	6.7
Ethylbenzene	39 J
Isopropanol	9.9
m,p-Xylene	30.4 J
Methyl Ethyl Ketone (2-Butanone)	9.1
Methyl Isobutyl Ketone (4-Methyl-2-Pentanone)	<3.3 U
Methylene Chloride	<2.8 U
n-Heptane	11 J
n-Hexane	39.7 J
o-Xylene (1,2-Dimethylbenzene)	21 J
Propylene	<3.4 U
Styrene	11.7
Tert-Butyl Alcohol	4.9 J
Tert-Butyl Methyl Ether (MTBE)	<2.8 U
Tetrachloroethene (PCE)	660
Tetrahydrofuran	<2.4 U
Toluene	24 J
Total Xylenes	89.7
Trichloroethene (TCE)	<0.86 U
Trichlorofluoromethane	<2.2 U

Location	SV25
Sample Name	SV25_031926
Sample Date	03/19/2026
Sample Type	SV
VOCs	
1,1,1-Trichloroethane	<2.2 U
1,1-Dichloroethane	<3.3 U
1,1-Dichloroethene	<0.63 U
1,2,4-Trimethylbenzene	12
1,3,5-Trimethylbenzene (Mesitylene)	3.8
1,3-Butadiene	<1.8 U
1,4-Dioxane (P-Dioxane)	<2.9 U
2,2,4-Trimethylpentane	6.7 J
2-Hexanone (MBK)	<3.2 U
4-Ethyltoluene	4.7 J
Acetone	1,100
Benzene	6.2
Carbon Disulfide	9.7
Carbon Tetrachloride	<1.3 U
Chloroform	<3.3 U
Chloromethane	<1.7 U
Cyclohexane	5.6 J
Dichlorodifluoromethane	<2.3 U
Ethanol	4.7 J
Ethyl Acetate	9.7
Ethylbenzene	9.7
Isopropanol	8.1
m,p-Xylene	41.1
Methyl Ethyl Ketone (2-Butanone)	17
Methyl Isobutyl Ketone (4-Methyl-2-Pentanone)	<3.3 U
Methylene Chloride	<2.8 U
n-Heptane	16
n-Hexane	39.1 J
o-Xylene (1,2-Dimethylbenzene)	19 J
Propylene	<3.4 U
Styrene	11.7
Tert-Butyl Alcohol	4.9 J
Tert-Butyl Methyl Ether (MTBE)	<2.8 U
Tetrachloroethene (PCE)	600
Tetrahydrofuran	13 J
Toluene	28 J
Total Xylenes	101 J
Trichloroethene (TCE)	<0.86 U
Trichlorofluoromethane	<2.2 U

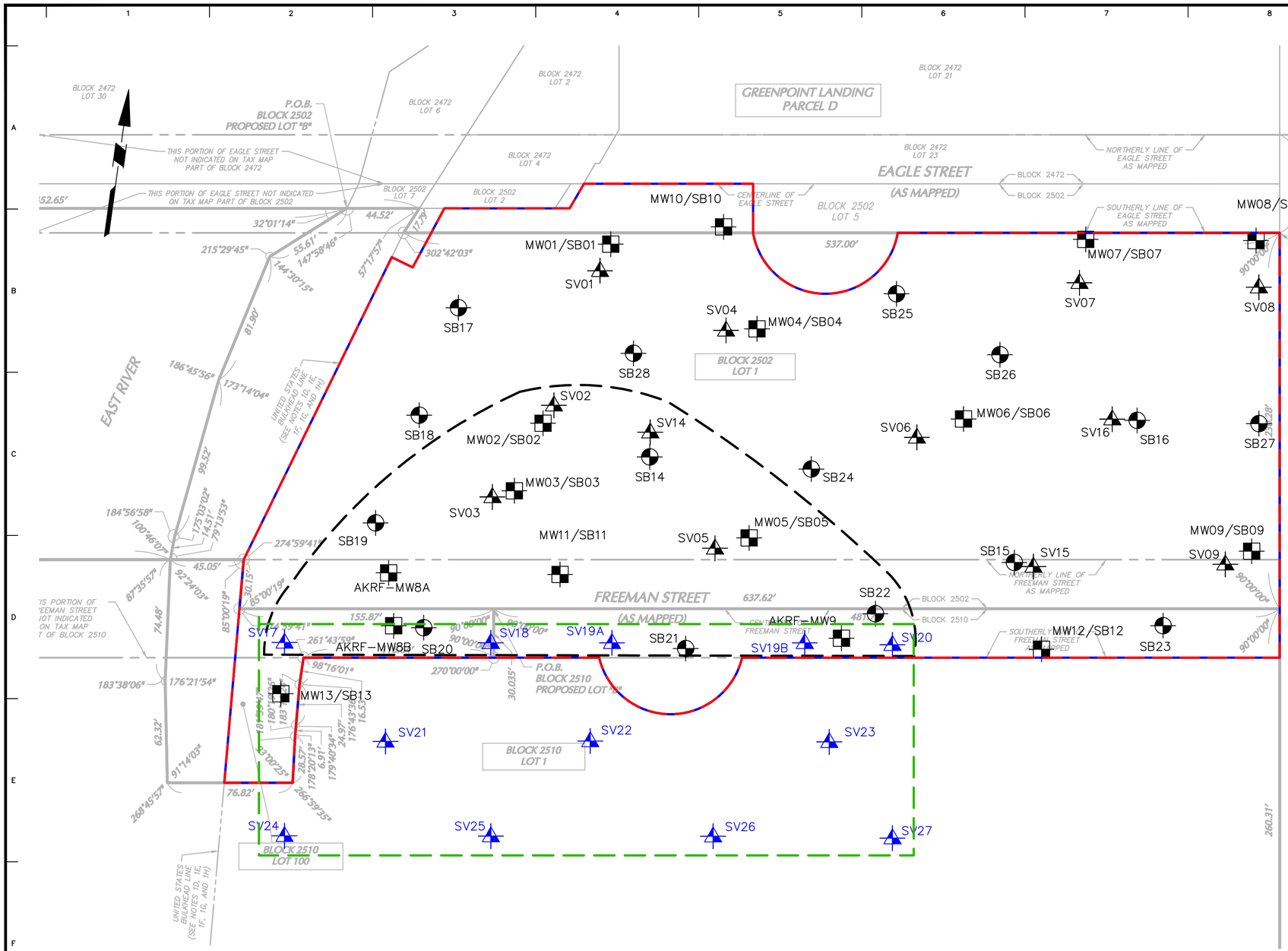
Location	SV22
Sample Name	SV22_031926
Sample Date	03/19/2026
Sample Type	SV
VOCs	
1,1,1-Trichloroethane	<2.2 U
1,1-Dichloroethane	<3.3 U
1,1-Dichloroethene	<0.63 U
1,2,4-Trimethylbenzene	11
1,3,5-Trimethylbenzene (Mesitylene)	3.7
1,3-Butadiene	<1.8 U
1,4-Dioxane (P-Dioxane)	<2.9 U
2,2,4-Trimethylpentane	49 J
2-Hexanone (MBK)	<3.2 U
4-Ethyltoluene	5.9 J
Acetone	999
Benzene	5.8
Carbon Disulfide	8.6
Carbon Tetrachloride	<1.3 U
Chloroform	<3.3 U
Chloromethane	<1.7 U
Cyclohexane	4.9 J
Dichlorodifluoromethane	<4 U
Ethanol	6.7
Ethyl Acetate	8.7
Ethylbenzene	8.7
Isopropanol	8.1
m,p-Xylene	37.1
Methyl Ethyl Ketone (2-Butanone)	11
Methyl Isobutyl Ketone (4-Methyl-2-Pentanone)	<3.3 U
Methylene Chloride	<2.8 U
n-Heptane	9.9
n-Hexane	27.6
o-Xylene (1,2-Dimethylbenzene)	18 J
Propylene	<3.4 U
Styrene	5.4 J
Tert-Butyl Alcohol	6.7
Tert-Butyl Methyl Ether (MTBE)	<2.8 U
Tetrachloroethene (PCE)	584
Tetrahydrofuran	7.4
Toluene	24 J
Total Xylenes	55.2
Trichloroethene (TCE)	<0.86 U
Trichlorofluoromethane	<2.2 U

Location	SV26
Sample Name	SV26_031926
Sample Date	03/19/2026
Sample Type	SV
VOCs	
1,1,1-Trichloroethane	<2.2 U
1,1-Dichloroethane	<3.3 U
1,1-Dichloroethene	<0.63 U
1,2,4-Trimethylbenzene	11
1,3,5-Trimethylbenzene (Mesitylene)	3.7
1,3-Butadiene	<1.8 U
1,4-Dioxane (P-Dioxane)	<2.9 U
2,2,4-Trimethylpentane	49 J
2-Hexanone (MBK)	<3.2 U
4-Ethyltoluene	6.4 J
Acetone	999
Benzene	5.8
Carbon Disulfide	8.6
Carbon Tetrachloride	<1.3 U
Chloroform	<3.3 U
Chloromethane	<1.7 U
Cyclohexane	4.9 J
Dichlorodifluoromethane	<4 U
Ethanol	6.7
Ethyl Acetate	8.7
Ethylbenzene	8.7
Isopropanol	8.1
m,p-Xylene	37.1
Methyl Ethyl Ketone (2-Butanone)	11
Methyl Isobutyl Ketone (4-Methyl-2-Pentanone)	<3.3 U
Methylene Chloride	<2.8 U
n-Heptane	9.9
n-Hexane	27.6
o-Xylene (1,2-Dimethylbenzene)	18 J
Propylene	<3.4 U
Styrene	5.4 J
Tert-Butyl Alcohol	6.7
Tert-Butyl Methyl Ether (MTBE)	<2.8 U
Tetrachloroethene (PCE)	584
Tetrahydrofuran	7.4
Toluene	24 J
Total Xylenes	55.2
Trichloroethene (TCE)	<0.86 U
Trichlorofluoromethane	<2.2 U

Location	SV27
Sample Name	SV27_031926
Sample Date	03/19/2026
Sample Type	SV
VOCs	
1,1,1-Trichloroethane	<6.4 U
1,1-Dichloroethane	<9.5 U
1,1-Dichloroethene	<1.9 U
1,2,4-Trimethylbenzene	33 J
1,3,5-Trimethylbenzene (Mesitylene)	11 J
1,3-Butadiene	<5.5 U
1,4-Dioxane (P-Dioxane)	<8.6 U
2,2,4-Trimethylpentane	85 J
2-Hexanone (MBK)	<9.5 U
4-Ethyltoluene	19 J
Acetone	1,900
Benzene	17 J
Carbon Disulfide	26 J
Carbon Tetrachloride	<3.8 U
Chloroform	<9.8 U
Chloromethane	<5.1 U
Cyclohexane	16 J
Dichlorodifluoromethane	<12 U
Ethanol	28 J
Ethyl Acetate	29 J
Ethylbenzene	26 J
Isopropanol	8.6
m,p-Xylene	107 J
Methyl Ethyl Ketone (2-Butanone)	60 J
Methyl Isobutyl Ketone (4-Methyl-2-Pentanone)	<9.8 U
Methylene Chloride	<8.4 U
n-Heptane	30 J
n-Hexane	70 J
o-Xylene (1,2-Dimethylbenzene)	39 J
Propylene	66 J
Styrene	<8.6 U
Tert-Butyl Alcohol	9.7 J
Tert-Butyl Methyl Ether (MTBE)	<8.4 U
Tetrachloroethene (PCE)	1,100
Tetrahydrofuran	17 J
Toluene	70 J
Total Xylenes	146 J
Trichloroethene (TCE)	<2.6 U
Trichlorofluoromethane	<9.2 U

Location	SV23
Sample Name	SV23_031926
Sample Date	03/19/2026
Sample Type	SV
VOCs	
1,1,1-Trichloroethane	<2.2 U
1,1-Dichloroethane	<3.3 U
1,1-Dichloroethene	<0.63 U
1,2,4-Trimethylbenzene	3.7 J
1,3,5-Trimethylbenzene (Mesitylene)	1.2 J
1,3-Butadiene	<1.8 U
1,4-Dioxane (P-Dioxane)	<2.9 U
2,2,4-Trimethylpentane	<3.8 U
2-Hexanone (MBK)	<3.2 U
4-Ethyltoluene	2.1 J
Acetone	1,100
Benzene	5.8 J
Carbon Disulfide	4.7 J
Carbon Tetrachloride	<1.3 U
Chloroform	<3.3 U
Chloromethane	<1.7 U
Cyclohexane	4.1 J
Dichlorodifluoromethane	<4 U
Ethanol	6.8 J
Ethyl Acetate	50 J
Ethylbenzene	6.8 J
Isopropanol	4.3 J
m,p-Xylene	16.9 J
Methyl Ethyl Ketone (2-Butanone)	9.7 J
Methyl Isobutyl Ketone (4-Methyl-2-Pentanone)	<3.3 U
Methylene Chloride	<2.8 U
n-Heptane	4.8 J
n-Hexane	13 J
o-Xylene (1,2-Dimethylbenzene)	7.1 J
Propylene	<3.4 U
Styrene	<8.6 U
Tert-Butyl Alcohol	9.7 J
Tert-Butyl Methyl Ether (MTBE)	<2.8 U
Tetrachloroethene (PCE)	889 J
Tetrahydrofuran	<2.4 U
Toluene	13 J
Total Xylenes	36.7
Trichloroethene (TCE)	<0.86 U
Trichlorofluoromethane	<2.8 U

Location	SV19B
Sample Name	SV19_B_031926
Sample Date	03/19/2026
Sample Type	SV
VOCs	
1,1,1-Trichloroethane	<2.2 U
1,1-Dichloroethane	<3.3 U
1,1-Dichloroethene	<0.63 U
1,2,4-Trimethylbenzene	11
1,3,5-Trimethylbenzene (Mesitylene)	3.7
1,3-Butadiene	<1.8 U
1,4-Dioxane (P-Dioxane)	<2.9 U
2,2,4-Trimethylpentane	<3.8 U
2-Hexanone (MBK)	<3.2 U
4-Ethyltoluene	6.4
Acetone	877.9
Benzene	5.4 J
Carbon Disulfide	7.7
Carbon Tetrachloride	<1.3 U
Chloroform	<3.3 U
Chloromethane	<1.7 U
Cyclohexane	4.3 J
Dichlorodifluoromethane	<4 U
Ethanol	<3.8 U



LEGEND:

- APPROXIMATE SITE BOUNDARY
- POST RI AOC 1: HISTORICAL SITE USE AND NON-NATIVE FILL
- POST RI AOC 2: CVOC-IMPACTED SOIL VAPOR (CARBON TETRACHLORIDE)
- POST RI AOC 3: CVOC-IMPACTED SOIL VAPOR (PCE)
- SB16 — APPROXIMATE LOCATION OF RI SOIL BORING (2022)
- MW01/SB01 — APPROXIMATE LOCATION OF RI SOIL BORING/PERMANENT GROUNDWATER MONITORING WELL (2022)
- SV01 — APPROXIMATE LOCATION OF RI SOIL VAPOR SAMPLE POINT (2022)
- SV17 — APPROXIMATE LOCATION OF SRI NO. 2 SOIL VAPOR SAMPLE POINT (2026)

NOTES:

1. BASE MAP IS TAKEN FROM "FINAL SURVEY', FIGURE FS103, PREPARED BY LANGAN, DATED FEBRUARY 26, 2025.
2. ALL LOCATIONS ARE APPROXIMATE.
3. AOC = AREA OF CONCERN
4. CVOC = CHLORINATED VOLATILE ORGANIC COMPOUND
5. PCE = TETRACHLOROETHENE
6. RI = REMEDIAL INVESTIGATION
7. SRI = SUPPLEMENTAL REMEDIAL INVESTIGATION

WARNING: IT IS A VIOLATION OF THE NYS EDUCATION LAW ARTICLE 145 FOR ANY PERSON, UNLESS HE IS ACTING UNDER THE DIRECTION OF A LICENSED PROFESSIONAL ENGINEER, LAND SURVEYOR OR GEOLOGIST, TO ALTER THIS ITEM IN ANY WAY.

50 0 25 50
SCALE: 1 INCH = 50 FEET

LANGAN
Langan Engineering, Environmental, Surveying, Landscape Architecture and Geology, D.P.C.
368 Ninth Avenue, 8th Floor
New York, NY 10001
T: 212.479.5400 F: 212.479.5444 www.langan.com

Project
C BLOCK
BLOCK NO. 2502, p/o LOT NOs. 1 & 5, AND BLOCK NO. 2510, p/o LOT NOs. 1 & 100
KINGS NEW YORK

Figure Title
AREA OF CONCERN MAP

Project No.	170229030
Date	03/13/2026
Drawn By	VK
Checked By	GW
Figure	12
Sheet	14 of 14

LANGAN PROJECT NO. 170229030

© 2024 Langan

Filename: \\Langan.com\data\NYC\data0\170229030\Project Data\CAD\Sheet Files\Environmental\RIR Figures\2026 Figures 2 - 11.dwg Date: 5/4/2026 Time: 19:22 User: cquick Style Table: Langan.stb Layout: Figure 12

TABLES

Table 1
Remedial Investigation Report
Sample Collection Summary

C Block
Brooklyn, NY
NYSDEC BCP Site No.: C224435
Langan Project No. 170229030

No.	Location	Type	Sample ID	Sample Depth Interval (feet bgs)	Date	Rationale	Analysis
SOIL							
1	SB01	Grab	SB01_0-2	0-2	7/29/2022	Historic Fill	TCL/Part 375 VOCs, SVOCs, PCBs, Pesticides, Herbicides, TAL Metals (including hexavalent and trivalent chromium), Cyanide, PFAS, and 1,4-Dioxane
2			SB01_19-21	19-21	7/29/2022	Top Of Native	
3	SB02		SB02_0-2	0-2	7/26/2022	Historic Fill	
4			SB02_3-5	3-5	7/26/2022	Interval between 2 ft bgs and groundwater interface	
5	SB03		SB03_0-2	0-2	7/26/2022	Historic Fill	
6			SB03_6-8	6-8	7/26/2022	Interval between 2 ft bgs and groundwater interface	
7			SB03_14-16	14-16	7/26/2022	Potential Impacted Material	TCL/Part 375 VOCs and SVOCs
8			SB03_16-18	16-18	7/26/2022	Clean Interval Below Impacts	
9	SB04		SB04_0-2	0-2	7/28/2022	Historic Fill	TCL/Part 375 VOCs, SVOCs, PCBs, Pesticides, Herbicides, TAL Metals (including hexavalent and trivalent chromium), Cyanide, PFAS, and 1,4-Dioxane
10			SB04_5-7	5-7	7/28/2022	Interval between 2 ft bgs and groundwater interface	
11	SB05		SB05_0-2	0-2	7/26/2022	Historic Fill	TCL/Part 375 VOCs, SVOCs, PCBs, Pesticides, Herbicides, TAL Metals (including hexavalent and trivalent chromium), Cyanide, PFAS, and 1,4-Dioxane, TCLP Metals
12			SB05_5-7	5-7	7/26/2022	Interval between 2 ft bgs and groundwater interface	
13	SB06		SB06_0-2	0-2	7/27/2022	Historic Fill	
14			SB06_4-6	4-6	7/27/2022	Interval between 2 ft bgs and groundwater interface	
15	SB07		SB07_0-2	0-2	7/28/2022	Historic Fill	
16			SB07_7-9	7-9	7/28/2022	Interval between 2 ft bgs and groundwater interface	
17	SB08		SB08_0-2	0-2	7/28/2022	Historic Fill	
18			SB08_9-11	9-11	7/28/2022	Interval between 2 ft bgs and groundwater interface	
19	SB09		SB09_0-2	0-2	7/25/2022	Historic Fill	
20			SB09_3-5	3-5	7/25/2022	Interval between 2 ft bgs and groundwater interface	
21	SB10		SB10_0-2	0-2	7/29/2022	Historic Fill	
22			SB10_3-5	3-5	7/29/2022	Interval between 2 ft bgs and groundwater interface	
23			SB10_13-15	13-15	7/29/2022	Potential Impacted Material	TCL/Part 375 VOCs and SVOCs
24			SB10_17-19	17-19	7/29/2022	Clean Interval Below Impacts	
25	SB11		SB11_0-2	0-2	7/27/2022	Historic Fill	
26			SB11_6-8	6-8	7/27/2022	Interval between 2 ft bgs and groundwater interface	
27	SB12		SB12_0-2	0-2	7/25/2022	Historic Fill	
28			SB12_5-7	5-7	7/25/2022	Interval between 2 ft bgs and groundwater interface	
29	SB13		SB13_0-2	0-2	7/27/2022	Historic Fill	
30			SB13_2-4	2-4	7/27/2022	Interval between 2 ft bgs and groundwater interface	
31	SB14		SB14_0-2	0-2	7/26/2022	Historic Fill	
32			SB14_6-8	6-8	7/26/2022	Interval between 2 ft bgs and groundwater interface	
33	SB15		SB15_0-2	0-2	8/3/2022	Historic Fill	
34			SB15_6-8	6-8	8/3/2022	Interval between 2 ft bgs and groundwater interface	
35	SB16		SB16_0-2	0-2	8/3/2022	Historic Fill	
36			SB16_12-14	12-14	8/3/2022	Top Of Native	
37	SB17		SB17_0-2	0-2	8/1/2022	Historic Fill	
38			SB17_2-4	2-4	8/1/2022	Interval between 2 ft bgs and groundwater interface	
39			SB17_18-20	18-20	8/1/2022	Potential Impacted Material	TCL/Part 375 VOCs and SVOCs
40			SB17_23-25	23-25	8/1/2022	Clean Interval Below Impacts	
41	SB18		SB18_0-2	0-2	8/1/2022	Historic Fill	TCL/Part 375 VOCs, SVOCs, PCBs, Pesticides, Herbicides, TAL Metals (including hexavalent and trivalent chromium), Cyanide, PFAS, and 1,4-Dioxane
42			SB18_8-10	8-10	8/1/2022	Midway within fill layer	
43			SB18_13-15	13-15	8/1/2022	Potential Impacted Material	TCL/Part 375 VOCs and SVOCs
44			SB18_17-19	17-19	8/1/2022	Clean Interval Below Impacts	
45	SB19		SB19_0-2	0-2	8/1/2022	Historic Fill	TCL/Part 375 VOCs, SVOCs, PCBs, Pesticides, Herbicides, TAL Metals (including hexavalent and trivalent chromium), Cyanide, PFAS, and 1,4-Dioxane
46			SB19_3-5	3-5	8/1/2022	Interval between 2 ft bgs and groundwater interface	
47			SB19_13-15	13-15	8/1/2022	Potential Impacted Material	TCL/Part 375 VOCs and SVOCs
48			SB19_18-20	18-20	8/1/2022	Clean Interval Below Impacts	
49	SB20		SB20_0-2	0-2	8/1/2022	Historic Fill	TCL/Part 375 VOCs, SVOCs, PCBs, Pesticides, Herbicides, TAL Metals (including hexavalent and trivalent chromium), Cyanide, PFAS, and 1,4-Dioxane
50			SB20_8-10	8-10	8/1/2022	Top Of Native	

Table 1
Remedial Investigation Report
Sample Collection Summary

C Block
Brooklyn, NY
NYSDEC BCP Site No.: C224435
Langan Project No. 170229030

No.	Location	Type	Sample ID	Sample Depth Interval (feet bgs)	Date	Rationale	Analysis
51	SB21	Grab	SB21_0-2	0-2	8/1/2022	Historic Fill	TCL/Part 375 VOCs, SVOCs, PCBs, Pesticides, Herbicides, TAL Metals (including hexavalent and trivalent chromium), Cyanide, PFAS, and 1,4-Dioxane
52			SB21_6-8	6-8	8/1/2022	Interval between 2 ft bgs and groundwater interface	
53	SB22		SB22_0-2	0-2	8/2/2022	Historic Fill	
54			SB22_13-15	13-15	8/2/2022	Interval between 2 ft bgs and groundwater interface	
55	SB23		SB23_0-2	0-2	7/25/2022	Historic Fill	
56			SB23_6-8	6-8	7/25/2022	Interval between 2 ft bgs and groundwater interface	
57	SB24		SB24_0-2	0-2	7/27/2022	Historic Fill	
58			SB24_2-4	2-4	7/27/2022	Interval between 2 ft bgs and groundwater interface	
59	SB25		SB25_0-2	0-2	7/28/2022	Historic Fill	
60			SB25_4-6	4-6	7/28/2022	Interval between 2 ft bgs and groundwater interface	
61	SB26		SB26_0-2	0-2	8/3/2022	Historic Fill	
62			SB26_6-8	6-8	8/3/2022	Interval between 2 ft bgs and groundwater interface	
63	SB27		SB27_0-2	0-2	8/3/2022	Historic Fill	
64			SB27_7-9	7-9	8/3/2022	Interval between 2 ft bgs and groundwater interface	
65	SB28		SB28_0-2	0-2	8/2/2022	Historic Fill	
66			SB28_13-15	13-15	8/2/2022	Top Of Native	
SOIL QA/QC							
1	SB23_0-2	Duplicate	SODUP01_072522	0-2	7/25/2022	N/A	TCL/Part 375 VOCs, SVOCs, PCBs, Pesticides, Herbicides, TAL Metals (including hexavalent and trivalent chromium), Cyanide, PFAS, and 1,4-Dioxane
2	SB10_3-5		SODUP02_072922	3-5	7/29/2022		
3	SB21_0-2		SODUP03_080122	0-2	8/1/2022		
1	SB24	MS/MSD	SB24_0-2	0-2	7/27/2022		
2	SB01		SB01_0-2	0-2	7/29/2022		
3	SB21		SB21_6-8	6-8	8/1/2022		
1	SOFB01	Field Blank	SOFB01_072522	N/A	7/25/2022		
2	SOFB02		SOFB02_072622	N/A	7/26/2022		
3	SOFB04		SOFB04_080222	N/A	8/2/2022		
1	SOFB03	PFAS Field Blank	SOFB03_080122	N/A	8/1/2022		PFAS
2	SOFB05		SOFB05_080322	N/A	8/3/2022		
1	SOTB01	Trip Blank	SOTB01_072522	N/A	7/25/2022		TCL/Part 375 VOCs
2	SOTB02		SOTB02_072622	N/A	7/26/2022		
3	SOTB03		SOTB03_072722	N/A	7/27/2022		
4	SOTB04		SOTB04_072822	N/A	7/28/2022		
5	SOTB05		SOTB05_072922	N/A	7/29/2022		
6	SOTB06		SOTB06_080122	N/A	8/1/2022		
7	SOTB07		SOTB07_080222	N/A	8/2/2022		
8	SOTB08		SOTB08_080322	N/A	8/3/2022		

Table 1
Remedial Investigation Report
Sample Collection Summary

C Block
Brooklyn, NY
NYSDEC BCP Site No.: C224435
Langan Project No. 170229030

No.	Location	Type	Sample ID	Sample Depth Interval (feet bgs)	Date	Rationale	Analysis
GROUNDWATER							
1	MW01	Groundwater	MW01_080522	7-17	8/5/2022	N/A	TCL/Part 375 VOCs, SVOCs, PCBs, Pesticides, Herbicides, TAL Metals (including hexavalent and trivalent chromium), Cyanide, PFAS, and 1,4-Dioxane
2	MW02		MW02_080222	7-17	8/2/2022		
3	MW03		MW03_080222	7-17	8/2/2022		
4	MW04		MW04_080422	7-17	8/4/2022		
5	MW05		MW05_080222	7-17	8/2/2022		
6	MW06		MW06_080322	7-17	8/3/2022		
7	MW07		MW07_080422	7-17	8/4/2022		
8	MW08		MW08_080422	7-17	8/4/2022		
9	MW09		MW09_080122	7-17	8/1/2022		
10	MW10		MW10_080522	7-17	8/5/2022		
11	MW11		MW11_080322	7-17	8/3/2022		
12	MW12		MW12_080122	7-17	8/1/2022		
13	MW13		MW13_080322	3-13	8/3/2022		
14	MW01		MW01_011226	7-17	1/12/2026		PFAS
15	MW02		MW02_011326	7-17	1/13/2026		
16	MW03		MW03_011326	7-17	1/13/2026		
17	MW04		MW04_011426	7-17	1/14/2026		
18	MW05		MW05_011226	7-17	1/12/2026		
19	MW06		MW06_011426	7-17	1/14/2026		
21	MW08		MW08_011426	7-17	1/14/2026		
22	MW09		MW09_011226	7-17	1/12/2026		
23	MW10		MW10_011226	7-17	1/12/2026		
24	MW11		MW11_013226	7-17	1/13/2026		
25	MW12		MW12_011226	7-17	1/12/2026		
26	MW13		MW13_011326	3-13	1/13/2026		
GROUNDWATER QA/QC							
1	MW03_080222	Duplicate	GWDUP01_080222	N/A	8/2/2022	N/A	TCL/Part 375 VOCs, SVOCs, PCBs, Pesticides, Herbicides, TAL Metals (including hexavalent and trivalent chromium), Cyanide, PFAS, and 1,4-Dioxane
2	MW09_011226		GWDUP01_011226		1/12/2026		PFAS
1	MW05	MS/MSD	MW05_080222		8/2/2022		TCL/Part 375 VOCs, SVOCs, PCBs, Pesticides, Herbicides, TAL Metals (including hexavalent and trivalent chromium), Cyanide, PFAS, and 1,4-Dioxane
2	MW03		MW03_011326		1/13/2026		PFAS
1	GWFB03	Field Blank	GWFB03_080322		8/3/2022		TCL/Part 375 VOCs, SVOCs, PCBs, Pesticides, Herbicides, TAL Metals (including hexavalent and trivalent chromium), Cyanide, PFAS, and 1,4-Dioxane
1	GWFB01	PFAS Field Blank	GWFB01_080122		8/1/2022		PFAS
2	GWFB02		GWFB02_080222		8/2/2022		
3	GWFB04		GWFB04_080422		8/4/2022		
4	GWFB05		GWFB05_080522		8/5/2022		
5	GWFB01		GWFB01_011226		1/12/2026		
6	GWFB02		GWFB01_011326		1/13/2026		
7	GWFB03		GWFB01_011426		1/14/2026		
1	GWTB01	Trip Blank	GWTB01_080122		8/1/2022		TCL/Part 375 VOCs
2	GWTB02		GWTB02_080222		8/2/2022		
3	GWTB03		GWTB03_080322		8/3/2022		
4	GWTB04		GWTB04_080422		8/4/2022		
5	GWTB05		GWTB05_080522		8/5/2022		

Table 1
Remedial Investigation Report
Sample Collection Summary

C Block
Brooklyn, NY
NYSDEC BCP Site No.: C224435
Langan Project No. 170229030

No.	Location	Type	Sample ID	Sample Depth Interval (feet bgs)	Date	Rationale	Analysis
SOIL VAPOR							
1	SV01	Grab	SV01_072922	5	7/29/2022	5 feet bgs or to about 2 feet above the groundwater table, whichever is shallower	TO-15 VOCs
2	SV02		SV02_080322		8/3/2022		
3	SV03		SV03_080222		8/2/2022		
4	SV04		SV04_072922		7/29/2022		
5	SV05		SV05_080222		8/2/2022		
6	SV06		SV06_080322		8/3/2022		
7	SV07		SV07_072922		7/29/2022		
8	SV08		SV08_072922		7/29/2022		
9	SV09		SV09_080222		8/2/2022		
10	SV14		SV14_080222		8/2/2022		
11	SV15		SV15_080322		8/3/2022		
12	SV16		SV16_080322		8/3/2022		
13	SV17		SV17_031926		3/19/2026		
14	SV18		SV18_031926		3/19/2026		
15	SV19A		SV19A_031926		3/19/2026		
16	SV19B		SV19B_031926		3/19/2026		
17	SV20		SV20_031926		3/19/2026		
18	SV21		SV21_031926		3/19/2026		
19	SV22		SV22_031926		3/19/2026		
20	SV23		SV23_031926		3/19/2026		
21	SV24		SV24_031926		3/19/2026		
22	SV25		SV25_031926		3/19/2026		
23	SV26		SV26_031926		3/19/2026		
24	SV27		SV27_031926		3/19/2026		
SOIL VAPOR QA/QC							
1	AA01	Ambient Air	AA01_080222	N/A	8/2/2022	N/A	TO-15 VOCs

Notes:
1. VOC = Volatile organic compounds
2. SVOC = Semivolatile organic compounds
3. PCB = Polychlorinated biphenyls
4. TCL = Target Compound List
5. TAL = Target Analyte List
6. PFAS = per- and poly-fluoroalkyl substances
7. QA/QC = Quality assurance/quality control
8. N/A = Not applicable
9. MS/MSD = matrix spike/matrix spike duplicate
10. bgs = below grade surface

Type	*Sample Type*	*Quantity*	*Analysis*	*Extra Sets*
Soil	Grab	56	TCL/Part 375 VOCs, SVOCs, PCBs, Pesticides, Herbicides, TAL Metals (including hexavalent and trivalent chromium), Cyanide, PFAS, and 1,4-Dioxane	4
	Grab	28	TCLP Metals (HOLDs)	2
	QA/QC	3	Duplicates	0
		3	MS/MSDs	0
		3	Field Blanks	0
Groundwater	Low-flow	13	TCL/Part 375 VOCs, SVOCs, PCBs, Pesticides, Herbicides, TAL Metals (including hexavalent and trivalent chromium), Cyanide, PFAS, and 1,4-Dioxane	2
		12	PFAS	2
	QA/QC	2	Duplicates	0
		2	MS/MSDs	0
		2	Field Blanks	0
Soil Vapor	2-hour	24	TO-15 (2-hour flow controllers)	4
	Ambient	1	TO-15 (2-hour flow controllers)	0
QA/QC	Trip Blank	25	TCL VOCs	0

Table 2
Remedial Investigation Report
Groundwater Elevation Summary

C Block
Brooklyn, New York
NYSDEC BCP Site No.: C224435
Langan Project No.: 170229030

Date Gauged	Well Location	Well Diameter (in.)	Screened Interval (feet bTOC)	Approximate Elevation of TOC (NAVD88)	Depth to Groundwater (feet bTOC)	Groundwater Elevation (NAVD88)	Bottom of Well Depth (ft bTOC)	Bottom of Well Elevation (NAVD88)
8/5/2022	MW01	1	7 to 17	8.88	8.45	0.43	17	-8.12
8/5/2022	MW02	1	7 to 17	8.98	8.78	0.20	17	-8.02
8/5/2022	MW03	1	7 to 17	8.94	8.27	0.67	17	-8.06
8/5/2022	MW04	1	7 to 17	9.89	8.88	1.01	17	-7.11
8/5/2022	MW05	1	7 to 17	10.47	8.46	2.01	17	-6.53
8/5/2022	MW06	1	7 to 17	11.01	9.50	1.51	17	-5.99
8/5/2022	MW07	1	7 to 17	10.32	8.11	2.21	17	-6.68
8/5/2022	MW08	1	7 to 17	11.35	8.43	2.92	17	-5.65
8/5/2022	MW09	1	7 to 17	10.80	8.65	2.15	17	-6.20
8/5/2022	MW10	1	7 to 17	9.05	8.41	0.64	17	-7.95
8/5/2022	MW11	1	7 to 17	9.31	8.62	0.69	17	-7.69
8/5/2022	MW12	1	7 to 17	11.87	9.39	2.48	17	-5.13
8/5/2022	MW13	1	3 to 13	5.84	5.64	0.20	13	-7.16
1/12/2026	MW01	1	7 to 17	8.88	8.76	0.12	17	-8.12
1/13/2026	MW02	1	7 to 17	8.98	9.31	-0.33	17	-8.02
1/13/2026	MW03	1	7 to 17	8.94	8.39	0.55	17	-8.06
1/14/2026	MW04	1	7 to 17	9.89	9.90	-0.01	17	-7.11
1/12/2026	MW05	1	7 to 17	10.47	9.24	1.23	17	-6.53
1/14/2026	MW06	1	7 to 17	11.01	9.87	1.14	17	-5.99
1/14/2026	MW08	1	7 to 17	11.35	9.71	1.64	17	-5.65
1/12/2026	MW10	1	7 to 17	9.05	8.80	0.25	17	-7.95
1/13/2026	MW11	1	7 to 17	9.31	8.10	1.21	17	-7.69
1/12/2026	MW12	1	7 to 17	11.87	9.59	2.28	17	-5.13
1/13/2026	MW13	1	3 to 13	5.84	7.75	0.20	13	-7.16

Notes:
1. NAVD88 - North American Vertical Datum of 1988
2. TOC = top of casing
3. bTOC = below top of casing
4. Grade surface elevations are referenced to the North American Vertical Datum of 1988, and were surveyed by Langan on 8/5/2022.
5. Depth to groundwater was measured in feet below the top of well casing.

Table 3A
Remedial Investigation Report
Soil Sample Analytical Results

C Block
Brooklyn, New York
NYSDEC BCP Site No.: C224435
Langan Project No.: 170229030

Analyte	CAS Number	NYSDEC Part 375 Unrestricted Use SCOs	NYSDEC Part 375 Protection of Groundwater SCOs	NYSDEC Part 375 Restricted Use Restricted-Residential SCOs	Location	SB01	SB01	SB02	SB02	SB03	SB03	SB03	SB03	SB04	SB04	SB05	SB05
					Sample Name	SB01_0-2	SB01_19-21	SB02_0-2	SB02_3-5	SB03_0-2	SB03_6-8	SB03_14-16	SB03_16-18	SB04_0-2	SB04_5-7	SB05_0-2	SB05_5-7
					Sample Date	07/29/2022	07/29/2022	07/26/2022	07/26/2022	07/26/2022	07/26/2022	07/26/2022	07/26/2022	07/28/2022	07/28/2022	07/26/2022	07/26/2022
					Sample Depth	0-2	19-21	0-2	3-5	0-2	6-8	14-16	16-18	0-2	5-7	0-2	5-7
					Unit	Result	Result	Result	Result	Result	Result	Result	Result	Result	Result	Result	Result
Volatile Organic Compounds																	
1,1,1,2-Tetrachloroethane	630-20-6	NS	NS	NS	mg/kg	<0.0009 UJ	<0.00053 U	<0.001 UJ	<0.00098 U	<0.00067 U	<0.00059 U	<0.0021 U	<0.00078 U	<0.03 U	<0.00065 U	<0.00075 U	<0.00052 U
1,1,1-Trichloroethane	71-55-6	0.68	0.68	100	mg/kg	<0.0009 UJ	<0.00053 U	<0.001 UJ	<0.00098 U	<0.00067 U	<0.00059 U	<0.0021 U	<0.00078 U	<0.03 U	<0.00065 U	<0.00075 U	<0.00052 U
1,1,2,2-Tetrachloroethane	79-34-5	NS	NS	NS	mg/kg	<0.0009 UJ	<0.00053 U	<0.001 UJ	<0.00098 U	<0.00067 U	<0.00059 U	<0.0021 U	<0.00078 U	<0.03 U	<0.00065 U	<0.00075 U	<0.00052 U
1,1,2-Trichloroethane	79-00-5	NS	NS	NS	mg/kg	<0.0018 UJ	<0.001 U	<0.0021 UJ	<0.002 U	<0.0013 U	<0.0012 U	<0.0042 U	<0.0016 U	<0.061 U	<0.0013 U	<0.0015 U	<0.001 U
1,1-Dichloroethane	75-34-3	0.27	0.27	47	mg/kg	<0.0018 UJ	<0.001 U	<0.0021 UJ	<0.002 U	<0.0013 U	<0.0012 U	<0.0042 U	<0.0016 U	<0.061 U	<0.0013 U	<0.0015 U	<0.001 U
1,1-Dichloroethene	75-35-4	0.24	0.33	0.98	mg/kg	<0.0018 UJ	<0.001 U	<0.0021 UJ	<0.002 U	<0.0013 U	<0.0012 U	<0.0042 U	<0.0016 U	<0.061 U	<0.0013 U	<0.0015 U	<0.001 U
1,1-Dichloropropene	563-58-6	NS	NS	NS	mg/kg	<0.0009 UJ	<0.00053 U	<0.001 UJ	<0.00098 U	<0.00067 U	<0.00059 U	<0.0021 U	<0.00078 U	<0.03 U	<0.00065 U	<0.00075 U	<0.00052 U
1,2,3-Trichlorobenzene	87-61-6	NS	NS	NS	mg/kg	<0.0036 UJ	<0.0021 U	<0.0042 UJ	<0.0039 U	<0.0027 U	<0.0024 U	<0.0084 U	<0.0031 U	<0.12 U	<0.0026 U	<0.003 U	<0.0021 U
1,2,3-Trichloropropane	96-18-4	NS	NS	NS	mg/kg	<0.0036 UJ	<0.0021 U	<0.0042 UJ	<0.0039 U	<0.0027 U	<0.0024 U	<0.0084 U	<0.0031 U	<0.12 U	<0.0026 U	<0.003 U	<0.0021 U
1,2,4,5-Tetramethylbenzene	95-93-2	NS	NS	NS	mg/kg	<0.0036 UJ	<0.0021 U	<0.0042 UJ	<0.0039 U	<0.0027 U	<0.0024 U	<0.0084 U	<0.0031 U	0.016 J	<0.0026 U	<0.003 U	<0.0021 U
1,2,4-Trichlorobenzene	120-82-1	NS	NS	NS	mg/kg	<0.0036 UJ	<0.0021 U	<0.0042 UJ	<0.0039 U	<0.0027 U	<0.0024 U	<0.0084 U	<0.0031 U	<0.12 U	<0.0026 U	<0.003 U	<0.0021 U
1,2,4-Trimethylbenzene	95-63-6	5.9	5.9	100	mg/kg	0.00089 J	<0.0021 U	0.00096 J	<0.0039 U	<0.0027 U	<0.0024 U	<0.0084 U	<0.0031 U	0.45	<0.0026 U	<0.003 U	<0.0021 U
1,2-Dibromo-3-Chloropropane	96-12-8	NS	NS	NS	mg/kg	<0.0054 UJ	<0.0032 U	<0.0062 UJ	<0.0058 U	<0.004 U	<0.0035 U	<0.013 U	<0.0047 U	<0.18 U	<0.0039 U	<0.0045 U	<0.0032 U
1,2-Dibromoethane (Ethylene Dibromide)	106-93-4	NS	NS	NS	mg/kg	<0.0018 UJ	<0.001 U	<0.0021 UJ	<0.002 U	<0.0013 U	<0.0012 U	<0.0042 U	<0.0016 U	<0.061 U	<0.0013 U	<0.0015 U	<0.001 U
1,2-Dichlorobenzene	95-50-1	1.1	1.1	100	mg/kg	<0.0036 UJ	<0.0021 U	<0.0042 UJ	<0.0039 U	<0.0027 U	<0.0024 U	<0.0084 U	<0.0031 U	<0.12 U	<0.0026 U	<0.003 U	<0.0021 U
1,2-Dichloroethane	107-06-2	0.02	0.02	5.8	mg/kg	<0.0018 UJ	<0.001 U	<0.0021 UJ	<0.002 U	<0.0013 U	<0.0012 U	<0.0042 U	<0.0016 U	<0.061 U	<0.0013 U	<0.0015 U	<0.001 U
1,2-Dichloropropane	78-87-5	NS	NS	NS	mg/kg	<0.0018 UJ	<0.001 U	<0.0021 UJ	<0.002 U	<0.0013 U	<0.0012 U	<0.0042 U	<0.0016 U	<0.061 U	<0.0013 U	<0.0015 U	<0.001 U
1,3,5-Trimethylbenzene (Mesitylene)	108-67-8	3.1	3.1	100	mg/kg	<0.0036 UJ	<0.0021 U	0.00083 J	<0.0039 U	<0.0027 U	<0.0024 U	<0.0084 U	<0.0031 U	0.39	<0.0026 U	<0.003 U	<0.0021 U
1,3-Dichlorobenzene	541-73-1	2.6	2.6	38	mg/kg	<0.0036 UJ	<0.0021 U	<0.0042 UJ	<0.0039 U	<0.0027 U	<0.0024 U	<0.0084 U	<0.0031 U	<0.12 U	<0.0026 U	<0.003 U	<0.0021 U
1,3-Dichloropropane	142-28-9	NS	NS	NS	mg/kg	<0.0036 UJ	<0.0021 U	<0.0042 UJ	<0.0039 U	<0.0027 U	<0.0024 U	<0.0084 U	<0.0031 U	<0.12 U	<0.0026 U	<0.003 U	<0.0021 U
1,4-Dichlorobenzene	106-46-7	1.8	1.8	24	mg/kg	<0.0036 UJ	<0.0021 U	<0.0042 UJ	<0.0039 U	<0.0027 U	<0.0024 U	<0.0084 U	<0.0031 U	<0.12 U	<0.0026 U	<0.003 U	<0.0021 U
1,4-Diethyl Benzene	105-05-5	NS	NS	NS	mg/kg	<0.0036 UJ	<0.0021 U	<0.0042 UJ	<0.0039 U	<0.0027 U	<0.0024 U	<0.0084 U	<0.0031 U	0.098 J	<0.0026 U	<0.003 U	<0.0021 U
1,4-Dioxane (P-Dioxane)	123-91-1	0.1	0.1	5.7	mg/kg	<0.14 UJ	<0.084 UJ	<0.17 UJ	<0.16 U	<0.11 U	<0.095 U	<0.34 U	<0.12 U	<4.9 U	<0.1 U	<0.12 U	<0.084 U
2,2-Dichloropropane	594-20-7	NS	NS	NS	mg/kg	<0.0036 UJ	<0.0021 U	<0.0042 UJ	<0.0039 U	<0.0027 U	<0.0024 U	<0.0084 U	<0.0031 U	<0.12 U	<0.0026 U	<0.003 U	<0.0021 U
2-Chlorotoluene	95-49-8	NS	NS	NS	mg/kg	<0.0036 UJ	<0.0021 U	<0.0042 UJ	<0.0039 U	<0.0027 U	<0.0024 U	<0.0084 U	<0.0031 U	<0.12 U	<0.0026 U	<0.003 U	<0.0021 U
2-Hexanone (MBK)	591-78-6	NS	NS	NS	mg/kg	<0.018 UJ	<0.01 U	<0.021 UJ	<0.02 U	<0.013 U	<0.012 U	<0.042 U	<0.016 U	<0.61 U	<0.013 U	<0.015 U	<0.01 U
4-Chlorotoluene	106-43-4	NS	NS	NS	mg/kg	<0.0036 UJ	<0.0021 U	<0.0042 UJ	<0.0039 U	<0.0027 U	<0.0024 U	<0.0084 U	<0.0031 U	<0.12 U	<0.0026 U	<0.003 U	<0.0021 U
4-Ethyltoluene	622-96-8	NS	NS	NS	mg/kg	<0.0036 UJ	<0.0021 U	<0.0042 UJ	<0.0039 U	<0.0027 U	<0.0024 U	<0.0084 U	<0.0031 U	0.42	<0.0026 U	<0.003 U	<0.0021 U
Acetone	67-64-1	**0.03**	0.03	100	mg/kg	0.023 J	0.0058 J	**0.032 J**	<0.02 U	<0.013 U	<0.012 U	0.027 J	**0.032**	<0.61 U	**0.039**	0.014 J	0.014 J
Acrylonitrile	107-13-1	NS	NS	NS	mg/kg	<0.0072 UJ	<0.0042 U	<0.0083 UJ	<0.0078 U	<0.0053 U	<0.0047 U	<0.017 U	<0.0063 U	<0.24 U	<0.0052 U	<0.006 U	<0.0042 U
Benzene	71-43-2	**0.06**	0.06	3.7	mg/kg	0.006 J	<0.00053 U	0.0022 J	<0.00098 U	0.00042 J	0.00036 J	<0.0021 U	<0.00078 U	**2.9**	<0.00065 U	<0.00075 U	0.00059
Bromobenzene	108-86-1	NS	NS	NS	mg/kg	<0.0036 UJ	<0.0021 U	<0.0042 UJ	<0.0039 U	<0.0027 U	<0.0024 U	<0.0084 U	<0.0031 U	<0.12 U	<0.0026 U	<0.003 U	<0.0021 U
Bromochloromethane	74-97-5	NS	NS	NS	mg/kg	<0.0036 UJ	<0.0021 U	<0.0042 UJ	<0.0039 U	<0.0027 U	<0.0024 U	<0.0084 U	<0.0031 U	<0.12 U	<0.0026 U	<0.003 U	<0.0021 U
Bromodichloromethane	75-27-4	NS	NS	NS	mg/kg	<0.0009 UJ	<0.00053 U	<0.001 UJ	<0.00098 U	<0.00067 U	<0.00059 U	<0.0021 U	<0.00078 U	<0.03 U	<0.00065 U	<0.00075 U	<0.00052 U
Bromoform	75-25-2	NS	NS	NS	mg/kg	<0.0072 UJ	<0.0042 U	<0.0083 UJ	<0.0078 U	<0.0053 U	<0.0047 U	<0.017 U	<0.0063 U	<0.24 U	<0.0052 U	<0.006 U	<0.0042 U
Bromomethane	74-83-9	NS	NS	NS	mg/kg	<0.0036 UJ	<0.0021 U	<0.0042 UJ	<0.0039 U	<0.0027 U	<0.0024 U	<0.0084 U	<0.0031 U	<0.12 U	<0.0026 U	<0.003 U	<0.0021 U
Carbon Disulfide	75-15-0	NS	NS	NS	mg/kg	<0.018 UJ	<0.01 U	<0.021 UJ	<0.02 U	<0.013 U	<0.012 U	0.027 J	<0.016 U	<0.61 U	<0.013 U	<0.015 U	<0.01 U
Carbon Tetrachloride	56-23-5	0.76	0.76	7.1	mg/kg	<0.0018 UJ	<0.001 U	<0.0021 UJ	<0.002 U	<0.0013 U	<0.0012 U	<0.0042 U	<0.0016 U	<0.061 U	<0.0013 U	<0.0015 U	<0.001 U
Chlorobenzene	108-90-7	4.5	4.5	100	mg/kg	<0.0009 UJ	<0.00053 U	<0.001 UJ	<0.00098 U	<0.00067 U	<0.00059 U	<0.0021 U	<0.00078 U	<0.03 U	<0.00065 U	<0.00075 U	<0.00052 U
Chloroethane	75-00-3	NS	NS	NS	mg/kg	<0.0036 UJ	<0.0021 U	<0.0042 UJ	<0.0039 U	<0.0027 U	<0.0024 U	<0.0084 U	<0.0031 U	<0.12 U	<0.0026 U	<0.003 U	<0.0021 U
Chloroform	67-66-3	0.37	0.37	24	mg/kg	<0.0027 UJ	<0.0016 U	<0.0031 UJ	<0.0029 U	0.00075 J	0.0013 J	<0.0063 U	<0.0024 U	<0.092 U	<0.002 U	<0.0022 U	<0.0016 U
Chloromethane	74-87-3	NS	NS	NS	mg/kg	<0.0072 UJ	<0.0042 U	<0.0083 UJ	<0.0078 U	<0.0053 U	<0.0047 U	<0.017 U	<0.0063 U	<0.24 U	<0.0052 U	<0.006 U	<0.0042 U
Cis-1,2-Dichloroethene	156-59-2	0.19	0.19	41	mg/kg	<0.0018 UJ	<0.001 U	<0.0021 UJ	<0.002 U	<0.0013 U	<0.0012 U	<0.0042 U	<0.0016 U	<0.061 U	<0.0013 U	<0.0015 U	<0.001 U
Cis-1,3-Dichloropropene	10061-01-5	NS	NS	NS	mg/kg	<0.0009 UJ	<0.00053 U	<0.001 UJ	<0.00098 U	<0.00067 U	<0.00059 U	<0.0021 U	<0.00078 U	<0.03 U	<0.00065 U	<0.00075 U	<0.00052 U
Cymene	99-87-6	NS	NS	NS	mg/kg	<0.0018 UJ	<0.001 U	<0.0021 UJ	<0.002 U	<0.0013 U	<0.0012 U	0.00067 J	<0.0016 U	0.012 J	<0.0013 U	<0.0015 U	<0.001 U
Dibromochloromethane	124-48-1	NS	NS	NS	mg/kg	<0.0018 UJ	<0.001 U	<0.0021 UJ	<0.002 U	<0.0013 U	<0.0012 U	<0.0042 U	<0.0016 U	<0.061 U	<0.0013 U	<0.0015 U	<0.001 U
Dibromomethane	74-95-3	NS	NS	NS	mg/kg	<0.0036 UJ	<0.0021 U	<0.0042 UJ	<0.0039 U	<0.0027 U	<0.0024 U	<0.0084 U	<0.0031 U	<0.12 U	<0.0026 U	<0.003 U	<0.0021 U
Dichlorodifluoromethane	75-71-8	NS	NS	NS	mg/kg	<0.018 UJ	<0.01 U	<0.021 UJ	<0.02 U	<0.013 U	<0.012 U	<0.042 U	<0.016 U	<0.61 U	<0.013 U	<0.015 U	<0.01 U
Diethyl Ether (Ethyl Ether)	60-29-7	NS	NS	NS	mg/kg	<0.0036 UJ	<0.0021 U	<0.0042 UJ	<0.0039 U	<0.0027 U	<0.0024 U	<0.0084 U	<0.0031 U	<0.12 U	<0.0026 U	<0.003 U	<0.0021 U
Ethylbenzene	100-41-4	1	1	76	mg/kg	<0.0018 UJ	<0.001 U	0.00049 J	<0.002 U	<0.0013 U	<0.0012 U	<0.0042 U	<0.0016 U	0.38	<0.0013 U	<0.0015 U	<0.001 U
Hexachlorobutadiene	87-68-3	NS	NS	NS	mg/kg	<0.0072 UJ	<0.0042 U	<0.0083 UJ	<0.0078 U	<0.0053 U	<0.0047 U	<0.017 U	<0.0063 U	<0.24 U	<0.0052 U	<0.006 U	<0.0042 U
Isopropylbenzene (Cumene)	98-82-8	NS	NS	NS	mg/kg	<0.0018 UJ	<0.001 U	<0.0021 UJ	<0.002 U	<0.0013 U	<0.0012 U	<0.0042 U	<0.0016 U	0.027 J	<0.0013 U	<0.0015 U	<0.001 U
M,P-Xylene	179601-23-1	NS	NS	NS	mg/kg	<0.0036 UJ	<0.0021 U	0.004 J	<0.0039 U	<0.0027 U	<0.0024 U	<0.0084 U	<0.0031 U	5.2	<0.0026 U	<0.003 U	<0.0021 U
Methyl Ethyl Ketone (2-Butanone)	78-93-3	0.1	0.1	100	mg/kg	<0.018 UJ	<0.01 U	<0.021 UJ	<0.02 U	<0.013 U	<0.012 U	<0.042 U	<0.016 U	<0.61 U	0.0058 J	<0.015 U	<0.01 U
Methyl Isobutyl Ketone (4-Methyl-2-Pentanone)	108-10-1	NS	NS	NS	mg/kg	<0.018 UJ	<0.01 U	<0.021 UJ	<0.02 U	<0.013 U	<0.012 U	<0.042 U	<0.016 U	<0.61 U	<0.013 U	<0.015 U	<0.01 U
Methylene Chloride	75-09-2	0.05	0.05	81	mg/kg	<0.009 UJ	<0.0053 U	<0.01 UJ	<0.0098 U	<0.0067 U	<0.0059 U	<0.021 U	<0.0078 U	<0.3 U	<0.0065 U	<0.0075 U	<0.0052 U
Naphthalene	91-20-3	**12**	12	100	mg/kg	0.0013 J	<0.0042 U	<0.0083 UJ	<0.0078 U	<0.0053 U	<0.0047 U	<0.017 U	<0.0063 U	0.38	<0.0052 U	<0.006 U	<0.0042 U
n-Butylbenzene	104-51-8	18	18	100	mg/kg	<0.0018 UJ	<0.001 U	<0.0021 UJ	<0.002 U	<0.0013 U	<0.0012 U	<0.0042 U	<0.0016 U	0.011 J	<0.0013 U	<0.0015 U	<0.001 U
n-Propylbenzene	103-65-1	5	5	100	mg/kg	<0.0018 UJ	<0.001 U	<0.0021 UJ	<0.002 U	<0.0013 U	<0.0012 U	<0.0042 U	<0.0016 U	0.057 J	<0.0013 U	<0.0015 U	<0.001 U
o-Xylene (1,2-Dimethylbenzene)	95-47-6	NS	NS	NS	mg/kg	<0.0018 UJ	<0.001 U	0.00067 J	<0.002 U	<0.0013 U	<0.0012 U	<0.0042 U	<0.0016 U	0.53	<0.0013 U	<0.0015 U	<0.001 U
Sec-Butylbenzene	135-98-8	25	25	100	mg/kg	<0.0018 UJ	<0.001 U	<0.0021 UJ	<0.002 U	<0.0013 U	<0.0012 U	<0.0042 U	<0.0016 U	<0.061 U	<0.0013 U	<0.0015 U	<0.001 U
Styrene	100-42-5	NS	NS	NS	mg/kg	<0.0018 UJ	<0.001 U	<0.0021 UJ	<0.002 U	<0.0013 U	<0.0012 U	<0.0042 U	<0.0016 U	<0.061 U	<0.0013 U	<0.0015 U	<0.001 U
T-Butylbenzene	98-06-6	11	11	100	mg/kg	<0.0036 UJ	<0.0021 U	<0.0042 UJ	<0.0039 U	<0.0027 U	<0.0024 U	<0.0084 U	<0.0031 U	<0.12 U	<0.0026 U	<0.003 U	<0.0021 U
Tert-Butyl Methyl Ether (MTBE)	1634-04-4	0.1	0.1	100	mg/kg	<0.0036 UJ	<0.0021 U	<0.0042 UJ	<0.0039 U	<0.0027 U	<0.0024 U	<0.0084 U	<0.0031 U	<0.12 U	<0.0026 U	<0.003 U	<0.0021 U
Tetrachloroethene (PCE)	127-18-4	1.3	1.3	18	mg/kg	<0.0009 UJ	<0.00053 U	<0.001 UJ	<0.00098 U	<0.00067 U	<0.00059 U	<0.0021 U	<0.00078 U	<0.03 U	<0.00065 U	<0.00075 U	<0.00052 U
Toluene	108-88-3	**0.7**	0.7	100	mg/kg	0.002 J	<0.001 U	0.0047 J	<0.002 U	<0.0013 U	<0.0012 U	<0.0042 U	<0.0016 U	**5.1**	<0.0013 U	<0.0015 U	<0.001 U
Total 1,2-Dichloroethene (Cis and Trans)	540-59-0	NS	NS	NS	mg/kg	<0.0018 UJ	<0.001 U	<0.0021 UJ	<0.002 U	<0.0013 U	<0.0012 U	<0.0042 U	<0.0016 U	<0.061 U	<0.0013 U	<0.0015 U	<0.001 U
Total Xylenes	1330-20-7	**0.26**	1.2	100	mg/kg	<0.0018 UJ	<0.001 U	0.0047 J	<0.002 U	<0.0013 U	<0.0012 U	<0.0042 U	<0.0016 U	**5.7**	<0.0013 U	<0.0015 U	<0.001 U
Total, 1,3-Dichloropropene (Cis And Trans)	542-75-6	NS	NS	NS	mg/kg	<0.0009 UJ	<0.00053 U	<0.001 UJ	<0.00098 U	<0.00067 U	<0.00059 U	<0.0021 U	<0.00078 U	<0.03 U	<0.00065 U	<0.00075 U	<0.00052 U
Trans-1,2-Dichloroethene	156-60-5	0.19	0.19	100	mg/kg	<0.0027 UJ	<0.0016 U	<0.0031 UJ	<0.0029 U	<0.002 U	<0.0018 U	<0.0063 U	<0.0024 U	<0.092 U	<0.002 U	<0.0022 U	<0.0016 U
Trans-1,3-Dichloropropene	10061-02-6	NS	NS	NS	mg/kg	<0.0018 UJ	<0.001 U	<0.0021 UJ	<0.002 U	<0.0013 U	<0.0012 U	<0.0042 U	<0.0016 U	<0.061 U	<0.0013 U	<0.0015 U	<0.001 U
Trans-1,4-Dichloro-2-Butene	110-57-6	NS	NS	NS	mg/kg	<0.009 UJ	<0.0053 U	<0.01 UJ	<0.0098 U	<0.0067 U	<0.0059 U	<0.021 U	<0.0078 U	<0.3 U	<0.0065 U	<0.0075 U	<0.0052 U
Trichloroethene (TCE)	79-01-6	0.47	0.47	6.4	mg/kg	<0.0009 UJ	<0.00053 U	<0.001 UJ	<0.00098 U	<0.00067 U	<0.00059 U	<0.0021 U	<0.00078 U	<0.03 U	<0.00065 U	<0.00075 U	<0.00052 U
Trichlorofluoromethane	75-69-4	NS	NS	NS	mg/kg	<0.0072 UJ	<0.0042 U	<0.0083 UJ	<0.0078 U	<0.0053 U	<0.0047 U	<0.017 U	<0.0063 U	<0.24 U	<0.0052 U	<0.006 U	<0.0042 U
Vinyl Acetate	108-05-4	NS	NS	NS	mg/kg	<0.018 UJ	<0.01 UJ	<0.021 UJ	<0.02 U	<0.013 U	<0.012 U	<0.042 U	<0.016 U	<0.61 U	<0.013 U	<0.015 U	<0.01 U
Vinyl Chloride	75-01-4	0.03	0.03	0.48	mg/kg	<0.0018 UJ	<0.001 U	<0.0021 UJ	<0.002 U	<0.0013 U	<0.0012 U	<0.0042 U	<0.0016 U	<0.061 U	<0.0013 U	<0.0015 U	<0.001 U

Table 3A
Remedial Investigation Report
Soil Sample Analytical Results

C Block
Brooklyn, New York
NYSDEC BCP Site No.: C224435
Langan Project No.: 170229030

Analyte	CAS Number	NYSDEC Part 375 Unrestricted Use SCOs	NYSDEC Part 375 Protection of Groundwater SCOs	NYSDEC Part 375 Restricted Use Restricted-Residential SCOs	Location	SB01	SB01	SB02	SB02	SB03	SB03	SB03	SB03	SB04	SB04	SB05	SB05
					Sample Name	SB01_0-2	SB01_19-21	SB02_0-2	SB02_3-5	SB03_0-2	SB03_6-8	SB03_14-16	SB03_16-18	SB04_0-2	SB04_5-7	SB05_0-2	SB05_5-7
					Sample Date	07/29/2022	07/29/2022	07/26/2022	07/26/2022	07/26/2022	07/26/2022	07/26/2022	07/26/2022	07/28/2022	07/28/2022	07/26/2022	07/26/2022
					Sample Depth	0-2	19-21	0-2	3-5	0-2	6-8	14-16	16-18	0-2	5-7	0-2	5-7
					Unit	Result	Result	Result	Result	Result	Result	Result	Result	Result	Result	Result	Result
Semi-Volatile Organic Compounds																	
1,2,4,5-Tetrachlorobenzene	95-94-3	NS	NS	NS	mg/kg	<0.18 U	<0.21 U	<0.18 U	<0.2 U	<0.18 U	<0.19 U	<0.47 U	<0.25 U	<0.18 U	<0.19 U	<1.8 U	<1.9 U
1,2,4-Trichlorobenzene	120-82-1	NS	NS	NS	mg/kg	<0.18 U	<0.21 U	<0.18 U	<0.2 U	<0.18 U	<0.19 U	<0.47 U	<0.25 U	<0.18 U	<0.19 U	<1.8 U	<1.9 U
1,2-Dichlorobenzene	95-50-1	1.1	1.1	100	mg/kg	<0.18 U	<0.21 U	<0.18 U	<0.2 U	<0.18 U	<0.19 U	<0.47 U	<0.25 U	<0.18 U	<0.19 U	<1.8 U	<1.9 U
1,3-Dichlorobenzene	541-73-1	2.6	2.6	38	mg/kg	<0.18 U	<0.21 U	<0.18 U	<0.2 U	<0.18 U	<0.19 U	<0.47 U	<0.25 U	<0.18 U	<0.19 U	<1.8 U	<1.9 U
1,4-Dichlorobenzene	106-46-7	1.8	1.8	24	mg/kg	<0.18 U	<0.21 U	<0.18 U	<0.2 U	<0.18 U	<0.19 U	<0.47 U	<0.25 U	0.071 J	<0.19 U	<1.8 U	<1.9 U
1,4-Dioxane (P-Dioxane)	123-91-1	0.1	0.1	5.7	mg/kg	<0.026 U	<0.032 U	<0.027 U	<0.03 U	<0.027 U	<0.028 U	<0.07 U	<0.038 U	<0.027 U	<0.028 U	<0.28 U	<0.28 U
2,4,5-Trichlorophenol	95-95-4	NS	NS	NS	mg/kg	<0.18 U	<0.21 U	<0.18 U	<0.2 U	<0.18 U	<0.19 U	<0.47 U	<0.25 U	<0.18 U	<0.19 U	<1.8 U	<1.9 U
2,4,6-Trichlorophenol	88-06-2	NS	NS	NS	mg/kg	<0.1 U	<0.13 U	<0.11 U	<0.12 U	<0.11 U	<0.11 U	<0.28 U	<0.15 U	<0.11 U	<0.11 U	<1.1 U	<1.1 U
2,4-Dichlorophenol	120-83-2	NS	NS	NS	mg/kg	<0.16 U	<0.19 U	<0.16 U	<0.18 U	<0.16 U	<0.17 U	<0.42 U	<0.23 U	<0.16 U	<0.17 U	<1.6 U	<1.7 U
2,4-Dimethylphenol	105-67-9	NS	NS	NS	mg/kg	<0.18 U	<0.21 U	<0.18 U	<0.2 U	<0.18 U	<0.19 U	<0.47 U	<0.25 U	<0.18 U	0.1 J	<1.8 U	<1.9 U
2,4-Dinitrophenol	51-28-5	NS	NS	NS	mg/kg	<0.84 U	<1 U	<0.86 U	<0.95 U	<0.85 U	<0.9 U	<2.2 U	<1.2 U	<0.87 U	<0.9 U	<8.8 U	<9 U
2,4-Dinitrotoluene	121-14-2	NS	NS	NS	mg/kg	<0.18 U	<0.21 U	<0.18 U	<0.2 U	<0.18 U	<0.19 U	<0.47 U	<0.25 U	<0.18 U	<0.19 U	<1.8 U	<1.9 U
2,6-Dinitrotoluene	606-20-2	NS	NS	NS	mg/kg	<0.18 U	<0.21 U	<0.18 U	<0.2 U	<0.18 U	<0.19 U	<0.47 U	<0.25 U	<0.18 U	<0.19 U	<1.8 U	<1.9 U
2-Chloronaphthalene	91-58-7	NS	NS	NS	mg/kg	<0.18 U	<0.21 U	<0.18 U	<0.2 U	<0.18 U	<0.19 U	<0.47 U	<0.25 U	<0.18 U	<0.19 U	<1.8 U	<1.9 U
2-Chlorophenol	95-57-8	NS	NS	NS	mg/kg	<0.18 U	<0.21 U	<0.18 U	<0.2 U	<0.18 U	<0.19 U	<0.47 U	<0.25 U	<0.18 U	<0.19 U	<1.8 U	<1.9 U
2-Methylnaphthalene	91-57-6	NS	NS	NS	mg/kg	2	<0.25 U	0.53	0.64	0.44	0.24	<0.56 U	<0.3 U	1.3	1.4	0.68 J	2.2
2-Methylphenol (o-Cresol)	95-48-7	**0.33**	0.33	100	mg/kg	<0.18 U	<0.21 U	<0.18 U	<0.2 U	<0.18 U	<0.19 U	<0.47 U	<0.25 U	<0.18 U	0.074 J	<1.8 U	<1.9 U
2-Nitroaniline	88-74-4	NS	NS	NS	mg/kg	<0.18 U	<0.21 U	<0.18 U	<0.2 U	<0.18 U	<0.19 U	<0.47 U	<0.25 U	<0.18 U	<0.19 U	<1.8 U	<1.9 U
2-Nitrophenol	88-75-5	NS	NS	NS	mg/kg	<0.38 U	<0.46 U	<0.38 U	<0.42 U	<0.38 U	<0.41 U	<1 U	<0.55 U	<0.39 U	<0.41 U	<4 U	<4 U
3 & 4 Methylphenol (m&p Cresol)	65794-96-9	**0.33**	0.33	100	mg/kg	0.028 J	<0.3 U	<0.26 U	<0.28 U	<0.26 U	<0.27 U	0.16 J	<0.36 U	0.042 J	0.23 J	<2.6 U	0.31 J
3,3'-Dichlorobenzidine	91-94-1	NS	NS	NS	mg/kg	<0.18 U	<0.21 U	<0.18 U	<0.2 U	<0.18 U	<0.19 U	<0.47 U	<0.25 U	<0.18 U	<0.19 U	<1.8 U	<1.9 U
3-Nitroaniline	99-09-2	NS	NS	NS	mg/kg	<0.18 U	<0.21 U	<0.18 U	<0.2 U	<0.18 U	<0.19 U	<0.47 U	<0.25 U	<0.18 U	<0.19 U	<1.8 U	<1.9 U
4,6-Dinitro-2-Methylphenol	534-52-1	NS	NS	NS	mg/kg	<0.46 U	<0.55 U	<0.46 U	<0.51 U	<0.46 U	<0.49 U	<1.2 U	<0.66 U	<0.47 U	<0.49 U	<4.8 U	<4.9 U
4-Bromophenyl Phenyl Ether	101-55-3	NS	NS	NS	mg/kg	<0.18 U	<0.21 U	<0.18 U	<0.2 U	<0.18 U	<0.19 U	<0.47 U	<0.25 U	<0.18 U	<0.19 U	<1.8 U	<1.9 U
4-Chloro-3-Methylphenol	59-50-7	NS	NS	NS	mg/kg	<0.18 U	<0.21 U	<0.18 U	<0.2 U	<0.18 U	<0.19 U	<0.47 U	<0.25 U	<0.18 U	<0.19 U	<1.8 U	<1.9 U
4-Chloroaniline	106-47-8	NS	NS	NS	mg/kg	<0.18 U	<0.21 U	<0.18 U	<0.2 U	<0.18 U	<0.19 U	<0.47 U	<0.25 U	<0.18 U	<0.19 U	<1.8 U	<1.9 U
4-Chlorophenyl Phenyl Ether	7005-72-3	NS	NS	NS	mg/kg	<0.18 U	<0.21 U	<0.18 U	<0.2 U	<0.18 U	<0.19 U	<0.47 U	<0.25 U	<0.18 U	<0.19 U	<1.8 U	<1.9 U
4-Nitroaniline	100-01-6	NS	NS	NS	mg/kg	<0.18 U	<0.21 U	<0.18 U	<0.2 U	<0.18 U	<0.19 U	<0.47 U	<0.25 U	<0.18 U	<0.19 U	<1.8 U	<1.9 U
4-Nitrophenol	100-02-7	NS	NS	NS	mg/kg	<0.25 U	<0.3 U	<0.25 U	<0.28 U	<0.25 U	<0.26 U	<0.66 U	<0.35 U	<0.25 U	<0.26 U	<2.6 U	<2.6 U
Acenaphthene	83-32-9	**20**	98	100	mg/kg	0.11 J	<0.17 U	0.12 J	0.062 J	0.036 J	<0.15 U	<0.38 U	0.094 J	0.22	6.8	<1.5 U	5.2
Acenaphthylene	208-96-8	100	365	100	mg/kg	0.053 J	<0.17 U	0.098 J	0.042 J	0.049 J	<0.15 U	<0.38 U	<0.2 U	1	1.9	<1.5 U	4.2
Acetophenone	98-86-2	NS	NS	NS	mg/kg	<0.18 U	<0.21 U	<0.18 U	<0.2 U	<0.18 U	<0.19 U	<0.47 U	<0.25 U	<0.18 U	<0.19 U	<1.8 U	<1.9 U
Anthracene	120-12-7	**100**	1000	100	mg/kg	0.27	<0.13 U	0.3	0.24	0.12	0.049 J	<0.28 U	0.098 J	0.8	12	<1.1 U	14
Benzo(a)anthracene	56-55-3	**1**	1	1.4	mg/kg	0.72	<0.13 U	1	0.79	0.45	0.15	0.072 J	0.24	**2.4**	**17**	0.94 J	**26**
Benzo(a)pyrene	50-32-8	**1**	22	1	mg/kg	0.62	<0.17 U	1	0.76	0.48	0.16	<0.38 U	0.24	**3.3**	**18**	1 J	**25**
Benzo(b)fluoranthene	205-99-2	**1**	2.1	1.4	mg/kg	0.99	<0.13 U	**1.3**	0.78	0.57	0.19	0.086 J	0.27	**4**	**19**	**1.2**	**28**
Benzo(g,h,i)Perylene	191-24-2	**0.64**	1000	4.9	mg/kg	0.46	<0.17 U	**0.65**	0.48	0.34	0.12 J	<0.38 U	0.1 J	**1.6**	**8.3**	0.64 J	**9.1**
Benzo(k)fluoranthene	207-08-9	**0.8**	2	4.9	mg/kg	0.32	<0.13 U	0.41	0.21	0.17	0.064 J	<0.28 U	0.078 J	**1.1**	**3.8**	0.37 J	**8.3**
Benzoic Acid	65-85-0	NS	NS	NS	mg/kg	<0.57 U	<0.69 U	<0.58 U	<0.64 U	<0.58 U	<0.61 U	<1.5 U	<0.82 U	<0.59 U	<0.61 U	<6 U	<6 U
Benzyl Alcohol	100-51-6	NS	NS	NS	mg/kg	<0.18 U	<0.21 U	<0.18 U	<0.2 U	<0.18 U	<0.19 U	<0.47 U	<0.25 U	<0.18 U	<0.19 U	<1.8 U	<1.9 U
Benzyl Butyl Phthalate	85-68-7	NS	NS	NS	mg/kg	<0.18 U	<0.21 U	<0.18 U	<0.2 U	<0.18 U	<0.19 U	<0.47 U	<0.25 U	<0.18 U	<0.19 U	<1.8 U	<1.9 U
Biphenyl (Diphenyl)	92-52-4	NS	NS	NS	mg/kg	0.38 J	<0.48 U	0.14 J	0.073 J	0.11 J	0.071 J	<1.1 U	<0.58 U	0.3 J	0.7	<4.2 U	0.64 J
Bis(2-chloroethoxy) methane	111-91-1	NS	NS	NS	mg/kg	<0.19 U	<0.23 U	<0.19 U	<0.21 U	<0.19 U	<0.2 U	<0.51 U	<0.27 U	<0.2 U	<0.2 U	<2 U	<2 U
Bis(2-chloroethyl) ether (2-chloroethyl ether)	111-44-4	NS	NS	NS	mg/kg	<0.16 U	<0.19 U	<0.16 U	<0.18 U	<0.16 U	<0.17 U	<0.42 U	<0.23 U	<0.16 U	<0.17 U	<1.6 U	<1.7 U
Bis(2-chloroisopropyl) ether	108-60-1	NS	NS	NS	mg/kg	<0.21 U	<0.25 U	<0.21 U	<0.24 U	<0.21 U	<0.22 U	<0.56 U	<0.3 U	<0.22 U	<0.23 U	<2.2 U	<2.2 U
Bis(2-ethylhexyl) phthalate	117-81-7	NS	NS	NS	mg/kg	<0.18 U	<0.21 U	<0.18 U	<0.2 U	<0.18 U	<0.19 U	<0.47 U	<0.25 U	0.099 J	<0.19 U	<1.8 U	<1.9 U
Carbazole	86-74-8	NS	NS	NS	mg/kg	0.12 J	<0.21 U	0.099 J	0.1 J	0.043 J	0.024 J	<0.47 U	0.047 J	0.23	4	<1.8 U	4.5
Chrysene	218-01-9	**1**	1	4.9	mg/kg	1	<0.13 U	**1.2**	1	0.48	0.17	0.052 J	0.2	**2.1**	**13**	0.79 J	**19**
Dibenz(a,h)anthracene	53-70-3	**0.33**	1000	0.33	mg/kg	0.11	<0.13 U	0.15	0.2	0.073 J	0.025 J	<0.28 U	<0.15 U	**0.42**	**1.7**	<1.1 U	**2.7**
Dibenzofuran	132-64-9	**2.1**	110	18	mg/kg	0.26	<0.21 U	0.16 J	0.081 J	0.059 J	0.032 J	<0.47 U	0.043 J	0.28	**5**	<1.8 U	**4.3**
Dibutyl phthalate	84-74-2	NS	NS	NS	mg/kg	0.14 J	<0.21 U	<0.18 U	<0.2 U	<0.18 U	<0.19 U	<0.47 U	<0.25 U	0.066 J	<0.19 U	<1.8 U	<1.9 U
Diethyl phthalate	84-66-2	NS	NS	NS	mg/kg	<0.18 U	<0.21 U	<0.18 U	<0.2 U	<0.18 U	<0.19 U	<0.47 U	<0.25 U	<0.18 U	<0.19 U	<1.8 U	<1.9 U
Dimethyl phthalate	131-11-3	NS	NS	NS	mg/kg	<0.18 U	<0.21 U	<0.18 U	<0.2 U	<0.18 U	<0.19 U	<0.47 U	<0.25 U	<0.18 U	<0.19 U	<1.8 U	<1.9 U
Dioctyl phthalate	117-84-0	NS	NS	NS	mg/kg	<0.18 U	<0.21 U	<0.18 U	<0.2 U	<0.18 U	<0.19 U	<0.47 U	<0.25 U	<0.18 U	<0.19 U	<1.8 U	<1.9 U
Fluoranthene	206-44-0	**85**	1000	100	mg/kg	1.6	<0.13 U	1.7	1	0.69	0.26	0.095 J	0.54	4.3	42	1.7	50
Fluorene	86-73-7	**30**	386	100	mg/kg	0.33	<0.21 U	0.23	0.1 J	0.071 J	0.038 J	<0.47 U	0.084 J	0.5	8.1	<1.8 U	6.5
Hexachlorobenzene	118-74-1	0.33	3.2	0.33	mg/kg	<0.1 U	<0.13 U	<0.11 U	<0.12 U	<0.11 U	<0.11 U	<0.28 U	<0.15 U	<0.11 U	<0.11 U	<1.1 U	<1.1 U
Hexachlorobutadiene	87-68-3	NS	NS	NS	mg/kg	<0.18 U	<0.21 U	<0.18 U	<0.2 U	<0.18 U	<0.19 U	<0.47 U	<0.25 U	<0.18 U	<0.19 U	<1.8 U	<1.9 U
Hexachlorocyclopentadiene	77-47-4	NS	NS	NS	mg/kg	<0.5 U	<0.61 U	<0.51 UJ	<0.56 UJ	<0.51 UJ	<0.54 UJ	<1.3 UJ	<0.72 UJ	<0.52 U	<0.54 U	<5.3 UJ	<5.3 UJ
Hexachloroethane	67-72-1	NS	NS	NS	mg/kg	<0.14 U	<0.17 U	<0.14 U	<0.16 U	<0.14 U	<0.15 U	<0.38 U	<0.2 U	<0.14 U	<0.15 U	<1.5 U	<1.5 U
Indeno(1,2,3-cd)pyrene	193-39-5	**0.5**	6.6	1.4	mg/kg	0.39	<0.17 U	**0.71**	0.39	0.34	0.12 J	<0.38 U	0.13 J	**2.1**	**10**	**0.74 J**	**13**
Isophorone	78-59-1	NS	NS	NS	mg/kg	<0.16 U	<0.19 U	<0.16 U	<0.18 U	<0.16 U	<0.17 U	<0.42 U	<0.23 U	<0.16 U	<0.17 U	<1.6 U	<1.7 U
Naphthalene	91-20-3	**12**	12	100	mg/kg	1.2	<0.21 U	0.35	0.37	0.25	0.14 J	<0.47 U	0.034 J	1	3.5	0.35 J	2.9
Nitrobenzene	98-95-3	0.08	0.08	1.8	mg/kg	<0.16 U	<0.19 U	<0.16 U	<0.18 U	<0.16 U	<0.17 U	<0.42 U	<0.23 U	<0.16 U	<0.17 U	<1.6 U	<1.7 U
n-Nitrosodi-N-Propylamine	621-64-7	NS	NS	NS	mg/kg	<0.18 U	<0.21 U	<0.18 U	<0.2 U	<0.18 U	<0.19 U	<0.47 U	<0.25 U	<0.18 U	<0.19 U	<1.8 U	<1.9 U
n-Nitrosodiphenylamine	86-30-6	NS	NS	NS	mg/kg	<0.14 U	<0.17 U	<0.14 U	<0.16 U	<0.14 U	<0.15 U	<0.38 U	<0.2 U	<0.14 U	<0.15 U	<1.5 U	<1.5 U
Pentachlorophenol	87-86-5	0.8	0.8	1.3	mg/kg	<0.14 U	<0.17 U	<0.14 U	<0.16 U	<0.14 U	<0.15 U	<0.38 U	<0.2 U	<0.14 U	<0.15 U	<1.5 U	<1.5 U
Phenanthrene	85-01-8	**1.1**	1000	4.9	mg/kg	**1.8**	<0.13 U	**1.2**	**1.8**	0.62	0.27	0.063 J	0.53	**2.1**	**41**	**1.2**	**41**
Phenol	108-95-2	**0.33**	0.33	100	mg/kg	<0.18 U	<0.21 U	<0.18 U	<0.2 U	<0.18 U	<0.19 U	<0.47 U	<0.25 U	<0.18 U	0.16 J	<1.8 U	<1.9 U
Pyrene	129-00-0	**64**	1000	100	mg/kg	1.4	<0.13 U	1.8	1.4	0.78	0.24	0.09 J	0.45	4.3	34	1.6	42

Table 3A
Remedial Investigation Report
Soil Sample Analytical Results

C Block
Brooklyn, New York
NYSDEC BCP Site No.: C224435
Langan Project No.: 170229030

Analyte	CAS Number	NYSDEC Part 375 Unrestricted Use SCOs	NYSDEC Part 375 Protection of Groundwater SCOs	NYSDEC Part 375 Restricted Use Restricted-Residential SCOs	Location	SB01	SB01	SB02	SB02	SB03	SB03	SB03	SB03	SB04	SB04	SB05	SB05
					Sample Name	SB01_0-2	SB01_19-21	SB02_0-2	SB02_3-5	SB03_0-2	SB03_6-8	SB03_14-16	SB03_16-18	SB04_0-2	SB04_5-7	SB05_0-2	SB05_5-7
					Sample Date	07/29/2022	07/29/2022	07/26/2022	07/26/2022	07/26/2022	07/26/2022	07/26/2022	07/26/2022	07/28/2022	07/28/2022	07/26/2022	07/26/2022
					Sample Depth	0-2	19-21	0-2	3-5	0-2	6-8	14-16	16-18	0-2	5-7	0-2	5-7
					Unit	Result	Result	Result	Result	Result	Result	Result	Result	Result	Result	Result	Result
Pesticides																	
4,4'-DDD	72-54-8	**0.0033**	14	5	mg/kg	**0.0323**	<0.00201 U	**0.00828 J**	<0.00186 U	**0.0361 J**	**0.00535 J**	NA	NA	**0.492**	**0.101 J**	<0.00179 U	<0.0018 U
4,4'-DDE	72-55-9	**0.0033**	9.3	3.4	mg/kg	**0.0161**	<0.00201 U	0.00315 J	<0.00186 U	**0.0179 J**	**0.0037 J**	NA	NA	**0.261**	**0.0464 J**	<0.00179 U	<0.0018 U
4,4'-DDT	50-29-3	**0.0033**	135	3.8	mg/kg	**0.0144**	<0.00201 U	<0.00167 U	<0.00186 U	<0.00168 U	<0.00179 U	NA	NA	**0.188**	**0.0449 J**	<0.00179 U	<0.0018 U
Aldrin	309-00-2	0.0048	0.19	0.044	mg/kg	<0.00164 U	<0.00201 U	<0.00167 U	<0.00186 U	<0.00168 U	<0.00179 U	NA	NA	<0.00167 U	<0.00182 U	<0.00179 U	<0.0018 U
Alpha BHC (Alpha Hexachlorocyclohexane)	319-84-6	0.02	0.02	0.18	mg/kg	<0.000686 U	<0.000836 U	<0.000695 U	<0.000777 U	<0.000698 U	<0.000746 U	NA	NA	<0.000696 U	<0.00076 U	<0.000747 U	<0.000749 U
Alpha Chlordane	5103-71-9	0.014	4.5	0.65	mg/kg	<0.00206 U	<0.00251 U	<0.00208 U	<0.00233 U	<0.0021 U	<0.00224 U	NA	NA	<0.00209 U	<0.00228 U	<0.00224 U	<0.00225 U
Alpha Endosulfan	959-98-8	4.3	65	35	mg/kg	<0.00164 U	<0.00201 U	<0.00167 U	<0.00186 U	<0.00168 U	<0.00179 U	NA	NA	<0.00167 U	<0.00182 U	<0.00179 U	<0.0018 U
Beta Bhc (Beta Hexachlorocyclohexane)	319-85-7	0.021	0.09	0.18	mg/kg	<0.00164 U	<0.00201 U	<0.00167 U	<0.00186 U	<0.00168 U	<0.00179 U	NA	NA	<0.00167 U	<0.00182 U	<0.00179 U	<0.0018 U
Beta Endosulfan	33213-65-9	4.3	44	35	mg/kg	<0.00164 U	<0.00201 U	<0.00167 U	<0.00186 U	<0.00168 U	<0.00179 U	NA	NA	<0.00167 U	<0.00182 U	<0.00179 U	<0.0018 U
Chlordane (alpha and gamma)	57-74-9	NS	NS	NS	mg/kg	<0.0137 U	<0.0167 U	<0.0139 U	<0.0155 U	<0.014 U	<0.0149 U	NA	NA	<0.0139 U	<0.0152 U	<0.0149 U	<0.015 U
Delta Bhc (Delta Hexachlorocyclohexane)	319-86-8	0.04	0.1	100	mg/kg	<0.00164 U	<0.00201 U	<0.00167 U	<0.00186 U	<0.00168 U	<0.00179 U	NA	NA	<0.00167 U	<0.00182 U	<0.00179 U	<0.0018 U
Dieldrin	60-57-1	0.005	0.1	0.075	mg/kg	<0.00103 U	<0.00125 U	<0.00104 U	<0.00116 U	<0.00105 U	<0.00112 U	NA	NA	<0.00104 U	<0.00114 U	<0.00112 U	<0.00112 U
Endosulfan Sulfate	1031-07-8	4.3	47	35	mg/kg	<0.000686 U	<0.000836 U	<0.000695 U	<0.000777 U	<0.000698 U	<0.000746 U	NA	NA	<0.000696 U	<0.00076 U	<0.000747 U	<0.000749 U
Endrin	72-20-8	0.014	0.06	5.3	mg/kg	<0.000686 U	<0.000836 U	<0.000695 U	<0.000777 U	<0.000698 U	<0.000746 U	NA	NA	<0.000696 U	<0.00076 U	<0.000747 U	<0.000749 U
Endrin Aldehyde	7421-93-4	NS	NS	NS	mg/kg	<0.00206 U	<0.00251 U	<0.00208 U	<0.00233 U	<0.0021 U	<0.00224 U	NA	NA	<0.00209 U	<0.00228 U	<0.00224 U	<0.00225 U
Endrin Ketone	53494-70-5	NS	NS	NS	mg/kg	<0.00164 U	<0.00201 U	<0.00167 U	<0.00186 U	<0.00168 U	<0.00179 U	NA	NA	<0.00167 U	<0.00182 U	<0.00179 U	<0.0018 U
Gamma Bhc (Lindane)	58-89-9	0.025	0.05	0.21	mg/kg	<0.000686 U	<0.000836 U	<0.000695 U	<0.000777 U	<0.000698 U	<0.000746 U	NA	NA	<0.000696 U	<0.00076 U	<0.000747 U	<0.000749 U
Gamma Chlordane (Trans)	5103-74-2	NS	NS	NS	mg/kg	<0.00206 U	<0.00251 U	<0.00208 U	<0.00233 U	<0.0021 U	<0.00224 U	NA	NA	<0.00209 U	<0.00228 U	<0.00224 U	<0.00225 U
Heptachlor	76-44-8	0.013	0.38	0.53	mg/kg	<0.000823 U	<0.001 U	<0.000834 U	<0.000932 U	<0.000838 U	<0.000896 U	NA	NA	<0.000836 U	<0.000912 U	<0.000896 U	<0.000899 U
Heptachlor Epoxide	1024-57-3	NS	NS	NS	mg/kg	<0.00308 U	<0.00376 U	<0.00313 U	<0.0035 U	<0.00314 U	<0.00336 U	NA	NA	<0.00313 U	<0.00342 U	<0.00336 U	<0.00337 U
Methoxychlor	72-43-5	NS	NS	NS	mg/kg	<0.00308 U	<0.00376 U	<0.00313 U	<0.0035 U	<0.00314 U	<0.00336 U	NA	NA	<0.00313 U	<0.00342 U	<0.00336 U	<0.00337 U
Toxaphene	8001-35-2	NS	NS	NS	mg/kg	<0.0308 U	<0.0376 U	<0.0313 U	<0.035 U	<0.0314 U	<0.0336 U	NA	NA	<0.0313 U	<0.0342 U	<0.0336 U	<0.0337 U
Herbicides																	
2,4,5-T (Trichlorophenoxyacetic Acid)	93-76-5	NS	NS	NS	mg/kg	<0.176 U	<0.209 U	<0.177 U	<0.198 U	<0.181 U	<0.188 U	NA	NA	<0.181 U	<0.192 U	<0.184 U	<0.189 U
2,4-D (Dichlorophenoxyacetic Acid)	94-75-7	NS	NS	NS	mg/kg	<0.176 U	<0.209 U	<0.177 U	<0.198 U	<0.181 U	<0.188 U	NA	NA	<0.181 U	<0.192 U	<0.184 U	<0.189 U
Silvex (2,4,5-Tp)	93-72-1	3.8	3.8	100	mg/kg	<0.176 U	<0.209 U	<0.177 U	<0.198 U	<0.181 U	<0.188 U	NA	NA	<0.181 U	<0.192 U	<0.184 U	<0.189 U
Polychlorinated Biphenyl																	
PCB-1016 (Aroclor 1016)	12674-11-2	NS	NS	NS	mg/kg	<0.0344 U	<0.0418 U	<0.0357 U	<0.0382 U	<0.0349 U	<0.0369 U	NA	NA	<0.0358 U	<0.0373 U	<0.0373 U	<0.0362 U
PCB-1221 (Aroclor 1221)	11104-28-2	NS	NS	NS	mg/kg	<0.0344 U	<0.0418 U	<0.0357 U	<0.0382 U	<0.0349 U	<0.0369 U	NA	NA	<0.0358 U	<0.0373 U	<0.0373 U	<0.0362 U
PCB-1232 (Aroclor 1232)	11141-16-5	NS	NS	NS	mg/kg	<0.0344 U	<0.0418 U	<0.0357 U	<0.0382 U	<0.0349 U	<0.0369 U	NA	NA	<0.0358 U	<0.0373 U	<0.0373 U	<0.0362 U
PCB-1242 (Aroclor 1242)	53469-21-9	NS	NS	NS	mg/kg	<0.0344 U	<0.0418 U	<0.0357 U	<0.0382 U	<0.0349 U	<0.0369 U	NA	NA	<0.0358 U	<0.0373 U	<0.0373 U	<0.0362 U
PCB-1248 (Aroclor 1248)	12672-29-6	NS	NS	NS	mg/kg	<0.0344 U	<0.0418 U	<0.0357 U	<0.0382 U	<0.0349 U	<0.0369 U	NA	NA	<0.0358 U	<0.0373 U	<0.0373 U	0.0526
PCB-1254 (Aroclor 1254)	11097-69-1	NS	NS	NS	mg/kg	0.054	<0.0418 U	0.0301 J	<0.0382 U	0.0187 J	0.0105 J	NA	NA	0.0717	0.136	0.0316 J	0.079
PCB-1260 (Aroclor 1260)	11096-82-5	NS	NS	NS	mg/kg	0.0501	<0.0418 U	0.0237 J	<0.0382 U	0.022 J	0.00864 J	NA	NA	0.0326 J	0.0597	0.0226 J	0.0307 J
PCB-1262 (Aroclor 1262)	37324-23-5	NS	NS	NS	mg/kg	<0.0344 U	<0.0418 U	<0.0357 U	<0.0382 U	<0.0349 U	<0.0369 U	NA	NA	<0.0358 U	<0.0373 U	<0.0373 U	<0.0362 U
PCB-1268 (Aroclor 1268)	11100-14-4	NS	NS	NS	mg/kg	0.0344	<0.0418 U	0.00942 J	<0.0382 U	0.00886 J	<0.0369 U	NA	NA	0.0194 J	<0.0373 U	0.00659 J	<0.0362 U
Total PCBs	1336-36-3	**0.1**	3.2	1	mg/kg	**0.139**	<0.0418 U	0.0632 J	<0.0382 U	0.0496 J	0.0191 J	NA	NA	**0.124 J**	**0.196**	0.0608 J	**0.162 J**
Metals																	
Aluminum	7429-90-5	NS	NS	NS	mg/kg	5,240	8,960	3,100	5,460	5,870	11,100	NA	NA	2,980	3,990	4,690	6,450
Antimony	7440-36-0	NS	NS	NS	mg/kg	6.35 J	<4.89 U	2.89 J	0.534 J	5.63	1.7 J	NA	NA	4.54	1.64 J	7.43	1.98 J
Arsenic	7440-38-2	**13**	16	16	mg/kg	**15.4 J**	1.12	10.5	**30.6**	**15.4**	9.18	NA	NA	6.34	**32.4**	**22.6**	11.3
Barium	7440-39-3	**410**	820	410	mg/kg	204	60	338	147	235	228	NA	NA	80.4	113	388	139
Beryllium	7440-41-7	4.4	47	43	mg/kg	0.549	0.607	0.423	0.238 J	0.837	0.685	NA	NA	0.336 J	0.227 J	0.866	0.62
Cadmium	7440-43-9	**2.5**	7.5	2.5	mg/kg	**7.14**	0.763 J	**3.58**	1.42	**5.95**	1.2	NA	NA	**2.65**	0.454 J	**7.9**	2.23
Calcium	7440-70-2	NS	NS	NS	mg/kg	8,220	265	16,400	16,000	15,900	32,700	NA	NA	14,800	20,500	9,610	16,400
Chromium, Hexavalent	18540-29-9	1	19	1	mg/kg	<0.864 UJ	<1.03 U	<0.87 U	0.589 J	<0.872 U	<0.91 U	NA	NA	<0.884 U	<0.93 U	<0.907 U	<0.914 U
Chromium, Total	7440-47-3	NS	NS	NS	mg/kg	41.2 J	26.1	16.2	12.5	32.1	32	NA	NA	8.26	10.9	15.8	20.2
Chromium, Trivalent	16065-83-1	**30**	NS	110	mg/kg	**41**	26	16	12 J	**32**	**32**	NA	NA	8.3	11	16	20
Cobalt	7440-48-4	NS	NS	NS	mg/kg	10.7	11.1	11.3	4.57	61.3	42	NA	NA	5.8	4.94	6.99	13.6
Copper	7440-50-8	**50**	1720	280	mg/kg	**145**	14.8	**82.8**	30.6	**202**	**197**	NA	NA	**100**	**65**	**169**	**141**
Cyanide	57-12-5	**2.3**	40	13	mg/kg	0.42 J	<1.3 UJ	<1.1 UJ	0.36 J	<1 UJ	<1.1 UJ	NA	NA	<1.1 UJ	<1.1 UJ	<1 UJ	**2.5 J**
Iron	7439-89-6	NS	NS	NS	mg/kg	32,400	19,300	24,400	30,200	32,900	14,700	NA	NA	11,800	19,100	26,000	22,700
Lead	7439-92-1	**63**	450	400	mg/kg	**482**	4.17 J	**443**	**380**	**299**	**112**	NA	NA	**270**	**832**	**404**	**260**
Magnesium	7439-95-4	NS	NS	NS	mg/kg	5,580	5,150	3,230	2,030	1,580	8,650	NA	NA	1,900	2,260	1,390	4,860
Manganese	7439-96-5	1600	2000	2000	mg/kg	290	97.6	491	128	387	219	NA	NA	100	278	195	205
Mercury	7439-97-6	**0.18**	0.73	0.3	mg/kg	**1.61 J**	<0.081 U	**0.247**	0.144	**0.192**	**0.936**	NA	NA	**0.271**	**0.235**	**0.678**	**0.449**
Nickel	7440-02-0	**30**	130	320	mg/kg	**33.4**	18.2	15.6	9.42	**38.2**	26.2	NA	NA	15.7	11	25	18.6
Potassium	7440-09-7	NS	NS	NS	mg/kg	2,700 J	4,500	559	737	716	1,330	NA	NA	481	606	497	604
Selenium	7782-49-2	**3.9**	4	110	mg/kg	1.55 J	<1.96 U	0.719 J	1.74 J	0.998 J	0.409 J	NA	NA	0.387 J	0.839 J	0.238 J	0.85 J
Silver	7440-22-4	2	8.3	110	mg/kg	<0.819 U	<0.978 U	<0.845 U	<0.954 U	<0.845 U	<0.889 U	NA	NA	<0.86 U	<0.874 U	<0.884 U	<0.886 U
Sodium	7440-23-5	NS	NS	NS	mg/kg	111 J	509	187	312	276	401	NA	NA	162 J	172 J	223	180
Thallium	7440-28-0	NS	NS	NS	mg/kg	0.274 J	<1.96 U	<1.69 U	<1.91 U	<1.69 U	<1.78 U	NA	NA	<1.72 U	<1.75 U	<1.77 U	<1.77 U
Vanadium	7440-62-2	NS	NS	NS	mg/kg	25.6	32.5	20	21.4	24.8	25.8	NA	NA	11.2	15.6	21.8	21.8
Zinc	7440-66-6	**109**	2480	6600	mg/kg	**354 J**	90.1	**335**	**127**	**874**	**462**	NA	NA	**150**	**230**	**258**	**146**

Table 3A
Remedial Investigation Report
Soil Sample Analytical Results

C Block
Brooklyn, New York
NYSDEC BCP Site No.: C224435
Langan Project No.: 170229030

Analyte	CAS Number	NYSDEC Part 375 Unrestricted Use SCOs	NYSDEC Part 375 Protection of Groundwater SCOs	NYSDEC Part 375 Restricted Use Restricted-Residential SCOs	Location	SB01	SB01	SB02	SB02	SB03	SB03	SB03	SB03	SB04	SB04	SB05	SB05
					Sample Name	SB01_0-2	SB01_19-21	SB02_0-2	SB02_3-5	SB03_0-2	SB03_6-8	SB03_14-16	SB03_16-18	SB04_0-2	SB04_5-7	SB05_0-2	SB05_5-7
					Sample Date	07/29/2022	07/29/2022	07/26/2022	07/26/2022	07/26/2022	07/26/2022	07/26/2022	07/26/2022	07/28/2022	07/28/2022	07/26/2022	07/26/2022
					Sample Depth	0-2	19-21	0-2	3-5	0-2	6-8	14-16	16-18	0-2	5-7	0-2	5-7
					Unit	Result	Result	Result	Result	Result	Result	Result	Result	Result	Result	Result	Result
Per- and Polyfluoroalkyl Substances																	
1H,1H,2H,2H-Perfluorodecane Sulfonic Acid (8:2 FTS)	39108-34-4	NS	NS	NS	mg/kg	<0.000501 U	<0.000602 U	<0.000477 U	<0.000562 U	<0.000531 U	<0.000543 U	NA	NA	<0.000522 U	<0.000546 U	<0.000548 U	<0.000493 U
1H,1H,2H,2H-Perfluorooctane Sulfonic Acid (6:2 FTS)	27619-97-2	NS	NS	NS	mg/kg	<0.000501 U	<0.000602 U	<0.000477 U	<0.000562 U	<0.000531 U	<0.000543 U	NA	NA	<0.000522 U	<0.000546 U	<0.000548 U	<0.000493 U
N-ethyl Perfluorooctanesulfonamidoacetic Acid (NEtFOSAA)	2991-50-6	NS	NS	NS	mg/kg	<0.000501 U	<0.000602 U	<0.000477 U	<0.000562 U	<0.000531 U	<0.000543 U	NA	NA	<0.000522 U	<0.000546 U	<0.000548 U	<0.000493 U
N-methyl Perfluorooctanesulfonamidoacetic Acid (NMeFOSAA)	2355-31-9	NS	NS	NS	mg/kg	<0.000501 U	<0.000602 U	<0.000477 U	<0.000562 U	<0.000531 U	<0.000543 U	NA	NA	<0.000522 U	<0.000546 U	<0.000548 U	<0.000493 U
Perfluorobutanesulfonic Acid (PFBS)	375-73-5	NS	NS	NS	mg/kg	<0.00025 U	<0.000301 U	<0.000239 U	<0.000281 U	<0.000265 U	<0.000272 U	NA	NA	<0.000261 U	<0.000273 U	<0.000274 U	<0.000246 U
Perfluorobutanoic acid (PFBA)	375-22-4	NS	NS	NS	mg/kg	<0.000501 U	<0.000602 U	<0.000477 U	<0.000562 U	<0.000531 U	0.000026 J	NA	NA	<0.000522 U	<0.000546 U	<0.000548 U	<0.000493 U
Perfluorodecanesulfonic Acid (PFDS)	335-77-3	NS	NS	NS	mg/kg	<0.000501 U	<0.000602 U	<0.000477 U	<0.000562 U	<0.000531 U	<0.000543 U	NA	NA	<0.000522 U	<0.000546 U	<0.000548 U	<0.000493 U
Perfluorodecanoic Acid (PFDA)	335-76-2	NS	NS	NS	mg/kg	<0.00025 U	<0.000301 U	<0.000239 U	<0.000281 U	<0.000265 U	<0.000272 U	NA	NA	<0.000261 U	<0.000273 U	<0.000274 U	<0.000246 U
Perfluorododecanoic Acid (PFDoA)	307-55-1	NS	NS	NS	mg/kg	<0.000501 U	<0.000602 U	<0.000477 U	<0.000562 U	<0.000531 U	<0.000543 U	NA	NA	<0.000522 U	<0.000546 U	<0.000548 U	<0.000493 U
Perfluoroheptanesulfonic Acid (PFHpS)	375-92-8	NS	NS	NS	mg/kg	<0.000501 U	<0.000602 U	<0.000477 U	<0.000562 U	<0.000531 U	<0.000543 U	NA	NA	<0.000522 U	<0.000546 U	<0.000548 U	<0.000493 U
Perfluoroheptanoic acid (PFHpA)	375-85-9	NS	NS	NS	mg/kg	<0.00025 U	<0.000301 U	<0.000239 U	<0.000281 U	<0.000265 U	<0.000272 U	NA	NA	<0.000261 U	<0.000273 U	<0.000274 U	<0.000246 U
Perfluorohexanesulfonic Acid (PFHxS)	355-46-4	NS	NS	NS	mg/kg	<0.00025 U	<0.000301 U	<0.000239 U	<0.000281 U	<0.000265 U	<0.000272 U	NA	NA	<0.000261 U	<0.000273 U	<0.000274 U	<0.000246 U
Perfluorohexanoic Acid (PFHxA)	307-24-4	NS	NS	NS	mg/kg	<0.000501 U	<0.000602 U	<0.000477 U	<0.000562 U	<0.000531 U	<0.000543 U	NA	NA	<0.000522 U	<0.000546 U	<0.000548 U	<0.000493 U
Perfluorononanoic Acid (PFNA)	375-95-1	NS	NS	NS	mg/kg	<0.00025 U	<0.000301 U	<0.000239 U	<0.000281 U	<0.000265 U	<0.000272 U	NA	NA	<0.000261 U	<0.000273 U	<0.000274 U	<0.000246 U
Perfluorooctanesulfonamide (PFOSA)	754-91-6	NS	NS	NS	mg/kg	<0.000501 U	<0.000602 U	<0.000477 U	<0.000562 U	<0.000531 U	<0.000543 U	NA	NA	<0.000522 U	<0.000546 U	<0.000548 U	<0.000493 U
Perfluorooctanesulfonic Acid (PFOS)	1763-23-1	0.00088	0.001	0.044	mg/kg	<0.00025 U	<0.000301 U	<0.000239 U	<0.000281 U	<0.000265 U	<0.000272 U	NA	NA	<0.000261 U	<0.000273 U	<0.000274 U	<0.000246 U
Perfluorooctanoic Acid (PFOA)	335-67-1	0.00066	0.0008	0.033	mg/kg	0.000238 J	<0.000301 U	0.000094 J	<0.000281 U	0.000083 J	<0.000272 U	NA	NA	0.000191 J	0.000077 J	<0.000274 U	<0.000246 U
Perfluoropentanoic Acid (PFPeA)	2706-90-3	NS	NS	NS	mg/kg	<0.000501 U	<0.000602 U	<0.000477 U	<0.000562 U	<0.000531 U	0.000055 J	NA	NA	<0.000522 U	<0.000546 U	<0.000548 U	<0.000493 U
Perfluorotetradecanoic Acid (PFTeDA)	376-06-7	NS	NS	NS	mg/kg	<0.000501 U	<0.000602 U	<0.000477 U	<0.000562 U	<0.000531 U	<0.000543 U	NA	NA	<0.000522 U	<0.000546 U	<0.000548 U	<0.000493 U
Perfluorotridecanoic Acid (PFTrDA)	72629-94-8	NS	NS	NS	mg/kg	<0.000501 U	<0.000602 U	<0.000477 U	<0.000562 U	<0.000531 U	<0.000543 U	NA	NA	<0.000522 U	<0.000546 U	<0.000548 U	<0.000493 U
Perfluoroundecanoic Acid (PFUnA)	2058-94-8	NS	NS	NS	mg/kg	<0.000501 U	<0.000602 U	<0.000477 U	<0.000562 U	<0.000531 U	<0.000543 U	NA	NA	<0.000522 U	<0.000546 U	<0.000548 U	<0.000493 U
Total PFOA and PFOS	TOTPFOAPFOS	NS	NS	NS	mg/kg	0.000238 J	<0.000301 U	0.000094 J	<0.000281 U	0.000083 J	<0.000272 U	NA	NA	0.000191 J	0.000077 J	<0.000274 U	<0.000246 U
General Chemistry																	
Solids, Percent	SOLID	NS	NS	NS	Percent	92.6	77.3	91.9	83.2	91.7	87.9	34.6	65.3	90.5	86	88.2	87.5

Table 3A
Remedial Investigation Report
Soil Sample Analytical Results

C Block
Brooklyn, New York
NYSDEC BCP Site No.: C224435
Langan Project No.: 170229030

Analyte	CAS Number	NYSDEC Part 375 Unrestricted Use SCOs	NYSDEC Part 375 Protection of Groundwater SCOs	NYSDEC Part 375 Restricted Use Restricted-Residential SCOs	Location	SB06	SB06	SB07	SB07	SB08	SB08	SB09	SB09	SB10	SB10	SB10	SB10	SB10
					Sample Name	SB06_0-2	SB06_4-6	SB07_0-2	SB07_7-9	SB08_0-2	SB08_9-11	SB09_0-2	SB09_3-5	SB10_0-2	SB10_3-5	SODUP02_072922	SB10_13-15	SB10_17-19
					Sample Date	07/27/2022	07/27/2022	07/28/2022	07/28/2022	07/28/2022	07/28/2022	07/25/2022	07/25/2022	07/29/2022	07/29/2022	07/29/2022	07/29/2022	07/29/2022
					Sample Depth	0-2	4-6	0-2	7-9	0-2	9-11	0-2	3-5	0-2	3-5	3-5	13-15	17-19
					Unit	Result	Result	Result	Result	Result	Result	Result	Result	Result	Result	Result	Result	Result
Volatile Organic Compounds																		
1,1,1,2-Tetrachloroethane	630-20-6	NS	NS	NS	mg/kg	<0.00062 U	<0.00062 UJ	<0.00087 UJ	<0.00082 U	<0.0009 UJ	<0.00045 U	<0.00075 U	<0.00085 U	<0.0012 U	<0.0006 U	<0.00079 UJ	<0.00086 U	<0.00062 U
1,1,1-Trichloroethane	71-55-6	0.68	0.68	100	mg/kg	<0.00062 U	<0.00062 UJ	<0.00087 UJ	<0.00082 U	<0.0009 UJ	<0.00045 U	<0.00075 U	<0.00085 U	<0.0012 U	<0.0006 U	<0.00079 UJ	<0.00086 U	<0.00062 U
1,1,2,2-Tetrachloroethane	79-34-5	NS	NS	NS	mg/kg	<0.00062 U	<0.00062 UJ	<0.00087 UJ	<0.00082 U	<0.0009 UJ	<0.00045 U	<0.00075 U	<0.00085 U	<0.0012 U	<0.0006 U	<0.00079 UJ	<0.00086 U	<0.00062 U
1,1,2-Trichloroethane	79-00-5	NS	NS	NS	mg/kg	<0.0012 U	<0.0012 UJ	<0.0017 UJ	<0.0016 U	<0.0018 UJ	<0.0009 U	<0.0015 U	<0.0017 U	<0.0025 U	<0.0012 U	<0.0016 UJ	<0.0017 U	<0.0012 U
1,1-Dichloroethane	75-34-3	0.27	0.27	47	mg/kg	<0.0012 U	<0.0012 UJ	<0.0017 UJ	<0.0016 U	<0.0018 UJ	<0.0009 U	<0.0015 U	<0.0017 U	<0.0025 U	<0.0012 U	<0.0016 UJ	<0.0017 U	<0.0012 U
1,1-Dichloroethene	75-35-4	0.24	0.33	0.98	mg/kg	<0.0012 U	<0.0012 UJ	<0.0017 UJ	<0.0016 U	<0.0018 UJ	<0.0009 U	<0.0015 U	<0.0017 U	<0.0025 U	<0.0012 U	<0.0016 UJ	<0.0017 U	<0.0012 U
1,1-Dichloropropene	563-58-6	NS	NS	NS	mg/kg	<0.00062 U	<0.00062 UJ	<0.00087 UJ	<0.00082 U	<0.0009 UJ	<0.00045 U	<0.00075 U	<0.00085 U	<0.0012 U	<0.0006 U	<0.00079 UJ	<0.00086 U	<0.00062 U
1,2,3-Trichlorobenzene	87-61-6	NS	NS	NS	mg/kg	<0.0025 U	<0.0025 UJ	<0.0035 UJ	<0.0033 U	<0.0036 UJ	<0.0018 U	<0.003 U	<0.0034 U	<0.005 U	<0.0024 U	<0.0032 UJ	<0.0034 U	<0.0025 U
1,2,3-Trichloropropane	96-18-4	NS	NS	NS	mg/kg	<0.0025 U	<0.0025 UJ	<0.0035 UJ	<0.0033 U	<0.0036 UJ	<0.0018 U	<0.003 U	<0.0034 U	<0.005 U	<0.0024 U	<0.0032 UJ	<0.0034 U	<0.0025 U
1,2,4,5-Tetramethylbenzene	95-93-2	NS	NS	NS	mg/kg	<0.0025 U	<0.0025 UJ	<0.0035 UJ	<0.0033 U	<0.0036 UJ	<0.0018 U	<0.003 U	<0.0034 U	<0.005 U	<0.0024 U	<0.0032 UJ	<0.0034 U	<0.0025 U
1,2,4-Trichlorobenzene	120-82-1	NS	NS	NS	mg/kg	<0.0025 U	<0.0025 UJ	<0.0035 UJ	<0.0033 U	<0.0036 UJ	<0.0018 U	<0.003 U	<0.0034 U	<0.005 U	<0.0024 U	<0.0032 UJ	<0.0034 U	<0.0025 U
1,2,4-Trimethylbenzene	95-63-6	5.9	5.9	100	mg/kg	<0.0025 U	<0.0025 UJ	<0.0035 UJ	<0.0033 U	<0.0036 UJ	<0.0018 U	0.00063 J	<0.0034 U	<0.005 U	<0.0024 U	<0.0032 UJ	<0.0034 U	<0.0025 U
1,2-Dibromo-3-Chloropropane	96-12-8	NS	NS	NS	mg/kg	<0.0037 U	<0.0037 UJ	<0.0052 UJ	<0.0049 U	<0.0054 UJ	<0.0027 U	<0.0045 U	<0.0051 U	<0.0075 U	<0.0036 U	<0.0047 UJ	<0.0052 U	<0.0037 U
1,2-Dibromoethane (Ethylene Dibromide)	106-93-4	NS	NS	NS	mg/kg	<0.0012 U	<0.0012 UJ	<0.0017 UJ	<0.0016 U	<0.0018 UJ	<0.0009 U	<0.0015 U	<0.0017 U	<0.0025 U	<0.0012 U	<0.0016 UJ	<0.0017 U	<0.0012 U
1,2-Dichlorobenzene	95-50-1	1.1	1.1	100	mg/kg	<0.0025 U	<0.0025 UJ	<0.0035 UJ	<0.0033 U	<0.0036 UJ	<0.0018 U	<0.003 U	<0.0034 U	<0.005 U	<0.0024 U	<0.0032 UJ	<0.0034 U	<0.0025 U
1,2-Dichloroethane	107-06-2	0.02	0.02	5.8	mg/kg	<0.0012 U	<0.0012 UJ	<0.0017 UJ	<0.0016 U	<0.0018 UJ	<0.0009 U	<0.0015 U	<0.0017 U	<0.0025 U	<0.0012 U	<0.0016 UJ	<0.0017 U	<0.0012 U
1,2-Dichloropropane	78-87-5	NS	NS	NS	mg/kg	<0.0012 U	<0.0012 UJ	<0.0017 UJ	<0.0016 U	<0.0018 UJ	<0.0009 U	<0.0015 U	<0.0017 U	<0.0025 U	<0.0012 U	<0.0016 UJ	<0.0017 U	<0.0012 U
1,3,5-Trimethylbenzene (Mesitylene)	108-67-8	3.1	3.1	100	mg/kg	<0.0025 U	<0.0025 UJ	<0.0035 UJ	<0.0033 U	<0.0036 UJ	<0.0018 U	0.00055 J	<0.0034 U	<0.005 U	<0.0024 U	<0.0032 UJ	<0.0034 U	<0.0025 U
1,3-Dichlorobenzene	541-73-1	2.6	2.6	38	mg/kg	<0.0025 U	<0.0025 UJ	<0.0035 UJ	<0.0033 U	<0.0036 UJ	<0.0018 U	<0.003 U	<0.0034 U	<0.005 U	<0.0024 U	<0.0032 UJ	<0.0034 U	<0.0025 U
1,3-Dichloropropane	142-28-9	NS	NS	NS	mg/kg	<0.0025 U	<0.0025 UJ	<0.0035 UJ	<0.0033 U	<0.0036 UJ	<0.0018 U	<0.003 U	<0.0034 U	<0.005 U	<0.0024 U	<0.0032 UJ	<0.0034 U	<0.0025 U
1,4-Dichlorobenzene	106-46-7	1.8	1.8	24	mg/kg	<0.0025 U	<0.0025 UJ	<0.0035 UJ	<0.0033 U	<0.0036 UJ	<0.0018 U	<0.003 U	<0.0034 U	<0.005 U	<0.0024 U	<0.0032 UJ	<0.0034 U	<0.0025 U
1,4-Diethyl Benzene	105-05-5	NS	NS	NS	mg/kg	<0.0025 U	<0.0025 UJ	<0.0035 UJ	<0.0033 U	<0.0036 UJ	<0.0018 U	0.00049 J	<0.0034 U	<0.005 U	<0.0024 U	<0.0032 UJ	0.00034 J	<0.0025 U
1,4-Dioxane (P-Dioxane)	123-91-1	0.1	0.1	5.7	mg/kg	<0.099 U	<0.1 UJ	<0.14 UJ	<0.13 U	<0.14 UJ	<0.072 U	<0.12 U	<0.14 U	<0.2 U	<0.097 U	<0.13 UJ	<0.14 UJ	<0.099 UJ
2,2-Dichloropropane	594-20-7	NS	NS	NS	mg/kg	<0.0025 U	<0.0025 UJ	<0.0035 UJ	<0.0033 U	<0.0036 UJ	<0.0018 U	<0.003 U	<0.0034 U	<0.005 U	<0.0024 U	<0.0032 UJ	<0.0034 U	<0.0025 U
2-Chlorotoluene	95-49-8	NS	NS	NS	mg/kg	<0.0025 U	<0.0025 UJ	<0.0035 UJ	<0.0033 U	<0.0036 UJ	<0.0018 U	<0.003 U	<0.0034 U	<0.005 U	<0.0024 U	<0.0032 UJ	<0.0034 U	<0.0025 U
2-Hexanone (MBK)	591-78-6	NS	NS	NS	mg/kg	<0.012 U	<0.012 UJ	<0.017 UJ	<0.016 U	<0.018 UJ	<0.009 U	<0.015 U	<0.017 U	<0.025 U	<0.012 U	<0.016 UJ	<0.017 U	<0.012 U
4-Chlorotoluene	106-43-4	NS	NS	NS	mg/kg	<0.0025 U	<0.0025 UJ	<0.0035 UJ	<0.0033 U	<0.0036 UJ	<0.0018 U	<0.003 U	<0.0034 U	<0.005 U	<0.0024 U	<0.0032 UJ	<0.0034 U	<0.0025 U
4-Ethyltoluene	622-96-8	NS	NS	NS	mg/kg	<0.0025 U	<0.0025 UJ	<0.0035 UJ	<0.0033 U	<0.0036 UJ	<0.0018 U	<0.003 U	<0.0034 U	<0.005 U	<0.0024 U	<0.0032 UJ	<0.0034 U	<0.0025 U
Acetone	67-64-1	**0.03**	0.03	100	mg/kg	**0.05**	<0.012 U	0.015 J	**0.1**	<0.018 UJ	<0.009 U	<0.015 U	<0.017 U	0.03	**0.034**	<0.016 UJ	**0.22**	**0.047**
Acrylonitrile	107-13-1	NS	NS	NS	mg/kg	<0.005 U	<0.005 UJ	<0.007 UJ	<0.0066 U	<0.0072 UJ	<0.0036 U	<0.006 U	<0.0068 U	<0.01 U	<0.0048 U	<0.0063 UJ	<0.0069 U	<0.0049 U
Benzene	71-43-2	**0.06**	0.06	3.7	mg/kg	0.00042 J	<0.00062 UJ	<0.00087 UJ	<0.00082 U	<0.0009 UJ	<0.00045 U	<0.00075 U	<0.00085 U	0.0007 J	<0.0006 U	<0.00079 UJ	<0.00086 U	<0.00062 U
Bromobenzene	108-86-1	NS	NS	NS	mg/kg	<0.0025 U	<0.0025 UJ	<0.0035 UJ	<0.0033 U	<0.0036 UJ	<0.0018 U	<0.003 U	<0.0034 U	<0.005 U	<0.0024 U	<0.0032 UJ	<0.0034 U	<0.0025 U
Bromochloromethane	74-97-5	NS	NS	NS	mg/kg	<0.0025 U	<0.0025 UJ	<0.0035 UJ	<0.0033 U	<0.0036 UJ	<0.0018 U	<0.003 U	<0.0034 U	<0.005 U	<0.0024 U	<0.0032 UJ	<0.0034 U	<0.0025 U
Bromodichloromethane	75-27-4	NS	NS	NS	mg/kg	<0.00062 U	<0.00062 UJ	<0.00087 UJ	<0.00082 U	<0.0009 UJ	<0.00045 U	<0.00075 U	<0.00085 U	<0.0012 U	<0.0006 U	<0.00079 UJ	<0.00086 U	<0.00062 U
Bromoform	75-25-2	NS	NS	NS	mg/kg	<0.005 U	<0.005 UJ	<0.007 UJ	<0.0066 U	<0.0072 UJ	<0.0036 U	<0.006 U	<0.0068 U	<0.01 U	<0.0048 U	<0.0063 UJ	<0.0069 U	<0.0049 U
Bromomethane	74-83-9	NS	NS	NS	mg/kg	<0.0025 U	<0.0025 UJ	<0.0035 UJ	<0.0033 U	<0.0036 UJ	<0.0018 U	<0.003 U	<0.0034 U	<0.005 U	<0.0024 U	<0.0032 UJ	<0.0034 U	<0.0025 U
Carbon Disulfide	75-15-0	NS	NS	NS	mg/kg	<0.012 U	<0.012 UJ	<0.017 UJ	<0.016 U	<0.018 UJ	<0.009 U	<0.015 U	<0.017 U	<0.025 U	<0.012 U	<0.016 UJ	<0.017 U	0.0067 J
Carbon Tetrachloride	56-23-5	0.76	0.76	7.1	mg/kg	<0.0012 U	<0.0012 UJ	<0.0017 UJ	<0.0016 U	<0.0018 UJ	<0.0009 U	<0.0015 U	<0.0017 U	<0.0025 U	<0.0012 U	<0.0016 UJ	<0.0017 U	<0.0012 U
Chlorobenzene	108-90-7	4.5	4.5	100	mg/kg	<0.00062 U	<0.00062 UJ	<0.00087 UJ	<0.00082 U	<0.0009 UJ	<0.00045 U	<0.00075 U	<0.00085 U	<0.0012 U	<0.0006 U	<0.00079 UJ	<0.00086 U	<0.00062 U
Chloroethane	75-00-3	NS	NS	NS	mg/kg	<0.0025 U	<0.0025 UJ	<0.0035 UJ	<0.0033 U	<0.0036 UJ	<0.0018 U	<0.003 U	<0.0034 U	<0.005 U	<0.0024 U	<0.0032 UJ	<0.0034 U	<0.0025 U
Chloroform	67-66-3	0.37	0.37	24	mg/kg	<0.0018 U	<0.0019 UJ	<0.0026 UJ	<0.0025 U	<0.0027 UJ	<0.0013 U	0.00036 J	0.00026 J	<0.0037 U	<0.0018 U	<0.0024 UJ	<0.0026 U	<0.0018 U
Chloromethane	74-87-3	NS	NS	NS	mg/kg	<0.005 U	<0.005 UJ	<0.007 UJ	<0.0066 U	<0.0072 UJ	<0.0036 U	<0.006 U	<0.0068 U	<0.01 U	<0.0048 U	<0.0063 UJ	<0.0069 U	<0.0049 U
Cis-1,2-Dichloroethene	156-59-2	0.19	0.19	41	mg/kg	<0.0012 U	<0.0012 UJ	<0.0017 UJ	<0.0016 U	<0.0018 UJ	<0.0009 U	<0.0015 U	<0.0017 U	<0.0025 U	<0.0012 U	<0.0016 UJ	<0.0017 U	<0.0012 U
Cis-1,3-Dichloropropene	10061-01-5	NS	NS	NS	mg/kg	<0.00062 U	<0.00062 UJ	<0.00087 UJ	<0.00082 U	<0.0009 UJ	<0.00045 U	<0.00075 U	<0.00085 U	<0.0012 U	<0.0006 U	<0.00079 UJ	<0.00086 U	<0.00062 U
Cymene	99-87-6	NS	NS	NS	mg/kg	<0.0012 U	<0.0012 UJ	<0.0017 UJ	<0.0016 U	<0.0018 UJ	<0.0009 U	0.00024 J	<0.0017 U	<0.0025 U	<0.0012 U	<0.0016 UJ	0.0003 J	<0.0012 U
Dibromochloromethane	124-48-1	NS	NS	NS	mg/kg	<0.0012 U	<0.0012 UJ	<0.0017 UJ	<0.0016 U	<0.0018 UJ	<0.0009 U	<0.0015 U	<0.0017 U	<0.0025 U	<0.0012 U	<0.0016 UJ	<0.0017 U	<0.0012 U
Dibromomethane	74-95-3	NS	NS	NS	mg/kg	<0.0025 U	<0.0025 UJ	<0.0035 UJ	<0.0033 U	<0.0036 UJ	<0.0018 U	<0.003 U	<0.0034 U	<0.005 U	<0.0024 U	<0.0032 UJ	<0.0034 U	<0.0025 U
Dichlorodifluoromethane	75-71-8	NS	NS	NS	mg/kg	<0.012 U	<0.012 UJ	<0.017 UJ	<0.016 U	<0.018 UJ	<0.009 U	<0.015 U	<0.017 U	<0.025 U	<0.012 U	<0.016 UJ	<0.017 U	<0.012 U
Diethyl Ether (Ethyl Ether)	60-29-7	NS	NS	NS	mg/kg	<0.0025 U	<0.0025 UJ	<0.0035 UJ	<0.0033 U	<0.0036 UJ	<0.0018 U	<0.003 U	<0.0034 U	<0.005 U	<0.0024 U	<0.0032 UJ	<0.0034 U	<0.0025 U
Ethylbenzene	100-41-4	1	1	76	mg/kg	<0.0012 U	<0.0012 UJ	<0.0017 UJ	<0.0016 U	<0.0018 UJ	<0.0009 U	<0.0015 U	<0.0017 U	<0.0025 U	<0.0012 U	<0.0016 UJ	<0.0017 U	<0.0012 U
Hexachlorobutadiene	87-68-3	NS	NS	NS	mg/kg	<0.005 U	<0.005 UJ	<0.007 UJ	<0.0066 U	<0.0072 UJ	<0.0036 U	<0.006 U	<0.0068 U	<0.01 U	<0.0048 U	<0.0063 UJ	<0.0069 U	<0.0049 U
Isopropylbenzene (Cumene)	98-82-8	NS	NS	NS	mg/kg	<0.0012 U	<0.0012 UJ	<0.0017 UJ	<0.0016 U	<0.0018 UJ	<0.0009 U	<0.0015 U	<0.0017 U	<0.0025 U	<0.0012 U	<0.0016 UJ	<0.0017 U	<0.0012 U
M,P-Xylene	179601-23-1	NS	NS	NS	mg/kg	<0.0025 U	<0.0025 UJ	<0.0035 UJ	<0.0033 U	<0.0036 UJ	<0.0018 U	<0.003 U	<0.0034 U	<0.005 U	<0.0024 U	<0.0032 UJ	<0.0034 U	<0.0025 U
Methyl Ethyl Ketone (2-Butanone)	78-93-3	0.1	0.1	100	mg/kg	0.0055 J	<0.012 UJ	<0.017 UJ	0.024	<0.018 UJ	<0.009 U	<0.015 U	<0.017 U	0.006 J	0.009 J	<0.016 UJ	0.052	0.0089 J
Methyl Isobutyl Ketone (4-Methyl-2-Pentanone)	108-10-1	NS	NS	NS	mg/kg	<0.012 U	<0.012 UJ	<0.017 UJ	<0.016 U	<0.018 UJ	<0.009 U	<0.015 U	<0.017 U	<0.025 U	<0.012 U	<0.016 UJ	<0.017 U	<0.012 U
Methylene Chloride	75-09-2	0.05	0.05	81	mg/kg	<0.0062 U	<0.0062 UJ	<0.0087 UJ	<0.0082 U	<0.009 UJ	<0.0045 U	<0.0075 U	<0.0085 U	<0.012 U	<0.006 U	<0.0079 UJ	<0.0086 U	<0.0062 U
Naphthalene	91-20-3	**12**	12	100	mg/kg	<0.005 U	<0.005 UJ	<0.007 UJ	<0.0066 U	<0.0072 UJ	<0.0036 U	<0.006 U	<0.0068 U	<0.01 U	<0.0048 U	<0.0063 UJ	0.0075	<0.0049 U
n-Butylbenzene	104-51-8	18	18	100	mg/kg	<0.0012 U	<0.0012 UJ	<0.0017 UJ	<0.0016 U	<0.0018 UJ	<0.0009 U	<0.0015 U	<0.0017 U	<0.0025 U	<0.0012 U	<0.0016 UJ	<0.0017 U	<0.0012 U
n-Propylbenzene	103-65-1	5	5	100	mg/kg	<0.0012 U	<0.0012 UJ	<0.0017 UJ	<0.0016 U	<0.0018 UJ	<0.0009 U	<0.0015 U	<0.0017 U	<0.0025 U	<0.0012 U	<0.0016 UJ	<0.0017 U	<0.0012 U
o-Xylene (1,2-Dimethylbenzene)	95-47-6	NS	NS	NS	mg/kg	<0.0012 U	<0.0012 UJ	<0.0017 UJ	<0.0016 U	<0.0018 UJ	<0.0009 U	0.00045 J	<0.0017 U	<0.0025 U	<0.0012 U	<0.0016 UJ	<0.0017 U	<0.0012 U
Sec-Butylbenzene	135-98-8	25	25	100	mg/kg	<0.0012 U	<0.0012 UJ	<0.0017 UJ	<0.0016 U	<0.0018 UJ	<0.0009 U	<0.0015 U	<0.0017 U	<0.0025 U	<0.0012 U	<0.0016 UJ	<0.0017 U	<0.0012 U
Styrene	100-42-5	NS	NS	NS	mg/kg	<0.0012 U	<0.0012 UJ	<0.0017 UJ	<0.0016 U	<0.0018 UJ	<0.0009 U	<0.0015 U	<0.0017 U	<0.0025 U	<0.0012 U	<0.0016 UJ	<0.0017 U	<0.0012 U
T-Butylbenzene	98-06-6	11	11	100	mg/kg	<0.0025 U	<0.0025 UJ	<0.0035 UJ	<0.0033 U	<0.0036 UJ	<0.0018 U	<0.003 U	<0.0034 U	<0.005 U	<0.0024 U	<0.0032 UJ	<0.0034 U	<0.0025 U
Tert-Butyl Methyl Ether (MTBE)	1634-04-4	0.1	0.1	100	mg/kg	<0.0025 U	<0.0025 UJ	<0.0035 UJ	<0.0033 U	<0.0036 UJ	<0.0018 U	<0.003 U	<0.0034 U	<0.005 U	<0.0024 U	<0.0032 UJ	<0.0034 U	<0.0025 U
Tetrachloroethene (PCE)	127-18-4	1.3	1.3	18	mg/kg	<0.00062 U	<0.00062 UJ	<0.00087 UJ	<0.00082 U	<0.0009 UJ	<0.00045 U	<0.00075 U	<0.00085 U	<0.0012 U	<0.0006 U	<0.00079 UJ	<0.00086 U	<0.00062 U
Toluene	108-88-3	**0.7**	0.7	100	mg/kg	<0.0012 U	<0.0012 UJ	<0.0017 UJ	<0.0016 U	<0.0018 UJ	<0.0009 U	<0.0015 U	<0.0017 U	<0.0025 U	<0.0012 U	<0.0016 UJ	<0.0017 U	<0.0012 U
Total 1,2-Dichloroethene (Cis and Trans)	540-59-0	NS	NS	NS	mg/kg	<0.0012 U	<0.0012 UJ	<0.0017 UJ	<0.0016 U	<0.0018 UJ	<0.0009 U	<0.0015 U	<0.0017 U	<0.0025 U	<0.0012 U	<0.0016 UJ	<0.0017 U	<0.0012 U
Total Xylenes	1330-20-7	**0.26**	1.2	100	mg/kg	<0.0012 U	<0.0012 UJ	<0.0017 UJ	<0.0016 U	<0.0018 UJ	<0.0009 U	0.00045 J	<0.0017 U	<0.0025 U	<0.0012 U	<0.0016 UJ	<0.0017 U	<0.0012 U
Total, 1,3-Dichloropropene (Cis And Trans)	542-75-6	NS	NS	NS	mg/kg	<0.00062 U	<0.00062 UJ	<0.00087 UJ	<0.00082 U	<0.0009 UJ	<0.00045 U	<0.00075 U	<0.00085 U	<0.0012 U	<0.0006 U	<0.00079 UJ	<0.00086 U	<0.00062 U
Trans-1,2-Dichloroethene	156-60-5	0.19	0.19	100	mg/kg	<0.0018 U	<0.0019 UJ	<0.0026 UJ	<0.0025 U	<0.0027 UJ	<0.0013 U	<0.0022 U	<0.0025 U	<0.0037 U	<0.0018 U	<0.0024 UJ	<0.0026 U	<0.0018 U
Trans-1,3-Dichloropropene	10061-02-6	NS	NS	NS	mg/kg	<0.0012 U	<0.0012 UJ	<0.0017 UJ	<0.0016 U	<0.0018 UJ	<0.0009 U	<0.0015 U	<0.0017 U	<0.0025 U	<0.0012 U	<0.0016 UJ	<0.0017 U	<0.0012 U
Trans-1,4-Dichloro-2-Butene	110-57-6	NS	NS	NS	mg/kg	<0.0062 U	<0.0062 UJ	<0.0087 UJ	<0.0082 U	<0.009 UJ	<0.0045 U	<0.0075 U	<0.0085 U	<0.012 U	<0.006 U	<0.0079 UJ	<0.0086 U	<0.0062 U
Trichloroethene (TCE)	79-01-6	0.47	0.47	6.4	mg/kg	<0.00062 U	<0.00062 UJ	<0.00087 UJ	<0.00082 U	<0.0009 UJ	<0.00045 U	<0.00075 U	<0.00085 U	<0.0012 U	<0.0006 U	<0.00079 UJ	<0.00086 U	<0.00062 U
Trichlorofluoromethane	75-69-4	NS	NS	NS	mg/kg	<0.005 U	<0.005 UJ	<0.007 UJ	<0.0066 U	<0.0072 UJ	<0.0036 U	<0.006 U	<0.0068 U	<0.01 U	<0.0048 U	<0.0063 UJ	<0.0069 U	<0.0049 U
Vinyl Acetate	108-05-4	NS	NS	NS	mg/kg	<0.012 UJ	<0.012 UJ	<0.017 UJ	<0.016 U	<0.018 UJ	<0.009 U	<0.015 U	<0.017 U	<0.025 UJ	<0.012 UJ	<0.016 UJ	<0.017 UJ	<0.012 UJ
Vinyl Chloride	75-01-4	0.03	0.03	0.48	mg/kg	<0.0012 U	<0.0012 UJ	<0.0017 UJ	<0.0016 U	<0.0018 UJ	<0.0009 U	<0.0015 U	<0.0017 U	<0.0025 U	<0.0012 U	<0.0016 UJ	<0.0017 U	<0.0012 U

Table 3A
Remedial Investigation Report
Soil Sample Analytical Results

C Block
Brooklyn, New York
NYSDEC BCP Site No.: C224435
Langan Project No.: 170229030

Analyte	CAS Number	NYSDEC Part 375 Unrestricted Use SCOs	NYSDEC Part 375 Protection of Groundwater SCOs	NYSDEC Part 375 Restricted Use Restricted-Residential SCOs	Location	SB06	SB06	SB07	SB07	SB08	SB08	SB09	SB09	SB10	SB10	SB10	SB10	SB10
					Sample Name	SB06_0-2	SB06_4-6	SB07_0-2	SB07_7-9	SB08_0-2	SB08_9-11	SB09_0-2	SB09_3-5	SB10_0-2	SB10_3-5	SODUP02_072922	SB10_13-15	SB10_17-19
					Sample Date	07/27/2022	07/27/2022	07/28/2022	07/28/2022	07/28/2022	07/28/2022	07/25/2022	07/25/2022	07/29/2022	07/29/2022	07/29/2022	07/29/2022	07/29/2022
					Sample Depth	0-2	4-6	0-2	7-9	0-2	9-11	0-2	3-5	0-2	3-5	3-5	13-15	17-19
					Unit	Result	Result	Result	Result	Result	Result	Result	Result	Result	Result	Result	Result	Result
Semi-Volatile Organic Compounds																		
1,2,4,5-Tetrachlorobenzene	95-94-3	NS	NS	NS	mg/kg	<0.19 U	<0.18 U	<0.23 U	<0.22 U	<0.19 U	<0.2 U	<0.19 U	<0.19 U	<0.18 U	<0.95 U	<0.94 U	<0.26 UJ	<0.22 UJ
1,2,4-Trichlorobenzene	120-82-1	NS	NS	NS	mg/kg	<0.19 U	<0.18 U	<0.23 U	<0.22 U	<0.19 U	<0.2 U	<0.19 U	<0.19 U	<0.18 U	<0.95 U	<0.94 U	<0.26 UJ	<0.22 UJ
1,2-Dichlorobenzene	95-50-1	1.1	1.1	100	mg/kg	<0.19 U	<0.18 U	<0.23 U	<0.22 U	<0.19 U	<0.2 U	<0.19 U	<0.19 U	<0.18 U	<0.95 U	<0.94 U	<0.26 UJ	<0.22 UJ
1,3-Dichlorobenzene	541-73-1	2.6	2.6	38	mg/kg	<0.19 U	<0.18 U	<0.23 U	<0.22 U	<0.19 U	<0.2 U	<0.19 U	<0.19 U	<0.18 U	<0.95 U	<0.94 U	<0.26 UJ	<0.22 UJ
1,4-Dichlorobenzene	106-46-7	1.8	1.8	24	mg/kg	<0.19 U	<0.18 U	<0.23 U	<0.22 U	<0.19 U	<0.2 U	<0.19 U	<0.19 U	<0.18 U	<0.95 U	<0.94 U	<0.26 UJ	<0.22 UJ
1,4-Dioxane (P-Dioxane)	123-91-1	0.1	0.1	5.7	mg/kg	<0.028 U	<0.027 U	<0.034 U	<0.034 U	<0.028 U	<0.029 U	<0.028 U	<0.029 U	<0.028 U	<0.14 U	<0.14 U	<0.039 UJ	<0.033 UJ
2,4,5-Trichlorophenol	95-95-4	NS	NS	NS	mg/kg	<0.19 U	<0.18 U	<0.23 U	<0.22 U	<0.19 U	<0.2 U	<0.19 U	<0.19 U	<0.18 U	<0.95 U	<0.94 U	<0.26 UJ	<0.22 UJ
2,4,6-Trichlorophenol	88-06-2	NS	NS	NS	mg/kg	<0.11 U	<0.11 U	<0.14 U	<0.13 U	<0.11 U	<0.12 U	<0.11 U	<0.12 U	<0.11 U	<0.57 U	<0.56 U	<0.16 UJ	<0.13 UJ
2,4-Dichlorophenol	120-83-2	NS	NS	NS	mg/kg	<0.17 U	<0.16 U	<0.21 U	<0.2 U	<0.17 U	<0.18 U	<0.17 U	<0.17 U	<0.17 U	<0.86 U	<0.84 U	<0.24 UJ	<0.2 UJ
2,4-Dimethylphenol	105-67-9	NS	NS	NS	mg/kg	<0.19 U	<0.18 U	<0.23 U	<0.22 U	<0.19 U	<0.2 U	<0.19 U	<0.19 U	<0.18 U	<0.95 U	<0.94 U	<0.26 UJ	<0.22 UJ
2,4-Dinitrophenol	51-28-5	NS	NS	NS	mg/kg	<0.9 U	<0.86 U	<1.1 U	<1.1 U	<0.9 U	<0.94 U	<0.9 U	<0.92 U	<0.89 U	<4.6 U	<4.5 U	<1.2 UJ	<1.1 UJ
2,4-Dinitrotoluene	121-14-2	NS	NS	NS	mg/kg	<0.19 U	<0.18 U	<0.23 U	<0.22 U	<0.19 U	<0.2 U	<0.19 U	<0.19 U	<0.18 U	<0.95 U	<0.94 U	<0.26 UJ	<0.22 UJ
2,6-Dinitrotoluene	606-20-2	NS	NS	NS	mg/kg	<0.19 U	<0.18 U	<0.23 U	<0.22 U	<0.19 U	<0.2 U	<0.19 U	<0.19 U	<0.18 U	<0.95 U	<0.94 U	<0.26 UJ	<0.22 UJ
2-Chloronaphthalene	91-58-7	NS	NS	NS	mg/kg	<0.19 U	<0.18 U	<0.23 U	<0.22 U	<0.19 U	<0.2 U	<0.19 U	<0.19 U	<0.18 U	<0.95 U	<0.94 U	<0.26 UJ	<0.22 UJ
2-Chlorophenol	95-57-8	NS	NS	NS	mg/kg	<0.19 U	<0.18 U	<0.23 U	<0.22 U	<0.19 U	<0.2 U	<0.19 U	<0.19 U	<0.18 U	<0.95 U	<0.94 U	<0.26 UJ	<0.22 UJ
2-Methylnaphthalene	91-57-6	NS	NS	NS	mg/kg	0.31	1.5	1	1.4	0.4	<0.23 U	0.34	0.025 J	1.8	0.34 J	0.38 J	0.091 J	<0.27 UJ
2-Methylphenol (o-Cresol)	95-48-7	**0.33**	0.33	100	mg/kg	<0.19 U	0.037 J	<0.23 U	0.048 J	<0.19 U	<0.2 U	<0.19 U	<0.19 U	<0.18 U	<0.95 U	<0.94 U	<0.26 UJ	<0.22 UJ
2-Nitroaniline	88-74-4	NS	NS	NS	mg/kg	<0.19 U	<0.18 U	<0.23 U	<0.22 U	<0.19 U	<0.2 U	<0.19 U	<0.19 U	<0.18 U	<0.95 U	<0.94 U	<0.26 UJ	<0.22 UJ
2-Nitrophenol	88-75-5	NS	NS	NS	mg/kg	<0.41 U	<0.39 U	<0.5 U	<0.48 U	<0.4 U	<0.42 U	<0.4 U	<0.41 U	<0.4 U	<2 U	<2 U	<0.56 UJ	<0.48 UJ
3 & 4 Methylphenol (m&p Cresol)	65794-96-9	**0.33**	0.33	100	mg/kg	0.048 J	0.067 J	<0.33 U	0.16 J	<0.27 U	<0.28 U	0.052 J	<0.28 U	0.043 J	<1.4 U	<1.3 U	0.19 J	<0.32 UJ
3,3'-Dichlorobenzidine	91-94-1	NS	NS	NS	mg/kg	<0.19 U	<0.18 U	<0.23 U	<0.22 U	<0.19 U	<0.2 U	<0.19 U	<0.19 U	<0.18 U	<0.95 U	<0.94 U	<0.26 UJ	<0.22 UJ
3-Nitroaniline	99-09-2	NS	NS	NS	mg/kg	<0.19 U	<0.18 U	<0.23 U	<0.22 U	<0.19 U	<0.2 U	<0.19 U	<0.19 U	<0.18 U	<0.95 U	<0.94 U	<0.26 UJ	<0.22 UJ
4,6-Dinitro-2-Methylphenol	534-52-1	NS	NS	NS	mg/kg	<0.49 U	<0.47 U	<0.6 U	<0.58 U	<0.49 U	<0.51 U	<0.48 U	<0.5 U	<0.48 U	<2.5 U	<2.4 U	<0.68 UJ	<0.58 UJ
4-Bromophenyl Phenyl Ether	101-55-3	NS	NS	NS	mg/kg	<0.19 U	<0.18 U	<0.23 U	<0.22 U	<0.19 U	<0.2 U	<0.19 U	<0.19 U	<0.18 U	<0.95 U	<0.94 U	<0.26 UJ	<0.22 UJ
4-Chloro-3-Methylphenol	59-50-7	NS	NS	NS	mg/kg	<0.19 U	<0.18 U	<0.23 U	<0.22 U	<0.19 U	<0.2 U	<0.19 U	<0.19 U	<0.18 U	<0.95 U	<0.94 U	<0.26 UJ	<0.22 UJ
4-Chloroaniline	106-47-8	NS	NS	NS	mg/kg	<0.19 U	<0.18 U	<0.23 U	<0.22 U	<0.19 U	<0.2 U	<0.19 U	<0.19 U	<0.18 U	<0.95 U	<0.94 U	<0.26 UJ	<0.22 UJ
4-Chlorophenyl Phenyl Ether	7005-72-3	NS	NS	NS	mg/kg	<0.19 U	<0.18 U	<0.23 U	<0.22 U	<0.19 U	<0.2 U	<0.19 U	<0.19 U	<0.18 U	<0.95 U	<0.94 U	<0.26 UJ	<0.22 UJ
4-Nitroaniline	100-01-6	NS	NS	NS	mg/kg	<0.19 U	<0.18 U	<0.23 U	<0.22 U	<0.19 U	<0.2 U	<0.19 U	<0.19 U	<0.18 U	<0.95 U	<0.94 U	<0.26 UJ	<0.22 UJ
4-Nitrophenol	100-02-7	NS	NS	NS	mg/kg	<0.26 U	<0.25 U	<0.32 U	<0.31 U	<0.26 U	<0.27 U	<0.26 U	<0.27 U	<0.26 U	<1.3 U	<1.3 U	<0.37 UJ	<0.31 UJ
Acenaphthene	83-32-9	**20**	98	100	mg/kg	0.73	0.23	0.23	2.4	0.61	<0.16 U	0.95	0.035 J	0.79	0.22 J	0.24 J	0.38 J	<0.18 UJ
Acenaphthylene	208-96-8	100	365	100	mg/kg	0.37	0.24	0.092 J	0.38	0.17	<0.16 U	0.7	0.036 J	0.17	<0.76 U	<0.75 U	0.082 J	<0.18 UJ
Acetophenone	98-86-2	NS	NS	NS	mg/kg	0.026 J	0.15 J	<0.23 U	<0.22 U	<0.19 U	<0.2 U	<0.19 U	<0.19 U	<0.18 U	<0.95 U	<0.94 U	<0.26 UJ	<0.22 UJ
Anthracene	120-12-7	**100**	1000	100	mg/kg	2	0.58	0.61	3.6	2	<0.12 U	3	0.091 J	1.6	0.61	0.49 J	0.53 J	<0.13 UJ
Benzo(a)anthracene	56-55-3	**1**	1	1.4	mg/kg	**5.2**	**1.4**	**1.4**	**5.2**	**6.7**	<0.12 U	**9.5**	0.26	**4.8**	**1.3**	1	0.69 J	<0.13 UJ
Benzo(a)pyrene	50-32-8	**1**	22	1	mg/kg	**4.7**	**1.3**	**1.7**	**5.7**	**8.7**	<0.16 U	**8.3**	0.32	**5.5**	**1.3**	0.96	0.69 J	<0.18 UJ
Benzo(b)fluoranthene	205-99-2	**1**	2.1	1.4	mg/kg	**5.2**	**1.4**	**1.8**	**6.2**	**9.2**	<0.12 U	**8.9**	0.38	**7.1**	**1.4**	**1.1**	0.7 J	<0.13 UJ
Benzo(g,h,i)Perylene	191-24-2	**0.64**	1000	4.9	mg/kg	**2.5**	**0.71**	**0.72**	**1.9**	**4.2**	<0.16 U	**3.8**	0.16	**3.9**	**0.68 J**	0.51 J	0.32 J	<0.18 UJ
Benzo(k)fluoranthene	207-08-9	**0.8**	2	4.9	mg/kg	**1.5**	0.46	0.57	**1.8**	**2.2**	<0.12 U	**2.7**	0.089 J	**2.1**	0.6	0.45 J	0.23 J	<0.13 UJ
Benzoic Acid	65-85-0	NS	NS	NS	mg/kg	<0.61 U	<0.58 U	<0.74 U	<0.72 U	<0.61 U	<0.63 U	<0.6 U	<0.62 U	<0.6 U	<3.1 U	<3 U	<0.85 UJ	<0.72 UJ
Benzyl Alcohol	100-51-6	NS	NS	NS	mg/kg	<0.19 U	<0.18 U	<0.23 U	<0.22 U	<0.19 U	<0.2 U	<0.19 U	<0.19 U	<0.18 U	<0.95 U	<0.94 U	<0.26 UJ	<0.22 UJ
Benzyl Butyl Phthalate	85-68-7	NS	NS	NS	mg/kg	<0.19 U	<0.18 U	<0.23 U	<0.22 U	<0.19 U	<0.2 U	<0.19 U	<0.19 U	<0.18 U	<0.95 U	<0.94 U	<0.26 UJ	<0.22 UJ
Biphenyl (Diphenyl)	92-52-4	NS	NS	NS	mg/kg	0.094 J	0.17 J	0.1 J	0.33 J	0.14 J	<0.44 U	0.081 J	<0.44 U	0.44	<2.2 U	<2.1 U	<0.6 UJ	<0.51 UJ
Bis(2-chloroethoxy) methane	111-91-1	NS	NS	NS	mg/kg	<0.2 U	<0.19 U	<0.25 U	<0.24 U	<0.2 U	<0.21 U	<0.2 U	<0.21 U	<0.2 U	<1 U	<1 U	<0.28 UJ	<0.24 UJ
Bis(2-chloroethyl) ether (2-chloroethyl ether)	111-44-4	NS	NS	NS	mg/kg	<0.17 U	<0.16 U	<0.21 U	<0.2 U	<0.17 U	<0.18 U	<0.17 U	<0.17 U	<0.17 U	<0.86 U	<0.84 U	<0.24 UJ	<0.2 UJ
Bis(2-chloroisopropyl) ether	108-60-1	NS	NS	NS	mg/kg	<0.22 U	<0.22 U	<0.28 U	<0.27 U	<0.22 U	<0.23 U	<0.22 U	<0.23 U	<0.22 U	<1.1 U	<1.1 U	<0.31 UJ	<0.27 UJ
Bis(2-ethylhexyl) phthalate	117-81-7	NS	NS	NS	mg/kg	<0.19 U	<0.18 U	<0.23 U	<0.22 U	0.067 J	<0.2 U	<0.19 U	<0.19 U	<0.18 U	<0.95 U	<0.94 U	<0.26 UJ	<0.22 UJ
Carbazole	86-74-8	NS	NS	NS	mg/kg	0.68	0.2	0.2 J	2.1	0.56	<0.2 U	1.2	0.048 J	1.2	0.22 J	0.21 J	0.18 J	<0.22 UJ
Chrysene	218-01-9	**1**	1	4.9	mg/kg	**5.1**	**1.6**	**1.2**	**4.7**	**5.3**	<0.12 U	**7**	0.25	**5.2**	**1.4**	**1.2**	0.7 J	<0.13 UJ
Dibenz(a,h)anthracene	53-70-3	**0.33**	1000	0.33	mg/kg	**0.64**	0.18	0.18	**0.54**	**0.95**	<0.12 U	**0.98**	0.046 J	**0.84**	0.16 J	0.15 J	0.073 J	<0.13 UJ
Dibenzofuran	132-64-9	**2.1**	110	18	mg/kg	0.5	0.36	0.33	**2.2**	0.46	<0.2 U	0.62	0.029 J	0.79	0.22 J	0.23 J	0.18 J	<0.22 UJ
Dibutyl phthalate	84-74-2	NS	NS	NS	mg/kg	<0.19 U	<0.18 U	<0.23 U	<0.22 U	<0.19 U	<0.2 U	0.1 J	<0.19 U	0.049 J	<0.95 U	<0.94 U	<0.26 UJ	<0.22 UJ
Diethyl phthalate	84-66-2	NS	NS	NS	mg/kg	<0.19 U	<0.18 U	<0.23 U	<0.22 U	<0.19 U	<0.2 U	<0.19 U	<0.19 U	<0.18 U	<0.95 U	<0.94 U	<0.26 UJ	<0.22 UJ
Dimethyl phthalate	131-11-3	NS	NS	NS	mg/kg	<0.19 U	<0.18 U	<0.23 U	<0.22 U	<0.19 U	<0.2 U	<0.19 U	<0.19 U	<0.18 U	<0.95 U	<0.94 U	<0.26 UJ	<0.22 UJ
Dioctyl phthalate	117-84-0	NS	NS	NS	mg/kg	<0.19 U	<0.18 U	<0.23 U	<0.22 U	<0.19 U	<0.2 U	<0.19 U	<0.19 U	<0.18 U	<0.95 U	<0.94 U	<0.26 UJ	<0.22 UJ
Fluoranthene	206-44-0	**85**	1000	100	mg/kg	8.8	2.5	2.8	14	14	<0.12 U	17	0.5	13	3	2.2	1.6 J	<0.13 UJ
Fluorene	86-73-7	**30**	386	100	mg/kg	0.83	0.36	0.31	2.6	0.7	<0.2 U	1.1	0.048 J	0.97	0.3 J	0.31 J	0.33 J	<0.22 UJ
Hexachlorobenzene	118-74-1	0.33	3.2	0.33	mg/kg	<0.11 U	<0.11 U	<0.14 U	<0.13 U	<0.11 U	<0.12 U	<0.11 U	<0.12 U	<0.11 U	<0.57 U	<0.56 U	<0.16 UJ	<0.13 UJ
Hexachlorobutadiene	87-68-3	NS	NS	NS	mg/kg	<0.19 U	<0.18 U	<0.23 U	<0.22 U	<0.19 U	<0.2 U	<0.19 U	<0.19 U	<0.18 U	<0.95 U	<0.94 U	<0.26 UJ	<0.22 UJ
Hexachlorocyclopentadiene	77-47-4	NS	NS	NS	mg/kg	<0.54 U	<0.51 U	<0.66 U	<0.64 U	<0.54 U	<0.56 U	<0.53 U	<0.55 U	<0.53 U	<2.7 U	<2.7 U	<0.75 UJ	<0.64 UJ
Hexachloroethane	67-72-1	NS	NS	NS	mg/kg	<0.15 U	<0.14 U	<0.18 U	<0.18 U	<0.15 U	<0.16 U	<0.15 U	<0.15 U	<0.15 U	<0.76 U	<0.75 U	<0.21 UJ	<0.18 UJ
Indeno(1,2,3-cd)pyrene	193-39-5	**0.5**	6.6	1.4	mg/kg	**2.9**	**0.81**	**0.91**	**2.6**	**5.2**	<0.16 U	**4.7**	0.2	**4.5**	**0.71 J**	**0.57 J**	0.34 J	<0.18 UJ
Isophorone	78-59-1	NS	NS	NS	mg/kg	<0.17 U	<0.16 U	<0.21 U	<0.2 U	<0.17 U	<0.18 U	<0.17 U	<0.17 U	<0.17 U	<0.86 U	<0.84 U	<0.24 UJ	<0.2 UJ
Naphthalene	91-20-3	**12**	12	100	mg/kg	0.46	1.5	0.88	2.7	0.57	<0.2 U	0.45	0.035 J	1.2	0.54 J	0.59 J	0.24 J	<0.22 UJ
Nitrobenzene	98-95-3	0.08	0.08	1.8	mg/kg	<0.17 U	<0.16 U	<0.21 U	<0.2 U	<0.17 U	<0.18 U	<0.17 U	<0.17 U	<0.17 U	<0.86 U	<0.84 U	<0.24 UJ	<0.2 UJ
n-Nitrosodi-N-Propylamine	621-64-7	NS	NS	NS	mg/kg	<0.19 U	<0.18 U	<0.23 U	<0.22 U	<0.19 U	<0.2 U	<0.19 U	<0.19 U	<0.18 U	<0.95 U	<0.94 U	<0.26 UJ	<0.22 UJ
n-Nitrosodiphenylamine	86-30-6	NS	NS	NS	mg/kg	<0.15 U	<0.14 U	<0.18 U	<0.18 U	<0.15 U	<0.16 U	<0.15 U	<0.15 U	<0.15 U	<0.76 U	<0.75 U	<0.21 UJ	<0.18 UJ
Pentachlorophenol	87-86-5	0.8	0.8	1.3	mg/kg	<0.15 U	<0.14 U	<0.18 U	<0.18 U	<0.15 U	<0.16 U	<0.15 U	<0.15 U	<0.15 U	<0.76 U	<0.75 U	<0.21 UJ	<0.18 UJ
Phenanthrene	85-01-8	**1.1**	1000	4.9	mg/kg	**7.4**	**2.3**	**2.2**	**16**	**7.2**	<0.12 U	**15**	0.4	**9.2**	**2.7**	**2.3**	**1.8 J**	<0.13 UJ
Phenol	108-95-2	**0.33**	0.33	100	mg/kg	<0.19 U	<0.18 U	<0.23 U	0.058 J	<0.19 U	<0.2 U	0.042 J	<0.19 U	<0.18 U	<0.95 U	<0.94 U	<0.26 UJ	<0.22 UJ
Pyrene	129-00-0	**64**	1000	100	mg/kg	8.7	2.3	2.3	11	12	<0.12 U	17	0.43	10	2.6	2	1.4 J	<0.13 UJ

Table 3A
Remedial Investigation Report
Soil Sample Analytical Results

C Block
Brooklyn, New York
NYSDEC BCP Site No.: C224435
Langan Project No.: 170229030

Analyte	CAS Number	NYSDEC Part 375 Unrestricted Use SCOs	NYSDEC Part 375 Protection of Groundwater SCOs	NYSDEC Part 375 Restricted Use Restricted-Residential SCOs	Location	SB06	SB06	SB07	SB07	SB08	SB08	SB09	SB09	SB10	SB10	SB10	SB10	SB10
					Sample Name	SB06_0-2	SB06_4-6	SB07_0-2	SB07_7-9	SB08_0-2	SB08_9-11	SB09_0-2	SB09_3-5	SB10_0-2	SB10_3-5	SODUP02_072922	SB10_13-15	SB10_17-19
					Sample Date	07/27/2022	07/27/2022	07/28/2022	07/28/2022	07/28/2022	07/28/2022	07/25/2022	07/25/2022	07/29/2022	07/29/2022	07/29/2022	07/29/2022	07/29/2022
					Sample Depth	0-2	4-6	0-2	7-9	0-2	9-11	0-2	3-5	0-2	3-5	3-5	13-15	17-19
					Unit	Result	Result	Result	Result	Result	Result	Result	Result	Result	Result	Result	Result	Result
Pesticides																		
4,4'-DDD	72-54-8	**0.0033**	14	5	mg/kg	**0.0745**	**0.0164**	**0.0491**	<0.00211 U	**0.0147**	<0.0018 U	**0.00943 J**	<0.00176 U	**0.0413**	<0.00179 U	<0.00173 U	NA	NA
4,4'-DDE	72-55-9	**0.0033**	9.3	3.4	mg/kg	**0.0107 J**	0.00125 J	**0.0437**	<0.00211 U	**0.0806 J**	<0.0018 U	**0.0222**	0.00217	**0.0303**	<0.00179 U	<0.00173 U	NA	NA
4,4'-DDT	50-29-3	**0.0033**	135	3.8	mg/kg	**0.0269**	<0.00169 U	**0.0318**	<0.00211 U	**0.188**	<0.0018 U	**0.042**	**0.00626**	**0.0434**	<0.00179 U	<0.00173 U	NA	NA
Aldrin	309-00-2	0.0048	0.19	0.044	mg/kg	<0.00176 U	<0.00169 U	<0.00219 U	<0.00211 U	<0.00176 U	<0.0018 U	<0.00176 U	<0.00176 U	<0.00171 U	<0.00179 U	<0.00173 U	NA	NA
Alpha BHC (Alpha Hexachlorocyclohexane)	319-84-6	0.02	0.02	0.18	mg/kg	<0.000735 U	<0.000705 U	<0.000914 U	<0.000878 U	<0.000732 U	<0.000752 U	<0.000732 U	0.00325 J	<0.000713 U	<0.000746 U	<0.000721 U	NA	NA
Alpha Chlordane	5103-71-9	0.014	4.5	0.65	mg/kg	<0.0022 U	<0.00212 U	0.00394 J	<0.00263 U	<0.0022 U	<0.00226 U	<0.0022 U	<0.0022 U	<0.00214 U	<0.00224 U	<0.00216 U	NA	NA
Alpha Endosulfan	959-98-8	4.3	65	35	mg/kg	<0.00176 U	<0.00169 U	<0.00219 U	<0.00211 U	<0.00176 U	<0.0018 U	<0.00176 U	<0.00176 U	<0.00171 U	<0.00179 U	<0.00173 U	NA	NA
Beta Bhc (Beta Hexachlorocyclohexane)	319-85-7	0.021	0.09	0.18	mg/kg	<0.00176 U	<0.00169 U	<0.00219 U	<0.00211 U	<0.00176 U	<0.0018 U	<0.00176 U	<0.00176 U	<0.00171 U	<0.00179 U	<0.00173 U	NA	NA
Beta Endosulfan	33213-65-9	4.3	44	35	mg/kg	<0.00176 U	<0.00169 U	<0.00219 U	<0.00211 U	<0.00176 U	<0.0018 U	<0.00176 U	<0.00176 U	<0.00171 U	<0.00179 U	<0.00173 U	NA	NA
Chlordane (alpha and gamma)	57-74-9	NS	NS	NS	mg/kg	<0.0147 U	<0.0141 U	<0.0183 U	<0.0176 U	<0.0146 U	<0.015 U	<0.0146 U	<0.0147 U	<0.0143 U	<0.0149 U	<0.0144 U	NA	NA
Delta Bhc (Delta Hexachlorocyclohexane)	319-86-8	0.04	0.1	100	mg/kg	<0.00176 U	<0.00169 U	<0.00219 U	<0.00211 U	<0.00176 U	<0.0018 U	<0.00176 U	<0.00176 U	<0.00171 U	<0.00179 U	<0.00173 U	NA	NA
Dieldrin	60-57-1	0.005	0.1	0.075	mg/kg	<0.0011 U	<0.00106 U	<0.00137 U	<0.00132 U	<0.0011 U	<0.00113 U	<0.0011 U	<0.0011 U	<0.00107 U	<0.00112 U	<0.00108 U	NA	NA
Endosulfan Sulfate	1031-07-8	4.3	47	35	mg/kg	<0.000735 U	<0.000705 U	<0.000914 U	<0.000878 U	<0.000732 U	<0.000752 U	<0.000732 U	<0.000734 U	<0.000713 U	<0.000746 U	<0.000721 U	NA	NA
Endrin	72-20-8	0.014	0.06	5.3	mg/kg	<0.000735 U	<0.000705 U	<0.000914 U	<0.000878 U	<0.000732 U	<0.000752 U	<0.000732 U	<0.000734 U	<0.000713 U	<0.000746 U	<0.000721 U	NA	NA
Endrin Aldehyde	7421-93-4	NS	NS	NS	mg/kg	<0.0022 U	<0.00212 U	<0.00274 U	<0.00263 U	<0.0022 U	<0.00226 U	<0.0022 U	<0.0022 U	<0.00214 U	<0.00224 U	<0.00216 U	NA	NA
Endrin Ketone	53494-70-5	NS	NS	NS	mg/kg	<0.00176 U	<0.00169 U	<0.00219 U	<0.00211 U	<0.00176 U	<0.0018 U	<0.00176 U	<0.00176 U	<0.00171 U	<0.00179 U	<0.00173 U	NA	NA
Gamma Bhc (Lindane)	58-89-9	0.025	0.05	0.21	mg/kg	<0.000735 U	<0.000705 U	<0.000914 U	<0.000878 U	<0.000732 U	<0.000752 U	<0.000732 U	<0.000734 U	<0.000713 U	<0.000746 U	<0.000721 U	NA	NA
Gamma Chlordane (Trans)	5103-74-2	NS	NS	NS	mg/kg	<0.0022 U	<0.00212 U	0.00178 J	<0.00263 U	<0.0022 U	<0.00226 U	<0.0022 U	<0.0022 U	<0.00214 U	<0.00224 U	<0.00216 U	NA	NA
Heptachlor	76-44-8	0.013	0.38	0.53	mg/kg	<0.000882 U	<0.000846 U	<0.0011 U	<0.00105 U	<0.000878 U	<0.000902 U	<0.000879 U	<0.00088 U	<0.000856 U	<0.000896 U	<0.000866 U	NA	NA
Heptachlor Epoxide	1024-57-3	NS	NS	NS	mg/kg	<0.00331 U	<0.00317 U	<0.00411 U	<0.00395 U	<0.00329 U	<0.00338 U	<0.0033 U	<0.0033 U	<0.00321 U	<0.00336 U	<0.00324 U	NA	NA
Methoxychlor	72-43-5	NS	NS	NS	mg/kg	<0.00331 U	<0.00317 U	<0.00411 U	<0.00395 U	<0.00329 U	<0.00338 U	<0.0033 U	<0.0033 U	<0.00321 U	<0.00336 U	<0.00324 U	NA	NA
Toxaphene	8001-35-2	NS	NS	NS	mg/kg	<0.0331 U	<0.0317 U	<0.0411 U	<0.0395 U	<0.0329 U	<0.0338 U	<0.033 U	<0.033 U	<0.0321 U	<0.0336 U	<0.0324 U	NA	NA
Herbicides																		
2,4,5-T (Trichlorophenoxyacetic Acid)	93-76-5	NS	NS	NS	mg/kg	<0.185 U	<0.182 U	<0.232 U	<0.224 U	<0.187 U	<0.195 U	<0.187 U	<0.192 U	<0.186 U	<0.189 U	<0.186 U	NA	NA
2,4-D (Dichlorophenoxyacetic Acid)	94-75-7	NS	NS	NS	mg/kg	<0.185 U	<0.182 U	<0.232 U	<0.224 U	<0.187 U	<0.195 U	<0.187 U	<0.192 U	<0.186 U	<0.189 U	<0.186 U	NA	NA
Silvex (2,4,5-Tp)	93-72-1	3.8	3.8	100	mg/kg	<0.185 U	<0.182 U	<0.232 U	<0.224 U	<0.187 U	<0.195 U	<0.187 U	<0.192 U	<0.186 U	<0.189 U	<0.186 U	NA	NA
Polychlorinated Biphenyl																		
PCB-1016 (Aroclor 1016)	12674-11-2	NS	NS	NS	mg/kg	<0.0363 U	<0.0355 U	<0.0464 U	<0.0443 U	<0.0363 U	<0.0377 U	<0.0376 U	<0.038 U	<0.0363 U	<0.0369 U	<0.0364 U	NA	NA
PCB-1221 (Aroclor 1221)	11104-28-2	NS	NS	NS	mg/kg	<0.0363 U	<0.0355 U	<0.0464 U	<0.0443 U	<0.0363 U	<0.0377 U	<0.0376 U	<0.038 U	<0.0363 U	<0.0369 U	<0.0364 U	NA	NA
PCB-1232 (Aroclor 1232)	11141-16-5	NS	NS	NS	mg/kg	<0.0363 U	<0.0355 U	<0.0464 U	<0.0443 U	<0.0363 U	<0.0377 U	<0.0376 U	<0.038 U	<0.0363 U	<0.0369 U	<0.0364 U	NA	NA
PCB-1242 (Aroclor 1242)	53469-21-9	NS	NS	NS	mg/kg	<0.0363 U	<0.0355 U	<0.0464 U	<0.0443 U	<0.0363 U	<0.0377 U	<0.0376 U	<0.038 U	<0.0363 U	<0.0369 U	<0.0364 U	NA	NA
PCB-1248 (Aroclor 1248)	12672-29-6	NS	NS	NS	mg/kg	<0.0363 U	<0.0355 U	<0.0464 U	<0.0443 U	<0.0363 U	<0.0377 U	<0.0376 U	<0.038 U	<0.0363 U	<0.0369 U	<0.0364 U	NA	NA
PCB-1254 (Aroclor 1254)	11097-69-1	NS	NS	NS	mg/kg	<0.0363 U	0.0552	0.0128 J	0.0139 J	0.0266 J	<0.0377 U	0.0395	<0.038 U	0.014 J	<0.0369 U	<0.0364 U	NA	NA
PCB-1260 (Aroclor 1260)	11096-82-5	NS	NS	NS	mg/kg	0.0277 J	0.142	0.0113 J	0.02 J	0.0481	<0.0377 U	0.128	0.0396	0.0152 J	<0.0369 U	<0.0364 U	NA	NA
PCB-1262 (Aroclor 1262)	37324-23-5	NS	NS	NS	mg/kg	<0.0363 U	<0.0355 U	<0.0464 U	<0.0443 U	<0.0363 U	<0.0377 U	<0.0376 U	<0.038 U	<0.0363 U	<0.0369 U	<0.0364 U	NA	NA
PCB-1268 (Aroclor 1268)	11100-14-4	NS	NS	NS	mg/kg	0.0144 J	<0.0355 U	0.00707 J	<0.0443 U	0.0424	<0.0377 U	<0.0376 U	0.0426	0.00745 J	<0.0369 U	<0.0364 U	NA	NA
Total PCBs	1336-36-3	**0.1**	3.2	1	mg/kg	0.0421 J	**0.197**	0.0312 J	0.0339 J	**0.117 J**	<0.0377 U	**0.168**	0.0822	0.0367 J	<0.0369 U	<0.0364 U	NA	NA
Metals																		
Aluminum	7429-90-5	NS	NS	NS	mg/kg	3,530	3,670	4,000	5,820	2,630	4,430	3,590	4,710	3,640	6,390	7,060	NA	NA
Antimony	7440-36-0	NS	NS	NS	mg/kg	9.23	3.37 J	7.31	1.03 J	5.46	<4.66 U	5.22	2.3 J	22.6	0.729 J	0.821 J	NA	NA
Arsenic	7440-38-2	**13**	16	16	mg/kg	**16.8**	12.1	**19.9**	11.3	**13.8**	2.31	7.54	**22.4**	**180**	**21.7**	**30**	NA	NA
Barium	7440-39-3	**410**	820	410	mg/kg	**552**	362	87.4	77.3	108	42	61.1	136	56.6	89.4	97.7	NA	NA
Beryllium	7440-41-7	4.4	47	43	mg/kg	0.21 J	0.227 J	0.5 J	0.512 J	0.249 J	0.27 J	0.276 J	0.708	0.571	0.495	0.653	NA	NA
Cadmium	7440-43-9	**2.5**	7.5	2.5	mg/kg	2.19	1.01	1.18	0.345 J	**3.66**	0.149 J	2.01	**9.04**	**4.68**	1.5	1.38	NA	NA
Calcium	7440-70-2	NS	NS	NS	mg/kg	39,600	44,500	13,800	10,400	6,690	699	30,300	8,460	5,280	4,260	4,460	NA	NA
Chromium, Hexavalent	18540-29-9	1	19	1	mg/kg	<0.917 U	<0.888 U	<1.13 U	<1.09 U	<0.904 U	<0.949 U	<0.917 U	<0.937 U	<0.9 U	<0.918 U	0.182 J	NA	NA
Chromium, Total	7440-47-3	NS	NS	NS	mg/kg	17.5	17.1	13.3	14.8	24.9	11.1	17.8	20.4	21.8	8.84	9.36	NA	NA
Chromium, Trivalent	16065-83-1	**30**	NS	110	mg/kg	18	17	13	15	25	11	18	20	22	8.8	9.2 J	NA	NA
Cobalt	7440-48-4	NS	NS	NS	mg/kg	6	4.25	6.49	7.84	6.61	6.24	4.61	7.52	63.8	5.02	7.29	NA	NA
Copper	7440-50-8	**50**	1720	280	mg/kg	**129**	**95.4**	**75.6**	**89.8**	**102**	9.2	**88.2**	**72.6**	**112**	**63.8**	**84.6**	NA	NA
Cyanide	57-12-5	**2.3**	40	13	mg/kg	0.98 J	0.3 J	<1.4 UJ	<1.3 UJ	0.91 J	<1.1 UJ	0.28 J	0.6 J	0.24 J	0.38 J	1.1 J	NA	NA
Iron	7439-89-6	NS	NS	NS	mg/kg	31,600	18,700	34,700	17,200	23,100	13,000	19,800	35,500	37,900	24,500	27,200	NA	NA
Lead	7439-92-1	**63**	450	400	mg/kg	**1,310**	**404**	**498**	**112**	**305**	5.2	**504**	**1,020**	**348**	**81.5**	**91.2**	NA	NA
Magnesium	7439-95-4	NS	NS	NS	mg/kg	1,900	12,600	1,690	1,900	1,640	2,170	3,450	1,260	2,540	710	748	NA	NA
Manganese	7439-96-5	1600	2000	2000	mg/kg	229	156	114	412	147	275	317	237	307	80.2	90.2	NA	NA
Mercury	7439-97-6	**0.18**	0.73	0.3	mg/kg	**0.652**	**0.431**	**0.389**	**0.215**	**0.441**	<0.075 U	**0.44**	**0.43**	**1.08**	**0.282**	**0.219**	NA	NA
Nickel	7440-02-0	**30**	130	320	mg/kg	17.7	11.5	15.5	14.5	29.9	10.6	13.2	22.5	**200**	10.9	13.8	NA	NA
Potassium	7440-09-7	NS	NS	NS	mg/kg	539	610	395	679	409	1,020	559	413	1,040	713	594	NA	NA
Selenium	7782-49-2	**3.9**	4	110	mg/kg	1.31 J	0.733 J	1.13 J	2.84	1.56 J	<1.86 U	0.436 J	0.862 J	3.06	1.83	1.63 J	NA	NA
Silver	7440-22-4	2	8.3	110	mg/kg	<0.875 U	<0.842 U	<1.06 U	<1.04 U	<0.89 U	<0.932 U	<0.889 U	<0.908 U	0.308 J	<0.9 U	<0.883 U	NA	NA
Sodium	7440-23-5	NS	NS	NS	mg/kg	114 J	452	196 J	110 J	108 J	34 J	94.4 J	198	100 J	162 J	162 J	NA	NA
Thallium	7440-28-0	NS	NS	NS	mg/kg	<1.75 U	<1.68 U	<2.13 U	<2.09 U	<1.78 U	<1.86 U	<1.78 U	<1.82 U	<1.76 U	<1.8 U	<1.76 U	NA	NA
Vanadium	7440-62-2	NS	NS	NS	mg/kg	13.5	16	23.7	21	18.4	13.2	24.8	36.8	14.5	20.3	21.8	NA	NA
Zinc	7440-66-6	**109**	2480	6600	mg/kg	**700**	**271**	**165**	102	**357**	42.5	**304**	**19,200**	**227**	63.8	83.1	NA	NA

Table 3A
Remedial Investigation Report
Soil Sample Analytical Results

C Block
Brooklyn, New York
NYSDEC BCP Site No.: C224435
Langan Project No.: 170229030

Analyte	CAS Number	NYSDEC Part 375 Unrestricted Use SCOs	NYSDEC Part 375 Protection of Groundwater SCOs	NYSDEC Part 375 Restricted Use Restricted-Residential SCOs	Location	SB06	SB06	SB07	SB07	SB08	SB08	SB09	SB09	SB10	SB10	SB10	SB10	SB10
					Sample Name	SB06_0-2	SB06_4-6	SB07_0-2	SB07_7-9	SB08_0-2	SB08_9-11	SB09_0-2	SB09_3-5	SB10_0-2	SB10_3-5	SODUP02_072922	SB10_13-15	SB10_17-19
					Sample Date	07/27/2022	07/27/2022	07/28/2022	07/28/2022	07/28/2022	07/28/2022	07/25/2022	07/25/2022	07/29/2022	07/29/2022	07/29/2022	07/29/2022	07/29/2022
					Sample Depth	0-2	4-6	0-2	7-9	0-2	9-11	0-2	3-5	0-2	3-5	3-5	13-15	17-19
					Unit	Result	Result	Result	Result	Result	Result	Result	Result	Result	Result	Result	Result	Result
Per- and Polyfluoroalkyl Substances																		
1H,1H,2H,2H-Perfluorodecane Sulfonic Acid (8:2 FTS)	39108-34-4	NS	NS	NS	mg/kg	<0.00053 U	<0.00049 U	<0.000643 U	<0.00062 U	<0.000515 U	<0.000552 U	<0.000525 U	<0.000541 U	<0.000514 U	<0.00052 U	<0.00053 U	NA	NA
1H,1H,2H,2H-Perfluorooctane Sulfonic Acid (6:2 FTS)	27619-97-2	NS	NS	NS	mg/kg	<0.00053 U	<0.00049 U	<0.000643 U	<0.00062 U	<0.000515 U	<0.000552 U	<0.000525 U	<0.000541 U	<0.000514 U	<0.00052 U	<0.00053 U	NA	NA
N-ethyl Perfluorooctanesulfonamidoacetic Acid (NEtFOSAA)	2991-50-6	NS	NS	NS	mg/kg	<0.00053 U	<0.00049 U	<0.000643 U	<0.00062 U	<0.000515 U	<0.000552 U	<0.000525 U	<0.000541 U	<0.000514 U	<0.00052 U	<0.00053 U	NA	NA
N-methyl Perfluorooctanesulfonamidoacetic Acid (NMeFOSAA)	2355-31-9	NS	NS	NS	mg/kg	<0.00053 U	<0.00049 U	<0.000643 U	<0.00062 U	<0.000515 U	<0.000552 U	<0.000525 U	<0.000541 U	<0.000514 U	<0.00052 U	<0.00053 U	NA	NA
Perfluorobutanesulfonic Acid (PFBS)	375-73-5	NS	NS	NS	mg/kg	<0.000265 U	<0.000245 U	<0.000321 U	<0.00031 U	<0.000257 U	<0.000276 U	<0.000262 U	<0.00027 U	<0.000257 U	<0.00026 U	<0.000265 U	NA	NA
Perfluorobutanoic acid (PFBA)	375-22-4	NS	NS	NS	mg/kg	<0.00053 U	<0.00049 U	<0.000643 U	<0.00062 U	<0.000515 U	<0.000552 U	0.000038 J	<0.000541 U	<0.000514 U	<0.00052 U	<0.00053 U	NA	NA
Perfluorodecanesulfonic Acid (PFDS)	335-77-3	NS	NS	NS	mg/kg	<0.00053 U	<0.00049 U	<0.000643 U	<0.00062 U	<0.000515 U	<0.000552 U	<0.000525 U	<0.000541 U	<0.000514 U	<0.00052 U	<0.00053 U	NA	NA
Perfluorodecanoic Acid (PFDA)	335-76-2	NS	NS	NS	mg/kg	<0.000265 U	<0.000245 U	<0.000321 U	<0.00031 U	<0.000257 U	<0.000276 U	<0.000262 U	<0.00027 U	<0.000257 U	<0.00026 U	<0.000265 U	NA	NA
Perfluorododecanoic Acid (PFDoA)	307-55-1	NS	NS	NS	mg/kg	<0.00053 U	<0.00049 U	<0.000643 U	<0.00062 U	<0.000515 U	<0.000552 U	<0.000525 U	<0.000541 U	<0.000514 U	<0.00052 U	<0.00053 U	NA	NA
Perfluoroheptanesulfonic Acid (PFHpS)	375-92-8	NS	NS	NS	mg/kg	<0.00053 U	<0.00049 U	<0.000643 U	<0.00062 U	<0.000515 U	<0.000552 U	<0.000525 U	<0.000541 U	<0.000514 U	<0.00052 U	<0.00053 U	NA	NA
Perfluoroheptanoic acid (PFHpA)	375-85-9	NS	NS	NS	mg/kg	<0.000265 U	<0.000245 U	<0.000321 U	<0.00031 U	<0.000257 U	<0.000276 U	<0.000262 U	<0.00027 U	<0.000257 U	<0.00026 U	<0.000265 U	NA	NA
Perfluorohexanesulfonic Acid (PFHxS)	355-46-4	NS	NS	NS	mg/kg	<0.000265 U	<0.000245 U	<0.000321 U	<0.00031 U	<0.000257 U	<0.000276 U	<0.000262 U	<0.00027 U	<0.000257 U	<0.00026 U	<0.000265 U	NA	NA
Perfluorohexanoic Acid (PFHxA)	307-24-4	NS	NS	NS	mg/kg	<0.00053 U	<0.00049 U	<0.000643 U	<0.00062 U	<0.000515 U	<0.000552 U	<0.000525 U	<0.000541 U	<0.000514 U	<0.00052 U	<0.00053 U	NA	NA
Perfluorononanoic Acid (PFNA)	375-95-1	NS	NS	NS	mg/kg	<0.000265 U	<0.000245 U	<0.000321 U	<0.00031 U	<0.000257 U	<0.000276 U	<0.000262 U	<0.00027 U	<0.000257 U	<0.00026 U	<0.000265 U	NA	NA
Perfluorooctanesulfonamide (PFOSA)	754-91-6	NS	NS	NS	mg/kg	<0.00053 U	<0.00049 U	<0.000643 U	<0.00062 U	<0.000515 U	<0.000552 U	<0.000525 U	<0.000541 U	<0.000514 U	<0.00052 U	<0.00053 U	NA	NA
Perfluorooctanesulfonic Acid (PFOS)	1763-23-1	0.00088	0.001	0.044	mg/kg	0.000311	<0.000245 U	<0.000321 U	<0.00031 U	0.000599	<0.000276 U	0.000401	0.000516	<0.000257 U	<0.00026 U	<0.000265 U	NA	NA
Perfluorooctanoic Acid (PFOA)	335-67-1	0.00066	0.0008	0.033	mg/kg	<0.000265 U	<0.000245 U	0.000088 J	<0.00031 U	0.000332	0.000092 J	0.000171 J	0.00021 J	0.000214 J	0.00015 J	0.000225 J	NA	NA
Perfluoropentanoic Acid (PFPeA)	2706-90-3	NS	NS	NS	mg/kg	<0.00053 U	<0.00049 U	<0.000643 U	<0.00062 U	<0.000515 U	<0.000552 U	<0.000525 U	<0.000541 U	<0.000514 U	<0.00052 U	<0.00053 U	NA	NA
Perfluorotetradecanoic Acid (PFTeDA)	376-06-7	NS	NS	NS	mg/kg	<0.00053 U	<0.00049 U	<0.000643 U	<0.00062 U	<0.000515 U	<0.00191 U	<0.000525 U	<0.000541 U	<0.000514 U	<0.00052 U	<0.00053 U	NA	NA
Perfluorotridecanoic Acid (PFTrDA)	72629-94-8	NS	NS	NS	mg/kg	<0.00053 U	<0.00049 U	<0.000643 U	<0.00062 U	<0.000515 U	<0.00191 U	<0.000525 U	<0.000541 U	<0.000514 U	<0.00052 U	<0.00053 U	NA	NA
Perfluoroundecanoic Acid (PFUnA)	2058-94-8	NS	NS	NS	mg/kg	<0.00053 U	<0.00049 U	<0.000643 U	<0.00062 U	<0.000515 U	<0.000552 U	<0.000525 U	<0.000541 U	<0.000514 U	<0.00052 U	<0.00053 U	NA	NA
Total PFOA and PFOS	TOTPFOAPFOS	NS	NS	NS	mg/kg	0.000311	<0.000245 U	0.000088 J	<0.00031 U	0.000931	0.000092 J	0.000572 J	0.000726 J	0.000214 J	0.00015 J	0.000225 J	NA	NA
General Chemistry																		
Solids, Percent	SOLID	NS	NS	NS	Percent	87.2	90.1	70.7	73.6	88.5	84.3	87.2	85.4	88.9	87.1	87.8	63.4	73.8

Table 3A
Remedial Investigation Report
Soil Sample Analytical Results

C Block
Brooklyn, New York
NYSDEC BCP Site No.: C224435
Langan Project No.: 170229030

Analyte	CAS Number	NYSDEC Part 375 Unrestricted Use SCOs	NYSDEC Part 375 Protection of Groundwater SCOs	NYSDEC Part 375 Restricted Use Restricted-Residential SCOs	Location	SB11	SB11	SB12	SB12	SB13	SB13	SB14	SB14	SB15	SB15	SB16	SB16
					Sample Name	SB11_0-2	SB11_6-8	SB12_0-2	SB12_5-7	SB13_0-2	SB13_2-4	SB14_0-2	SB14_6-8	SB15_0-2	SB15_6-8	SB16_0-2	SB16_12-14
					Sample Date	07/27/2022	07/27/2022	07/25/2022	07/25/2022	07/27/2022	07/27/2022	07/26/2022	07/26/2022	08/03/2022	08/03/2022	08/03/2022	08/03/2022
					Sample Depth	0-2	6-8	0-2	5-7	0-2	2-4	0-2	6-8	0-2	6-8	0-2	12-14
					Unit	Result	Result	Result	Result	Result	Result	Result	Result	Result	Result	Result	Result
Volatile Organic Compounds																	
1,1,1,2-Tetrachloroethane	630-20-6	NS	NS	NS	mg/kg	<0.00069 U	<0.00067 U	<0.00076 U	<0.00057 U	<0.00079 U	<0.0009 U	<0.0012 UJ	<0.049 U	<0.00087 U	<0.0012 U	<0.00058 UJ	<0.00048 U
1,1,1-Trichloroethane	71-55-6	0.68	0.68	100	mg/kg	<0.00069 U	<0.00067 U	<0.00076 U	<0.00057 U	<0.00079 U	<0.0009 U	<0.0012 UJ	<0.049 U	<0.00087 U	<0.0012 U	<0.00058 UJ	<0.00048 U
1,1,2,2-Tetrachloroethane	79-34-5	NS	NS	NS	mg/kg	<0.00069 U	<0.00067 U	<0.00076 U	<0.00057 U	<0.00079 U	<0.0009 U	<0.0012 UJ	<0.049 U	<0.00087 U	<0.0012 U	<0.00058 UJ	<0.00048 U
1,1,2-Trichloroethane	79-00-5	NS	NS	NS	mg/kg	<0.0014 U	<0.0013 U	<0.0015 U	<0.0011 U	<0.0016 U	<0.0018 U	<0.0024 UJ	<0.098 U	<0.0017 U	<0.0023 U	<0.0012 UJ	<0.00096 U
1,1-Dichloroethane	75-34-3	0.27	0.27	47	mg/kg	<0.0014 U	<0.0013 U	<0.0015 U	<0.0011 U	<0.0016 U	<0.0018 U	<0.0024 UJ	<0.098 U	<0.0017 U	<0.0023 U	<0.0012 UJ	<0.00096 U
1,1-Dichloroethene	75-35-4	0.24	0.33	0.98	mg/kg	<0.0014 U	<0.0013 U	<0.0015 U	<0.0011 U	<0.0016 U	<0.0018 U	<0.0024 UJ	<0.098 U	<0.0017 U	<0.0023 U	<0.0012 UJ	<0.00096 U
1,1-Dichloropropene	563-58-6	NS	NS	NS	mg/kg	<0.00069 U	<0.00067 U	<0.00076 U	<0.00057 U	<0.00079 U	<0.0009 U	<0.0012 UJ	<0.049 U	<0.00087 U	<0.0012 U	<0.00058 UJ	<0.00048 U
1,2,3-Trichlorobenzene	87-61-6	NS	NS	NS	mg/kg	<0.0028 U	<0.0027 U	<0.003 U	<0.0023 U	<0.0032 U	<0.0036 U	<0.0047 UJ	<0.2 U	<0.0035 U	<0.0047 U	<0.0023 UJ	<0.0019 U
1,2,3-Trichloropropane	96-18-4	NS	NS	NS	mg/kg	<0.0028 U	<0.0027 U	<0.003 U	<0.0023 U	<0.0032 U	<0.0036 U	<0.0047 UJ	<0.2 U	<0.0035 U	<0.0047 U	<0.0023 UJ	<0.0019 U
1,2,4,5-Tetramethylbenzene	95-93-2	NS	NS	NS	mg/kg	<0.0028 U	<0.0027 U	<0.003 U	<0.0023 U	<0.0032 U	<0.0036 U	<0.0047 UJ	0.097 J	<0.0035 U	<0.0047 U	<0.0023 UJ	<0.0019 U
1,2,4-Trichlorobenzene	120-82-1	NS	NS	NS	mg/kg	<0.0028 U	<0.0027 U	<0.003 U	<0.0023 U	<0.0032 U	<0.0036 U	<0.0047 UJ	<0.2 U	<0.0035 U	<0.0047 U	<0.0023 UJ	<0.0019 U
1,2,4-Trimethylbenzene	95-63-6	5.9	5.9	100	mg/kg	<0.0028 U	<0.0027 U	<0.003 U	<0.0023 U	<0.0032 U	<0.0036 U	<0.0047 UJ	0.19 J	<0.0035 U	<0.0047 U	<0.0023 UJ	<0.0019 U
1,2-Dibromo-3-Chloropropane	96-12-8	NS	NS	NS	mg/kg	<0.0042 U	<0.004 U	<0.0046 U	<0.0034 U	<0.0047 U	<0.0054 U	<0.0071 UJ	<0.29 U	<0.0052 U	<0.007 U	<0.0035 UJ	<0.0029 U
1,2-Dibromoethane (Ethylene Dibromide)	106-93-4	NS	NS	NS	mg/kg	<0.0014 U	<0.0013 U	<0.0015 U	<0.0011 U	<0.0016 U	<0.0018 U	<0.0024 UJ	<0.098 U	<0.0017 U	<0.0023 U	<0.0012 UJ	<0.00096 U
1,2-Dichlorobenzene	95-50-1	1.1	1.1	100	mg/kg	<0.0028 U	<0.0027 U	<0.003 U	<0.0023 U	<0.0032 U	<0.0036 U	<0.0047 UJ	<0.2 U	<0.0035 U	<0.0047 U	<0.0023 UJ	<0.0019 U
1,2-Dichloroethane	107-06-2	0.02	0.02	5.8	mg/kg	<0.0014 U	<0.0013 U	<0.0015 U	<0.0011 U	<0.0016 U	<0.0018 U	<0.0024 UJ	<0.098 U	<0.0017 U	<0.0023 U	<0.0012 UJ	<0.00096 U
1,2-Dichloropropane	78-87-5	NS	NS	NS	mg/kg	<0.0014 U	<0.0013 U	<0.0015 U	<0.0011 U	<0.0016 U	<0.0018 U	<0.0024 UJ	<0.098 U	<0.0017 U	<0.0023 U	<0.0012 UJ	<0.00096 U
1,3,5-Trimethylbenzene (Mesitylene)	108-67-8	3.1	3.1	100	mg/kg	<0.0028 U	<0.0027 U	<0.003 U	<0.0023 U	<0.0032 U	<0.0036 U	<0.0047 UJ	0.089 J	<0.0035 U	<0.0047 U	<0.0023 UJ	<0.0019 U
1,3-Dichlorobenzene	541-73-1	2.6	2.6	38	mg/kg	<0.0028 U	<0.0027 U	<0.003 U	<0.0023 U	<0.0032 U	<0.0036 U	<0.0047 UJ	<0.2 U	<0.0035 U	<0.0047 U	<0.0023 UJ	<0.0019 U
1,3-Dichloropropane	142-28-9	NS	NS	NS	mg/kg	<0.0028 U	<0.0027 U	<0.003 U	<0.0023 U	<0.0032 U	<0.0036 U	<0.0047 UJ	<0.2 U	<0.0035 U	<0.0047 U	<0.0023 UJ	<0.0019 U
1,4-Dichlorobenzene	106-46-7	1.8	1.8	24	mg/kg	<0.0028 U	<0.0027 U	<0.003 U	<0.0023 U	<0.0032 U	<0.0036 U	<0.0047 UJ	<0.2 U	<0.0035 U	<0.0047 U	<0.0023 UJ	<0.0019 U
1,4-Diethyl Benzene	105-05-5	NS	NS	NS	mg/kg	<0.0028 U	<0.0027 U	<0.003 U	<0.0023 U	<0.0032 U	<0.0036 U	<0.0047 UJ	0.13 J	<0.0035 U	<0.0047 U	<0.0023 UJ	<0.0019 U
1,4-Dioxane (P-Dioxane)	123-91-1	0.1	0.1	5.7	mg/kg	<0.11 U	<0.11 U	<0.12 U	<0.091 U	<0.13 U	<0.14 U	<0.19 UJ	<7.8 U	<0.14 U	<0.19 U	<0.092 UJ	<0.077 U
2,2-Dichloropropane	594-20-7	NS	NS	NS	mg/kg	<0.0028 U	<0.0027 U	<0.003 U	<0.0023 U	<0.0032 U	<0.0036 U	<0.0047 UJ	<0.2 U	<0.0035 U	<0.0047 U	<0.0023 UJ	<0.0019 U
2-Chlorotoluene	95-49-8	NS	NS	NS	mg/kg	<0.0028 U	<0.0027 U	<0.003 U	<0.0023 U	<0.0032 U	<0.0036 U	<0.0047 UJ	<0.2 U	<0.0035 U	<0.0047 U	<0.0023 UJ	<0.0019 U
2-Hexanone (MBK)	591-78-6	NS	NS	NS	mg/kg	<0.014 U	<0.013 U	<0.015 U	<0.011 U	<0.016 U	<0.018 U	<0.024 UJ	<0.98 U	<0.017 U	<0.023 U	<0.012 UJ	<0.0096 U
4-Chlorotoluene	106-43-4	NS	NS	NS	mg/kg	<0.0028 U	<0.0027 U	<0.003 U	<0.0023 U	<0.0032 U	<0.0036 U	<0.0047 UJ	<0.2 U	<0.0035 U	<0.0047 U	<0.0023 UJ	<0.0019 U
4-Ethyltoluene	622-96-8	NS	NS	NS	mg/kg	<0.0028 U	<0.0027 U	<0.003 U	<0.0023 U	<0.0032 U	<0.0036 U	<0.0047 UJ	0.13 J	<0.0035 U	<0.0047 U	<0.0023 UJ	<0.0019 U
Acetone	67-64-1	**0.03**	0.03	100	mg/kg	<0.014 U	<0.013 U	<0.015 U	<0.011 U	<0.016 U	<0.018 U	0.013 J	<0.98 U	<0.017 U	0.018 J	0.014 J	0.022
Acrylonitrile	107-13-1	NS	NS	NS	mg/kg	<0.0055 U	<0.0054 U	<0.0061 U	<0.0046 U	<0.0063 U	<0.0072 U	<0.0095 UJ	<0.39 U	<0.0069 U	<0.0094 U	<0.0046 UJ	<0.0038 U
Benzene	71-43-2	**0.06**	0.06	3.7	mg/kg	<0.00069 U	<0.00067 U	<0.00076 U	<0.00057 U	<0.00079 U	<0.0009 U	0.00045 J	0.028 J	0.00058 J	<0.0012 U	0.0004 J	<0.00048 U
Bromobenzene	108-86-1	NS	NS	NS	mg/kg	<0.0028 U	<0.0027 U	<0.003 U	<0.0023 U	<0.0032 U	<0.0036 U	<0.0047 UJ	<0.2 U	<0.0035 U	<0.0047 U	<0.0023 UJ	<0.0019 U
Bromochloromethane	74-97-5	NS	NS	NS	mg/kg	<0.0028 U	<0.0027 U	<0.003 U	<0.0023 U	<0.0032 U	<0.0036 U	<0.0047 UJ	<0.2 U	<0.0035 U	<0.0047 U	<0.0023 UJ	<0.0019 U
Bromodichloromethane	75-27-4	NS	NS	NS	mg/kg	<0.00069 U	<0.00067 U	<0.00076 U	<0.00057 U	<0.00079 U	<0.0009 U	<0.0012 UJ	<0.049 U	<0.00087 U	<0.0012 U	<0.00058 UJ	<0.00048 U
Bromoform	75-25-2	NS	NS	NS	mg/kg	<0.0055 U	<0.0054 U	<0.0061 U	<0.0046 U	<0.0063 U	<0.0072 U	<0.0095 UJ	<0.39 U	<0.0069 U	<0.0094 U	<0.0046 UJ	<0.0038 U
Bromomethane	74-83-9	NS	NS	NS	mg/kg	<0.0028 U	<0.0027 U	<0.003 U	<0.0023 U	<0.0032 U	<0.0036 U	<0.0047 UJ	<0.2 U	<0.0035 U	<0.0047 U	<0.0023 UJ	<0.0019 U
Carbon Disulfide	75-15-0	NS	NS	NS	mg/kg	<0.014 U	<0.013 U	<0.015 U	<0.011 U	<0.016 U	<0.018 U	<0.024 UJ	<0.98 U	<0.017 U	<0.023 U	<0.012 UJ	<0.0096 U
Carbon Tetrachloride	56-23-5	0.76	0.76	7.1	mg/kg	<0.0014 U	<0.0013 U	<0.0015 U	<0.0011 U	<0.0016 U	<0.0018 U	<0.0024 UJ	0.46	<0.0017 U	<0.0023 U	<0.0012 UJ	<0.00096 U
Chlorobenzene	108-90-7	4.5	4.5	100	mg/kg	<0.00069 U	<0.00067 U	<0.00076 U	<0.00057 U	<0.00079 U	<0.0009 U	<0.0012 UJ	<0.049 U	<0.00087 U	<0.0012 U	<0.00058 UJ	<0.00048 U
Chloroethane	75-00-3	NS	NS	NS	mg/kg	<0.0028 U	<0.0027 U	<0.003 U	<0.0023 U	<0.0032 U	<0.0036 U	<0.0047 UJ	<0.2 U	<0.0035 U	<0.0047 U	<0.0023 UJ	<0.0019 U
Chloroform	67-66-3	0.37	0.37	24	mg/kg	<0.0021 U	<0.002 U	<0.0023 U	<0.0017 U	<0.0024 U	<0.0027 U	<0.0036 UJ	0.14 J	<0.0026 U	<0.0035 U	<0.0017 UJ	<0.0014 U
Chloromethane	74-87-3	NS	NS	NS	mg/kg	<0.0055 U	<0.0054 U	<0.0061 U	<0.0046 U	<0.0063 U	<0.0072 U	<0.0095 UJ	<0.39 U	<0.0069 U	<0.0094 U	<0.0046 UJ	<0.0038 U
Cis-1,2-Dichloroethene	156-59-2	0.19	0.19	41	mg/kg	<0.0014 U	<0.0013 U	<0.0015 U	<0.0011 U	<0.0016 U	<0.0018 U	<0.0024 UJ	<0.098 U	<0.0017 U	<0.0023 U	<0.0012 UJ	<0.00096 U
Cis-1,3-Dichloropropene	10061-01-5	NS	NS	NS	mg/kg	<0.00069 U	<0.00067 U	<0.00076 U	<0.00057 U	<0.00079 U	<0.0009 U	<0.0012 UJ	<0.049 U	<0.00087 U	<0.0012 U	<0.00058 UJ	<0.00048 U
Cymene	99-87-6	NS	NS	NS	mg/kg	0.00066 J	0.00015 J	<0.0015 U	<0.0011 U	<0.0016 U	<0.0018 U	<0.0024 UJ	0.015 J	<0.0017 U	<0.0023 U	<0.0012 UJ	<0.00096 U
Dibromochloromethane	124-48-1	NS	NS	NS	mg/kg	<0.0014 U	<0.0013 U	<0.0015 U	<0.0011 U	<0.0016 U	<0.0018 U	<0.0024 UJ	<0.098 U	<0.0017 U	<0.0023 U	<0.0012 UJ	<0.00096 U
Dibromomethane	74-95-3	NS	NS	NS	mg/kg	<0.0028 U	<0.0027 U	<0.003 U	<0.0023 U	<0.0032 U	<0.0036 U	<0.0047 UJ	<0.2 U	<0.0035 U	<0.0047 U	<0.0023 UJ	<0.0019 U
Dichlorodifluoromethane	75-71-8	NS	NS	NS	mg/kg	<0.014 U	<0.013 U	<0.015 U	<0.011 U	<0.016 U	<0.018 U	<0.024 UJ	<0.98 U	<0.017 U	<0.023 U	<0.012 UJ	<0.0096 U
Diethyl Ether (Ethyl Ether)	60-29-7	NS	NS	NS	mg/kg	<0.0028 U	<0.0027 U	<0.003 U	<0.0023 U	<0.0032 U	<0.0036 U	<0.0047 UJ	<0.2 U	<0.0035 U	<0.0047 U	<0.0023 UJ	<0.0019 U
Ethylbenzene	100-41-4	1	1	76	mg/kg	<0.0014 U	<0.0013 U	<0.0015 U	<0.0011 U	<0.0016 U	<0.0018 U	<0.0024 UJ	0.067 J	<0.0017 U	<0.0023 U	<0.0012 UJ	<0.00096 U
Hexachlorobutadiene	87-68-3	NS	NS	NS	mg/kg	<0.0055 U	<0.0054 U	<0.0061 U	<0.0046 U	<0.0063 U	<0.0072 U	<0.0095 UJ	<0.39 U	<0.0069 U	<0.0094 U	<0.0046 UJ	<0.0038 U
Isopropylbenzene (Cumene)	98-82-8	NS	NS	NS	mg/kg	<0.0014 U	<0.0013 U	<0.0015 U	<0.0011 U	<0.0016 U	<0.0018 U	<0.0024 UJ	0.014 J	<0.0017 U	<0.0023 U	<0.0012 UJ	<0.00096 U
M,P-Xylene	179601-23-1	NS	NS	NS	mg/kg	<0.0028 U	<0.0027 U	<0.003 U	<0.0023 U	<0.0032 U	<0.0036 U	<0.0047 UJ	0.13 J	<0.0035 U	<0.0047 U	<0.0023 UJ	<0.0019 U
Methyl Ethyl Ketone (2-Butanone)	78-93-3	0.1	0.1	100	mg/kg	<0.014 U	<0.013 U	<0.015 U	<0.011 U	<0.016 U	<0.018 U	<0.024 UJ	<0.98 U	<0.017 U	<0.023 U	<0.012 UJ	0.0027 J
Methyl Isobutyl Ketone (4-Methyl-2-Pentanone)	108-10-1	NS	NS	NS	mg/kg	<0.014 U	<0.013 U	<0.015 U	<0.011 U	<0.016 U	<0.018 U	<0.024 UJ	<0.98 U	<0.017 U	<0.023 U	<0.012 UJ	<0.0096 U
Methylene Chloride	75-09-2	0.05	0.05	81	mg/kg	<0.0069 U	<0.0067 U	<0.0076 U	<0.0057 U	<0.0079 U	<0.009 U	<0.012 UJ	<0.49 U	<0.0087 U	<0.012 U	<0.0058 UJ	<0.0048 U
Naphthalene	91-20-3	**12**	12	100	mg/kg	<0.0055 U	<0.0054 U	<0.0061 U	<0.0046 U	<0.0063 U	<0.0072 U	<0.0095 UJ	**39**	<0.0069 U	<0.0094 U	<0.0046 UJ	<0.0038 U
n-Butylbenzene	104-51-8	18	18	100	mg/kg	<0.0014 U	<0.0013 U	<0.0015 U	<0.0011 U	<0.0016 U	<0.0018 U	<0.0024 UJ	<0.098 U	<0.0017 U	<0.0023 U	<0.0012 UJ	<0.00096 U
n-Propylbenzene	103-65-1	5	5	100	mg/kg	<0.0014 U	<0.0013 U	<0.0015 U	<0.0011 U	<0.0016 U	<0.0018 U	<0.0024 UJ	<0.098 U	<0.0017 U	<0.0023 U	<0.0012 UJ	<0.00096 U
o-Xylene (1,2-Dimethylbenzene)	95-47-6	NS	NS	NS	mg/kg	<0.0014 U	<0.0013 U	<0.0015 U	<0.0011 U	<0.0016 U	<0.0018 U	<0.0024 UJ	0.072 J	<0.0017 U	<0.0023 U	<0.0012 UJ	<0.00096 U
Sec-Butylbenzene	135-98-8	25	25	100	mg/kg	<0.0014 U	<0.0013 U	<0.0015 U	<0.0011 U	<0.0016 U	<0.0018 U	<0.0024 UJ	<0.098 U	<0.0017 U	<0.0023 U	<0.0012 UJ	<0.00096 U
Styrene	100-42-5	NS	NS	NS	mg/kg	<0.0014 U	<0.0013 U	<0.0015 U	<0.0011 U	<0.0016 U	<0.0018 U	<0.0024 UJ	0.051 J	<0.0017 U	<0.0023 U	<0.0012 UJ	<0.00096 U
T-Butylbenzene	98-06-6	11	11	100	mg/kg	<0.0028 U	<0.0027 U	<0.003 U	<0.0023 U	<0.0032 U	<0.0036 U	<0.0047 UJ	<0.2 U	<0.0035 U	<0.0047 U	<0.0023 UJ	<0.0019 U
Tert-Butyl Methyl Ether (MTBE)	1634-04-4	0.1	0.1	100	mg/kg	<0.0028 U	<0.0027 U	<0.003 U	<0.0023 U	<0.0032 U	<0.0036 U	<0.0047 UJ	<0.2 U	0.0008 J	0.006	<0.0023 UJ	<0.0019 U
Tetrachloroethene (PCE)	127-18-4	1.3	1.3	18	mg/kg	<0.00069 U	<0.00067 U	<0.00076 U	<0.00057 U	<0.00079 U	<0.0009 U	<0.0012 UJ	<0.049 U	<0.00087 U	<0.0012 U	<0.00058 UJ	<0.00048 U
Toluene	108-88-3	**0.7**	0.7	100	mg/kg	<0.0014 U	<0.0013 U	<0.0015 U	<0.0011 U	<0.0016 U	<0.0018 U	<0.0024 UJ	0.1	<0.0017 U	<0.0023 U	<0.0012 UJ	<0.00096 U
Total 1,2-Dichloroethene (Cis and Trans)	540-59-0	NS	NS	NS	mg/kg	<0.0014 U	<0.0013 U	<0.0015 U	<0.0011 U	<0.0016 U	<0.0018 U	<0.0024 UJ	<0.098 U	<0.0017 U	<0.0023 U	<0.0012 UJ	<0.00096 U
Total Xylenes	1330-20-7	**0.26**	1.2	100	mg/kg	<0.0014 U	<0.0013 U	<0.0015 U	<0.0011 U	<0.0016 U	<0.0018 U	<0.0024 UJ	0.2 J	<0.0017 U	<0.0023 U	<0.0012 UJ	<0.00096 U
Total, 1,3-Dichloropropene (Cis And Trans)	542-75-6	NS	NS	NS	mg/kg	<0.00069 U	<0.00067 U	<0.00076 U	<0.00057 U	<0.00079 U	<0.0009 U	<0.0012 UJ	<0.049 U	<0.00087 U	<0.0012 U	<0.00058 UJ	<0.00048 U
Trans-1,2-Dichloroethene	156-60-5	0.19	0.19	100	mg/kg	<0.0021 U	<0.002 U	<0.0023 U	<0.0017 U	<0.0024 U	<0.0027 U	<0.0036 UJ	<0.15 U	<0.0026 U	<0.0035 U	<0.0017 UJ	<0.0014 U
Trans-1,3-Dichloropropene	10061-02-6	NS	NS	NS	mg/kg	<0.0014 U	<0.0013 U	<0.0015 U	<0.0011 U	<0.0016 U	<0.0018 U	<0.0024 UJ	<0.098 U	<0.0017 U	<0.0023 U	<0.0012 UJ	<0.00096 U
Trans-1,4-Dichloro-2-Butene	110-57-6	NS	NS	NS	mg/kg	<0.0069 U	<0.0067 U	<0.0076 U	<0.0057 U	<0.0079 U	<0.009 U	<0.012 UJ	<0.49 U	<0.0087 U	<0.012 U	<0.0058 UJ	<0.0048 U
Trichloroethene (TCE)	79-01-6	0.47	0.47	6.4	mg/kg	<0.00069 U	<0.00067 U	<0.00076 U	<0.00057 U	<0.00079 U	<0.0009 U	<0.0012 UJ	<0.049 U	<0.00087 U	<0.0012 U	<0.00058 UJ	<0.00048 U
Trichlorofluoromethane	75-69-4	NS	NS	NS	mg/kg	<0.0055 U	<0.0054 U	<0.0061 U	<0.0046 U	<0.0063 U	<0.0072 U	<0.0095 UJ	<0.39 U	<0.0069 U	<0.0094 U	<0.0046 UJ	<0.0038 U
Vinyl Acetate	108-05-4	NS	NS	NS	mg/kg	<0.014 UJ	<0.013 UJ	<0.015 U	<0.011 U	<0.016 UJ	<0.018 U	<0.024 UJ	<0.98 U	<0.017 U	<0.023 U	<0.012 UJ	<0.0096 U
Vinyl Chloride	75-01-4	0.03	0.03	0.48	mg/kg	<0.0014 U	<0.0013 U	<0.0015 U	<0.0011 U	<0.0016 U	<0.0018 U	<0.0024 UJ	<0.098 U	<0.0017 U	<0.0023 U	<0.0012 UJ	<0.00096 U

Table 3A
Remedial Investigation Report
Soil Sample Analytical Results

C Block
Brooklyn, New York
NYSDEC BCP Site No.: C224435
Langan Project No.: 170229030

Analyte	CAS Number	NYSDEC Part 375 Unrestricted Use SCOs	NYSDEC Part 375 Protection of Groundwater SCOs	NYSDEC Part 375 Restricted Use Restricted-Residential SCOs	Location	SB11	SB11	SB12	SB12	SB13	SB13	SB14	SB14	SB15	SB15	SB16	SB16
					Sample Name	SB11_0-2	SB11_6-8	SB12_0-2	SB12_5-7	SB13_0-2	SB13_2-4	SB14_0-2	SB14_6-8	SB15_0-2	SB15_6-8	SB16_0-2	SB16_12-14
					Sample Date	07/27/2022	07/27/2022	07/25/2022	07/25/2022	07/27/2022	07/27/2022	07/26/2022	07/26/2022	08/03/2022	08/03/2022	08/03/2022	08/03/2022
					Sample Depth	0-2	6-8	0-2	5-7	0-2	2-4	0-2	6-8	0-2	6-8	0-2	12-14
					Unit	Result	Result	Result	Result	Result	Result	Result	Result	Result	Result	Result	Result
Semi-Volatile Organic Compounds																	
1,2,4,5-Tetrachlorobenzene	95-94-3	NS	NS	NS	mg/kg	<0.19 U	<0.22 U	<0.96 U	<0.2 U	<0.19 U	<0.2 U	<1.9 U	<1.9 U	<0.18 U	<0.2 U	<0.19 U	<0.2 U
1,2,4-Trichlorobenzene	120-82-1	NS	NS	NS	mg/kg	<0.19 U	<0.22 U	<0.96 U	<0.2 U	<0.19 U	<0.2 U	<1.9 U	<1.9 U	<0.18 U	<0.2 U	<0.19 U	<0.2 U
1,2-Dichlorobenzene	95-50-1	1.1	1.1	100	mg/kg	<0.19 U	<0.22 U	<0.96 U	<0.2 U	<0.19 U	<0.2 U	<1.9 U	<1.9 U	<0.18 U	<0.2 U	<0.19 U	<0.2 U
1,3-Dichlorobenzene	541-73-1	2.6	2.6	38	mg/kg	<0.19 U	<0.22 U	<0.96 U	<0.2 U	<0.19 U	<0.2 U	<1.9 U	<1.9 U	<0.18 U	<0.2 U	<0.19 U	<0.2 U
1,4-Dichlorobenzene	106-46-7	1.8	1.8	24	mg/kg	0.054 J	<0.22 U	<0.96 U	<0.2 U	<0.19 U	<0.2 U	<1.9 U	<1.9 U	<0.18 U	<0.2 U	<0.19 U	<0.2 U
1,4-Dioxane (P-Dioxane)	123-91-1	0.1	0.1	5.7	mg/kg	<0.028 U	<0.033 U	<0.14 U	<0.03 U	<0.029 U	<0.03 U	<0.28 U	<0.28 U	<0.027 U	<0.029 U	<0.028 U	<0.03 U
2,4,5-Trichlorophenol	95-95-4	NS	NS	NS	mg/kg	<0.19 U	<0.22 U	<0.96 U	<0.2 U	<0.19 U	<0.2 U	<1.9 U	<1.9 U	<0.18 U	<0.2 U	<0.19 U	<0.2 U
2,4,6-Trichlorophenol	88-06-2	NS	NS	NS	mg/kg	<0.11 U	<0.13 U	<0.58 U	<0.12 U	<0.12 U	<0.12 U	<1.1 U	<1.1 U	<0.11 U	<0.12 U	<0.11 U	<0.12 U
2,4-Dichlorophenol	120-83-2	NS	NS	NS	mg/kg	<0.17 U	<0.2 U	<0.86 U	<0.18 U	<0.17 U	<0.18 U	<1.7 U	<1.7 U	<0.16 U	<0.18 U	<0.17 U	<0.18 U
2,4-Dimethylphenol	105-67-9	NS	NS	NS	mg/kg	<0.19 U	<0.22 U	0.58 J	0.082 J	<0.19 U	<0.2 U	<1.9 U	1.7 J	<0.18 U	<0.2 U	<0.19 U	<0.2 U
2,4-Dinitrophenol	51-28-5	NS	NS	NS	mg/kg	<0.91 U	<1.1 U	<4.6 U	<0.96 U	<0.92 U	<0.95 U	<9.1 U	<9 U	<0.87 UJ	<0.94 UJ	<0.89 UJ	<0.97 UJ
2,4-Dinitrotoluene	121-14-2	NS	NS	NS	mg/kg	<0.19 U	<0.22 U	<0.96 U	<0.2 U	<0.19 U	<0.2 U	<1.9 U	<1.9 U	<0.18 U	<0.2 U	<0.19 U	<0.2 U
2,6-Dinitrotoluene	606-20-2	NS	NS	NS	mg/kg	<0.19 U	<0.22 U	<0.96 U	<0.2 U	<0.19 U	<0.2 U	<1.9 U	<1.9 U	<0.18 U	<0.2 U	<0.19 U	<0.2 U
2-Chloronaphthalene	91-58-7	NS	NS	NS	mg/kg	<0.19 U	<0.22 U	<0.96 U	<0.2 U	<0.19 U	<0.2 U	<1.9 U	<1.9 U	<0.18 U	<0.2 U	<0.19 U	<0.2 U
2-Chlorophenol	95-57-8	NS	NS	NS	mg/kg	<0.19 U	<0.22 U	<0.96 U	<0.2 U	<0.19 U	<0.2 U	<1.9 U	<1.9 U	<0.18 U	<0.2 U	<0.19 U	<0.2 U
2-Methylnaphthalene	91-57-6	NS	NS	NS	mg/kg	0.87	0.07 J	20	3.2	1.8	0.14 J	1.9 J	30	0.21 J	0.41	0.15 J	<0.24 U
2-Methylphenol (o-Cresol)	95-48-7	**0.33**	0.33	100	mg/kg	<0.19 U	<0.22 U	**0.48 J**	0.24	<0.19 U	<0.2 U	<1.9 U	**1.7 J**	<0.18 U	<0.2 U	<0.19 U	<0.2 U
2-Nitroaniline	88-74-4	NS	NS	NS	mg/kg	<0.19 U	<0.22 U	<0.96 U	<0.2 U	<0.19 U	<0.2 U	<1.9 U	<1.9 U	<0.18 U	<0.2 U	<0.19 U	<0.2 U
2-Nitrophenol	88-75-5	NS	NS	NS	mg/kg	<0.41 U	<0.48 U	<2.1 U	<0.43 U	<0.42 U	<0.43 U	<4.1 U	<4.1 U	<0.39 U	<0.42 U	<0.4 U	<0.44 U
3 & 4 Methylphenol (m&p Cresol)	65794-96-9	**0.33**	0.33	100	mg/kg	<0.27 U	<0.32 U	**1.5**	**0.77**	0.079 J	<0.29 U	<2.7 U	**4.7**	<0.26 U	0.083 J	<0.27 U	<0.29 U
3,3'-Dichlorobenzidine	91-94-1	NS	NS	NS	mg/kg	<0.19 U	<0.22 U	<0.96 U	<0.2 U	<0.19 U	<0.2 U	<1.9 U	<1.9 U	<0.18 U	<0.2 U	<0.19 U	<0.2 U
3-Nitroaniline	99-09-2	NS	NS	NS	mg/kg	<0.19 U	<0.22 U	<0.96 U	<0.2 U	<0.19 U	<0.2 U	<1.9 U	<1.9 U	<0.18 U	<0.2 U	<0.19 U	<0.2 U
4,6-Dinitro-2-Methylphenol	534-52-1	NS	NS	NS	mg/kg	<0.49 U	<0.58 U	<2.5 U	<0.52 U	<0.5 U	<0.52 U	<4.9 U	<4.9 U	<0.47 U	<0.51 U	<0.48 U	<0.52 U
4-Bromophenyl Phenyl Ether	101-55-3	NS	NS	NS	mg/kg	<0.19 U	<0.22 U	<0.96 U	<0.2 U	<0.19 U	<0.2 U	<1.9 U	<1.9 U	<0.18 U	<0.2 U	<0.19 U	<0.2 U
4-Chloro-3-Methylphenol	59-50-7	NS	NS	NS	mg/kg	<0.19 U	<0.22 U	<0.96 U	<0.2 U	<0.19 U	<0.2 U	<1.9 U	<1.9 U	<0.18 U	<0.2 U	<0.19 U	<0.2 U
4-Chloroaniline	106-47-8	NS	NS	NS	mg/kg	<0.19 U	<0.22 U	<0.96 U	<0.2 U	<0.19 U	<0.2 U	<1.9 U	<1.9 U	<0.18 U	<0.2 U	<0.19 U	<0.2 U
4-Chlorophenyl Phenyl Ether	7005-72-3	NS	NS	NS	mg/kg	<0.19 U	<0.22 U	<0.96 U	<0.2 U	<0.19 U	<0.2 U	<1.9 U	<1.9 U	<0.18 U	<0.2 U	<0.19 U	<0.2 U
4-Nitroaniline	100-01-6	NS	NS	NS	mg/kg	<0.19 U	<0.22 U	<0.96 U	<0.2 U	<0.19 U	<0.2 U	<1.9 U	<1.9 U	<0.18 U	<0.2 U	<0.19 U	<0.2 U
4-Nitrophenol	100-02-7	NS	NS	NS	mg/kg	<0.27 U	<0.31 U	<1.3 U	<0.28 U	<0.27 U	<0.28 U	<2.6 U	<2.6 U	<0.25 U	<0.27 U	<0.26 U	<0.28 U
Acenaphthene	83-32-9	**20**	98	100	mg/kg	0.25	0.13 J	**52**	2.2	0.11 J	0.2	3.5	**38**	0.11 J	1.3	0.05 J	<0.16 U
Acenaphthylene	208-96-8	100	365	100	mg/kg	0.22	0.067 J	16	7.6	0.12 J	<0.16 U	0.72 J	14	0.092 J	0.41	0.11 J	<0.16 U
Acetophenone	98-86-2	NS	NS	NS	mg/kg	0.05 J	<0.22 U	<0.96 U	0.045 J	0.96	<0.2 U	<1.9 U	<1.9 U	<0.18 U	<0.2 U	<0.19 U	<0.2 U
Anthracene	120-12-7	**100**	1000	100	mg/kg	0.75	0.24	**150**	14	0.32	0.38	8.5	42	0.43	2.2	0.21	<0.12 U
Benzo(a)anthracene	56-55-3	**1**	1	1.4	mg/kg	**1.7**	0.74	**230**	**34**	0.66	0.65	**12**	**110**	**1.5**	**4.2**	0.84	<0.12 U
Benzo(a)pyrene	50-32-8	**1**	22	1	mg/kg	**1.5**	0.68	**230**	**29**	0.52	0.53	**14**	**130**	**1.6**	**4.2**	0.9	<0.16 U
Benzo(b)fluoranthene	205-99-2	**1**	2.1	1.4	mg/kg	**1.8**	0.74	**250**	**34**	0.68	0.6	**15**	**140**	**1.9**	**4.7**	1	<0.12 U
Benzo(g,h,i)Perylene	191-24-2	**0.64**	1000	4.9	mg/kg	**0.88**	0.37	**100**	**11**	0.36	0.24	**6.4**	**51**	**0.86**	**1.8**	0.5	<0.16 U
Benzo(k)fluoranthene	207-08-9	**0.8**	2	4.9	mg/kg	0.5	0.27	**32**	**5.9**	0.18	0.21	**5.3**	**22**	0.56	**1.4**	0.3	<0.12 U
Benzoic Acid	65-85-0	NS	NS	NS	mg/kg	<0.62 U	<0.72 U	<3.1 U	<0.65 U	<0.62 U	<0.64 U	<6.1 U	<6.1 U	<0.59 UJ	<0.64 UJ	<0.6 UJ	<0.65 UJ
Benzyl Alcohol	100-51-6	NS	NS	NS	mg/kg	<0.19 U	<0.22 U	<0.96 U	<0.2 U	<0.19 U	<0.2 U	<1.9 U	<1.9 U	<0.18 U	<0.2 U	<0.19 U	<0.2 U
Benzyl Butyl Phthalate	85-68-7	NS	NS	NS	mg/kg	<0.19 U	<0.22 U	<0.96 U	<0.2 U	<0.19 U	<0.2 U	<1.9 U	<1.9 U	<0.18 U	<0.2 U	<0.19 U	<0.2 U
Biphenyl (Diphenyl)	92-52-4	NS	NS	NS	mg/kg	0.21 J	<0.51 U	6.8	0.77	0.19 J	0.046 J	0.52 J	7.7	0.043 J	0.14 J	0.038 J	<0.46 U
Bis(2-chloroethoxy) methane	111-91-1	NS	NS	NS	mg/kg	<0.2 U	<0.24 U	<1 U	<0.22 U	<0.21 U	<0.21 U	<2 U	<2 U	<0.2 U	<0.21 U	<0.2 U	<0.22 U
Bis(2-chloroethyl) ether (2-chloroethyl ether)	111-44-4	NS	NS	NS	mg/kg	<0.17 U	<0.2 U	<0.86 U	<0.18 U	<0.17 U	<0.18 U	<1.7 U	<1.7 U	<0.16 U	<0.18 U	<0.17 U	<0.18 U
Bis(2-chloroisopropyl) ether	108-60-1	NS	NS	NS	mg/kg	<0.23 U	<0.27 U	<1.2 U	<0.24 U	<0.23 U	<0.24 U	<2.3 U	<2.2 U	<0.22 U	<0.24 U	<0.22 U	<0.24 U
Bis(2-ethylhexyl) phthalate	117-81-7	NS	NS	NS	mg/kg	<0.19 U	<0.22 U	<0.96 U	<0.2 U	<0.19 U	<0.2 U	<1.9 U	<1.9 U	<0.18 U	<0.2 U	<0.19 U	<0.2 U
Carbazole	86-74-8	NS	NS	NS	mg/kg	0.18 J	0.095 J	49	3.1	0.11 J	0.16 J	3.2	23	0.18	0.85	0.06 J	<0.2 U
Chrysene	218-01-9	**1**	1	4.9	mg/kg	**1.9**	0.72	**190**	**31**	0.98	0.69	**11**	**69**	**1.6**	**4.3**	0.85	<0.12 U
Dibenz(a,h)anthracene	53-70-3	**0.33**	1000	0.33	mg/kg	0.22	0.091 J	**31**	**4.5**	0.095 J	0.074 J	**1.6**	**12**	0.21	**0.5**	0.12	<0.12 U
Dibenzofuran	132-64-9	**2.1**	110	18	mg/kg	0.22	0.075 J	**48**	**5.1**	0.22	0.15 J	**3.1**	**32**	0.11 J	0.88	0.066 J	<0.2 U
Dibutyl phthalate	84-74-2	NS	NS	NS	mg/kg	0.04 J	<0.22 U	<0.96 U	<0.2 U	0.2	<0.2 U	<1.9 U	<1.9 U	<0.18 U	<0.2 U	<0.19 U	<0.2 U
Diethyl phthalate	84-66-2	NS	NS	NS	mg/kg	<0.19 U	<0.22 U	<0.96 U	<0.2 U	<0.19 U	<0.2 U	<1.9 U	<1.9 U	<0.18 U	<0.2 U	<0.19 U	<0.2 U
Dimethyl phthalate	131-11-3	NS	NS	NS	mg/kg	<0.19 U	<0.22 U	<0.96 U	<0.2 U	<0.19 U	<0.2 U	<1.9 U	<1.9 U	<0.18 U	<0.2 U	<0.19 U	<0.2 U
Dioctyl phthalate	117-84-0	NS	NS	NS	mg/kg	<0.19 U	<0.22 U	<0.96 U	<0.2 U	<0.19 U	<0.2 U	<1.9 U	<1.9 U	<0.18 U	<0.2 U	<0.19 U	<0.2 U
Fluoranthene	206-44-0	**85**	1000	100	mg/kg	3	1.4	**480**	60	1.3	1.3	30	**270**	3.3	10	1	<0.12 U
Fluorene	86-73-7	**30**	386	100	mg/kg	0.38	0.13 J	**76**	5	0.33	0.19 J	4.5	**37**	0.15 J	1.4	0.085 J	<0.2 U
Hexachlorobenzene	118-74-1	0.33	3.2	0.33	mg/kg	<0.11 U	<0.13 U	<0.58 U	<0.12 U	<0.12 U	<0.12 U	<1.1 U	<1.1 U	<0.11 U	<0.12 U	<0.11 U	<0.12 U
Hexachlorobutadiene	87-68-3	NS	NS	NS	mg/kg	<0.19 U	<0.22 U	<0.96 U	<0.2 U	<0.19 U	<0.2 U	<1.9 U	<1.9 U	<0.18 U	<0.2 U	<0.19 U	<0.2 U
Hexachlorocyclopentadiene	77-47-4	NS	NS	NS	mg/kg	<0.54 U	<0.64 U	<2.7 U	<0.58 U	<0.55 U	<0.57 U	<5.4 UJ	<5.4 UJ	<0.52 U	<0.56 U	<0.53 U	<0.58 U
Hexachloroethane	67-72-1	NS	NS	NS	mg/kg	<0.15 U	<0.18 U	<0.77 U	<0.16 U	<0.15 U	<0.16 U	<1.5 U	<1.5 U	<0.14 U	<0.16 U	<0.15 U	<0.16 U
Indeno(1,2,3-cd)pyrene	193-39-5	**0.5**	6.6	1.4	mg/kg	**0.93**	0.39	**130**	**14**	0.39	0.28	**8.2**	**62**	**1**	**2.2**	**0.57**	<0.16 U
Isophorone	78-59-1	NS	NS	NS	mg/kg	<0.17 U	<0.2 U	<0.86 U	<0.18 U	<0.17 U	<0.18 U	<1.7 U	<1.7 U	<0.16 U	<0.18 U	<0.17 U	<0.18 U
Naphthalene	91-20-3	**12**	12	100	mg/kg	0.5	0.15 J	**29**	5.3	2.2	0.12 J	3.5	**72**	0.27	0.93	0.16 J	<0.2 U
Nitrobenzene	98-95-3	0.08	0.08	1.8	mg/kg	<0.17 U	<0.2 U	<0.86 U	<0.18 U	<0.17 U	<0.18 U	<1.7 U	<1.7 U	<0.16 U	<0.18 U	<0.17 U	<0.18 U
n-Nitrosodi-N-Propylamine	621-64-7	NS	NS	NS	mg/kg	<0.19 U	<0.22 U	<0.96 U	<0.2 U	<0.19 U	<0.2 U	<1.9 U	<1.9 U	<0.18 U	<0.2 U	<0.19 U	<0.2 U
n-Nitrosodiphenylamine	86-30-6	NS	NS	NS	mg/kg	<0.15 U	<0.18 U	<0.77 U	<0.16 U	<0.15 U	<0.16 U	<1.5 U	<1.5 U	<0.14 U	<0.16 U	<0.15 U	<0.16 U
Pentachlorophenol	87-86-5	0.8	0.8	1.3	mg/kg	<0.15 U	<0.18 U	<0.77 U	<0.16 U	<0.15 U	<0.16 U	<1.5 U	<1.5 U	<0.14 U	<0.16 U	<0.15 U	<0.16 U
Phenanthrene	85-01-8	**1.1**	1000	4.9	mg/kg	**2.8**	**1.2**	**470**	**47**	**1.9**	**1.5**	**28**	**280**	**2**	**9.6**	0.71	<0.12 U
Phenol	108-95-2	**0.33**	0.33	100	mg/kg	<0.19 U	<0.22 U	**0.68 J**	**0.5**	<0.19 U	<0.2 U	<1.9 U	**2.4**	<0.18 U	0.044 J	<0.19 U	<0.2 U
Pyrene	129-00-0	**64**	1000	100	mg/kg	2.9	1.2	**400**	50	1.2	1.1	25	**240**	2.8	8.2	1	<0.12 U

Table 3A
Remedial Investigation Report
Soil Sample Analytical Results

C Block
Brooklyn, New York
NYSDEC BCP Site No.: C224435
Langan Project No.: 170229030

Analyte	CAS Number	NYSDEC Part 375 Unrestricted Use SCOs	NYSDEC Part 375 Protection of Groundwater SCOs	NYSDEC Part 375 Restricted Use Restricted-Residential SCOs	Location	SB11	SB11	SB12	SB12	SB13	SB13	SB14	SB14	SB15	SB15	SB16	SB16
					Sample Name	SB11_0-2	SB11_6-8	SB12_0-2	SB12_5-7	SB13_0-2	SB13_2-4	SB14_0-2	SB14_6-8	SB15_0-2	SB15_6-8	SB16_0-2	SB16_12-14
					Sample Date	07/27/2022	07/27/2022	07/25/2022	07/25/2022	07/27/2022	07/27/2022	07/26/2022	07/26/2022	08/03/2022	08/03/2022	08/03/2022	08/03/2022
					Sample Depth	0-2	6-8	0-2	5-7	0-2	2-4	0-2	6-8	0-2	6-8	0-2	12-14
					Unit	Result	Result	Result	Result	Result	Result	Result	Result	Result	Result	Result	Result
Pesticides																	
4,4'-DDD	72-54-8	**0.0033**	14	5	mg/kg	**0.00463 J**	<0.00214 U	<0.0018 U	<0.00191 U	**0.0474 J**	<0.00189 U	**0.0112 J**	<0.00174 U	**0.0653**	<0.00183 U	<0.00176 U	<0.00189 U
4,4'-DDE	72-55-9	**0.0033**	9.3	3.4	mg/kg	0.00205 J	<0.00214 U	<0.0018 U	<0.00191 U	**0.00784 J**	<0.00189 U	**0.00604 J**	<0.00174 U	**0.00589**	<0.00183 U	<0.00176 U	<0.00189 U
4,4'-DDT	50-29-3	**0.0033**	135	3.8	mg/kg	**0.00878 J**	<0.00214 U	<0.0018 U	<0.00191 U	**0.00571**	<0.00189 U	<0.00175 U	<0.00174 U	**0.01 J**	<0.00183 U	<0.00176 U	<0.00189 U
Aldrin	309-00-2	0.0048	0.19	0.044	mg/kg	<0.00181 U	<0.00214 U	<0.0018 U	<0.00191 U	<0.00177 U	<0.00189 U	<0.00175 U	<0.00174 U	<0.0017 U	<0.00183 U	<0.00176 U	<0.00189 U
Alpha BHC (Alpha Hexachlorocyclohexane)	319-84-6	0.02	0.02	0.18	mg/kg	<0.000754 U	<0.00089 U	<0.00075 U	<0.000796 U	<0.000738 U	<0.000788 U	<0.000728 U	<0.000727 U	<0.000709 U	<0.000764 U	<0.000733 U	<0.000786 U
Alpha Chlordane	5103-71-9	0.014	4.5	0.65	mg/kg	<0.00226 U	<0.00267 U	<0.00225 U	<0.00239 U	<0.00221 U	<0.00236 U	<0.00218 U	<0.00218 U	<0.00212 U	<0.00229 U	<0.0022 U	<0.00236 U
Alpha Endosulfan	959-98-8	4.3	65	35	mg/kg	<0.00181 U	<0.00214 U	<0.0018 U	<0.00191 U	<0.00177 U	<0.00189 U	<0.00175 U	<0.00174 U	<0.0017 U	<0.00183 U	<0.00176 U	<0.00189 U
Beta Bhc (Beta Hexachlorocyclohexane)	319-85-7	0.021	0.09	0.18	mg/kg	<0.00181 U	<0.00214 U	<0.0018 U	<0.00191 U	<0.00177 U	<0.00189 U	<0.00175 U	<0.00174 U	<0.0017 U	<0.00183 U	<0.00176 U	<0.00189 U
Beta Endosulfan	33213-65-9	4.3	44	35	mg/kg	<0.00181 U	<0.00214 U	<0.0018 U	<0.00191 U	<0.00177 U	<0.00189 U	<0.00175 U	<0.00174 U	<0.0017 U	<0.00183 U	<0.00176 U	<0.00189 U
Chlordane (alpha and gamma)	57-74-9	NS	NS	NS	mg/kg	<0.0151 U	<0.0178 U	<0.015 U	<0.0159 U	<0.0148 U	<0.0158 U	<0.0146 U	<0.0145 U	<0.0142 U	<0.0153 U	<0.0147 U	<0.0157 U
Delta Bhc (Delta Hexachlorocyclohexane)	319-86-8	0.04	0.1	100	mg/kg	<0.00181 U	<0.00214 U	<0.0018 U	<0.00191 U	<0.00177 U	<0.00189 U	<0.00175 U	<0.00174 U	<0.0017 U	<0.00183 U	<0.00176 U	<0.00189 U
Dieldrin	60-57-1	0.005	0.1	0.075	mg/kg	<0.00113 U	<0.00133 U	<0.00112 U	<0.00119 U	<0.00111 U	<0.00118 U	<0.00109 U	<0.00109 U	<0.00106 U	<0.00115 U	<0.0011 U	<0.00118 U
Endosulfan Sulfate	1031-07-8	4.3	47	35	mg/kg	<0.000754 U	<0.00089 U	<0.00075 U	<0.000796 U	<0.000738 U	<0.000788 U	<0.000728 U	<0.000727 U	<0.000709 U	<0.000764 U	<0.000733 U	<0.000786 U
Endrin	72-20-8	0.014	0.06	5.3	mg/kg	<0.000754 U	<0.00089 U	<0.00075 U	<0.000796 U	<0.000738 U	<0.000788 U	<0.000728 U	<0.000727 U	<0.000709 U	<0.000764 U	<0.000733 U	<0.000786 U
Endrin Aldehyde	7421-93-4	NS	NS	NS	mg/kg	<0.00226 U	<0.00267 U	<0.00225 U	<0.00239 U	<0.00221 U	<0.00236 U	<0.00218 U	<0.00218 U	<0.00212 U	<0.00229 U	<0.0022 U	<0.00236 U
Endrin Ketone	53494-70-5	NS	NS	NS	mg/kg	<0.00181 U	<0.00214 U	<0.0018 U	<0.00191 U	<0.00177 U	<0.00189 U	<0.00175 U	<0.00174 U	<0.0017 U	<0.00183 U	<0.00176 U	<0.00189 U
Gamma Bhc (Lindane)	58-89-9	0.025	0.05	0.21	mg/kg	<0.000754 U	<0.00089 U	<0.00075 U	<0.000796 U	<0.000738 U	<0.000788 U	<0.000728 U	<0.000727 U	<0.000709 U	<0.000764 U	<0.000733 U	<0.000786 U
Gamma Chlordane (Trans)	5103-74-2	NS	NS	NS	mg/kg	<0.00226 U	<0.00267 U	<0.00225 U	<0.00239 U	<0.00221 U	<0.00236 U	<0.00218 U	<0.00218 U	<0.00212 U	<0.00229 U	<0.0022 U	<0.00236 U
Heptachlor	76-44-8	0.013	0.38	0.53	mg/kg	<0.000905 U	<0.00107 U	<0.0009 U	<0.000955 U	<0.000886 U	<0.000946 U	<0.000873 U	<0.000872 U	<0.00085 U	<0.000917 U	<0.00088 U	<0.000943 U
Heptachlor Epoxide	1024-57-3	NS	NS	NS	mg/kg	<0.00339 U	<0.004 U	<0.00338 U	<0.00358 U	<0.00332 U	<0.00355 U	<0.00327 U	<0.00327 U	<0.00319 U	<0.00344 U	<0.0033 U	<0.00354 U
Methoxychlor	72-43-5	NS	NS	NS	mg/kg	<0.00339 U	<0.004 U	<0.00338 U	<0.00358 U	<0.00332 U	<0.00355 U	<0.00327 U	<0.00327 U	<0.00319 U	<0.00344 U	<0.0033 U	<0.00354 U
Toxaphene	8001-35-2	NS	NS	NS	mg/kg	<0.0339 U	<0.04 U	<0.0338 U	<0.0358 U	<0.0332 U	<0.0355 U	<0.0327 U	<0.0327 U	<0.0319 U	<0.0344 U	<0.033 U	<0.0354 U
Herbicides																	
2,4,5-T (Trichlorophenoxyacetic Acid)	93-76-5	NS	NS	NS	mg/kg	<0.19 U	<0.221 U	<0.194 U	<0.204 U	<0.193 U	<0.195 U	<0.19 U	<0.188 U	<0.185 U	<0.194 U	<0.184 U	<0.205 U
2,4-D (Dichlorophenoxyacetic Acid)	94-75-7	NS	NS	NS	mg/kg	<0.19 U	<0.221 U	<0.194 U	<0.204 U	<0.193 U	<0.195 U	<0.19 U	<0.188 U	<0.185 U	<0.194 U	<0.184 U	<0.205 U
Silvex (2,4,5-Tp)	93-72-1	3.8	3.8	100	mg/kg	<0.19 U	<0.221 U	<0.194 U	<0.204 U	<0.193 U	<0.195 U	<0.19 U	<0.188 U	<0.185 U	<0.194 U	<0.184 U	<0.205 U
Polychlorinated Biphenyl																	
PCB-1016 (Aroclor 1016)	12674-11-2	NS	NS	NS	mg/kg	<0.0366 U	<0.0428 U	<0.0385 U	<0.0399 U	<0.0377 U	<0.0385 U	<0.036 U	<0.0377 U	<0.0362 U	<0.0383 U	<0.0351 U	<0.0402 U
PCB-1221 (Aroclor 1221)	11104-28-2	NS	NS	NS	mg/kg	<0.0366 U	<0.0428 U	<0.0385 U	<0.0399 U	<0.0377 U	<0.0385 U	<0.036 U	<0.0377 U	<0.0362 U	<0.0383 U	<0.0351 U	<0.0402 U
PCB-1232 (Aroclor 1232)	11141-16-5	NS	NS	NS	mg/kg	<0.0366 U	<0.0428 U	<0.0385 U	<0.0399 U	<0.0377 U	<0.0385 U	<0.036 U	<0.0377 U	<0.0362 U	<0.0383 U	<0.0351 U	<0.0402 U
PCB-1242 (Aroclor 1242)	53469-21-9	NS	NS	NS	mg/kg	<0.0366 U	<0.0428 U	<0.0385 U	<0.0399 U	<0.0377 U	<0.0385 U	<0.036 U	<0.0377 U	<0.0362 U	<0.0383 U	<0.0351 U	<0.0402 U
PCB-1248 (Aroclor 1248)	12672-29-6	NS	NS	NS	mg/kg	<0.0366 U	<0.0428 U	<0.0385 U	<0.0399 U	<0.0377 U	<0.0385 U	<0.036 U	<0.0377 U	<0.0362 U	<0.0383 U	<0.0351 U	<0.0402 U
PCB-1254 (Aroclor 1254)	11097-69-1	NS	NS	NS	mg/kg	0.026 J	0.00607 J	<0.0385 U	<0.0399 U	<0.0377 U	<0.0385 U	<0.036 U	<0.0377 U	<0.0362 U	<0.0383 U	<0.0351 U	<0.0402 U
PCB-1260 (Aroclor 1260)	11096-82-5	NS	NS	NS	mg/kg	0.0354 J	<0.0428 U	<0.0385 U	<0.0399 U	<0.0377 U	<0.0385 U	<0.036 U	0.0299 J	0.114	<0.0383 U	0.0182 J	<0.0402 U
PCB-1262 (Aroclor 1262)	37324-23-5	NS	NS	NS	mg/kg	<0.0366 U	<0.0428 U	<0.0385 U	<0.0399 U	<0.0377 U	<0.0385 U	<0.036 U	<0.0377 U	<0.0362 U	<0.0383 U	<0.0351 U	<0.0402 U
PCB-1268 (Aroclor 1268)	11100-14-4	NS	NS	NS	mg/kg	0.0304 J	<0.0428 U	<0.0385 U	<0.0399 U	<0.0377 U	<0.0385 U	0.00775 J	<0.0377 U	<0.0362 U	<0.0383 U	0.00917 J	<0.0402 U
Total PCBs	1336-36-3	**0.1**	3.2	1	mg/kg	0.0918 J	0.00607 J	<0.0385 U	<0.0399 U	<0.0377 U	<0.0385 U	0.00775 J	0.0299 J	**0.114**	<0.0383 U	0.0274 J	<0.0402 U
Metals																	
Aluminum	7429-90-5	NS	NS	NS	mg/kg	5,500	8,990	2,580	7,360	2,250	5,770	4,840	5,750	2,190	1,730	7,040	9,790
Antimony	7440-36-0	NS	NS	NS	mg/kg	17.3	1.14 J	3.09 J	<4.84 U	1.98 J	<4.72 U	3.33	9.75	2.05 J	1.02 J	2.29 J	<4.7 U
Arsenic	7440-38-2	**13**	16	16	mg/kg	**26.9**	8.54	**33**	**33**	**83.2**	**71.4**	**13.1**	9.37	7.97	4.56	8.57	2.08
Barium	7440-39-3	**410**	820	410	mg/kg	373	155	122	62.3	120	75.7	248	206	106	32.8	173	31.8
Beryllium	7440-41-7	4.4	47	43	mg/kg	0.51	0.636	0.312 J	0.61	0.261 J	0.255 J	0.342	0.453	0.206 J	0.117 J	0.152 J	0.385 J
Cadmium	7440-43-9	**2.5**	7.5	2.5	mg/kg	**13.2**	1.26	**2.65**	1.31	0.872 J	0.415 J	1.74	**2.51**	2.04	0.628 J	**3.25**	0.564 J
Calcium	7440-70-2	NS	NS	NS	mg/kg	17,800	25,300	13,900	15,200	13,700	3,490	13,300	27,200	88,300 J	5,840	49,200	624
Chromium, Hexavalent	18540-29-9	1	19	1	mg/kg	<0.92 U	<1.09 U	<0.937 U	<0.986 U	<0.93 U	<0.962 U	0.183 J	<0.913 U	<0.897 U	<0.955 U	<0.899 U	<0.992 U
Chromium, Total	7440-47-3	NS	NS	NS	mg/kg	27.7	20.2	12.6	14.4	8.52	15.9	27	41	8.06	4.94	36.8	19.6
Chromium, Trivalent	16065-83-1	**30**	NS	110	mg/kg	28	20	13	14	8.5	16	27 J	**41**	8.1	4.9	**37**	20
Cobalt	7440-48-4	NS	NS	NS	mg/kg	8.89	12.2	5.5	11.1	3.34	14.5	29.1	134	2.95	3.65	7.84	4.8
Copper	7440-50-8	**50**	1720	280	mg/kg	**250**	**69.8**	**162**	**59.9**	**146**	**50.2**	**174**	**346**	**63 J**	23.6	**63.6**	8
Cyanide	57-12-5	**2.3**	40	13	mg/kg	<1.1 UJ	0.52 J	<1.1 U	1.4	<1.1 UJ	<1.1 UJ	<1.1 UJ	<1.1 UJ	<1.1 UJ	<1.2 UJ	<1.1 UJ	<1.1 UJ
Iron	7439-89-6	NS	NS	NS	mg/kg	62,500	14,300	18,300	33,500	29,700	40,100	17,000	22,100	10,100	14,900	25,200	15,200
Lead	7439-92-1	**63**	450	400	mg/kg	**656**	**228**	**498**	**64.7**	**171**	**98**	**499**	**356**	**249**	34.7	**218**	5.22
Magnesium	7439-95-4	NS	NS	NS	mg/kg	1,440	2,320	886	1,890	6,250	690	2,010	11,300	36,900 J	239	27,400	2,780
Manganese	7439-96-5	1600	2000	2000	mg/kg	347	201	94.2	257	71	35.5	273	260	122 J	283	148	95.5
Mercury	7439-97-6	**0.18**	0.73	0.3	mg/kg	**0.573**	**1.38**	**0.397**	0.177	**0.288**	0.099	**0.77**	**0.723**	**0.472 J**	0.076 J	**0.22**	<0.085 U
Nickel	7440-02-0	**30**	130	320	mg/kg	**44.9**	**41.5**	17.9	11.2	8.72	**31.3**	16.3	16.5	8.67	7.54	28.8	11.4
Potassium	7440-09-7	NS	NS	NS	mg/kg	892	1,060	437	981	771	1,090	572	622	422	262	4,770	900
Selenium	7782-49-2	**3.9**	4	110	mg/kg	1.53 J	1.34 J	2.15	2.77	**6.28**	2.74	0.759 J	0.732 J	0.754 J	**5.88**	0.803 J	<1.88 U
Silver	7440-22-4	2	8.3	110	mg/kg	<0.895 U	<1.03 U	<0.891 U	<0.968 U	<0.899 U	<0.943 U	0.226 J	<0.871 U	<0.856 U	<0.897 U	<0.845 U	<0.94 U
Sodium	7440-23-5	NS	NS	NS	mg/kg	217	365	164 J	131 J	537	937	142	301	125 J	73.6 J	294	82.1 J
Thallium	7440-28-0	NS	NS	NS	mg/kg	<1.79 U	<2.05 U	0.321 J	<1.94 U	<1.8 U	<1.89 U	<0.888 U	<1.74 U	<1.71 UJ	<1.79 U	<1.69 U	<1.88 U
Vanadium	7440-62-2	NS	NS	NS	mg/kg	22	25.1	19.6	23	15.1	28.7	20.3	19.7	13	11.7	42	21.7
Zinc	7440-66-6	**109**	2480	6600	mg/kg	**668**	**300**	**435**	33.5	66	100	**583**	**1,430**	**130 J**	32.5	**120**	33.2

Table 3A
Remedial Investigation Report
Soil Sample Analytical Results

C Block
Brooklyn, New York
NYSDEC BCP Site No.: C224435
Langan Project No.: 170229030

Analyte	CAS Number	NYSDEC Part 375 Unrestricted Use SCOs	NYSDEC Part 375 Protection of Groundwater SCOs	NYSDEC Part 375 Restricted Use Restricted-Residential SCOs	Location	SB11	SB11	SB12	SB12	SB13	SB13	SB14	SB14	SB15	SB15	SB16	SB16
					Sample Name	SB11_0-2	SB11_6-8	SB12_0-2	SB12_5-7	SB13_0-2	SB13_2-4	SB14_0-2	SB14_6-8	SB15_0-2	SB15_6-8	SB16_0-2	SB16_12-14
					Sample Date	07/27/2022	07/27/2022	07/25/2022	07/25/2022	07/27/2022	07/27/2022	07/26/2022	07/26/2022	08/03/2022	08/03/2022	08/03/2022	08/03/2022
					Sample Depth	0-2	6-8	0-2	5-7	0-2	2-4	0-2	6-8	0-2	6-8	0-2	12-14
					Unit	Result	Result	Result	Result	Result	Result	Result	Result	Result	Result	Result	Result
Per- and Polyfluoroalkyl Substances																	
1H,1H,2H,2H-Perfluorodecane Sulfonic Acid (8:2 FTS)	39108-34-4	NS	NS	NS	mg/kg	<0.000501 U	<0.000602 U	<0.000567 U	<0.000588 U	<0.000526 U	<0.000566 U	<0.000561 U	<0.000531 U	<0.000528 U	<0.00057 U	<0.000514 U	<0.000584 U
1H,1H,2H,2H-Perfluorooctane Sulfonic Acid (6:2 FTS)	27619-97-2	NS	NS	NS	mg/kg	<0.000501 U	<0.000602 U	<0.000567 U	<0.000588 U	<0.000526 U	<0.000566 U	<0.000561 U	<0.000531 U	<0.000528 U	<0.00057 U	<0.000514 U	<0.000584 U
N-ethyl Perfluorooctanesulfonamidoacetic Acid (NEtFOSAA)	2991-50-6	NS	NS	NS	mg/kg	<0.000501 U	<0.000602 U	<0.000567 U	<0.000588 U	<0.000526 U	<0.00202 UJ	<0.000561 U	<0.000531 U	<0.000528 U	<0.00057 U	<0.000514 U	<0.000584 U
N-methyl Perfluorooctanesulfonamidoacetic Acid (NMeFOSAA)	2355-31-9	NS	NS	NS	mg/kg	<0.000501 U	<0.000602 U	<0.000567 U	<0.000588 U	<0.000526 U	<0.00202 UJ	<0.000561 U	<0.000531 U	<0.000528 U	<0.00057 U	<0.000514 U	<0.000584 U
Perfluorobutanesulfonic Acid (PFBS)	375-73-5	NS	NS	NS	mg/kg	<0.00025 U	<0.000301 U	<0.000284 U	<0.000294 U	<0.000263 U	<0.000283 U	<0.00028 U	<0.000265 U	<0.000264 U	<0.000285 U	<0.000257 U	<0.000292 U
Perfluorobutanoic acid (PFBA)	375-22-4	NS	NS	NS	mg/kg	<0.000501 U	<0.000602 U	<0.000567 U	<0.000588 U	0.000027 J	<0.000566 U	<0.000561 U	<0.000531 U	<0.000528 U	<0.00057 U	<0.000514 U	<0.000584 U
Perfluorodecanesulfonic Acid (PFDS)	335-77-3	NS	NS	NS	mg/kg	<0.000501 U	<0.000602 U	<0.000567 U	<0.000588 U	<0.000526 U	<0.000566 U	<0.000561 U	<0.000531 U	<0.000528 U	<0.00057 U	<0.000514 U	<0.000584 U
Perfluorodecanoic Acid (PFDA)	335-76-2	NS	NS	NS	mg/kg	<0.00025 U	<0.000301 U	<0.000284 U	<0.000294 U	0.000079 J	<0.000283 U	<0.00028 U	<0.000265 U	<0.000264 U	<0.000285 U	<0.000257 U	<0.000292 U
Perfluorododecanoic Acid (PFDoA)	307-55-1	NS	NS	NS	mg/kg	<0.000501 U	<0.000602 U	<0.000567 U	<0.000588 U	<0.000526 U	<0.000566 U	<0.000561 U	<0.000531 U	<0.000528 U	<0.00057 U	<0.000514 U	<0.000584 U
Perfluoroheptanesulfonic Acid (PFHpS)	375-92-8	NS	NS	NS	mg/kg	<0.000501 U	<0.000602 U	<0.000567 U	<0.000588 U	<0.000526 U	<0.000566 U	<0.000561 U	<0.000531 U	<0.000528 U	<0.00057 U	<0.000514 U	<0.000584 U
Perfluoroheptanoic acid (PFHpA)	375-85-9	NS	NS	NS	mg/kg	<0.00025 U	<0.000301 U	<0.000284 U	<0.000294 U	0.000068 J	0.000056 J	<0.00028 U	<0.000265 U	<0.000264 U	<0.000285 U	<0.000257 U	<0.000292 U
Perfluorohexanesulfonic Acid (PFHxS)	355-46-4	NS	NS	NS	mg/kg	<0.00025 U	<0.000301 U	<0.000284 U	<0.000294 U	<0.000263 U	<0.000283 U	<0.00028 U	<0.000265 U	<0.000264 U	<0.000285 U	<0.000257 U	<0.000292 U
Perfluorohexanoic Acid (PFHxA)	307-24-4	NS	NS	NS	mg/kg	<0.000501 U	<0.000602 U	<0.000567 U	<0.000588 U	<0.000526 U	<0.000566 U	<0.000561 U	<0.000531 U	<0.000528 U	<0.00057 U	<0.000514 U	<0.000584 U
Perfluorononanoic Acid (PFNA)	375-95-1	NS	NS	NS	mg/kg	<0.00025 U	<0.000301 U	<0.000284 U	<0.000294 U	0.000098 J	<0.000283 U	<0.00028 U	<0.000265 U	<0.000264 U	<0.000285 U	<0.000257 U	<0.000292 U
Perfluorooctanesulfonamide (PFOSA)	754-91-6	NS	NS	NS	mg/kg	<0.000501 U	<0.000602 U	<0.000567 U	<0.000588 U	<0.000526 U	<0.000566 U	<0.000561 U	<0.000531 U	<0.000528 U	<0.00057 U	<0.000514 U	<0.000584 U
Perfluorooctanesulfonic Acid (PFOS)	1763-23-1	0.00088	0.001	0.044	mg/kg	<0.00025 U	<0.000301 U	<0.000284 U	<0.000294 U	0.00028 J	0.000173 J	0.000146 J	<0.000265 U	<0.000264 U	<0.000285 U	<0.000257 U	<0.000292 U
Perfluorooctanoic Acid (PFOA)	335-67-1	0.00066	0.0008	0.033	mg/kg	0.000084 J	0.000077 J	0.00011 J	<0.000294 U	0.000208 J	0.000334	0.000156 J	0.000074 J	<0.000264 U	0.000304	0.000046 J	<0.000292 U
Perfluoropentanoic Acid (PFPeA)	2706-90-3	NS	NS	NS	mg/kg	<0.000501 U	<0.000602 U	<0.000567 U	<0.000588 U	0.000051 J	<0.000566 U	<0.000561 U	<0.000531 U	<0.000528 U	<0.00057 U	<0.000514 U	<0.000584 U
Perfluorotetradecanoic Acid (PFTeDA)	376-06-7	NS	NS	NS	mg/kg	<0.000501 U	<0.000602 U	<0.000567 U	<0.000588 U	<0.000526 U	<0.000566 U	<0.000561 U	<0.000531 U	<0.000528 U	<0.00057 U	<0.000514 U	<0.000584 U
Perfluorotridecanoic Acid (PFTrDA)	72629-94-8	NS	NS	NS	mg/kg	<0.000501 U	<0.000602 U	<0.000567 U	<0.000588 U	<0.000526 U	<0.000566 U	<0.000561 U	<0.000531 U	<0.000528 U	<0.00057 U	<0.000514 U	<0.000584 U
Perfluoroundecanoic Acid (PFUnA)	2058-94-8	NS	NS	NS	mg/kg	<0.000501 U	<0.000602 U	<0.000567 U	<0.000588 U	<0.000526 U	<0.000566 U	<0.000561 U	<0.000531 U	<0.000528 U	<0.00057 U	<0.000514 U	<0.000584 U
Total PFOA and PFOS	TOTPFOAPFOS	NS	NS	NS	mg/kg	0.000084 J	0.000077 J	0.00011 J	<0.000294 U	0.000488 J	0.000507 J	0.000302 J	0.000074 J	<0.000264 U	0.000304	0.000046 J	<0.000292 U
General Chemistry																	
Solids, Percent	SOLID	NS	NS	NS	Percent	87	73.3	85.4	81.1	86	83.2	87.2	87.6	89.2	83.8	89	80.6

Table 3A
Remedial Investigation Report
Soil Sample Analytical Results

C Block
Brooklyn, New York
NYSDEC BCP Site No.: C224435
Langan Project No.: 170229030

Analyte	CAS Number	NYSDEC Part 375 Unrestricted Use SCOs	NYSDEC Part 375 Protection of Groundwater SCOs	NYSDEC Part 375 Restricted Use Restricted-Residential SCOs	Location	SB17	SB17	SB17	SB17	SB18	SB18	SB18	SB18	SB19	SB19	SB19	SB19
					Sample Name	SB17_0-2	SB17_2-4	SB17_18-20	SB17_23-25	SB18_0-2	SB18_8-10	SB18_13-15	SB18_17-19	SB19_0-2	SB19_3-5	SB19_13-15	SB19_18-20
					Sample Date	08/01/2022	08/01/2022	08/01/2022	08/01/2022	08/01/2022	08/01/2022	08/01/2022	08/01/2022	08/01/2022	08/01/2022	08/01/2022	08/01/2022
					Sample Depth	0-2	2-4	18-20	23-25	0-2	8-10	13-15	17-19	0-2	3-5	13-15	18-20
					Unit	Result	Result	Result	Result	Result	Result	Result	Result	Result	Result	Result	Result
Volatile Organic Compounds																	
1,1,1,2-Tetrachloroethane	630-20-6	NS	NS	NS	mg/kg	<0.00063 UJ	<0.00052 U	<0.00069 U	<0.00059 U	<0.0011 UJ	<0.00086 U	<0.00059 U	<0.00048 U	<0.00067 U	<0.00075 U	<0.00063 U	<0.00049 U
1,1,1-Trichloroethane	71-55-6	0.68	0.68	100	mg/kg	<0.00063 UJ	<0.00052 U	<0.00069 U	<0.00059 U	<0.0011 UJ	<0.00086 U	<0.00059 U	<0.00048 U	<0.00067 U	<0.00075 U	<0.00063 U	<0.00049 U
1,1,2,2-Tetrachloroethane	79-34-5	NS	NS	NS	mg/kg	<0.00063 UJ	<0.00052 U	<0.00069 U	<0.00059 U	<0.0011 UJ	<0.00086 U	<0.00059 U	<0.00048 U	<0.00067 U	<0.00075 U	<0.00063 U	<0.00049 U
1,1,2-Trichloroethane	79-00-5	NS	NS	NS	mg/kg	<0.0013 UJ	<0.001 U	<0.0014 U	<0.0012 U	<0.0022 UJ	<0.0017 U	<0.0012 U	<0.00096 U	<0.0013 U	<0.0015 U	<0.0012 U	<0.00099 U
1,1-Dichloroethane	75-34-3	0.27	0.27	47	mg/kg	<0.0013 UJ	<0.001 U	<0.0014 U	<0.0012 U	<0.0022 UJ	<0.0017 U	<0.0012 U	<0.00096 U	<0.0013 U	<0.0015 U	<0.0012 U	<0.00099 U
1,1-Dichloroethene	75-35-4	0.24	0.33	0.98	mg/kg	<0.0013 UJ	<0.001 U	<0.0014 U	<0.0012 U	<0.0022 UJ	<0.0017 U	<0.0012 U	<0.00096 U	<0.0013 U	<0.0015 U	<0.0012 U	<0.00099 U
1,1-Dichloropropene	563-58-6	NS	NS	NS	mg/kg	<0.00063 UJ	<0.00052 U	<0.00069 U	<0.00059 U	<0.0011 UJ	<0.00086 U	<0.00059 U	<0.00048 U	<0.00067 U	<0.00075 U	<0.00063 U	<0.00049 U
1,2,3-Trichlorobenzene	87-61-6	NS	NS	NS	mg/kg	<0.0025 UJ	<0.0021 U	<0.0028 U	<0.0024 U	<0.0045 UJ	<0.0034 U	<0.0023 U	<0.0019 U	<0.0027 U	<0.003 U	<0.0025 U	<0.002 U
1,2,3-Trichloropropane	96-18-4	NS	NS	NS	mg/kg	<0.0025 UJ	<0.0021 U	<0.0028 U	<0.0024 U	<0.0045 UJ	<0.0034 U	<0.0023 U	<0.0019 U	<0.0027 U	<0.003 U	<0.0025 U	<0.002 U
1,2,4,5-Tetramethylbenzene	95-93-2	NS	NS	NS	mg/kg	<0.0025 UJ	<0.0021 U	0.0011 J	<0.0024 U	<0.0045 UJ	<0.0034 U	<0.0023 U	<0.0019 U	<0.0027 U	<0.003 U	<0.0025 U	<0.002 U
1,2,4-Trichlorobenzene	120-82-1	NS	NS	NS	mg/kg	<0.0025 UJ	<0.0021 U	<0.0028 U	<0.0024 U	<0.0045 UJ	<0.0034 U	<0.0023 U	<0.0019 U	<0.0027 U	<0.003 U	<0.0025 U	<0.002 U
1,2,4-Trimethylbenzene	95-63-6	5.9	5.9	100	mg/kg	<0.0025 UJ	<0.0021 U	<0.0028 U	<0.0024 U	<0.0045 UJ	<0.0034 U	<0.0023 U	<0.0019 U	<0.0027 U	<0.003 U	<0.0025 U	<0.002 U
1,2-Dibromo-3-Chloropropane	96-12-8	NS	NS	NS	mg/kg	<0.0038 UJ	<0.0031 U	<0.0041 U	<0.0036 U	<0.0067 UJ	<0.0052 U	<0.0035 U	<0.0029 U	<0.004 U	<0.0045 U	<0.0038 U	<0.003 U
1,2-Dibromoethane (Ethylene Dibromide)	106-93-4	NS	NS	NS	mg/kg	<0.0013 UJ	<0.001 U	<0.0014 U	<0.0012 U	<0.0022 UJ	<0.0017 U	<0.0012 U	<0.00096 U	<0.0013 U	<0.0015 U	<0.0012 U	<0.00099 U
1,2-Dichlorobenzene	95-50-1	1.1	1.1	100	mg/kg	<0.0025 UJ	<0.0021 U	<0.0028 U	<0.0024 U	<0.0045 UJ	<0.0034 U	<0.0023 U	<0.0019 U	<0.0027 U	<0.003 U	<0.0025 U	<0.002 U
1,2-Dichloroethane	107-06-2	0.02	0.02	5.8	mg/kg	<0.0013 UJ	<0.001 U	<0.0014 U	<0.0012 U	<0.0022 UJ	<0.0017 U	<0.0012 U	<0.00096 U	<0.0013 U	<0.0015 U	<0.0012 U	<0.00099 U
1,2-Dichloropropane	78-87-5	NS	NS	NS	mg/kg	<0.0013 UJ	<0.001 U	<0.0014 U	<0.0012 U	<0.0022 UJ	<0.0017 U	<0.0012 U	<0.00096 U	<0.0013 U	<0.0015 U	<0.0012 U	<0.00099 U
1,3,5-Trimethylbenzene (Mesitylene)	108-67-8	3.1	3.1	100	mg/kg	<0.0025 UJ	<0.0021 U	<0.0028 U	<0.0024 U	<0.0045 UJ	<0.0034 U	<0.0023 U	<0.0019 U	<0.0027 U	<0.003 U	<0.0025 U	<0.002 U
1,3-Dichlorobenzene	541-73-1	2.6	2.6	38	mg/kg	<0.0025 UJ	<0.0021 U	<0.0028 U	<0.0024 U	<0.0045 UJ	<0.0034 U	<0.0023 U	<0.0019 U	<0.0027 U	<0.003 U	<0.0025 U	<0.002 U
1,3-Dichloropropane	142-28-9	NS	NS	NS	mg/kg	<0.0025 UJ	<0.0021 U	<0.0028 U	<0.0024 U	<0.0045 UJ	<0.0034 U	<0.0023 U	<0.0019 U	<0.0027 U	<0.003 U	<0.0025 U	<0.002 U
1,4-Dichlorobenzene	106-46-7	1.8	1.8	24	mg/kg	<0.0025 UJ	<0.0021 U	<0.0028 U	<0.0024 U	<0.0045 UJ	<0.0034 U	<0.0023 U	<0.0019 U	<0.0027 U	<0.003 U	<0.0025 U	<0.002 U
1,4-Diethyl Benzene	105-05-5	NS	NS	NS	mg/kg	<0.0025 UJ	<0.0021 U	<0.0028 U	<0.0024 U	<0.0045 UJ	<0.0034 U	<0.0023 U	<0.0019 U	<0.0027 U	<0.003 U	<0.0025 U	<0.002 U
1,4-Dioxane (P-Dioxane)	123-91-1	0.1	0.1	5.7	mg/kg	<0.1 UJ	<0.083 U	<0.11 U	<0.095 U	<0.18 UJ	<0.14 U	<0.094 U	<0.076 U	<0.11 U	<0.12 U	<0.1 U	<0.079 U
2,2-Dichloropropane	594-20-7	NS	NS	NS	mg/kg	<0.0025 UJ	<0.0021 U	<0.0028 U	<0.0024 U	<0.0045 UJ	<0.0034 U	<0.0023 U	<0.0019 U	<0.0027 U	<0.003 U	<0.0025 U	<0.002 U
2-Chlorotoluene	95-49-8	NS	NS	NS	mg/kg	<0.0025 UJ	<0.0021 U	<0.0028 U	<0.0024 U	<0.0045 UJ	<0.0034 U	<0.0023 U	<0.0019 U	<0.0027 U	<0.003 U	<0.0025 U	<0.002 U
2-Hexanone (MBK)	591-78-6	NS	NS	NS	mg/kg	<0.013 UJ	<0.01 U	<0.014 U	<0.012 U	<0.022 UJ	<0.017 U	<0.012 U	<0.0096 U	<0.013 U	<0.015 U	<0.012 U	<0.0099 U
4-Chlorotoluene	106-43-4	NS	NS	NS	mg/kg	<0.0025 UJ	<0.0021 U	<0.0028 U	<0.0024 U	<0.0045 UJ	<0.0034 U	<0.0023 U	<0.0019 U	<0.0027 U	<0.003 U	<0.0025 U	<0.002 U
4-Ethyltoluene	622-96-8	NS	NS	NS	mg/kg	<0.0025 UJ	<0.0021 U	<0.0028 U	<0.0024 U	<0.0045 UJ	<0.0034 U	<0.0023 U	<0.0019 U	<0.0027 U	<0.003 U	<0.0025 U	<0.002 U
Acetone	67-64-1	**0.03**	0.03	100	mg/kg	**0.04 J**	<0.01 U	**0.043**	0.0071 J	<0.022 UJ	<0.017 U	0.02	<0.0096 U	0.023	<0.015 U	**0.043**	0.014
Acrylonitrile	107-13-1	NS	NS	NS	mg/kg	<0.0051 UJ	<0.0041 U	<0.0055 U	<0.0047 U	<0.0089 UJ	<0.0069 U	<0.0047 U	<0.0038 U	<0.0054 U	<0.006 U	<0.005 U	<0.004 U
Benzene	71-43-2	**0.06**	0.06	3.7	mg/kg	<0.00063 UJ	<0.00052 U	<0.00069 U	<0.00059 U	0.00048 J	<0.00086 U	<0.00059 U	<0.00048 U	<0.00067 U	<0.00075 U	<0.00063 U	<0.00049 U
Bromobenzene	108-86-1	NS	NS	NS	mg/kg	<0.0025 UJ	<0.0021 U	<0.0028 U	<0.0024 U	<0.0045 UJ	<0.0034 U	<0.0023 U	<0.0019 U	<0.0027 U	<0.003 U	<0.0025 U	<0.002 U
Bromochloromethane	74-97-5	NS	NS	NS	mg/kg	<0.0025 UJ	<0.0021 U	<0.0028 U	<0.0024 U	<0.0045 UJ	<0.0034 U	<0.0023 U	<0.0019 U	<0.0027 U	<0.003 U	<0.0025 U	<0.002 U
Bromodichloromethane	75-27-4	NS	NS	NS	mg/kg	<0.00063 UJ	<0.00052 U	<0.00069 U	<0.00059 U	<0.0011 UJ	<0.00086 U	<0.00059 U	<0.00048 U	<0.00067 U	<0.00075 U	<0.00063 U	<0.00049 U
Bromoform	75-25-2	NS	NS	NS	mg/kg	<0.0051 UJ	<0.0041 U	<0.0055 U	<0.0047 U	<0.0089 UJ	<0.0069 U	<0.0047 U	<0.0038 U	<0.0054 U	<0.006 U	<0.005 U	<0.004 U
Bromomethane	74-83-9	NS	NS	NS	mg/kg	<0.0025 UJ	<0.0021 U	<0.0028 U	<0.0024 U	<0.0045 UJ	<0.0034 U	<0.0023 U	<0.0019 U	<0.0027 U	<0.003 U	<0.0025 U	<0.002 U
Carbon Disulfide	75-15-0	NS	NS	NS	mg/kg	<0.013 UJ	<0.01 U	<0.014 U	<0.012 U	<0.022 UJ	<0.017 U	0.0064 J	<0.0096 U	<0.013 U	<0.015 U	0.006 J	<0.0099 U
Carbon Tetrachloride	56-23-5	0.76	0.76	7.1	mg/kg	<0.0013 UJ	<0.001 U	<0.0014 U	<0.0012 U	<0.0022 UJ	<0.0017 U	<0.0012 U	<0.00096 U	<0.0013 U	<0.0015 U	<0.0012 U	<0.00099 U
Chlorobenzene	108-90-7	4.5	4.5	100	mg/kg	<0.00063 UJ	<0.00052 U	<0.00069 U	<0.00059 U	<0.0011 UJ	<0.00086 U	<0.00059 U	<0.00048 U	<0.00067 U	<0.00075 U	<0.00063 U	<0.00049 U
Chloroethane	75-00-3	NS	NS	NS	mg/kg	<0.0025 UJ	<0.0021 U	<0.0028 U	<0.0024 U	<0.0045 UJ	<0.0034 U	<0.0023 U	<0.0019 U	<0.0027 U	<0.003 U	<0.0025 U	<0.002 U
Chloroform	67-66-3	0.37	0.37	24	mg/kg	<0.0019 UJ	<0.0016 U	<0.0021 U	<0.0018 U	<0.0034 UJ	0.0009 J	<0.0018 U	<0.0014 U	<0.002 U	<0.0022 U	<0.0019 U	<0.0015 U
Chloromethane	74-87-3	NS	NS	NS	mg/kg	<0.0051 UJ	<0.0041 U	<0.0055 U	<0.0047 U	<0.0089 UJ	<0.0069 U	<0.0047 U	<0.0038 U	<0.0054 U	<0.006 U	<0.005 U	<0.004 U
Cis-1,2-Dichloroethene	156-59-2	0.19	0.19	41	mg/kg	<0.0013 UJ	<0.001 U	<0.0014 U	<0.0012 U	<0.0022 UJ	<0.0017 U	<0.0012 U	<0.00096 U	<0.0013 U	<0.0015 U	<0.0012 U	<0.00099 U
Cis-1,3-Dichloropropene	10061-01-5	NS	NS	NS	mg/kg	<0.00063 UJ	<0.00052 U	<0.00069 U	<0.00059 U	<0.0011 UJ	<0.00086 U	<0.00059 U	<0.00048 U	<0.00067 U	<0.00075 U	<0.00063 U	<0.00049 U
Cymene	99-87-6	NS	NS	NS	mg/kg	<0.0013 UJ	<0.001 U	<0.0014 U	<0.0012 U	<0.0022 UJ	<0.0017 U	<0.0012 U	<0.00096 U	<0.0013 U	<0.0015 U	<0.0012 U	<0.00099 U
Dibromochloromethane	124-48-1	NS	NS	NS	mg/kg	<0.0013 UJ	<0.001 U	<0.0014 U	<0.0012 U	<0.0022 UJ	<0.0017 U	<0.0012 U	<0.00096 U	<0.0013 U	<0.0015 U	<0.0012 U	<0.00099 U
Dibromomethane	74-95-3	NS	NS	NS	mg/kg	<0.0025 UJ	<0.0021 U	<0.0028 U	<0.0024 U	<0.0045 UJ	<0.0034 U	<0.0023 U	<0.0019 U	<0.0027 U	<0.003 U	<0.0025 U	<0.002 U
Dichlorodifluoromethane	75-71-8	NS	NS	NS	mg/kg	<0.013 UJ	<0.01 U	<0.014 U	<0.012 U	<0.022 UJ	<0.017 U	<0.012 U	<0.0096 U	<0.013 U	<0.015 U	<0.012 U	<0.0099 U
Diethyl Ether (Ethyl Ether)	60-29-7	NS	NS	NS	mg/kg	<0.0025 UJ	<0.0021 U	<0.0028 U	<0.0024 U	<0.0045 UJ	<0.0034 U	<0.0023 U	<0.0019 U	<0.0027 U	<0.003 U	<0.0025 U	<0.002 U
Ethylbenzene	100-41-4	1	1	76	mg/kg	<0.0013 UJ	<0.001 U	<0.0014 U	<0.0012 U	<0.0022 UJ	<0.0017 U	<0.0012 U	<0.00096 U	<0.0013 U	<0.0015 U	<0.0012 U	<0.00099 U
Hexachlorobutadiene	87-68-3	NS	NS	NS	mg/kg	<0.0051 UJ	<0.0041 U	<0.0055 U	<0.0047 U	<0.0089 UJ	<0.0069 U	<0.0047 U	<0.0038 U	<0.0054 U	<0.006 U	<0.005 U	<0.004 U
Isopropylbenzene (Cumene)	98-82-8	NS	NS	NS	mg/kg	<0.0013 UJ	<0.001 U	<0.0014 U	<0.0012 U	<0.0022 UJ	<0.0017 U	<0.0012 U	<0.00096 U	<0.0013 U	<0.0015 U	<0.0012 U	<0.00099 U
M,P-Xylene	179601-23-1	NS	NS	NS	mg/kg	<0.0025 UJ	<0.0021 U	<0.0028 U	<0.0024 U	<0.0045 UJ	<0.0034 U	<0.0023 U	<0.0019 U	<0.0027 U	<0.003 U	<0.0025 U	<0.002 U
Methyl Ethyl Ketone (2-Butanone)	78-93-3	0.1	0.1	100	mg/kg	<0.013 UJ	<0.01 U	0.01 J	<0.012 U	<0.022 UJ	<0.017 U	0.0045 J	<0.0096 U	<0.013 U	<0.015 U	0.0071 J	0.0023 J
Methyl Isobutyl Ketone (4-Methyl-2-Pentanone)	108-10-1	NS	NS	NS	mg/kg	<0.013 UJ	<0.01 U	<0.014 U	<0.012 U	<0.022 UJ	<0.017 U	<0.012 U	<0.0096 U	<0.013 U	<0.015 U	<0.012 U	<0.0099 U
Methylene Chloride	75-09-2	0.05	0.05	81	mg/kg	<0.0063 UJ	<0.0052 U	<0.0069 U	<0.0059 U	<0.011 UJ	<0.0086 U	<0.0059 U	<0.0048 U	<0.0067 U	<0.0075 U	<0.0063 U	<0.0049 U
Naphthalene	91-20-3	**12**	12	100	mg/kg	<0.0051 UJ	<0.0041 U	0.0032 J	<0.0047 U	<0.0089 UJ	<0.0069 U	<0.0047 U	<0.0038 U	<0.0054 U	<0.006 U	<0.005 U	<0.004 U
n-Butylbenzene	104-51-8	18	18	100	mg/kg	<0.0013 UJ	<0.001 U	<0.0014 U	<0.0012 U	<0.0022 UJ	<0.0017 U	<0.0012 U	<0.00096 U	<0.0013 U	<0.0015 U	<0.0012 U	<0.00099 U
n-Propylbenzene	103-65-1	5	5	100	mg/kg	<0.0013 UJ	<0.001 U	<0.0014 U	<0.0012 U	<0.0022 UJ	<0.0017 U	<0.0012 U	<0.00096 U	<0.0013 U	<0.0015 U	<0.0012 U	<0.00099 U
o-Xylene (1,2-Dimethylbenzene)	95-47-6	NS	NS	NS	mg/kg	<0.0013 UJ	<0.001 U	<0.0014 U	<0.0012 U	<0.0022 UJ	<0.0017 U	<0.0012 U	<0.00096 U	<0.0013 U	<0.0015 U	<0.0012 U	<0.00099 U
Sec-Butylbenzene	135-98-8	25	25	100	mg/kg	<0.0013 UJ	<0.001 U	<0.0014 U	<0.0012 U	<0.0022 UJ	<0.0017 U	<0.0012 U	<0.00096 U	<0.0013 U	<0.0015 U	<0.0012 U	<0.00099 U
Styrene	100-42-5	NS	NS	NS	mg/kg	<0.0013 UJ	<0.001 U	<0.0014 U	<0.0012 U	<0.0022 UJ	<0.0017 U	<0.0012 U	<0.00096 U	<0.0013 U	<0.0015 U	<0.0012 U	<0.00099 U
T-Butylbenzene	98-06-6	11	11	100	mg/kg	<0.0025 UJ	<0.0021 U	<0.0028 U	<0.0024 U	<0.0045 UJ	<0.0034 U	<0.0023 U	<0.0019 U	<0.0027 U	<0.003 U	<0.0025 U	<0.002 U
Tert-Butyl Methyl Ether (MTBE)	1634-04-4	0.1	0.1	100	mg/kg	<0.0025 UJ	<0.0021 U	<0.0028 U	<0.0024 U	<0.0045 UJ	<0.0034 U	<0.0023 U	<0.0019 U	<0.0027 U	<0.003 U	<0.0025 U	<0.002 U
Tetrachloroethene (PCE)	127-18-4	1.3	1.3	18	mg/kg	<0.00063 UJ	<0.00052 U	<0.00069 U	<0.00059 U	<0.0011 UJ	0.00046 J	<0.00059 U	<0.00048 U	<0.00067 U	<0.00075 U	<0.00063 U	<0.00049 U
Toluene	108-88-3	**0.7**	0.7	100	mg/kg	0.00088 J	<0.001 U	<0.0014 U	<0.0012 U	<0.0022 UJ	<0.0017 U	<0.0012 U	<0.00096 U	<0.0013 U	<0.0015 U	<0.0012 U	<0.00099 U
Total 1,2-Dichloroethene (Cis and Trans)	540-59-0	NS	NS	NS	mg/kg	<0.0013 UJ	<0.001 U	<0.0014 U	<0.0012 U	<0.0022 UJ	<0.0017 U	<0.0012 U	<0.00096 U	<0.0013 U	<0.0015 U	<0.0012 U	<0.00099 U
Total Xylenes	1330-20-7	**0.26**	1.2	100	mg/kg	<0.0013 UJ	<0.001 U	<0.0014 U	<0.0012 U	<0.0022 UJ	<0.0017 U	<0.0012 U	<0.00096 U	<0.0013 U	<0.0015 U	<0.0012 U	<0.00099 U
Total, 1,3-Dichloropropene (Cis And Trans)	542-75-6	NS	NS	NS	mg/kg	<0.00063 UJ	<0.00052 U	<0.00069 U	<0.00059 U	<0.0011 UJ	<0.00086 U	<0.00059 U	<0.00048 U	<0.00067 U	<0.00075 U	<0.00063 U	<0.00049 U
Trans-1,2-Dichloroethene	156-60-5	0.19	0.19	100	mg/kg	<0.0019 UJ	<0.0016 U	<0.0021 U	<0.0018 U	<0.0034 UJ	<0.0026 U	<0.0018 U	<0.0014 U	<0.002 U	<0.0022 U	<0.0019 U	<0.0015 U
Trans-1,3-Dichloropropene	10061-02-6	NS	NS	NS	mg/kg	<0.0013 UJ	<0.001 U	<0.0014 U	<0.0012 U	<0.0022 UJ	<0.0017 U	<0.0012 U	<0.00096 U	<0.0013 U	<0.0015 U	<0.0012 U	<0.00099 U
Trans-1,4-Dichloro-2-Butene	110-57-6	NS	NS	NS	mg/kg	<0.0063 UJ	<0.0052 U	<0.0069 U	<0.0059 U	<0.011 UJ	<0.0086 U	<0.0059 U	<0.0048 U	<0.0067 U	<0.0075 U	<0.0063 U	<0.0049 U
Trichloroethene (TCE)	79-01-6	0.47	0.47	6.4	mg/kg	<0.00063 UJ	<0.00052 U	<0.00069 U	<0.00059 U	0.0029 J	<0.00086 U	<0.00059 U	<0.00048 U	<0.00067 U	<0.00075 U	<0.00063 U	<0.00049 U
Trichlorofluoromethane	75-69-4	NS	NS	NS	mg/kg	<0.0051 UJ	<0.0041 U	<0.0055 U	<0.0047 U	<0.0089 UJ	<0.0069 U	<0.0047 U	<0.0038 U	<0.0054 U	<0.006 U	<0.005 U	<0.004 U
Vinyl Acetate	108-05-4	NS	NS	NS	mg/kg	<0.013 UJ	<0.01 U	<0.014 U	<0.012 U	<0.022 UJ	<0.017 U	<0.012 U	<0.0096 U	<0.013 UJ	<0.015 UJ	<0.012 UJ	<0.0099 U
Vinyl Chloride	75-01-4	0.03	0.03	0.48	mg/kg	<0.0013 UJ	<0.001 U	<0.0014 U	<0.0012 U	<0.0022 UJ	<0.0017 U	<0.0012 U	<0.00096 U	<0.0013 U	<0.0015 U	<0.0012 U	<0.00099 U

Table 3A
Remedial Investigation Report
Soil Sample Analytical Results

C Block
Brooklyn, New York
NYSDEC BCP Site No.: C224435
Langan Project No.: 170229030

Analyte	CAS Number	NYSDEC Part 375 Unrestricted Use SCOs	NYSDEC Part 375 Protection of Groundwater SCOs	NYSDEC Part 375 Restricted Use Restricted-Residential SCOs	Location	SB17	SB17	SB17	SB17	SB18	SB18	SB18	SB18	SB19	SB19	SB19	SB19
					Sample Name	SB17_0-2	SB17_2-4	SB17_18-20	SB17_23-25	SB18_0-2	SB18_8-10	SB18_13-15	SB18_17-19	SB19_0-2	SB19_3-5	SB19_13-15	SB19_18-20
					Sample Date	08/01/2022	08/01/2022	08/01/2022	08/01/2022	08/01/2022	08/01/2022	08/01/2022	08/01/2022	08/01/2022	08/01/2022	08/01/2022	08/01/2022
					Sample Depth	0-2	2-4	18-20	23-25	0-2	8-10	13-15	17-19	0-2	3-5	13-15	18-20
					Unit	Result	Result	Result	Result	Result	Result	Result	Result	Result	Result	Result	Result
Semi-Volatile Organic Compounds																	
1,2,4,5-Tetrachlorobenzene	95-94-3	NS	NS	NS	mg/kg	<0.18 U	<0.19 U	<0.22 U	<0.2 U	<0.19 U	<0.23 U	<0.2 U	<0.2 U	<0.19 U	<0.18 U	<4.6 U	<0.19 U
1,2,4-Trichlorobenzene	120-82-1	NS	NS	NS	mg/kg	<0.18 U	<0.19 U	<0.22 U	<0.2 U	<0.19 U	<0.23 U	<0.2 U	<0.2 U	<0.19 U	<0.18 U	<4.6 U	<0.19 U
1,2-Dichlorobenzene	95-50-1	1.1	1.1	100	mg/kg	<0.18 U	<0.19 U	<0.22 U	<0.2 U	<0.19 U	<0.23 U	<0.2 U	<0.2 U	<0.19 U	<0.18 U	<4.6 U	<0.19 U
1,3-Dichlorobenzene	541-73-1	2.6	2.6	38	mg/kg	<0.18 U	<0.19 U	<0.22 U	<0.2 U	<0.19 U	<0.23 U	<0.2 U	<0.2 U	<0.19 U	<0.18 U	<4.6 U	<0.19 U
1,4-Dichlorobenzene	106-46-7	1.8	1.8	24	mg/kg	<0.18 U	<0.19 U	<0.22 U	<0.2 U	<0.19 U	<0.23 U	<0.2 U	<0.2 U	<0.19 U	<0.18 U	<4.6 U	<0.19 U
1,4-Dioxane (P-Dioxane)	123-91-1	0.1	0.1	5.7	mg/kg	<0.028 UJ	<0.028 UJ	<0.033 UJ	<0.03 UJ	<0.028 UJ	<0.034 UJ	<0.03 UJ	<0.03 UJ	<0.028 U	<0.028 U	<0.69 UJ	<0.029 UJ
2,4,5-Trichlorophenol	95-95-4	NS	NS	NS	mg/kg	<0.18 U	<0.19 U	<0.22 U	<0.2 U	<0.19 U	<0.23 U	<0.2 U	<0.2 U	<0.19 U	<0.18 U	<4.6 U	<0.19 U
2,4,6-Trichlorophenol	88-06-2	NS	NS	NS	mg/kg	<0.11 U	<0.11 U	<0.13 U	<0.12 U	<0.11 U	<0.14 U	<0.12 U	<0.12 U	<0.11 U	<0.11 U	<2.8 U	<0.12 U
2,4-Dichlorophenol	120-83-2	NS	NS	NS	mg/kg	<0.17 U	<0.17 U	<0.2 U	<0.18 U	<0.17 U	<0.2 U	<0.18 U	<0.18 U	<0.17 U	<0.17 U	<4.1 U	<0.17 U
2,4-Dimethylphenol	105-67-9	NS	NS	NS	mg/kg	<0.18 U	<0.19 U	<0.22 U	<0.2 U	<0.19 U	<0.23 U	<0.2 U	<0.2 U	<0.19 U	<0.18 U	1.8 J	<0.19 U
2,4-Dinitrophenol	51-28-5	NS	NS	NS	mg/kg	<0.89 U	<0.9 U	<1.1 U	<0.94 U	<0.9 U	<1.1 U	<0.96 U	<0.97 U	<0.9 U	<0.89 U	<22 U	<0.93 U
2,4-Dinitrotoluene	121-14-2	NS	NS	NS	mg/kg	<0.18 U	<0.19 U	<0.22 U	<0.2 U	<0.19 U	<0.23 U	<0.2 U	<0.2 U	<0.19 U	<0.18 U	<4.6 U	<0.19 U
2,6-Dinitrotoluene	606-20-2	NS	NS	NS	mg/kg	<0.18 U	<0.19 U	<0.22 U	<0.2 U	<0.19 U	<0.23 U	<0.2 U	<0.2 U	<0.19 U	<0.18 U	<4.6 U	<0.19 U
2-Chloronaphthalene	91-58-7	NS	NS	NS	mg/kg	<0.18 U	<0.19 U	<0.22 U	<0.2 U	<0.19 U	<0.23 U	<0.2 U	<0.2 U	<0.19 U	<0.18 U	<4.6 U	<0.19 U
2-Chlorophenol	95-57-8	NS	NS	NS	mg/kg	<0.18 U	<0.19 U	<0.22 U	<0.2 U	<0.19 U	<0.23 U	<0.2 U	<0.2 U	<0.19 U	<0.18 U	<4.6 U	<0.19 U
2-Methylnaphthalene	91-57-6	NS	NS	NS	mg/kg	0.069 J	<0.22 U	<0.27 U	<0.24 U	0.56	<0.27 U	<0.24 U	<0.24 U	0.65	0.099 J	20	<0.23 U
2-Methylphenol (o-Cresol)	95-48-7	**0.33**	0.33	100	mg/kg	<0.18 U	<0.19 U	<0.22 U	<0.2 U	<0.19 U	<0.23 U	<0.2 U	<0.2 U	<0.19 U	<0.18 U	**0.94 J**	<0.19 U
2-Nitroaniline	88-74-4	NS	NS	NS	mg/kg	<0.18 U	<0.19 U	<0.22 U	<0.2 U	<0.19 U	<0.23 U	<0.2 U	<0.2 U	<0.19 U	<0.18 U	<4.6 U	<0.19 U
2-Nitrophenol	88-75-5	NS	NS	NS	mg/kg	<0.4 U	<0.4 U	<0.48 U	<0.42 U	<0.41 U	<0.49 U	<0.43 U	<0.44 U	<0.4 U	<0.4 U	<10 U	<0.42 U
3 & 4 Methylphenol (m&p Cresol)	65794-96-9	**0.33**	0.33	100	mg/kg	<0.27 U	<0.27 U	<0.32 U	<0.28 U	<0.27 U	<0.32 U	<0.29 U	<0.29 U	<0.27 U	<0.27 U	**2.4 J**	<0.28 U
3,3'-Dichlorobenzidine	91-94-1	NS	NS	NS	mg/kg	<0.18 U	<0.19 U	<0.22 U	<0.2 U	<0.19 U	<0.23 U	<0.2 U	<0.2 U	<0.19 U	<0.18 U	<4.6 U	<0.19 U
3-Nitroaniline	99-09-2	NS	NS	NS	mg/kg	<0.18 U	<0.19 U	<0.22 U	<0.2 U	<0.19 U	<0.23 U	<0.2 U	<0.2 U	<0.19 U	<0.18 U	<4.6 U	<0.19 U
4,6-Dinitro-2-Methylphenol	534-52-1	NS	NS	NS	mg/kg	<0.48 U	<0.49 U	<0.58 U	<0.51 U	<0.49 U	<0.59 U	<0.52 U	<0.53 U	<0.49 UJ	<0.48 UJ	<12 U	<0.5 U
4-Bromophenyl Phenyl Ether	101-55-3	NS	NS	NS	mg/kg	<0.18 U	<0.19 U	<0.22 U	<0.2 U	<0.19 U	<0.23 U	<0.2 U	<0.2 U	<0.19 U	<0.18 U	<4.6 U	<0.19 U
4-Chloro-3-Methylphenol	59-50-7	NS	NS	NS	mg/kg	<0.18 U	<0.19 U	<0.22 U	<0.2 U	<0.19 U	<0.23 U	<0.2 U	<0.2 U	<0.19 U	<0.18 U	<4.6 U	<0.19 U
4-Chloroaniline	106-47-8	NS	NS	NS	mg/kg	<0.18 UJ	<0.19 UJ	<0.22 UJ	<0.2 UJ	<0.19 UJ	<0.23 UJ	<0.2 UJ	<0.2 UJ	<0.19 U	<0.18 U	<4.6 UJ	<0.19 UJ
4-Chlorophenyl Phenyl Ether	7005-72-3	NS	NS	NS	mg/kg	<0.18 U	<0.19 U	<0.22 U	<0.2 U	<0.19 U	<0.23 U	<0.2 U	<0.2 U	<0.19 U	<0.18 U	<4.6 U	<0.19 U
4-Nitroaniline	100-01-6	NS	NS	NS	mg/kg	<0.18 U	<0.19 U	<0.22 U	<0.2 U	<0.19 U	<0.23 U	<0.2 U	<0.2 U	<0.19 U	<0.18 U	<4.6 U	<0.19 U
4-Nitrophenol	100-02-7	NS	NS	NS	mg/kg	<0.26 U	<0.26 U	<0.31 U	<0.28 U	<0.26 U	<0.32 U	<0.28 U	<0.28 U	<0.26 U	<0.26 U	<6.4 U	<0.27 U
Acenaphthene	83-32-9	**20**	98	100	mg/kg	0.078 J	<0.15 U	<0.18 U	<0.16 U	0.14 J	<0.18 U	<0.16 U	<0.16 U	0.074 J	0.086 J	**58**	<0.15 U
Acenaphthylene	208-96-8	100	365	100	mg/kg	0.062 J	<0.15 U	<0.18 U	<0.16 U	0.14 J	<0.18 U	<0.16 U	<0.16 U	0.036 J	0.055 J	0.75 J	<0.15 U
Acetophenone	98-86-2	NS	NS	NS	mg/kg	<0.18 U	<0.19 U	<0.22 U	<0.2 U	<0.19 U	<0.23 U	<0.2 U	<0.2 U	<0.19 U	<0.18 U	<4.6 U	<0.19 U
Anthracene	120-12-7	**100**	1000	100	mg/kg	0.27	<0.11 U	<0.13 U	<0.12 U	0.55	<0.14 U	<0.12 U	<0.12 U	0.14	0.18	30	<0.12 U
Benzo(a)anthracene	56-55-3	**1**	1	1.4	mg/kg	0.84	0.027 J	0.089 J	<0.12 U	**1.1**	<0.14 U	0.033 J	<0.12 U	0.5	0.58	**55**	0.054 J
Benzo(a)pyrene	50-32-8	**1**	22	1	mg/kg	0.8	<0.15 U	0.084 J	<0.16 U	1	<0.18 U	<0.16 U	<0.16 U	0.49	0.62	**50**	0.051 J
Benzo(b)fluoranthene	205-99-2	**1**	2.1	1.4	mg/kg	1	<0.11 U	0.086 J	<0.12 U	**1.3**	<0.14 U	<0.12 U	<0.12 U	0.61	0.7	**56**	0.054 J
Benzo(g,h,i)Perylene	191-24-2	**0.64**	1000	4.9	mg/kg	0.44	<0.15 U	0.035 J	<0.16 U	**0.67**	<0.18 U	<0.16 U	<0.16 U	0.31	0.32	**22**	0.023 J
Benzo(k)fluoranthene	207-08-9	**0.8**	2	4.9	mg/kg	0.29	<0.11 U	<0.13 U	<0.12 U	0.41	<0.14 U	<0.12 U	<0.12 U	0.16	0.22	**16**	<0.12 U
Benzoic Acid	65-85-0	NS	NS	NS	mg/kg	<0.6 U	<0.61 U	<0.72 U	<0.64 U	<0.61 U	<0.73 U	<0.65 U	<0.66 U	<0.61 U	<0.6 U	<15 U	<0.63 U
Benzyl Alcohol	100-51-6	NS	NS	NS	mg/kg	<0.18 U	<0.19 U	<0.22 U	<0.2 U	<0.19 U	<0.23 U	<0.2 U	<0.2 U	<0.19 U	<0.18 U	<4.6 U	<0.19 U
Benzyl Butyl Phthalate	85-68-7	NS	NS	NS	mg/kg	<0.18 U	<0.19 U	<0.22 U	<0.2 U	<0.19 U	<0.23 U	<0.2 U	<0.2 U	<0.19 U	<0.18 U	<4.6 U	<0.19 U
Biphenyl (Diphenyl)	92-52-4	NS	NS	NS	mg/kg	<0.42 U	<0.43 U	<0.51 U	<0.45 U	0.16 J	<0.52 U	<0.46 U	<0.46 U	0.15 J	0.032 J	4.7 J	<0.44 U
Bis(2-chloroethoxy) methane	111-91-1	NS	NS	NS	mg/kg	<0.2 U	<0.2 U	<0.24 U	<0.21 U	<0.2 U	<0.24 U	<0.22 U	<0.22 U	<0.2 U	<0.2 U	<5 U	<0.21 U
Bis(2-chloroethyl) ether (2-chloroethyl ether)	111-44-4	NS	NS	NS	mg/kg	<0.17 U	<0.17 U	<0.2 U	<0.18 U	<0.17 U	<0.2 U	<0.18 U	<0.18 U	<0.17 U	<0.17 U	<4.1 U	<0.17 U
Bis(2-chloroisopropyl) ether	108-60-1	NS	NS	NS	mg/kg	<0.22 U	<0.22 U	<0.27 U	<0.24 U	<0.23 U	<0.27 U	<0.24 U	<0.24 U	<0.22 U	<0.22 U	<5.5 U	<0.23 U
Bis(2-ethylhexyl) phthalate	117-81-7	NS	NS	NS	mg/kg	<0.18 U	<0.19 U	<0.22 U	<0.2 U	<0.19 U	<0.23 U	<0.2 U	<0.2 U	<0.19 U	<0.18 U	<4.6 U	<0.19 U
Carbazole	86-74-8	NS	NS	NS	mg/kg	0.067 J	<0.19 UJ	<0.22 UJ	<0.2 UJ	0.16 J	<0.23 UJ	<0.2 UJ	<0.2 UJ	0.066 J	0.075 J	19 J	0.021 J
Chrysene	218-01-9	**1**	1	4.9	mg/kg	0.8	0.025 J	0.077 J	<0.12 U	**1.2**	<0.14 U	0.029 J	<0.12 U	0.56	0.58	**57**	0.049 J
Dibenz(a,h)anthracene	53-70-3	**0.33**	1000	0.33	mg/kg	0.1 J	<0.11 U	<0.13 U	<0.12 U	0.15	<0.14 U	<0.12 U	<0.12 U	0.065 J	0.074 J	**5.4**	<0.12 U
Dibenzofuran	132-64-9	**2.1**	110	18	mg/kg	0.071 J	<0.19 U	<0.22 U	<0.2 U	0.2	<0.23 U	<0.2 U	<0.2 U	0.098 J	0.065 J	**36**	<0.19 U
Dibutyl phthalate	84-74-2	NS	NS	NS	mg/kg	<0.18 U	<0.19 U	<0.22 U	<0.2 U	0.051 J	<0.23 U	<0.2 U	<0.2 U	<0.19 U	<0.18 U	<4.6 U	<0.19 U
Diethyl phthalate	84-66-2	NS	NS	NS	mg/kg	<0.18 U	<0.19 U	<0.22 U	<0.2 U	<0.19 U	<0.23 U	<0.2 U	<0.2 U	<0.19 U	<0.18 U	<4.6 U	<0.19 U
Dimethyl phthalate	131-11-3	NS	NS	NS	mg/kg	<0.18 U	<0.19 U	<0.22 U	<0.2 U	<0.19 U	<0.23 U	<0.2 U	<0.2 U	<0.19 U	<0.18 U	<4.6 U	<0.19 U
Dioctyl phthalate	117-84-0	NS	NS	NS	mg/kg	<0.18 U	<0.19 U	<0.22 U	<0.2 U	<0.19 U	<0.23 U	<0.2 U	<0.2 U	<0.19 U	<0.18 U	<4.6 U	<0.19 U
Fluoranthene	206-44-0	**85**	1000	100	mg/kg	1.8	0.038 J	0.13	<0.12 U	2.3	<0.14 U	0.06 J	<0.12 U	1.1	1.2	**160**	0.11 J
Fluorene	86-73-7	**30**	386	100	mg/kg	0.12 J	<0.19 U	<0.22 U	<0.2 U	0.3	<0.23 U	<0.2 U	<0.2 U	0.12 J	0.1 J	**52**	<0.19 U
Hexachlorobenzene	118-74-1	0.33	3.2	0.33	mg/kg	<0.11 U	<0.11 U	<0.13 U	<0.12 U	<0.11 U	<0.14 U	<0.12 U	<0.12 U	<0.11 U	<0.11 U	<2.8 U	<0.12 U
Hexachlorobutadiene	87-68-3	NS	NS	NS	mg/kg	<0.18 U	<0.19 U	<0.22 U	<0.2 U	<0.19 U	<0.23 U	<0.2 U	<0.2 U	<0.19 U	<0.18 U	<4.6 U	<0.19 U
Hexachlorocyclopentadiene	77-47-4	NS	NS	NS	mg/kg	<0.53 UJ	<0.54 UJ	<0.64 UJ	<0.56 UJ	<0.54 UJ	<0.65 UJ	<0.57 UJ	<0.58 UJ	<0.54 UJ	<0.53 UJ	<13 UJ	<0.55 UJ
Hexachloroethane	67-72-1	NS	NS	NS	mg/kg	<0.15 U	<0.15 U	<0.18 U	<0.16 U	<0.15 U	<0.18 U	<0.16 U	<0.16 U	<0.15 U	<0.15 U	<3.7 U	<0.15 U
Indeno(1,2,3-cd)pyrene	193-39-5	**0.5**	6.6	1.4	mg/kg	**0.51**	<0.15 U	0.044 J	<0.16 U	**0.7**	<0.18 U	<0.16 U	<0.16 U	0.32	0.36	**24**	0.028 J
Isophorone	78-59-1	NS	NS	NS	mg/kg	<0.17 U	<0.17 U	<0.2 U	<0.18 U	<0.17 U	<0.2 U	<0.18 U	<0.18 U	<0.17 U	<0.17 U	<4.1 U	<0.17 U
Naphthalene	91-20-3	**12**	12	100	mg/kg	0.094 J	<0.19 U	<0.22 U	<0.2 U	0.63	<0.23 U	<0.2 U	<0.2 U	0.39	0.12 J	**40**	<0.19 U
Nitrobenzene	98-95-3	0.08	0.08	1.8	mg/kg	<0.17 U	<0.17 U	<0.2 U	<0.18 U	<0.17 U	<0.2 U	<0.18 U	<0.18 U	<0.17 U	<0.17 U	<4.1 U	<0.17 U
n-Nitrosodi-N-Propylamine	621-64-7	NS	NS	NS	mg/kg	<0.18 U	<0.19 U	<0.22 U	<0.2 U	<0.19 U	<0.23 U	<0.2 U	<0.2 U	<0.19 U	<0.18 U	<4.6 U	<0.19 U
n-Nitrosodiphenylamine	86-30-6	NS	NS	NS	mg/kg	<0.15 U	<0.15 U	<0.18 U	<0.16 U	<0.15 U	<0.18 U	<0.16 U	<0.16 U	<0.15 U	<0.15 U	<3.7 U	<0.15 U
Pentachlorophenol	87-86-5	0.8	0.8	1.3	mg/kg	<0.15 U	<0.15 U	<0.18 U	<0.16 U	<0.15 U	<0.18 U	<0.16 U	<0.16 U	<0.15 U	<0.15 U	<3.7 U	<0.15 U
Phenanthrene	85-01-8	**1.1**	1000	4.9	mg/kg	1.1	0.033 J	0.069 J	<0.12 U	**1.9**	<0.14 U	0.054 J	<0.12 U	0.81	0.97	**280**	0.12
Phenol	108-95-2	**0.33**	0.33	100	mg/kg	<0.18 U	<0.19 U	<0.22 U	<0.2 U	<0.19 U	<0.23 U	<0.2 U	<0.2 U	<0.19 U	<0.18 U	**0.93 J**	<0.19 U
Pyrene	129-00-0	**64**	1000	100	mg/kg	1.5	0.033 J	0.13	<0.12 U	2.1	<0.14 U	0.054 J	<0.12 U	1	1.1	**140**	0.093 J

Table 3A
Remedial Investigation Report
Soil Sample Analytical Results

C Block
Brooklyn, New York
NYSDEC BCP Site No.: C224435
Langan Project No.: 170229030

Analyte	CAS Number	NYSDEC Part 375 Unrestricted Use SCOs	NYSDEC Part 375 Protection of Groundwater SCOs	NYSDEC Part 375 Restricted Use Restricted-Residential SCOs	Location	SB17	SB17	SB17	SB17	SB18	SB18	SB18	SB18	SB19	SB19	SB19	SB19
					Sample Name	SB17_0-2	SB17_2-4	SB17_18-20	SB17_23-25	SB18_0-2	SB18_8-10	SB18_13-15	SB18_17-19	SB19_0-2	SB19_3-5	SB19_13-15	SB19_18-20
					Sample Date	08/01/2022	08/01/2022	08/01/2022	08/01/2022	08/01/2022	08/01/2022	08/01/2022	08/01/2022	08/01/2022	08/01/2022	08/01/2022	08/01/2022
					Sample Depth	0-2	2-4	18-20	23-25	0-2	8-10	13-15	17-19	0-2	3-5	13-15	18-20
					Unit	Result	Result	Result	Result	Result	Result	Result	Result	Result	Result	Result	Result
Pesticides																	
4,4'-DDD	72-54-8	**0.0033**	14	5	mg/kg	**0.0171 J**	<0.00177 U	NA	NA	**0.0422**	0.00166 J	NA	NA	**0.00544**	0.00145 J	NA	NA
4,4'-DDE	72-55-9	**0.0033**	9.3	3.4	mg/kg	**0.0107 J**	<0.00177 U	NA	NA	**0.0117**	<0.00216 U	NA	NA	<0.00178 U	0.000916 J	NA	NA
4,4'-DDT	50-29-3	**0.0033**	135	3.8	mg/kg	<0.00173 U	<0.00177 U	NA	NA	<0.00182 U	<0.00216 U	NA	NA	**0.00927**	0.00246	NA	NA
Aldrin	309-00-2	0.0048	0.19	0.044	mg/kg	<0.00173 U	<0.00177 U	NA	NA	<0.00182 U	<0.00216 U	NA	NA	<0.00178 U	<0.00179 U	NA	NA
Alpha BHC (Alpha Hexachlorocyclohexane)	319-84-6	0.02	0.02	0.18	mg/kg	<0.000722 U	<0.000738 U	NA	NA	<0.000758 U	<0.000899 U	NA	NA	<0.000741 U	<0.000744 U	NA	NA
Alpha Chlordane	5103-71-9	0.014	4.5	0.65	mg/kg	<0.00217 U	<0.00221 U	NA	NA	<0.00227 U	<0.0027 U	NA	NA	<0.00222 U	<0.00223 U	NA	NA
Alpha Endosulfan	959-98-8	4.3	65	35	mg/kg	<0.00173 U	<0.00177 U	NA	NA	<0.00182 U	<0.00216 U	NA	NA	<0.00178 U	<0.00179 U	NA	NA
Beta Bhc (Beta Hexachlorocyclohexane)	319-85-7	0.021	0.09	0.18	mg/kg	<0.00173 U	<0.00177 U	NA	NA	<0.00182 U	<0.00216 U	NA	NA	<0.00178 U	<0.00179 U	NA	NA
Beta Endosulfan	33213-65-9	4.3	44	35	mg/kg	<0.00173 U	<0.00177 U	NA	NA	<0.00182 U	<0.00216 U	NA	NA	<0.00178 U	<0.00179 U	NA	NA
Chlordane (alpha and gamma)	57-74-9	NS	NS	NS	mg/kg	<0.0144 U	<0.0148 U	NA	NA	<0.0152 U	<0.018 U	NA	NA	<0.0148 U	<0.0149 U	NA	NA
Delta Bhc (Delta Hexachlorocyclohexane)	319-86-8	0.04	0.1	100	mg/kg	<0.00173 U	<0.00177 U	NA	NA	<0.00182 U	<0.00216 U	NA	NA	<0.00178 U	<0.00179 U	NA	NA
Dieldrin	60-57-1	0.005	0.1	0.075	mg/kg	<0.00108 U	<0.00111 U	NA	NA	<0.00114 U	<0.00135 U	NA	NA	<0.00111 U	<0.00112 U	NA	NA
Endosulfan Sulfate	1031-07-8	4.3	47	35	mg/kg	<0.000722 U	<0.000738 U	NA	NA	<0.000758 U	<0.000899 U	NA	NA	<0.000741 U	<0.000744 U	NA	NA
Endrin	72-20-8	0.014	0.06	5.3	mg/kg	<0.000722 U	<0.000738 U	NA	NA	<0.000758 U	<0.000899 U	NA	NA	<0.000741 U	<0.000744 U	NA	NA
Endrin Aldehyde	7421-93-4	NS	NS	NS	mg/kg	<0.00217 U	<0.00221 U	NA	NA	<0.00227 U	<0.0027 U	NA	NA	<0.00222 U	<0.00223 U	NA	NA
Endrin Ketone	53494-70-5	NS	NS	NS	mg/kg	<0.00173 U	<0.00177 U	NA	NA	<0.00182 U	<0.00216 U	NA	NA	<0.00178 U	<0.00179 U	NA	NA
Gamma Bhc (Lindane)	58-89-9	0.025	0.05	0.21	mg/kg	<0.000722 U	<0.000738 U	NA	NA	<0.000758 U	<0.000899 U	NA	NA	<0.000741 U	<0.000744 U	NA	NA
Gamma Chlordane (Trans)	5103-74-2	NS	NS	NS	mg/kg	<0.00217 U	<0.00221 U	NA	NA	<0.00227 U	<0.0027 U	NA	NA	0.00174 J	<0.00223 U	NA	NA
Heptachlor	76-44-8	0.013	0.38	0.53	mg/kg	<0.000866 U	<0.000886 U	NA	NA	<0.000909 U	<0.00108 U	NA	NA	<0.000889 U	<0.000893 U	NA	NA
Heptachlor Epoxide	1024-57-3	NS	NS	NS	mg/kg	<0.00325 U	<0.00332 U	NA	NA	<0.00341 U	<0.00404 U	NA	NA	<0.00333 U	<0.00335 U	NA	NA
Methoxychlor	72-43-5	NS	NS	NS	mg/kg	<0.00325 U	<0.00332 U	NA	NA	<0.00341 U	<0.00404 U	NA	NA	<0.00333 U	<0.00335 U	NA	NA
Toxaphene	8001-35-2	NS	NS	NS	mg/kg	<0.0325 U	<0.0332 U	NA	NA	<0.0341 U	<0.0404 U	NA	NA	<0.0333 U	<0.0335 U	NA	NA
Herbicides																	
2,4,5-T (Trichlorophenoxyacetic Acid)	93-76-5	NS	NS	NS	mg/kg	<0.189 U	<0.186 U	NA	NA	<0.189 U	<0.226 U	NA	NA	<0.188 U	<0.185 U	NA	NA
2,4-D (Dichlorophenoxyacetic Acid)	94-75-7	NS	NS	NS	mg/kg	<0.189 U	<0.186 U	NA	NA	<0.189 U	<0.226 U	NA	NA	<0.188 U	<0.185 U	NA	NA
Silvex (2,4,5-Tp)	93-72-1	3.8	3.8	100	mg/kg	<0.189 U	<0.186 U	NA	NA	<0.189 U	<0.226 U	NA	NA	<0.188 U	<0.185 U	NA	NA
Polychlorinated Biphenyl																	
PCB-1016 (Aroclor 1016)	12674-11-2	NS	NS	NS	mg/kg	<0.0372 U	<0.0365 U	NA	NA	<0.0379 U	<0.0439 U	NA	NA	<0.0374 U	<0.0368 U	NA	NA
PCB-1221 (Aroclor 1221)	11104-28-2	NS	NS	NS	mg/kg	<0.0372 U	<0.0365 U	NA	NA	<0.0379 U	<0.0439 U	NA	NA	<0.0374 U	<0.0368 U	NA	NA
PCB-1232 (Aroclor 1232)	11141-16-5	NS	NS	NS	mg/kg	<0.0372 U	<0.0365 U	NA	NA	<0.0379 U	<0.0439 U	NA	NA	<0.0374 U	<0.0368 U	NA	NA
PCB-1242 (Aroclor 1242)	53469-21-9	NS	NS	NS	mg/kg	<0.0372 U	<0.0365 U	NA	NA	<0.0379 U	<0.0439 U	NA	NA	<0.0374 U	<0.0368 U	NA	NA
PCB-1248 (Aroclor 1248)	12672-29-6	NS	NS	NS	mg/kg	<0.0372 U	<0.0365 U	NA	NA	<0.0379 U	<0.0439 U	NA	NA	<0.0374 U	<0.0368 U	NA	NA
PCB-1254 (Aroclor 1254)	11097-69-1	NS	NS	NS	mg/kg	<0.0372 U	<0.0365 U	NA	NA	0.115	0.00825 J	NA	NA	<0.0374 U	<0.0368 U	NA	NA
PCB-1260 (Aroclor 1260)	11096-82-5	NS	NS	NS	mg/kg	0.032 J	<0.0365 U	NA	NA	0.0669	<0.0439 U	NA	NA	0.0777	<0.0368 U	NA	NA
PCB-1262 (Aroclor 1262)	37324-23-5	NS	NS	NS	mg/kg	<0.0372 U	<0.0365 U	NA	NA	<0.0379 U	<0.0439 U	NA	NA	<0.0374 U	<0.0368 U	NA	NA
PCB-1268 (Aroclor 1268)	11100-14-4	NS	NS	NS	mg/kg	0.0122 J	<0.0365 U	NA	NA	0.0238 J	<0.0439 U	NA	NA	<0.0374 U	<0.0368 U	NA	NA
Total PCBs	1336-36-3	**0.1**	3.2	1	mg/kg	0.0442 J	<0.0365 U	NA	NA	**0.206 J**	0.00825 J	NA	NA	0.0777	<0.0368 U	NA	NA
Metals																	
Aluminum	7429-90-5	NS	NS	NS	mg/kg	4,030	8,780	NA	NA	3,130	8,040	NA	NA	6,270	6,790	NA	NA
Antimony	7440-36-0	NS	NS	NS	mg/kg	8.06	1.32 J	NA	NA	20.7	3.18 J	NA	NA	6.89	3 J	NA	NA
Arsenic	7440-38-2	**13**	16	16	mg/kg	**15.5**	**13.7**	NA	NA	**15.4**	6.68	NA	NA	**21.7**	**14.1**	NA	NA
Barium	7440-39-3	**410**	820	410	mg/kg	151	64	NA	NA	305	222	NA	NA	159	222	NA	NA
Beryllium	7440-41-7	4.4	47	43	mg/kg	0.261 J	0.919	NA	NA	0.589	0.659	NA	NA	0.83	1.25	NA	NA
Cadmium	7440-43-9	**2.5**	7.5	2.5	mg/kg	2.04	0.243 J	NA	NA	**16.7**	2	NA	NA	2.07	0.793 J	NA	NA
Calcium	7440-70-2	NS	NS	NS	mg/kg	14,600	6,850	NA	NA	10,600	10,900	NA	NA	5,700	1,820	NA	NA
Chromium, Hexavalent	18540-29-9	1	19	1	mg/kg	<0.917 U	<0.911 U	NA	NA	<0.918 U	<1.11 U	NA	NA	<0.913 U	<0.907 U	NA	NA
Chromium, Total	7440-47-3	NS	NS	NS	mg/kg	9.97	9.73	NA	NA	35.4	20.3	NA	NA	19.3	11.4	NA	NA
Chromium, Trivalent	16065-83-1	**30**	NS	110	mg/kg	10	9.7	NA	NA	**35**	20	NA	NA	19	11	NA	NA
Cobalt	7440-48-4	NS	NS	NS	mg/kg	3.45	6.81	NA	NA	8.5	7.41	NA	NA	15.4	12.5	NA	NA
Copper	7440-50-8	**50**	1720	280	mg/kg	**93.8**	49.8	NA	NA	**188**	**77.6**	NA	NA	**142**	**81.6**	NA	NA
Cyanide	57-12-5	**2.3**	40	13	mg/kg	<1.1 UJ	0.73 J	NA	NA	0.67 J	0.33 J	NA	NA	0.29 J	<1.1 UJ	NA	NA
Iron	7439-89-6	NS	NS	NS	mg/kg	16,100	13,300	NA	NA	31,500	12,700	NA	NA	34,500	34,100	NA	NA
Lead	7439-92-1	**63**	450	400	mg/kg	**589**	41.6	NA	NA	**1,010**	**136**	NA	NA	**268**	**171**	NA	NA
Magnesium	7439-95-4	NS	NS	NS	mg/kg	2,290	967	NA	NA	2,060	1,780	NA	NA	621	1,210	NA	NA
Manganese	7439-96-5	1600	2000	2000	mg/kg	229	147	NA	NA	289	581	NA	NA	184	91	NA	NA
Mercury	7439-97-6	**0.18**	0.73	0.3	mg/kg	**0.451**	0.088	NA	NA	**0.563**	0.067 J	NA	NA	**0.211**	**0.944**	NA	NA
Nickel	7440-02-0	**30**	130	320	mg/kg	10.6	10.2	NA	NA	29.5	24.4	NA	NA	**40.6**	28	NA	NA
Potassium	7440-09-7	NS	NS	NS	mg/kg	783	656	NA	NA	738	873	NA	NA	690	616	NA	NA
Selenium	7782-49-2	**3.9**	4	110	mg/kg	1.08 J	1.68 J	NA	NA	1.55 J	1.12 J	NA	NA	2.04	1.09 J	NA	NA
Silver	7440-22-4	2	8.3	110	mg/kg	<0.9 U	<0.901 U	NA	NA	0.312 J	<1.1 U	NA	NA	0.428 J	<0.852 U	NA	NA
Sodium	7440-23-5	NS	NS	NS	mg/kg	384	838	NA	NA	193	1,080	NA	NA	280	79.6 J	NA	NA
Thallium	7440-28-0	NS	NS	NS	mg/kg	<1.8 U	<1.8 U	NA	NA	<1.78 U	<2.2 U	NA	NA	<1.78 U	<1.7 U	NA	NA
Vanadium	7440-62-2	NS	NS	NS	mg/kg	14.9	20.6	NA	NA	16.8	19.2	NA	NA	29.8	17.6	NA	NA
Zinc	7440-66-6	**109**	2480	6600	mg/kg	**196**	21.9	NA	NA	**541**	**206**	NA	NA	**225**	**172**	NA	NA

Table 3A
Remedial Investigation Report
Soil Sample Analytical Results

C Block
Brooklyn, New York
NYSDEC BCP Site No.: C224435
Langan Project No.: 170229030

Analyte	CAS Number	NYSDEC Part 375 Unrestricted Use SCOs	NYSDEC Part 375 Protection of Groundwater SCOs	NYSDEC Part 375 Restricted Use Restricted-Residential SCOs	Location	SB17	SB17	SB17	SB17	SB18	SB18	SB18	SB18	SB19	SB19	SB19	SB19
					Sample Name	SB17_0-2	SB17_2-4	SB17_18-20	SB17_23-25	SB18_0-2	SB18_8-10	SB18_13-15	SB18_17-19	SB19_0-2	SB19_3-5	SB19_13-15	SB19_18-20
					Sample Date	08/01/2022	08/01/2022	08/01/2022	08/01/2022	08/01/2022	08/01/2022	08/01/2022	08/01/2022	08/01/2022	08/01/2022	08/01/2022	08/01/2022
					Sample Depth	0-2	2-4	18-20	23-25	0-2	8-10	13-15	17-19	0-2	3-5	13-15	18-20
					Unit	Result	Result	Result	Result	Result	Result	Result	Result	Result	Result	Result	Result
Per- and Polyfluoroalkyl Substances																	
1H,1H,2H,2H-Perfluorodecane Sulfonic Acid (8:2 FTS)	39108-34-4	NS	NS	NS	mg/kg	<0.000545 U	<0.000541 U	NA	NA	<0.000524 U	<0.000637 U	NA	NA	<0.000549 U	<0.000515 U	NA	NA
1H,1H,2H,2H-Perfluorooctane Sulfonic Acid (6:2 FTS)	27619-97-2	NS	NS	NS	mg/kg	<0.000545 U	<0.000541 U	NA	NA	<0.000524 U	<0.000637 U	NA	NA	<0.000549 U	<0.000515 U	NA	NA
N-ethyl Perfluorooctanesulfonamidoacetic Acid (NEtFOSAA)	2991-50-6	NS	NS	NS	mg/kg	<0.000545 U	<0.00207 UJ	NA	NA	<0.000524 U	<0.000637 U	NA	NA	<0.000549 U	<0.000515 U	NA	NA
N-methyl Perfluorooctanesulfonamidoacetic Acid (NMeFOSAA)	2355-31-9	NS	NS	NS	mg/kg	<0.000545 U	<0.00207 UJ	NA	NA	<0.000524 U	<0.000637 U	NA	NA	<0.000549 U	<0.000515 U	NA	NA
Perfluorobutanesulfonic Acid (PFBS)	375-73-5	NS	NS	NS	mg/kg	<0.000272 U	<0.00027 U	NA	NA	<0.000262 U	<0.000318 U	NA	NA	<0.000274 U	<0.000258 U	NA	NA
Perfluorobutanoic acid (PFBA)	375-22-4	NS	NS	NS	mg/kg	<0.000545 U	<0.000541 U	NA	NA	0.000037 J	0.000035 J	NA	NA	<0.000549 U	<0.000515 U	NA	NA
Perfluorodecanesulfonic Acid (PFDS)	335-77-3	NS	NS	NS	mg/kg	<0.000545 U	<0.000541 U	NA	NA	<0.000524 U	<0.000637 U	NA	NA	<0.000549 U	<0.000515 U	NA	NA
Perfluorodecanoic Acid (PFDA)	335-76-2	NS	NS	NS	mg/kg	<0.000272 U	<0.00027 U	NA	NA	<0.000262 U	<0.000318 U	NA	NA	<0.000274 U	<0.000258 U	NA	NA
Perfluorododecanoic Acid (PFDoA)	307-55-1	NS	NS	NS	mg/kg	<0.000545 U	<0.000541 U	NA	NA	<0.000524 U	<0.000637 U	NA	NA	<0.000549 U	<0.000515 U	NA	NA
Perfluoroheptanesulfonic Acid (PFHpS)	375-92-8	NS	NS	NS	mg/kg	<0.000545 U	<0.000541 U	NA	NA	<0.000524 U	<0.000637 U	NA	NA	<0.000549 U	<0.000515 U	NA	NA
Perfluoroheptanoic acid (PFHpA)	375-85-9	NS	NS	NS	mg/kg	<0.000272 U	<0.00027 U	NA	NA	0.000089 J	<0.000318 U	NA	NA	<0.000274 U	<0.000258 U	NA	NA
Perfluorohexanesulfonic Acid (PFHxS)	355-46-4	NS	NS	NS	mg/kg	<0.000272 U	<0.00027 U	NA	NA	<0.000262 U	<0.000318 U	NA	NA	<0.000274 U	<0.000258 U	NA	NA
Perfluorohexanoic Acid (PFHxA)	307-24-4	NS	NS	NS	mg/kg	<0.000545 U	<0.000541 U	NA	NA	0.000092 J	0.000069 J	NA	NA	<0.000549 U	<0.000515 U	NA	NA
Perfluorononanoic Acid (PFNA)	375-95-1	NS	NS	NS	mg/kg	<0.000272 U	<0.00027 U	NA	NA	<0.000262 U	<0.000318 U	NA	NA	<0.000274 U	<0.000258 U	NA	NA
Perfluorooctanesulfonamide (PFOSA)	754-91-6	NS	NS	NS	mg/kg	<0.000545 U	<0.000541 U	NA	NA	<0.000524 U	<0.000637 U	NA	NA	<0.000549 U	<0.000515 U	NA	NA
Perfluorooctanesulfonic Acid (PFOS)	1763-23-1	0.00088	0.001	0.044	mg/kg	<0.000272 U	0.000538	NA	NA	<0.000262 U	0.000451	NA	NA	<0.000274 U	<0.000258 U	NA	NA
Perfluorooctanoic Acid (PFOA)	335-67-1	0.00066	0.0008	0.033	mg/kg	<0.000272 U	0.000094 J	NA	NA	0.000447	0.000208 J	NA	NA	0.000088 J	0.000056 J	NA	NA
Perfluoropentanoic Acid (PFPeA)	2706-90-3	NS	NS	NS	mg/kg	<0.000545 U	<0.000541 U	NA	NA	0.00005 J	0.000074 J	NA	NA	<0.000549 U	<0.000515 U	NA	NA
Perfluorotetradecanoic Acid (PFTeDA)	376-06-7	NS	NS	NS	mg/kg	<0.000545 U	<0.000541 U	NA	NA	<0.000524 U	<0.000637 U	NA	NA	<0.000549 U	<0.000515 U	NA	NA
Perfluorotridecanoic Acid (PFTrDA)	72629-94-8	NS	NS	NS	mg/kg	<0.000545 U	<0.000541 U	NA	NA	<0.000524 U	<0.000637 U	NA	NA	<0.000549 U	<0.000515 U	NA	NA
Perfluoroundecanoic Acid (PFUnA)	2058-94-8	NS	NS	NS	mg/kg	<0.000545 U	<0.000541 U	NA	NA	<0.000524 U	<0.000637 U	NA	NA	<0.000549 U	<0.000515 U	NA	NA
Total PFOA and PFOS	TOTPFOAPFOS	NS	NS	NS	mg/kg	<0.000272 U	0.000632 J	NA	NA	0.000447	0.000659 J	NA	NA	0.000088 J	0.000056 J	NA	NA
General Chemistry																	
Solids, Percent	SOLID	NS	NS	NS	Percent	87.2	87.8	72.6	84.3	87.1	72	82	81	87.6	88.2	71.6	85.4

Table 3A
Remedial Investigation Report
Soil Sample Analytical Results

C Block
Brooklyn, New York
NYSDEC BCP Site No.: C224435
Langan Project No.: 170229030

Analyte	CAS Number	NYSDEC Part 375 Unrestricted Use SCOs	NYSDEC Part 375 Protection of Groundwater SCOs	NYSDEC Part 375 Restricted Use Restricted-Residential SCOs	Location	SB20	SB20	SB21	SB21	SB21	SB22	SB22	SB23	SB23	SB23
					Sample Name	SB20_0-2	SB20_8-10	SB21_0-2	SODUP03_080122	SB21_6-8	SB22_0-2	SB22_13-15	SB23_0-2	SODUP01_072522	SB23_6-8
					Sample Date	08/01/2022	08/01/2022	08/01/2022	08/01/2022	08/01/2022	08/02/2022	08/02/2022	07/25/2022	07/25/2022	07/25/2022
					Sample Depth	0-2	8-10	0-2	0-2	6-8	0-2	13-15	0-2	0-2	6-8
					Unit	Result	Result	Result	Result	Result	Result	Result	Result	Result	Result
Volatile Organic Compounds															
1,1,1,2-Tetrachloroethane	630-20-6	NS	NS	NS	mg/kg	<0.00068 U	<0.00052 U	<0.00086 UJ	<0.00087 UJ	<0.00052 U	<0.033 UJ	<0.00051 U	<0.031 U	<0.0012 U	<0.00054 U
1,1,1-Trichloroethane	71-55-6	0.68	0.68	100	mg/kg	<0.00068 U	<0.00052 U	<0.00086 UJ	<0.00087 UJ	<0.00052 U	<0.033 UJ	<0.00051 U	<0.031 U	<0.0012 U	<0.00054 U
1,1,2,2-Tetrachloroethane	79-34-5	NS	NS	NS	mg/kg	<0.00068 U	<0.00052 U	<0.00086 UJ	<0.00087 UJ	<0.00052 U	<0.00074 UJ	<0.00051 U	<0.031 U	<0.0012 U	<0.00054 U
1,1,2-Trichloroethane	79-00-5	NS	NS	NS	mg/kg	<0.0014 U	<0.001 U	<0.0017 UJ	<0.0017 UJ	<0.001 U	<0.066 UJ	<0.001 U	<0.061 U	<0.0025 U	<0.0011 U
1,1-Dichloroethane	75-34-3	0.27	0.27	47	mg/kg	<0.0014 U	<0.001 U	<0.0017 UJ	<0.0017 UJ	<0.001 U	<0.066 UJ	<0.001 U	<0.061 U	<0.0025 U	<0.0011 U
1,1-Dichloroethene	75-35-4	0.24	0.33	0.98	mg/kg	<0.0014 U	<0.001 U	<0.0017 UJ	<0.0017 UJ	<0.001 U	<0.0015 UJ	<0.001 U	<0.061 U	<0.0025 U	<0.0011 U
1,1-Dichloropropene	563-58-6	NS	NS	NS	mg/kg	<0.00068 U	<0.00052 U	<0.00086 UJ	<0.00087 UJ	<0.00052 U	<0.033 UJ	<0.00051 U	<0.031 U	<0.0012 U	<0.00054 U
1,2,3-Trichlorobenzene	87-61-6	NS	NS	NS	mg/kg	<0.0027 U	<0.0021 U	<0.0034 UJ	<0.0035 UJ	<0.0021 U	<0.13 UJ	<0.002 U	<0.12 U	<0.005 U	<0.0022 U
1,2,3-Trichloropropane	96-18-4	NS	NS	NS	mg/kg	<0.0027 U	<0.0021 U	<0.0034 UJ	<0.0035 UJ	<0.0021 U	<0.13 UJ	<0.002 U	<0.12 U	<0.005 U	<0.0022 U
1,2,4,5-Tetramethylbenzene	95-93-2	NS	NS	NS	mg/kg	<0.0027 U	<0.0021 U	<0.0034 UJ	<0.0035 UJ	<0.0021 U	0.018 J	<0.002 U	0.045 J	<0.005 U	<0.0022 U
1,2,4-Trichlorobenzene	120-82-1	NS	NS	NS	mg/kg	<0.0027 U	<0.0021 U	<0.0034 UJ	<0.0035 UJ	<0.0021 U	<0.13 UJ	<0.002 U	<0.12 U	<0.005 U	<0.0022 U
1,2,4-Trimethylbenzene	95-63-6	5.9	5.9	100	mg/kg	<0.0027 U	<0.0021 U	<0.0034 UJ	<0.0035 UJ	<0.0021 U	0.19 J	<0.002 U	0.088 J	<0.005 U	<0.0022 U
1,2-Dibromo-3-Chloropropane	96-12-8	NS	NS	NS	mg/kg	<0.0041 U	<0.0031 U	<0.0052 UJ	<0.0052 UJ	<0.0031 U	<0.2 UJ	<0.0031 U	<0.18 U	<0.0075 U	<0.0032 U
1,2-Dibromoethane (Ethylene Dibromide)	106-93-4	NS	NS	NS	mg/kg	<0.0014 U	<0.001 U	<0.0017 UJ	<0.0017 UJ	<0.001 U	<0.066 UJ	<0.001 U	<0.061 U	<0.0025 U	<0.0011 U
1,2-Dichlorobenzene	95-50-1	1.1	1.1	100	mg/kg	<0.0027 U	<0.0021 U	<0.0034 UJ	<0.0035 UJ	<0.0021 U	<0.13 UJ	<0.002 U	<0.12 U	<0.005 U	<0.0022 U
1,2-Dichloroethane	107-06-2	0.02	0.02	5.8	mg/kg	<0.0014 U	<0.001 U	<0.0017 UJ	<0.0017 UJ	<0.001 U	<0.066 UJ	<0.001 U	<0.061 U	<0.0025 U	<0.0011 U
1,2-Dichloropropane	78-87-5	NS	NS	NS	mg/kg	<0.0014 U	<0.001 U	<0.0017 UJ	<0.0017 UJ	<0.001 U	<0.066 UJ	<0.001 U	<0.061 U	<0.0025 U	<0.0011 U
1,3,5-Trimethylbenzene (Mesitylene)	108-67-8	3.1	3.1	100	mg/kg	<0.0027 U	<0.0021 U	<0.0034 UJ	<0.0035 UJ	<0.0021 U	0.1 J	<0.002 U	0.04 J	<0.005 U	<0.0022 U
1,3-Dichlorobenzene	541-73-1	2.6	2.6	38	mg/kg	<0.0027 U	<0.0021 U	<0.0034 UJ	<0.0035 UJ	<0.0021 U	<0.13 UJ	<0.002 U	<0.12 U	<0.005 U	<0.0022 U
1,3-Dichloropropane	142-28-9	NS	NS	NS	mg/kg	<0.0027 U	<0.0021 U	<0.0034 UJ	<0.0035 UJ	<0.0021 U	<0.13 UJ	<0.002 U	<0.12 U	<0.005 U	<0.0022 U
1,4-Dichlorobenzene	106-46-7	1.8	1.8	24	mg/kg	<0.0027 U	<0.0021 U	<0.0034 UJ	<0.0035 UJ	<0.0021 U	0.035 J	<0.002 U	<0.12 U	<0.005 U	<0.0022 U
1,4-Diethyl Benzene	105-05-5	NS	NS	NS	mg/kg	<0.0027 U	<0.0021 U	<0.0034 UJ	<0.0035 UJ	<0.0021 U	<0.13 UJ	<0.002 U	0.049 J	<0.005 U	<0.0022 U
1,4-Dioxane (P-Dioxane)	123-91-1	0.1	0.1	5.7	mg/kg	<0.11 U	<0.084 U	<0.14 UJ	<0.14 UJ	<0.084 U	<5.3 UJ	<0.082 U	<4.9 U	<0.2 U	<0.087 U
2,2-Dichloropropane	594-20-7	NS	NS	NS	mg/kg	<0.0027 U	<0.0021 U	<0.0034 UJ	<0.0035 UJ	<0.0021 U	<0.13 UJ	<0.002 U	<0.12 U	<0.005 U	<0.0022 U
2-Chlorotoluene	95-49-8	NS	NS	NS	mg/kg	<0.0027 U	<0.0021 U	<0.0034 UJ	<0.0035 UJ	<0.0021 U	<0.13 UJ	<0.002 U	<0.12 U	<0.005 U	<0.0022 U
2-Hexanone (MBK)	591-78-6	NS	NS	NS	mg/kg	<0.014 U	<0.01 U	<0.017 UJ	<0.017 UJ	<0.01 U	<0.66 UJ	<0.01 U	<0.61 U	<0.025 U	<0.011 U
4-Chlorotoluene	106-43-4	NS	NS	NS	mg/kg	<0.0027 U	<0.0021 U	<0.0034 UJ	<0.0035 UJ	<0.0021 U	<0.13 UJ	<0.002 U	<0.12 U	<0.005 U	<0.0022 U
4-Ethyltoluene	622-96-8	NS	NS	NS	mg/kg	<0.0027 U	<0.0021 U	<0.0034 UJ	<0.0035 UJ	<0.0021 U	0.00077 J	<0.002 U	0.069 J	<0.005 U	<0.0022 U
Acetone	67-64-1	**0.03**	0.03	100	mg/kg	<0.014 U	<0.01 U	<0.017 UJ	0.028 J	0.012	**0.074 J**	**0.063**	<0.61 U	0.014 J	**0.078**
Acrylonitrile	107-13-1	NS	NS	NS	mg/kg	<0.0054 U	<0.0042 U	<0.0069 UJ	<0.007 UJ	<0.0042 U	<0.26 UJ	<0.0041 U	<0.24 U	<0.01 UJ	<0.0043 U
Benzene	71-43-2	**0.06**	0.06	3.7	mg/kg	<0.00068 U	<0.00052 U	<0.00086 UJ	<0.00087 UJ	<0.00052 U	**0.21 J**	0.0003 J	0.04	<0.0012 UJ	<0.00054 U
Bromobenzene	108-86-1	NS	NS	NS	mg/kg	<0.0027 U	<0.0021 U	<0.0034 UJ	<0.0035 UJ	<0.0021 U	<0.13 UJ	<0.002 U	<0.12 U	<0.005 UJ	<0.0022 U
Bromochloromethane	74-97-5	NS	NS	NS	mg/kg	<0.0027 U	<0.0021 U	<0.0034 UJ	<0.0035 UJ	<0.0021 U	<0.13 UJ	<0.002 U	<0.12 U	<0.005 UJ	<0.0022 U
Bromodichloromethane	75-27-4	NS	NS	NS	mg/kg	<0.00068 U	<0.00052 U	<0.00086 UJ	<0.00087 UJ	<0.00052 U	<0.033 UJ	<0.00051 U	<0.031 U	<0.0012 UJ	<0.00054 U
Bromoform	75-25-2	NS	NS	NS	mg/kg	<0.0054 U	<0.0042 U	<0.0069 UJ	<0.007 UJ	<0.0042 U	<0.26 UJ	<0.0041 U	<0.24 U	<0.01 UJ	<0.0043 U
Bromomethane	74-83-9	NS	NS	NS	mg/kg	<0.0027 U	<0.0021 U	<0.0034 UJ	<0.0035 UJ	<0.0021 U	<0.13 UJ	<0.002 U	<0.12 U	<0.005 UJ	<0.0022 U
Carbon Disulfide	75-15-0	NS	NS	NS	mg/kg	<0.014 U	<0.01 U	<0.017 UJ	<0.017 UJ	<0.01 U	<0.66 UJ	<0.01 U	<0.61 U	<0.025 UJ	<0.011 U
Carbon Tetrachloride	56-23-5	0.76	0.76	7.1	mg/kg	<0.0014 U	<0.001 U	<0.0017 UJ	<0.0017 UJ	<0.001 U	<0.066 UJ	<0.001 U	<0.061 U	<0.0025 UJ	<0.0011 U
Chlorobenzene	108-90-7	4.5	4.5	100	mg/kg	<0.00068 U	<0.00052 U	<0.00086 UJ	<0.00087 UJ	<0.00052 U	<0.033 UJ	<0.00051 U	<0.031 U	<0.0012 UJ	<0.00054 U
Chloroethane	75-00-3	NS	NS	NS	mg/kg	<0.0027 U	<0.0021 U	<0.0034 UJ	<0.0035 UJ	<0.0021 U	<0.13 UJ	<0.002 U	<0.12 U	<0.005 UJ	<0.0022 U
Chloroform	67-66-3	0.37	0.37	24	mg/kg	<0.002 U	<0.0016 U	<0.0026 UJ	<0.0026 UJ	<0.0016 U	<0.099 UJ	<0.0015 U	<0.092 U	<0.0038 UJ	<0.0016 U
Chloromethane	74-87-3	NS	NS	NS	mg/kg	<0.0054 U	<0.0042 U	<0.0069 UJ	<0.007 UJ	<0.0042 U	<0.26 UJ	<0.0041 U	<0.24 U	<0.01 UJ	<0.0043 U
Cis-1,2-Dichloroethene	156-59-2	0.19	0.19	41	mg/kg	<0.0014 U	<0.001 U	<0.0017 UJ	<0.0017 UJ	<0.001 U	<0.066 UJ	<0.001 U	<0.061 U	<0.0025 UJ	<0.0011 U
Cis-1,3-Dichloropropene	10061-01-5	NS	NS	NS	mg/kg	<0.00068 U	<0.00052 U	<0.00086 UJ	<0.00087 UJ	<0.00052 U	<0.033 UJ	<0.00051 U	<0.031 U	<0.0012 UJ	<0.00054 U
Cymene	99-87-6	NS	NS	NS	mg/kg	<0.0014 U	<0.001 U	<0.0017 UJ	<0.0017 UJ	<0.001 U	0.017 J	<0.001 U	0.016 J	<0.0025 UJ	<0.0011 U
Dibromochloromethane	124-48-1	NS	NS	NS	mg/kg	<0.0014 U	<0.001 U	<0.0017 UJ	<0.0017 UJ	<0.001 U	<0.066 UJ	<0.001 U	<0.061 U	<0.0025 UJ	<0.0011 U
Dibromomethane	74-95-3	NS	NS	NS	mg/kg	<0.0027 U	<0.0021 U	<0.0034 UJ	<0.0035 UJ	<0.0021 U	<0.13 UJ	<0.002 U	<0.12 U	<0.005 UJ	<0.0022 U
Dichlorodifluoromethane	75-71-8	NS	NS	NS	mg/kg	<0.014 U	<0.01 U	<0.017 UJ	<0.017 UJ	<0.01 U	<0.66 UJ	<0.01 U	<0.61 U	<0.025 UJ	<0.011 U
Diethyl Ether (Ethyl Ether)	60-29-7	NS	NS	NS	mg/kg	<0.0027 U	<0.0021 U	<0.0034 UJ	<0.0035 UJ	<0.0021 U	<0.13 UJ	<0.002 U	<0.12 U	<0.005 UJ	<0.0022 U
Ethylbenzene	100-41-4	1	1	76	mg/kg	<0.0014 U	<0.001 U	<0.0017 UJ	<0.0017 UJ	<0.001 U	0.096 J	<0.001 U	0.034 J	<0.0025 UJ	<0.0011 U
Hexachlorobutadiene	87-68-3	NS	NS	NS	mg/kg	<0.0054 U	<0.0042 U	<0.0069 UJ	<0.007 UJ	<0.0042 U	<0.26 UJ	<0.0041 U	<0.24 U	<0.01 UJ	<0.0043 U
Isopropylbenzene (Cumene)	98-82-8	NS	NS	NS	mg/kg	<0.0014 U	<0.001 U	<0.0017 UJ	<0.0017 UJ	<0.001 U	0.016 J	<0.001 U	0.0089 J	<0.0025 UJ	<0.0011 U
M,P-Xylene	179601-23-1	NS	NS	NS	mg/kg	<0.0027 U	<0.0021 U	<0.0034 UJ	<0.0035 UJ	<0.0021 U	0.88 J	<0.002 U	0.18	<0.005 UJ	<0.0022 U
Methyl Ethyl Ketone (2-Butanone)	78-93-3	0.1	0.1	100	mg/kg	<0.014 U	<0.01 U	<0.017 UJ	0.0048 J	<0.01 U	<0.66 UJ	0.0033 J	<0.61 U	<0.025 UJ	0.0084 J
Methyl Isobutyl Ketone (4-Methyl-2-Pentanone)	108-10-1	NS	NS	NS	mg/kg	<0.014 U	<0.01 U	<0.017 UJ	<0.017 UJ	<0.01 U	<0.66 UJ	<0.01 U	<0.61 U	<0.025 UJ	<0.011 U
Methylene Chloride	75-09-2	0.05	0.05	81	mg/kg	<0.0068 U	<0.0052 U	<0.0086 UJ	<0.0087 UJ	<0.0052 U	<0.33 UJ	<0.0051 U	<0.31 U	<0.012 UJ	<0.0054 U
Naphthalene	91-20-3	**12**	12	100	mg/kg	<0.0054 U	<0.0042 U	<0.0069 UJ	<0.007 UJ	<0.0042 U	0.52 J	<0.0041 U	0.14 J	0.0041 J	<0.0043 U
n-Butylbenzene	104-51-8	18	18	100	mg/kg	<0.0014 U	<0.001 U	<0.0017 UJ	<0.0017 UJ	<0.001 U	0.016 J	<0.001 U	0.012 J	<0.0025 UJ	<0.0011 U
n-Propylbenzene	103-65-1	5	5	100	mg/kg	<0.0014 U	<0.001 U	<0.0017 UJ	<0.0017 UJ	<0.001 U	0.033 J	<0.001 U	0.017 J	<0.0025 UJ	<0.0011 U
o-Xylene (1,2-Dimethylbenzene)	95-47-6	NS	NS	NS	mg/kg	<0.0014 U	<0.001 U	<0.0017 UJ	<0.0017 UJ	<0.001 U	0.15 J	<0.001 U	0.062	<0.0025 UJ	<0.0011 U
Sec-Butylbenzene	135-98-8	25	25	100	mg/kg	<0.0014 U	<0.001 U	<0.0017 UJ	<0.0017 UJ	<0.001 U	<0.066 UJ	<0.001 U	<0.061 U	<0.0025 UJ	<0.0011 U
Styrene	100-42-5	NS	NS	NS	mg/kg	<0.0014 U	<0.001 U	<0.0017 UJ	<0.0017 UJ	<0.001 U	<0.066 UJ	<0.001 U	<0.061 U	<0.0025 UJ	<0.0011 U
T-Butylbenzene	98-06-6	11	11	100	mg/kg	<0.0027 U	<0.0021 U	<0.0034 UJ	<0.0035 UJ	<0.0021 U	<0.13 UJ	<0.002 U	<0.12 U	<0.005 UJ	<0.0022 U
Tert-Butyl Methyl Ether (MTBE)	1634-04-4	0.1	0.1	100	mg/kg	<0.0027 U	<0.0021 U	<0.0034 UJ	<0.0035 UJ	<0.0021 U	<0.13 UJ	<0.002 U	<0.12 U	<0.005 UJ	<0.0022 U
Tetrachloroethene (PCE)	127-18-4	1.3	1.3	18	mg/kg	<0.00068 U	<0.00052 U	<0.00086 UJ	<0.00087 UJ	<0.00052 U	<0.033 UJ	<0.00051 U	<0.031 U	<0.0012 UJ	<0.00054 U
Toluene	108-88-3	**0.7**	0.7	100	mg/kg	<0.0014 U	<0.001 U	<0.0017 UJ	<0.0017 UJ	<0.001 U	0.59 J	<0.001 U	0.15 J	<0.0025 UJ	<0.0011 U
Total 1,2-Dichloroethene (Cis and Trans)	540-59-0	NS	NS	NS	mg/kg	<0.0014 U	<0.001 U	<0.0017 UJ	<0.0017 UJ	<0.001 U	<0.066 UJ	<0.001 U	<0.0015 U	<0.0025 UJ	<0.0011 U
Total Xylenes	1330-20-7	**0.26**	1.2	100	mg/kg	<0.0014 U	<0.001 U	<0.0017 UJ	<0.0017 UJ	<0.001 U	**1 J**	<0.001 U	0.24 J	<0.0025 UJ	<0.0011 U
Total, 1,3-Dichloropropene (Cis And Trans)	542-75-6	NS	NS	NS	mg/kg	<0.00068 U	<0.00052 U	<0.00086 UJ	<0.00087 UJ	<0.00052 U	<0.033 UJ	<0.00051 U	<0.00075 U	<0.0012 UJ	<0.00054 U
Trans-1,2-Dichloroethene	156-60-5	0.19	0.19	100	mg/kg	<0.002 U	<0.0016 U	<0.0026 UJ	<0.0026 UJ	<0.0016 U	<0.099 UJ	<0.0015 U	<0.092 U	<0.0038 UJ	<0.0016 U
Trans-1,3-Dichloropropene	10061-02-6	NS	NS	NS	mg/kg	<0.0014 U	<0.001 U	<0.0017 UJ	<0.0017 UJ	<0.001 U	<0.066 UJ	<0.001 U	<0.061 U	<0.0025 UJ	<0.0011 U
Trans-1,4-Dichloro-2-Butene	110-57-6	NS	NS	NS	mg/kg	<0.0068 U	<0.0052 U	<0.0086 UJ	<0.0087 UJ	<0.0052 U	<0.33 UJ	<0.0051 U	<0.31 U	<0.012 UJ	<0.0054 U
Trichloroethene (TCE)	79-01-6	0.47	0.47	6.4	mg/kg	<0.00068 U	<0.00052 U	<0.00086 UJ	<0.00087 UJ	<0.00052 U	<0.033 UJ	<0.00051 U	<0.031 U	<0.0012 UJ	<0.00054 U
Trichlorofluoromethane	75-69-4	NS	NS	NS	mg/kg	<0.0054 U	<0.0042 U	<0.0069 UJ	<0.007 UJ	<0.0042 U	<0.26 UJ	<0.0041 U	<0.24 U	<0.01 UJ	<0.0043 U
Vinyl Acetate	108-05-4	NS	NS	NS	mg/kg	<0.014 UJ	<0.01 UJ	<0.017 UJ	<0.017 UJ	<0.01 U	<0.66 UJ	<0.01 U	<0.61 U	<0.025 UJ	<0.011 U
Vinyl Chloride	75-01-4	0.03	0.03	0.48	mg/kg	<0.0014 U	<0.001 U	<0.0017 UJ	<0.0017 UJ	<0.001 U	<0.066 UJ	<0.001 U	<0.061 U	<0.0025 UJ	<0.0011 U

Table 3A
Remedial Investigation Report
Soil Sample Analytical Results

C Block
Brooklyn, New York
NYSDEC BCP Site No.: C224435
Langan Project No.: 170229030

Analyte	CAS Number	NYSDEC Part 375 Unrestricted Use SCOs	NYSDEC Part 375 Protection of Groundwater SCOs	NYSDEC Part 375 Restricted Use Restricted-Residential SCOs	Location	SB20	SB20	SB21	SB21	SB21	SB22	SB22	SB23	SB23	SB23
					Sample Name	SB20_0-2	SB20_8-10	SB21_0-2	SODUP03_080122	SB21_6-8	SB22_0-2	SB22_13-15	SB23_0-2	SODUP01_072522	SB23_6-8
					Sample Date	08/01/2022	08/01/2022	08/01/2022	08/01/2022	08/01/2022	08/02/2022	08/02/2022	07/25/2022	07/25/2022	07/25/2022
					Sample Depth	0-2	8-10	0-2	0-2	6-8	0-2	13-15	0-2	0-2	6-8
					Unit	Result	Result	Result	Result	Result	Result	Result	Result	Result	Result
Semi-Volatile Organic Compounds															
1,2,4,5-Tetrachlorobenzene	95-94-3	NS	NS	NS	mg/kg	<0.19 U	<0.18 U	<0.18 U	<0.18 U	<0.19 U	<0.19 U	<0.19 U	<0.18 U	<0.27 U	<0.18 U
1,2,4-Trichlorobenzene	120-82-1	NS	NS	NS	mg/kg	<0.19 U	<0.18 U	<0.18 U	<0.18 U	<0.19 U	<0.19 U	<0.19 U	<0.18 U	<0.27 U	<0.18 U
1,2-Dichlorobenzene	95-50-1	1.1	1.1	100	mg/kg	<0.19 U	<0.18 U	<0.18 U	<0.18 U	<0.19 U	NA	<0.19 U	<0.18 U	<0.27 U	<0.18 U
1,3-Dichlorobenzene	541-73-1	2.6	2.6	38	mg/kg	<0.19 U	<0.18 U	<0.18 U	<0.18 U	<0.19 U	<0.19 U	<0.19 U	<0.18 U	<0.27 U	<0.18 U
1,4-Dichlorobenzene	106-46-7	1.8	1.8	24	mg/kg	<0.19 U	<0.18 U	<0.18 U	<0.18 U	<0.19 U	<0.19 U	<0.19 U	<0.18 U	<0.27 U	<0.18 U
1,4-Dioxane (P-Dioxane)	123-91-1	0.1	0.1	5.7	mg/kg	<0.028 U	<0.026 U	<0.027 UJ	<0.027 UJ	<0.029 UJ	<0.028 U	<0.029 U	<0.027 U	<0.041 U	<0.028 U
2,4,5-Trichlorophenol	95-95-4	NS	NS	NS	mg/kg	<0.19 U	<0.18 U	<0.18 U	<0.18 U	<0.19 U	<0.19 U	<0.19 U	<0.18 U	<0.27 U	<0.18 U
2,4,6-Trichlorophenol	88-06-2	NS	NS	NS	mg/kg	<0.11 U	<0.11 U	<0.11 U	<0.11 U	<0.12 U	<0.11 U	<0.11 U	<0.11 U	<0.16 U	<0.11 U
2,4-Dichlorophenol	120-83-2	NS	NS	NS	mg/kg	<0.17 U	<0.16 U	<0.16 U	<0.16 U	<0.17 U	<0.17 U	<0.17 U	<0.16 U	<0.25 U	<0.17 U
2,4-Dimethylphenol	105-67-9	NS	NS	NS	mg/kg	<0.19 U	<0.18 U	<0.18 U	<0.18 U	<0.19 U	<0.19 U	<0.19 U	<0.18 U	<0.27 U	<0.18 U
2,4-Dinitrophenol	51-28-5	NS	NS	NS	mg/kg	<0.9 U	<0.85 U	<0.86 U	<0.87 U	<0.93 U	<0.9 U	<0.92 U	<0.86 U	<1.3 U	<0.89 U
2,4-Dinitrotoluene	121-14-2	NS	NS	NS	mg/kg	<0.19 U	<0.18 U	<0.18 U	<0.18 U	<0.19 U	<0.19 U	<0.19 U	<0.18 U	<0.27 U	<0.18 U
2,6-Dinitrotoluene	606-20-2	NS	NS	NS	mg/kg	<0.19 U	<0.18 U	<0.18 U	<0.18 U	<0.19 U	<0.19 U	<0.19 U	<0.18 U	<0.27 U	<0.18 U
2-Chloronaphthalene	91-58-7	NS	NS	NS	mg/kg	<0.19 U	<0.18 U	<0.18 U	<0.18 U	<0.19 U	<0.19 U	<0.19 U	<0.18 U	<0.27 U	<0.18 U
2-Chlorophenol	95-57-8	NS	NS	NS	mg/kg	<0.19 U	<0.18 U	<0.18 U	<0.18 U	<0.19 U	<0.19 U	<0.19 U	<0.18 U	<0.27 U	<0.18 U
2-Methylnaphthalene	91-57-6	NS	NS	NS	mg/kg	0.2 J	<0.21 U	0.1 J	0.094 J	<0.23 U	1.5	<0.23 U	0.79	1.1	0.2 J
2-Methylphenol (o-Cresol)	95-48-7	**0.33**	0.33	100	mg/kg	<0.19 U	<0.18 U	<0.18 U	<0.18 U	<0.19 U	<0.19 U	<0.19 U	<0.18 U	<0.27 U	<0.18 U
2-Nitroaniline	88-74-4	NS	NS	NS	mg/kg	<0.19 U	<0.18 U	<0.18 U	<0.18 U	<0.19 U	<0.19 U	<0.19 U	<0.18 U	<0.27 U	<0.18 U
2-Nitrophenol	88-75-5	NS	NS	NS	mg/kg	<0.41 U	<0.38 U	<0.39 U	<0.39 U	<0.42 U	<0.4 U	<0.41 U	<0.39 U	<0.59 U	<0.4 U
3 & 4 Methylphenol (m&p Cresol)	65794-96-9	**0.33**	0.33	100	mg/kg	<0.27 U	<0.25 U	<0.26 U	<0.26 U	<0.28 U	0.049 J	<0.27 U	0.051 J	0.17 J	0.041 J
3,3'-Dichlorobenzidine	91-94-1	NS	NS	NS	mg/kg	<0.19 U	<0.18 U	<0.18 U	<0.18 U	<0.19 U	<0.19 U	<0.19 U	<0.18 U	<0.27 U	<0.18 U
3-Nitroaniline	99-09-2	NS	NS	NS	mg/kg	<0.19 U	<0.18 U	<0.18 U	<0.18 U	<0.19 U	<0.19 U	<0.19 U	<0.18 U	<0.27 U	<0.18 U
4,6-Dinitro-2-Methylphenol	534-52-1	NS	NS	NS	mg/kg	<0.49 UJ	<0.46 UJ	<0.47 U	<0.47 U	<0.5 U	<0.48 UJ	<0.5 UJ	<0.47 U	<0.71 U	<0.48 U
4-Bromophenyl Phenyl Ether	101-55-3	NS	NS	NS	mg/kg	<0.19 U	<0.18 U	<0.18 U	<0.18 U	<0.19 U	<0.19 U	<0.19 U	<0.18 U	<0.27 U	<0.18 U
4-Chloro-3-Methylphenol	59-50-7	NS	NS	NS	mg/kg	<0.19 U	<0.18 U	<0.18 U	<0.18 U	<0.19 U	<0.19 U	<0.19 U	<0.18 U	<0.27 U	<0.18 U
4-Chloroaniline	106-47-8	NS	NS	NS	mg/kg	<0.19 U	<0.18 U	<0.18 UJ	<0.18 UJ	<0.19 UJ	<0.19 U	<0.19 U	<0.18 U	<0.27 U	<0.18 U
4-Chlorophenyl Phenyl Ether	7005-72-3	NS	NS	NS	mg/kg	<0.19 U	<0.18 U	<0.18 U	<0.18 U	<0.19 U	<0.19 U	<0.19 U	<0.18 U	<0.27 U	<0.18 U
4-Nitroaniline	100-01-6	NS	NS	NS	mg/kg	<0.19 U	<0.18 U	<0.18 U	<0.18 U	<0.19 U	<0.19 U	<0.19 U	<0.18 U	<0.27 U	<0.18 U
4-Nitrophenol	100-02-7	NS	NS	NS	mg/kg	<0.26 U	<0.25 U	<0.25 U	<0.26 U	<0.27 U	<0.26 U	<0.27 U	<0.25 U	<0.38 U	<0.26 U
Acenaphthene	83-32-9	**20**	98	100	mg/kg	<0.15 U	<0.14 U	<0.14 U	<0.14 U	0.023 J	3.5	<0.15 U	0.3 J	1.1 J	0.32
Acenaphthylene	208-96-8	100	365	100	mg/kg	0.039 J	<0.14 U	<0.14 U	0.05 J	<0.16 U	0.21	<0.15 U	0.68	0.95	0.15
Acetophenone	98-86-2	NS	NS	NS	mg/kg	<0.19 U	<0.18 U	<0.18 U	<0.18 U	<0.19 U	<0.19 U	<0.19 U	<0.18 U	<0.27 U	0.023 J
Anthracene	120-12-7	**100**	1000	100	mg/kg	0.056 J	<0.11 U	0.045 J	0.056 J	0.045 J	7.2	<0.11 U	1.5	2.4	0.89
Benzo(a)anthracene	56-55-3	**1**	1	1.4	mg/kg	0.18	<0.11 U	0.14	0.2	0.092 J	**9.5**	<0.11 U	**3 J**	**6.5 J**	**1.8**
Benzo(a)pyrene	50-32-8	**1**	22	1	mg/kg	0.19	<0.14 U	0.11 J	0.17	0.082 J	**9.2**	<0.15 U	**3.8 J**	**8.1 J**	**2.2**
Benzo(b)fluoranthene	205-99-2	**1**	2.1	1.4	mg/kg	0.22	<0.11 U	0.16	0.25	0.092 J	**9.6**	<0.11 U	**4.2 J**	**9.1 J**	**2.4**
Benzo(g,h,i)Perylene	191-24-2	**0.64**	1000	4.9	mg/kg	0.11 J	<0.14 U	0.081 J	0.1 J	0.036 J	**5.7**	<0.15 U	**2.1 J**	**4.3 J**	**0.97**
Benzo(k)fluoranthene	207-08-9	**0.8**	2	4.9	mg/kg	0.082 J	<0.11 U	0.048 J	0.077 J	<0.12 U	**4.2**	<0.11 U	**1.4 J**	**2.4 J**	0.7
Benzoic Acid	65-85-0	NS	NS	NS	mg/kg	<0.61 U	<0.57 U	<0.58 U	<0.59 U	<0.63 U	<0.6 U	<0.62 U	<0.58 U	<0.89 U	<0.6 U
Benzyl Alcohol	100-51-6	NS	NS	NS	mg/kg	<0.19 U	<0.18 U	<0.18 U	<0.18 U	<0.19 U	<0.19 U	<0.19 U	<0.18 U	<0.27 U	<0.18 U
Benzyl Butyl Phthalate	85-68-7	NS	NS	NS	mg/kg	<0.19 U	<0.18 U	<0.18 U	<0.18 U	<0.19 U	<0.19 U	<0.19 U	<0.18 U	<0.27 U	<0.18 U
Biphenyl (Diphenyl)	92-52-4	NS	NS	NS	mg/kg	0.04 J	<0.4 U	<0.41 U	<0.42 U	<0.44 U	0.38 J	<0.44 U	0.16 J	0.22 J	0.053 J
Bis(2-chloroethoxy) methane	111-91-1	NS	NS	NS	mg/kg	<0.2 U	<0.19 U	<0.19 U	<0.2 U	<0.21 U	<0.2 U	<0.21 U	<0.19 U	<0.3 U	<0.2 U
Bis(2-chloroethyl) ether (2-chloroethyl ether)	111-44-4	NS	NS	NS	mg/kg	<0.17 U	<0.16 U	<0.16 U	<0.16 U	<0.17 U	<0.17 U	<0.17 U	<0.16 U	<0.25 U	<0.17 U
Bis(2-chloroisopropyl) ether	108-60-1	NS	NS	NS	mg/kg	<0.22 U	<0.21 U	<0.22 U	<0.22 U	<0.23 U	<0.22 U	<0.23 U	<0.22 U	<0.33 U	<0.22 U
Bis(2-ethylhexyl) phthalate	117-81-7	NS	NS	NS	mg/kg	<0.19 U	<0.18 U	<0.18 U	<0.18 U	<0.19 U	<0.19 U	<0.19 U	0.083 J	<0.27 U	<0.18 U
Carbazole	86-74-8	NS	NS	NS	mg/kg	0.026 J	<0.18 U	0.018 J	0.021 J	<0.19 UJ	2.4	<0.19 U	0.5	0.73	0.28
Chrysene	218-01-9	**1**	1	4.9	mg/kg	0.22	<0.11 U	0.16	0.24	0.091 J	**8.8**	<0.11 U	**2.8 J**	**5.7 J**	**1.8**
Dibenz(a,h)anthracene	53-70-3	**0.33**	1000	0.33	mg/kg	0.03 J	<0.11 U	0.021 J	0.031 J	<0.12 U	**1.4**	<0.11 U	**0.49 J**	**0.98 J**	0.25
Dibenzofuran	132-64-9	**2.1**	110	18	mg/kg	0.06 J	<0.18 U	0.02 J	0.017 J	<0.19 U	**2.4**	<0.19 U	0.55	0.72	0.28
Dibutyl phthalate	84-74-2	NS	NS	NS	mg/kg	<0.19 U	<0.18 U	<0.18 U	<0.18 U	<0.19 U	0.13 J	<0.19 U	<0.18 U	0.057 J	<0.18 U
Diethyl phthalate	84-66-2	NS	NS	NS	mg/kg	<0.19 U	<0.18 U	<0.18 U	<0.18 U	<0.19 U	<0.19 U	<0.19 U	<0.18 U	<0.27 U	<0.18 U
Dimethyl phthalate	131-11-3	NS	NS	NS	mg/kg	<0.19 U	<0.18 U	<0.18 U	<0.18 U	<0.19 U	<0.19 U	<0.19 U	<0.18 U	<0.27 U	<0.18 U
Dioctyl phthalate	117-84-0	NS	NS	NS	mg/kg	<0.19 U	<0.18 U	<0.18 U	<0.18 U	<0.19 U	<0.19 U	<0.19 U	<0.18 U	<0.27 U	<0.18 U
Fluoranthene	206-44-0	**85**	1000	100	mg/kg	0.35	<0.11 U	0.24	0.3	0.18	26	0.026 J	6.3 J	13 J	3.8
Fluorene	86-73-7	**30**	386	100	mg/kg	0.034 J	<0.18 U	0.027 J	0.026 J	0.023 J	4.2	<0.19 U	0.61	1.1	0.39
Hexachlorobenzene	118-74-1	0.33	3.2	0.33	mg/kg	<0.11 U	<0.11 U	<0.11 U	<0.11 U	<0.12 U	<0.11 U	<0.11 U	<0.11 U	<0.16 U	<0.11 U
Hexachlorobutadiene	87-68-3	NS	NS	NS	mg/kg	<0.19 U	<0.18 U	<0.18 U	<0.18 U	<0.19 U	<0.19 U	<0.19 U	<0.18 U	<0.27 U	<0.18 U
Hexachlorocyclopentadiene	77-47-4	NS	NS	NS	mg/kg	<0.54 UJ	<0.5 UJ	<0.52 UJ	<0.52 UJ	<0.55 UJ	<0.53 UJ	<0.54 UJ	<0.51 U	<0.78 U	<0.53 U
Hexachloroethane	67-72-1	NS	NS	NS	mg/kg	<0.15 U	<0.14 U	<0.14 U	<0.14 U	<0.16 U	<0.15 U	<0.15 U	<0.14 U	<0.22 U	<0.15 U
Indeno(1,2,3-cd)pyrene	193-39-5	**0.5**	6.6	1.4	mg/kg	0.12 J	<0.14 U	0.076 J	0.11 J	0.039 J	**7.2**	<0.15 U	**2.5 J**	**5 J**	**1.2**
Isophorone	78-59-1	NS	NS	NS	mg/kg	<0.17 U	<0.16 U	<0.16 U	<0.16 U	<0.17 U	<0.17 U	<0.17 U	<0.16 U	<0.25 U	<0.17 U
Naphthalene	91-20-3	**12**	12	100	mg/kg	0.19	<0.18 U	0.074 J	0.068 J	<0.19 U	1.6	<0.19 U	0.81	1.3	0.29
Nitrobenzene	98-95-3	0.08	0.08	1.8	mg/kg	<0.17 U	<0.16 U	<0.16 U	<0.16 U	<0.17 U	<0.17 U	<0.17 U	<0.16 U	<0.25 U	<0.17 U
n-Nitrosodi-N-Propylamine	621-64-7	NS	NS	NS	mg/kg	<0.19 U	<0.18 U	<0.18 U	<0.18 U	<0.19 U	<0.19 U	<0.19 U	<0.18 U	<0.27 U	<0.18 U
n-Nitrosodiphenylamine	86-30-6	NS	NS	NS	mg/kg	<0.15 U	<0.14 U	<0.14 U	<0.14 U	<0.16 U	<0.15 U	<0.15 U	<0.14 U	<0.22 U	<0.15 U
Pentachlorophenol	87-86-5	0.8	0.8	1.3	mg/kg	<0.15 U	<0.14 U	<0.14 U	<0.14 U	<0.16 U	<0.15 U	<0.15 U	<0.14 U	<0.22 U	<0.15 U
Phenanthrene	85-01-8	**1.1**	1000	4.9	mg/kg	0.3	<0.11 U	0.18	0.14	0.17	**24**	<0.11 U	**4.4**	**7.2**	**3**
Phenol	108-95-2	**0.33**	0.33	100	mg/kg	<0.19 U	<0.18 U	<0.18 U	<0.18 U	<0.19 U	<0.19 U	<0.19 U	0.03 J	0.059 J	<0.18 U
Pyrene	129-00-0	**64**	1000	100	mg/kg	0.32	<0.11 U	0.24	0.28	0.16	22	0.022 J	5.6 J	12 J	3.3

Table 3A
Remedial Investigation Report
Soil Sample Analytical Results

C Block
Brooklyn, New York
NYSDEC BCP Site No.: C224435
Langan Project No.: 170229030

Analyte	CAS Number	NYSDEC Part 375 Unrestricted Use SCOs	NYSDEC Part 375 Protection of Groundwater SCOs	NYSDEC Part 375 Restricted Use Restricted-Residential SCOs	Location	SB20	SB20	SB21	SB21	SB21	SB22	SB22	SB23	SB23	SB23
					Sample Name	SB20_0-2	SB20_8-10	SB21_0-2	SODUP03_080122	SB21_6-8	SB22_0-2	SB22_13-15	SB23_0-2	SODUP01_072522	SB23_6-8
					Sample Date	08/01/2022	08/01/2022	08/01/2022	08/01/2022	08/01/2022	08/02/2022	08/02/2022	07/25/2022	07/25/2022	07/25/2022
					Sample Depth	0-2	8-10	0-2	0-2	6-8	0-2	13-15	0-2	0-2	6-8
					Unit	Result	Result	Result	Result	Result	Result	Result	Result	Result	Result
Pesticides															
4,4'-DDD	72-54-8	**0.0033**	14	5	mg/kg	<0.00178 U	<0.00166 U	**0.0341**	**0.0223**	<0.00177 U	**0.0135 J**	<0.00184 U	**0.0542 J**	**0.083**	0.000783 J
4,4'-DDE	72-55-9	**0.0033**	9.3	3.4	mg/kg	**0.00336 J**	<0.00166 U	**0.0212 J**	<0.00171 UJ	<0.00177 U	**0.00466 J**	<0.00184 U	**0.0503 J**	**0.0504**	<0.00172 U
4,4'-DDT	50-29-3	**0.0033**	135	3.8	mg/kg	**0.00672**	<0.00166 U	<0.00164 U	<0.00171 U	<0.00177 U	**0.00662 J**	<0.00184 U	**0.0406 J**	**0.0363 J**	<0.00172 U
Aldrin	309-00-2	0.0048	0.19	0.044	mg/kg	<0.00178 U	<0.00166 U	<0.00164 U	<0.00171 U	<0.00177 U	<0.0018 U	<0.00184 U	<0.00167 U	<0.00253 U	<0.00172 U
Alpha BHC (Alpha Hexachlorocyclohexane)	319-84-6	0.02	0.02	0.18	mg/kg	<0.000741 U	<0.000692 U	<0.000686 U	<0.000712 U	<0.000738 U	<0.00075 U	<0.000765 U	<0.000697 U	<0.00105 U	<0.000715 U
Alpha Chlordane	5103-71-9	0.014	4.5	0.65	mg/kg	<0.00222 U	<0.00208 U	<0.00206 U	<0.00214 U	<0.00221 U	<0.00225 U	<0.0023 U	<0.00209 U	<0.00316 U	<0.00214 U
Alpha Endosulfan	959-98-8	4.3	65	35	mg/kg	<0.00178 U	<0.00166 U	<0.00164 U	<0.00171 U	<0.00177 U	<0.0018 U	<0.00184 U	<0.00167 U	<0.00253 U	<0.00172 U
Beta Bhc (Beta Hexachlorocyclohexane)	319-85-7	0.021	0.09	0.18	mg/kg	<0.00178 U	<0.00166 U	<0.00164 U	<0.00171 U	<0.00177 U	<0.0018 U	<0.00184 U	<0.00167 U	<0.00253 U	<0.00172 U
Beta Endosulfan	33213-65-9	4.3	44	35	mg/kg	<0.00178 U	<0.00166 U	<0.00164 U	<0.00171 U	<0.00177 U	<0.0018 U	<0.00184 U	<0.00167 U	<0.00253 U	<0.00172 U
Chlordane (alpha and gamma)	57-74-9	NS	NS	NS	mg/kg	<0.0148 U	<0.0138 U	<0.0137 U	<0.0142 U	<0.0148 U	<0.015 U	<0.0153 U	<0.0139 U	<0.0211 U	<0.0143 U
Delta Bhc (Delta Hexachlorocyclohexane)	319-86-8	0.04	0.1	100	mg/kg	<0.00178 U	<0.00166 U	<0.00164 U	<0.00171 U	<0.00177 U	<0.0018 U	<0.00184 U	<0.00167 U	<0.00253 U	<0.00172 U
Dieldrin	60-57-1	0.005	0.1	0.075	mg/kg	<0.00111 U	<0.00104 U	<0.00103 U	<0.00107 U	<0.00111 U	<0.00112 U	<0.00115 U	<0.00104 U	<0.00158 U	<0.00107 U
Endosulfan Sulfate	1031-07-8	4.3	47	35	mg/kg	<0.000741 U	<0.000692 U	<0.000686 U	<0.000712 U	<0.000738 U	<0.00075 U	<0.000765 U	<0.000697 U	<0.00105 U	<0.000715 U
Endrin	72-20-8	0.014	0.06	5.3	mg/kg	<0.000741 U	<0.000692 U	<0.000686 U	<0.000712 U	<0.000738 U	<0.00075 U	<0.000765 U	<0.000697 U	<0.00105 U	<0.000715 U
Endrin Aldehyde	7421-93-4	NS	NS	NS	mg/kg	<0.00222 U	<0.00208 U	<0.00206 U	<0.00214 U	<0.00221 U	<0.00225 U	<0.0023 U	<0.00209 U	<0.00316 U	<0.00214 U
Endrin Ketone	53494-70-5	NS	NS	NS	mg/kg	<0.00178 U	<0.00166 U	<0.00164 U	<0.00171 U	<0.00177 U	<0.0018 U	<0.00184 U	<0.00167 U	<0.00253 U	<0.00172 U
Gamma Bhc (Lindane)	58-89-9	0.025	0.05	0.21	mg/kg	<0.000741 U	<0.000692 U	<0.000686 U	<0.000712 U	<0.000738 U	<0.00075 U	<0.000765 U	<0.000697 U	<0.00105 U	<0.000715 U
Gamma Chlordane (Trans)	5103-74-2	NS	NS	NS	mg/kg	<0.00222 U	<0.00208 U	<0.00206 U	<0.00214 U	<0.00221 U	<0.00225 U	<0.0023 U	<0.00209 U	<0.00316 U	<0.00214 U
Heptachlor	76-44-8	0.013	0.38	0.53	mg/kg	<0.000889 U	<0.00083 U	<0.000823 U	<0.000855 U	<0.000886 U	<0.0009 U	<0.000918 U	<0.000836 U	<0.00126 U	<0.000858 U
Heptachlor Epoxide	1024-57-3	NS	NS	NS	mg/kg	<0.00333 U	<0.00311 U	<0.00308 U	<0.0032 U	<0.00332 U	<0.00337 U	<0.00344 U	<0.00314 U	<0.00474 U	<0.00322 U
Methoxychlor	72-43-5	NS	NS	NS	mg/kg	<0.00333 U	<0.00311 U	<0.00308 U	<0.0032 U	<0.00332 U	<0.00337 U	<0.00344 U	<0.00314 U	<0.00474 U	<0.00322 U
Toxaphene	8001-35-2	NS	NS	NS	mg/kg	<0.0333 U	<0.0311 U	<0.0308 U	<0.032 U	<0.0332 U	<0.0337 U	<0.0344 U	<0.0314 U	<0.0474 U	<0.0322 U
Herbicides															
2,4,5-T (Trichlorophenoxyacetic Acid)	93-76-5	NS	NS	NS	mg/kg	<0.189 U	<0.178 U	<0.176 U	<0.182 U	<0.194 U	<0.187 U	<0.193 U	<0.181 U	<0.274 U	<0.185 U
2,4-D (Dichlorophenoxyacetic Acid)	94-75-7	NS	NS	NS	mg/kg	<0.189 U	<0.178 U	<0.176 U	<0.182 U	<0.194 U	<0.187 U	<0.193 U	<0.181 U	<0.274 U	<0.185 U
Silvex (2,4,5-Tp)	93-72-1	3.8	3.8	100	mg/kg	<0.189 U	<0.178 U	<0.176 U	<0.182 U	<0.194 U	<0.187 U	<0.193 U	<0.181 U	<0.274 U	<0.185 U
Polychlorinated Biphenyl															
PCB-1016 (Aroclor 1016)	12674-11-2	NS	NS	NS	mg/kg	<0.0375 U	<0.0344 U	<0.174 U	<0.18 U	<0.039 U	<0.0371 U	<0.0384 U	<0.0351 U	<0.0532 U	<0.0363 U
PCB-1221 (Aroclor 1221)	11104-28-2	NS	NS	NS	mg/kg	<0.0375 U	<0.0344 U	<0.174 U	<0.18 U	<0.039 U	<0.0371 U	<0.0384 U	<0.0351 U	<0.0532 U	<0.0363 U
PCB-1232 (Aroclor 1232)	11141-16-5	NS	NS	NS	mg/kg	<0.0375 U	<0.0344 U	<0.174 U	<0.18 U	<0.039 U	<0.0371 U	<0.0384 U	<0.0351 U	<0.0532 U	<0.0363 U
PCB-1242 (Aroclor 1242)	53469-21-9	NS	NS	NS	mg/kg	<0.0375 U	<0.0344 U	<0.174 U	<0.18 U	<0.039 U	<0.0371 U	<0.0384 U	<0.0351 U	<0.0532 U	<0.0363 U
PCB-1248 (Aroclor 1248)	12672-29-6	NS	NS	NS	mg/kg	<0.0375 U	<0.0344 U	0.766 J	1.32 J	<0.039 U	<0.0371 U	<0.0384 U	<0.0351 U	<0.0532 U	<0.0363 U
PCB-1254 (Aroclor 1254)	11097-69-1	NS	NS	NS	mg/kg	<0.0375 U	<0.0344 U	0.881	1.45	<0.039 U	<0.0371 U	<0.0384 U	<0.0351 UJ	0.229 J	0.0268 J
PCB-1260 (Aroclor 1260)	11096-82-5	NS	NS	NS	mg/kg	0.0188 J	<0.0344 U	0.369	0.478	<0.039 U	<0.0371 U	<0.0384 U	<0.0351 UJ	0.297 J	0.0513
PCB-1262 (Aroclor 1262)	37324-23-5	NS	NS	NS	mg/kg	<0.0375 U	<0.0344 U	<0.174 U	<0.18 U	<0.039 U	<0.0371 U	<0.0384 U	<0.0351 U	<0.0532 U	<0.0363 U
PCB-1268 (Aroclor 1268)	11100-14-4	NS	NS	NS	mg/kg	0.01 J	<0.0344 U	<0.174 U	<0.18 U	<0.039 U	0.00542 J	<0.0384 U	0.0127 J	<0.0532 U	<0.0363 U
Total PCBs	1336-36-3	**0.1**	3.2	1	mg/kg	0.0288 J	<0.0344 U	**2.02**	**3.25**	<0.039 U	0.00542 J	<0.0384 U	0.0304 J	**0.526 J**	0.0781 J
Metals															
Aluminum	7429-90-5	NS	NS	NS	mg/kg	4,830	3,930	2,500	1,930	2,510	2,240	2,720	6,480	7,770	6,160
Antimony	7440-36-0	NS	NS	NS	mg/kg	3.09 J	0.356 J	3.92 J	2.37 J	<4.54 UJ	3.67 J	<4.44 U	10.5	7.71	0.448 J
Arsenic	7440-38-2	**13**	16	16	mg/kg	**13.2**	1.55	10.6	12.7	**23.7 J**	**24.2**	2.23	**13.9**	**14.1**	5.26
Barium	7440-39-3	**410**	820	410	mg/kg	219	25.1	120	95.9	89.9	184	7.51	153	158	168
Beryllium	7440-41-7	4.4	47	43	mg/kg	0.94	0.215 J	0.328 J	0.188 J	0.082 J	0.319 J	0.204 J	0.599	0.667	0.307 J
Cadmium	7440-43-9	**2.5**	7.5	2.5	mg/kg	0.986	0.232 J	**2.52**	**3.12**	0.518 J	0.906	0.337 J	**3.4**	**2.9**	0.614 J
Calcium	7440-70-2	NS	NS	NS	mg/kg	5,890	400	66,300	94,600	1,560	1,910	1,260	10,800 J	49,900 J	21,200
Chromium, Hexavalent	18540-29-9	1	19	1	mg/kg	<0.928 U	0.228 J	<0.87 U	<0.879 U	<0.942 U	<0.904 U	<0.937 U	<0.877 U	<1.32 U	<0.896 U
Chromium, Total	7440-47-3	NS	NS	NS	mg/kg	13.1	10.3	9.99	10.7	10	14.3	5.66	28.3	27.6	16.8
Chromium, Trivalent	16065-83-1	**30**	NS	110	mg/kg	13	10 J	10	11	10	14	5.7	28	28	17
Cobalt	7440-48-4	NS	NS	NS	mg/kg	8.85	4.22	14.1	12.3	2.43	3.79	2.22	16.7 J	8.65 J	5.37
Copper	7440-50-8	**50**	1720	280	mg/kg	**85.8**	11.5	**104**	**91.1**	19.4	**107**	4.19	**212**	**173**	**76.8**
Cyanide	57-12-5	**2.3**	40	13	mg/kg	0.71 J	<1.1 UJ	<1 UJ	<1 UJ	<1.2 UJ	0.45 J	<1.1 UJ	0.25 J	<1.5 U	<1.1 U
Iron	7439-89-6	NS	NS	NS	mg/kg	15,800	12,800	15,800	14,700	30,600	13,400	8,350	28,600	21,300	12,500
Lead	7439-92-1	**63**	450	400	mg/kg	**452**	24.5	**172**	**160**	51.8 J	**342**	4.62	**668**	**441**	**870**
Magnesium	7439-95-4	NS	NS	NS	mg/kg	924	1,790	29,300 J	53,800 J	814	562	1,180	2,670 J	21,600 J	6,150
Manganese	7439-96-5	1600	2000	2000	mg/kg	188	270	159	179	45.8 J	115	67.8	247	180	173
Mercury	7439-97-6	**0.18**	0.73	0.3	mg/kg	**0.243**	<0.073 U	0.154	0.128	<0.075 U	**0.59**	<0.075 U	**0.291**	**0.44**	**0.921**
Nickel	7440-02-0	**30**	130	320	mg/kg	23	6.76	22.1	18.1	5.02	12.1	5.31	21.3	27.5	9.83
Potassium	7440-09-7	NS	NS	NS	mg/kg	750	926	374	338	1,180	516	508	667	869	649
Selenium	7782-49-2	**3.9**	4	110	mg/kg	1.62 J	0.389 J	0.766 J	0.727 J	3.46	3.25	0.284 J	0.822 J	1.45 J	0.755 J
Silver	7440-22-4	2	8.3	110	mg/kg	<0.913 U	<0.827 U	<0.842 U	<0.856 U	<0.909 U	0.492 J	<0.888 U	<0.856 U	<1.28 U	<0.878 U
Sodium	7440-23-5	NS	NS	NS	mg/kg	302	845	153 J	147 J	431	71.7 J	651	265	382	486
Thallium	7440-28-0	NS	NS	NS	mg/kg	<1.82 U	<1.65 U	<1.68 U	<1.71 U	<1.82 U	0.177 J	<0.888 U	<1.71 U	<2.57 U	<1.76 U
Vanadium	7440-62-2	NS	NS	NS	mg/kg	26.2	14.2	18.6	16.5	18.3	22.5	8.82	36.9	37.1	22.8
Zinc	7440-66-6	**109**	2480	6600	mg/kg	102	19.1	**226**	**251**	15	105	12.9	**501 J**	**258 J**	**198**

Table 3A
Remedial Investigation Report
Soil Sample Analytical Results

C Block
Brooklyn, New York
NYSDEC BCP Site No.: C224435
Langan Project No.: 170229030

Analyte	CAS Number	NYSDEC Part 375 Unrestricted Use SCOs	NYSDEC Part 375 Protection of Groundwater SCOs	NYSDEC Part 375 Restricted Use Restricted-Residential SCOs	Location	SB20	SB20	SB21	SB21	SB21	SB22	SB22	SB23	SB23	SB23
					Sample Name	SB20_0-2	SB20_8-10	SB21_0-2	SODUP03_080122	SB21_6-8	SB22_0-2	SB22_13-15	SB23_0-2	SODUP01_072522	SB23_6-8
					Sample Date	08/01/2022	08/01/2022	08/01/2022	08/01/2022	08/01/2022	08/02/2022	08/02/2022	07/25/2022	07/25/2022	07/25/2022
					Sample Depth	0-2	8-10	0-2	0-2	6-8	0-2	13-15	0-2	0-2	6-8
					Unit	Result	Result	Result	Result	Result	Result	Result	Result	Result	Result
Per- and Polyfluoroalkyl Substances															
1H,1H,2H,2H-Perfluorodecane Sulfonic Acid (8:2 FTS)	39108-34-4	NS	NS	NS	mg/kg	<0.000554 U	<0.000504 U	<0.000509 U	<0.000522 U	<0.000568 U	<0.000537 U	<0.000529 U	<0.000485 U	<0.000763 U	<0.000504 U
1H,1H,2H,2H-Perfluorooctane Sulfonic Acid (6:2 FTS)	27619-97-2	NS	NS	NS	mg/kg	<0.000554 U	<0.000504 U	<0.000509 U	<0.000522 U	<0.000568 U	<0.000537 U	<0.000529 U	<0.000485 U	<0.000763 U	<0.000504 U
N-ethyl Perfluorooctanesulfonamidoacetic Acid (NEtFOSAA)	2991-50-6	NS	NS	NS	mg/kg	<0.000554 U	<0.000504 U	<0.000509 U	<0.000522 U	<0.000568 U	<0.000537 U	<0.000529 U	<0.000485 U	<0.000763 U	<0.000504 U
N-methyl Perfluorooctanesulfonamidoacetic Acid (NMeFOSAA)	2355-31-9	NS	NS	NS	mg/kg	<0.000554 U	<0.000504 U	<0.000509 U	<0.000522 U	<0.000568 U	<0.000537 U	<0.000529 U	<0.000485 U	<0.000763 U	<0.000504 U
Perfluorobutanesulfonic Acid (PFBS)	375-73-5	NS	NS	NS	mg/kg	<0.000277 U	<0.000252 U	<0.000254 U	<0.000261 U	<0.000284 U	<0.000268 U	<0.000264 U	<0.000242 U	<0.000381 U	<0.000252 U
Perfluorobutanoic acid (PFBA)	375-22-4	NS	NS	NS	mg/kg	<0.000554 U	<0.000504 U	<0.000509 U	<0.000522 U	<0.000568 U	<0.000537 U	<0.000529 U	<0.000485 U	<0.000763 U	<0.000504 U
Perfluorodecanesulfonic Acid (PFDS)	335-77-3	NS	NS	NS	mg/kg	<0.000554 U	<0.000504 U	<0.000509 U	<0.000522 U	<0.000568 U	<0.000537 U	<0.000529 U	<0.000485 U	<0.000763 U	<0.000504 U
Perfluorodecanoic Acid (PFDA)	335-76-2	NS	NS	NS	mg/kg	<0.000277 U	<0.000252 U	<0.000254 U	<0.000261 U	<0.000284 U	<0.000268 U	<0.000264 U	0.000182 J	<0.000381 U	<0.000252 U
Perfluorododecanoic Acid (PFDoA)	307-55-1	NS	NS	NS	mg/kg	<0.000554 U	<0.000504 U	<0.000509 U	<0.000522 U	<0.000568 U	<0.000537 U	<0.000529 U	<0.000485 U	<0.000763 U	<0.000504 U
Perfluoroheptanesulfonic Acid (PFHpS)	375-92-8	NS	NS	NS	mg/kg	<0.000554 U	<0.000504 U	<0.000509 U	<0.000522 U	<0.000568 U	<0.000537 U	<0.000529 U	<0.000485 U	<0.000763 U	<0.000504 U
Perfluoroheptanoic acid (PFHpA)	375-85-9	NS	NS	NS	mg/kg	<0.000277 U	<0.000252 U	<0.000254 U	<0.000261 U	<0.000284 U	<0.000268 U	<0.000264 U	<0.000242 U	<0.000381 U	<0.000252 U
Perfluorohexanesulfonic Acid (PFHxS)	355-46-4	NS	NS	NS	mg/kg	<0.000277 U	<0.000252 U	<0.000254 U	<0.000261 U	<0.000284 U	<0.000268 U	<0.000264 U	<0.000242 U	<0.000381 U	<0.000252 U
Perfluorohexanoic Acid (PFHxA)	307-24-4	NS	NS	NS	mg/kg	<0.000554 U	<0.000504 U	<0.000509 U	<0.000522 U	<0.000568 U	<0.000537 U	<0.000529 U	<0.000485 U	<0.000763 U	<0.000504 U
Perfluorononanoic Acid (PFNA)	375-95-1	NS	NS	NS	mg/kg	<0.000277 U	<0.000252 U	<0.000254 U	<0.000261 U	<0.000284 U	<0.000268 U	<0.000264 U	0.000118 J	<0.000381 U	<0.000252 U
Perfluorooctanesulfonamide (PFOSA)	754-91-6	NS	NS	NS	mg/kg	<0.000554 U	<0.000504 U	<0.000509 U	<0.000522 U	<0.000568 U	<0.000537 U	<0.000529 U	<0.000485 U	<0.000763 U	<0.000504 U
Perfluorooctanesulfonic Acid (PFOS)	1763-23-1	0.00088	0.001	0.044	mg/kg	<0.000277 U	<0.000252 U	<0.000254 U	<0.000261 U	<0.000284 U	<0.000268 U	<0.000264 U	0.000273	<0.000381 U	<0.000252 U
Perfluorooctanoic Acid (PFOA)	335-67-1	0.00066	0.0008	0.033	mg/kg	0.000167 J	<0.000252 U	<0.000254 U	<0.000261 U	<0.000284 U	<0.000268 U	<0.000264 U	0.00008 J	0.000152 J	0.000163 J
Perfluoropentanoic Acid (PFPeA)	2706-90-3	NS	NS	NS	mg/kg	<0.000554 U	<0.000504 U	<0.000509 U	<0.000522 U	<0.000568 U	<0.000537 U	<0.000529 U	<0.000485 U	<0.000763 U	<0.000504 U
Perfluorotetradecanoic Acid (PFTeDA)	376-06-7	NS	NS	NS	mg/kg	<0.000554 U	<0.000504 U	<0.000509 U	<0.000522 U	<0.000568 U	<0.000537 U	<0.000529 U	<0.000485 U	<0.000763 U	<0.000504 U
Perfluorotridecanoic Acid (PFTrDA)	72629-94-8	NS	NS	NS	mg/kg	<0.000554 U	<0.000504 U	<0.000509 U	<0.000522 U	<0.000568 U	<0.000537 U	<0.000529 U	<0.000485 U	<0.000763 U	<0.000504 U
Perfluoroundecanoic Acid (PFUnA)	2058-94-8	NS	NS	NS	mg/kg	<0.000554 U	<0.000504 U	<0.000509 U	<0.000522 U	<0.000568 U	<0.000537 U	<0.000529 U	0.000053 J	<0.000763 U	<0.000504 U
Total PFOA and PFOS	TOTPFOAPFOS	NS	NS	NS	mg/kg	0.000167 J	<0.000252 U	<0.000254 U	<0.000261 U	<0.000284 U	<0.000268 U	<0.000264 U	0.000353 J	0.000152 J	0.000163 J
General Chemistry															
Solids, Percent	SOLID	NS	NS	NS	Percent	86.2	91.9	92	91	84.9	88.5	85.4	91.2	60.4	89.3

Table 3A
Remedial Investigation Report
Soil Sample Analytical Results

C Block
Brooklyn, New York
NYSDEC BCP Site No.: C224435
Langan Project No.: 170229030

Analyte	CAS Number	NYSDEC Part 375 Unrestricted Use SCOs	NYSDEC Part 375 Protection of Groundwater SCOs	NYSDEC Part 375 Restricted Use Restricted-Residential SCOs	Location	SB24	SB24	SB25	SB25	SB26	SB26	SB27	SB27	SB28	SB28
					Sample Name	SB24_0-2	SB24_2-4	SB25_0-2	SB25_4-6	SB26_0-2	SB26_6-8	SB27_0-2	SB27_7-9	SB28_0-2	SB28_13-15
					Sample Date	07/27/2022	07/27/2022	07/28/2022	07/28/2022	08/03/2022	08/03/2022	08/03/2022	08/03/2022	08/02/2022	08/02/2022
					Sample Depth	0-2	2-4	0-2	4-6	0-2	6-8	0-2	7-9	0-2	13-15
					Unit	Result	Result	Result	Result	Result	Result	Result	Result	Result	Result
Volatile Organic Compounds															
1,1,1,2-Tetrachloroethane	630-20-6	NS	NS	NS	mg/kg	<0.00047 U	<0.00063 U	<0.00048 UJ	<0.00059 UJ	<0.00069 U	<0.0007 U	<0.00078 U	<0.00046 U	<0.00068 U	<0.00056 U
1,1,1-Trichloroethane	71-55-6	0.68	0.68	100	mg/kg	<0.00047 U	<0.00063 U	<0.00048 UJ	<0.00059 UJ	<0.00069 U	<0.0007 U	<0.00078 U	<0.00046 U	<0.00068 U	<0.00056 U
1,1,2,2-Tetrachloroethane	79-34-5	NS	NS	NS	mg/kg	<0.00047 U	<0.00063 U	<0.00048 UJ	<0.00059 UJ	<0.00069 U	<0.0007 U	<0.00078 U	<0.00046 U	<0.00068 U	<0.00056 U
1,1,2-Trichloroethane	79-00-5	NS	NS	NS	mg/kg	<0.00094 U	<0.0013 U	<0.00096 UJ	<0.0012 UJ	<0.0014 U	<0.0014 U	<0.0016 U	<0.00092 U	<0.0014 U	<0.0011 U
1,1-Dichloroethane	75-34-3	0.27	0.27	47	mg/kg	<0.00094 U	<0.0013 U	<0.00096 UJ	<0.0012 UJ	<0.0014 U	<0.0014 U	<0.0016 U	<0.00092 U	<0.0014 U	<0.0011 U
1,1-Dichloroethene	75-35-4	0.24	0.33	0.98	mg/kg	<0.00094 U	<0.0013 U	<0.00096 UJ	<0.0012 UJ	<0.0014 U	<0.0014 U	<0.0016 U	<0.00092 U	<0.0014 U	<0.0011 U
1,1-Dichloropropene	563-58-6	NS	NS	NS	mg/kg	<0.00047 U	<0.00063 U	<0.00048 UJ	<0.00059 UJ	<0.00069 U	<0.0007 U	<0.00078 U	<0.00046 U	<0.00068 U	<0.00056 U
1,2,3-Trichlorobenzene	87-61-6	NS	NS	NS	mg/kg	<0.0019 U	<0.0025 U	<0.0019 UJ	<0.0024 UJ	<0.0028 U	<0.0028 U	<0.0031 U	<0.0018 U	<0.0027 U	<0.0022 U
1,2,3-Trichloropropane	96-18-4	NS	NS	NS	mg/kg	<0.0019 U	<0.0025 U	<0.0019 UJ	<0.0024 UJ	<0.0028 U	<0.0028 U	<0.0031 U	<0.0018 U	<0.0027 U	<0.0022 U
1,2,4,5-Tetramethylbenzene	95-93-2	NS	NS	NS	mg/kg	<0.0019 U	<0.0025 U	<0.0019 UJ	<0.0024 UJ	<0.0028 U	<0.0028 U	<0.0031 U	<0.0018 U	<0.0027 U	<0.0022 U
1,2,4-Trichlorobenzene	120-82-1	NS	NS	NS	mg/kg	<0.0019 U	<0.0025 U	<0.0019 UJ	<0.0024 UJ	<0.0028 U	<0.0028 U	<0.0031 U	<0.0018 U	<0.0027 U	<0.0022 U
1,2,4-Trimethylbenzene	95-63-6	5.9	5.9	100	mg/kg	<0.0019 U	<0.0025 U	<0.0019 UJ	<0.0024 UJ	<0.0028 U	<0.0028 U	<0.0031 U	<0.0018 U	<0.0027 U	<0.0022 U
1,2-Dibromo-3-Chloropropane	96-12-8	NS	NS	NS	mg/kg	<0.0028 U	<0.0038 U	<0.0029 UJ	<0.0035 UJ	<0.0042 U	<0.0042 U	<0.0046 U	<0.0028 U	<0.0041 U	<0.0034 U
1,2-Dibromoethane (Ethylene Dibromide)	106-93-4	NS	NS	NS	mg/kg	<0.00094 U	<0.0013 U	<0.00096 UJ	<0.0012 UJ	<0.0014 U	<0.0014 U	<0.0016 U	<0.00092 U	<0.0014 U	<0.0011 U
1,2-Dichlorobenzene	95-50-1	1.1	1.1	100	mg/kg	<0.0019 U	<0.0025 U	<0.0019 UJ	<0.0024 UJ	<0.0028 U	<0.0028 U	<0.0031 U	<0.0018 U	<0.0027 U	<0.0022 U
1,2-Dichloroethane	107-06-2	0.02	0.02	5.8	mg/kg	<0.00094 U	<0.0013 U	0.00031 J	<0.0012 UJ	<0.0014 U	<0.0014 U	<0.0016 U	<0.00092 U	<0.0014 U	<0.0011 U
1,2-Dichloropropane	78-87-5	NS	NS	NS	mg/kg	<0.00094 U	<0.0013 U	<0.00096 UJ	<0.0012 UJ	<0.0014 U	<0.0014 U	<0.0016 U	<0.00092 U	<0.0014 U	<0.0011 U
1,3,5-Trimethylbenzene (Mesitylene)	108-67-8	3.1	3.1	100	mg/kg	<0.0019 U	<0.0025 U	<0.0019 UJ	<0.0024 UJ	<0.0028 U	<0.0028 U	<0.0031 U	<0.0018 U	<0.0027 U	<0.0022 U
1,3-Dichlorobenzene	541-73-1	2.6	2.6	38	mg/kg	<0.0019 U	<0.0025 U	<0.0019 UJ	<0.0024 UJ	<0.0028 U	<0.0028 U	<0.0031 U	<0.0018 U	<0.0027 U	<0.0022 U
1,3-Dichloropropane	142-28-9	NS	NS	NS	mg/kg	<0.0019 U	<0.0025 U	<0.0019 UJ	<0.0024 UJ	<0.0028 U	<0.0028 U	<0.0031 U	<0.0018 U	<0.0027 U	<0.0022 U
1,4-Dichlorobenzene	106-46-7	1.8	1.8	24	mg/kg	<0.0019 U	<0.0025 U	<0.0019 UJ	<0.0024 UJ	<0.0028 U	<0.0028 U	<0.0031 U	<0.0018 U	<0.0027 U	<0.0022 U
1,4-Diethyl Benzene	105-05-5	NS	NS	NS	mg/kg	<0.0019 U	<0.0025 U	<0.0019 UJ	<0.0024 UJ	<0.0028 U	<0.0028 U	<0.0031 U	<0.0018 U	<0.0027 U	<0.0022 U
1,4-Dioxane (P-Dioxane)	123-91-1	0.1	0.1	5.7	mg/kg	<0.075 U	<0.1 U	<0.077 UJ	<0.094 UJ	<0.11 U	<0.11 U	<0.12 U	<0.074 U	<0.11 U	<0.09 U
2,2-Dichloropropane	594-20-7	NS	NS	NS	mg/kg	<0.0019 U	<0.0025 U	<0.0019 UJ	<0.0024 UJ	<0.0028 U	<0.0028 U	<0.0031 U	<0.0018 U	<0.0027 U	<0.0022 U
2-Chlorotoluene	95-49-8	NS	NS	NS	mg/kg	<0.0019 U	<0.0025 U	<0.0019 UJ	<0.0024 UJ	<0.0028 U	<0.0028 U	<0.0031 U	<0.0018 U	<0.0027 U	<0.0022 U
2-Hexanone (MBK)	591-78-6	NS	NS	NS	mg/kg	<0.0094 U	<0.013 U	<0.0096 UJ	<0.012 UJ	<0.014 U	<0.014 U	<0.016 U	<0.0092 U	<0.014 U	<0.011 U
4-Chlorotoluene	106-43-4	NS	NS	NS	mg/kg	<0.0019 U	<0.0025 U	<0.0019 UJ	<0.0024 UJ	<0.0028 U	<0.0028 U	<0.0031 U	<0.0018 U	<0.0027 U	<0.0022 U
4-Ethyltoluene	622-96-8	NS	NS	NS	mg/kg	<0.0019 U	<0.0025 U	<0.0019 UJ	<0.0024 UJ	<0.0028 U	<0.0028 U	<0.0031 U	<0.0018 U	<0.0027 U	<0.0022 U
Acetone	67-64-1	**0.03**	0.03	100	mg/kg	<0.0094 U	0.027 J	0.012 J	0.019 J	<0.014 U	**0.047**	0.014 J	0.011	<0.014 U	<0.011 U
Acrylonitrile	107-13-1	NS	NS	NS	mg/kg	<0.0038 U	<0.0051 U	<0.0038 UJ	<0.0047 UJ	<0.0055 U	<0.0056 U	<0.0062 U	<0.0037 U	<0.0055 U	<0.0045 U
Benzene	71-43-2	**0.06**	0.06	3.7	mg/kg	<0.00047 U	<0.00063 U	<0.00048 UJ	<0.00059 UJ	<0.00069 U	<0.0007 U	0.00029 J	<0.00046 U	0.0028	<0.00056 U
Bromobenzene	108-86-1	NS	NS	NS	mg/kg	<0.0019 U	<0.0025 U	<0.0019 UJ	<0.0024 UJ	<0.0028 U	<0.0028 U	<0.0031 U	<0.0018 U	<0.0027 U	<0.0022 U
Bromochloromethane	74-97-5	NS	NS	NS	mg/kg	<0.0019 U	<0.0025 U	<0.0019 UJ	<0.0024 UJ	<0.0028 U	<0.0028 U	<0.0031 U	<0.0018 U	<0.0027 U	<0.0022 U
Bromodichloromethane	75-27-4	NS	NS	NS	mg/kg	<0.00047 U	<0.00063 U	<0.00048 UJ	<0.00059 UJ	<0.00069 U	<0.0007 U	<0.00078 U	<0.00046 U	<0.00068 U	<0.00056 U
Bromoform	75-25-2	NS	NS	NS	mg/kg	<0.0038 U	<0.0051 U	<0.0038 UJ	<0.0047 UJ	<0.0055 U	<0.0056 U	<0.0062 U	<0.0037 U	<0.0055 U	<0.0045 U
Bromomethane	74-83-9	NS	NS	NS	mg/kg	<0.0019 U	<0.0025 U	<0.0019 UJ	<0.0024 UJ	<0.0028 U	<0.0028 U	<0.0031 U	<0.0018 U	<0.0027 U	<0.0022 U
Carbon Disulfide	75-15-0	NS	NS	NS	mg/kg	<0.0094 U	<0.013 U	<0.0096 UJ	<0.012 UJ	<0.014 U	<0.014 U	<0.016 U	<0.0092 U	<0.014 U	<0.011 U
Carbon Tetrachloride	56-23-5	0.76	0.76	7.1	mg/kg	<0.00094 U	<0.0013 U	<0.00096 UJ	<0.0012 UJ	<0.0014 U	<0.0014 U	<0.0016 U	<0.00092 U	<0.0014 U	<0.0011 U
Chlorobenzene	108-90-7	4.5	4.5	100	mg/kg	<0.00047 U	<0.00063 U	<0.00048 UJ	<0.00059 UJ	<0.00069 U	<0.0007 U	<0.00078 U	<0.00046 U	<0.00068 U	<0.00056 U
Chloroethane	75-00-3	NS	NS	NS	mg/kg	<0.0019 U	<0.0025 U	<0.0019 UJ	<0.0024 UJ	<0.0028 U	<0.0028 U	<0.0031 U	<0.0018 U	<0.0027 U	<0.0022 U
Chloroform	67-66-3	0.37	0.37	24	mg/kg	<0.0014 U	<0.0019 U	<0.0014 UJ	<0.0018 UJ	<0.0021 U	<0.0021 U	<0.0023 U	<0.0014 U	<0.002 U	<0.0017 U
Chloromethane	74-87-3	NS	NS	NS	mg/kg	<0.0038 U	<0.0051 U	<0.0038 UJ	<0.0047 UJ	<0.0055 U	<0.0056 U	<0.0062 U	<0.0037 U	<0.0055 U	<0.0045 U
Cis-1,2-Dichloroethene	156-59-2	0.19	0.19	41	mg/kg	<0.00094 U	<0.0013 U	<0.00096 UJ	<0.0012 UJ	<0.0014 U	<0.0014 U	<0.0016 U	<0.00092 U	<0.0014 U	<0.0011 U
Cis-1,3-Dichloropropene	10061-01-5	NS	NS	NS	mg/kg	<0.00047 U	<0.00063 U	<0.00048 UJ	<0.00059 UJ	<0.00069 U	<0.0007 U	<0.00078 U	<0.00046 U	<0.00068 U	<0.00056 U
Cymene	99-87-6	NS	NS	NS	mg/kg	<0.00094 U	<0.0013 U	<0.00096 UJ	<0.0012 UJ	<0.0014 U	<0.0014 U	<0.0016 U	<0.00092 U	<0.0014 U	<0.0011 U
Dibromochloromethane	124-48-1	NS	NS	NS	mg/kg	<0.00094 U	<0.0013 U	<0.00096 UJ	<0.0012 UJ	<0.0014 U	<0.0014 U	<0.0016 U	<0.00092 U	<0.0014 U	<0.0011 U
Dibromomethane	74-95-3	NS	NS	NS	mg/kg	<0.0019 U	<0.0025 U	<0.0019 UJ	<0.0024 UJ	<0.0028 U	<0.0028 U	<0.0031 U	<0.0018 U	<0.0027 U	<0.0022 U
Dichlorodifluoromethane	75-71-8	NS	NS	NS	mg/kg	<0.0094 U	<0.013 U	<0.0096 UJ	<0.012 UJ	<0.014 U	<0.014 U	<0.016 U	<0.0092 U	<0.014 U	<0.011 U
Diethyl Ether (Ethyl Ether)	60-29-7	NS	NS	NS	mg/kg	<0.0019 U	<0.0025 U	<0.0019 UJ	<0.0024 UJ	<0.0028 U	<0.0028 U	<0.0031 U	<0.0018 U	<0.0027 U	<0.0022 U
Ethylbenzene	100-41-4	1	1	76	mg/kg	<0.00094 U	<0.0013 U	<0.00096 UJ	<0.0012 UJ	<0.0014 U	<0.0014 U	<0.0016 U	<0.00092 U	<0.0014 U	<0.0011 U
Hexachlorobutadiene	87-68-3	NS	NS	NS	mg/kg	<0.0038 U	<0.0051 U	<0.0038 UJ	<0.0047 UJ	<0.0055 U	<0.0056 U	<0.0062 U	<0.0037 U	<0.0055 U	<0.0045 U
Isopropylbenzene (Cumene)	98-82-8	NS	NS	NS	mg/kg	<0.00094 U	<0.0013 U	<0.00096 UJ	<0.0012 UJ	<0.0014 U	<0.0014 U	<0.0016 U	<0.00092 U	<0.0014 U	<0.0011 U
M,P-Xylene	179601-23-1	NS	NS	NS	mg/kg	<0.0019 U	<0.0025 U	<0.0019 UJ	<0.0024 UJ	<0.0028 U	<0.0028 U	<0.0031 U	<0.0018 U	0.001 J	<0.0022 U
Methyl Ethyl Ketone (2-Butanone)	78-93-3	0.1	0.1	100	mg/kg	0.0026 J	<0.013 U	<0.0096 UJ	<0.012 UJ	<0.014 U	0.0079 J	<0.016 U	0.0026 J	<0.014 U	<0.011 U
Methyl Isobutyl Ketone (4-Methyl-2-Pentanone)	108-10-1	NS	NS	NS	mg/kg	<0.0094 U	<0.013 U	<0.0096 UJ	<0.012 UJ	<0.014 U	<0.014 U	<0.016 U	<0.0092 U	<0.014 U	<0.011 U
Methylene Chloride	75-09-2	0.05	0.05	81	mg/kg	<0.0047 U	<0.0063 U	<0.0048 UJ	<0.0059 UJ	<0.0069 U	<0.007 U	<0.0078 U	<0.0046 U	<0.0068 U	<0.0056 U
Naphthalene	91-20-3	**12**	12	100	mg/kg	0.00082 J	<0.0051 U	<0.0038 UJ	<0.0047 UJ	<0.0055 U	<0.0056 U	<0.0062 U	<0.0037 U	<0.0055 U	<0.0045 U
n-Butylbenzene	104-51-8	18	18	100	mg/kg	<0.00094 U	<0.0013 U	<0.00096 UJ	<0.0012 UJ	<0.0014 U	<0.0014 U	<0.0016 U	<0.00092 U	<0.0014 U	<0.0011 U
n-Propylbenzene	103-65-1	5	5	100	mg/kg	<0.00094 U	<0.0013 U	<0.00096 UJ	<0.0012 UJ	<0.0014 U	<0.0014 U	<0.0016 U	<0.00092 U	<0.0014 U	<0.0011 U
o-Xylene (1,2-Dimethylbenzene)	95-47-6	NS	NS	NS	mg/kg	<0.00094 U	<0.0013 U	<0.00096 UJ	<0.0012 UJ	<0.0014 U	<0.0014 U	<0.0016 U	<0.00092 U	<0.0014 U	<0.0011 U
Sec-Butylbenzene	135-98-8	25	25	100	mg/kg	<0.00094 U	<0.0013 U	<0.00096 UJ	<0.0012 UJ	<0.0014 U	<0.0014 U	<0.0016 U	<0.00092 U	<0.0014 U	<0.0011 U
Styrene	100-42-5	NS	NS	NS	mg/kg	<0.00094 U	<0.0013 U	<0.00096 UJ	<0.0012 UJ	<0.0014 U	<0.0014 U	<0.0016 U	<0.00092 U	<0.0014 U	<0.0011 U
T-Butylbenzene	98-06-6	11	11	100	mg/kg	<0.0019 U	<0.0025 U	<0.0019 UJ	<0.0024 UJ	<0.0028 U	<0.0028 U	<0.0031 U	<0.0018 U	<0.0027 U	<0.0022 U
Tert-Butyl Methyl Ether (MTBE)	1634-04-4	0.1	0.1	100	mg/kg	<0.0019 U	<0.0025 U	<0.0019 UJ	<0.0024 UJ	<0.0028 U	<0.0028 U	<0.0031 U	<0.0018 U	<0.0027 U	<0.0022 U
Tetrachloroethene (PCE)	127-18-4	1.3	1.3	18	mg/kg	0.0028	<0.00063 U	<0.00048 UJ	<0.00059 UJ	0.0023	<0.0007 U	<0.00078 U	<0.00046 U	<0.00068 U	<0.00056 U
Toluene	108-88-3	**0.7**	0.7	100	mg/kg	<0.00094 U	<0.0013 U	<0.00096 UJ	<0.0012 UJ	<0.0014 U	<0.0014 U	<0.0016 U	<0.00092 U	<0.0014 U	<0.0011 U
Total 1,2-Dichloroethene (Cis and Trans)	540-59-0	NS	NS	NS	mg/kg	<0.00094 U	<0.0013 U	<0.00096 UJ	<0.0012 UJ	<0.0014 U	<0.0014 U	<0.0016 U	<0.00092 U	<0.0014 U	<0.0011 U
Total Xylenes	1330-20-7	**0.26**	1.2	100	mg/kg	<0.00094 U	<0.0013 U	<0.00096 UJ	<0.0012 UJ	<0.0014 U	<0.0014 U	<0.0016 U	<0.00092 U	0.001 J	<0.0011 U
Total, 1,3-Dichloropropene (Cis And Trans)	542-75-6	NS	NS	NS	mg/kg	<0.00047 U	<0.00063 U	<0.00048 UJ	<0.00059 UJ	<0.00069 U	<0.0007 U	<0.00078 U	<0.00046 U	<0.00068 U	<0.00056 U
Trans-1,2-Dichloroethene	156-60-5	0.19	0.19	100	mg/kg	<0.0014 U	<0.0019 U	<0.0014 UJ	<0.0018 UJ	<0.0021 U	<0.0021 U	<0.0023 U	<0.0014 U	<0.002 U	<0.0017 U
Trans-1,3-Dichloropropene	10061-02-6	NS	NS	NS	mg/kg	<0.00094 U	<0.0013 U	<0.00096 UJ	<0.0012 UJ	<0.0014 U	<0.0014 U	<0.0016 U	<0.00092 U	<0.0014 U	<0.0011 U
Trans-1,4-Dichloro-2-Butene	110-57-6	NS	NS	NS	mg/kg	<0.0047 U	<0.0063 U	<0.0048 UJ	<0.0059 UJ	<0.0069 U	<0.007 U	<0.0078 U	<0.0046 U	<0.0068 U	<0.0056 U
Trichloroethene (TCE)	79-01-6	0.47	0.47	6.4	mg/kg	<0.00047 U	<0.00063 U	<0.00048 UJ	<0.00059 UJ	<0.00069 U	<0.0007 U	<0.00078 U	<0.00046 U	<0.00068 U	<0.00056 U
Trichlorofluoromethane	75-69-4	NS	NS	NS	mg/kg	<0.0038 U	<0.0051 U	<0.0038 UJ	<0.0047 UJ	<0.0055 U	<0.0056 U	<0.0062 U	<0.0037 U	<0.0055 U	<0.0045 U
Vinyl Acetate	108-05-4	NS	NS	NS	mg/kg	<0.0094 U	<0.013 U	<0.0096 UJ	<0.012 UJ	<0.014 U	<0.014 U	<0.016 U	<0.0092 U	<0.014 U	<0.011 U
Vinyl Chloride	75-01-4	0.03	0.03	0.48	mg/kg	<0.00094 U	<0.0013 U	<0.00096 UJ	<0.0012 UJ	<0.0014 U	<0.0014 U	<0.0016 U	<0.00092 U	<0.0014 U	<0.0011 U

Table 3A
Remedial Investigation Report
Soil Sample Analytical Results

C Block
Brooklyn, New York
NYSDEC BCP Site No.: C224435
Langan Project No.: 170229030

Analyte	CAS Number	NYSDEC Part 375 Unrestricted Use SCOs	NYSDEC Part 375 Protection of Groundwater SCOs	NYSDEC Part 375 Restricted Use Restricted-Residential SCOs	Location	SB24	SB24	SB25	SB25	SB26	SB26	SB27	SB27	SB28	SB28
					Sample Name	SB24_0-2	SB24_2-4	SB25_0-2	SB25_4-6	SB26_0-2	SB26_6-8	SB27_0-2	SB27_7-9	SB28_0-2	SB28_13-15
					Sample Date	07/27/2022	07/27/2022	07/28/2022	07/28/2022	08/03/2022	08/03/2022	08/03/2022	08/03/2022	08/02/2022	08/02/2022
					Sample Depth	0-2	2-4	0-2	4-6	0-2	6-8	0-2	7-9	0-2	13-15
					Unit	Result	Result	Result	Result	Result	Result	Result	Result	Result	Result
Semi-Volatile Organic Compounds															
1,2,4,5-Tetrachlorobenzene	95-94-3	NS	NS	NS	mg/kg	<0.17 U	<0.18 U	<0.17 U	<0.19 U	<0.2 U	<0.19 U	<0.19 U	<0.2 U	<0.19 U	<0.22 U
1,2,4-Trichlorobenzene	120-82-1	NS	NS	NS	mg/kg	<0.17 U	<0.18 U	0.022 J	<0.19 U	<0.2 U	<0.19 U	<0.19 U	<0.2 U	<0.19 U	<0.22 U
1,2-Dichlorobenzene	95-50-1	1.1	1.1	100	mg/kg	<0.17 U	<0.18 U	<0.17 U	<0.19 U	<0.2 U	<0.19 U	<0.19 U	<0.2 U	<0.19 U	<0.22 U
1,3-Dichlorobenzene	541-73-1	2.6	2.6	38	mg/kg	<0.17 U	<0.18 U	<0.17 U	<0.19 U	<0.2 U	<0.19 U	<0.19 U	<0.2 U	<0.19 U	<0.22 U
1,4-Dichlorobenzene	106-46-7	1.8	1.8	24	mg/kg	0.058 J	<0.18 U	<0.17 U	<0.19 U	<0.2 U	<0.19 U	<0.19 U	<0.2 U	<0.19 U	<0.22 U
1,4-Dioxane (P-Dioxane)	123-91-1	0.1	0.1	5.7	mg/kg	<0.026 U	<0.027 U	<0.026 U	<0.028 U	<0.029 U	<0.029 U	<0.028 U	<0.029 U	<0.028 U	<0.032 U
2,4,5-Trichlorophenol	95-95-4	NS	NS	NS	mg/kg	<0.17 U	<0.18 U	<0.17 U	<0.19 U	<0.2 U	<0.19 U	<0.19 U	<0.2 U	<0.19 U	<0.22 U
2,4,6-Trichlorophenol	88-06-2	NS	NS	NS	mg/kg	<0.1 U	<0.11 U	<0.1 U	<0.11 U	<0.12 U	<0.12 U	<0.11 U	<0.12 U	<0.11 U	<0.13 U
2,4-Dichlorophenol	120-83-2	NS	NS	NS	mg/kg	<0.16 U	<0.16 U	<0.16 U	<0.17 U	<0.18 U	<0.17 U	<0.17 U	<0.18 U	<0.17 U	<0.19 U
2,4-Dimethylphenol	105-67-9	NS	NS	NS	mg/kg	<0.17 U	<0.18 U	<0.17 U	<0.19 U	<0.2 U	<0.19 U	<0.19 U	<0.2 U	<0.19 U	<0.22 U
2,4-Dinitrophenol	51-28-5	NS	NS	NS	mg/kg	<0.83 U	<0.85 U	<0.83 U	<0.9 U	<0.94 UJ	<0.93 UJ	<0.91 UJ	<0.94 UJ	<0.91 U	<1 U
2,4-Dinitrotoluene	121-14-2	NS	NS	NS	mg/kg	<0.17 U	<0.18 U	<0.17 U	<0.19 U	<0.2 U	<0.19 U	<0.19 U	<0.2 U	<0.19 U	<0.22 U
2,6-Dinitrotoluene	606-20-2	NS	NS	NS	mg/kg	<0.17 U	<0.18 U	<0.17 U	<0.19 U	<0.2 U	<0.19 U	<0.19 U	<0.2 U	<0.19 U	<0.22 U
2-Chloronaphthalene	91-58-7	NS	NS	NS	mg/kg	<0.17 U	<0.18 U	<0.17 U	<0.19 U	<0.2 U	<0.19 U	<0.19 U	<0.2 U	<0.19 U	<0.22 U
2-Chlorophenol	95-57-8	NS	NS	NS	mg/kg	<0.17 U	<0.18 U	<0.17 U	<0.19 U	<0.2 U	<0.19 U	<0.19 U	<0.2 U	<0.19 U	<0.22 U
2-Methylnaphthalene	91-57-6	NS	NS	NS	mg/kg	0.44	1.4	0.62	0.78	0.05 J	0.19 J	0.16 J	<0.24 U	1	<0.26 U
2-Methylphenol (o-Cresol)	95-48-7	**0.33**	0.33	100	mg/kg	<0.17 U	<0.18 U	<0.17 U	0.039 J	<0.2 U	<0.19 U	<0.19 U	<0.2 U	<0.19 U	<0.22 U
2-Nitroaniline	88-74-4	NS	NS	NS	mg/kg	<0.17 U	<0.18 U	<0.17 U	<0.19 U	<0.2 U	<0.19 U	<0.19 U	<0.2 U	<0.19 U	<0.22 U
2-Nitrophenol	88-75-5	NS	NS	NS	mg/kg	<0.37 U	<0.38 U	<0.38 U	<0.4 U	<0.42 U	<0.42 U	<0.41 U	<0.42 U	<0.41 U	<0.46 U
3 & 4 Methylphenol (m&p Cresol)	65794-96-9	**0.33**	0.33	100	mg/kg	0.029 J	0.06 J	<0.25 U	0.079 J	<0.28 U	0.032 J	<0.27 U	<0.28 U	<0.27 U	<0.31 U
3,3'-Dichlorobenzidine	91-94-1	NS	NS	NS	mg/kg	<0.17 U	<0.18 U	<0.17 U	<0.19 U	<0.2 U	<0.19 U	<0.19 U	<0.2 U	<0.19 U	<0.22 U
3-Nitroaniline	99-09-2	NS	NS	NS	mg/kg	<0.17 U	<0.18 U	<0.17 U	<0.19 U	<0.2 U	<0.19 U	<0.19 U	<0.2 U	<0.19 U	<0.22 U
4,6-Dinitro-2-Methylphenol	534-52-1	NS	NS	NS	mg/kg	<0.45 U	<0.46 U	<0.45 U	<0.49 U	<0.51 U	<0.5 U	<0.49 U	<0.51 U	<0.49 UJ	<0.56 UJ
4-Bromophenyl Phenyl Ether	101-55-3	NS	NS	NS	mg/kg	<0.17 U	<0.18 U	<0.17 U	<0.19 U	<0.2 U	<0.19 U	<0.19 U	<0.2 U	<0.19 U	<0.22 U
4-Chloro-3-Methylphenol	59-50-7	NS	NS	NS	mg/kg	<0.17 U	<0.18 U	<0.17 U	<0.19 U	<0.2 U	<0.19 U	<0.19 U	<0.2 U	<0.19 U	<0.22 U
4-Chloroaniline	106-47-8	NS	NS	NS	mg/kg	<0.17 U	<0.18 U	<0.17 U	<0.19 U	<0.2 U	<0.19 U	<0.19 U	<0.2 U	<0.19 U	<0.22 U
4-Chlorophenyl Phenyl Ether	7005-72-3	NS	NS	NS	mg/kg	<0.17 U	<0.18 U	<0.17 U	<0.19 U	<0.2 U	<0.19 U	<0.19 U	<0.2 U	<0.19 U	<0.22 U
4-Nitroaniline	100-01-6	NS	NS	NS	mg/kg	<0.17 U	<0.18 U	<0.17 U	<0.19 U	<0.2 U	<0.19 U	<0.19 U	<0.2 U	<0.19 U	<0.22 U
4-Nitrophenol	100-02-7	NS	NS	NS	mg/kg	<0.24 U	<0.25 U	<0.24 U	<0.26 U	<0.27 U	<0.27 U	<0.27 U	<0.28 U	<0.26 U	<0.3 U
Acenaphthene	83-32-9	**20**	98	100	mg/kg	0.49	1.2	0.024 J	0.26	<0.16 U	0.098 J	0.13 J	0.021 J	0.072 J	<0.17 U
Acenaphthylene	208-96-8	100	365	100	mg/kg	0.66	0.46	0.062 J	0.11 J	0.12 J	0.11 J	0.1 J	0.031 J	0.069 J	<0.17 U
Acetophenone	98-86-2	NS	NS	NS	mg/kg	0.028 J	0.11 J	<0.17 U	<0.19 U	<0.2 U	<0.19 U	<0.19 U	<0.2 U	<0.19 U	<0.22 U
Anthracene	120-12-7	**100**	1000	100	mg/kg	1.6	2.3	0.12	0.6	0.079 J	0.25	0.4	0.065 J	0.2	<0.13 U
Benzo(a)anthracene	56-55-3	**1**	1	1.4	mg/kg	**2.8**	**4.5**	0.45	**1.4**	0.27	0.75	**1.3**	0.26	0.71	<0.13 U
Benzo(a)pyrene	50-32-8	**1**	22	1	mg/kg	**2.6**	**3.6**	0.54	**1.3**	0.32	0.73	**1.4**	0.26	0.77	<0.17 U
Benzo(b)fluoranthene	205-99-2	**1**	2.1	1.4	mg/kg	**3.3**	**4.6**	0.68	**1.6**	0.33	0.82	**1.8**	0.3	0.95	<0.13 U
Benzo(g,h,i)Perylene	191-24-2	**0.64**	1000	4.9	mg/kg	**1.5**	**1.9**	0.28	**0.66**	0.18	0.37	**0.81**	0.13 J	0.48	<0.17 U
Benzo(k)fluoranthene	207-08-9	**0.8**	2	4.9	mg/kg	0.8	**1.3**	0.18	0.48	0.093 J	0.31	0.52	0.1 J	0.33	<0.13 U
Benzoic Acid	65-85-0	NS	NS	NS	mg/kg	<0.56 U	<0.58 U	<0.56 U	<0.61 U	<0.64 UJ	<0.62 UJ	<0.62 UJ	<0.64 UJ	<0.62 U	<0.7 U
Benzyl Alcohol	100-51-6	NS	NS	NS	mg/kg	<0.17 U	<0.18 U	<0.17 U	<0.19 U	<0.2 U	<0.19 U	<0.19 U	<0.2 U	<0.19 U	<0.22 U
Benzyl Butyl Phthalate	85-68-7	NS	NS	NS	mg/kg	<0.17 U	<0.18 U	<0.17 U	<0.19 U	<0.2 U	<0.19 U	<0.19 U	<0.2 U	<0.19 U	<0.22 U
Biphenyl (Diphenyl)	92-52-4	NS	NS	NS	mg/kg	0.1 J	0.38 J	0.12 J	0.15 J	<0.45 U	0.035 J	0.044 J	<0.45 U	0.19 J	<0.49 U
Bis(2-chloroethoxy) methane	111-91-1	NS	NS	NS	mg/kg	<0.19 U	<0.19 U	<0.19 U	<0.2 U	<0.21 U	<0.21 U	<0.2 U	<0.21 U	<0.2 U	<0.23 U
Bis(2-chloroethyl) ether (2-chloroethyl ether)	111-44-4	NS	NS	NS	mg/kg	<0.16 U	<0.16 U	<0.16 U	<0.17 U	<0.18 U	<0.17 U	<0.17 U	<0.18 U	<0.17 U	<0.19 U
Bis(2-chloroisopropyl) ether	108-60-1	NS	NS	NS	mg/kg	<0.21 U	<0.21 U	<0.21 U	<0.22 U	<0.24 U	<0.23 U	<0.23 U	<0.24 U	<0.23 U	<0.26 U
Bis(2-ethylhexyl) phthalate	117-81-7	NS	NS	NS	mg/kg	<0.17 U	<0.18 U	0.06 J	<0.19 U	<0.2 U	<0.19 U	<0.19 U	<0.2 U	<0.19 U	<0.22 U
Carbazole	86-74-8	NS	NS	NS	mg/kg	0.26	0.72	0.039 J	0.21	<0.2 U	0.095 J	0.17 J	0.025 J	0.13 J	<0.22 U
Chrysene	218-01-9	**1**	1	4.9	mg/kg	**2.7**	**5**	0.45	**1.4**	0.3	0.74	**1.4**	0.24	0.82	<0.13 U
Dibenz(a,h)anthracene	53-70-3	**0.33**	1000	0.33	mg/kg	**0.38**	**0.52**	0.068 J	0.17	0.048 J	0.088 J	0.19	0.04 J	0.11	<0.13 U
Dibenzofuran	132-64-9	**2.1**	110	18	mg/kg	0.59	1.2	0.084 J	0.29	<0.2 U	0.1 J	0.1 J	<0.2 U	0.2	<0.22 U
Dibutyl phthalate	84-74-2	NS	NS	NS	mg/kg	<0.17 U	<0.18 U	<0.17 U	<0.19 U	<0.2 U	<0.19 U	<0.19 U	<0.2 U	0.052 J	<0.22 U
Diethyl phthalate	84-66-2	NS	NS	NS	mg/kg	<0.17 U	<0.18 U	<0.17 U	<0.19 U	<0.2 U	<0.19 U	<0.19 U	<0.2 U	<0.19 U	<0.22 U
Dimethyl phthalate	131-11-3	NS	NS	NS	mg/kg	<0.17 U	<0.18 U	<0.17 U	<0.19 U	<0.2 U	<0.19 U	<0.19 U	<0.2 U	<0.19 U	<0.22 U
Dioctyl phthalate	117-84-0	NS	NS	NS	mg/kg	<0.17 U	<0.18 U	<0.17 U	<0.19 U	<0.2 U	<0.19 U	<0.19 U	<0.2 U	<0.19 U	<0.22 U
Fluoranthene	206-44-0	**85**	1000	100	mg/kg	5.9	11	0.9	2.8	0.25	1.4	2.9	0.37	1.7	<0.13 U
Fluorene	86-73-7	**30**	386	100	mg/kg	0.44	1.6	0.096 J	0.46	0.028 J	0.11 J	0.16 J	0.026 J	0.11 J	<0.22 U
Hexachlorobenzene	118-74-1	0.33	3.2	0.33	mg/kg	<0.1 U	<0.11 U	<0.1 U	<0.11 U	<0.12 U	<0.12 U	<0.11 U	<0.12 U	<0.11 U	<0.13 U
Hexachlorobutadiene	87-68-3	NS	NS	NS	mg/kg	<0.17 U	<0.18 U	<0.17 U	<0.19 U	<0.2 U	<0.19 U	<0.19 U	<0.2 U	<0.19 U	<0.22 U
Hexachlorocyclopentadiene	77-47-4	NS	NS	NS	mg/kg	<0.49 U	<0.51 U	<0.5 U	<0.54 U	<0.56 U	<0.55 U	<0.54 U	<0.56 U	<0.54 UJ	<0.62 UJ
Hexachloroethane	67-72-1	NS	NS	NS	mg/kg	<0.14 U	<0.14 U	<0.14 U	<0.15 U	<0.16 U	<0.15 U	<0.15 U	<0.16 U	<0.15 U	<0.17 U
Indeno(1,2,3-cd)pyrene	193-39-5	**0.5**	6.6	1.4	mg/kg	**1.7**	**2.1**	0.32	**0.74**	0.18	0.43	**0.93**	0.15 J	**0.53**	<0.17 U
Isophorone	78-59-1	NS	NS	NS	mg/kg	<0.16 U	<0.16 U	<0.16 U	<0.17 U	<0.18 U	<0.17 U	<0.17 U	<0.18 U	<0.17 U	<0.19 U
Naphthalene	91-20-3	**12**	12	100	mg/kg	0.42	2.2	0.34	0.88	0.062 J	0.33	0.16 J	0.025 J	0.9	<0.22 U
Nitrobenzene	98-95-3	0.08	0.08	1.8	mg/kg	<0.16 U	<0.16 U	<0.16 U	<0.17 U	<0.18 U	<0.17 U	<0.17 U	<0.18 U	<0.17 U	<0.19 U
n-Nitrosodi-N-Propylamine	621-64-7	NS	NS	NS	mg/kg	<0.17 U	<0.18 U	<0.17 U	<0.19 U	<0.2 U	<0.19 U	<0.19 U	<0.2 U	<0.19 U	<0.22 U
n-Nitrosodiphenylamine	86-30-6	NS	NS	NS	mg/kg	<0.14 U	<0.14 U	<0.14 U	0.078 J	<0.16 U	<0.15 U	<0.15 U	<0.16 U	<0.15 U	<0.17 U
Pentachlorophenol	87-86-5	0.8	0.8	1.3	mg/kg	<0.14 U	<0.14 U	<0.14 U	<0.15 U	<0.16 U	<0.15 U	<0.15 U	<0.16 U	<0.15 U	<0.17 U
Phenanthrene	85-01-8	**1.1**	1000	4.9	mg/kg	**2.1**	**11**	0.65	**2.7**	0.2	1	**2**	0.23	**1.4**	<0.13 U
Phenol	108-95-2	**0.33**	0.33	100	mg/kg	<0.17 U	0.033 J	<0.17 U	<0.19 U	<0.2 U	<0.19 U	<0.19 U	<0.2 U	<0.19 U	<0.22 U
Pyrene	129-00-0	**64**	1000	100	mg/kg	5.2	8.8	0.76	2.6	0.37	1.2	2.3	0.3	1.5	<0.13 U

Table 3A
Remedial Investigation Report
Soil Sample Analytical Results

C Block
Brooklyn, New York
NYSDEC BCP Site No.: C224435
Langan Project No.: 170229030

Analyte	CAS Number	NYSDEC Part 375 Unrestricted Use SCOs	NYSDEC Part 375 Protection of Groundwater SCOs	NYSDEC Part 375 Restricted Use Restricted-Residential SCOs	Location	SB24	SB24	SB25	SB25	SB26	SB26	SB27	SB27	SB28	SB28
					Sample Name	SB24_0-2	SB24_2-4	SB25_0-2	SB25_4-6	SB26_0-2	SB26_6-8	SB27_0-2	SB27_7-9	SB28_0-2	SB28_13-15
					Sample Date	07/27/2022	07/27/2022	07/28/2022	07/28/2022	08/03/2022	08/03/2022	08/03/2022	08/03/2022	08/02/2022	08/02/2022
					Sample Depth	0-2	2-4	0-2	4-6	0-2	6-8	0-2	7-9	0-2	13-15
					Unit	Result	Result	Result	Result	Result	Result	Result	Result	Result	Result
Pesticides															
4,4'-DDD	72-54-8	**0.0033**	14	5	mg/kg	**0.0342 J**	<0.0017 U	**0.0541**	**0.00408 J**	**0.0129**	<0.00187 U	**0.137**	<0.00192 U	<0.00183 U	<0.00208 U
4,4'-DDE	72-55-9	**0.0033**	9.3	3.4	mg/kg	**0.0162 J**	<0.0017 U	**0.0222**	<0.00175 U	**0.0553**	<0.00187 U	**0.0958**	<0.00192 U	<0.00183 U	<0.00208 U
4,4'-DDT	50-29-3	**0.0033**	135	3.8	mg/kg	**0.0202 J**	<0.0017 U	<0.00161 U	<0.00175 U	**0.0139**	<0.00187 U	**0.133**	<0.00192 U	<0.00183 U	<0.00208 U
Aldrin	309-00-2	0.0048	0.19	0.044	mg/kg	<0.00167 U	<0.0017 U	<0.00161 U	<0.00175 U	<0.00186 U	<0.00187 U	<0.00175 U	<0.00192 U	<0.00183 U	<0.00208 U
Alpha BHC (Alpha Hexachlorocyclohexane)	319-84-6	0.02	0.02	0.18	mg/kg	<0.000696 U	<0.000709 U	<0.00067 U	<0.000731 U	<0.000775 U	<0.000779 U	<0.000728 U	<0.0008 U	<0.000762 U	<0.000867 U
Alpha Chlordane	5103-71-9	0.014	4.5	0.65	mg/kg	0.000828 J	<0.00213 U	<0.00201 U	<0.00219 U	<0.00232 U	<0.00234 U	<0.00218 U	<0.0024 U	<0.00229 U	<0.0026 U
Alpha Endosulfan	959-98-8	4.3	65	35	mg/kg	<0.00167 U	<0.0017 U	<0.00161 U	<0.00175 U	<0.00186 U	<0.00187 U	<0.00175 U	<0.00192 U	<0.00183 U	<0.00208 U
Beta Bhc (Beta Hexachlorocyclohexane)	319-85-7	0.021	0.09	0.18	mg/kg	<0.00167 U	<0.0017 U	<0.00161 U	<0.00175 U	<0.00186 U	<0.00187 U	<0.00175 U	<0.00192 U	<0.00183 U	<0.00208 U
Beta Endosulfan	33213-65-9	4.3	44	35	mg/kg	<0.00167 U	<0.0017 U	<0.00161 U	<0.00175 U	<0.00186 U	<0.00187 U	<0.00175 U	<0.00192 U	<0.00183 U	<0.00208 U
Chlordane (alpha and gamma)	57-74-9	NS	NS	NS	mg/kg	<0.0139 U	<0.0142 U	<0.0134 U	<0.0146 U	<0.0155 U	<0.0156 U	<0.0146 U	<0.016 U	<0.0152 U	<0.0173 U
Delta Bhc (Delta Hexachlorocyclohexane)	319-86-8	0.04	0.1	100	mg/kg	<0.00167 U	<0.0017 U	<0.00161 U	<0.00175 U	<0.00186 U	<0.00187 U	<0.00175 U	<0.00192 U	<0.00183 U	<0.00208 U
Dieldrin	60-57-1	0.005	0.1	0.075	mg/kg	<0.00104 U	<0.00106 U	<0.001 U	<0.0011 U	<0.00116 U	<0.00117 U	<0.00109 U	<0.0012 U	<0.00114 U	<0.0013 U
Endosulfan Sulfate	1031-07-8	4.3	47	35	mg/kg	<0.000696 U	<0.000709 U	<0.00067 U	<0.000731 U	<0.000775 U	<0.000779 U	<0.000728 U	<0.0008 U	<0.000762 U	<0.000867 U
Endrin	72-20-8	0.014	0.06	5.3	mg/kg	<0.000696 U	<0.000709 U	<0.00067 U	<0.000731 U	<0.000775 U	<0.000779 U	<0.000728 U	<0.0008 U	<0.000762 U	<0.000867 U
Endrin Aldehyde	7421-93-4	NS	NS	NS	mg/kg	<0.00209 U	<0.00213 U	<0.00201 U	<0.00219 U	<0.00232 U	<0.00234 U	<0.00218 U	<0.0024 U	<0.00229 U	<0.0026 U
Endrin Ketone	53494-70-5	NS	NS	NS	mg/kg	<0.00167 U	<0.0017 U	<0.00161 U	<0.00175 U	<0.00186 U	<0.00187 U	<0.00175 U	<0.00192 U	<0.00183 U	<0.00208 U
Gamma Bhc (Lindane)	58-89-9	0.025	0.05	0.21	mg/kg	<0.000696 U	<0.000709 U	<0.00067 U	<0.000731 U	<0.000775 U	<0.000779 U	<0.000728 U	<0.0008 U	<0.000762 U	<0.000867 U
Gamma Chlordane (Trans)	5103-74-2	NS	NS	NS	mg/kg	0.0042 J	<0.00213 U	<0.00201 U	<0.00219 U	<0.00232 U	<0.00234 U	<0.00218 U	<0.0024 U	<0.00229 U	<0.0026 U
Heptachlor	76-44-8	0.013	0.38	0.53	mg/kg	<0.000836 U	<0.000851 U	<0.000804 U	<0.000877 U	<0.00093 U	<0.000934 U	<0.000873 U	<0.00096 U	<0.000914 U	<0.00104 U
Heptachlor Epoxide	1024-57-3	NS	NS	NS	mg/kg	<0.00313 U	<0.00319 U	<0.00302 U	<0.00329 U	<0.00349 U	<0.0035 U	<0.00327 U	<0.0036 U	<0.00343 U	<0.0039 U
Methoxychlor	72-43-5	NS	NS	NS	mg/kg	<0.00313 U	<0.00319 U	<0.00302 U	<0.00329 U	<0.00349 U	<0.0035 U	<0.00327 U	<0.0036 U	<0.00343 U	<0.0039 U
Toxaphene	8001-35-2	NS	NS	NS	mg/kg	<0.0313 U	<0.0319 U	<0.0302 U	<0.0329 U	<0.0349 U	<0.035 U	<0.0327 U	<0.036 U	<0.0343 U	<0.039 U
Herbicides															
2,4,5-T (Trichlorophenoxyacetic Acid)	93-76-5	NS	NS	NS	mg/kg	<0.172 U	<0.179 U	<0.176 U	<0.184 U	<0.198 U	<0.195 U	<0.19 U	<0.197 U	<0.193 U	<0.211 U
2,4-D (Dichlorophenoxyacetic Acid)	94-75-7	NS	NS	NS	mg/kg	<0.172 U	<0.179 U	<0.176 U	<0.184 U	<0.198 U	<0.195 U	<0.19 U	<0.197 U	<0.193 U	<0.211 U
Silvex (2,4,5-Tp)	93-72-1	3.8	3.8	100	mg/kg	<0.172 U	<0.179 U	<0.176 U	<0.184 U	<0.198 U	<0.195 U	<0.19 U	<0.197 U	<0.193 U	<0.211 U
Polychlorinated Biphenyl															
PCB-1016 (Aroclor 1016)	12674-11-2	NS	NS	NS	mg/kg	<0.0349 U	<0.0355 U	<0.0345 U	<0.0357 U	<0.0395 U	<0.0394 U	<0.038 U	<0.0381 U	<0.0372 U	<0.0418 U
PCB-1221 (Aroclor 1221)	11104-28-2	NS	NS	NS	mg/kg	<0.0349 U	<0.0355 U	<0.0345 U	<0.0357 U	<0.0395 U	<0.0394 U	<0.038 U	<0.0381 U	<0.0372 U	<0.0418 U
PCB-1232 (Aroclor 1232)	11141-16-5	NS	NS	NS	mg/kg	<0.0349 U	<0.0355 U	<0.0345 U	<0.0357 U	<0.0395 U	<0.0394 U	<0.038 U	<0.0381 U	<0.0372 U	<0.0418 U
PCB-1242 (Aroclor 1242)	53469-21-9	NS	NS	NS	mg/kg	<0.0349 U	<0.0355 U	<0.0345 U	<0.0357 U	<0.0395 U	<0.0394 U	<0.038 U	<0.0381 U	<0.0372 U	<0.0418 U
PCB-1248 (Aroclor 1248)	12672-29-6	NS	NS	NS	mg/kg	<0.0349 U	<0.0355 U	<0.0345 U	<0.0357 U	<0.0395 U	<0.0394 U	<0.038 U	<0.0381 U	<0.0372 U	<0.0418 U
PCB-1254 (Aroclor 1254)	11097-69-1	NS	NS	NS	mg/kg	0.14	<0.0355 U	0.224	0.0207 J	0.051	<0.0394 U	<0.038 U	<0.0381 U	<0.0372 U	<0.0418 U
PCB-1260 (Aroclor 1260)	11096-82-5	NS	NS	NS	mg/kg	0.0547	<0.0355 U	0.401	0.0286 J	0.0228 J	<0.0394 U	0.093	<0.0381 U	0.156	<0.0418 U
PCB-1262 (Aroclor 1262)	37324-23-5	NS	NS	NS	mg/kg	<0.0349 U	<0.0355 U	<0.0345 U	<0.0357 U	<0.0395 U	<0.0394 U	<0.038 U	<0.0381 U	<0.0372 U	<0.0418 U
PCB-1268 (Aroclor 1268)	11100-14-4	NS	NS	NS	mg/kg	<0.0349 U	<0.0355 U	<0.0345 U	<0.0357 U	0.00532 J	<0.0394 U	0.0419	<0.0381 U	0.0635	<0.0418 U
Total PCBs	1336-36-3	**0.1**	3.2	1	mg/kg	**0.195**	<0.0355 U	**0.625**	0.0493 J	0.0791 J	<0.0394 U	**0.135**	<0.0381 U	**0.22**	<0.0418 U
Metals															
Aluminum	7429-90-5	NS	NS	NS	mg/kg	2,580	5,350	13,600	3,560	12,300	4,160	3,610	5,500	2,330	8,170
Antimony	7440-36-0	NS	NS	NS	mg/kg	7.39	2.34 J	<4.11 U	36.2	<4.55 U	1.62 J	4.72	1.58 J	7.76	<4.96 U
Arsenic	7440-38-2	**13**	16	16	mg/kg	9.38	8.23	2.93	7.45	3.01	**16.9**	**54.5**	2.58	**17.2**	3.54
Barium	7440-39-3	**410**	820	410	mg/kg	97.8	198	247	73.1	302	101	209	45.3	194	26.5
Beryllium	7440-41-7	4.4	47	43	mg/kg	0.193 J	0.335 J	0.074 J	0.213 J	0.055 J	0.29 J	0.393 J	0.43 J	0.427 J	0.446 J
Cadmium	7440-43-9	**2.5**	7.5	2.5	mg/kg	0.521 J	1.88	1.35	0.46 J	1.57	0.817 J	**54.9**	0.531 J	**10.2**	0.644 J
Calcium	7440-70-2	NS	NS	NS	mg/kg	128,000	29,800	24,200	5,380	28,600	1,420	39,600	980	6,100	1,090
Chromium, Hexavalent	18540-29-9	1	19	1	mg/kg	<0.849 UJ	<0.875 U	<0.851 U	<0.906 U	<0.966 U	<0.951 U	<0.929 U	<0.968 U	<0.933 U	<1.04 U
Chromium, Total	7440-47-3	NS	NS	NS	mg/kg	7.21	11.8	73	23.4	65.2	14.1	16.9	8.51	12	12.4
Chromium, Trivalent	16065-83-1	**30**	NS	110	mg/kg	7.2	12	**73**	23	**65**	14	17	8.5	12	12
Cobalt	7440-48-4	NS	NS	NS	mg/kg	3.01	5.71	16.1	5.8	11.4	3.99	21.1	4.39	10.6	6.68
Copper	7440-50-8	**50**	1720	280	mg/kg	41.8	**59.6**	**75.2**	**80.7**	38.7	**87.5**	**330**	9.94	**175**	24.4
Cyanide	57-12-5	**2.3**	40	13	mg/kg	<1 UJ	0.43 J	<1 UJ	<1 UJ	<1.1 UJ	<1.2 UJ	0.32 J	<1.2 UJ	<1.1 UJ	<1.2 UJ
Iron	7439-89-6	NS	NS	NS	mg/kg	11,500	12,700	35,700	13,600	30,000	19,000	23,100	9,110	16,800	16,100
Lead	7439-92-1	**63**	450	400	mg/kg	**250**	**380**	**95.9**	**368**	**555**	**220**	**336**	42.4	**413**	13.2
Magnesium	7439-95-4	NS	NS	NS	mg/kg	62,400	1,830	12,000	1,540	19,000	1,040	3,420	1,640	842	2,830
Manganese	7439-96-5	1600	2000	2000	mg/kg	150 J	162	152	112	100	78.8	177	69.8	845	348
Mercury	7439-97-6	**0.18**	0.73	0.3	mg/kg	**0.197**	**0.928**	**0.204**	**0.253**	**0.252**	**0.371**	**0.284**	0.093	**0.297**	0.085
Nickel	7440-02-0	**30**	130	320	mg/kg	8.73	15.6	**30.3**	13.2	21.5	10.9	**30.4**	9.4	**183**	15.8
Potassium	7440-09-7	NS	NS	NS	mg/kg	430	636	11,500	1,400	10,600	494	403	387	776	730
Selenium	7782-49-2	**3.9**	4	110	mg/kg	<1.68 U	0.395 J	<1.64 U	0.954 J	0.764 J	2.51	1.13 J	0.375 J	1.53 J	<1.98 U
Silver	7440-22-4	2	8.3	110	mg/kg	<0.84 U	<0.858 U	<0.822 U	<0.852 U	<0.909 U	<0.908 U	0.969	<0.916 U	0.587 J	<0.991 U
Sodium	7440-23-5	NS	NS	NS	mg/kg	169	374	167	194	215	60.2 J	138 J	29.2 J	63.9 J	317
Thallium	7440-28-0	NS	NS	NS	mg/kg	0.336 J	<1.72 U	<1.64 U	<1.7 U	<1.82 U	<1.82 U	<1.75 U	<1.83 U	<0.889 U	<0.991 U
Vanadium	7440-62-2	NS	NS	NS	mg/kg	12.5	18.7	97.6	19.7	79.4	23.2	23.1	12	12.2	15.6
Zinc	7440-66-6	**109**	2480	6600	mg/kg	79.4 J	**216**	**178**	98	**149**	47.1	**1,040**	**240**	**1,720**	46.8

Table 3A
Remedial Investigation Report
Soil Sample Analytical Results

C Block
Brooklyn, New York
NYSDEC BCP Site No.: C224435
Langan Project No.: 170229030

Analyte	CAS Number	NYSDEC Part 375 Unrestricted Use SCOs	NYSDEC Part 375 Protection of Groundwater SCOs	NYSDEC Part 375 Restricted Use Restricted-Residential SCOs	Location	SB24	SB24	SB25	SB25	SB26	SB26	SB27	SB27	SB28	SB28
					Sample Name	SB24_0-2	SB24_2-4	SB25_0-2	SB25_4-6	SB26_0-2	SB26_6-8	SB27_0-2	SB27_7-9	SB28_0-2	SB28_13-15
					Sample Date	07/27/2022	07/27/2022	07/28/2022	07/28/2022	08/03/2022	08/03/2022	08/03/2022	08/03/2022	08/02/2022	08/02/2022
					Sample Depth	0-2	2-4	0-2	4-6	0-2	6-8	0-2	7-9	0-2	13-15
					Unit	Result	Result	Result	Result	Result	Result	Result	Result	Result	Result
Per- and Polyfluoroalkyl Substances															
1H,1H,2H,2H-Perfluorodecane Sulfonic Acid (8:2 FTS)	39108-34-4	NS	NS	NS	mg/kg	<0.000471 U	<0.000518 U	<0.000486 U	<0.000523 U	<0.00054 U	<0.000533 U	<0.000546 U	<0.00055 U	<0.000534 U	<0.000589 U
1H,1H,2H,2H-Perfluorooctane Sulfonic Acid (6:2 FTS)	27619-97-2	NS	NS	NS	mg/kg	<0.000471 U	<0.000518 U	<0.000486 U	<0.000523 U	<0.00054 U	<0.000533 U	<0.000546 U	<0.00055 U	<0.000534 U	<0.000589 U
N-ethyl Perfluorooctanesulfonamidoacetic Acid (NEtFOSAA)	2991-50-6	NS	NS	NS	mg/kg	<0.000471 U	<0.000518 U	<0.000486 U	<0.000523 U	<0.00054 U	<0.000533 U	<0.000546 U	<0.00161 U	<0.000534 U	<0.000589 U
N-methyl Perfluorooctanesulfonamidoacetic Acid (NMeFOSAA)	2355-31-9	NS	NS	NS	mg/kg	<0.000471 U	<0.000518 U	<0.000486 U	<0.000523 U	<0.00054 U	<0.000533 U	<0.000546 U	<0.00161 U	<0.000534 U	<0.000589 U
Perfluorobutanesulfonic Acid (PFBS)	375-73-5	NS	NS	NS	mg/kg	<0.000235 U	<0.000259 U	<0.000243 U	<0.000262 U	<0.00027 U	<0.000267 U	<0.000273 U	<0.000275 U	<0.000267 U	<0.000294 U
Perfluorobutanoic acid (PFBA)	375-22-4	NS	NS	NS	mg/kg	<0.000471 U	<0.000518 U	<0.000486 U	<0.000523 U	0.000037 J	<0.000533 U	<0.000546 U	<0.00055 U	<0.000534 U	<0.000589 U
Perfluorodecanesulfonic Acid (PFDS)	335-77-3	NS	NS	NS	mg/kg	<0.000471 U	<0.000518 U	<0.000486 U	<0.000523 U	<0.00054 U	<0.000533 U	<0.000546 U	<0.00055 U	<0.000534 U	<0.000589 U
Perfluorodecanoic Acid (PFDA)	335-76-2	NS	NS	NS	mg/kg	<0.000235 U	<0.000259 U	<0.000243 U	<0.000262 U	<0.00027 U	<0.000267 U	<0.000273 U	<0.000275 U	<0.000267 U	<0.000294 U
Perfluorododecanoic Acid (PFDoA)	307-55-1	NS	NS	NS	mg/kg	<0.000471 U	<0.000518 U	<0.000486 U	<0.000523 U	<0.00054 U	<0.000533 U	<0.000546 U	<0.00055 U	<0.000534 U	<0.000589 U
Perfluoroheptanesulfonic Acid (PFHpS)	375-92-8	NS	NS	NS	mg/kg	<0.000471 U	<0.000518 U	<0.000486 U	<0.000523 U	<0.00054 U	<0.000533 U	<0.000546 U	<0.00055 U	<0.000534 U	<0.000589 U
Perfluoroheptanoic acid (PFHpA)	375-85-9	NS	NS	NS	mg/kg	<0.000235 U	<0.000259 U	<0.000243 U	<0.000262 U	<0.00027 U	<0.000267 U	<0.000273 U	<0.000275 U	<0.000267 U	<0.000294 U
Perfluorohexanesulfonic Acid (PFHxS)	355-46-4	NS	NS	NS	mg/kg	<0.000235 U	<0.000259 U	<0.000243 U	<0.000262 U	<0.00027 U	<0.000267 U	<0.000273 U	<0.000275 U	<0.000267 U	<0.000294 U
Perfluorohexanoic Acid (PFHxA)	307-24-4	NS	NS	NS	mg/kg	<0.000471 U	<0.000518 U	<0.000486 U	<0.000523 U	0.000104 J	<0.000533 U	<0.000546 U	<0.00055 U	<0.000534 U	<0.000589 U
Perfluorononanoic Acid (PFNA)	375-95-1	NS	NS	NS	mg/kg	<0.000235 U	<0.000259 U	<0.000243 U	<0.000262 U	<0.00027 U	<0.000267 U	<0.000273 U	<0.000275 U	<0.000267 U	<0.000294 U
Perfluorooctanesulfonamide (PFOSA)	754-91-6	NS	NS	NS	mg/kg	<0.000471 U	<0.000518 U	<0.000486 U	<0.000523 U	<0.00054 U	<0.000533 U	<0.000546 U	<0.00055 U	<0.000534 U	<0.000589 U
Perfluorooctanesulfonic Acid (PFOS)	1763-23-1	0.00088	0.001	0.044	mg/kg	<0.000235 U	<0.000259 U	<0.000243 U	<0.000262 U	0.000154 J	<0.000267 U	0.0003 J	0.000343 J	<0.000267 U	<0.000294 U
Perfluorooctanoic Acid (PFOA)	335-67-1	0.00066	0.0008	0.033	mg/kg	0.00005 J	0.000147 J	<0.000243 U	0.000045 J	0.000049 J	<0.000267 U	0.000077 J	<0.000275 U	0.000277 J	<0.000294 U
Perfluoropentanoic Acid (PFPeA)	2706-90-3	NS	NS	NS	mg/kg	<0.000471 U	<0.000518 U	<0.000486 U	<0.000523 U	0.000148 J	<0.000533 U	<0.000546 U	<0.00055 U	<0.000534 U	<0.000589 U
Perfluorotetradecanoic Acid (PFTeDA)	376-06-7	NS	NS	NS	mg/kg	<0.000471 U	<0.000518 U	<0.000486 U	<0.000523 U	<0.00054 U	<0.0017 U	<0.000546 U	<0.00161 U	<0.000534 U	<0.000589 U
Perfluorotridecanoic Acid (PFTrDA)	72629-94-8	NS	NS	NS	mg/kg	<0.000471 U	<0.000518 U	<0.000486 U	<0.000523 U	<0.00054 U	<0.0017 U	<0.000546 U	<0.00161 U	<0.000534 U	<0.000589 U
Perfluoroundecanoic Acid (PFUnA)	2058-94-8	NS	NS	NS	mg/kg	<0.000471 U	<0.000518 U	<0.000486 U	<0.000523 U	<0.00054 U	<0.000533 U	<0.000546 U	<0.00055 U	<0.000534 U	<0.000589 U
Total PFOA and PFOS	TOTPFOAPFOS	NS	NS	NS	mg/kg	0.00005 J	0.000147 J	<0.000243 U	0.000045 J	0.000203 J	<0.000267 U	0.000077 J	0.000343 J	0.000277	<0.000294 U
General Chemistry															
Solids, Percent	SOLID	NS	NS	NS	Percent	94.2	91.4	94	88.3	82.8	84.1	86.1	82.6	85.7	76.5

Table 3A
Remedial Investigation Report
Soil Sample Analytical Results

C Block
Brooklyn, New York
Langan Project No.: 170229030

Notes:
CAS - Chemical Abstract Service
NS - No standard
mg/kg - milligram per kilogram
NA - Not analyzed
RL - Reporting limit
<RL - Not detected
Soil sample analytical results are compared to the New York State Department of Environmental Conservation (NYSDEC) Title 6 of the Official Compilation of New York Codes, Rules, and Regulations (NYCRR) Part 375 Unrestricted Use, Protection of Groundwater, and Restricted Use Restricted-Residential Soil Cleanup Objectives (SCO) (December 2025).
Soil sample analytical results are compared to the New York State Department of Environmental Conservation (NYSDEC) Part 375 Remedial Programs Guidelines for Sampling and Analysis of Per- and Polyfluoroalkyl Substances (PFAS) Unrestricted Use, Restricted Use Restricted-Residential, and Protection of Groundwater Guidance Values (April 2023).

Qualifiers:
J - The analyte was positively identified and the associated numerical value is the approximate concentration of the analyte in the sample.
UJ - The analyte was not detected at a level greater than or equal to the RL; however, the reported RL is approximate and may be inaccurate or imprecise.
U - The analyte was analyzed for, but was not detected at a level greater than or equal to the level of the RL or the sample concentration for results impacted by blank contamination.

Exceedance Summary:
10 - Result exceeds Unrestricted Use SCOs
10 - Result exceeds Protection of Groundwater SCOs
10 - Result exceeds Restricted Use Restricted-Residential SCOs

Table 3B
Remedial Investigation Report
Soil Sample Analytical Results – TCLP

C Block
Brooklyn, New York
NYSDEC BCP Site No.: C224435
Langan Project No.: 170229030

Analyte	CAS Number	RCRA Characteristics of Hazardous Waste	Location	SB02	SB03	SB05	SB14
			Sample Name	SB02_0-2	SB03_0-2	SB05_0-2	SB14_0-2
			Sample Date	07/26/2022	07/26/2022	07/26/2022	07/26/2022
			Sample Depth	0-2	0-2	0-2	0-2
			Unit	Result	Result	Result	Result
Metals							
Lead	7439-92-1	**5**	mg/l	1.58	1.59	**12.4**	0.457 J

Notes:
TCLP - Toxicity Characteristic Leaching Procedure
CAS - Chemical Abstract Service
NS - No standard
mg/l - milligram per liter
mg/kg - milligram per kilogram
deg C - degrees Celsius
NA - Not analyzed
RL - Reporting limit
<RL - Not detected

Soil sample analytical results are compared to the 6 New York Codes, Rules and Regulations (NYCRR) Part 371.3 and 40 CFR 261 Subpart C and Table 1 of 40 CFR 261.24 - Environmental Protection Agency (EPA) Resource Conservation and Recovery Act (RCRA) Characteristics of Hazardous Waste.

Qualifiers:
J - The analyte was positively identified and the associated numerical value is the approximate concentration of the analyte in the sample.

Exceedance Summary:
10 - Result exceeds the RCRA Maximum Concentration of Contaminants for the Toxicity Characteristic

Table 4
Remedial Investigation Report
Groundwater Sample Analytical Results

C Block
Brooklyn, New York
NYSDEC BCP Site No.: C224435
Langan Project No.: 170229030

Analyte	CAS Number	NYSDEC SGVs	Location	MW01	MW01	MW01	MW02	MW02	MW02	MW03	MW03	MW03	MW03	MW03	MW04	MW04	MW04
			Sample Name	MW01_080522	MW01_080522_FILTERED	MW01_011226	MW02_080222	MW02_080222_FILTERED	MW02_011326	MW03_080222	GWDUP01_080222	MW03_080222_FILTERED	GWDUP01_080222_FILTERED	MW03_011326	MW04_080422	MW04_080422_FILTERED	MW04_011426
			Sample Date	08/05/2022	08/05/2022	01/12/2026	08/02/2022	08/02/2022	01/13/2026	08/02/2022	08/02/2022	08/02/2022	08/02/2022	01/13/2026	08/04/2022	08/04/2022	01/14/2026
			Unit	Result	Result	Result	Result	Result	Result	Result	Result	Result	Result	Result	Result	Result	Result
Volatile Organic Compounds																	
1,1,1,2-Tetrachloroethane	630-20-6	5	ug/l	<2.5 U	NA	NA	<2.5 U	NA	NA	<2.5 U	<2.5 U	NA	NA	NA	<2.5 U	NA	NA
1,1,1-Trichloroethane	71-55-6	5	ug/l	<2.5 U	NA	NA	<2.5 U	NA	NA	<2.5 U	<2.5 U	NA	NA	NA	<2.5 U	NA	NA
1,1,2,2-Tetrachloroethane	79-34-5	5	ug/l	<0.5 U	NA	NA	<0.5 U	NA	NA	<0.5 U	<0.5 U	NA	NA	NA	<0.5 U	NA	NA
1,1,2-Trichloroethane	79-00-5	1	ug/l	<1.5 U	NA	NA	<1.5 U	NA	NA	<1.5 U	<1.5 U	NA	NA	NA	<1.5 U	NA	NA
1,1-Dichloroethane	75-34-3	5	ug/l	<2.5 U	NA	NA	<2.5 U	NA	NA	<2.5 U	<2.5 U	NA	NA	NA	<2.5 U	NA	NA
1,1-Dichloroethene	75-35-4	5	ug/l	<0.5 U	NA	NA	<0.5 U	NA	NA	<0.5 U	<0.5 U	NA	NA	NA	<0.5 U	NA	NA
1,1-Dichloropropene	563-58-6	5	ug/l	<2.5 U	NA	NA	<2.5 U	NA	NA	<2.5 U	<2.5 U	NA	NA	NA	<2.5 U	NA	NA
1,2,3-Trichlorobenzene	87-61-6	5	ug/l	<2.5 U	NA	NA	<2.5 U	NA	NA	<2.5 U	<2.5 U	NA	NA	NA	<2.5 U	NA	NA
1,2,3-Trichloropropane	96-18-4	0.04	ug/l	<2.5 U	NA	NA	<2.5 U	NA	NA	<2.5 U	<2.5 U	NA	NA	NA	<2.5 U	NA	NA
1,2,4,5-Tetramethylbenzene	95-93-2	5	ug/l	<2 U	NA	NA	<2 U	NA	NA	<2 U	<2 U	NA	NA	NA	<2 U	NA	NA
1,2,4-Trichlorobenzene	120-82-1	5	ug/l	<2.5 U	NA	NA	<2.5 U	NA	NA	<2.5 U	<2.5 U	NA	NA	NA	<2.5 U	NA	NA
1,2,4-Trimethylbenzene	95-63-6	5	ug/l	<2.5 U	NA	NA	<2.5 U	NA	NA	<2.5 U	<2.5 U	NA	NA	NA	<2.5 U	NA	NA
1,2-Dibromo-3-Chloropropane	96-12-8	0.04	ug/l	<2.5 U	NA	NA	<2.5 U	NA	NA	<2.5 U	<2.5 U	NA	NA	NA	<2.5 U	NA	NA
1,2-Dibromoethane (Ethylene Dibromide)	106-93-4	0.0006	ug/l	<2 U	NA	NA	<2 U	NA	NA	<2 U	<2 U	NA	NA	NA	<2 U	NA	NA
1,2-Dichlorobenzene	95-50-1	3	ug/l	<2.5 U	NA	NA	<2.5 U	NA	NA	<2.5 U	<2.5 U	NA	NA	NA	<2.5 U	NA	NA
1,2-Dichloroethane	107-06-2	0.6	ug/l	<0.5 U	NA	NA	<0.5 U	NA	NA	<0.5 U	<0.5 U	NA	NA	NA	<0.5 U	NA	NA
1,2-Dichloropropane	78-87-5	1	ug/l	<1 U	NA	NA	<1 U	NA	NA	<1 U	<1 U	NA	NA	NA	<1 U	NA	NA
1,3,5-Trimethylbenzene (Mesitylene)	108-67-8	5	ug/l	<2.5 U	NA	NA	<2.5 U	NA	NA	<2.5 U	<2.5 U	NA	NA	NA	<2.5 U	NA	NA
1,3-Dichlorobenzene	541-73-1	3	ug/l	<2.5 U	NA	NA	<2.5 U	NA	NA	<2.5 U	<2.5 U	NA	NA	NA	<2.5 U	NA	NA
1,3-Dichloropropane	142-28-9	5	ug/l	<2.5 U	NA	NA	<2.5 U	NA	NA	<2.5 U	<2.5 U	NA	NA	NA	<2.5 U	NA	NA
1,4-Dichlorobenzene	106-46-7	3	ug/l	<2.5 U	NA	NA	<2.5 U	NA	NA	<2.5 U	<2.5 U	NA	NA	NA	<2.5 U	NA	NA
1,4-Diethyl Benzene	105-05-5	NS	ug/l	<2 U	NA	NA	<2 U	NA	NA	<2 U	<2 U	NA	NA	NA	<2 U	NA	NA
1,4-Dioxane (P-Dioxane)	123-91-1	0.35	ug/l	NA	NA	NA	<250 U	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
2,2-Dichloropropane	594-20-7	5	ug/l	<2.5 U	NA	NA	<2.5 U	NA	NA	<2.5 U	<2.5 U	NA	NA	NA	<2.5 U	NA	NA
2-Chlorotoluene	95-49-8	5	ug/l	<2.5 U	NA	NA	<2.5 U	NA	NA	<2.5 U	<2.5 U	NA	NA	NA	<2.5 U	NA	NA
2-Hexanone (MBK)	591-78-6	50	ug/l	<5 U	NA	NA	<5 U	NA	NA	<5 U	<5 U	NA	NA	NA	<5 U	NA	NA
4-Chlorotoluene	106-43-4	5	ug/l	<2.5 U	NA	NA	<2.5 U	NA	NA	<2.5 U	<2.5 U	NA	NA	NA	<2.5 U	NA	NA
4-Ethyltoluene	622-96-8	NS	ug/l	<2 U	NA	NA	<2 U	NA	NA	<2 U	<2 U	NA	NA	NA	<2 U	NA	NA
Acetone	67-64-1	50	ug/l	<5 UJ	NA	NA	<5 U	NA	NA	<5 U	<5 U	NA	NA	NA	<5 U	NA	NA
Acrylonitrile	107-13-1	5	ug/l	<5 U	NA	NA	<5 U	NA	NA	<5 U	<5 U	NA	NA	NA	<5 U	NA	NA
Benzene	71-43-2	1	ug/l	<0.5 U	NA	NA	<0.5 U	NA	NA	<0.5 U	<0.5 U	NA	NA	NA	<0.5 U	NA	NA
Bromobenzene	108-86-1	5	ug/l	<2.5 U	NA	NA	<2.5 U	NA	NA	<2.5 U	<2.5 U	NA	NA	NA	<2.5 U	NA	NA
Bromochloromethane	74-97-5	5	ug/l	<2.5 U	NA	NA	<2.5 U	NA	NA	<2.5 U	<2.5 U	NA	NA	NA	<2.5 U	NA	NA
Bromodichloromethane	75-27-4	50	ug/l	<0.5 U	NA	NA	<0.5 U	NA	NA	<0.5 U	<0.5 U	NA	NA	NA	<0.5 U	NA	NA
Bromoform	75-25-2	50	ug/l	<2 U	NA	NA	<2 U	NA	NA	<2 U	<2 U	NA	NA	NA	<2 U	NA	NA
Bromomethane	74-83-9	5	ug/l	<2.5 U	NA	NA	<2.5 U	NA	NA	<2.5 U	<2.5 U	NA	NA	NA	<2.5 U	NA	NA
Carbon Disulfide	75-15-0	60	ug/l	<5 U	NA	NA	<5 U	NA	NA	<5 U	<5 U	NA	NA	NA	<5 U	NA	NA
Carbon Tetrachloride	56-23-5	5	ug/l	<0.5 U	NA	NA	<0.5 U	NA	NA	<0.5 U	<0.5 U	NA	NA	NA	<0.5 U	NA	NA
Chlorobenzene	108-90-7	5	ug/l	<2.5 U	NA	NA	<2.5 U	NA	NA	<2.5 U	<2.5 U	NA	NA	NA	<2.5 U	NA	NA
Chloroethane	75-00-3	5	ug/l	<2.5 U	NA	NA	<2.5 U	NA	NA	<2.5 U	<2.5 U	NA	NA	NA	<2.5 U	NA	NA
Chloroform	67-66-3	7	ug/l	<2.5 U	NA	NA	<2.5 U	NA	NA	<2.5 U	<2.5 U	NA	NA	NA	<2.5 U	NA	NA
Chloromethane	74-87-3	5	ug/l	<2.5 U	NA	NA	<2.5 U	NA	NA	<2.5 U	<2.5 U	NA	NA	NA	<2.5 U	NA	NA
Cis-1,2-Dichloroethene	156-59-2	5	ug/l	<2.5 U	NA	NA	<2.5 U	NA	NA	<2.5 U	<2.5 U	NA	NA	NA	<2.5 U	NA	NA
Cis-1,3-Dichloropropene	10061-01-5	0.4	ug/l	<0.5 U	NA	NA	<0.5 U	NA	NA	<0.5 U	<0.5 U	NA	NA	NA	<0.5 U	NA	NA
Cymene	99-87-6	5	ug/l	<2.5 U	NA	NA	<2.5 U	NA	NA	<2.5 U	<2.5 U	NA	NA	NA	<2.5 U	NA	NA
Dibromochloromethane	124-48-1	50	ug/l	<0.5 U	NA	NA	<0.5 U	NA	NA	<0.5 U	<0.5 U	NA	NA	NA	<0.5 U	NA	NA
Dibromomethane	74-95-3	5	ug/l	<5 U	NA	NA	<5 U	NA	NA	<5 U	<5 U	NA	NA	NA	<5 U	NA	NA
Dichlorodifluoromethane	75-71-8	5	ug/l	<5 U	NA	NA	<5 U	NA	NA	<5 U	<5 U	NA	NA	NA	<5 U	NA	NA
Diethyl Ether (Ethyl Ether)	60-29-7	NS	ug/l	<2.5 U	NA	NA	<2.5 U	NA	NA	<2.5 U	<2.5 U	NA	NA	NA	<2.5 U	NA	NA
Ethylbenzene	100-41-4	5	ug/l	<2.5 U	NA	NA	<2.5 U	NA	NA	<2.5 U	<2.5 U	NA	NA	NA	<2.5 U	NA	NA
Isopropylbenzene (Cumene)	98-82-8	5	ug/l	<2.5 U	NA	NA	<2.5 U	NA	NA	<2.5 U	<2.5 U	NA	NA	NA	<2.5 U	NA	NA
M,P-Xylene	179601-23-1	5	ug/l	<2.5 U	NA	NA	<2.5 U	NA	NA	<2.5 U	<2.5 U	NA	NA	NA	<2.5 U	NA	NA
Methyl Ethyl Ketone (2-Butanone)	78-93-3	50	ug/l	<5 U	NA	NA	<5 U	NA	NA	<5 U	<5 U	NA	NA	NA	<5 U	NA	NA
Methyl Isobutyl Ketone (4-Methyl-2-Pentanone)	108-10-1	NS	ug/l	<5 U	NA	NA	<5 U	NA	NA	<5 U	<5 U	NA	NA	NA	<5 U	NA	NA
Methylene Chloride	75-09-2	5	ug/l	<2.5 U	NA	NA	<2.5 U	NA	NA	<2.5 U	<2.5 U	NA	NA	NA	<2.5 U	NA	NA
n-Butylbenzene	104-51-8	5	ug/l	<2.5 U	NA	NA	<2.5 U	NA	NA	<2.5 U	<2.5 U	NA	NA	NA	<2.5 U	NA	NA
n-Propylbenzene	103-65-1	5	ug/l	<2.5 U	NA	NA	<2.5 U	NA	NA	<2.5 U	<2.5 U	NA	NA	NA	<2.5 U	NA	NA
o-Xylene (1,2-Dimethylbenzene)	95-47-6	5	ug/l	<2.5 U	NA	NA	<2.5 U	NA	NA	<2.5 U	<2.5 U	NA	NA	NA	<2.5 U	NA	NA
Sec-Butylbenzene	135-98-8	5	ug/l	<2.5 U	NA	NA	<2.5 U	NA	NA	<2.5 U	<2.5 U	NA	NA	NA	<2.5 U	NA	NA
Styrene	100-42-5	5	ug/l	<2.5 U	NA	NA	<2.5 U	NA	NA	<2.5 U	<2.5 U	NA	NA	NA	<2.5 U	NA	NA
T-Butylbenzene	98-06-6	5	ug/l	<2.5 U	NA	NA	<2.5 U	NA	NA	<2.5 U	<2.5 U	NA	NA	NA	<2.5 U	NA	NA
Tert-Butyl Methyl Ether (MTBE)	1634-04-4	10	ug/l	<2.5 U	NA	NA	<2.5 U	NA	NA	<2.5 U	<2.5 U	NA	NA	NA	<2.5 U	NA	NA
Tetrachloroethene (PCE)	127-18-4	5	ug/l	<0.5 U	NA	NA	<0.5 U	NA	NA	<0.5 U	<0.5 U	NA	NA	NA	<0.5 U	NA	NA
Toluene	108-88-3	5	ug/l	<2.5 U	NA	NA	<2.5 U	NA	NA	<2.5 U	<2.5 U	NA	NA	NA	<2.5 U	NA	NA
Total 1,2-Dichloroethene (Cis and Trans)	540-59-0	NS	ug/l	<2.5 U	NA	NA	<2.5 U	NA	NA	<2.5 U	<2.5 U	NA	NA	NA	<2.5 U	NA	NA
Total Xylenes	1330-20-7	5	ug/l	<2.5 U	NA	NA	<2.5 U	NA	NA	<2.5 U	<2.5 U	NA	NA	NA	<2.5 U	NA	NA
Total, 1,3-Dichloropropene (Cis And Trans)	542-75-6	0.4	ug/l	<0.5 U	NA	NA	<0.5 U	NA	NA	<0.5 U	<0.5 U	NA	NA	NA	<0.5 U	NA	NA
Trans-1,2-Dichloroethene	156-60-5	5	ug/l	<2.5 U	NA	NA	<2.5 U	NA	NA	<2.5 U	<2.5 U	NA	NA	NA	<2.5 U	NA	NA
Trans-1,3-Dichloropropene	10061-02-6	0.4	ug/l	<0.5 U	NA	NA	<0.5 U	NA	NA	<0.5 U	<0.5 U	NA	NA	NA	<0.5 U	NA	NA
Trans-1,4-Dichloro-2-Butene	110-57-6	5	ug/l	<2.5 U	NA	NA	<2.5 U	NA	NA	<2.5 U	<2.5 U	NA	NA	NA	<2.5 U	NA	NA
Trichloroethene (TCE)	79-01-6	5	ug/l	<0.5 U	NA	NA	<0.5 U	NA	NA	<0.5 U	<0.5 U	NA	NA	NA	<0.5 U	NA	NA
Trichlorofluoromethane	75-69-4	5	ug/l	<2.5 U	NA	NA	<2.5 U	NA	NA	<2.5 U	<2.5 U	NA	NA	NA	<2.5 U	NA	NA
Vinyl Acetate	108-05-4	NS	ug/l	<5 U	NA	NA	<5 U	NA	NA	<5 U	<5 U	NA	NA	NA	<5 U	NA	NA
Vinyl Chloride	75-01-4	2	ug/l	<1 U	NA	NA	<1 U	NA	NA	<1 U	<1 U	NA	NA	NA	<1 U	NA	NA

Table 4
Remedial Investigation Report
Groundwater Sample Analytical Results

C Block
Brooklyn, New York
NYSDEC BCP Site No.: C224435
Langan Project No.: 170229030

Analyte	CAS Number	NYSDEC SGVs	Location	MW01	MW01	MW01	MW02	MW02	MW02	MW03	MW03	MW03	MW03	MW03	MW04	MW04	MW04
			Sample Name	MW01_080522	MW01_080522_FILTERED	MW01_011226	MW02_080222	MW02_080222_FILTERED	MW02_011326	MW03_080222	GWDUP01_080222	MW03_080222_FILTERED	GWDUP01_080222_FILTERED	MW03_011326	MW04_080422	MW04_080422_FILTERED	MW04_011426
			Sample Date	08/05/2022	08/05/2022	01/12/2026	08/02/2022	08/02/2022	01/13/2026	08/02/2022	08/02/2022	08/02/2022	08/02/2022	01/13/2026	08/04/2022	08/04/2022	01/14/2026
			Unit	Result	Result	Result	Result	Result	Result	Result	Result	Result	Result	Result	Result	Result	Result
Semi-Volatile Organic Compounds - Dissolved																	
1,2,4,5-Tetrachlorobenzene	95-94-3	5	ug/l	NA	<10 U	NA	NA	<10 U	NA	NA	NA	<10 U	<10 U	NA	NA	<10 U	NA
1,2,4-Trichlorobenzene	120-82-1	5	ug/l	NA	<5 U	NA	NA	<5 U	NA	NA	NA	<5 U	<5 U	NA	NA	<5 U	NA
1,2-Dichlorobenzene	95-50-1	3	ug/l	NA	<2 U	NA	NA	<2 U	NA	NA	NA	<2 U	<2 U	NA	NA	<2 U	NA
1,3-Dichlorobenzene	541-73-1	3	ug/l	NA	<2 U	NA	NA	<2 U	NA	NA	NA	<2 U	<2 U	NA	NA	<2 U	NA
1,4-Dichlorobenzene	106-46-7	3	ug/l	NA	<2 U	NA	NA	<2 U	NA	NA	NA	<2 U	<2 U	NA	NA	<2 U	NA
2,4,5-Trichlorophenol	95-95-4	NS	ug/l	NA	<5 U	NA	NA	<5 U	NA	NA	NA	<5 U	<5 U	NA	NA	<5 U	NA
2,4,6-Trichlorophenol	88-06-2	NS	ug/l	NA	<5 U	NA	NA	<5 U	NA	NA	NA	<5 U	<5 U	NA	NA	<5 U	NA
2,4-Dichlorophenol	120-83-2	1	ug/l	NA	<5 U	NA	NA	<5 U	NA	NA	NA	<5 U	<5 U	NA	NA	<5 U	NA
2,4-Dimethylphenol	105-67-9	1	ug/l	NA	<5 UJ	NA	NA	<5 U	NA	NA	NA	<5 U	<5 U	NA	NA	<5 U	NA
2,4-Dinitrophenol	51-28-5	1	ug/l	NA	<20 U	NA	NA	<20 U	NA	NA	NA	<20 U	<20 U	NA	NA	<20 UJ	NA
2,4-Dinitrotoluene	121-14-2	5	ug/l	NA	<5 U	NA	NA	<5 U	NA	NA	NA	<5 U	<5 U	NA	NA	<5 U	NA
2,6-Dinitrotoluene	606-20-2	5	ug/l	NA	<5 U	NA	NA	<5 U	NA	NA	NA	<5 U	<5 U	NA	NA	<5 U	NA
2-Chloronaphthalene	91-58-7	10	ug/l	NA	<0.2 U	NA	NA	<0.2 U	NA	NA	NA	<0.2 U	<0.2 U	NA	NA	<0.2 U	NA
2-Chlorophenol	95-57-8	NS	ug/l	NA	<2 U	NA	NA	<2 U	NA	NA	NA	<2 U	<2 U	NA	NA	<2 U	NA
2-Methylnaphthalene	91-57-6	NS	ug/l	NA	<0.1 U	NA	NA	0.06 J	NA	NA	NA	<0.1 U	0.04 J	NA	NA	0.03 J	NA
2-Methylphenol (o-Cresol)	95-48-7	NS	ug/l	NA	<5 U	NA	NA	<5 U	NA	NA	NA	<5 U	<5 U	NA	NA	<5 U	NA
2-Nitroaniline	88-74-4	5	ug/l	NA	<5 U	NA	NA	<5 U	NA	NA	NA	<5 U	<5 U	NA	NA	<5 U	NA
2-Nitrophenol	88-75-5	NS	ug/l	NA	<10 U	NA	NA	<10 U	NA	NA	NA	<10 U	<10 U	NA	NA	<10 U	NA
3 & 4 Methylphenol (m&p Cresol)	65794-96-9	NS	ug/l	NA	<5 U	NA	NA	<5 U	NA	NA	NA	<5 U	<5 U	NA	NA	<5 U	NA
3,3'-Dichlorobenzidine	91-94-1	5	ug/l	NA	<5 U	NA	NA	<5 U	NA	NA	NA	<5 U	<5 U	NA	NA	<5 U	NA
3-Nitroaniline	99-09-2	5	ug/l	NA	<5 U	NA	NA	<5 U	NA	NA	NA	<5 U	<5 U	NA	NA	<5 U	NA
4,6-Dinitro-2-Methylphenol	534-52-1	NS	ug/l	NA	<10 U	NA	NA	<10 U	NA	NA	NA	<10 U	<10 U	NA	NA	<10 UJ	NA
4-Bromophenyl Phenyl Ether	101-55-3	NS	ug/l	NA	<2 U	NA	NA	<2 U	NA	NA	NA	<2 U	<2 U	NA	NA	<2 U	NA
4-Chloro-3-Methylphenol	59-50-7	NS	ug/l	NA	<2 U	NA	NA	<2 U	NA	NA	NA	<2 U	<2 U	NA	NA	<2 U	NA
4-Chloroaniline	106-47-8	5	ug/l	NA	<5 UJ	NA	NA	<5 U	NA	NA	NA	<5 U	<5 U	NA	NA	<5 U	NA
4-Chlorophenyl Phenyl Ether	7005-72-3	NS	ug/l	NA	<2 U	NA	NA	<2 U	NA	NA	NA	<2 U	<2 U	NA	NA	<2 U	NA
4-Nitroaniline	100-01-6	5	ug/l	NA	<5 U	NA	NA	<5 U	NA	NA	NA	<5 U	<5 U	NA	NA	<5 U	NA
4-Nitrophenol	100-02-7	NS	ug/l	NA	<10 U	NA	NA	<10 U	NA	NA	NA	<10 U	<10 U	NA	NA	<10 U	NA
Acenaphthene	83-32-9	20	ug/l	NA	<0.1 U	NA	NA	<0.1 U	NA	NA	NA	<0.1 U	0.02 J	NA	NA	<0.1 U	NA
Acenaphthylene	208-96-8	NS	ug/l	NA	<0.1 U	NA	NA	<0.1 U	NA	NA	NA	<0.1 U	0.01 J	NA	NA	<0.1 U	NA
Acetophenone	98-86-2	NS	ug/l	NA	<5 U	NA	NA	<5 U	NA	NA	NA	<5 U	<5 U	NA	NA	<5 U	NA
Anthracene	120-12-7	50	ug/l	NA	<0.1 UJ	NA	NA	<0.1 U	NA	NA	NA	<0.1 U	0.02 J	NA	NA	0.02 J	NA
Benzo(a)anthracene	56-55-3	0.002	ug/l	NA	<0.1 U	NA	NA	<0.1 U	NA	NA	NA	<0.1 U	<0.1 U	NA	NA	<0.1 U	NA
Benzo(a)pyrene	50-32-8	0	ug/l	NA	<0.1 UJ	NA	NA	<0.1 U	NA	NA	NA	<0.1 U	<0.1 U	NA	NA	<0.1 U	NA
Benzo(b)fluoranthene	205-99-2	**0.002**	ug/l	NA	<0.1 U	NA	NA	<0.1 U	NA	NA	NA	<0.1 U	<0.1 U	NA	NA	<0.1 U	NA
Benzo(g,h,i)Perylene	191-24-2	NS	ug/l	NA	<0.1 UJ	NA	NA	<0.1 U	NA	NA	NA	<0.1 U	<0.1 U	NA	NA	<0.1 U	NA
Benzo(k)fluoranthene	207-08-9	**0.002**	ug/l	NA	<0.1 UJ	NA	NA	<0.1 U	NA	NA	NA	<0.1 U	<0.1 U	NA	NA	<0.1 U	NA
Benzoic Acid	65-85-0	NS	ug/l	NA	<50 UJ	NA	NA	<50 U	NA	NA	NA	<50 U	<50 U	NA	NA	21 J	NA
Benzyl Alcohol	100-51-6	NS	ug/l	NA	<2 U	NA	NA	<2 U	NA	NA	NA	<2 U	<2 U	NA	NA	<2 U	NA
Benzyl Butyl Phthalate	85-68-7	50	ug/l	NA	<5 U	NA	NA	<5 U	NA	NA	NA	<5 U	<5 U	NA	NA	<5 U	NA
Biphenyl (Diphenyl)	92-52-4	5	ug/l	NA	<2 U	NA	NA	<2 U	NA	NA	NA	<2 U	<2 U	NA	NA	<2 U	NA
Bis(2-chloroethoxy) methane	111-91-1	5	ug/l	NA	<5 U	NA	NA	<5 U	NA	NA	NA	<5 U	<5 U	NA	NA	<5 U	NA
Bis(2-chloroethyl) ether (2-chloroethyl ether)	111-44-4	1	ug/l	NA	<2 U	NA	NA	<2 U	NA	NA	NA	<2 U	<2 U	NA	NA	<2 U	NA
Bis(2-chloroisopropyl) ether	108-60-1	5	ug/l	NA	<2 U	NA	NA	<2 U	NA	NA	NA	<2 U	0.7 J	NA	NA	<2 U	NA
Bis(2-ethylhexyl) phthalate	117-81-7	5	ug/l	NA	<3 U	NA	NA	<3 U	NA	NA	NA	<3 U	3	NA	NA	<3 U	NA
Carbazole	86-74-8	NS	ug/l	NA	<2 U	NA	NA	<2 U	NA	NA	NA	<2 U	<2 U	NA	NA	<2 U	NA
Chrysene	218-01-9	**0.002**	ug/l	NA	<0.1 UJ	NA	NA	<0.1 U	NA	NA	NA	<0.1 U	<0.1 U	NA	NA	<0.1 U	NA
Dibenz(a,h)anthracene	53-70-3	NS	ug/l	NA	<0.1 UJ	NA	NA	<0.1 U	NA	NA	NA	<0.1 U	<0.1 U	NA	NA	<0.1 U	NA
Dibenzofuran	132-64-9	NS	ug/l	NA	<2 U	NA	NA	<2 U	NA	NA	NA	<2 U	<2 U	NA	NA	<2 U	NA
Dibutyl phthalate	84-74-2	50	ug/l	NA	<5 U	NA	NA	<5 U	NA	NA	NA	<5 U	<5 U	NA	NA	<5 U	NA
Diethyl phthalate	84-66-2	50	ug/l	NA	<5 U	NA	NA	<5 U	NA	NA	NA	<5 U	<5 U	NA	NA	<5 U	NA
Dimethyl phthalate	131-11-3	50	ug/l	NA	<5 U	NA	NA	<5 U	NA	NA	NA	<5 U	<5 U	NA	NA	<5 U	NA
Dioctyl phthalate	117-84-0	50	ug/l	NA	<5 U	NA	NA	<5 U	NA	NA	NA	<5 U	<5 U	NA	NA	<5 U	NA
Fluoranthene	206-44-0	50	ug/l	NA	<0.1 UJ	NA	NA	<0.1 U	NA	NA	NA	<0.1 U	<0.1 U	NA	NA	<0.1 U	NA
Fluorene	86-73-7	50	ug/l	NA	<0.1 U	NA	NA	<0.1 U	NA	NA	NA	<0.1 U	<0.1 U	NA	NA	0.02 J	NA
Hexachlorobenzene	118-74-1	0.04	ug/l	NA	<0.8 UJ	NA	NA	<0.8 U	NA	NA	NA	<0.8 U	<0.8 U	NA	NA	<0.8 U	NA
Hexachlorobutadiene	87-68-3	0.5	ug/l	NA	<0.5 U	NA	NA	<0.5 U	NA	NA	NA	<0.5 U	<0.5 U	NA	NA	<0.5 U	NA
Hexachlorocyclopentadiene	77-47-4	5	ug/l	NA	<20 U	NA	NA	<20 U	NA	NA	NA	<20 U	<20 U	NA	NA	<20 U	NA
Hexachloroethane	67-72-1	5	ug/l	NA	<0.8 U	NA	NA	<0.8 U	NA	NA	NA	<0.8 U	<0.8 U	NA	NA	<0.8 U	NA
Indeno(1,2,3-cd)pyrene	193-39-5	**0.002**	ug/l	NA	<0.1 UJ	NA	NA	<0.1 U	NA	NA	NA	<0.1 U	<0.1 U	NA	NA	<0.1 U	NA
Isophorone	78-59-1	50	ug/l	NA	<5 U	NA	NA	<5 U	NA	NA	NA	<5 U	<5 U	NA	NA	<5 U	NA
Naphthalene	91-20-3	10	ug/l	NA	<0.1 U	NA	NA	0.26	NA	NA	NA	<0.1 U	<0.1 U	NA	NA	<0.1 U	NA
Nitrobenzene	98-95-3	0.4	ug/l	NA	<2 U	NA	NA	<2 U	NA	NA	NA	<2 U	<2 U	NA	NA	<2 U	NA
n-Nitrosodi-N-Propylamine	621-64-7	NS	ug/l	NA	<5 U	NA	NA	<5 U	NA	NA	NA	<5 U	1.3 J	NA	NA	<5 U	NA
n-Nitrosodiphenylamine	86-30-6	50	ug/l	NA	<2 U	NA	NA	<2 U	NA	NA	NA	<2 U	<2 U	NA	NA	<2 U	NA
Pentachlorophenol	87-86-5	1	ug/l	NA	<0.8 UJ	NA	NA	<0.8 U	NA	NA	NA	<0.8 U	<0.8 U	NA	NA	<0.8 U	NA
Phenanthrene	85-01-8	50	ug/l	NA	<0.1 U	NA	NA	<0.1 U	NA	NA	NA	<0.1 U	<0.1 U	NA	NA	0.03 J	NA
Phenol	108-95-2	**1**	ug/l	NA	<5 U	NA	NA	**6**	NA	NA	NA	**4.5 J**	**5.9**	NA	NA	**46**	NA
Pyrene	129-00-0	50	ug/l	NA	<0.1 UJ	NA	NA	<0.1 U	NA	NA	NA	<0.1 U	<0.1 U	NA	NA	<0.1 U	NA

Table 4
Remedial Investigation Report
Groundwater Sample Analytical Results

C Block
Brooklyn, New York
NYSDEC BCP Site No.: C224435
Langan Project No.: 170229030

Analyte	CAS Number	NYSDEC SGVs	Location	MW01	MW01	MW01	MW02	MW02	MW02	MW03	MW03	MW03	MW03	MW03	MW04	MW04	MW04
			Sample Name	MW01_080522	MW01_080522_FILTERED	MW01_011226	MW02_080222	MW02_080222_FILTERED	MW02_011326	MW03_080222	GWDUP01_080222	MW03_080222_FILTERED	GWDUP01_080222_FILTERED	MW03_011326	MW04_080422	MW04_080422_FILTERED	MW04_011426
			Sample Date	08/05/2022	08/05/2022	01/12/2026	08/02/2022	08/02/2022	01/13/2026	08/02/2022	08/02/2022	08/02/2022	08/02/2022	01/13/2026	08/04/2022	08/04/2022	01/14/2026
			Unit	Result	Result	Result	Result	Result	Result	Result	Result	Result	Result	Result	Result	Result	Result
Semi-Volatile Organic Compounds - Total																	
1,2,4,5-Tetrachlorobenzene	95-94-3	5	ug/l	<10 U	NA	NA	<10 U	NA	NA	<10 U	<10 U	NA	NA	NA	<12 U	NA	NA
1,2,4-Trichlorobenzene	120-82-1	5	ug/l	<5 U	NA	NA	NA	NA	NA	NA	<5 U	NA	NA	NA	<6 U	NA	NA
1,2-Dichlorobenzene	95-50-1	3	ug/l	<2 U	NA	NA	<2 U	NA	NA	<2 U	<2 U	NA	NA	NA	<2.4 U	NA	NA
1,3-Dichlorobenzene	541-73-1	3	ug/l	<2 U	NA	NA	<2 U	NA	NA	<2 U	<2 U	NA	NA	NA	<2.4 U	NA	NA
1,4-Dichlorobenzene	106-46-7	3	ug/l	<2 U	NA	NA	<2 U	NA	NA	<2 U	<2 U	NA	NA	NA	<2.4 U	NA	NA
1,4-Dioxane (P-Dioxane)	123-91-1	0.35	ug/l	<0.144 U	NA	NA	0.043 J	NA	NA	0.0982 J	0.0965 J	NA	NA	NA	<0.153 U	NA	NA
2,4,5-Trichlorophenol	95-95-4	NS	ug/l	<5 U	NA	NA	<5 U	NA	NA	<5 U	<5 U	NA	NA	NA	<6 U	NA	NA
2,4,6-Trichlorophenol	88-06-2	NS	ug/l	<5 U	NA	NA	<5 U	NA	NA	<5 U	<5 U	NA	NA	NA	<6 U	NA	NA
2,4-Dichlorophenol	120-83-2	1	ug/l	<5 U	NA	NA	<5 U	NA	NA	<5 U	<5 U	NA	NA	NA	<6 U	NA	NA
2,4-Dimethylphenol	105-67-9	1	ug/l	<5 UJ	NA	NA	<5 U	NA	NA	<5 U	<5 U	NA	NA	NA	<6 U	NA	NA
2,4-Dinitrophenol	51-28-5	1	ug/l	<20 U	NA	NA	<20 U	NA	NA	<20 U	<20 U	NA	NA	NA	<24 UJ	NA	NA
2,4-Dinitrotoluene	121-14-2	5	ug/l	<5 U	NA	NA	<5 U	NA	NA	<5 U	<5 U	NA	NA	NA	<6 U	NA	NA
2,6-Dinitrotoluene	606-20-2	5	ug/l	<5 U	NA	NA	<5 U	NA	NA	<5 U	<5 U	NA	NA	NA	<6 U	NA	NA
2-Chloronaphthalene	91-58-7	10	ug/l	<0.2 U	NA	NA	<0.2 U	NA	NA	<0.2 U	<0.2 U	NA	NA	NA	<0.24 U	NA	NA
2-Chlorophenol	95-57-8	NS	ug/l	<2 U	NA	NA	<2 U	NA	NA	<2 U	<2 U	NA	NA	NA	<2.4 U	NA	NA
2-Methylnaphthalene	91-57-6	NS	ug/l	<0.1 U	NA	NA	0.04 J	NA	NA	<0.1 U	0.17	NA	NA	NA	0.03 J	NA	NA
2-Methylphenol (o-Cresol)	95-48-7	NS	ug/l	<5 U	NA	NA	<5 U	NA	NA	<5 U	<5 U	NA	NA	NA	<6 U	NA	NA
2-Nitroaniline	88-74-4	5	ug/l	<5 U	NA	NA	<5 U	NA	NA	<5 U	<5 U	NA	NA	NA	<6 U	NA	NA
2-Nitrophenol	88-75-5	NS	ug/l	<10 U	NA	NA	<10 U	NA	NA	<10 U	<10 U	NA	NA	NA	<12 U	NA	NA
3 & 4 Methylphenol (m&p Cresol)	65794-96-9	NS	ug/l	<5 U	NA	NA	<5 U	NA	NA	<5 U	<5 U	NA	NA	NA	<6 U	NA	NA
3,3'-Dichlorobenzidine	91-94-1	5	ug/l	<5 U	NA	NA	<5 U	NA	NA	<5 U	<5 U	NA	NA	NA	<6 U	NA	NA
3-Nitroaniline	99-09-2	5	ug/l	<5 U	NA	NA	<5 U	NA	NA	<5 U	<5 U	NA	NA	NA	<6 U	NA	NA
4,6-Dinitro-2-Methylphenol	534-52-1	NS	ug/l	<10 U	NA	NA	<10 U	NA	NA	<10 U	<10 U	NA	NA	NA	<12 UJ	NA	NA
4-Bromophenyl Phenyl Ether	101-55-3	NS	ug/l	<2 U	NA	NA	<2 U	NA	NA	<2 U	<2 U	NA	NA	NA	<2.4 U	NA	NA
4-Chloro-3-Methylphenol	59-50-7	NS	ug/l	<2 U	NA	NA	<2 U	NA	NA	<2 U	<2 U	NA	NA	NA	<2.4 U	NA	NA
4-Chloroaniline	106-47-8	5	ug/l	<5 UJ	NA	NA	<5 U	NA	NA	<5 U	<5 U	NA	NA	NA	<6 U	NA	NA
4-Chlorophenyl Phenyl Ether	7005-72-3	NS	ug/l	<2 U	NA	NA	<2 U	NA	NA	<2 U	<2 U	NA	NA	NA	<2.4 U	NA	NA
4-Nitroaniline	100-01-6	5	ug/l	<5 U	NA	NA	<5 U	NA	NA	<5 U	<5 U	NA	NA	NA	<6 U	NA	NA
4-Nitrophenol	100-02-7	NS	ug/l	<10 U	NA	NA	<10 U	NA	NA	<10 U	<10 U	NA	NA	NA	<12 U	NA	NA
Acenaphthene	83-32-9	20	ug/l	<0.1 U	NA	NA	<0.1 U	NA	NA	<0.1 U	0.02 J	NA	NA	NA	0.06 J	NA	NA
Acenaphthylene	208-96-8	NS	ug/l	<0.1 U	NA	NA	<0.1 U	NA	NA	<0.1 U	0.02 J	NA	NA	NA	<0.12 U	NA	NA
Acetophenone	98-86-2	NS	ug/l	<5 U	NA	NA	<5 U	NA	NA	<5 U	<5 U	NA	NA	NA	<6 U	NA	NA
Anthracene	120-12-7	50	ug/l	<0.1 UJ	NA	NA	<0.1 U	NA	NA	<0.1 U	0.02 J	NA	NA	NA	0.03 J	NA	NA
Benzo(a)anthracene	56-55-3	**0.002**	ug/l	<0.1 U	NA	NA	<0.1 U	NA	NA	<0.1 U	<0.1 U	NA	NA	NA	<0.12 U	NA	NA
Benzo(a)pyrene	50-32-8	**0**	ug/l	**0.02 J**	NA	NA	<0.1 U	NA	NA	<0.1 U	<0.1 U	NA	NA	NA	**0.03 J**	NA	NA
Benzo(b)fluoranthene	205-99-2	**0.002**	ug/l	<0.1 U	NA	NA	<0.1 U	NA	NA	**0.02 J**	<0.1 U	NA	NA	NA	<0.12 U	NA	NA
Benzo(g,h,i)Perylene	191-24-2	NS	ug/l	0.02 J	NA	NA	<0.1 U	NA	NA	<0.1 U	<0.1 U	NA	NA	NA	0.02 J	NA	NA
Benzo(k)fluoranthene	207-08-9	**0.002**	ug/l	**0.01 J**	NA	NA	<0.1 U	NA	NA	<0.1 U	<0.1 U	NA	NA	NA	**0.02 J**	NA	NA
Benzoic Acid	65-85-0	NS	ug/l	<50 UJ	NA	NA	<50 U	NA	NA	<50 U	<50 U	NA	NA	NA	<60 UJ	NA	NA
Benzyl Alcohol	100-51-6	NS	ug/l	<2 U	NA	NA	<2 U	NA	NA	<2 U	<2 U	NA	NA	NA	<2.4 U	NA	NA
Benzyl Butyl Phthalate	85-68-7	50	ug/l	<5 U	NA	NA	<5 U	NA	NA	<5 U	<5 U	NA	NA	NA	<6 U	NA	NA
Biphenyl (Diphenyl)	92-52-4	5	ug/l	<2 U	NA	NA	<2 U	NA	NA	<2 U	<2 U	NA	NA	NA	<2.4 U	NA	NA
Bis(2-chloroethoxy) methane	111-91-1	5	ug/l	<5 U	NA	NA	<5 U	NA	NA	<5 U	<5 U	NA	NA	NA	<6 U	NA	NA
Bis(2-chloroethyl) ether (2-chloroethyl ether)	111-44-4	1	ug/l	<2 U	NA	NA	<2 U	NA	NA	<2 U	<2 U	NA	NA	NA	<2.4 U	NA	NA
Bis(2-chloroisopropyl) ether	108-60-1	5	ug/l	<2 U	NA	NA	<2 U	NA	NA	<2 U	<2 U	NA	NA	NA	<2.4 U	NA	NA
Bis(2-ethylhexyl) phthalate	117-81-7	5	ug/l	<3 U	NA	NA	<3 U	NA	NA	<3 U	<3 U	NA	NA	NA	<3.6 U	NA	NA
Carbazole	86-74-8	NS	ug/l	<2 U	NA	NA	<2 U	NA	NA	<2 U	<2 U	NA	NA	NA	<2.4 U	NA	NA
Chrysene	218-01-9	**0.002**	ug/l	**0.02 J**	NA	NA	<0.1 U	NA	NA	**0.02 J**	<0.1 U	NA	NA	NA	**0.03 J**	NA	NA
Dibenz(a,h)anthracene	53-70-3	NS	ug/l	<0.1 UJ	NA	NA	<0.1 U	NA	NA	<0.1 U	<0.1 U	NA	NA	NA	<0.12 U	NA	NA
Dibenzofuran	132-64-9	NS	ug/l	<2 U	NA	NA	<2 U	NA	NA	<2 U	<2 U	NA	NA	NA	<2.4 U	NA	NA
Dibutyl phthalate	84-74-2	50	ug/l	<5 U	NA	NA	<5 U	NA	NA	<5 U	<5 U	NA	NA	NA	<6 U	NA	NA
Diethyl phthalate	84-66-2	50	ug/l	<5 U	NA	NA	<5 U	NA	NA	<5 U	<5 U	NA	NA	NA	<6 U	NA	NA
Dimethyl phthalate	131-11-3	50	ug/l	<5 U	NA	NA	<5 U	NA	NA	<5 U	<5 U	NA	NA	NA	<6 U	NA	NA
Dioctyl phthalate	117-84-0	50	ug/l	<5 U	NA	NA	<5 U	NA	NA	<5 U	<5 U	NA	NA	NA	<6 U	NA	NA
Fluoranthene	206-44-0	50	ug/l	<0.1 UJ	NA	NA	<0.1 U	NA	NA	<0.1 U	<0.1 U	NA	NA	NA	0.06 J	NA	NA
Fluorene	86-73-7	50	ug/l	<0.1 U	NA	NA	<0.1 U	NA	NA	<0.1 U	<0.1 U	NA	NA	NA	0.03 J	NA	NA
Hexachlorobenzene	118-74-1	0.04	ug/l	<0.8 UJ	NA	NA	<0.8 U	NA	NA	<0.8 U	<0.8 U	NA	NA	NA	<0.96 U	NA	NA
Hexachlorobutadiene	87-68-3	0.5	ug/l	<0.5 U	NA	NA	<0.5 U	NA	NA	<0.5 U	<0.5 U	NA	NA	NA	<0.6 U	NA	NA
Hexachlorocyclopentadiene	77-47-4	5	ug/l	<20 U	NA	NA	<20 U	NA	NA	<20 U	<20 U	NA	NA	NA	<24 U	NA	NA
Hexachloroethane	67-72-1	5	ug/l	<0.8 U	NA	NA	<0.8 U	NA	NA	<0.8 U	<0.8 U	NA	NA	NA	<0.96 U	NA	NA
Indeno(1,2,3-cd)pyrene	193-39-5	**0.002**	ug/l	**0.02 J**	NA	NA	<0.1 U	NA	NA	<0.1 U	<0.1 U	NA	NA	NA	**0.02 J**	NA	NA
Isophorone	78-59-1	50	ug/l	<5 U	NA	NA	<5 U	NA	NA	<5 U	<5 U	NA	NA	NA	<6 U	NA	NA
Naphthalene	91-20-3	10	ug/l	<0.1 U	NA	NA	0.13	NA	NA	0.06 J	0.47 J	NA	NA	NA	0.07 J	NA	NA
Nitrobenzene	98-95-3	0.4	ug/l	<2 U	NA	NA	<2 U	NA	NA	<2 U	<2 U	NA	NA	NA	<2.4 U	NA	NA
n-Nitrosodi-N-Propylamine	621-64-7	NS	ug/l	<5 U	NA	NA	<5 U	NA	NA	<5 U	<5 U	NA	NA	NA	<6 U	NA	NA
n-Nitrosodiphenylamine	86-30-6	50	ug/l	<2 U	NA	NA	<2 U	NA	NA	<2 U	<2 U	NA	NA	NA	<2.4 U	NA	NA
Pentachlorophenol	87-86-5	1	ug/l	<0.8 UJ	NA	NA	<0.8 U	NA	NA	<0.8 U	<0.8 U	NA	NA	NA	<0.96 U	NA	NA
Phenanthrene	85-01-8	50	ug/l	<0.1 U	NA	NA	<0.1 U	NA	NA	<0.1 U	<0.1 U	NA	NA	NA	0.09 J	NA	NA
Phenol	108-95-2	1	ug/l	<5 U	NA	NA	<5 U	NA	NA	<5 U	<5 U	NA	NA	NA	<6 U	NA	NA
Pyrene	129-00-0	50	ug/l	0.03 J	NA	NA	<0.1 U	NA	NA	<0.1 U	<0.1 U	NA	NA	NA	0.05 J	NA	NA

Table 4
Remedial Investigation Report
Groundwater Sample Analytical Results

C Block
Brooklyn, New York
NYSDEC BCP Site No.: C224435
Langan Project No.: 170229030

Analyte	CAS Number	NYSDEC SGVs	Location	MW01	MW01	MW01	MW02	MW02	MW02	MW03	MW03	MW03	MW03	MW03	MW04	MW04	MW04
			Sample Name	MW01_080522	MW01_080522_FILTERED	MW01_011226	MW02_080222	MW02_080222_FILTERED	MW02_011326	MW03_080222	GWDUP01_080222	MW03_080222_FILTERED	GWDUP01_080222_FILTERED	MW03_011326	MW04_080422	MW04_080422_FILTERED	MW04_011426
			Sample Date	08/05/2022	08/05/2022	01/12/2026	08/02/2022	08/02/2022	01/13/2026	08/02/2022	08/02/2022	08/02/2022	08/02/2022	01/13/2026	08/04/2022	08/04/2022	01/14/2026
			Unit	Result	Result	Result	Result	Result	Result	Result	Result	Result	Result	Result	Result	Result	Result
Pesticides																	
4,4'-DDD	72-54-8	0.3	ug/l	<0.029 U	NA	NA	<0.029 U	NA	NA	<0.029 U	<0.029 U	NA	NA	NA	<0.029 U	NA	NA
4,4'-DDE	72-55-9	0.2	ug/l	<0.029 U	NA	NA	<0.029 U	NA	NA	<0.029 U	<0.029 U	NA	NA	NA	<0.029 U	NA	NA
4,4'-DDT	50-29-3	0.2	ug/l	<0.029 U	NA	NA	<0.029 U	NA	NA	<0.029 U	<0.029 U	NA	NA	NA	<0.029 U	NA	NA
Aldrin	309-00-2	0	ug/l	<0.014 U	NA	NA	<0.014 U	NA	NA	<0.014 U	<0.014 U	NA	NA	NA	<0.014 U	NA	NA
Alpha BHC (Alpha Hexachlorocyclohexane)	319-84-6	0.01	ug/l	<0.014 U	NA	NA	<0.014 U	NA	NA	<0.014 U	<0.014 U	NA	NA	NA	<0.014 U	NA	NA
Alpha Chlordane	5103-71-9	NS	ug/l	<0.014 U	NA	NA	<0.014 U	NA	NA	<0.014 U	<0.014 U	NA	NA	NA	<0.014 U	NA	NA
Alpha Endosulfan	959-98-8	NS	ug/l	<0.014 U	NA	NA	<0.014 U	NA	NA	<0.014 U	<0.014 U	NA	NA	NA	<0.014 U	NA	NA
Beta Bhc (Beta Hexachlorocyclohexane)	319-85-7	0.04	ug/l	<0.014 U	NA	NA	<0.014 U	NA	NA	<0.014 U	<0.014 U	NA	NA	NA	<0.014 U	NA	NA
Beta Endosulfan	33213-65-9	NS	ug/l	<0.029 U	NA	NA	<0.029 U	NA	NA	<0.029 U	<0.029 U	NA	NA	NA	<0.029 U	NA	NA
Chlordane (alpha and gamma)	57-74-9	0.05	ug/l	<0.143 U	NA	NA	<0.143 U	NA	NA	<0.143 U	<0.143 U	NA	NA	NA	<0.143 U	NA	NA
Delta Bhc (Delta Hexachlorocyclohexane)	319-86-8	0.04	ug/l	<0.014 U	NA	NA	<0.014 U	NA	NA	<0.014 U	<0.014 U	NA	NA	NA	<0.014 U	NA	NA
Dieldrin	60-57-1	0.004	ug/l	<0.029 U	NA	NA	<0.029 U	NA	NA	<0.029 U	<0.029 U	NA	NA	NA	<0.029 U	NA	NA
Endosulfan Sulfate	1031-07-8	NS	ug/l	<0.029 U	NA	NA	<0.029 U	NA	NA	<0.029 U	<0.029 U	NA	NA	NA	<0.029 U	NA	NA
Endrin	72-20-8	0	ug/l	<0.029 U	NA	NA	<0.029 U	NA	NA	<0.029 U	<0.029 U	NA	NA	NA	<0.029 U	NA	NA
Endrin Aldehyde	7421-93-4	5	ug/l	<0.029 U	NA	NA	<0.029 U	NA	NA	<0.029 U	<0.029 U	NA	NA	NA	<0.029 U	NA	NA
Endrin Ketone	53494-70-5	5	ug/l	<0.029 U	NA	NA	<0.029 U	NA	NA	<0.029 U	<0.029 U	NA	NA	NA	<0.029 U	NA	NA
Gamma Bhc (Lindane)	58-89-9	0.05	ug/l	<0.014 U	NA	NA	<0.014 U	NA	NA	<0.014 U	<0.014 U	NA	NA	NA	<0.014 U	NA	NA
Gamma Chlordane (Trans)	5103-74-2	NS	ug/l	<0.014 U	NA	NA	<0.014 U	NA	NA	<0.014 U	<0.014 U	NA	NA	NA	<0.014 U	NA	NA
Heptachlor	76-44-8	0.04	ug/l	<0.014 U	NA	NA	<0.014 U	NA	NA	<0.014 U	<0.014 U	NA	NA	NA	<0.014 U	NA	NA
Heptachlor Epoxide	1024-57-3	0.03	ug/l	<0.014 U	NA	NA	<0.014 U	NA	NA	<0.014 U	<0.014 U	NA	NA	NA	<0.014 U	NA	NA
Methoxychlor	72-43-5	35	ug/l	<0.143 U	NA	NA	<0.143 U	NA	NA	<0.143 U	<0.143 U	NA	NA	NA	<0.143 U	NA	NA
Toxaphene	8001-35-2	0.06	ug/l	<0.143 U	NA	NA	<0.143 U	NA	NA	<0.143 U	<0.143 U	NA	NA	NA	<0.143 U	NA	NA
Herbicides																	
2,4,5-T (Trichlorophenoxyacetic Acid)	93-76-5	35	ug/l	<2 U	NA	NA	<2 U	NA	NA	<2 U	<2 U	NA	NA	NA	<2 U	NA	NA
2,4-D (Dichlorophenoxyacetic Acid)	94-75-7	50	ug/l	<10 U	NA	NA	<10 U	NA	NA	<10 U	<10 U	NA	NA	NA	<10 U	NA	NA
Silvex (2,4,5-Tp)	93-72-1	0.26	ug/l	<2 U	NA	NA	<2 U	NA	NA	<2 U	<2 U	NA	NA	NA	<2 U	NA	NA
Polychlorinated Biphenyl																	
PCB-1016 (Aroclor 1016)	12674-11-2	NS	ug/l	<0.071 U	NA	NA	<0.071 U	NA	NA	<0.071 U	<0.071 U	NA	NA	NA	<0.071 U	NA	NA
PCB-1221 (Aroclor 1221)	11104-28-2	NS	ug/l	<0.071 U	NA	NA	<0.071 U	NA	NA	<0.071 U	<0.071 U	NA	NA	NA	<0.071 U	NA	NA
PCB-1232 (Aroclor 1232)	11141-16-5	NS	ug/l	<0.071 U	NA	NA	<0.071 U	NA	NA	<0.071 U	<0.071 U	NA	NA	NA	<0.071 U	NA	NA
PCB-1242 (Aroclor 1242)	53469-21-9	NS	ug/l	<0.071 U	NA	NA	<0.071 U	NA	NA	<0.071 U	<0.071 U	NA	NA	NA	<0.071 U	NA	NA
PCB-1248 (Aroclor 1248)	12672-29-6	NS	ug/l	<0.071 U	NA	NA	<0.071 U	NA	NA	<0.071 U	<0.071 U	NA	NA	NA	<0.071 U	NA	NA
PCB-1254 (Aroclor 1254)	11097-69-1	NS	ug/l	<0.071 U	NA	NA	<0.071 U	NA	NA	<0.071 U	<0.071 U	NA	NA	NA	<0.071 U	NA	NA
PCB-1260 (Aroclor 1260)	11096-82-5	NS	ug/l	<0.071 U	NA	NA	<0.071 U	NA	NA	<0.071 U	<0.071 U	NA	NA	NA	<0.071 U	NA	NA
PCB-1262 (Aroclor 1262)	37324-23-5	NS	ug/l	<0.071 U	NA	NA	<0.071 U	NA	NA	<0.071 U	<0.071 U	NA	NA	NA	<0.071 U	NA	NA
PCB-1268 (Aroclor 1268)	11100-14-4	NS	ug/l	<0.071 U	NA	NA	<0.071 U	NA	NA	<0.071 U	<0.071 U	NA	NA	NA	<0.071 U	NA	NA
Total PCBs	1336-36-3	0.09	ug/l	<0.071 U	NA	NA	<0.071 U	NA	NA	<0.071 U	<0.071 U	NA	NA	NA	<0.071 U	NA	NA
Metals - Dissolved																	
Aluminum	7429-90-5	NS	ug/l	3.86 J	NA	NA	6.33 J	NA	NA	6.58 J	<200 U	NA	NA	NA	3.64 J	NA	NA
Antimony	7440-36-0	3	ug/l	<4 U	NA	NA	<4 U	NA	NA	<4 U	<4 U	NA	NA	NA	<4 U	NA	NA
Arsenic	7440-38-2	25	ug/l	2.59	NA	NA	0.5	NA	NA	0.58	0.59	NA	NA	NA	0.52	NA	NA
Barium	7440-39-3	1000	ug/l	114.8	NA	NA	138.2	NA	NA	87	88.73	NA	NA	NA	125.7	NA	NA
Beryllium	7440-41-7	3	ug/l	<0.5 U	NA	NA	<0.5 U	NA	NA	0.11 J	0.14 J	NA	NA	NA	<0.5 U	NA	NA
Cadmium	7440-43-9	5	ug/l	<0.2 U	NA	NA	<0.2 U	NA	NA	<0.2 U	<0.2 U	NA	NA	NA	<0.2 U	NA	NA
Calcium	7440-70-2	NS	ug/l	227,000	NA	NA	335,000	NA	NA	175,000	178,000	NA	NA	NA	147,000	NA	NA
Chromium, Total	7440-47-3	50	ug/l	<1 U	NA	NA	<1 U	NA	NA	<1 U	<1 U	NA	NA	NA	0.74 J	NA	NA
Cobalt	7440-48-4	NS	ug/l	1.08	NA	NA	0.74	NA	NA	1.47	1.54	NA	NA	NA	0.36 J	NA	NA
Copper	7440-50-8	200	ug/l	1.06	NA	NA	<1 U	NA	NA	<1 U	<1 U	NA	NA	NA	<1 U	NA	NA
Iron	7439-89-6	**300**	ug/l	**4,570**	NA	NA	**5,950**	NA	NA	**16,500**	**17,000**	NA	NA	NA	**16,600**	NA	NA
Lead	7439-92-1	25	ug/l	<1 U	NA	NA	<20 U	NA	NA	<20 U	<20 U	NA	NA	NA	<1 U	NA	NA
Magnesium	7439-95-4	**35000**	ug/l	**222,000**	NA	NA	**263,000**	NA	NA	**662,000**	**615,000**	NA	NA	NA	**85,400**	NA	NA
Manganese	7439-96-5	**300**	ug/l	**1,835**	NA	NA	**1,101**	NA	NA	**1,389**	**1,474**	NA	NA	NA	**1,200**	NA	NA
Mercury	7439-97-6	0.7	ug/l	<0.2 U	NA	NA	<0.2 U	NA	NA	<0.2 U	<0.2 U	NA	NA	NA	<0.2 U	NA	NA
Nickel	7440-02-0	100	ug/l	1.77 J	NA	NA	2.45	NA	NA	1.53 J	1.87 J	NA	NA	NA	<2 U	NA	NA
Potassium	7440-09-7	NS	ug/l	95,300	NA	NA	78,300	NA	NA	124,000 J	180,000 J	NA	NA	NA	45,100	NA	NA
Selenium	7782-49-2	10	ug/l	<5 U	NA	NA	<5 U	NA	NA	<5 U	<5 U	NA	NA	NA	<5 U	NA	NA
Silver	7440-22-4	50	ug/l	<0.4 U	NA	NA	<0.4 U	NA	NA	<0.4 U	<0.4 U	NA	NA	NA	<0.4 U	NA	NA
Sodium	7440-23-5	**20000**	ug/l	**2,180,000**	NA	NA	**1,910,000**	NA	NA	**5,810,000**	**5,400,000**	NA	NA	NA	**416,000**	NA	NA
Thallium	7440-28-0	**0.5**	ug/l	<1 U	NA	NA	<20 U	NA	NA	<20 U	<20 U	NA	NA	NA	<1 U	NA	NA
Vanadium	7440-62-2	NS	ug/l	<5 U	NA	NA	<5 U	NA	NA	<5 U	<5 U	NA	NA	NA	<5 U	NA	NA
Zinc	7440-66-6	2000	ug/l	4.9 J	NA	NA	4.92 J	NA	NA	8.67 J	11	NA	NA	NA	<10 U	NA	NA

Table 4
Remedial Investigation Report
Groundwater Sample Analytical Results

C Block
Brooklyn, New York
NYSDEC BCP Site No.: C224435
Langan Project No.: 170229030

Analyte	CAS Number	NYSDEC SGVs	Location	MW01	MW01	MW01	MW02	MW02	MW02	MW03	MW03	MW03	MW03	MW03	MW04	MW04	MW04
			Sample Name	MW01_080522	MW01_080522_FILTERED	MW01_011226	MW02_080222	MW02_080222_FILTERED	MW02_011326	MW03_080222	GWDUP01_080222	MW03_080222_FILTERED	GWDUP01_080222_FILTERED	MW03_011326	MW04_080422	MW04_080422_FILTERED	MW04_011426
			Sample Date	08/05/2022	08/05/2022	01/12/2026	08/02/2022	08/02/2022	01/13/2026	08/02/2022	08/02/2022	08/02/2022	08/02/2022	01/13/2026	08/04/2022	08/04/2022	01/14/2026
			Unit	Result	Result	Result	Result	Result	Result	Result	Result	Result	Result	Result	Result	Result	Result
Metals - Total																	
Aluminum	7429-90-5	NS	ug/l	10.7	NA	NA	18.6	NA	NA	12.2 J	24.8 J	NA	NA	NA	732	NA	NA
Antimony	7440-36-0	3	ug/l	0.8 J	NA	NA	<4 U	NA	NA	1.28 J	<4 U	NA	NA	NA	<4 U	NA	NA
Arsenic	7440-38-2	25	ug/l	2.46	NA	NA	<0.5 U	NA	NA	<0.5 U	<0.5 U	NA	NA	NA	0.89	NA	NA
Barium	7440-39-3	1000	ug/l	115.5	NA	NA	117.2	NA	NA	79.67	79.48	NA	NA	NA	125.3	NA	NA
Beryllium	7440-41-7	3	ug/l	<0.5 U	NA	NA	<0.5 U	NA	NA	<0.5 U	<0.5 U	NA	NA	NA	<0.5 U	NA	NA
Cadmium	7440-43-9	5	ug/l	<0.2 U	NA	NA	<0.2 U	NA	NA	<0.2 U	<0.2 U	NA	NA	NA	<0.2 U	NA	NA
Calcium	7440-70-2	NS	ug/l	233,000	NA	NA	324,000	NA	NA	275,000	290,000	NA	NA	NA	141,000	NA	NA
Chromium, Hexavalent	18540-29-9	50	ug/l	<10 U	NA	NA	<10 U	NA	NA	<10 U	<10 U	NA	NA	NA	<10 U	NA	NA
Chromium, Total	7440-47-3	NS	ug/l	<1 U	NA	NA	<1 U	NA	NA	<1 U	<1 U	NA	NA	NA	2.44	NA	NA
Chromium, Trivalent	16065-83-1	NS	ug/l	<10 U	NA	NA	<10 U	NA	NA	<10 U	<10 U	NA	NA	NA	<10 U	NA	NA
Cobalt	7440-48-4	NS	ug/l	1.12	NA	NA	0.68	NA	NA	1.69	1.4	NA	NA	NA	0.87	NA	NA
Copper	7440-50-8	200	ug/l	<1 U	NA	NA	<1 U	NA	NA	<1 U	0.46 J	NA	NA	NA	4.57	NA	NA
Cyanide	57-12-5	200	ug/l	47	NA	NA	<5 U	NA	NA	6	4 J	NA	NA	NA	71	NA	NA
Iron	7439-89-6	**300**	ug/l	**4,690**	NA	NA	**5,320**	NA	NA	**14,900**	**14,700**	NA	NA	NA	**18,200**	NA	NA
Lead	7439-92-1	**25**	ug/l	<1 U	NA	NA	0.38 J	NA	NA	0.4 J	0.58 J	NA	NA	NA	16.79	NA	NA
Magnesium	7439-95-4	**35000**	ug/l	**222,000**	NA	NA	**210,000**	NA	NA	**476,000**	**514,000**	NA	NA	NA	**80,300**	NA	NA
Manganese	7439-96-5	**300**	ug/l	**1,907 J**	NA	NA	**884.5**	NA	NA	**1,135**	**1,108**	NA	NA	NA	**1,230**	NA	NA
Mercury	7439-97-6	0.7	ug/l	<0.2 U	NA	NA	<0.2 U	NA	NA	<0.2 U	<0.2 U	NA	NA	NA	<0.2 U	NA	NA
Nickel	7440-02-0	100	ug/l	2.16	NA	NA	2.59	NA	NA	1.86 J	1.64 J	NA	NA	NA	1.4 J	NA	NA
Potassium	7440-09-7	NS	ug/l	95,100	NA	NA	72,200	NA	NA	163,000	164,000	NA	NA	NA	44,400	NA	NA
Selenium	7782-49-2	10	ug/l	<5 U	NA	NA	<5 U	NA	NA	<5 U	<5 U	NA	NA	NA	<5 U	NA	NA
Silver	7440-22-4	50	ug/l	<0.4 U	NA	NA	<0.4 U	NA	NA	<0.4 U	<0.4 U	NA	NA	NA	<0.4 U	NA	NA
Sodium	7440-23-5	**20000**	ug/l	**2,170,000**	NA	NA	**1,450,000**	NA	NA	**5,570,000**	**4,180,000**	NA	NA	NA	**438,000**	NA	NA
Thallium	7440-28-0	0.5	ug/l	<1 U	NA	NA	<1 U	NA	NA	<1 U	<1 U	NA	NA	NA	<1 U	NA	NA
Vanadium	7440-62-2	NS	ug/l	<5 U	NA	NA	<5 U	NA	NA	<5 U	<5 U	NA	NA	NA	3.46 J	NA	NA
Zinc	7440-66-6	2000	ug/l	6.57 J	NA	NA	6.67 J	NA	NA	11.79	12.44	NA	NA	NA	28.83	NA	NA
Per- and Polyfluoroalkyl Substances																	
11-Chloroeicosafluoro-3-Oxaundecane-1-Sulfonic Acid (11Cl-PF3OUdS)	763051-92-9	NS	ug/l	NA	NA	<0.00801 U	NA	NA	<0.00768 U	NA	NA	NA	NA	<0.00776 U	NA	NA	<0.00738 UJ
1H,1H,2H,2H-Perfluorodecane Sulfonic Acid (8:2 FTS)	39108-34-4	NS	ug/l	<0.00185 U	NA	<0.00814 U	<0.00184 U	NA	<0.0078 U	<0.0018 U	<0.00174 U	NA	NA	<0.00789 U	<0.00193 U	NA	<0.0075 U
1H,1H,2H,2H-Perfluorohexane Sulfonic Acid (4:2 FTS)	757124-72-4	NS	ug/l	NA	NA	<0.00794 U	NA	NA	<0.00762 U	NA	NA	NA	NA	<0.0077 U	NA	NA	<0.00732 U
1H,1H,2H,2H-Perfluorooctane Sulfonic Acid (6:2 FTS)	27619-97-2	NS	ug/l	<0.00185 UJ	NA	<0.00805 U	<0.00184 U	NA	<0.00772 U	0.0432 J	<0.00174 UJ	NA	NA	<0.0078 U	0.00204 J	NA	<0.00742 U
2H,2H,3H,3H-Perfluorooctanoic Acid (5:3 FTCA)	914637-49-3	NS	ug/l	NA	NA	<0.053 U	NA	NA	<0.0508 U	NA	NA	NA	NA	<0.0513 U	NA	NA	<0.0488 U
3-Perfluoroheptyl Propanoic Acid (7:3 FTCA)	812-70-4	NS	ug/l	NA	NA	<0.053 U	NA	NA	<0.0508 U	NA	NA	NA	NA	<0.0513 U	NA	NA	<0.0488 U
3-Perfluteropropyl Propanoic Acid (3:3 FTCA)	356-02-5	NS	ug/l	NA	NA	<0.0106 U	NA	NA	<0.0102 U	NA	NA	NA	NA	<0.0103 U	NA	NA	<0.00977 U
4,8-Dioxa-3H-perfluorononanoic Acid (ADONA)	919005-14-4	NS	ug/l	NA	NA	<0.00801 U	NA	NA	<0.00768 U	NA	NA	NA	NA	<0.00776 U	NA	NA	<0.00738 U
9-Chlorohexadecafluoro-3-Oxanonane-1-Sulfonic Acid (9Cl-PF3ONS)	756426-58-1	NS	ug/l	NA	NA	<0.00792 U	NA	NA	<0.0076 U	NA	NA	NA	NA	<0.00768 U	NA	NA	<0.0073 U
Hexafluoropropylene Oxide Dimer Acid (HFPO-DA)	13252-13-6	NS	ug/l	NA	NA	<0.00847 U	NA	NA	<0.00813 U	NA	NA	NA	NA	<0.00821 U	NA	NA	<0.00781 U
N-ethyl Perfluorooctanesulfonamide (NEtFOSA)	4151-50-2	NS	ug/l	NA	NA	<0.00212 U	NA	NA	<0.00203 U	NA	NA	NA	NA	<0.00205 U	NA	NA	<0.00195 U
N-ethyl Perfluorooctanesulfonamidoacetic Acid (NEtFOSAA)	2991-50-6	NS	ug/l	<0.00185 U	NA	<0.00212 U	<0.00184 U	NA	<0.00203 U	<0.0018 U	<0.00174 U	NA	NA	<0.00205 U	<0.00193 U	NA	<0.00195 U
N-ethyl Perfluorooctanesulfonamidoethanol (NEtFOSE)	1691-99-2	NS	ug/l	NA	NA	<0.0212 U	NA	NA	<0.0203 U	NA	NA	NA	NA	<0.0205 U	NA	NA	<0.0195 U
N-methyl Perfluorooctanesulfonamide (NMeFOSA)	31506-32-8	NS	ug/l	NA	NA	<0.00212 U	NA	NA	<0.00203 U	NA	NA	NA	NA	<0.00205 U	NA	NA	<0.00195 U
N-methyl Perfluorooctanesulfonamidoacetic Acid (NMeFOSAA)	2355-31-9	NS	ug/l	<0.00185 U	NA	<0.00212 U	<0.00184 U	NA	<0.00203 U	<0.0018 U	<0.00174 U	NA	NA	<0.00205 U	<0.00193 U	NA	<0.00195 U
N-methyl Perfluorooctanesulfonamidoethanol (NMeFOSE)	24448-09-7	NS	ug/l	NA	NA	<0.0212 U	NA	NA	<0.0203 U	NA	NA	NA	NA	<0.0205 U	NA	NA	<0.0195 U
Nonafluoro-3,6-dioxaheptanoic Acid (NFDHA)	151772-58-6	NS	ug/l	NA	NA	<0.00424 U	NA	NA	<0.00407 U	NA	NA	NA	NA	<0.00411 U	NA	NA	<0.00391 U
Perfluoro(2-ethoxyethane)sulfonic Acid (PFEESA)	113507-82-7	NS	ug/l	NA	NA	<0.00377 U	NA	NA	<0.00362 U	NA	NA	NA	NA	<0.00366 U	NA	NA	<0.00348 U
Perfluoro-3-methoxypropanoic Acid (PFMPA)	377-73-1	NS	ug/l	NA	NA	<0.00424 U	NA	NA	<0.00407 U	NA	NA	NA	NA	<0.00411 U	NA	NA	<0.00391 U
Perfluoro-4-methoxybutanoic Acid (PFMBA)	863090-89-5	NS	ug/l	NA	NA	<0.00424 U	NA	NA	<0.00407 U	NA	NA	NA	NA	<0.00411 U	NA	NA	<0.00391 U
Perfluorobutanesulfonic Acid (PFBS)	375-73-5	NS	ug/l	0.0126	NA	0.00468	0.00264	NA	0.00227	0.00102 J	0.00113 J	NA	NA	0.00194	0.00112 J	NA	<0.00173 U
Perfluorobutanoic Acid (PFBA)	375-22-4	NS	ug/l	0.0198	NA	0.0203	0.0117	NA	0.00499 J	0.00415	0.00413	NA	NA	0.00351 J	0.00833	NA	0.00642 J
Perfluorodecanesulfonic Acid (PFDS)	335-77-3	NS	ug/l	<0.00185 U	NA	<0.00204 U	<0.00184 U	NA	<0.00196 U	<0.0018 U	<0.00174 U	NA	NA	<0.00198 U	<0.00193 U	NA	<0.00188 U
Perfluorodecanoic Acid (PFDA)	335-76-2	NS	ug/l	<0.00185 U	NA	<0.00212 U	<0.00184 U	NA	<0.00203 U	<0.0018 U	<0.00174 U	NA	NA	<0.00205 U	<0.00193 U	NA	<0.00195 U
Perfluorododecanesulfonic Acid (PFDoS)	79780-39-5	NS	ug/l	NA	NA	<0.00206 U	NA	NA	<0.00197 U	NA	NA	NA	NA	<0.00199 U	NA	NA	<0.00189 U
Perfluorododecanoic Acid (PFDoA)	307-55-1	NS	ug/l	<0.00185 U	NA	<0.00212 U	<0.00184 U	NA	<0.00203 U	<0.0018 U	<0.00174 U	NA	NA	<0.00205 U	<0.00193 U	NA	<0.00195 U
Perfluoroheptanesulfonic Acid (PFHpS)	375-92-8	NS	ug/l	<0.00185 U	NA	0.000521 J	<0.00184 U	NA	<0.00194 U	<0.0018 U	<0.00174 U	NA	NA	<0.00196 U	<0.00193 U	NA	<0.00187 U
Perfluoroheptanoic Acid (PFHpA)	375-85-9	NS	ug/l	0.00958	NA	0.00522	0.00458	NA	0.00223	0.00125 J	0.00137 J	NA	NA	0.00105 J	0.00481	NA	0.00373
Perfluorohexanesulfonic Acid (PFHxS)	355-46-4	NS	ug/l	0.00629	NA	0.00369	0.00127 J	NA	<0.00186 U	0.00087 J	0.000934 J	NA	NA	<0.00188 U	0.000656 J	NA	<0.00179 U
Perfluorohexanoic Acid (PFHxA)	307-24-4	NS	ug/l	0.0198	NA	0.0582	0.00614	NA	0.00342	0.00187	0.00172 J	NA	NA	0.00149 J	0.00656	NA	0.00502
Perfluorononanesulfonic Acid (PFNS)	68259-12-1	NS	ug/l	NA	NA	<0.00203 U	NA	NA	<0.00195 U	NA	NA	NA	NA	<0.00197 U	NA	NA	<0.00188 U
Perfluorononanoic Acid (PFNA)	375-95-1	NS	ug/l	0.00128 J	NA	0.00111 J	0.000432 J	NA	<0.00203 U	<0.0018 U	0.000296 J	NA	NA	<0.00205 U	<0.00193 U	NA	<0.00195 U
Perfluorooctanesulfonamide (PFOSA)	754-91-6	NS	ug/l	<0.00185 U	NA	<0.00212 U	<0.00184 U	NA	<0.00203 U	<0.0018 U	<0.00174 U	NA	NA	<0.00205 U	<0.00193 U	NA	<0.00195 U
Perfluorooctanesulfonic Acid (PFOS)	1763-23-1	**0.0027**	ug/l	**0.0107**	NA	**0.00809**	**0.0029**	NA	0.00238	**0.00273**	**0.003**	NA	NA	**0.00286**	<0.00193 U	NA	<0.00182 U
Perfluorooctanoic Acid (PFOA)	335-67-1	**0.0067**	ug/l	**0.0452**	NA	**0.0219**	**0.0277**	NA	**0.0145**	0.00574 J	0.00517	NA	NA	0.00414	**0.0177**	NA	**0.0075**
Perfluoropentanesulfonic Acid (PFPeS)	2706-91-4	NS	ug/l	NA	NA	<0.00199 U	NA	NA	<0.00191 U	NA	NA	NA	NA	<0.00193 U	NA	NA	<0.00184 U
Perfluoropentanoic Acid (PFPeA)	2706-90-3	NS	ug/l	0.021	NA	0.0528	0.00821	NA	0.00388 J	0.00253	0.00283	NA	NA	0.00271 J	0.00786	NA	0.00625
Perfluorotetradecanoic Acid (PFTeDA)	376-06-7	NS	ug/l	<0.00185 U	NA	<0.00212 U	<0.00184 U	NA	<0.00203 U	<0.0018 U	<0.00174 U	NA	NA	<0.00205 U	<0.00193 U	NA	<0.00195 U
Perfluorotridecanoic Acid (PFTrDA)	72629-94-8	NS	ug/l	<0.00185 U	NA	<0.00212 U	<0.00184 U	NA	<0.00203 U	<0.0018 U	<0.00174 U	NA	NA	<0.00205 U	<0.00193 U	NA	<0.00195 U
Perfluoroundecanoic Acid (PFUnA)	2058-94-8	NS	ug/l	<0.00185 U	NA	<0.00212 U	<0.00184 U	NA	<0.00203 U	<0.0018 U	<0.00174 U	NA	NA	<0.00205 U	<0.00193 U	NA	<0.00195 U
Total PFOA and PFOS	TOTPFOAPFOS	NS	ug/l	0.0559	NA	NA	0.0306	NA	NA	0.00847	0.00817	NA	NA	NA	0.0177	NA	NA

Table 4
Remedial Investigation Report
Groundwater Sample Analytical Results

C Block
Brooklyn, New York
NYSDEC BCP Site No.: C224435
Langan Project No.: 170229030

Analyte	CAS Number	NYSDEC SGVs	Location	MW05	MW05	MW05	MW06	MW06	MW06	MW07	MW07	MW08	MW08	MW08	MW09	MW09	MW09	MW09
			Sample Name	MW05_080222	MW05_080222_FILTERED	MW05_011226	MW06_080322	MW06_080322_FILTERED	MW06_011426	MW07_080422	MW07_080422_FILTERED	MW08_080422	MW08_080422_FILTERED	MW08_011426	MW09_080122	MW09_080122_FILTERED	MW09_011226	GWDUP01_011226
			Sample Date	08/02/2022	08/02/2022	01/12/2026	08/03/2022	08/03/2022	01/14/2026	08/04/2022	08/04/2022	08/04/2022	08/04/2022	01/14/2026	08/01/2022	08/01/2022	01/12/2026	01/12/2026
			Unit	Result	Result	Result	Result	Result	Result	Result	Result	Result	Result	Result	Result	Result	Result	Result
Volatile Organic Compounds																		
1,1,1,2-Tetrachloroethane	630-20-6	5	ug/l	<2.5 U	NA	NA	<2.5 U	NA	NA	<2.5 U	NA	<2.5 U	NA	NA	<2.5 U	NA	NA	NA
1,1,1-Trichloroethane	71-55-6	5	ug/l	<2.5 U	NA	NA	<2.5 U	NA	NA	<2.5 U	NA	<2.5 U	NA	NA	<2.5 U	NA	NA	NA
1,1,2,2-Tetrachloroethane	79-34-5	5	ug/l	<0.5 U	NA	NA	<0.5 U	NA	NA	<0.5 U	NA	<0.5 U	NA	NA	<0.5 U	NA	NA	NA
1,1,2-Trichloroethane	79-00-5	1	ug/l	<1.5 U	NA	NA	<1.5 U	NA	NA	<1.5 U	NA	<1.5 U	NA	NA	<1.5 U	NA	NA	NA
1,1-Dichloroethane	75-34-3	5	ug/l	<2.5 U	NA	NA	<2.5 U	NA	NA	<2.5 U	NA	<2.5 U	NA	NA	<2.5 U	NA	NA	NA
1,1-Dichloroethene	75-35-4	5	ug/l	<0.5 U	NA	NA	<0.5 U	NA	NA	<0.5 U	NA	<0.5 U	NA	NA	<0.5 U	NA	NA	NA
1,1-Dichloropropene	563-58-6	5	ug/l	<2.5 U	NA	NA	<2.5 U	NA	NA	<2.5 U	NA	<2.5 U	NA	NA	<2.5 U	NA	NA	NA
1,2,3-Trichlorobenzene	87-61-6	5	ug/l	<2.5 U	NA	NA	<2.5 U	NA	NA	<2.5 U	NA	<2.5 U	NA	NA	<2.5 U	NA	NA	NA
1,2,3-Trichloropropane	96-18-4	0.04	ug/l	<2.5 U	NA	NA	<2.5 U	NA	NA	<2.5 U	NA	<2.5 U	NA	NA	<2.5 U	NA	NA	NA
1,2,4,5-Tetramethylbenzene	95-93-2	5	ug/l	<2 U	NA	NA	<2 U	NA	NA	<2 U	NA	<2 U	NA	NA	<2 U	NA	NA	NA
1,2,4-Trichlorobenzene	120-82-1	5	ug/l	<2.5 U	NA	NA	<2.5 U	NA	NA	<2.5 U	NA	<2.5 U	NA	NA	<2.5 U	NA	NA	NA
1,2,4-Trimethylbenzene	95-63-6	5	ug/l	<2.5 U	NA	NA	<2.5 U	NA	NA	<2.5 U	NA	<2.5 U	NA	NA	<2.5 U	NA	NA	NA
1,2-Dibromo-3-Chloropropane	96-12-8	0.04	ug/l	<2.5 U	NA	NA	<2.5 U	NA	NA	<2.5 U	NA	<2.5 U	NA	NA	<2.5 U	NA	NA	NA
1,2-Dibromoethane (Ethylene Dibromide)	106-93-4	0.0006	ug/l	<2 U	NA	NA	<2 U	NA	NA	<2 U	NA	<2 U	NA	NA	<2 U	NA	NA	NA
1,2-Dichlorobenzene	95-50-1	3	ug/l	<2.5 U	NA	NA	<2.5 U	NA	NA	<2.5 U	NA	<2.5 U	NA	NA	<2.5 U	NA	NA	NA
1,2-Dichloroethane	107-06-2	0.6	ug/l	<0.5 U	NA	NA	<0.5 U	NA	NA	<0.5 U	NA	<0.5 U	NA	NA	<0.5 U	NA	NA	NA
1,2-Dichloropropane	78-87-5	1	ug/l	<1 U	NA	NA	<1 U	NA	NA	<1 U	NA	<1 U	NA	NA	<1 U	NA	NA	NA
1,3,5-Trimethylbenzene (Mesitylene)	108-67-8	5	ug/l	<2.5 U	NA	NA	<2.5 U	NA	NA	<2.5 U	NA	<2.5 U	NA	NA	<2.5 U	NA	NA	NA
1,3-Dichlorobenzene	541-73-1	3	ug/l	<2.5 U	NA	NA	<2.5 U	NA	NA	<2.5 U	NA	<2.5 U	NA	NA	<2.5 U	NA	NA	NA
1,3-Dichloropropane	142-28-9	5	ug/l	<2.5 U	NA	NA	<2.5 U	NA	NA	<2.5 U	NA	<2.5 U	NA	NA	<2.5 U	NA	NA	NA
1,4-Dichlorobenzene	106-46-7	3	ug/l	<2.5 U	NA	NA	<2.5 U	NA	NA	<2.5 U	NA	<2.5 U	NA	NA	<2.5 U	NA	NA	NA
1,4-Diethyl Benzene	105-05-5	NS	ug/l	<2 U	NA	NA	<2 U	NA	NA	<2 U	NA	<2 U	NA	NA	<2 UJ	NA	NA	NA
1,4-Dioxane (P-Dioxane)	123-91-1	0.35	ug/l	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
2,2-Dichloropropane	594-20-7	5	ug/l	<2.5 U	NA	NA	<2.5 U	NA	NA	<2.5 U	NA	<2.5 U	NA	NA	<2.5 U	NA	NA	NA
2-Chlorotoluene	95-49-8	5	ug/l	<2.5 U	NA	NA	<2.5 U	NA	NA	<2.5 U	NA	<2.5 U	NA	NA	<2.5 U	NA	NA	NA
2-Hexanone (MBK)	591-78-6	50	ug/l	<5 U	NA	NA	<5 U	NA	NA	<5 U	NA	<5 U	NA	NA	<5 U	NA	NA	NA
4-Chlorotoluene	106-43-4	5	ug/l	<2.5 U	NA	NA	<2.5 U	NA	NA	<2.5 U	NA	<2.5 U	NA	NA	<2.5 U	NA	NA	NA
4-Ethyltoluene	622-96-8	NS	ug/l	<2 U	NA	NA	<2 U	NA	NA	<2 U	NA	<2 U	NA	NA	<2 U	NA	NA	NA
Acetone	67-64-1	50	ug/l	<5 U	NA	NA	<5 U	NA	NA	<5 U	NA	<5 U	NA	NA	<5 U	NA	NA	NA
Acrylonitrile	107-13-1	5	ug/l	<5 U	NA	NA	<5 U	NA	NA	<5 U	NA	<5 U	NA	NA	<5 U	NA	NA	NA
Benzene	71-43-2	1	ug/l	<0.5 U	NA	NA	<0.5 U	NA	NA	<0.5 U	NA	<0.5 U	NA	NA	<0.5 U	NA	NA	NA
Bromobenzene	108-86-1	5	ug/l	<2.5 U	NA	NA	<2.5 U	NA	NA	<2.5 U	NA	<2.5 U	NA	NA	<2.5 U	NA	NA	NA
Bromochloromethane	74-97-5	5	ug/l	<2.5 U	NA	NA	<2.5 U	NA	NA	<2.5 U	NA	<2.5 U	NA	NA	<2.5 U	NA	NA	NA
Bromodichloromethane	75-27-4	50	ug/l	<0.5 U	NA	NA	<0.5 U	NA	NA	<0.5 U	NA	<0.5 U	NA	NA	<0.5 U	NA	NA	NA
Bromoform	75-25-2	50	ug/l	<2 U	NA	NA	<2 U	NA	NA	<2 U	NA	<2 U	NA	NA	<2 U	NA	NA	NA
Bromomethane	74-83-9	5	ug/l	<2.5 U	NA	NA	<2.5 U	NA	NA	<2.5 U	NA	<2.5 U	NA	NA	<2.5 U	NA	NA	NA
Carbon Disulfide	75-15-0	60	ug/l	<5 U	NA	NA	<5 U	NA	NA	<5 U	NA	<5 U	NA	NA	<5 U	NA	NA	NA
Carbon Tetrachloride	56-23-5	5	ug/l	<0.5 U	NA	NA	<0.5 U	NA	NA	<0.5 U	NA	<0.5 U	NA	NA	<0.5 U	NA	NA	NA
Chlorobenzene	108-90-7	5	ug/l	<2.5 U	NA	NA	<2.5 U	NA	NA	<2.5 U	NA	<2.5 U	NA	NA	<2.5 U	NA	NA	NA
Chloroethane	75-00-3	5	ug/l	<2.5 U	NA	NA	<2.5 U	NA	NA	<2.5 U	NA	<2.5 U	NA	NA	<2.5 U	NA	NA	NA
Chloroform	67-66-3	7	ug/l	<2.5 U	NA	NA	<2.5 U	NA	NA	<2.5 U	NA	<2.5 U	NA	NA	<2.5 U	NA	NA	NA
Chloromethane	74-87-3	5	ug/l	<2.5 U	NA	NA	<2.5 U	NA	NA	<2.5 U	NA	<2.5 U	NA	NA	<2.5 U	NA	NA	NA
Cis-1,2-Dichloroethene	156-59-2	5	ug/l	<2.5 U	NA	NA	0.96 J	NA	NA	<2.5 U	NA	<2.5 U	NA	NA	<2.5 U	NA	NA	NA
Cis-1,3-Dichloropropene	10061-01-5	0.4	ug/l	<0.5 U	NA	NA	<0.5 U	NA	NA	<0.5 U	NA	<0.5 U	NA	NA	<0.5 U	NA	NA	NA
Cymene	99-87-6	5	ug/l	<2.5 U	NA	NA	<2.5 U	NA	NA	<2.5 U	NA	<2.5 U	NA	NA	<2.5 U	NA	NA	NA
Dibromochloromethane	124-48-1	50	ug/l	<0.5 U	NA	NA	<0.5 U	NA	NA	<0.5 U	NA	<0.5 U	NA	NA	<0.5 U	NA	NA	NA
Dibromomethane	74-95-3	5	ug/l	<5 U	NA	NA	<5 U	NA	NA	<5 U	NA	<5 U	NA	NA	<5 U	NA	NA	NA
Dichlorodifluoromethane	75-71-8	5	ug/l	<5 U	NA	NA	<5 U	NA	NA	<5 U	NA	<5 U	NA	NA	<5 U	NA	NA	NA
Diethyl Ether (Ethyl Ether)	60-29-7	NS	ug/l	<2.5 U	NA	NA	<2.5 U	NA	NA	<2.5 U	NA	<2.5 U	NA	NA	<2.5 U	NA	NA	NA
Ethylbenzene	100-41-4	5	ug/l	<2.5 U	NA	NA	<2.5 U	NA	NA	<2.5 U	NA	<2.5 U	NA	NA	<2.5 U	NA	NA	NA
Isopropylbenzene (Cumene)	98-82-8	5	ug/l	<2.5 U	NA	NA	<2.5 U	NA	NA	<2.5 U	NA	<2.5 U	NA	NA	<2.5 U	NA	NA	NA
M,P-Xylene	179601-23-1	5	ug/l	<2.5 U	NA	NA	<2.5 U	NA	NA	<2.5 U	NA	<2.5 U	NA	NA	<2.5 U	NA	NA	NA
Methyl Ethyl Ketone (2-Butanone)	78-93-3	50	ug/l	<5 U	NA	NA	<5 UJ	NA	NA	<5 U	NA	<5 U	NA	NA	<5 U	NA	NA	NA
Methyl Isobutyl Ketone (4-Methyl-2-Pentanone)	108-10-1	NS	ug/l	<5 U	NA	NA	<5 U	NA	NA	<5 U	NA	<5 U	NA	NA	<5 U	NA	NA	NA
Methylene Chloride	75-09-2	5	ug/l	<2.5 U	NA	NA	<2.5 U	NA	NA	<2.5 U	NA	<2.5 U	NA	NA	<2.5 U	NA	NA	NA
n-Butylbenzene	104-51-8	5	ug/l	<2.5 U	NA	NA	<2.5 U	NA	NA	<2.5 U	NA	<2.5 U	NA	NA	<2.5 U	NA	NA	NA
n-Propylbenzene	103-65-1	5	ug/l	<2.5 U	NA	NA	<2.5 U	NA	NA	<2.5 U	NA	<2.5 U	NA	NA	<2.5 U	NA	NA	NA
o-Xylene (1,2-Dimethylbenzene)	95-47-6	5	ug/l	<2.5 U	NA	NA	<2.5 U	NA	NA	<2.5 U	NA	<2.5 U	NA	NA	<2.5 U	NA	NA	NA
Sec-Butylbenzene	135-98-8	5	ug/l	<2.5 U	NA	NA	<2.5 U	NA	NA	<2.5 U	NA	<2.5 U	NA	NA	<2.5 U	NA	NA	NA
Styrene	100-42-5	5	ug/l	<2.5 U	NA	NA	<2.5 U	NA	NA	<2.5 U	NA	<2.5 U	NA	NA	<2.5 U	NA	NA	NA
T-Butylbenzene	98-06-6	5	ug/l	<2.5 U	NA	NA	<2.5 U	NA	NA	<2.5 U	NA	<2.5 U	NA	NA	<2.5 U	NA	NA	NA
Tert-Butyl Methyl Ether (MTBE)	1634-04-4	10	ug/l	<2.5 U	NA	NA	<2.5 U	NA	NA	<2.5 U	NA	<2.5 U	NA	NA	<2.5 U	NA	NA	NA
Tetrachloroethene (PCE)	127-18-4	5	ug/l	<0.5 U	NA	NA	<0.5 U	NA	NA	<0.5 U	NA	<0.5 U	NA	NA	<0.5 U	NA	NA	NA
Toluene	108-88-3	5	ug/l	<2.5 U	NA	NA	<2.5 U	NA	NA	<2.5 U	NA	<2.5 U	NA	NA	<2.5 U	NA	NA	NA
Total 1,2-Dichloroethene (Cis and Trans)	540-59-0	NS	ug/l	<2.5 U	NA	NA	0.96 J	NA	NA	<2.5 U	NA	<2.5 U	NA	NA	<2.5 U	NA	NA	NA
Total Xylenes	1330-20-7	5	ug/l	<2.5 U	NA	NA	<2.5 U	NA	NA	<2.5 U	NA	<2.5 U	NA	NA	<2.5 U	NA	NA	NA
Total, 1,3-Dichloropropene (Cis And Trans)	542-75-6	0.4	ug/l	<0.5 U	NA	NA	<0.5 U	NA	NA	<0.5 U	NA	<0.5 U	NA	NA	<0.5 U	NA	NA	NA
Trans-1,2-Dichloroethene	156-60-5	5	ug/l	<2.5 U	NA	NA	<2.5 U	NA	NA	<2.5 U	NA	<2.5 U	NA	NA	<2.5 U	NA	NA	NA
Trans-1,3-Dichloropropene	10061-02-6	0.4	ug/l	<0.5 U	NA	NA	<0.5 U	NA	NA	<0.5 U	NA	<0.5 U	NA	NA	<0.5 U	NA	NA	NA
Trans-1,4-Dichloro-2-Butene	110-57-6	5	ug/l	<2.5 U	NA	NA	<2.5 U	NA	NA	<2.5 U	NA	<2.5 U	NA	NA	<2.5 U	NA	NA	NA
Trichloroethene (TCE)	79-01-6	5	ug/l	<0.5 U	NA	NA	<0.5 U	NA	NA	0.34 J	NA	<0.5 U	NA	NA	<0.5 U	NA	NA	NA
Trichlorofluoromethane	75-69-4	5	ug/l	<2.5 U	NA	NA	<2.5 U	NA	NA	<2.5 U	NA	<2.5 U	NA	NA	<2.5 U	NA	NA	NA
Vinyl Acetate	108-05-4	NS	ug/l	<5 U	NA	NA	<5 U	NA	NA	<5 U	NA	<5 U	NA	NA	<5 U	NA	NA	NA
Vinyl Chloride	75-01-4	2	ug/l	<1 U	NA	NA	<1 U	NA	NA	<1 U	NA	<1 U	NA	NA	<1 U	NA	NA	NA

Table 4
Remedial Investigation Report
Groundwater Sample Analytical Results

C Block
Brooklyn, New York
NYSDEC BCP Site No.: C224435
Langan Project No.: 170229030

Analyte	CAS Number	NYSDEC SGVs	Location	MW05	MW05	MW05	MW06	MW06	MW06	MW07	MW07	MW08	MW08	MW08	MW09	MW09	MW09	MW09
			Sample Name	MW05_080222	MW05_080222_FILTERED	MW05_011226	MW06_080322	MW06_080322_FILTERED	MW06_011426	MW07_080422	MW07_080422_FILTERED	MW08_080422	MW08_080422_FILTERED	MW08_011426	MW09_080122	MW09_080122_FILTERED	MW09_011226	GWDUP01_011226
			Sample Date	08/02/2022	08/02/2022	01/12/2026	08/03/2022	08/03/2022	01/14/2026	08/04/2022	08/04/2022	08/04/2022	08/04/2022	01/14/2026	08/01/2022	08/01/2022	01/12/2026	01/12/2026
			Unit	Result	Result	Result	Result	Result	Result	Result	Result	Result	Result	Result	Result	Result	Result	Result
Semi-Volatile Organic Compounds - Dissolved																		
1,2,4,5-Tetrachlorobenzene	95-94-3	5	ug/l	NA	<10 U	NA	NA	<10 U	NA	NA	<10 U	NA	<10 U	NA	NA	<10 U	NA	NA
1,2,4-Trichlorobenzene	120-82-1	5	ug/l	NA	<5 U	NA	NA	<5 U	NA	NA	<5 U	NA	<5 U	NA	NA	<5 U	NA	NA
1,2-Dichlorobenzene	95-50-1	3	ug/l	NA	<2 U	NA	NA	<2 U	NA	NA	<2 U	NA	<2 U	NA	NA	<2 U	NA	NA
1,3-Dichlorobenzene	541-73-1	3	ug/l	NA	<2 U	NA	NA	<2 U	NA	NA	<2 U	NA	<2 U	NA	NA	<2 U	NA	NA
1,4-Dichlorobenzene	106-46-7	3	ug/l	NA	<2 U	NA	NA	<2 U	NA	NA	<2 U	NA	<2 U	NA	NA	<2 U	NA	NA
2,4,5-Trichlorophenol	95-95-4	NS	ug/l	NA	<5 U	NA	NA	<5 U	NA	NA	<5 U	NA	<5 U	NA	NA	<5 U	NA	NA
2,4,6-Trichlorophenol	88-06-2	NS	ug/l	NA	<5 U	NA	NA	<5 U	NA	NA	<5 U	NA	<5 U	NA	NA	<5 U	NA	NA
2,4-Dichlorophenol	120-83-2	1	ug/l	NA	<5 U	NA	NA	<5 U	NA	NA	<5 U	NA	<5 U	NA	NA	<5 U	NA	NA
2,4-Dimethylphenol	105-67-9	1	ug/l	NA	<5 U	NA	NA	<5 U	NA	NA	<5 U	NA	<5 U	NA	NA	<5 U	NA	NA
2,4-Dinitrophenol	51-28-5	1	ug/l	NA	<20 U	NA	NA	<20 U	NA	NA	<20 UJ	NA	<20 UJ	NA	NA	<20 U	NA	NA
2,4-Dinitrotoluene	121-14-2	5	ug/l	NA	<5 U	NA	NA	<5 U	NA	NA	<5 U	NA	<5 U	NA	NA	<5 U	NA	NA
2,6-Dinitrotoluene	606-20-2	5	ug/l	NA	<5 U	NA	NA	<5 U	NA	NA	<5 U	NA	<5 U	NA	NA	<5 U	NA	NA
2-Chloronaphthalene	91-58-7	10	ug/l	NA	<0.2 U	NA	NA	<0.2 U	NA	NA	<0.2 U	NA	<0.2 U	NA	NA	<0.2 U	NA	NA
2-Chlorophenol	95-57-8	NS	ug/l	NA	<2 U	NA	NA	<2 U	NA	NA	<2 U	NA	<2 U	NA	NA	<2 U	NA	NA
2-Methylnaphthalene	91-57-6	NS	ug/l	NA	0.03 J	NA	NA	<0.1 U	NA	NA	<0.1 U	NA	<0.1 U	NA	NA	0.03 J	NA	NA
2-Methylphenol (o-Cresol)	95-48-7	NS	ug/l	NA	<5 U	NA	NA	<5 U	NA	NA	<5 U	NA	<5 U	NA	NA	<5 U	NA	NA
2-Nitroaniline	88-74-4	5	ug/l	NA	<5 U	NA	NA	<5 U	NA	NA	<5 U	NA	<5 U	NA	NA	<5 U	NA	NA
2-Nitrophenol	88-75-5	NS	ug/l	NA	<10 U	NA	NA	<10 U	NA	NA	<10 U	NA	<10 U	NA	NA	<10 U	NA	NA
3 & 4 Methylphenol (m&p Cresol)	65794-96-9	NS	ug/l	NA	<5 U	NA	NA	<5 U	NA	NA	<5 U	NA	<5 U	NA	NA	<5 U	NA	NA
3,3'-Dichlorobenzidine	91-94-1	5	ug/l	NA	<5 U	NA	NA	<5 UJ	NA	NA	<5 U	NA	<5 U	NA	NA	<5 U	NA	NA
3-Nitroaniline	99-09-2	5	ug/l	NA	<5 U	NA	NA	<5 U	NA	NA	<5 U	NA	<5 U	NA	NA	<5 U	NA	NA
4,6-Dinitro-2-Methylphenol	534-52-1	NS	ug/l	NA	<10 U	NA	NA	<10 U	NA	NA	<10 UJ	NA	<10 UJ	NA	NA	<10 U	NA	NA
4-Bromophenyl Phenyl Ether	101-55-3	NS	ug/l	NA	<2 U	NA	NA	<2 U	NA	NA	<2 U	NA	<2 U	NA	NA	<2 U	NA	NA
4-Chloro-3-Methylphenol	59-50-7	NS	ug/l	NA	<2 U	NA	NA	<2 U	NA	NA	<2 U	NA	<2 U	NA	NA	<2 U	NA	NA
4-Chloroaniline	106-47-8	5	ug/l	NA	<5 U	NA	NA	<5 U	NA	NA	<5 U	NA	<5 U	NA	NA	<5 U	NA	NA
4-Chlorophenyl Phenyl Ether	7005-72-3	NS	ug/l	NA	<2 U	NA	NA	<2 U	NA	NA	<2 U	NA	<2 U	NA	NA	<2 U	NA	NA
4-Nitroaniline	100-01-6	5	ug/l	NA	<5 U	NA	NA	<5 UJ	NA	NA	<5 U	NA	<5 U	NA	NA	<5 U	NA	NA
4-Nitrophenol	100-02-7	NS	ug/l	NA	<10 U	NA	NA	<10 U	NA	NA	<10 U	NA	<10 U	NA	NA	<10 U	NA	NA
Acenaphthene	83-32-9	20	ug/l	NA	<0.1 U	NA	NA	<0.1 U	NA	NA	<0.1 U	NA	<0.1 U	NA	NA	<0.1 U	NA	NA
Acenaphthylene	208-96-8	NS	ug/l	NA	<0.1 U	NA	NA	<0.1 U	NA	NA	<0.1 U	NA	<0.1 U	NA	NA	<0.1 U	NA	NA
Acetophenone	98-86-2	NS	ug/l	NA	<5 U	NA	NA	<5 U	NA	NA	<5 U	NA	<5 U	NA	NA	<5 U	NA	NA
Anthracene	120-12-7	50	ug/l	NA	0.02 J	NA	NA	<0.1 U	NA	NA	<0.1 U	NA	<0.1 U	NA	NA	0.02 J	NA	NA
Benzo(a)anthracene	56-55-3	0.002	ug/l	NA	<0.1 U	NA	NA	<0.1 U	NA	NA	<0.1 U	NA	<0.1 U	NA	NA	<0.1 U	NA	NA
Benzo(a)pyrene	50-32-8	0	ug/l	NA	<0.1 U	NA	NA	<0.1 U	NA	NA	<0.1 U	NA	<0.1 U	NA	NA	<0.1 U	NA	NA
Benzo(b)fluoranthene	205-99-2	**0.002**	ug/l	NA	**0.02 J**	NA	NA	<0.1 U	NA	NA	<0.1 U	NA	<0.1 U	NA	NA	<0.1 U	NA	NA
Benzo(g,h,i)Perylene	191-24-2	NS	ug/l	NA	<0.1 U	NA	NA	<0.1 U	NA	NA	<0.1 U	NA	0.02 J	NA	NA	<0.1 U	NA	NA
Benzo(k)fluoranthene	207-08-9	**0.002**	ug/l	NA	<0.1 U	NA	NA	<0.1 U	NA	NA	<0.1 U	NA	**0.01 J**	NA	NA	<0.1 U	NA	NA
Benzoic Acid	65-85-0	NS	ug/l	NA	<50 U	NA	NA	15 J	NA	NA	19 J	NA	<50 UJ	NA	NA	10 J	NA	NA
Benzyl Alcohol	100-51-6	NS	ug/l	NA	<2 U	NA	NA	<2 U	NA	NA	<2 U	NA	<2 U	NA	NA	<2 U	NA	NA
Benzyl Butyl Phthalate	85-68-7	50	ug/l	NA	<5 U	NA	NA	<5 U	NA	NA	<5 U	NA	<5 U	NA	NA	<5 U	NA	NA
Biphenyl (Diphenyl)	92-52-4	5	ug/l	NA	<2 U	NA	NA	<2 U	NA	NA	<2 U	NA	<2 U	NA	NA	<2 U	NA	NA
Bis(2-chloroethoxy) methane	111-91-1	5	ug/l	NA	<5 U	NA	NA	<5 U	NA	NA	<5 U	NA	<5 U	NA	NA	<5 U	NA	NA
Bis(2-chloroethyl) ether (2-chloroethyl ether)	111-44-4	1	ug/l	NA	<2 U	NA	NA	<2 U	NA	NA	<2 U	NA	<2 U	NA	NA	<2 U	NA	NA
Bis(2-chloroisopropyl) ether	108-60-1	5	ug/l	NA	<2 U	NA	NA	<2 UJ	NA	NA	<2 U	NA	<2 U	NA	NA	<2 U	NA	NA
Bis(2-ethylhexyl) phthalate	117-81-7	5	ug/l	NA	<3 U	NA	NA	<3 UJ	NA	NA	<3 U	NA	<3 U	NA	NA	<3 U	NA	NA
Carbazole	86-74-8	NS	ug/l	NA	<2 U	NA	NA	<2 UJ	NA	NA	<2 U	NA	<2 U	NA	NA	<2 U	NA	NA
Chrysene	218-01-9	**0.002**	ug/l	NA	**0.02 J**	NA	NA	<0.1 U	NA	NA	<0.1 U	NA	<0.1 U	NA	NA	<0.1 U	NA	NA
Dibenz(a,h)anthracene	53-70-3	NS	ug/l	NA	<0.1 U	NA	NA	<0.1 U	NA	NA	<0.1 U	NA	<0.1 U	NA	NA	<0.1 U	NA	NA
Dibenzofuran	132-64-9	NS	ug/l	NA	<2 U	NA	NA	<2 U	NA	NA	<2 U	NA	<2 U	NA	NA	<2 U	NA	NA
Dibutyl phthalate	84-74-2	50	ug/l	NA	<5 U	NA	NA	<5 UJ	NA	NA	<5 U	NA	<5 U	NA	NA	<5 U	NA	NA
Diethyl phthalate	84-66-2	50	ug/l	NA	<5 U	NA	NA	<5 U	NA	NA	<5 U	NA	<5 U	NA	NA	<5 U	NA	NA
Dimethyl phthalate	131-11-3	50	ug/l	NA	<5 U	NA	NA	<5 U	NA	NA	<5 U	NA	<5 U	NA	NA	<5 U	NA	NA
Dioctyl phthalate	117-84-0	50	ug/l	NA	<5 U	NA	NA	<5 U	NA	NA	<5 U	NA	<5 U	NA	NA	<5 U	NA	NA
Fluoranthene	206-44-0	50	ug/l	NA	<0.1 U	NA	NA	<0.1 U	NA	NA	<0.1 U	NA	<0.1 U	NA	NA	0.02 J	NA	NA
Fluorene	86-73-7	50	ug/l	NA	<0.1 U	NA	NA	<0.1 U	NA	NA	<0.1 U	NA	0.01 J	NA	NA	<0.1 U	NA	NA
Hexachlorobenzene	118-74-1	0.04	ug/l	NA	<0.8 U	NA	NA	0.03 J	NA	NA	<0.8 U	NA	<0.8 U	NA	NA	<0.8 U	NA	NA
Hexachlorobutadiene	87-68-3	0.5	ug/l	NA	<0.5 U	NA	NA	<0.5 U	NA	NA	<0.5 U	NA	<0.5 U	NA	NA	<0.5 U	NA	NA
Hexachlorocyclopentadiene	77-47-4	5	ug/l	NA	<20 U	NA	NA	<20 U	NA	NA	<20 U	NA	<20 U	NA	NA	<20 U	NA	NA
Hexachloroethane	67-72-1	5	ug/l	NA	<0.8 U	NA	NA	<0.8 U	NA	NA	<0.8 U	NA	<0.8 U	NA	NA	<0.8 U	NA	NA
Indeno(1,2,3-cd)pyrene	193-39-5	**0.002**	ug/l	NA	<0.1 U	NA	NA	<0.1 U	NA	NA	<0.1 U	NA	<0.1 U	NA	NA	<0.1 U	NA	NA
Isophorone	78-59-1	50	ug/l	NA	<5 U	NA	NA	<5 U	NA	NA	<5 U	NA	<5 U	NA	NA	<5 U	NA	NA
Naphthalene	91-20-3	10	ug/l	NA	0.14	NA	NA	<0.1 U	NA	NA	<0.1 U	NA	<0.1 U	NA	NA	<0.1 U	NA	NA
Nitrobenzene	98-95-3	0.4	ug/l	NA	<2 U	NA	NA	<2 U	NA	NA	<2 U	NA	<2 U	NA	NA	<2 U	NA	NA
n-Nitrosodi-N-Propylamine	621-64-7	NS	ug/l	NA	<5 U	NA	NA	<5 U	NA	NA	<5 U	NA	<5 U	NA	NA	<5 U	NA	NA
n-Nitrosodiphenylamine	86-30-6	50	ug/l	NA	<2 U	NA	NA	<2 U	NA	NA	<2 U	NA	<2 U	NA	NA	<2 U	NA	NA
Pentachlorophenol	87-86-5	1	ug/l	NA	<0.8 U	NA	NA	<0.8 UJ	NA	NA	<0.8 U	NA	<0.8 U	NA	NA	<0.8 UJ	NA	NA
Phenanthrene	85-01-8	50	ug/l	NA	<0.1 U	NA	NA	<0.1 U	NA	NA	<0.1 U	NA	<0.1 U	NA	NA	0.04 J	NA	NA
Phenol	108-95-2	**1**	ug/l	NA	**1.5 J**	NA	NA	**1.2 J**	NA	NA	**34**	NA	**9.1**	NA	NA	**11**	NA	NA
Pyrene	129-00-0	50	ug/l	NA	<0.1 U	NA	NA	<0.1 U	NA	NA	<0.1 U	NA	<0.1 U	NA	NA	<0.1 U	NA	NA

Table 4
Remedial Investigation Report
Groundwater Sample Analytical Results

C Block
Brooklyn, New York
NYSDEC BCP Site No.: C224435
Langan Project No.: 170229030

Analyte	CAS Number	NYSDEC SGVs	Location	MW05	MW05	MW05	MW06	MW06	MW06	MW07	MW07	MW08	MW08	MW08	MW09	MW09	MW09	MW09
			Sample Name	MW05_080222	MW05_080222_FILTERED	MW05_011226	MW06_080322	MW06_080322_FILTERED	MW06_011426	MW07_080422	MW07_080422_FILTERED	MW08_080422	MW08_080422_FILTERED	MW08_011426	MW09_080122	MW09_080122_FILTERED	MW09_011226	GWDUP01_011226
			Sample Date	08/02/2022	08/02/2022	01/12/2026	08/03/2022	08/03/2022	01/14/2026	08/04/2022	08/04/2022	08/04/2022	08/04/2022	01/14/2026	08/01/2022	08/01/2022	01/12/2026	01/12/2026
			Unit	Result	Result	Result	Result	Result	Result	Result	Result	Result	Result	Result	Result	Result	Result	Result
Semi-Volatile Organic Compounds - Total																		
1,2,4,5-Tetrachlorobenzene	95-94-3	5	ug/l	<10 U	NA	NA	<10 U	NA	NA	<10 U	NA	<10 U	NA	NA	<10 U	NA	NA	NA
1,2,4-Trichlorobenzene	120-82-1	5	ug/l	<5 U	NA	NA	<5 U	NA	NA	<5 U	NA	<5 U	NA	NA	NA	NA	NA	NA
1,2-Dichlorobenzene	95-50-1	3	ug/l	<2 U	NA	NA	<2 U	NA	NA	<2 U	NA	<2 U	NA	NA	<2 U	NA	NA	NA
1,3-Dichlorobenzene	541-73-1	3	ug/l	<2 U	NA	NA	<2 U	NA	NA	<2 U	NA	<2 U	NA	NA	<2 U	NA	NA	NA
1,4-Dichlorobenzene	106-46-7	3	ug/l	<2 U	NA	NA	<2 U	NA	NA	<2 U	NA	<2 U	NA	NA	<2 U	NA	NA	NA
1,4-Dioxane (P-Dioxane)	123-91-1	0.35	ug/l	<0.15 U	NA	NA	<0.144 U	NA	NA	<0.144 U	NA	0.0541 J	NA	NA	0.0733 J	NA	NA	NA
2,4,5-Trichlorophenol	95-95-4	NS	ug/l	<5 U	NA	NA	<5 U	NA	NA	<5 U	NA	<5 U	NA	NA	<5 U	NA	NA	NA
2,4,6-Trichlorophenol	88-06-2	NS	ug/l	<5 U	NA	NA	<5 U	NA	NA	<5 U	NA	<5 U	NA	NA	<5 U	NA	NA	NA
2,4-Dichlorophenol	120-83-2	1	ug/l	<5 U	NA	NA	<5 U	NA	NA	<5 U	NA	<5 U	NA	NA	<5 U	NA	NA	NA
2,4-Dimethylphenol	105-67-9	1	ug/l	<5 U	NA	NA	<5 U	NA	NA	<5 U	NA	<5 U	NA	NA	<5 U	NA	NA	NA
2,4-Dinitrophenol	51-28-5	1	ug/l	<20 U	NA	NA	<20 U	NA	NA	<20 UJ	NA	<20 UJ	NA	NA	<20 U	NA	NA	NA
2,4-Dinitrotoluene	121-14-2	5	ug/l	<5 U	NA	NA	<5 U	NA	NA	<5 U	NA	<5 U	NA	NA	<5 U	NA	NA	NA
2,6-Dinitrotoluene	606-20-2	5	ug/l	<5 U	NA	NA	<5 U	NA	NA	<5 U	NA	<5 U	NA	NA	<5 U	NA	NA	NA
2-Chloronaphthalene	91-58-7	10	ug/l	<0.2 U	NA	NA	<0.2 U	NA	NA	<0.2 U	NA	<0.2 U	NA	NA	0.02 J	NA	NA	NA
2-Chlorophenol	95-57-8	NS	ug/l	<2 U	NA	NA	<2 U	NA	NA	<2 U	NA	<2 U	NA	NA	<2 U	NA	NA	NA
2-Methylnaphthalene	91-57-6	NS	ug/l	0.06 J	NA	NA	<0.1 U	NA	NA	<0.1 U	NA	<0.1 U	NA	NA	0.04 J	NA	NA	NA
2-Methylphenol (o-Cresol)	95-48-7	NS	ug/l	<5 U	NA	NA	<5 U	NA	NA	<5 U	NA	<5 U	NA	NA	<5 U	NA	NA	NA
2-Nitroaniline	88-74-4	5	ug/l	<5 U	NA	NA	<5 U	NA	NA	<5 U	NA	<5 U	NA	NA	<5 U	NA	NA	NA
2-Nitrophenol	88-75-5	NS	ug/l	<10 U	NA	NA	<10 U	NA	NA	<10 U	NA	<10 U	NA	NA	<10 U	NA	NA	NA
3 & 4 Methylphenol (m&p Cresol)	65794-96-9	NS	ug/l	<5 U	NA	NA	<5 U	NA	NA	<5 U	NA	<5 U	NA	NA	<5 U	NA	NA	NA
3,3'-Dichlorobenzidine	91-94-1	5	ug/l	<5 U	NA	NA	<5 UJ	NA	NA	<5 U	NA	<5 U	NA	NA	<5 U	NA	NA	NA
3-Nitroaniline	99-09-2	5	ug/l	<5 U	NA	NA	<5 U	NA	NA	<5 U	NA	<5 U	NA	NA	<5 U	NA	NA	NA
4,6-Dinitro-2-Methylphenol	534-52-1	NS	ug/l	<10 U	NA	NA	<10 U	NA	NA	<10 UJ	NA	<10 UJ	NA	NA	<10 U	NA	NA	NA
4-Bromophenyl Phenyl Ether	101-55-3	NS	ug/l	<2 U	NA	NA	<2 U	NA	NA	<2 U	NA	<2 U	NA	NA	<2 U	NA	NA	NA
4-Chloro-3-Methylphenol	59-50-7	NS	ug/l	<2 U	NA	NA	<2 U	NA	NA	<2 U	NA	<2 U	NA	NA	<2 U	NA	NA	NA
4-Chloroaniline	106-47-8	5	ug/l	<5 U	NA	NA	<5 U	NA	NA	<5 U	NA	<5 U	NA	NA	<5 U	NA	NA	NA
4-Chlorophenyl Phenyl Ether	7005-72-3	NS	ug/l	<2 U	NA	NA	<2 U	NA	NA	<2 U	NA	<2 U	NA	NA	<2 U	NA	NA	NA
4-Nitroaniline	100-01-6	5	ug/l	<5 U	NA	NA	<5 UJ	NA	NA	<5 U	NA	<5 U	NA	NA	<5 U	NA	NA	NA
4-Nitrophenol	100-02-7	NS	ug/l	<10 U	NA	NA	<10 U	NA	NA	<10 U	NA	<10 U	NA	NA	<10 U	NA	NA	NA
Acenaphthene	83-32-9	20	ug/l	0.09 J	NA	NA	<0.1 U	NA	NA	<0.1 U	NA	0.01 J	NA	NA	0.03 J	NA	NA	NA
Acenaphthylene	208-96-8	NS	ug/l	0.26	NA	NA	<0.1 U	NA	NA	<0.1 U	NA	<0.1 U	NA	NA	0.02 J	NA	NA	NA
Acetophenone	98-86-2	NS	ug/l	<5 U	NA	NA	<5 U	NA	NA	<5 U	NA	<5 U	NA	NA	<5 U	NA	NA	NA
Anthracene	120-12-7	50	ug/l	0.24	NA	NA	<0.1 U	NA	NA	<0.1 U	NA	<0.1 U	NA	NA	0.04 J	NA	NA	NA
Benzo(a)anthracene	56-55-3	**0.002**	ug/l	**1.4**	NA	NA	<0.1 U	NA	NA	<0.1 U	NA	<0.1 U	NA	NA	**0.12**	NA	NA	NA
Benzo(a)pyrene	50-32-8	**0**	ug/l	**1.2**	NA	NA	<0.1 U	NA	NA	<0.1 U	NA	<0.1 U	NA	NA	**0.1 J**	NA	NA	NA
Benzo(b)fluoranthene	205-99-2	**0.002**	ug/l	**2**	NA	NA	<0.1 U	NA	NA	<0.1 U	NA	<0.1 U	NA	NA	**0.14**	NA	NA	NA
Benzo(g,h,i)Perylene	191-24-2	NS	ug/l	1.2	NA	NA	<0.1 U	NA	NA	<0.1 U	NA	<0.1 U	NA	NA	0.07 J	NA	NA	NA
Benzo(k)fluoranthene	207-08-9	**0.002**	ug/l	**0.67**	NA	NA	<0.1 U	NA	NA	**0.01 J**	NA	<0.1 U	NA	NA	**0.05 J**	NA	NA	NA
Benzoic Acid	65-85-0	NS	ug/l	<50 U	NA	NA	<50 U	NA	NA	<50 UJ	NA	<50 UJ	NA	NA	<50 UJ	NA	NA	NA
Benzyl Alcohol	100-51-6	NS	ug/l	<2 U	NA	NA	<2 U	NA	NA	<2 U	NA	<2 U	NA	NA	<2 U	NA	NA	NA
Benzyl Butyl Phthalate	85-68-7	50	ug/l	<5 U	NA	NA	<5 U	NA	NA	<5 U	NA	<5 U	NA	NA	<5 U	NA	NA	NA
Biphenyl (Diphenyl)	92-52-4	5	ug/l	<2 U	NA	NA	<2 U	NA	NA	<2 U	NA	<2 U	NA	NA	<2 U	NA	NA	NA
Bis(2-chloroethoxy) methane	111-91-1	5	ug/l	<5 U	NA	NA	<5 U	NA	NA	<5 U	NA	<5 U	NA	NA	<5 U	NA	NA	NA
Bis(2-chloroethyl) ether (2-chloroethyl ether)	111-44-4	1	ug/l	<2 U	NA	NA	<2 U	NA	NA	<2 U	NA	<2 U	NA	NA	<2 U	NA	NA	NA
Bis(2-chloroisopropyl) ether	108-60-1	5	ug/l	<2 U	NA	NA	<2 UJ	NA	NA	<2 U	NA	<2 U	NA	NA	<2 U	NA	NA	NA
Bis(2-ethylhexyl) phthalate	117-81-7	5	ug/l	<3 U	NA	NA	<3 UJ	NA	NA	<3 U	NA	<3 U	NA	NA	<3 U	NA	NA	NA
Carbazole	86-74-8	NS	ug/l	<2 U	NA	NA	<2 UJ	NA	NA	<2 U	NA	<2 U	NA	NA	<2 U	NA	NA	NA
Chrysene	218-01-9	**0.002**	ug/l	**1.4**	NA	NA	<0.1 U	NA	NA	**0.02 J**	NA	<0.1 U	NA	NA	**0.12**	NA	NA	NA
Dibenz(a,h)anthracene	53-70-3	NS	ug/l	0.25	NA	NA	<0.1 U	NA	NA	<0.1 U	NA	<0.1 U	NA	NA	0.02 J	NA	NA	NA
Dibenzofuran	132-64-9	NS	ug/l	<2 U	NA	NA	<2 U	NA	NA	<2 U	NA	<2 U	NA	NA	<2 U	NA	NA	NA
Dibutyl phthalate	84-74-2	50	ug/l	<5 U	NA	NA	<5 UJ	NA	NA	<5 U	NA	<5 U	NA	NA	<5 U	NA	NA	NA
Diethyl phthalate	84-66-2	50	ug/l	<5 U	NA	NA	<5 U	NA	NA	<5 U	NA	<5 U	NA	NA	<5 U	NA	NA	NA
Dimethyl phthalate	131-11-3	50	ug/l	<5 U	NA	NA	<5 U	NA	NA	<5 U	NA	<5 U	NA	NA	<5 U	NA	NA	NA
Dioctyl phthalate	117-84-0	50	ug/l	<5 U	NA	NA	<5 U	NA	NA	<5 U	NA	<5 U	NA	NA	<5 U	NA	NA	NA
Fluoranthene	206-44-0	50	ug/l	1.8	NA	NA	<0.1 U	NA	NA	0.03 J	NA	<0.1 U	NA	NA	0.21	NA	NA	NA
Fluorene	86-73-7	50	ug/l	0.11	NA	NA	<0.1 U	NA	NA	0.02 J	NA	0.02 J	NA	NA	0.03 J	NA	NA	NA
Hexachlorobenzene	118-74-1	0.04	ug/l	<0.8 U	NA	NA	<0.8 U	NA	NA	<0.8 U	NA	<0.8 U	NA	NA	0.02 J	NA	NA	NA
Hexachlorobutadiene	87-68-3	0.5	ug/l	<0.5 U	NA	NA	<0.5 U	NA	NA	<0.5 U	NA	<0.5 U	NA	NA	<0.5 U	NA	NA	NA
Hexachlorocyclopentadiene	77-47-4	5	ug/l	<20 U	NA	NA	<20 U	NA	NA	<20 U	NA	<20 U	NA	NA	<20 U	NA	NA	NA
Hexachloroethane	67-72-1	5	ug/l	<0.8 U	NA	NA	<0.8 U	NA	NA	<0.8 U	NA	<0.8 U	NA	NA	<0.8 U	NA	NA	NA
Indeno(1,2,3-cd)pyrene	193-39-5	**0.002**	ug/l	**1.3**	NA	NA	<0.1 U	NA	NA	**0.01 J**	NA	<0.1 U	NA	NA	**0.08 J**	NA	NA	NA
Isophorone	78-59-1	50	ug/l	<5 U	NA	NA	<5 U	NA	NA	<5 U	NA	<5 U	NA	NA	<5 U	NA	NA	NA
Naphthalene	91-20-3	10	ug/l	0.12	NA	NA	<0.1 U	NA	NA	<0.1 U	NA	<0.1 U	NA	NA	<0.1 U	NA	NA	NA
Nitrobenzene	98-95-3	0.4	ug/l	<2 U	NA	NA	<2 U	NA	NA	<2 U	NA	<2 U	NA	NA	<2 U	NA	NA	NA
n-Nitrosodi-N-Propylamine	621-64-7	NS	ug/l	<5 U	NA	NA	<5 U	NA	NA	<5 U	NA	<5 U	NA	NA	<5 U	NA	NA	NA
n-Nitrosodiphenylamine	86-30-6	50	ug/l	<2 U	NA	NA	<2 U	NA	NA	<2 U	NA	<2 U	NA	NA	<2 U	NA	NA	NA
Pentachlorophenol	87-86-5	1	ug/l	<0.8 U	NA	NA	<0.8 UJ	NA	NA	<0.8 U	NA	<0.8 U	NA	NA	<0.8 UJ	NA	NA	NA
Phenanthrene	85-01-8	50	ug/l	0.61	NA	NA	<0.1 U	NA	NA	0.03 J	NA	0.02 J	NA	NA	0.17	NA	NA	NA
Phenol	108-95-2	1	ug/l	<5 U	NA	NA	<5 U	NA	NA	<5 U	NA	<5 U	NA	NA	<5 U	NA	NA	NA
Pyrene	129-00-0	50	ug/l	1.7	NA	NA	<0.1 U	NA	NA	0.02 J	NA	<0.1 U	NA	NA	0.18	NA	NA	NA

Table 4
Remedial Investigation Report
Groundwater Sample Analytical Results

C Block
Brooklyn, New York
NYSDEC BCP Site No.: C224435
Langan Project No.: 170229030

Analyte	CAS Number	NYSDEC SGVs	Location	MW05	MW05	MW05	MW06	MW06	MW06	MW07	MW07	MW08	MW08	MW08	MW09	MW09	MW09	MW09
			Sample Name	MW05_080222	MW05_080222_FILTERED	MW05_011226	MW06_080322	MW06_080322_FILTERED	MW06_011426	MW07_080422	MW07_080422_FILTERED	MW08_080422	MW08_080422_FILTERED	MW08_011426	MW09_080122	MW09_080122_FILTERED	MW09_011226	GWDUP01_011226
			Sample Date	08/02/2022	08/02/2022	01/12/2026	08/03/2022	08/03/2022	01/14/2026	08/04/2022	08/04/2022	08/04/2022	08/04/2022	01/14/2026	08/01/2022	08/01/2022	01/12/2026	01/12/2026
			Unit	Result	Result	Result	Result	Result	Result	Result	Result	Result	Result	Result	Result	Result	Result	Result
Pesticides																		
4,4'-DDD	72-54-8	0.3	ug/l	<0.029 U	NA	NA	<0.029 U	NA	NA	<0.029 U	NA	<0.029 U	NA	NA	<0.029 U	NA	NA	NA
4,4'-DDE	72-55-9	0.2	ug/l	<0.029 U	NA	NA	<0.029 U	NA	NA	<0.029 U	NA	<0.029 U	NA	NA	<0.029 U	NA	NA	NA
4,4'-DDT	50-29-3	0.2	ug/l	<0.029 U	NA	NA	<0.029 U	NA	NA	<0.029 U	NA	<0.029 U	NA	NA	<0.029 U	NA	NA	NA
Aldrin	309-00-2	0	ug/l	<0.014 U	NA	NA	<0.014 U	NA	NA	<0.014 U	NA	<0.014 U	NA	NA	<0.014 U	NA	NA	NA
Alpha BHC (Alpha Hexachlorocyclohexane)	319-84-6	0.01	ug/l	<0.014 U	NA	NA	<0.014 U	NA	NA	<0.014 U	NA	<0.014 U	NA	NA	<0.014 U	NA	NA	NA
Alpha Chlordane	5103-71-9	NS	ug/l	<0.014 U	NA	NA	<0.014 U	NA	NA	<0.014 U	NA	<0.014 U	NA	NA	<0.014 U	NA	NA	NA
Alpha Endosulfan	959-98-8	NS	ug/l	<0.014 U	NA	NA	<0.014 U	NA	NA	<0.014 U	NA	<0.014 U	NA	NA	<0.014 U	NA	NA	NA
Beta Bhc (Beta Hexachlorocyclohexane)	319-85-7	0.04	ug/l	<0.014 U	NA	NA	<0.014 U	NA	NA	<0.014 U	NA	<0.014 U	NA	NA	<0.014 U	NA	NA	NA
Beta Endosulfan	33213-65-9	NS	ug/l	<0.029 U	NA	NA	<0.029 U	NA	NA	<0.029 U	NA	<0.029 U	NA	NA	<0.029 U	NA	NA	NA
Chlordane (alpha and gamma)	57-74-9	0.05	ug/l	<0.143 U	NA	NA	<0.143 U	NA	NA	<0.143 U	NA	<0.143 U	NA	NA	<0.143 U	NA	NA	NA
Delta Bhc (Delta Hexachlorocyclohexane)	319-86-8	0.04	ug/l	<0.014 U	NA	NA	<0.014 U	NA	NA	<0.014 U	NA	<0.014 U	NA	NA	<0.014 U	NA	NA	NA
Dieldrin	60-57-1	0.004	ug/l	<0.029 U	NA	NA	<0.029 U	NA	NA	<0.029 U	NA	<0.029 U	NA	NA	<0.029 U	NA	NA	NA
Endosulfan Sulfate	1031-07-8	NS	ug/l	<0.029 U	NA	NA	<0.029 U	NA	NA	<0.029 U	NA	<0.029 U	NA	NA	<0.029 U	NA	NA	NA
Endrin	72-20-8	0	ug/l	<0.029 U	NA	NA	<0.029 U	NA	NA	<0.029 U	NA	<0.029 U	NA	NA	<0.029 U	NA	NA	NA
Endrin Aldehyde	7421-93-4	5	ug/l	<0.029 U	NA	NA	<0.029 U	NA	NA	<0.029 U	NA	<0.029 U	NA	NA	<0.029 U	NA	NA	NA
Endrin Ketone	53494-70-5	5	ug/l	<0.029 U	NA	NA	<0.029 U	NA	NA	<0.029 U	NA	<0.029 U	NA	NA	<0.029 U	NA	NA	NA
Gamma Bhc (Lindane)	58-89-9	0.05	ug/l	<0.014 U	NA	NA	<0.014 U	NA	NA	<0.014 U	NA	<0.014 U	NA	NA	<0.014 U	NA	NA	NA
Gamma Chlordane (Trans)	5103-74-2	NS	ug/l	<0.014 U	NA	NA	<0.014 U	NA	NA	<0.014 U	NA	<0.014 U	NA	NA	<0.014 U	NA	NA	NA
Heptachlor	76-44-8	0.04	ug/l	<0.014 U	NA	NA	<0.014 U	NA	NA	<0.014 U	NA	<0.014 U	NA	NA	<0.014 U	NA	NA	NA
Heptachlor Epoxide	1024-57-3	0.03	ug/l	<0.014 U	NA	NA	<0.014 U	NA	NA	<0.014 U	NA	<0.014 U	NA	NA	<0.014 U	NA	NA	NA
Methoxychlor	72-43-5	35	ug/l	<0.143 U	NA	NA	<0.143 U	NA	NA	<0.143 U	NA	<0.143 U	NA	NA	<0.143 U	NA	NA	NA
Toxaphene	8001-35-2	0.06	ug/l	<0.143 U	NA	NA	<0.143 U	NA	NA	<0.143 U	NA	<0.143 U	NA	NA	<0.143 U	NA	NA	NA
Herbicides																		
2,4,5-T (Trichlorophenoxyacetic Acid)	93-76-5	35	ug/l	<2 U	NA	NA	<2 U	NA	NA	<2 U	NA	<2 U	NA	NA	<2 U	NA	NA	NA
2,4-D (Dichlorophenoxyacetic Acid)	94-75-7	50	ug/l	<10 U	NA	NA	<10 U	NA	NA	<10 U	NA	<10 U	NA	NA	<10 U	NA	NA	NA
Silvex (2,4,5-Tp)	93-72-1	0.26	ug/l	<2 U	NA	NA	<2 U	NA	NA	<2 U	NA	<2 U	NA	NA	<2 U	NA	NA	NA
Polychlorinated Biphenyl																		
PCB-1016 (Aroclor 1016)	12674-11-2	NS	ug/l	<0.071 U	NA	NA	<0.071 U	NA	NA	<0.071 U	NA	<0.071 U	NA	NA	<0.071 U	NA	NA	NA
PCB-1221 (Aroclor 1221)	11104-28-2	NS	ug/l	<0.071 U	NA	NA	<0.071 U	NA	NA	<0.071 U	NA	<0.071 U	NA	NA	<0.071 U	NA	NA	NA
PCB-1232 (Aroclor 1232)	11141-16-5	NS	ug/l	<0.071 U	NA	NA	<0.071 U	NA	NA	<0.071 U	NA	<0.071 U	NA	NA	<0.071 U	NA	NA	NA
PCB-1242 (Aroclor 1242)	53469-21-9	NS	ug/l	<0.071 U	NA	NA	<0.071 U	NA	NA	<0.071 U	NA	<0.071 U	NA	NA	<0.071 U	NA	NA	NA
PCB-1248 (Aroclor 1248)	12672-29-6	NS	ug/l	<0.071 U	NA	NA	<0.071 U	NA	NA	<0.071 U	NA	<0.071 U	NA	NA	<0.071 U	NA	NA	NA
PCB-1254 (Aroclor 1254)	11097-69-1	NS	ug/l	<0.071 U	NA	NA	<0.071 U	NA	NA	<0.071 U	NA	<0.071 U	NA	NA	<0.071 U	NA	NA	NA
PCB-1260 (Aroclor 1260)	11096-82-5	NS	ug/l	<0.071 U	NA	NA	<0.071 U	NA	NA	<0.071 U	NA	<0.071 U	NA	NA	<0.071 U	NA	NA	NA
PCB-1262 (Aroclor 1262)	37324-23-5	NS	ug/l	<0.071 U	NA	NA	<0.071 U	NA	NA	<0.071 U	NA	<0.071 U	NA	NA	<0.071 U	NA	NA	NA
PCB-1268 (Aroclor 1268)	11100-14-4	NS	ug/l	<0.071 U	NA	NA	<0.071 U	NA	NA	<0.071 U	NA	<0.071 U	NA	NA	<0.071 U	NA	NA	NA
Total PCBs	1336-36-3	0.09	ug/l	<0.071 U	NA	NA	<0.071 U	NA	NA	<0.071 U	NA	<0.071 U	NA	NA	<0.071 U	NA	NA	NA
Metals - Dissolved																		
Aluminum	7429-90-5	NS	ug/l	4.06 J	NA	NA	7.86 J	NA	NA	4.46 J	NA	<10 U	NA	NA	13.2	NA	NA	NA
Antimony	7440-36-0	3	ug/l	<4 U	NA	NA	<4 U	NA	NA	0.51 J	NA	0.49 J	NA	NA	0.49 J	NA	NA	NA
Arsenic	7440-38-2	25	ug/l	2	NA	NA	12.93	NA	NA	4.16	NA	0.17 J	NA	NA	1.8 J	NA	NA	NA
Barium	7440-39-3	1000	ug/l	79.03	NA	NA	85.88	NA	NA	107.2	NA	100.8	NA	NA	73.82	NA	NA	NA
Beryllium	7440-41-7	3	ug/l	<0.5 U	NA	NA	<0.5 U	NA	NA	<0.5 U	NA	<0.5 U	NA	NA	<0.5 U	NA	NA	NA
Cadmium	7440-43-9	5	ug/l	<0.2 U	NA	NA	<0.2 U	NA	NA	<0.2 U	NA	0.09 J	NA	NA	0.2	NA	NA	NA
Calcium	7440-70-2	NS	ug/l	330,000	NA	NA	270,000	NA	NA	102,000	NA	42,800	NA	NA	141,000	NA	NA	NA
Chromium, Total	7440-47-3	50	ug/l	0.27 J	NA	NA	0.52 J	NA	NA	0.2 J	NA	1.95	NA	NA	<1 U	NA	NA	NA
Cobalt	7440-48-4	NS	ug/l	3.26	NA	NA	<0.5 U	NA	NA	3.14	NA	0.9	NA	NA	1.6	NA	NA	NA
Copper	7440-50-8	200	ug/l	<1 U	NA	NA	<1 U	NA	NA	<1 U	NA	0.55 J	NA	NA	0.4 J	NA	NA	NA
Iron	7439-89-6	**300**	ug/l	**15,700**	NA	NA	**44,000**	NA	NA	**12,100**	NA	128	NA	NA	128	NA	NA	NA
Lead	7439-92-1	25	ug/l	<1 U	NA	NA	<1 U	NA	NA	<1 U	NA	<1 U	NA	NA	0.44 J	NA	NA	NA
Magnesium	7439-95-4	**35000**	ug/l	34,100	NA	NA	31,700	NA	NA	16,500	NA	6,910	NA	NA	10,200	NA	NA	NA
Manganese	7439-96-5	**300**	ug/l	**1,533**	NA	NA	**2,667**	NA	NA	**4,470**	NA	**852.9**	NA	NA	**393.6**	NA	NA	NA
Mercury	7439-97-6	0.7	ug/l	0.09 J	NA	NA	<0.2 U	NA	NA	<0.2 U	NA	<0.2 U	NA	NA	<0.2 U	NA	NA	NA
Nickel	7440-02-0	100	ug/l	1.4 J	NA	NA	0.6 J	NA	NA	1.97 J	NA	3.28	NA	NA	1.52 J	NA	NA	NA
Potassium	7440-09-7	NS	ug/l	23,700 J	NA	NA	30,800	NA	NA	10,400	NA	8,460	NA	NA	4,080	NA	NA	NA
Selenium	7782-49-2	10	ug/l	<5 U	NA	NA	<5 U	NA	NA	<5 U	NA	5.47	NA	NA	<5 U	NA	NA	NA
Silver	7440-22-4	50	ug/l	<0.4 U	NA	NA	<0.4 U	NA	NA	<0.4 U	NA	<0.4 U	NA	NA	<0.4 U	NA	NA	NA
Sodium	7440-23-5	**20000**	ug/l	**60,000**	NA	NA	**42,100**	NA	NA	**76,300 J**	NA	**62,200**	NA	NA	12,900	NA	NA	NA
Thallium	7440-28-0	**0.5**	ug/l	<1 U	NA	NA	<1 U	NA	NA	<1 U	NA	<1 U	NA	NA	<1 U	NA	NA	NA
Vanadium	7440-62-2	NS	ug/l	<5 U	NA	NA	<5 U	NA	NA	<5 U	NA	<5 U	NA	NA	<5 U	NA	NA	NA
Zinc	7440-66-6	2000	ug/l	<10 U	NA	NA	<10 U	NA	NA	7.61 J	NA	5.62 J	NA	NA	348.5	NA	NA	NA

Table 4
Remedial Investigation Report
Groundwater Sample Analytical Results

C Block
Brooklyn, New York
NYSDEC BCP Site No.: C224435
Langan Project No.: 170229030

Analyte	CAS Number	NYSDEC SGVs	Location	MW05	MW05	MW05	MW06	MW06	MW06	MW07	MW07	MW08	MW08	MW08	MW09	MW09	MW09	MW09
			Sample Name	MW05_080222	MW05_080222_FILTERED	MW05_011226	MW06_080322	MW06_080322_FILTERED	MW06_011426	MW07_080422	MW07_080422_FILTERED	MW08_080422	MW08_080422_FILTERED	MW08_011426	MW09_080122	MW09_080122_FILTERED	MW09_011226	GWDUP01_011226
			Sample Date	08/02/2022	08/02/2022	01/12/2026	08/03/2022	08/03/2022	01/14/2026	08/04/2022	08/04/2022	08/04/2022	08/04/2022	01/14/2026	08/01/2022	08/01/2022	01/12/2026	01/12/2026
			Unit	Result	Result	Result	Result	Result	Result	Result	Result	Result	Result	Result	Result	Result	Result	Result
Metals - Total																		
Aluminum	7429-90-5	NS	ug/l	807	NA	NA	32.3	NA	NA	77.1	NA	7.93 J	NA	NA	420	NA	NA	NA
Antimony	7440-36-0	3	ug/l	1.55 J	NA	NA	<4 U	NA	NA	<4 U	NA	<4 U	NA	NA	0.43 J	NA	NA	NA
Arsenic	7440-38-2	25	ug/l	2.83	NA	NA	15.66	NA	NA	4.29	NA	<0.5 U	NA	NA	2.39	NA	NA	NA
Barium	7440-39-3	1000	ug/l	88.54	NA	NA	87.98	NA	NA	103.3	NA	104.4	NA	NA	85.74	NA	NA	NA
Beryllium	7440-41-7	3	ug/l	<0.5 U	NA	NA	<0.5 U	NA	NA	<0.5 U	NA	<0.5 U	NA	NA	<0.5 U	NA	NA	NA
Cadmium	7440-43-9	5	ug/l	0.06 J	NA	NA	<0.2 U	NA	NA	<0.2 U	NA	0.08 J	NA	NA	0.26	NA	NA	NA
Calcium	7440-70-2	NS	ug/l	292,000	NA	NA	283,000	NA	NA	102,000	NA	43,500	NA	NA	126,000	NA	NA	NA
Chromium, Hexavalent	18540-29-9	50	ug/l	<10 U	NA	NA	<10 U	NA	NA	<10 U	NA	<10 U	NA	NA	<10 U	NA	NA	NA
Chromium, Total	7440-47-3	NS	ug/l	2.37	NA	NA	0.63 J	NA	NA	0.46 J	NA	1.98	NA	NA	1.1	NA	NA	NA
Chromium, Trivalent	16065-83-1	NS	ug/l	<10 U	NA	NA	<10 U	NA	NA	<10 U	NA	<10 U	NA	NA	<10 U	NA	NA	NA
Cobalt	7440-48-4	NS	ug/l	7.14	NA	NA	0.17 J	NA	NA	3.16	NA	0.94	NA	NA	1.87	NA	NA	NA
Copper	7440-50-8	200	ug/l	6.53	NA	NA	<2 U	NA	NA	0.67 J	NA	0.57 J	NA	NA	2.51	NA	NA	NA
Cyanide	57-12-5	200	ug/l	<5 U	NA	NA	3 J	NA	NA	<5 U	NA	<5 U	NA	NA	<5 U	NA	NA	NA
Iron	7439-89-6	**300**	ug/l	**16,700**	NA	NA	**48,200**	NA	NA	**11,500**	NA	184	NA	NA	**1,330**	NA	NA	NA
Lead	7439-92-1	**25**	ug/l	11.67	NA	NA	1.08	NA	NA	2.46	NA	<1 U	NA	NA	12	NA	NA	NA
Magnesium	7439-95-4	**35000**	ug/l	30,900 J	NA	NA	31,400	NA	NA	16,600	NA	7,120	NA	NA	10,000	NA	NA	NA
Manganese	7439-96-5	**300**	ug/l	**1,541**	NA	NA	**2,638**	NA	NA	**4,344**	NA	**837.2**	NA	NA	**410.6**	NA	NA	NA
Mercury	7439-97-6	0.7	ug/l	<0.2 U	NA	NA	<0.2 U	NA	NA	<0.2 U	NA	<0.2 U	NA	NA	<0.2 U	NA	NA	NA
Nickel	7440-02-0	100	ug/l	3.64	NA	NA	<2 U	NA	NA	1.97 J	NA	3.27	NA	NA	1.86 J	NA	NA	NA
Potassium	7440-09-7	NS	ug/l	23,800	NA	NA	34,100	NA	NA	10,000	NA	8,700	NA	NA	3,650	NA	NA	NA
Selenium	7782-49-2	10	ug/l	<5 U	NA	NA	<5 U	NA	NA	<5 U	NA	6.26	NA	NA	<5 U	NA	NA	NA
Silver	7440-22-4	50	ug/l	<0.4 U	NA	NA	<0.4 U	NA	NA	<0.4 U	NA	<0.4 U	NA	NA	<0.4 U	NA	NA	NA
Sodium	7440-23-5	**20000**	ug/l	**47,900**	NA	NA	**42,900**	NA	NA	**76,700**	NA	**61,700**	NA	NA	12,300	NA	NA	NA
Thallium	7440-28-0	0.5	ug/l	<1 U	NA	NA	<1 U	NA	NA	<1 U	NA	<1 U	NA	NA	<1 U	NA	NA	NA
Vanadium	7440-62-2	NS	ug/l	2.05 J	NA	NA	<5 U	NA	NA	<5 U	NA	<5 U	NA	NA	<5 U	NA	NA	NA
Zinc	7440-66-6	2000	ug/l	12.16	NA	NA	3.48 J	NA	NA	8.59 J	NA	5.4 J	NA	NA	449.9	NA	NA	NA
Per- and Polyfluoroalkyl Substances																		
11-Chloroeicosafluoro-3-Oxaundecane-1-Sulfonic Acid (11Cl-PF3OUdS)	763051-92-9	NS	ug/l	NA	NA	<0.00768 U	NA	NA	<0.0075 UJ	NA	NA	NA	NA	<0.00744 UJ	NA	NA	<0.00776 U	<0.00799 U
1H,1H,2H,2H-Perfluorodecane Sulfonic Acid (8:2 FTS)	39108-34-4	NS	ug/l	<0.00172 UJ	NA	<0.0078 U	<0.00205 UJ	NA	<0.00762 U	<0.00185 U	NA	<0.00198 U	NA	<0.00756 U	<0.00186 U	NA	<0.00789 U	<0.00812 U
1H,1H,2H,2H-Perfluorohexane Sulfonic Acid (4:2 FTS)	757124-72-4	NS	ug/l	NA	NA	<0.00762 U	NA	NA	<0.00744 U	NA	NA	NA	NA	<0.00738 U	NA	NA	<0.0077 U	<0.00793 U
1H,1H,2H,2H-Perfluorooctane Sulfonic Acid (6:2 FTS)	27619-97-2	NS	ug/l	<0.00172 UJ	NA	<0.00772 U	<0.00205 UJ	NA	<0.00754 U	0.00221 J	NA	0.00192 J	NA	<0.00748 U	0.00515 J	NA	<0.0078 U	<0.00803 U
2H,2H,3H,3H-Perfluorooctanoic Acid (5:3 FTCA)	914637-49-3	NS	ug/l	NA	NA	<0.0508 U	NA	NA	<0.0496 U	NA	NA	NA	NA	<0.0492 U	NA	NA	<0.0513 U	<0.0529 U
3-Perfluoroheptyl Propanoic Acid (7:3 FTCA)	812-70-4	NS	ug/l	NA	NA	<0.0508 U	NA	NA	<0.0496 U	NA	NA	NA	NA	<0.0492 U	NA	NA	<0.0513 U	<0.0529 U
3-Perfluoropropyl Propanoic Acid (3:3 FTCA)	356-02-5	NS	ug/l	NA	NA	<0.0102 U	NA	NA	<0.00992 U	NA	NA	NA	NA	<0.00984 U	NA	NA	<0.0103 U	<0.0106 U
4,8-Dioxa-3H-perfluorononanoic Acid (ADONA)	919005-14-4	NS	ug/l	NA	NA	<0.00768 U	NA	NA	<0.0075 U	NA	NA	NA	NA	<0.00744 U	NA	NA	<0.00776 U	<0.00799 U
9-Chlorohexadecafluoro-3-Oxanonane-1-Sulfonic Acid (9Cl-PF3ONS)	756426-58-1	NS	ug/l	NA	NA	<0.0076 U	NA	NA	<0.00742 U	NA	NA	NA	NA	<0.00736 U	NA	NA	<0.00768 U	<0.00791 U
Hexafluoropropylene Oxide Dimer Acid (HFPO-DA)	13252-13-6	NS	ug/l	NA	NA	<0.00813 U	NA	NA	<0.00794 U	NA	NA	NA	NA	<0.00787 U	NA	NA	<0.00821 U	<0.00846 U
N-ethyl Perfluorooctanesulfonamide (NEtFOSA)	4151-50-2	NS	ug/l	NA	NA	<0.00203 U	NA	NA	<0.00198 U	NA	NA	NA	NA	<0.00197 U	NA	NA	<0.00205 U	<0.00211 U
N-ethyl Perfluorooctanesulfonamidoacetic Acid (NEtFOSAA)	2991-50-6	NS	ug/l	<0.00172 U	NA	<0.00203 U	<0.00205 U	NA	<0.00198 U	<0.00189 U	NA	<0.00198 U	NA	<0.00197 U	<0.00186 U	NA	<0.00205 U	<0.00211 U
N-ethyl Perfluorooctanesulfonamidoethanol (NEtFOSE)	1691-99-2	NS	ug/l	NA	NA	<0.0203 U	NA	NA	<0.0198 U	NA	NA	NA	NA	<0.0197 U	NA	NA	<0.0205 U	<0.0211 U
N-methyl Perfluorooctanesulfonamide (NMeFOSA)	31506-32-8	NS	ug/l	NA	NA	<0.00203 U	NA	NA	<0.00198 U	NA	NA	NA	NA	<0.00197 U	NA	NA	<0.00205 U	<0.00211 U
N-methyl Perfluorooctanesulfonamidoacetic Acid (NMeFOSAA)	2355-31-9	NS	ug/l	<0.00172 U	NA	<0.00203 U	<0.00205 U	NA	<0.00198 U	<0.00185 U	NA	<0.00198 U	NA	<0.00197 U	<0.00186 U	NA	<0.00205 U	<0.00211 U
N-methyl Perfluorooctanesulfonamidoethanol (NMeFOSE)	24448-09-7	NS	ug/l	NA	NA	<0.0203 U	NA	NA	<0.0198 U	NA	NA	NA	NA	<0.0197 U	NA	NA	<0.0205 U	<0.0211 U
Nonafluoro-3,6-dioxaheptanoic Acid (NFDHA)	151772-58-6	NS	ug/l	NA	NA	<0.00407 U	NA	NA	<0.00397 U	NA	NA	NA	NA	<0.00394 U	NA	NA	<0.00411 U	<0.00423 U
Perfluoro(2-ethoxyethane)sulfonic Acid (PFEESA)	113507-82-7	NS	ug/l	NA	NA	<0.00362 U	NA	NA	<0.00353 U	NA	NA	NA	NA	<0.0035 U	NA	NA	<0.00366 U	<0.00376 U
Perfluoro-3-methoxypropanoic Acid (PFMPA)	377-73-1	NS	ug/l	NA	NA	<0.00407 U	NA	NA	<0.00397 U	NA	NA	NA	NA	<0.00394 U	NA	NA	<0.00411 U	<0.00423 U
Perfluoro-4-methoxybutanoic Acid (PFMBA)	863090-89-5	NS	ug/l	NA	NA	<0.00407 U	NA	NA	<0.00397 U	NA	NA	NA	NA	<0.00394 U	NA	NA	<0.00411 U	<0.00423 U
Perfluorobutanesulfonic Acid (PFBS)	375-73-5	NS	ug/l	0.00277	NA	0.0022	0.00324	NA	0.00195	0.0023	NA	0.00565	NA	0.00389	0.00257	NA	0.00229	0.00221
Perfluorobutanoic Acid (PFBA)	375-22-4	NS	ug/l	0.0113	NA	0.0098	0.0135	NA	0.012	0.0108	NA	0.00649	NA	0.0106	0.00615	NA	0.00691 J	0.00625 J
Perfluorodecanesulfonic Acid (PFDS)	335-77-3	NS	ug/l	<0.00172 U	NA	<0.00196 U	<0.00205 U	NA	<0.00191 U	<0.00185 U	NA	<0.00198 U	NA	<0.0019 U	<0.00186 U	NA	<0.00198 U	<0.00204 U
Perfluorodecanoic Acid (PFDA)	335-76-2	NS	ug/l	<0.00172 U	NA	<0.00203 U	0.000681 J	NA	0.000798 J	<0.00185 U	NA	<0.00198 U	NA	<0.00197 U	0.000772 J	NA	0.000721 J	0.000779 J
Perfluorododecanesulfonic Acid (PFDoS)	79780-39-5	NS	ug/l	NA	NA	<0.00197 U	NA	NA	<0.00192 U	NA	NA	NA	NA	<0.00191 U	NA	NA	<0.00199 U	<0.00205 U
Perfluorododecanoic Acid (PFDoA)	307-55-1	NS	ug/l	<0.00172 U	NA	<0.00203 U	<0.00205 U	NA	<0.00198 U	<0.00185 U	NA	<0.00198 U	NA	<0.00197 U	<0.00186 U	NA	<0.00205 U	<0.00211 U
Perfluoroheptanesulfonic Acid (PFHpS)	375-92-8	NS	ug/l	<0.00172 U	NA	<0.00194 U	<0.00205 U	NA	<0.00189 U	<0.00185 U	NA	<0.00198 U	NA	<0.00188 U	<0.00186 U	NA	<0.00196 U	<0.00202 U
Perfluoroheptanoic Acid (PFHpA)	375-85-9	NS	ug/l	0.00646	NA	0.00666	0.0107	NA	0.00535	0.00646	NA	0.00665	NA	0.00473	0.00272	NA	0.00366	0.00422
Perfluorohexanesulfonic Acid (PFHxS)	355-46-4	NS	ug/l	0.000675 J	NA	0.000951 J	0.00118 J	NA	<0.00182 U	0.00161 J	NA	0.00253	NA	<0.0018 U	0.000713 J	NA	<0.00188 U	<0.00193 U
Perfluorohexanoic Acid (PFHxA)	307-24-4	NS	ug/l	0.00768	NA	0.00651	0.0126	NA	0.0163	0.00753	NA	0.0067	NA	0.00698	0.00368	NA	0.00567	0.00602
Perfluorononanesulfonic Acid (PFNS)	68259-12-1	NS	ug/l	NA	NA	<0.00195 U	NA	NA	<0.0019 U	NA	NA	NA	NA	<0.00189 U	NA	NA	<0.00197 U	<0.00203 U
Perfluorononanoic Acid (PFNA)	375-95-1	NS	ug/l	<0.00172 U	NA	<0.00203 U	0.00195 J	NA	<0.00198 U	0.003	NA	0.00512	NA	0.00407	0.0015 J	NA	0.00148 J	0.00155 J
Perfluorooctanesulfonamide (PFOSA)	754-91-6	NS	ug/l	<0.00172 U	NA	<0.00203 U	<0.00205 U	NA	<0.00198 U	<0.00185 U	NA	<0.00198 U	NA	<0.00197 U	<0.00186 U	NA	<0.00205 U	<0.00211 U
Perfluorooctanesulfonic Acid (PFOS)	1763-23-1	**0.0027**	ug/l	<0.00172 U	NA	<0.00189 U	**0.00453**	NA	**0.00438**	**0.0217**	NA	**0.037**	NA	**0.0207**	**0.0119**	NA	**0.00565**	**0.00599**
Perfluorooctanoic Acid (PFOA)	335-67-1	**0.0067**	ug/l	**0.0488**	NA	**0.0354**	**0.0675**	NA	**0.0277**	**0.0479**	NA	**0.0226**	NA	**0.0276**	**0.00732**	NA	**0.00757**	**0.00801**
Perfluoropentanesulfonic Acid (PFPeS)	2706-91-4	NS	ug/l	NA	NA	<0.00191 U	NA	NA	<0.00187 U	NA	NA	NA	NA	<0.00185 U	NA	NA	<0.00193 U	<0.00199 U
Perfluoropentanoic Acid (PFPeA)	2706-90-3	NS	ug/l	0.0113	NA	0.00768	0.0137 J	NA	0.018	0.00812	NA	0.00677	NA	0.00797	0.00517	NA	0.00521	0.00582
Perfluorotetradecanoic Acid (PFTeDA)	376-06-7	NS	ug/l	<0.00172 U	NA	<0.00203 U	<0.00205 U	NA	<0.00198 U	<0.00185 U	NA	<0.00198 U	NA	<0.00197 U	<0.00186 U	NA	<0.00205 U	<0.00211 U
Perfluorotridecanoic Acid (PFTrDA)	72629-94-8	NS	ug/l	<0.00172 U	NA	<0.00203 U	<0.00205 U	NA	<0.00198 U	<0.00185 U	NA	<0.00198 U	NA	<0.00197 U	<0.00186 U	NA	<0.00205 U	<0.00211 U
Perfluoroundecanoic Acid (PFUnA)	2058-94-8	NS	ug/l	<0.00172 U	NA	<0.00203 U	<0.00205 U	NA	<0.00198 U	<0.00185 U	NA	<0.00198 U	NA	<0.00197 U	<0.00186 U	NA	<0.00205 U	<0.00211 U
Total PFOA and PFOS	TOTPFOAPFOS	NS	ug/l	0.0488	NA	NA	0.072	NA	NA	0.0696	NA	0.0596	NA	NA	0.0192	NA	NA	NA

Table 4
Remedial Investigation Report
Groundwater Sample Analytical Results

C Block
Brooklyn, New York
NYSDEC BCP Site No.: C224435
Langan Project No.: 170229030

Analyte	CAS Number	NYSDEC SGVs	Location	MW10	MW10	MW10	MW11	MW11	MW11	MW12	MW12	MW12	MW13	MW13	MW13
			Sample Name	MW10_080522	MW10_080522_FILTERED	MW10_011226	MW11_080322	MW11_080322_FILTERED	MW11_011326	MW12_080122	MW12_080122_FILTERED	MW12_011226	MW13_080322	MW13_080322_FILTERED	MW13_011326
			Sample Date	08/05/2022	08/05/2022	01/12/2026	08/03/2022	08/03/2022	01/13/2026	08/01/2022	08/01/2022	01/12/2026	08/03/2022	08/03/2022	01/13/2026
			Unit	Result	Result	Result	Result	Result	Result	Result	Result	Result	Result	Result	Result
Volatile Organic Compounds															
1,1,1,2-Tetrachloroethane	630-20-6	5	ug/l	<2.5 U	NA	NA	<2.5 U	NA	NA	<2.5 U	NA	NA	<2.5 U	NA	NA
1,1,1-Trichloroethane	71-55-6	5	ug/l	<2.5 U	NA	NA	<2.5 U	NA	NA	<2.5 U	NA	NA	<2.5 U	NA	NA
1,1,2,2-Tetrachloroethane	79-34-5	5	ug/l	<0.5 U	NA	NA	<0.5 U	NA	NA	<0.5 U	NA	NA	<0.5 U	NA	NA
1,1,2-Trichloroethane	79-00-5	1	ug/l	<1.5 U	NA	NA	<1.5 U	NA	NA	<1.5 U	NA	NA	<1.5 U	NA	NA
1,1-Dichloroethane	75-34-3	5	ug/l	<2.5 U	NA	NA	<2.5 U	NA	NA	<2.5 U	NA	NA	<2.5 U	NA	NA
1,1-Dichloroethene	75-35-4	5	ug/l	<0.5 U	NA	NA	<0.5 U	NA	NA	<0.5 U	NA	NA	<0.5 U	NA	NA
1,1-Dichloropropene	563-58-6	5	ug/l	<2.5 U	NA	NA	<2.5 U	NA	NA	<2.5 U	NA	NA	<2.5 U	NA	NA
1,2,3-Trichlorobenzene	87-61-6	5	ug/l	<2.5 U	NA	NA	<2.5 U	NA	NA	<2.5 U	NA	NA	<2.5 U	NA	NA
1,2,3-Trichloropropane	96-18-4	0.04	ug/l	<2.5 U	NA	NA	<2.5 U	NA	NA	<2.5 U	NA	NA	<2.5 U	NA	NA
1,2,4,5-Tetramethylbenzene	95-93-2	5	ug/l	<2 U	NA	NA	<2 U	NA	NA	<2 U	NA	NA	<2 U	NA	NA
1,2,4-Trichlorobenzene	120-82-1	5	ug/l	<2.5 U	NA	NA	<2.5 U	NA	NA	<2.5 U	NA	NA	<2.5 U	NA	NA
1,2,4-Trimethylbenzene	95-63-6	5	ug/l	<2.5 U	NA	NA	<2.5 U	NA	NA	<2.5 U	NA	NA	<2.5 U	NA	NA
1,2-Dibromo-3-Chloropropane	96-12-8	0.04	ug/l	<2.5 U	NA	NA	<2.5 U	NA	NA	<2.5 U	NA	NA	<2.5 U	NA	NA
1,2-Dibromoethane (Ethylene Dibromide)	106-93-4	0.0006	ug/l	<2 U	NA	NA	<2 U	NA	NA	<2 U	NA	NA	<2 U	NA	NA
1,2-Dichlorobenzene	95-50-1	3	ug/l	<2.5 U	NA	NA	<2.5 U	NA	NA	<2.5 U	NA	NA	<2.5 U	NA	NA
1,2-Dichloroethane	107-06-2	0.6	ug/l	<0.5 U	NA	NA	<0.5 U	NA	NA	<0.5 U	NA	NA	<0.5 U	NA	NA
1,2-Dichloropropane	78-87-5	1	ug/l	<1 U	NA	NA	<1 U	NA	NA	<1 U	NA	NA	<1 U	NA	NA
1,3,5-Trimethylbenzene (Mesitylene)	108-67-8	5	ug/l	<2.5 U	NA	NA	<2.5 U	NA	NA	<2.5 U	NA	NA	<2.5 U	NA	NA
1,3-Dichlorobenzene	541-73-1	3	ug/l	<2.5 U	NA	NA	<2.5 U	NA	NA	<2.5 U	NA	NA	<2.5 U	NA	NA
1,3-Dichloropropane	142-28-9	5	ug/l	<2.5 U	NA	NA	<2.5 U	NA	NA	<2.5 U	NA	NA	<2.5 U	NA	NA
1,4-Dichlorobenzene	106-46-7	3	ug/l	<2.5 U	NA	NA	<2.5 U	NA	NA	<2.5 U	NA	NA	<2.5 U	NA	NA
1,4-Diethyl Benzene	105-05-5	NS	ug/l	<2 U	NA	NA	<2 U	NA	NA	<2 UJ	NA	NA	<2 U	NA	NA
1,4-Dioxane (P-Dioxane)	123-91-1	0.35	ug/l	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
2,2-Dichloropropane	594-20-7	5	ug/l	<2.5 U	NA	NA	<2.5 U	NA	NA	<2.5 U	NA	NA	<2.5 U	NA	NA
2-Chlorotoluene	95-49-8	5	ug/l	<2.5 U	NA	NA	<2.5 U	NA	NA	<2.5 U	NA	NA	<2.5 U	NA	NA
2-Hexanone (MBK)	591-78-6	50	ug/l	<5 U	NA	NA	<5 U	NA	NA	<5 U	NA	NA	<5 U	NA	NA
4-Chlorotoluene	106-43-4	5	ug/l	<2.5 U	NA	NA	<2.5 U	NA	NA	<2.5 U	NA	NA	<2.5 U	NA	NA
4-Ethyltoluene	622-96-8	NS	ug/l	<2 U	NA	NA	<2 U	NA	NA	<2 U	NA	NA	<2 U	NA	NA
Acetone	67-64-1	50	ug/l	<5 UJ	NA	NA	<5 U	NA	NA	<5 U	NA	NA	<5 U	NA	NA
Acrylonitrile	107-13-1	5	ug/l	<5 U	NA	NA	<5 U	NA	NA	<5 U	NA	NA	<5 U	NA	NA
Benzene	71-43-2	1	ug/l	<0.5 U	NA	NA	<0.5 U	NA	NA	<0.5 U	NA	NA	<0.5 U	NA	NA
Bromobenzene	108-86-1	5	ug/l	<2.5 U	NA	NA	<2.5 U	NA	NA	<2.5 U	NA	NA	<2.5 U	NA	NA
Bromochloromethane	74-97-5	5	ug/l	<2.5 U	NA	NA	<2.5 U	NA	NA	<2.5 U	NA	NA	<2.5 U	NA	NA
Bromodichloromethane	75-27-4	50	ug/l	<0.5 U	NA	NA	<0.5 U	NA	NA	<0.5 U	NA	NA	<0.5 U	NA	NA
Bromoform	75-25-2	50	ug/l	<2 U	NA	NA	<2 U	NA	NA	<2 U	NA	NA	<2 U	NA	NA
Bromomethane	74-83-9	5	ug/l	<2.5 U	NA	NA	<2.5 U	NA	NA	<2.5 U	NA	NA	<2.5 U	NA	NA
Carbon Disulfide	75-15-0	60	ug/l	<5 U	NA	NA	<5 U	NA	NA	<5 U	NA	NA	<5 U	NA	NA
Carbon Tetrachloride	56-23-5	5	ug/l	<0.5 U	NA	NA	<0.5 U	NA	NA	<0.5 U	NA	NA	<0.5 U	NA	NA
Chlorobenzene	108-90-7	5	ug/l	<2.5 U	NA	NA	<2.5 U	NA	NA	<2.5 U	NA	NA	<2.5 U	NA	NA
Chloroethane	75-00-3	5	ug/l	<2.5 U	NA	NA	<2.5 U	NA	NA	<2.5 U	NA	NA	<2.5 U	NA	NA
Chloroform	67-66-3	7	ug/l	<2.5 U	NA	NA	<2.5 U	NA	NA	<2.5 U	NA	NA	<2.5 U	NA	NA
Chloromethane	74-87-3	5	ug/l	<2.5 U	NA	NA	<2.5 U	NA	NA	<2.5 U	NA	NA	<2.5 U	NA	NA
Cis-1,2-Dichloroethene	156-59-2	5	ug/l	<2.5 U	NA	NA	<2.5 U	NA	NA	<2.5 U	NA	NA	<2.5 U	NA	NA
Cis-1,3-Dichloropropene	10061-01-5	0.4	ug/l	<0.5 U	NA	NA	<0.5 U	NA	NA	<0.5 U	NA	NA	<0.5 U	NA	NA
Cymene	99-87-6	5	ug/l	<2.5 U	NA	NA	<2.5 U	NA	NA	<2.5 U	NA	NA	<2.5 U	NA	NA
Dibromochloromethane	124-48-1	50	ug/l	<0.5 U	NA	NA	<0.5 U	NA	NA	<0.5 U	NA	NA	<0.5 U	NA	NA
Dibromomethane	74-95-3	5	ug/l	<5 U	NA	NA	<5 U	NA	NA	<5 U	NA	NA	<5 U	NA	NA
Dichlorodifluoromethane	75-71-8	5	ug/l	<5 U	NA	NA	<5 U	NA	NA	<5 U	NA	NA	<5 U	NA	NA
Diethyl Ether (Ethyl Ether)	60-29-7	NS	ug/l	<2.5 U	NA	NA	<2.5 U	NA	NA	<2.5 U	NA	NA	<2.5 U	NA	NA
Ethylbenzene	100-41-4	5	ug/l	<2.5 U	NA	NA	<2.5 U	NA	NA	<2.5 U	NA	NA	<2.5 U	NA	NA
Isopropylbenzene (Cumene)	98-82-8	5	ug/l	<2.5 U	NA	NA	<2.5 U	NA	NA	<2.5 U	NA	NA	<2.5 U	NA	NA
M,P-Xylene	179601-23-1	5	ug/l	<2.5 U	NA	NA	<2.5 U	NA	NA	<2.5 U	NA	NA	<2.5 U	NA	NA
Methyl Ethyl Ketone (2-Butanone)	78-93-3	50	ug/l	<5 U	NA	NA	<5 UJ	NA	NA	<5 U	NA	NA	<5 UJ	NA	NA
Methyl Isobutyl Ketone (4-Methyl-2-Pentanone)	108-10-1	NS	ug/l	<5 U	NA	NA	<5 U	NA	NA	<5 U	NA	NA	<5 U	NA	NA
Methylene Chloride	75-09-2	5	ug/l	<2.5 U	NA	NA	<2.5 U	NA	NA	<2.5 U	NA	NA	<2.5 U	NA	NA
n-Butylbenzene	104-51-8	5	ug/l	<2.5 U	NA	NA	<2.5 U	NA	NA	<2.5 U	NA	NA	<2.5 U	NA	NA
n-Propylbenzene	103-65-1	5	ug/l	<2.5 U	NA	NA	<2.5 U	NA	NA	<2.5 U	NA	NA	<2.5 U	NA	NA
o-Xylene (1,2-Dimethylbenzene)	95-47-6	5	ug/l	<2.5 U	NA	NA	<2.5 U	NA	NA	<2.5 U	NA	NA	<2.5 U	NA	NA
Sec-Butylbenzene	135-98-8	5	ug/l	<2.5 U	NA	NA	<2.5 U	NA	NA	<2.5 U	NA	NA	<2.5 U	NA	NA
Styrene	100-42-5	5	ug/l	<2.5 U	NA	NA	<2.5 U	NA	NA	<2.5 U	NA	NA	<2.5 U	NA	NA
T-Butylbenzene	98-06-6	5	ug/l	<2.5 U	NA	NA	<2.5 U	NA	NA	<2.5 U	NA	NA	<2.5 U	NA	NA
Tert-Butyl Methyl Ether (MTBE)	1634-04-4	10	ug/l	<2.5 U	NA	NA	<2.5 U	NA	NA	<2.5 U	NA	NA	<2.5 U	NA	NA
Tetrachloroethene (PCE)	127-18-4	5	ug/l	<0.5 U	NA	NA	<0.5 U	NA	NA	<0.5 U	NA	NA	<0.5 U	NA	NA
Toluene	108-88-3	5	ug/l	<2.5 U	NA	NA	<2.5 U	NA	NA	<2.5 U	NA	NA	<2.5 U	NA	NA
Total 1,2-Dichloroethene (Cis and Trans)	540-59-0	NS	ug/l	<2.5 U	NA	NA	<2.5 U	NA	NA	<2.5 U	NA	NA	<2.5 U	NA	NA
Total Xylenes	1330-20-7	5	ug/l	<2.5 U	NA	NA	<2.5 U	NA	NA	<2.5 U	NA	NA	<2.5 U	NA	NA
Total, 1,3-Dichloropropene (Cis And Trans)	542-75-6	0.4	ug/l	<0.5 U	NA	NA	<0.5 U	NA	NA	<0.5 U	NA	NA	<0.5 U	NA	NA
Trans-1,2-Dichloroethene	156-60-5	5	ug/l	<2.5 U	NA	NA	<2.5 U	NA	NA	<2.5 U	NA	NA	<2.5 U	NA	NA
Trans-1,3-Dichloropropene	10061-02-6	0.4	ug/l	<0.5 U	NA	NA	<0.5 U	NA	NA	<0.5 U	NA	NA	<0.5 U	NA	NA
Trans-1,4-Dichloro-2-Butene	110-57-6	5	ug/l	<2.5 U	NA	NA	<2.5 U	NA	NA	<2.5 U	NA	NA	<2.5 U	NA	NA
Trichloroethene (TCE)	79-01-6	5	ug/l	<0.5 U	NA	NA	<0.5 U	NA	NA	<0.5 U	NA	NA	<0.5 U	NA	NA
Trichlorofluoromethane	75-69-4	5	ug/l	<2.5 U	NA	NA	<2.5 U	NA	NA	<2.5 U	NA	NA	<2.5 U	NA	NA
Vinyl Acetate	108-05-4	NS	ug/l	<5 U	NA	NA	<5 U	NA	NA	<5 U	NA	NA	<5 U	NA	NA
Vinyl Chloride	75-01-4	2	ug/l	<1 U	NA	NA	<1 U	NA	NA	<1 U	NA	NA	<1 U	NA	NA

Table 4
Remedial Investigation Report
Groundwater Sample Analytical Results

C Block
Brooklyn, New York
NYSDEC BCP Site No.: C224435
Langan Project No.: 170229030

Analyte	CAS Number	NYSDEC SGVs	Location	MW10	MW10	MW10	MW11	MW11	MW11	MW12	MW12	MW12	MW13	MW13	MW13
			Sample Name	MW10_080522	MW10_080522_FILTERED	MW10_011226	MW11_080322	MW11_080322_FILTERED	MW11_011326	MW12_080122	MW12_080122_FILTERED	MW12_011226	MW13_080322	MW13_080322_FILTERED	MW13_011326
			Sample Date	08/05/2022	08/05/2022	01/12/2026	08/03/2022	08/03/2022	01/13/2026	08/01/2022	08/01/2022	01/12/2026	08/03/2022	08/03/2022	01/13/2026
			Unit	Result	Result	Result	Result	Result	Result	Result	Result	Result	Result	Result	Result
Semi-Volatile Organic Compounds - Dissolved															
1,2,4,5-Tetrachlorobenzene	95-94-3	5	ug/l	NA	<10 U	NA	NA	<10 U	NA	NA	<10 U	NA	NA	<10 U	NA
1,2,4-Trichlorobenzene	120-82-1	5	ug/l	NA	<5 U	NA	NA	<5 U	NA	NA	<5 U	NA	NA	<5 U	NA
1,2-Dichlorobenzene	95-50-1	3	ug/l	NA	<2 U	NA	NA	<2 U	NA	NA	<2 U	NA	NA	<2 U	NA
1,3-Dichlorobenzene	541-73-1	3	ug/l	NA	<2 U	NA	NA	<2 U	NA	NA	<2 U	NA	NA	<2 U	NA
1,4-Dichlorobenzene	106-46-7	3	ug/l	NA	<2 U	NA	NA	<2 U	NA	NA	<2 U	NA	NA	<2 U	NA
2,4,5-Trichlorophenol	95-95-4	NS	ug/l	NA	<5 U	NA	NA	<5 U	NA	NA	<5 U	NA	NA	<5 U	NA
2,4,6-Trichlorophenol	88-06-2	NS	ug/l	NA	<5 U	NA	NA	<5 U	NA	NA	<5 U	NA	NA	<5 U	NA
2,4-Dichlorophenol	120-83-2	1	ug/l	NA	<5 U	NA	NA	<5 U	NA	NA	<5 U	NA	NA	<5 U	NA
2,4-Dimethylphenol	105-67-9	1	ug/l	NA	<5 UJ	NA	NA	<5 U	NA	NA	<5 U	NA	NA	<5 U	NA
2,4-Dinitrophenol	51-28-5	1	ug/l	NA	<20 U	NA	NA	<20 U	NA	NA	<20 U	NA	NA	<20 U	NA
2,4-Dinitrotoluene	121-14-2	5	ug/l	NA	<5 U	NA	NA	<5 U	NA	NA	<5 U	NA	NA	<5 U	NA
2,6-Dinitrotoluene	606-20-2	5	ug/l	NA	<5 U	NA	NA	<5 U	NA	NA	<5 U	NA	NA	<5 U	NA
2-Chloronaphthalene	91-58-7	10	ug/l	NA	<0.2 U	NA	NA	<0.2 U	NA	NA	<0.2 U	NA	NA	<0.2 U	NA
2-Chlorophenol	95-57-8	NS	ug/l	NA	<2 U	NA	NA	<2 U	NA	NA	<2 U	NA	NA	<2 U	NA
2-Methylnaphthalene	91-57-6	NS	ug/l	NA	<0.1 U	NA	NA	<0.1 U	NA	NA	<0.1 U	NA	NA	<0.1 U	NA
2-Methylphenol (o-Cresol)	95-48-7	NS	ug/l	NA	<5 U	NA	NA	<5 U	NA	NA	<5 U	NA	NA	<5 U	NA
2-Nitroaniline	88-74-4	5	ug/l	NA	<5 U	NA	NA	<5 U	NA	NA	<5 U	NA	NA	<5 U	NA
2-Nitrophenol	88-75-5	NS	ug/l	NA	<10 U	NA	NA	<10 U	NA	NA	<10 U	NA	NA	<10 U	NA
3 & 4 Methylphenol (m&p Cresol)	65794-96-9	NS	ug/l	NA	<5 U	NA	NA	<5 U	NA	NA	<5 U	NA	NA	<5 U	NA
3,3'-Dichlorobenzidine	91-94-1	5	ug/l	NA	<5 U	NA	NA	<5 UJ	NA	NA	<5 U	NA	NA	<5 UJ	NA
3-Nitroaniline	99-09-2	5	ug/l	NA	<5 U	NA	NA	<5 U	NA	NA	<5 U	NA	NA	<5 U	NA
4,6-Dinitro-2-Methylphenol	534-52-1	NS	ug/l	NA	<10 U	NA	NA	<10 U	NA	NA	<10 U	NA	NA	<10 U	NA
4-Bromophenyl Phenyl Ether	101-55-3	NS	ug/l	NA	<2 U	NA	NA	<2 U	NA	NA	<2 U	NA	NA	<2 U	NA
4-Chloro-3-Methylphenol	59-50-7	NS	ug/l	NA	<2 U	NA	NA	<2 U	NA	NA	<2 U	NA	NA	<2 U	NA
4-Chloroaniline	106-47-8	5	ug/l	NA	<5 UJ	NA	NA	<5 U	NA	NA	<5 U	NA	NA	<5 U	NA
4-Chlorophenyl Phenyl Ether	7005-72-3	NS	ug/l	NA	<2 U	NA	NA	<2 U	NA	NA	<2 U	NA	NA	<2 U	NA
4-Nitroaniline	100-01-6	5	ug/l	NA	<5 U	NA	NA	<5 UJ	NA	NA	<5 U	NA	NA	<5 UJ	NA
4-Nitrophenol	100-02-7	NS	ug/l	NA	<10 U	NA	NA	<10 U	NA	NA	<10 U	NA	NA	<10 U	NA
Acenaphthene	83-32-9	20	ug/l	NA	<0.1 U	NA	NA	<0.1 U	NA	NA	<0.1 U	NA	NA	<0.1 U	NA
Acenaphthylene	208-96-8	NS	ug/l	NA	<0.1 U	NA	NA	<0.1 U	NA	NA	<0.1 U	NA	NA	<0.1 U	NA
Acetophenone	98-86-2	NS	ug/l	NA	<5 U	NA	NA	<5 U	NA	NA	<5 U	NA	NA	<5 U	NA
Anthracene	120-12-7	50	ug/l	NA	<0.1 UJ	NA	NA	<0.1 U	NA	NA	<0.1 U	NA	NA	<0.1 U	NA
Benzo(a)anthracene	56-55-3	0.002	ug/l	NA	<0.1 U	NA	NA	<0.1 U	NA	NA	<0.1 U	NA	NA	<0.1 U	NA
Benzo(a)pyrene	50-32-8	0	ug/l	NA	<0.1 UJ	NA	NA	<0.1 U	NA	NA	<0.1 U	NA	NA	<0.1 U	NA
Benzo(b)fluoranthene	205-99-2	**0.002**	ug/l	NA	<0.1 U	NA	NA	<0.1 U	NA	NA	<0.1 U	NA	NA	<0.1 U	NA
Benzo(g,h,i)Perylene	191-24-2	NS	ug/l	NA	<0.1 UJ	NA	NA	<0.1 U	NA	NA	<0.1 U	NA	NA	<0.1 U	NA
Benzo(k)fluoranthene	207-08-9	**0.002**	ug/l	NA	**0.01 J**	NA	NA	<0.1 U	NA	NA	<0.1 U	NA	NA	<0.1 U	NA
Benzoic Acid	65-85-0	NS	ug/l	NA	<50 UJ	NA	NA	<50 U	NA	NA	10 J	NA	NA	<50 U	NA
Benzyl Alcohol	100-51-6	NS	ug/l	NA	<2 U	NA	NA	<2 U	NA	NA	<2 U	NA	NA	<2 U	NA
Benzyl Butyl Phthalate	85-68-7	50	ug/l	NA	<5 U	NA	NA	<5 U	NA	NA	<5 U	NA	NA	<5 U	NA
Biphenyl (Diphenyl)	92-52-4	5	ug/l	NA	<2 U	NA	NA	<2 U	NA	NA	<2 U	NA	NA	<2 U	NA
Bis(2-chloroethoxy) methane	111-91-1	5	ug/l	NA	<5 U	NA	NA	<5 U	NA	NA	<5 U	NA	NA	<5 U	NA
Bis(2-chloroethyl) ether (2-chloroethyl ether)	111-44-4	1	ug/l	NA	<2 U	NA	NA	<2 U	NA	NA	<2 U	NA	NA	<2 U	NA
Bis(2-chloroisopropyl) ether	108-60-1	5	ug/l	NA	<2 U	NA	NA	<2 UJ	NA	NA	<2 U	NA	NA	<2 UJ	NA
Bis(2-ethylhexyl) phthalate	117-81-7	5	ug/l	NA	<3 U	NA	NA	<3 UJ	NA	NA	<3 U	NA	NA	<3 UJ	NA
Carbazole	86-74-8	NS	ug/l	NA	<2 U	NA	NA	<2 UJ	NA	NA	<2 U	NA	NA	<2 UJ	NA
Chrysene	218-01-9	**0.002**	ug/l	NA	<0.1 UJ	NA	NA	<0.1 U	NA	NA	<0.1 U	NA	NA	<0.1 U	NA
Dibenz(a,h)anthracene	53-70-3	NS	ug/l	NA	<0.1 UJ	NA	NA	<0.1 U	NA	NA	<0.1 U	NA	NA	<0.1 U	NA
Dibenzofuran	132-64-9	NS	ug/l	NA	<2 U	NA	NA	<2 U	NA	NA	<2 U	NA	NA	<2 U	NA
Dibutyl phthalate	84-74-2	50	ug/l	NA	<5 U	NA	NA	<5 UJ	NA	NA	<5 U	NA	NA	<5 UJ	NA
Diethyl phthalate	84-66-2	50	ug/l	NA	<5 U	NA	NA	<5 U	NA	NA	<5 U	NA	NA	<5 U	NA
Dimethyl phthalate	131-11-3	50	ug/l	NA	<5 U	NA	NA	<5 U	NA	NA	<5 U	NA	NA	<5 U	NA
Dioctyl phthalate	117-84-0	50	ug/l	NA	<5 U	NA	NA	<5 U	NA	NA	<5 U	NA	NA	<5 U	NA
Fluoranthene	206-44-0	50	ug/l	NA	<0.1 UJ	NA	NA	<0.1 U	NA	NA	<0.1 U	NA	NA	<0.1 U	NA
Fluorene	86-73-7	50	ug/l	NA	<0.1 U	NA	NA	<0.1 U	NA	NA	<0.1 U	NA	NA	<0.1 U	NA
Hexachlorobenzene	118-74-1	0.04	ug/l	NA	<0.8 UJ	NA	NA	<0.8 U	NA	NA	<0.8 U	NA	NA	<0.8 U	NA
Hexachlorobutadiene	87-68-3	0.5	ug/l	NA	<0.5 U	NA	NA	<0.5 U	NA	NA	<0.5 U	NA	NA	<0.5 U	NA
Hexachlorocyclopentadiene	77-47-4	5	ug/l	NA	<20 U	NA	NA	<20 U	NA	NA	<20 U	NA	NA	<20 U	NA
Hexachloroethane	67-72-1	5	ug/l	NA	<0.8 U	NA	NA	<0.8 U	NA	NA	<0.8 U	NA	NA	<0.8 U	NA
Indeno(1,2,3-cd)pyrene	193-39-5	**0.002**	ug/l	NA	**0.01 J**	NA	NA	<0.1 U	NA	NA	<0.1 U	NA	NA	<0.1 U	NA
Isophorone	78-59-1	50	ug/l	NA	<5 U	NA	NA	<5 U	NA	NA	<5 U	NA	NA	<5 U	NA
Naphthalene	91-20-3	10	ug/l	NA	<0.1 U	NA	NA	<0.1 U	NA	NA	0.05 J	NA	NA	<0.1 U	NA
Nitrobenzene	98-95-3	0.4	ug/l	NA	<2 U	NA	NA	<2 U	NA	NA	<2 U	NA	NA	<2 U	NA
n-Nitrosodi-N-Propylamine	621-64-7	NS	ug/l	NA	<5 U	NA	NA	<5 U	NA	NA	<5 U	NA	NA	<5 U	NA
n-Nitrosodiphenylamine	86-30-6	50	ug/l	NA	<2 U	NA	NA	<2 U	NA	NA	<2 U	NA	NA	<2 U	NA
Pentachlorophenol	87-86-5	1	ug/l	NA	<0.8 UJ	NA	NA	<0.8 UJ	NA	NA	<0.8 UJ	NA	NA	<0.8 UJ	NA
Phenanthrene	85-01-8	50	ug/l	NA	<0.1 U	NA	NA	<0.1 U	NA	NA	0.03 J	NA	NA	<0.1 U	NA
Phenol	108-95-2	**1**	ug/l	NA	**6.2**	NA	NA	**6.9**	NA	NA	**8**	NA	NA	**11**	NA
Pyrene	129-00-0	50	ug/l	NA	<0.1 UJ	NA	NA	<0.1 U	NA	NA	<0.1 U	NA	NA	<0.1 U	NA

Table 4
Remedial Investigation Report
Groundwater Sample Analytical Results

C Block
Brooklyn, New York
NYSDEC BCP Site No.: C224435
Langan Project No.: 170229030

Analyte	CAS Number	NYSDEC SGVs	Location	MW10	MW10	MW10	MW11	MW11	MW11	MW12	MW12	MW12	MW13	MW13	MW13
			Sample Name	MW10_080522	MW10_080522_FILTERED	MW10_011226	MW11_080322	MW11_080322_FILTERED	MW11_011326	MW12_080122	MW12_080122_FILTERED	MW12_011226	MW13_080322	MW13_080322_FILTERED	MW13_011326
			Sample Date	08/05/2022	08/05/2022	01/12/2026	08/03/2022	08/03/2022	01/13/2026	08/01/2022	08/01/2022	01/12/2026	08/03/2022	08/03/2022	01/13/2026
			Unit	Result	Result	Result	Result	Result	Result	Result	Result	Result	Result	Result	Result
Semi-Volatile Organic Compounds - Total															
1,2,4,5-Tetrachlorobenzene	95-94-3	5	ug/l	<10 U	NA	NA	<10 U	NA	NA	<10 U	NA	NA	<10 U	NA	NA
1,2,4-Trichlorobenzene	120-82-1	5	ug/l	<5 U	NA	NA	<5 U	NA	NA	<5 U	NA	NA	<5 U	NA	NA
1,2-Dichlorobenzene	95-50-1	3	ug/l	<2 U	NA	NA	<2 U	NA	NA	<2 U	NA	NA	<2 U	NA	NA
1,3-Dichlorobenzene	541-73-1	3	ug/l	<2 U	NA	NA	<2 U	NA	NA	<2 U	NA	NA	<2 U	NA	NA
1,4-Dichlorobenzene	106-46-7	3	ug/l	<2 U	NA	NA	<2 U	NA	NA	<2 U	NA	NA	<2 U	NA	NA
1,4-Dioxane (P-Dioxane)	123-91-1	0.35	ug/l	<0.144 U	NA	NA	<0.142 U	NA	NA	<0.15 U	NA	NA	<0.153 U	NA	NA
2,4,5-Trichlorophenol	95-95-4	NS	ug/l	<5 U	NA	NA	<5 U	NA	NA	<5 U	NA	NA	<5 U	NA	NA
2,4,6-Trichlorophenol	88-06-2	NS	ug/l	<5 U	NA	NA	<5 U	NA	NA	<5 U	NA	NA	<5 U	NA	NA
2,4-Dichlorophenol	120-83-2	1	ug/l	<5 U	NA	NA	<5 U	NA	NA	<5 U	NA	NA	<5 U	NA	NA
2,4-Dimethylphenol	105-67-9	1	ug/l	<5 UJ	NA	NA	<5 U	NA	NA	<5 U	NA	NA	<5 U	NA	NA
2,4-Dinitrophenol	51-28-5	1	ug/l	<20 U	NA	NA	<20 U	NA	NA	<20 U	NA	NA	<20 U	NA	NA
2,4-Dinitrotoluene	121-14-2	5	ug/l	<5 U	NA	NA	<5 U	NA	NA	<5 U	NA	NA	<5 U	NA	NA
2,6-Dinitrotoluene	606-20-2	5	ug/l	<5 U	NA	NA	<5 U	NA	NA	<5 U	NA	NA	<5 U	NA	NA
2-Chloronaphthalene	91-58-7	10	ug/l	<0.2 U	NA	NA	<0.2 U	NA	NA	<0.2 U	NA	NA	<0.2 U	NA	NA
2-Chlorophenol	95-57-8	NS	ug/l	<2 U	NA	NA	<2 U	NA	NA	<2 U	NA	NA	<2 U	NA	NA
2-Methylnaphthalene	91-57-6	NS	ug/l	<0.1 U	NA	NA	<0.1 U	NA	NA	0.02 J	NA	NA	<0.1 U	NA	NA
2-Methylphenol (o-Cresol)	95-48-7	NS	ug/l	<5 U	NA	NA	<5 U	NA	NA	<5 U	NA	NA	<5 U	NA	NA
2-Nitroaniline	88-74-4	5	ug/l	<5 U	NA	NA	<5 U	NA	NA	<5 U	NA	NA	<5 U	NA	NA
2-Nitrophenol	88-75-5	NS	ug/l	<10 U	NA	NA	<10 U	NA	NA	<10 U	NA	NA	<10 U	NA	NA
3 & 4 Methylphenol (m&p Cresol)	65794-96-9	NS	ug/l	<5 U	NA	NA	<5 U	NA	NA	<5 U	NA	NA	<5 U	NA	NA
3,3'-Dichlorobenzidine	91-94-1	5	ug/l	<5 U	NA	NA	<5 UJ	NA	NA	<5 U	NA	NA	<5 UJ	NA	NA
3-Nitroaniline	99-09-2	5	ug/l	<5 U	NA	NA	<5 U	NA	NA	<5 U	NA	NA	<5 U	NA	NA
4,6-Dinitro-2-Methylphenol	534-52-1	NS	ug/l	<10 U	NA	NA	<10 U	NA	NA	<10 U	NA	NA	<10 U	NA	NA
4-Bromophenyl Phenyl Ether	101-55-3	NS	ug/l	<2 U	NA	NA	<2 U	NA	NA	<2 U	NA	NA	<2 U	NA	NA
4-Chloro-3-Methylphenol	59-50-7	NS	ug/l	<2 U	NA	NA	<2 U	NA	NA	<2 U	NA	NA	<2 U	NA	NA
4-Chloroaniline	106-47-8	5	ug/l	<5 UJ	NA	NA	<5 U	NA	NA	<5 U	NA	NA	<5 U	NA	NA
4-Chlorophenyl Phenyl Ether	7005-72-3	NS	ug/l	<2 U	NA	NA	<2 U	NA	NA	<2 U	NA	NA	<2 U	NA	NA
4-Nitroaniline	100-01-6	5	ug/l	<5 U	NA	NA	<5 UJ	NA	NA	<5 U	NA	NA	<5 UJ	NA	NA
4-Nitrophenol	100-02-7	NS	ug/l	<10 U	NA	NA	<10 U	NA	NA	<10 U	NA	NA	<10 U	NA	NA
Acenaphthene	83-32-9	20	ug/l	0.02 J	NA	NA	<0.1 U	NA	NA	0.03 J	NA	NA	<0.1 U	NA	NA
Acenaphthylene	208-96-8	NS	ug/l	<0.1 U	NA	NA	<0.1 U	NA	NA	<0.1 U	NA	NA	<0.1 U	NA	NA
Acetophenone	98-86-2	NS	ug/l	<5 U	NA	NA	<5 U	NA	NA	<5 U	NA	NA	<5 U	NA	NA
Anthracene	120-12-7	50	ug/l	0.03 J	NA	NA	<0.1 U	NA	NA	0.02 J	NA	NA	<0.1 U	NA	NA
Benzo(a)anthracene	56-55-3	**0.002**	ug/l	<0.1 U	NA	NA	<0.1 U	NA	NA	**0.03 J**	NA	NA	<0.1 U	NA	NA
Benzo(a)pyrene	50-32-8	**0**	ug/l	**0.09 J**	NA	NA	<0.1 U	NA	NA	<0.1 U	NA	NA	<0.1 U	NA	NA
Benzo(b)fluoranthene	205-99-2	**0.002**	ug/l	<0.11 U	NA	NA	<0.1 U	NA	NA	<0.1 U	NA	NA	<0.1 U	NA	NA
Benzo(g,h,i)Perylene	191-24-2	NS	ug/l	0.07 J	NA	NA	<0.1 U	NA	NA	<0.1 U	NA	NA	<0.1 U	NA	NA
Benzo(k)fluoranthene	207-08-9	**0.002**	ug/l	**0.04 J**	NA	NA	<0.1 U	NA	NA	<0.1 U	NA	NA	<0.1 U	NA	NA
Benzoic Acid	65-85-0	NS	ug/l	<50 UJ	NA	NA	<50 U	NA	NA	<50 UJ	NA	NA	<50 U	NA	NA
Benzyl Alcohol	100-51-6	NS	ug/l	<2 U	NA	NA	<2 U	NA	NA	<2 U	NA	NA	<2 U	NA	NA
Benzyl Butyl Phthalate	85-68-7	50	ug/l	<5 U	NA	NA	<5 U	NA	NA	<5 U	NA	NA	<5 U	NA	NA
Biphenyl (Diphenyl)	92-52-4	5	ug/l	<2 U	NA	NA	<2 U	NA	NA	<2 U	NA	NA	<2 U	NA	NA
Bis(2-chloroethoxy) methane	111-91-1	5	ug/l	<5 U	NA	NA	<5 U	NA	NA	<5 U	NA	NA	<5 U	NA	NA
Bis(2-chloroethyl) ether (2-chloroethyl ether)	111-44-4	1	ug/l	<2 U	NA	NA	<2 U	NA	NA	<2 U	NA	NA	<2 U	NA	NA
Bis(2-chloroisopropyl) ether	108-60-1	5	ug/l	<2 U	NA	NA	<2 UJ	NA	NA	<2 U	NA	NA	<2 UJ	NA	NA
Bis(2-ethylhexyl) phthalate	117-81-7	5	ug/l	<3 U	NA	NA	<3 UJ	NA	NA	<3 U	NA	NA	<3 UJ	NA	NA
Carbazole	86-74-8	NS	ug/l	<2 U	NA	NA	<2 UJ	NA	NA	<2 U	NA	NA	<2 UJ	NA	NA
Chrysene	218-01-9	**0.002**	ug/l	**0.09 J**	NA	NA	<0.1 U	NA	NA	<0.1 U	NA	NA	<0.1 U	NA	NA
Dibenz(a,h)anthracene	53-70-3	NS	ug/l	0.01 J	NA	NA	<0.1 U	NA	NA	<0.1 U	NA	NA	<0.1 U	NA	NA
Dibenzofuran	132-64-9	NS	ug/l	<2 U	NA	NA	<2 U	NA	NA	<2 U	NA	NA	<2 U	NA	NA
Dibutyl phthalate	84-74-2	50	ug/l	<5 U	NA	NA	<5 UJ	NA	NA	<5 U	NA	NA	<5 UJ	NA	NA
Diethyl phthalate	84-66-2	50	ug/l	<5 U	NA	NA	<5 U	NA	NA	<5 U	NA	NA	<5 U	NA	NA
Dimethyl phthalate	131-11-3	50	ug/l	<5 U	NA	NA	<5 U	NA	NA	<5 U	NA	NA	<5 U	NA	NA
Dioctyl phthalate	117-84-0	50	ug/l	<5 U	NA	NA	<5 U	NA	NA	<5 U	NA	NA	<5 U	NA	NA
Fluoranthene	206-44-0	50	ug/l	0.16 J	NA	NA	<0.1 U	NA	NA	0.03 J	NA	NA	<0.1 U	NA	NA
Fluorene	86-73-7	50	ug/l	0.02 J	NA	NA	<0.1 U	NA	NA	0.03 J	NA	NA	<0.1 U	NA	NA
Hexachlorobenzene	118-74-1	0.04	ug/l	<0.8 UJ	NA	NA	<0.8 U	NA	NA	<0.8 U	NA	NA	<0.8 U	NA	NA
Hexachlorobutadiene	87-68-3	0.5	ug/l	<0.5 U	NA	NA	<0.5 U	NA	NA	<0.5 U	NA	NA	<0.5 U	NA	NA
Hexachlorocyclopentadiene	77-47-4	5	ug/l	<20 U	NA	NA	<20 U	NA	NA	<20 U	NA	NA	<20 U	NA	NA
Hexachloroethane	67-72-1	5	ug/l	<0.8 U	NA	NA	<0.8 U	NA	NA	<0.8 U	NA	NA	<0.8 U	NA	NA
Indeno(1,2,3-cd)pyrene	193-39-5	**0.002**	ug/l	**0.07 J**	NA	NA	<0.1 U	NA	NA	<0.1 U	NA	NA	<0.1 U	NA	NA
Isophorone	78-59-1	50	ug/l	<5 U	NA	NA	<5 U	NA	NA	<5 U	NA	NA	<5 U	NA	NA
Naphthalene	91-20-3	10	ug/l	<0.1 U	NA	NA	0.06 J	NA	NA	<0.1 U	NA	NA	<0.1 U	NA	NA
Nitrobenzene	98-95-3	0.4	ug/l	<2 U	NA	NA	<2 U	NA	NA	<2 U	NA	NA	<2 U	NA	NA
n-Nitrosodi-N-Propylamine	621-64-7	NS	ug/l	<5 U	NA	NA	<5 U	NA	NA	<5 U	NA	NA	<5 U	NA	NA
n-Nitrosodiphenylamine	86-30-6	50	ug/l	<2 U	NA	NA	<2 U	NA	NA	<2 U	NA	NA	<2 U	NA	NA
Pentachlorophenol	87-86-5	1	ug/l	<0.8 UJ	NA	NA	<0.8 UJ	NA	NA	<0.8 UJ	NA	NA	<0.8 UJ	NA	NA
Phenanthrene	85-01-8	50	ug/l	<0.1 U	NA	NA	<0.1 U	NA	NA	0.09 J	NA	NA	<0.1 U	NA	NA
Phenol	108-95-2	1	ug/l	<5 U	NA	NA	<5 U	NA	NA	<5 U	NA	NA	<5 U	NA	NA
Pyrene	129-00-0	50	ug/l	0.15 J	NA	NA	<0.1 U	NA	NA	0.03 J	NA	NA	<0.1 U	NA	NA

Table 4
Remedial Investigation Report
Groundwater Sample Analytical Results

C Block
Brooklyn, New York
NYSDEC BCP Site No.: C224435
Langan Project No.: 170229030

Analyte	CAS Number	NYSDEC SGVs	Location	MW10	MW10	MW10	MW11	MW11	MW11	MW12	MW12	MW12	MW13	MW13	MW13
			Sample Name	MW10_080522	MW10_080522_FILTERED	MW10_011226	MW11_080322	MW11_080322_FILTERED	MW11_011326	MW12_080122	MW12_080122_FILTERED	MW12_011226	MW13_080322	MW13_080322_FILTERED	MW13_011326
			Sample Date	08/05/2022	08/05/2022	01/12/2026	08/03/2022	08/03/2022	01/13/2026	08/01/2022	08/01/2022	01/12/2026	08/03/2022	08/03/2022	01/13/2026
			Unit	Result	Result	Result	Result	Result	Result	Result	Result	Result	Result	Result	Result
Pesticides															
4,4'-DDD	72-54-8	0.3	ug/l	<0.029 U	NA	NA	<0.029 U	NA	NA	<0.029 U	NA	NA	<0.029 U	NA	NA
4,4'-DDE	72-55-9	0.2	ug/l	<0.029 U	NA	NA	<0.029 U	NA	NA	<0.029 U	NA	NA	<0.029 U	NA	NA
4,4'-DDT	50-29-3	0.2	ug/l	<0.029 U	NA	NA	<0.029 U	NA	NA	<0.029 U	NA	NA	<0.029 U	NA	NA
Aldrin	309-00-2	0	ug/l	<0.014 U	NA	NA	<0.014 U	NA	NA	<0.014 U	NA	NA	<0.014 U	NA	NA
Alpha BHC (Alpha Hexachlorocyclohexane)	319-84-6	0.01	ug/l	<0.014 U	NA	NA	<0.014 U	NA	NA	<0.014 U	NA	NA	<0.014 U	NA	NA
Alpha Chlordane	5103-71-9	NS	ug/l	<0.014 U	NA	NA	<0.014 U	NA	NA	<0.014 U	NA	NA	<0.014 U	NA	NA
Alpha Endosulfan	959-98-8	NS	ug/l	<0.014 U	NA	NA	<0.014 U	NA	NA	<0.014 U	NA	NA	<0.014 U	NA	NA
Beta Bhc (Beta Hexachlorocyclohexane)	319-85-7	0.04	ug/l	<0.014 U	NA	NA	<0.014 U	NA	NA	<0.014 U	NA	NA	<0.014 U	NA	NA
Beta Endosulfan	33213-65-9	NS	ug/l	<0.029 U	NA	NA	<0.029 U	NA	NA	<0.029 U	NA	NA	<0.029 U	NA	NA
Chlordane (alpha and gamma)	57-74-9	0.05	ug/l	<0.143 U	NA	NA	<0.143 U	NA	NA	<0.143 U	NA	NA	<0.143 U	NA	NA
Delta Bhc (Delta Hexachlorocyclohexane)	319-86-8	0.04	ug/l	<0.014 U	NA	NA	<0.014 U	NA	NA	<0.014 U	NA	NA	<0.014 U	NA	NA
Dieldrin	60-57-1	0.004	ug/l	<0.029 U	NA	NA	<0.029 U	NA	NA	<0.029 U	NA	NA	<0.029 U	NA	NA
Endosulfan Sulfate	1031-07-8	NS	ug/l	<0.029 U	NA	NA	<0.029 U	NA	NA	<0.029 U	NA	NA	<0.029 U	NA	NA
Endrin	72-20-8	0	ug/l	<0.029 U	NA	NA	<0.029 U	NA	NA	<0.029 U	NA	NA	<0.029 U	NA	NA
Endrin Aldehyde	7421-93-4	5	ug/l	<0.029 U	NA	NA	<0.029 U	NA	NA	<0.029 U	NA	NA	<0.029 U	NA	NA
Endrin Ketone	53494-70-5	5	ug/l	<0.029 U	NA	NA	<0.029 U	NA	NA	<0.029 U	NA	NA	<0.029 U	NA	NA
Gamma Bhc (Lindane)	58-89-9	0.05	ug/l	<0.014 U	NA	NA	<0.014 U	NA	NA	<0.014 U	NA	NA	<0.014 U	NA	NA
Gamma Chlordane (Trans)	5103-74-2	NS	ug/l	<0.014 U	NA	NA	<0.014 U	NA	NA	<0.014 U	NA	NA	<0.014 U	NA	NA
Heptachlor	76-44-8	0.04	ug/l	<0.014 U	NA	NA	<0.014 U	NA	NA	<0.014 U	NA	NA	<0.014 U	NA	NA
Heptachlor Epoxide	1024-57-3	0.03	ug/l	<0.014 U	NA	NA	<0.014 U	NA	NA	<0.014 U	NA	NA	<0.014 U	NA	NA
Methoxychlor	72-43-5	35	ug/l	<0.143 U	NA	NA	<0.143 U	NA	NA	<0.143 U	NA	NA	<0.143 U	NA	NA
Toxaphene	8001-35-2	0.06	ug/l	<0.143 U	NA	NA	<0.143 U	NA	NA	<0.143 U	NA	NA	<0.143 U	NA	NA
Herbicides															
2,4,5-T (Trichlorophenoxyacetic Acid)	93-76-5	35	ug/l	<2 U	NA	NA	<2 U	NA	NA	<2 U	NA	NA	<2 U	NA	NA
2,4-D (Dichlorophenoxyacetic Acid)	94-75-7	50	ug/l	<10 U	NA	NA	<10 U	NA	NA	<10 U	NA	NA	<10 U	NA	NA
Silvex (2,4,5-Tp)	93-72-1	0.26	ug/l	<2 U	NA	NA	<2 U	NA	NA	<2 U	NA	NA	<2 U	NA	NA
Polychlorinated Biphenyl															
PCB-1016 (Aroclor 1016)	12674-11-2	NS	ug/l	<0.071 U	NA	NA	<0.071 U	NA	NA	<0.071 U	NA	NA	<0.071 U	NA	NA
PCB-1221 (Aroclor 1221)	11104-28-2	NS	ug/l	<0.071 U	NA	NA	<0.071 U	NA	NA	<0.071 U	NA	NA	<0.071 U	NA	NA
PCB-1232 (Aroclor 1232)	11141-16-5	NS	ug/l	<0.071 U	NA	NA	<0.071 U	NA	NA	<0.071 U	NA	NA	<0.071 U	NA	NA
PCB-1242 (Aroclor 1242)	53469-21-9	NS	ug/l	<0.071 U	NA	NA	<0.071 U	NA	NA	<0.071 U	NA	NA	<0.071 U	NA	NA
PCB-1248 (Aroclor 1248)	12672-29-6	NS	ug/l	<0.071 U	NA	NA	<0.071 U	NA	NA	<0.071 U	NA	NA	<0.071 U	NA	NA
PCB-1254 (Aroclor 1254)	11097-69-1	NS	ug/l	<0.071 U	NA	NA	<0.071 U	NA	NA	<0.071 U	NA	NA	<0.071 U	NA	NA
PCB-1260 (Aroclor 1260)	11096-82-5	NS	ug/l	<0.071 U	NA	NA	<0.071 U	NA	NA	<0.071 U	NA	NA	<0.071 U	NA	NA
PCB-1262 (Aroclor 1262)	37324-23-5	NS	ug/l	<0.071 U	NA	NA	<0.071 U	NA	NA	<0.071 U	NA	NA	<0.071 U	NA	NA
PCB-1268 (Aroclor 1268)	11100-14-4	NS	ug/l	<0.071 U	NA	NA	<0.071 U	NA	NA	<0.071 U	NA	NA	<0.071 U	NA	NA
Total PCBs	1336-36-3	0.09	ug/l	<0.071 U	NA	NA	<0.071 U	NA	NA	<0.071 U	NA	NA	<0.071 U	NA	NA
Metals - Dissolved															
Aluminum	7429-90-5	NS	ug/l	<10 U	NA	NA	8.52 J	NA	NA	3.96 J	NA	NA	<200 U	NA	NA
Antimony	7440-36-0	3	ug/l	<4 U	NA	NA	0.62 J	NA	NA	<4 U	NA	NA	<80 U	NA	NA
Arsenic	7440-38-2	25	ug/l	0.36 J	NA	NA	0.2 J	NA	NA	6.97	NA	NA	5.19 J	NA	NA
Barium	7440-39-3	1000	ug/l	159.7	NA	NA	69.46	NA	NA	56.65	NA	NA	40.43	NA	NA
Beryllium	7440-41-7	3	ug/l	<0.5 U	NA	NA	<0.5 U	NA	NA	<0.5 U	NA	NA	<10 U	NA	NA
Cadmium	7440-43-9	5	ug/l	<0.2 U	NA	NA	<0.2 U	NA	NA	<0.2 U	NA	NA	<4 U	NA	NA
Calcium	7440-70-2	NS	ug/l	141,000	NA	NA	289,000	NA	NA	115,000	NA	NA	341,000	NA	NA
Chromium, Total	7440-47-3	50	ug/l	<1 U	NA	NA	<1 U	NA	NA	<1 U	NA	NA	<20 U	NA	NA
Cobalt	7440-48-4	NS	ug/l	<0.5 U	NA	NA	0.67	NA	NA	0.32 J	NA	NA	9.33 J	NA	NA
Copper	7440-50-8	200	ug/l	<1 U	NA	NA	0.5 J	NA	NA	<1 U	NA	NA	<20 U	NA	NA
Iron	7439-89-6	**300**	ug/l	**8,870**	NA	NA	**9,890**	NA	NA	55.7 J	NA	NA	<1,000 U	NA	NA
Lead	7439-92-1	25	ug/l	<1 U	NA	NA	0.8 J	NA	NA	<1 U	NA	NA	<20 U	NA	NA
Magnesium	7439-95-4	**35000**	ug/l	21,600	NA	NA	**410,000**	NA	NA	**59,000**	NA	NA	**1,010,000**	NA	NA
Manganese	7439-96-5	**300**	ug/l	**2,242**	NA	NA	298.6	NA	NA	87.42	NA	NA	42.07	NA	NA
Mercury	7439-97-6	0.7	ug/l	<0.2 U	NA	NA	<0.2 U	NA	NA	<0.2 U	NA	NA	<0.2 U	NA	NA
Nickel	7440-02-0	100	ug/l	<2 U	NA	NA	1.03 J	NA	NA	0.93 J	NA	NA	20.7 J	NA	NA
Potassium	7440-09-7	NS	ug/l	22,900	NA	NA	142,000	NA	NA	22,900	NA	NA	329,000	NA	NA
Selenium	7782-49-2	10	ug/l	<5 U	NA	NA	<5 U	NA	NA	<5 U	NA	NA	<100 U	NA	NA
Silver	7440-22-4	50	ug/l	<0.4 U	NA	NA	<0.4 U	NA	NA	<0.4 U	NA	NA	<8 U	NA	NA
Sodium	7440-23-5	**20000**	ug/l	**132,000**	NA	NA	**3,570,000**	NA	NA	**133,000**	NA	NA	**8,260,000**	NA	NA
Thallium	7440-28-0	**0.5**	ug/l	<1 U	NA	NA	<1 U	NA	NA	<1 U	NA	NA	**3.2 J**	NA	NA
Vanadium	7440-62-2	NS	ug/l	<5 U	NA	NA	<5 U	NA	NA	<5 U	NA	NA	<100 U	NA	NA
Zinc	7440-66-6	2000	ug/l	<10 U	NA	NA	14.69	NA	NA	<10 U	NA	NA	<200 U	NA	NA

Table 4
Remedial Investigation Report
Groundwater Sample Analytical Results

C Block
Brooklyn, New York
NYSDEC BCP Site No.: C224435
Langan Project No.: 170229030

Analyte	CAS Number	NYSDEC SGVs	Location	MW10	MW10	MW10	MW11	MW11	MW11	MW12	MW12	MW12	MW13	MW13	MW13	MW13
			Sample Name	MW10_080522	MW10_080522_FILTERED	MW10_011226	MW11_080322	MW11_080322_FILTERED	MW11_011326	MW12_080122	MW12_080122_FILTERED	MW12_011226	MW13_080322	MW13_080322_FILTERED	MW13_011326	
			Sample Date	08/05/2022	08/05/2022	01/12/2026	08/03/2022	08/03/2022	01/13/2026	08/01/2022	08/01/2022	01/12/2026	08/03/2022	08/03/2022	01/13/2026	
			Unit	Result	Result	Result	Result	Result	Result	Result	Result	Result	Result	Result	Result	
Metals - Total																
Aluminum	7429-90-5	NS	ug/l	309	NA	NA	103	NA	NA	11.5	NA	NA	213	NA	NA	
Antimony	7440-36-0	3	ug/l	<4 U	NA	NA	<4 U	NA	NA	<4 U	NA	NA	<40 U	NA	NA	
Arsenic	7440-38-2	25	ug/l	0.84	NA	NA	1.37	NA	NA	8.9	NA	NA	2.94 J	NA	NA	
Barium	7440-39-3	1000	ug/l	172.9	NA	NA	73.08	NA	NA	66.3	NA	NA	43.05	NA	NA	
Beryllium	7440-41-7	3	ug/l	<0.5 U	NA	NA	<0.5 U	NA	NA	<0.5 U	NA	NA	<5 U	NA	NA	
Cadmium	7440-43-9	5	ug/l	<0.2 U	NA	NA	<0.2 U	NA	NA	<0.2 U	NA	NA	0.75 J	NA	NA	
Calcium	7440-70-2	NS	ug/l	142,000	NA	NA	151,000	NA	NA	109,000	NA	NA	274,000	NA	NA	
Chromium, Hexavalent	18540-29-9	50	ug/l	<10 U	NA	NA	<10 U	NA	NA	<10 U	NA	NA	<10 U	NA	NA	
Chromium, Total	7440-47-3	NS	ug/l	0.84 J	NA	NA	0.35 J	NA	NA	<1 U	NA	NA	<10 U	NA	NA	
Chromium, Trivalent	16065-83-1	NS	ug/l	<10 U	NA	NA	<10 U	NA	NA	<10 U	NA	NA	<10 U	NA	NA	
Cobalt	7440-48-4	NS	ug/l	0.47 J	NA	NA	0.95	NA	NA	0.44 J	NA	NA	9.96	NA	NA	
Copper	7440-50-8	200	ug/l	12.65	NA	NA	1.11 J	NA	NA	<1 U	NA	NA	7.59 J	NA	NA	
Cyanide	57-12-5	200	ug/l	117	NA	NA	<5 U	NA	NA	<5 U	NA	NA	<5 U	NA	NA	
Iron	7439-89-6	**300**	ug/l	**10,100**	NA	NA	**10,100**	NA	NA	**1,320**	NA	NA	**1,040**	NA	NA	
Lead	7439-92-1	**25**	ug/l	**32.89**	NA	NA	4.98	NA	NA	<1 U	NA	NA	<10 U	NA	NA	
Magnesium	7439-95-4	**35000**	ug/l	21,900	NA	NA	**427,000**	NA	NA	**58,900**	NA	NA	**964,000**	NA	NA	
Manganese	7439-96-5	**300**	ug/l	**2,296**	NA	NA	298	NA	NA	92.75	NA	NA	48.53	NA	NA	
Mercury	7439-97-6	0.7	ug/l	<0.2 U	NA	NA	<0.2 U	NA	NA	<0.2 U	NA	NA	<0.2 U	NA	NA	
Nickel	7440-02-0	100	ug/l	1.13 J	NA	NA	2.34 J	NA	NA	0.77 J	NA	NA	33	NA	NA	
Potassium	7440-09-7	NS	ug/l	23,000	NA	NA	87,100	NA	NA	21,000	NA	NA	275,000	NA	NA	
Selenium	7782-49-2	10	ug/l	<5 U	NA	NA	<5 U	NA	NA	<5 U	NA	NA	<50 U	NA	NA	
Silver	7440-22-4	50	ug/l	<0.4 U	NA	NA	<0.4 U	NA	NA	<0.4 U	NA	NA	<4 U	NA	NA	
Sodium	7440-23-5	**20000**	ug/l	**130,000**	NA	NA	**3,890,000**	NA	NA	**130,000**	NA	NA	**8,020,000**	NA	NA	
Thallium	7440-28-0	0.5	ug/l	<1 U	NA	NA	<1 U	NA	NA	<1 U	NA	NA	<10 U	NA	NA	
Vanadium	7440-62-2	NS	ug/l	<5 U	NA	NA	<5 U	NA	NA	<5 U	NA	NA	<50 U	NA	NA	
Zinc	7440-66-6	2000	ug/l	14.68	NA	NA	17.89	NA	NA	<10 U	NA	NA	58.26 J	NA	NA	
Per- and Polyfluoroalkyl Substances																
11-Chloroeicosafluoro-3-Oxaundecane-1-Sulfonic Acid (11Cl-PF3OUdS)	763051-92-9	NS	ug/l	NA	NA	<0.00883 U	NA	NA	<0.00743 U	NA	NA	<0.00764 U	NA	NA	<0.00758 U	
1H,1H,2H,2H-Perfluorodecane Sulfonic Acid (8:2 FTS)	39108-34-4	NS	ug/l	<0.00188 U	NA	<0.00897 U	<0.00186 U	NA	<0.00754 U	<0.00181 U	NA	<0.00776 U	<0.00181 U	NA	<0.0077 U	
1H,1H,2H,2H-Perfluorohexane Sulfonic Acid (4:2 FTS)	757124-72-4	NS	ug/l	NA	NA	<0.00876 U	NA	NA	<0.00737 U	NA	NA	<0.00758 U	NA	NA	<0.00752 U	
1H,1H,2H,2H-Perfluorooctane Sulfonic Acid (6:2 FTS)	27619-97-2	NS	ug/l	0.00226 J	NA	<0.00888 U	<0.00186 U	NA	<0.00747 U	<0.00181 UJ	NA	<0.00768 U	0.00133 J	NA	<0.00762 U	
2H,2H,3H,3H-Perfluorooctanoic Acid (5:3 FTCA)	914637-49-3	NS	ug/l	NA	NA	<0.0584 U	NA	NA	<0.0491 U	NA	NA	<0.0505 U	NA	NA	<0.0501 U	
3-Perfluoroheptyl Propanoic Acid (7:3 FTCA)	812-70-4	NS	ug/l	NA	NA	<0.0584 U	NA	NA	<0.0491 U	NA	NA	<0.0505 U	NA	NA	<0.0501 U	
3-Perfluoropropyl Propanoic Acid (3:3 FTCA)	356-02-5	NS	ug/l	NA	NA	<0.0117 U	NA	NA	<0.00982 U	NA	NA	<0.0101 U	NA	NA	<0.01 U	
4,8-Dioxa-3H-perfluorononanoic Acid (ADONA)	919005-14-4	NS	ug/l	NA	NA	<0.00883 U	NA	NA	<0.00743 U	NA	NA	<0.00764 U	NA	NA	<0.00758 U	
9-Chlorohexadecafluoro-3-Oxanonane-1-Sulfonic Acid (9Cl-PF3ONS)	756426-58-1	NS	ug/l	NA	NA	<0.00874 U	NA	NA	<0.00735 U	NA	NA	<0.00756 U	NA	NA	<0.00749 U	
Hexafluoropropylene Oxide Dimer Acid (HFPO-DA)	13252-13-6	NS	ug/l	NA	NA	<0.00935 U	NA	NA	<0.00786 U	NA	NA	<0.00808 U	NA	NA	<0.00802 U	
N-ethyl Perfluorooctanesulfonamide (NEtFOSA)	4151-50-2	NS	ug/l	NA	NA	<0.00234 U	NA	NA	<0.00196 U	NA	NA	<0.00202 U	NA	NA	<0.002 U	
N-ethyl Perfluorooctanesulfonamidoacetic Acid (NEtFOSAA)	2991-50-6	NS	ug/l	<0.00188 U	NA	<0.00234 U	<0.00186 U	NA	<0.00196 U	<0.00181 U	NA	<0.00202 U	<0.00181 U	NA	<0.002 U	
N-ethyl Perfluorooctanesulfonamidoethanol (NEtFOSE)	1691-99-2	NS	ug/l	NA	NA	<0.0234 U	NA	NA	<0.0196 U	NA	NA	<0.0202 U	NA	NA	<0.02 U	
N-methyl Perfluorooctanesulfonamide (NMeFOSA)	31506-32-8	NS	ug/l	NA	NA	<0.00234 U	NA	NA	<0.00196 U	NA	NA	<0.00202 U	NA	NA	<0.002 U	
N-methyl Perfluorooctanesulfonamidoacetic Acid (NMeFOSAA)	2355-31-9	NS	ug/l	<0.00188 U	NA	<0.00234 U	<0.00186 U	NA	<0.00196 U	<0.00181 U	NA	<0.00202 U	<0.00181 U	NA	<0.002 U	
N-methyl Perfluorooctanesulfonamidoethanol (NMeFOSE)	24448-09-7	NS	ug/l	NA	NA	<0.0234 U	NA	NA	<0.0196 U	NA	NA	<0.0202 U	NA	NA	<0.02 U	
Nonafluoro-3,6-dioxaheptanoic Acid (NFDHA)	151772-58-6	NS	ug/l	NA	NA	<0.00467 U	NA	NA	<0.00393 U	NA	NA	<0.00404 U	NA	NA	<0.00401 U	
Perfluoro(2-ethoxyethane)sulfonic Acid (PFEESA)	113507-82-7	NS	ug/l	NA	NA	<0.00416 U	NA	NA	<0.0035 U	NA	NA	<0.0036 U	NA	NA	<0.00357 U	
Perfluoro-3-methoxypropanoic Acid (PFMPA)	377-73-1	NS	ug/l	NA	NA	<0.00467 U	NA	NA	<0.00393 U	NA	NA	<0.00404 U	NA	NA	<0.00401 U	
Perfluoro-4-methoxybutanoic Acid (PFMBA)	863090-89-5	NS	ug/l	NA	NA	<0.00467 U	NA	NA	<0.00393 U	NA	NA	<0.00404 U	NA	NA	<0.00401 U	
Perfluorobutanesulfonic Acid (PFBS)	375-73-5	NS	ug/l	0.00484	NA	0.00362	0.00212	NA	0.00336	0.00163 J	NA	0.00236	0.00209	NA	0.000783 J	
Perfluorobutanoic Acid (PFBA)	375-22-4	NS	ug/l	0.0221	NA	0.00882 J	0.00704	NA	<0.00786 U	0.00545	NA	0.00585 J	0.00285	NA	<0.00802 U	
Perfluorodecanesulfonic Acid (PFDS)	335-77-3	NS	ug/l	<0.00188 U	NA	<0.00225 U	<0.00186 U	NA	<0.0019 U	<0.00181 U	NA	<0.00195 U	<0.00181 U	NA	<0.00193 U	
Perfluorodecanoic Acid (PFDA)	335-76-2	NS	ug/l	<0.00188 UJ	NA	<0.00234 U	<0.00186 U	NA	<0.00196 U	<0.00181 U	NA	<0.00202 U	0.000778 J	NA	<0.002 U	
Perfluorododecanesulfonic Acid (PFDoS)	79780-39-5	NS	ug/l	NA	NA	<0.00227 U	NA	NA	<0.00191 U	NA	NA	<0.00196 U	NA	NA	<0.00194 U	
Perfluorododecanoic Acid (PFDoA)	307-55-1	NS	ug/l	<0.00188 UJ	NA	<0.00234 U	<0.00186 U	NA	<0.00196 U	<0.00181 U	NA	<0.00202 U	<0.00181 U	NA	<0.002 U	
Perfluoroheptanesulfonic Acid (PFHpS)	375-92-8	NS	ug/l	<0.00188 U	NA	<0.00223 U	<0.00186 U	NA	<0.00188 U	<0.00181 U	NA	<0.00193 U	<0.00181 U	NA	<0.00191 U	
Perfluoroheptanoic Acid (PFHpA)	375-85-9	NS	ug/l	0.0138	NA	0.00609	0.00224	NA	0.00111 J	0.00136 J	NA	0.000876 J	0.00214	NA	<0.002 U	
Perfluorohexanesulfonic Acid (PFHxS)	355-46-4	NS	ug/l	0.0057	NA	0.00332	0.00159 J	NA	<0.0018 U	0.000457 J	NA	<0.00185 U	0.00102 J	NA	<0.00183 U	
Perfluorohexanoic Acid (PFHxA)	307-24-4	NS	ug/l	0.0342	NA	0.0154	0.00241	NA	0.00122 J	0.00348	NA	0.00265	0.0033	NA	0.00071 J	
Perfluorononanesulfonic Acid (PFNS)	68259-12-1	NS	ug/l	NA	NA	<0.00224 U	NA	NA	<0.00189 U	NA	NA	<0.00194 U	NA	NA	<0.00192 U	
Perfluorononanoic Acid (PFNA)	375-95-1	NS	ug/l	0.00301	NA	0.0013 J	<0.00186 U	NA	<0.00196 U	<0.00181 U	NA	<0.00202 U	0.00153 J	NA	<0.002 U	
Perfluorooctanesulfonamide (PFOSA)	754-91-6	NS	ug/l	<0.00188 U	NA	<0.00234 U	<0.00186 U	NA	<0.00196 U	<0.00181 U	NA	<0.00202 U	<0.00181 U	NA	<0.002 U	
Perfluorooctanesulfonic Acid (PFOS)	1763-23-1	**0.0027**	ug/l	**0.0225**	NA	**0.013**	**0.00434**	NA	0.00269	0.0024	NA	0.00158 J	**0.0056**	NA	0.00163 J	
Perfluorooctanoic Acid (PFOA)	335-67-1	**0.0067**	ug/l	**0.0445**	NA	**0.0198**	**0.011**	NA	**0.00697**	**0.00726**	NA	0.00506	0.00493 J	NA	0.00107 J	
Perfluoropentanesulfonic Acid (PFPeS)	2706-91-4	NS	ug/l	NA	NA	<0.0022 U	NA	NA	<0.00185 U	NA	NA	<0.0019 U	NA	NA	<0.00188 U	
Perfluoropentanoic Acid (PFPeA)	2706-90-3	NS	ug/l	0.0316	NA	0.0148	0.00372	NA	0.00163 J	0.00719	NA	0.00593	0.00361	NA	0.000915 J	
Perfluorotetradecanoic Acid (PFTeDA)	376-06-7	NS	ug/l	<0.00188 U	NA	<0.00234 U	<0.00186 U	NA	<0.00196 U	<0.00181 U	NA	<0.00202 U	<0.00181 U	NA	<0.002 U	
Perfluorotridecanoic Acid (PFTrDA)	72629-94-8	NS	ug/l	<0.00188 U	NA	<0.00234 U	<0.00186 U	NA	<0.00196 U	<0.00181 U	NA	<0.00202 U	<0.00181 U	NA	<0.002 U	
Perfluoroundecanoic Acid (PFUnA)	2058-94-8	NS	ug/l	<0.00188 U	NA	<0.00234 U	<0.00186 U	NA	<0.00196 U	<0.00181 U	NA	<0.00202 U	0.000409 J	NA	<0.002 U	
Total PFOA and PFOS	TOTPFOAPFOS	NS	ug/l	0.067	NA	NA	0.0153	NA	NA	0.00966	NA	NA	0.0105	NA	NA	

Table 4
Remedial Investigation Report
Groundwater Sample Analytical Results

Greenpoint Landing Parcel C
Brooklyn, New York
NYSDEC BCP Site No.: C224435
Langan Project No.: 170229030

Notes:

CAS - Chemical Abstract Service
NS - No standard
ug/l - microgram per liter
NA - Not analyzed
RL - Reporting limit
<RL - Not detected

Groundwater sample analytical results are compared to the New York State Department of Environmental Conservation (NYSDEC) Title 6 Codes, Rules, and Regulations (NYCRR) Part 703.5 and the NYSDEC Technical and Operation Guidance Series (TOGS) 1.1.1 Ambient Water Quality Standards and Guidance Values for Class GA Water and published addenda (herein collectively referenced as "NYSDEC SGVs").

Qualifiers:

J - The analyte was positively identified and the associated numerical value is the approximate concentration of the analyte in the sample.

UJ - The analyte was not detected at a level greater than or equal to the RL; however, the reported RL is approximate and may be inaccurate or imprecise.

U - The analyte was analyzed for, but was not detected at a level greater than or equal to the level of the RL or the sample concentration for results impacted by blank contamination.

Exceedance Summary:

10 - Result exceeds NYSDEC SGVs

Table 5
Remedial Investigation Report
Soil Vapor Sample Analytical Results

C Block
Brooklyn, New York
Langan Project No.: 170229030

Analyte	CAS Number	Location	AA01	SV01	SV02	SV03	SV04	SV05	SV06	SV07	SV08	SV09	SV14	SV15	SV16
		Sample Name	AA01_080222	SV01_072922	SV02_080322	SV03_080222	SV04_072922	SV05_080222	SV06_080322	SV07_072922	SV08_072922	SV09_080222	SV14_080222	SV15_080322	SV16_080322
		Sample Date	08/02/2022	07/29/2022	08/03/2022	08/02/2022	07/29/2022	08/02/2022	08/03/2022	07/29/2022	07/29/2022	08/02/2022	08/02/2022	08/03/2022	08/03/2022
		Sample Type	AA	SV	SV	SV	SV	SV	SV	SV	SV	SV	SV	SV	SV
		Unit	Result	Result	Result	Result	Result	Result	Result	Result	Result	Result	Result	Result	Result
Volatile Organic Compounds															
1,1,1-Trichloroethane	71-55-6	ug/m3	<1.09 U	<1.09 U	<1.09 U	14.9	<1.09 U	2	<0.682 U	1.69	<1.09 U	<1.09 U	4.21	<1.55 U	<3.41 U
1,1,2,2-Tetrachloroethane	79-34-5	ug/m3	<1.37 U	<13.7 U	<1.37 U	<11.5 U	<1.37 U	<1.37 U	<8.58 U	<1.37 U	<1.37 U	<1.37 U	<2.75 U	<1.95 U	<4.29 U
1,1,2-Trichloro-1,2,2-Trifluoroethane	76-13-1	ug/m3	<1.53 U	<15.3 U	<1.53 U	<12.8 U	<1.53 U	<1.53 U	<9.58 U	<1.53 U	<1.53 U	<1.53 U	<3.07 U	<2.18 U	<4.79 U
1,1,2-Trichloroethane	79-00-5	ug/m3	<1.09 U	<10.9 U	<1.09 U	<9.11 U	<1.09 U	<1.09 U	<6.82 U	<1.09 U	<1.09 U	<1.09 U	<2.18 U	<1.55 U	<3.41 U
1,1-Dichloroethane	75-34-3	ug/m3	<0.809 U	<8.09 U	2.02	<6.76 U	<0.809 U	<0.809 U	<5.06 U	1.9	<0.809 U	<0.809 U	<1.62 U	<1.15 U	<2.53 U
1,1-Dichloroethene	75-35-4	ug/m3	<0.793 U	<0.793 U	<0.793 U	1.49	<0.793 U	<0.793 U	<0.496 U	<0.793 U	<0.793 U	<0.793 U	<1.59 U	<1.13 U	<2.48 U
1,2,4-Trichlorobenzene	120-82-1	ug/m3	<1.48 U	<14.8 U	<0.371 U	<12.4 U	<1.48 U	<1.48 U	<2.32 U	<1.48 U	<1.48 U	<1.48 U	<2.97 U	<0.527 U	<1.16 U
1,2,4-Trimethylbenzene	95-63-6	ug/m3	<0.983 U	<9.83 U	<0.983 U	<8.21 U	5.65	5.06	6.78	5.11	3.22	6.74	4.87	3.76	6.69
1,2-Dibromoethane (Ethylene Dibromide)	106-93-4	ug/m3	<1.54 U	<15.4 U	<1.54 U	<12.8 U	<1.54 U	<1.54 U	<9.61 U	<1.54 U	<1.54 U	<1.54 U	<3.07 U	<2.18 U	<4.8 U
1,2-Dichlorobenzene	95-50-1	ug/m3	<1.2 U	<12 U	<1.2 U	<10 U	<1.2 U	<1.2 U	<7.52 U	<1.2 U	<1.2 U	<1.2 U	<2.4 U	<1.71 U	<3.76 U
1,2-Dichloroethane	107-06-2	ug/m3	<0.809 U	<8.09 U	<0.809 U	<6.76 U	<0.809 U	<0.809 U	<5.06 U	<0.809 U	<0.809 U	<0.809 U	<1.62 U	<1.15 U	<2.53 U
1,2-Dichloropropane	78-87-5	ug/m3	<0.924 U	<9.24 U	<0.924 U	<7.72 U	<0.924 U	<0.924 U	<5.78 U	<0.924 U	<0.924 U	<0.924 U	<1.85 U	<1.31 U	<2.89 U
1,2-Dichlorotetrafluoroethane	76-14-2	ug/m3	<1.4 U	<14 U	<1.4 U	<11.7 U	<1.4 U	<1.4 U	<8.74 U	<1.4 U	<1.4 U	<1.4 U	<2.8 U	<1.99 U	<4.37 U
1,3,5-Trimethylbenzene (Mesitylene)	108-67-8	ug/m3	<0.983 U	<9.83 U	27.1	<8.21 U	1.48	1.45	<6.15 U	1.37	<0.983 U	1.54	<1.97 U	<1.4 U	<3.07 U
1,3-Butadiene	106-99-0	ug/m3	<0.442 U	8.78	<0.442 U	<3.69 U	8.3	<0.442 U	<2.77 U	0.883	1.58	2.32	<0.885 U	3.1	<1.38 U
1,3-Dichlorobenzene	541-73-1	ug/m3	<1.2 U	<12 U	<1.2 U	<10 U	<1.2 U	<1.2 U	<7.52 U	<1.2 U	<1.2 U	<1.2 U	<2.4 U	<1.71 U	<3.76 U
1,4-Dichlorobenzene	106-46-7	ug/m3	<1.2 U	<12 U	<1.2 U	<10 U	<1.2 U	<1.2 U	<7.52 U	<1.2 U	<1.2 U	<1.2 U	<2.4 U	<1.71 U	<3.76 U
1,4-Dioxane (P-Dioxane)	123-91-1	ug/m3	<0.721 U	<7.21 U	<0.721 U	<6.02 U	<0.721 U	<0.721 U	<4.5 U	<0.721 U	<0.721 U	<0.721 U	<1.44 U	<1.02 U	<2.25 U
2,2,4-Trimethylpentane	540-84-1	ug/m3	1.59	<9.34 U	<0.934 U	<7.8 U	<0.934 U	<0.934 U	<5.84 U	<0.934 U	<0.934 U	14.7	<1.87 U	<1.33 U	<2.92 U
2-Chlorotoluene	95-49-8	ug/m3	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
2-Hexanone (MBK)	591-78-6	ug/m3	<0.82 U	<8.2 U	<0.82 U	<6.84 U	<0.82 U	4.04	<5.12 U	3.97	1.65	3.8	6.76	20.9	20.2
4-Ethyltoluene	622-96-8	ug/m3	<0.983 U	<9.83 U	1.95	<8.21 U	<0.983 U	<0.983 U	<6.15 U	<0.983 U	<0.983 U	1.49	<1.97 U	<1.4 U	<3.07 U
Acetone	67-64-1	ug/m3	47.3	328	12.4	860	601	767	836	829	565	751	848	846	2,190
Allyl Chloride (3-Chloropropene)	107-05-1	ug/m3	<0.626 U	<6.26 U	<0.626 U	<5.23 U	<0.626 U	<0.626 U	<3.91 U	<0.626 U	<0.626 U	<0.626 U	<1.25 U	<0.889 U	<1.96 U
Benzene	71-43-2	ug/m3	0.888	28.3	21.1	5.46	7.38	2.61	233	4.63	1.89	3.87	1.91	2.13	6.58
Benzyl Chloride	100-44-7	ug/m3	<1.04 U	<10.4 U	<1.04 U	<8.65 U	<1.04 U	<1.04 U	<6.47 U	<1.04 U	<1.04 U	<1.04 U	<2.07 U	<1.47 U	<3.24 U
Bromodichloromethane	75-27-4	ug/m3	<1.34 U	<13.4 U	<1.34 U	<11.2 U	<1.34 U	<1.34 U	<8.37 U	<1.34 U	<1.34 U	<1.34 U	<2.68 U	<1.9 U	<4.19 U
Bromoethene	593-60-2	ug/m3	<0.874 U	<8.74 U	<0.874 U	<7.3 U	<0.874 U	<0.874 U	<5.47 U	<0.874 U	<0.874 U	<0.874 U	<1.75 U	<1.24 U	<2.73 U
Bromoform	75-25-2	ug/m3	<2.07 U	<20.7 U	<2.07 U	<17.3 U	<2.07 U	<2.07 U	<12.9 U	<2.07 U	<2.07 U	<2.07 U	<4.14 U	<2.94 U	<6.46 U
Bromomethane	74-83-9	ug/m3	<0.777 U	<7.77 U	<0.777 U	<6.48 U	<0.777 U	<0.777 U	<4.85 U	<0.777 U	<0.777 U	<0.777 U	<1.55 U	<1.1 U	<2.43 U
Carbon Disulfide	75-15-0	ug/m3	<0.623 U	486	7.07	<5.2 U	53.6	10.7	33.9	85.6	6.29	5.54	40.5	37.7	205
Carbon Tetrachloride	56-23-5	ug/m3	<1.26 U	<1.26 U	170	2,460	<1.26 U	4,230	<0.786 U	2.33	<1.26 U	<1.26 U	3,330	<1.79 U	<3.93 U
Chlorobenzene	108-90-7	ug/m3	<0.921 U	<9.21 U	<0.921 U	<7.69 U	<0.921 U	<0.921 U	<5.76 U	<0.921 U	<0.921 U	<0.921 U	<1.84 U	<1.31 U	<2.88 U
Chloroethane	75-00-3	ug/m3	<0.528 U	<5.28 U	<0.528 U	<4.41 U	<0.528 U	<0.528 U	<3.3 U	<0.528 U	<0.528 U	<0.528 U	<1.06 U	<0.749 U	<1.65 U
Chloroform	67-66-3	ug/m3	<0.977 U	<9.77 U	29	3,080	<0.977 U	316	<6.1 U	4.98	2.4	4.38	742	<1.39 U	<3.05 U
Chloromethane	74-87-3	ug/m3	1.14	<4.13 U	1.02	<3.45 U	1.77	0.76	<2.58 U	0.785	0.88	0.861	0.942	2.02	3.14
Cis-1,2-Dichloroethene	156-59-2	ug/m3	<0.793 U	<0.793 U	<0.793 U	<0.662 U	<0.793 U	<0.793 U	<0.496 U	<0.793 U	<0.793 U	<0.793 U	<1.59 U	<1.13 U	<2.48 U
Cis-1,3-Dichloropropene	10061-01-5	ug/m3	<0.908 U	<9.08 U	<0.908 U	<7.58 U	<0.908 U	<0.908 U	<5.67 U	<0.908 U	<0.908 U	<0.908 U	<1.82 U	<1.29 U	<2.84 U
Cyclohexane	110-82-7	ug/m3	<0.688 U	151	17.9	27.2	127	6.13	187	22.9	2.75	12.9	3.02	33.4	43.4
Dibromochloromethane	124-48-1	ug/m3	<1.7 U	<17 U	<1.7 U	<14.2 U	<1.7 U	<1.7 U	<10.6 U	<1.7 U	<1.7 U	<1.7 U	<3.41 U	<2.42 U	<5.32 U
Dichlorodifluoromethane	75-71-8	ug/m3	2.31	<9.89 U	2.72	<8.26 U	3.78	2.22	<6.18 U	3.91	3.6	1.88	2.93	3.08	3.32
Ethanol	64-17-5	ug/m3	<9.42 U	<94.2 U	<9.42 U	<78.6 U	14	10.3	<58.8 U	<9.42 U	<9.42 U	15.9	22.2	21.5	40.1
Ethyl Acetate	141-78-6	ug/m3	<1.8 U	<18 U	<1.8 U	<15 U	<1.8 U	<1.8 U	<11.2 U	<1.8 U	<1.8 U	<1.8 U	<3.6 U	<2.56 U	<5.62 U
Ethylbenzene	100-41-4	ug/m3	<0.869 U	<8.69 U	1.09	<7.25 U	3.68	1.82	<5.43 U	3.67	2.19	9.21	<1.74 U	1.78	3.51
Hexachlorobutadiene	87-68-3	ug/m3	<2.13 U	<21.3 U	<2.13 U	<17.8 U	<2.13 U	<2.13 U	<13.3 U	<2.13 U	<2.13 U	<2.13 U	<4.27 U	<3.03 U	<6.67 U
Isopropanol	67-63-0	ug/m3	1.31	<12.3 U	<1.23 U	<10.3 U	5.48	7.67	13.6	6.86	6.05	8.21	26.1	10.5	31.5
M,P-Xylene	179601-23-1	ug/m3	<1.74 U	<17.4 U	4.27	<14.5 U	12.9	6.78	13.6	12.9	8.34	15.8	4.56	6.52	12.3
Methyl Ethyl Ketone (2-Butanone)	78-93-3	ug/m3	1.85	<14.7 U	4.19	19.8	18.8	18.5	32.7	27.9	11.3	30.7	41.6	65.8	83.5
Methyl Isobutyl Ketone (4-Methyl-2-Pentanone)	108-10-1	ug/m3	<2.05 U	<20.5 U	<2.05 U	<17.1 U	<2.05 U	<2.05 U	<12.8 U	<2.05 U	<2.05 U	<2.05 U	<4.1 U	3.88	<6.39 U
Methyl Methacrylate	80-62-6	ug/m3	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Methylene Chloride	75-09-2	ug/m3	<1.74 U	<17.4 U	<1.74 U	<14.5 U	1.79	<1.74 U	<10.8 U	4.97	8.06	20.5	<3.47 U	<2.47 U	<5.42 U
n-Heptane	142-82-5	ug/m3	<0.82 U	2,860	2.93	<6.84 U	29.4	6.88	140	3.32	2.39	9.88	2.47	3.45	7.5
n-Hexane	110-54-3	ug/m3	1.32	2,460	4.97	15.6	51.5	8.99	294	4.12	3.84	9.52	2.82	4.37	8.78
o-Xylene (1,2-Dimethylbenzene)	95-47-6	ug/m3	<0.869 U	<8.69 U	2.48	<7.25 U	5.73	2.82	11.3	5.34	3.28	3.21	1.89	2.63	8.17
Propylene	115-07-1	ug/m3	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Styrene	100-42-5	ug/m3	<0.852 U	<8.52 U	<0.852 U	<7.11 U	<0.852 U	<0.852 U	<5.32 U	<0.852 U	<0.852 U	<0.852 U	<1.7 U	<1.21 U	<2.66 U
Tert-Butyl Alcohol	75-65-0	ug/m3	<1.52 U	<15.2 U	<1.52 U	20.9	15.6	18.6	29.5	20.9	14.7	28.2	32.1	53.7	96.4
Tert-Butyl Methyl Ether (MTBE)	1634-04-4	ug/m3	<0.721 U	<7.21 U	<0.721 U	<6.02 U	<0.721 U	<0.721 U	<4.51 U	12.8	<0.721 U	<0.721 U	<1.44 U	<1.02 U	<2.25 U
Tetrachloroethene (PCE)	127-18-4	ug/m3	<1.36 U	8.61	<1.36 U	<1.13 U	<1.36 U	90.9	<0.848 U	<1.36 U	<1.36 U	<1.36 U	3.44	<1.93 U	<4.24 U
Tetrahydrofuran	109-99-9	ug/m3	<1.47 U	<14.7 U	3.13	<12.3 U	5.99	<1.47 U	<9.2 U	<1.47 U	<1.47 U	<1.47 U	<2.95 U	<2.09 U	<4.6 U
Toluene	108-88-3	ug/m3	1.89	28.6	3.51	<6.29 U	9.04	4.3	65.6	8.25	4.64	5.73	3.01	4.26	9.69
Total Xylenes	1330-20-7	ug/m3	<0.869 U	<8.69 U	6.78	<7.25 U	18.6	9.56	24.9	18.3	11.6	19	6.47	9.12	20.5
Trans-1,2-Dichloroethene	156-60-5	ug/m3	<0.793 U	<7.93 U	<0.793 U	<6.62 U	<0.793 U	<0.793 U	<4.96 U	<0.793 U	<0.793 U	<0.793 U	<1.59 U	<1.13 U	<2.48 U
Trans-1,3-Dichloropropene	10061-02-6	ug/m3	<0.908 U	<9.08 U	<0.908 U	<7.58 U	<0.908 U	<0.908 U	<5.67 U	<0.908 U	<0.908 U	<0.908 U	<1.82 U	<1.29 U	<2.84 U
Trichloroethene (TCE)	79-01-6	ug/m3	<1.07 U	<1.07 U	<1.07 U	<0.897 U	<1.07 U	<1.07 U	<0.672 U	<1.07 U	<1.07 U	<1.07 U	<2.15 U	<1.53 U	<3.36 U
Trichlorofluoromethane	75-69-4	ug/m3	<1.12 U	<11.2 U	<1.12 U	<9.38 U	<1.12 U	3.6	<7.02 U	<1.12 U	<1.12 U	<1.12 U	3.77	<1.6 U	<3.51 U
Vinyl Acetate	108-05-4	ug/m3	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Vinyl Chloride	75-01-4	ug/m3	<0.511 U	<0.511 U	<0.511 U	<0.427 U	1.73	<0.511 U	<0.32 U	<0.511 U	<0.511 U	<0.511 U	<1.02 U	<0.726 U	<1.6 U
Total BTEX	TOTALBTEX	ug/m3	2.778	56.9	32.45	5.46	38.73	18.33	323.5	34.79	20.34	37.82	11.37	17.32	40.25
Total CVOCs	TOTALCVOCS	ug/m3	ND	8.61	2.02	16.39	1.73	92.9	ND	3.59	ND	ND	7.65	ND	ND
Total VOCs	TOTALVOCS	ug/m3	59.598	6359.29	261.15	6505.35	985.6	5529.13	1896.98	1080.088	654.05	967.881	5129.102	1130.48	2779.78

Table 5
Remedial Investigation Report
Soil Vapor Sample Analytical Results

C Block
Brooklyn, New York
Langan Project No.: 170229030

Analyte	CAS Number	Location	SV17	SV18	SV19A	SV19B	SV20	SV21	SV22	SV23	SV24	SV25	SV26	SV27
		Sample Name	SV17_031926	SV18_031926	SV19_A_031926	SV19_B_031926	SV20_031926	SV21_031926	SV22_031926	SV23_031926	SV24_031926	SV25_031926	SV26_031926	SV27_031926
		Sample Date	03/19/2026	03/19/2026	03/19/2026	03/19/2026	03/19/2026	03/19/2026	03/19/2026	03/19/2026	03/19/2026	03/19/2026	03/19/2026	03/19/2026
		Sample Type	SV	SV	SV	SV	SV	SV	SV	SV	SV	SV	SV	SV
		Unit	Result	Result	Result	Result	Result	Result	Result	Result	Result	Result	Result	Result
Volatile Organic Compounds														
1,1,1-Trichloroethane	71-55-6	ug/m3	<2.2 U	<2.2 U	3	<2.2 U	<2.2 U	<2.2 U	<2.2 U	<2.2 UJ	<2.2 UJ	<2.2 UJ	<2.2 UJ	<4.4 U
1,1,2,2-Tetrachloroethane	79-34-5	ug/m3	<2.7 U	<2.7 U	<2.7 U	<2.7 U	<2.7 U	<2.7 U	<2.7 U	<2.7 UJ	<2.7 UJ	<2.7 UJ	<2.7 UJ	<5.5 U
1,1,2-Trichloro-1,2,2-Trifluoroethane	76-13-1	ug/m3	<3.1 U	<3.1 U	<3.1 U	<3.1 U	<3.1 U	<3.1 U	<3.1 U	<3.1 UJ	<3.1 UJ	<3.1 UJ	<3.1 UJ	<6.1 U
1,1,2-Trichloroethane	79-00-5	ug/m3	<2.2 U	<2.2 U	<2.2 U	<2.2 U	<2.2 U	<2.2 U	<2.2 U	<2.2 UJ	<2.2 UJ	<2.2 UJ	<2.2 UJ	<4.4 U
1,1-Dichloroethane	75-34-3	ug/m3	<3.2 U	<3.2 U	<3.2 U	<3.2 U	<3.2 U	<3.2 U	<3.2 U	<3.2 UJ	<3.2 UJ	<3.2 UJ	<3.2 UJ	<6.5 U
1,1-Dichloroethene	75-35-4	ug/m3	<0.63 U	<0.63 U	<0.63 U	<0.63 U	<0.63 U	<0.63 U	<0.63 U	<0.63 UJ	<0.63 UJ	<0.63 UJ	<0.63 UJ	<1.3 U
1,2,4-Trichlorobenzene	120-82-1	ug/m3	<3 U	<3 U	<3 U	<3 U	<3 U	<3 U	<3 U	<3 UJ	<3 UJ	<3 UJ	<3 UJ	<5.9 U
1,2,4-Trimethylbenzene	95-63-6	ug/m3	20	19	18	18	20	12	23	21 J	<3.9 UJ	19 J	24 J	21
1,2-Dibromoethane (Ethylene Dibromide)	106-93-4	ug/m3	<3.1 U	<3.1 U	<3.1 U	<3.1 U	<3.1 U	<3.1 U	<3.1 U	<3.1 UJ	<3.1 UJ	<3.1 UJ	<3.1 UJ	<6.1 U
1,2-Dichlorobenzene	95-50-1	ug/m3	<0.96 U	<0.96 U	<0.96 U	<0.96 U	<0.96 U	<0.96 U	<0.96 U	<0.96 UJ	<0.96 UJ	<0.96 UJ	<0.96 UJ	<1.9 U
1,2-Dichloroethane	107-06-2	ug/m3	<3.2 U	<3.2 U	<3.2 U	<3.2 U	<3.2 U	<3.2 U	<3.2 U	<3.2 UJ	<3.2 UJ	<3.2 UJ	<3.2 UJ	<6.5 U
1,2-Dichloropropane	78-87-5	ug/m3	<3.7 U	<3.7 U	<3.7 U	<3.7 U	<3.7 U	<3.7 U	<3.7 U	<3.7 UJ	<3.7 UJ	<3.7 UJ	<3.7 UJ	<7.4 U
1,2-Dichlorotetrafluoroethane	76-14-2	ug/m3	<2.8 U	<2.8 U	<2.8 U	<2.8 U	<2.8 U	<2.8 U	<2.8 U	<2.8 UJ	<2.8 UJ	<2.8 UJ	<2.8 UJ	<5.6 U
1,3,5-Trimethylbenzene (Mesitylene)	108-67-8	ug/m3	5.4	4.9	5.4	5.9	4.9	3.7 J	6.4	5.9 J	<3.9 UJ	4.9 J	6.4 J	5.9 J
1,3-Butadiene	106-99-0	ug/m3	<1.8 U	<1.8 U	<1.8 U	<1.8 U	<1.8 U	16	<1.8 U	<1.8 UJ	<1.8 UJ	<1.8 UJ	<1.8 UJ	<3.5 U
1,3-Dichlorobenzene	541-73-1	ug/m3	<2.4 U	<2.4 U	<2.4 U	<2.4 U	<2.4 U	<2.4 U	<2.4 U	<2.4 UJ	<2.4 UJ	<2.4 UJ	<2.4 UJ	<4.8 U
1,4-Dichlorobenzene	106-46-7	ug/m3	<2.4 U	<2.4 U	<2.4 U	<2.4 U	<2.4 U	<2.4 U	<2.4 U	<2.4 UJ	<2.4 UJ	<2.4 UJ	<2.4 UJ	<4.8 U
1,4-Dioxane (P-Dioxane)	123-91-1	ug/m3	<2.9 U	<2.9 U	4	<2.9 U	<2.9 U	<2.9 U	<2.9 U	<2.9 UJ	<2.9 UJ	<2.9 UJ	<2.9 UJ	<5.8 U
2,2,4-Trimethylpentane	540-84-1	ug/m3	<3.7 U	3.5 J	<3.7 U	<3.7 U	<3.7 U	2.5 J	12	<3.7 UJ	<3.7 UJ	57.5 J	45 J	43
2-Chlorotoluene	95-49-8	ug/m3	<4.1 U	<4.1 U	<4.1 U	<4.1 U	<4.1 U	<4.1 U	<4.1 U	<4.1 UJ	<4.1 UJ	<4.1 UJ	<4.1 UJ	<8.3 U
2-Hexanone (MBK)	591-78-6	ug/m3	<3.3 U	<3.3 U	<3.3 U	<3.3 U	<3.3 U	<3.3 U	<3.3 U	<3.3 UJ	<3.3 UJ	<3.3 UJ	<3.3 UJ	<6.5 U
4-Ethyltoluene	622-96-8	ug/m3	4.9	4.9	6.4	6.4	5.9	4.5	5.9	6.4 J	<3.9 UJ	6.4 J	6.4 J	5.9 J
Acetone	67-64-1	ug/m3	43.9	215	61	87.9	175	247	399	311 J	539 J	182 J	302 J	632
Allyl Chloride (3-Chloropropene)	107-05-1	ug/m3	<2.5 U	<2.5 U	<2.5 U	<2.5 U	<2.5 U	<2.5 U	<2.5 U	<2.5 UJ	<2.5 UJ	<2.5 UJ	<2.5 UJ	<5 U
Benzene	71-43-2	ug/m3	2.1 J	5.1	7.7	2.4 J	4.8	2.1 J	3.8	5.8 J	<2.6 UJ	20 J	2.2 J	8.9
Benzyl Chloride	100-44-7	ug/m3	<4.1 U	<4.1 U	<4.1 U	<4.1 U	<4.1 U	<4.1 U	<4.1 U	<4.1 UJ	<4.1 UJ	<4.1 UJ	<4.1 UJ	<8.2 U
Bromodichloromethane	75-27-4	ug/m3	<2.7 U	<2.7 U	<2.7 U	<2.7 U	<2.7 U	<2.7 U	<2.7 U	<2.7 UJ	<2.7 UJ	<2.7 UJ	<2.7 UJ	<5.4 U
Bromoethene	593-60-2	ug/m3	<3.5 U	<3.5 U	<3.5 U	<3.5 U	<3.5 U	<3.5 U	<3.5 U	<3.5 UJ	<3.5 UJ	<3.5 UJ	<3.5 UJ	<7 U
Bromoform	75-25-2	ug/m3	<1.7 U	<1.7 U	<1.7 U	<1.7 U	<1.7 U	<1.7 U	<1.7 U	<1.7 UJ	<1.7 UJ	<1.7 UJ	<1.7 UJ	<3.3 U
Bromomethane	74-83-9	ug/m3	<3.1 U	<3.1 U	<3.1 U	<3.1 U	<3.1 U	<3.1 U	<3.1 U	<3.1 UJ	<3.1 UJ	<3.1 UJ	<3.1 UJ	<6.2 U
Carbon Disulfide	75-15-0	ug/m3	2.5 J	5	3.4	7.2	7.5	24	9	<2.5 UJ	1.5 J	28 J	12 J	7.2
Carbon Tetrachloride	56-23-5	ug/m3	<1 U	8.8	31	12	<1 U	<1 U	<1 U	<1 UJ	<1 UJ	<1 UJ	<1 UJ	<2 U
Chlorobenzene	108-90-7	ug/m3	<3.7 U	<3.7 U	<3.7 U	<3.7 U	<3.7 U	<3.7 U	<3.7 U	<3.7 UJ	<3.7 UJ	<3.7 UJ	<3.7 UJ	<7.4 U
Chloroethane	75-00-3	ug/m3	1.1 J	<2.1 U	<2.1 U	<2.1 U	1.7 J	<2.1 U	<2.1 U	<2.1 UJ	<2.1 UJ	<2.1 UJ	<2.1 UJ	<4.2 U
Chloroform	67-66-3	ug/m3	5.4	4.7	12	3.4 J	<3.9 U	<3.9 U	<3.9 U	<3.9 UJ	<3.9 UJ	<3.9 UJ	<3.9 UJ	<7.8 U
Chloromethane	74-87-3	ug/m3	3.3	2	<1.7 U	<1.7 U	1.4 J	3.1	1.5 J	<1.7 UJ	<1.7 UJ	1.3 J	3.3 J	<3.3 U
Cis-1,2-Dichloroethene	156-59-2	ug/m3	<0.63 U	<0.63 U	<0.63 U	<0.63 U	<0.63 U	<0.63 U	<0.63 U	<0.63 UJ	<0.63 UJ	<0.63 UJ	<0.63 UJ	<1.3 U
Cis-1,3-Dichloropropene	10061-01-5	ug/m3	<3.6 U	<3.6 U	<3.6 U	<3.6 U	<3.6 U	<3.6 U	<3.6 U	<3.6 UJ	<3.6 UJ	<3.6 UJ	<3.6 UJ	<7.3 U
Cyclohexane	110-82-7	ug/m3	18	41.3	7.9	3.3	44.7	16	478	4.1 J	2.9 J	47.2 J	56.5 J	19
Dibromochloromethane	124-48-1	ug/m3	<3.4 U	<3.4 U	<3.4 U	<3.4 U	<3.4 U	<3.4 U	<3.4 U	<3.4 UJ	<3.4 UJ	<3.4 UJ	<3.4 UJ	<6.8 U
Dichlorodifluoromethane	75-71-8	ug/m3	2.1 J	2.2 J	<4 U	<4 U	<4 U	<4 U	<4 U	<4 UJ	<4 UJ	<4 UJ	<4 UJ	<7.9 U
Ethanol	64-17-5	ug/m3	4	12	7.7	6.8	15	11	55	6.2 J	7.3 J	7.7 J	27.9 J	12
Ethyl Acetate	141-78-6	ug/m3	14	<2.9 U	8.6	<2.9 U	5	17	9.7	30 J	<2.9 UJ	5 J	26 J	22
Ethylbenzene	100-41-4	ug/m3	13	41	16	17	22	13	13	15 J	<3.5 UJ	29 J	16 J	60.8
Hexachlorobutadiene	87-68-3	ug/m3	<3.8 U	<3.8 U	<3.8 U	<3.8 U	<3.8 U	<3.8 U	<3.8 U	<3.8 UJ	<3.8 UJ	<3.8 UJ	<3.8 UJ	<7.7 U
Isopropanol	67-63-0	ug/m3	2	3.4	6.4	3.7	2.5	4.9	8.1	4.2 J	14 J	3.9 J	4.4 J	8.6
M,P-Xylene	179601-23-1	ug/m3	61.2	170	71.7	77.7	93.4	62.1	61.2	76.9 J	<3.5 UJ	80.4 J	62.5 J	222
Methyl Ethyl Ketone (2-Butanone)	78-93-3	ug/m3	3.2	17	8.8	13	10	19	11	9.1 J	7.4 J	30.4 J	17 J	33.9
Methyl Isobutyl Ketone (4-Methyl-2-Pentanone)	108-10-1	ug/m3	<3.3 U	<3.3 U	<3.3 U	<3.3 U	<3.3 U	<3.3 U	<3.3 U	<3.3 UJ	<3.3 UJ	<3.3 UJ	<3.3 UJ	<6.6 U
Methyl Methacrylate	80-62-6	ug/m3	<3.3 U	<3.3 U	<3.3 U	<3.3 U	<3.3 U	<3.3 U	<3.3 U	<3.3 UJ	<3.3 UJ	<3.3 UJ	<3.3 UJ	<6.6 U
Methylene Chloride	75-09-2	ug/m3	<2.8 U	<2.8 U	<2.8 U	<2.8 U	9.7	<2.8 U	<2.8 U	<2.8 UJ	<2.8 UJ	<2.8 UJ	<2.8 UJ	<5.6 U
n-Heptane	142-82-5	ug/m3	4.5	207	7	9.4	12	20	27	7 J	<3.3 UJ	31 J	23 J	14
n-Hexane	110-54-3	ug/m3	7.8	719	4.2	10	33	37	276	4.9 J	12 J	49.7 J	39.1 J	32
o-Xylene (1,2-Dimethylbenzene)	95-47-6	ug/m3	18	52.1	18	19	26	15	18	19 J	<3.5 UJ	21 J	19 J	72.5
Propylene	115-07-1	ug/m3	114	<3.4 U	18.2	179	69.1	<3.4 U	<3.4 U	<3.4 UJ	94.3 J	<3.4 UJ	<3.4 UJ	806
Styrene	100-42-5	ug/m3	<3.4 U	<3.4 U	2 J	1.8 J	1.6 J	<3.4 U	<3.4 U	<3.4 UJ	<3.4 UJ	1.7 J	<3.4 UJ	<6.8 U
Tert-Butyl Alcohol	75-65-0	ug/m3	2 J	2.6	7	6.7	4.5	5.2	5.2	3.6 J	<2.4 UJ	4.2 J	3.6 J	5.2
Tert-Butyl Methyl Ether (MTBE)	1634-04-4	ug/m3	<2.9 U	<2.9 U	<2.9 U	<2.9 U	<2.9 U	<2.9 U	<2.9 U	<2.9 UJ	<2.9 UJ	<2.9 UJ	<2.9 UJ	4 J
Tetrachloroethene (PCE)	127-18-4	ug/m3	551	642	990	1,110	882	800	584	888 J	52 J	800 J	568 J	895
Tetrahydrofuran	109-99-9	ug/m3	<2.4 U	1.5 J	<2.4 U	<2.4 U	<2.4 U	<2.4 U	2.4	<2.4 UJ	<2.4 UJ	1.3 J	1.7 J	<4.7 U
Toluene	108-88-3	ug/m3	6.8	11	14	15	15	12	9	13 J	<3 UJ	29 J	10 J	20
Total Xylenes	1330-20-7	ug/m3	79.2	222	89.7	96.7	119	77.1	79.2	96 J	<3.5 UJ	101 J	81.5 J	294
Trans-1,2-Dichloroethene	156-60-5	ug/m3	<3.2 U	<3.2 U	<3.2 U	<3.2 U	<3.2 U	<3.2 U	<3.2 U	<3.2 UJ	<3.2 UJ	<3.2 UJ	<3.2 UJ	<6.3 U
Trans-1,3-Dichloropropene	10061-02-6	ug/m3	<3.6 U	<3.6 U	<3.6 U	<3.6 U	<3.6 U	<3.6 U	<3.6 U	<3.6 UJ	<3.6 UJ	<3.6 UJ	<3.6 UJ	<7.3 U
Trichloroethene (TCE)	79-01-6	ug/m3	2.5	0.91	1.4	<0.86 U	<0.86 U	<0.86 U	<0.86 U	<0.86 UJ	<0.86 UJ	1.1 J	<0.86 UJ	<1.7 U
Trichlorofluoromethane	75-69-4	ug/m3	<2.2 U	<2.2 U	<2.2 U	<2.2 U	<2.2 U	<2.2 U	<2.2 U	<2.2 UJ	<2.2 UJ	<2.2 UJ	<2.2 UJ	<4.5 U
Vinyl Acetate	108-05-4	ug/m3	<2.8 U	<2.8 U	<2.8 U	<2.8 U	<2.8 U	<2.8 U	<2.8 U	<2.8 UJ	<2.8 UJ	<2.8 UJ	<2.8 UJ	<5.6 U
Vinyl Chloride	75-01-4	ug/m3	<0.41 U	<0.41 U	<0.41 U	<0.41 U	<0.41 U	<0.41 U	<0.41 U	<0.41 UJ	<0.41 UJ	<0.41 UJ	<0.41 UJ	<0.82 U
Total BTEX	TOTALBTEX	ug/m3	101.1	279.2	127.4	131.1	161.2	104.2	105	129.7	ND	179.4	109.7	384.2
Total CVOCs	TOTALCVOCS	ug/m3	554.6	642.91	994.4	1110	883.7	800	584	888	52	801.1	568	895
Total VOCs	TOTALVOCS	ug/m3	912.7	2195.91	1340.8	1615.6	1466.7	1347.1	2018.2	1431.1	730.4	1461.7	1276	2950.9

Table 5
Remedial Investigation Report
Soil Vapor Sample Analytical Results

C Block
Brooklyn, New York
Langan Project No.: 170229030

Notes:

AA - Ambient Air
SV - Soil Vapor
CAS - Chemical Abstract Service
NS - No standard
ug/m3 - microgram per cubic meter
NA - Not analyzed
ND - Not detected
RL - Reporting limit
<RL - Not detected
Ambient air sample analytical results are shown for reference only.

Qualifiers:

J - The analyte was positively identified and the associated numerical value is the approximate concentration of the analyte in the sample.
UJ - The analyte was not detected at a level greater than or equal to the RL; however, the reported RL is approximate and may be inaccurate or imprecise.
U - The analyte was analyzed for, but was not detected at a level greater than or equal to the level of the RL or the sample concentration for results impacted by blank contamination.

Table 6
Remedial Investigation Report
Quality Assurance/Quality Control Sample Analytical Results

C Block
Brooklyn, New York
NYSDEC BCP Site No.: C224435
Langan Project No.: 170229030

Analyte	CAS Number	Sample Type	TB	FB	TB	FB	TB	FB	TB	TB	TB	TB	FB	TB	FB	TB	FB
		Sample Name	TB_051022	FB01_051222	TB02_051222	SOFB01_072522	SOTB01_072522	SOFB02_072622	SOTB02_072622	SOTB03_072722	SOTB04_072822	SOTB05_072922	GWFB01_080122	GWTB01_080122	SOFB03_080122	SOTB06_080122	GWFB02_080222
		Sample Date	05/10/2022	05/12/2022	05/12/2022	07/25/2022	07/25/2022	07/26/2022	07/26/2022	07/27/2022	07/28/2022	07/29/2022	08/01/2022	08/01/2022	08/01/2022	08/01/2022	08/02/2022
		Unit	Result	Result	Result	Result	Result	Result	Result	Result	Result	Result	Result	Result	Result	Result	Result
Volatile Organic Compounds																	
1,1,1,2-Tetrachloroethane	630-20-6	ug/l	<2.5 U	<2.5 U	<2.5 U	<2.5 U	<2.5 U	<2.5 U	<2.5 U	<2.5 U	<2.5 U	<2.5 U	NA	<2.5 U	NA	<2.5 U	NA
1,1,1-Trichloroethane	71-55-6	ug/l	<2.5 U	<2.5 U	<2.5 U	<2.5 U	<2.5 U	<2.5 U	<2.5 U	<2.5 U	<2.5 U	<2.5 U	NA	<2.5 U	NA	<2.5 U	NA
1,1,2,2-Tetrachloroethane	79-34-5	ug/l	<0.5 U	<0.5 U	<0.5 U	<0.5 U	<0.5 U	<0.5 U	<0.5 U	<0.5 U	<0.5 U	<0.5 U	NA	<0.5 U	NA	<0.5 U	NA
1,1,2-Trichloro-1,2,2-Trifluoroethane	76-13-1	ug/l	<2.5 U	<2.5 U	<2.5 U	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
1,1,2-Trichloroethane	79-00-5	ug/l	<1.5 U	<1.5 U	<1.5 U	<1.5 U	<1.5 U	<1.5 U	<1.5 U	<1.5 U	<1.5 U	<1.5 U	NA	<1.5 U	NA	<1.5 U	NA
1,1-Dichloroethane	75-34-3	ug/l	<2.5 U	<2.5 U	<2.5 U	<2.5 U	<2.5 U	<2.5 U	<2.5 U	<2.5 U	<2.5 U	<2.5 U	NA	<2.5 U	NA	<2.5 U	NA
1,1-Dichloroethene	75-35-4	ug/l	<0.5 U	<0.5 U	<0.5 U	<0.5 U	<0.5 U	<0.5 U	<0.5 U	<0.5 U	<0.5 U	<0.5 U	NA	<0.5 U	NA	<0.5 U	NA
1,1-Dichloropropene	563-58-6	ug/l	<2.5 U	<2.5 U	<2.5 U	<2.5 U	<2.5 U	<2.5 U	<2.5 U	<2.5 U	<2.5 U	<2.5 U	NA	<2.5 U	NA	<2.5 U	NA
1,2,3-Trichlorobenzene	87-61-6	ug/l	<2.5 U	<2.5 U	<2.5 U	<2.5 U	<2.5 U	<2.5 U	<2.5 U	<2.5 U	<2.5 U	<2.5 U	NA	<2.5 U	NA	<2.5 U	NA
1,2,3-Trichloropropane	96-18-4	ug/l	<2.5 U	<2.5 U	<2.5 U	<2.5 U	<2.5 U	<2.5 U	<2.5 U	<2.5 U	<2.5 U	<2.5 U	NA	<2.5 U	NA	<2.5 U	NA
1,2,4,5-Tetramethylbenzene	95-93-2	ug/l	<2 U	<2 U	<2 U	<2 U	<2 U	<2 U	<2 U	<2 U	<2 U	<2 U	NA	<2 U	NA	<2 U	NA
1,2,4-Trichlorobenzene	120-82-1	ug/l	<2.5 U	<2.5 U	<2.5 U	<2.5 U	<2.5 U	<2.5 U	<2.5 U	<2.5 U	<2.5 U	<2.5 U	NA	<2.5 U	NA	<2.5 U	NA
1,2,4-Trimethylbenzene	95-63-6	ug/l	<2.5 U	<2.5 U	<2.5 U	<2.5 U	<2.5 U	<2.5 U	<2.5 U	<2.5 U	<2.5 U	<2.5 U	NA	<2.5 U	NA	<2.5 U	NA
1,2-Dibromo-3-Chloropropane	96-12-8	ug/l	<2.5 U	<2.5 U	<2.5 U	<2.5 U	<2.5 U	<2.5 U	<2.5 U	<2.5 U	<2.5 U	<2.5 U	NA	<2.5 U	NA	<2.5 U	NA
1,2-Dibromoethane (Ethylene Dibromide)	106-93-4	ug/l	<2 U	<2 U	<2 U	<2 U	<2 U	<2 U	<2 U	<2 U	<2 U	<2 U	NA	<2 U	NA	<2 U	NA
1,2-Dichlorobenzene	95-50-1	ug/l	<2.5 U	<2.5 U	<2.5 U	<2.5 U	<2.5 U	<2.5 U	<2.5 U	<2.5 U	<2.5 U	<2.5 U	NA	<2.5 U	NA	<2.5 U	NA
1,2-Dichloroethane	107-06-2	ug/l	<0.5 U	<0.5 U	<0.5 U	<0.5 U	<0.5 U	<0.5 U	<0.5 U	<0.5 U	<0.5 U	<0.5 U	NA	<0.5 U	NA	<0.5 U	NA
1,2-Dichloropropane	78-87-5	ug/l	<1 U	<1 U	<1 U	<1 U	<1 U	<1 U	<1 U	<1 U	<1 U	<1 U	NA	<1 U	NA	<1 U	NA
1,3,5-Trimethylbenzene (Mesitylene)	108-67-8	ug/l	<2.5 U	<2.5 U	<2.5 U	<2.5 U	<2.5 U	<2.5 U	<2.5 U	<2.5 U	<2.5 U	<2.5 U	NA	<2.5 U	NA	<2.5 U	NA
1,3-Dichlorobenzene	541-73-1	ug/l	<2.5 U	<2.5 U	<2.5 U	<2.5 U	<2.5 U	<2.5 U	<2.5 U	<2.5 U	<2.5 U	<2.5 U	NA	<2.5 U	NA	<2.5 U	NA
1,3-Dichloropropane	142-28-9	ug/l	<2.5 U	<2.5 U	<2.5 U	<2.5 U	<2.5 U	<2.5 U	<2.5 U	<2.5 U	<2.5 U	<2.5 U	NA	<2.5 U	NA	<2.5 U	NA
1,4-Dichlorobenzene	106-46-7	ug/l	<2.5 U	<2.5 U	<2.5 U	<2.5 U	<2.5 U	<2.5 U	<2.5 U	<2.5 U	<2.5 U	<2.5 U	NA	<2.5 U	NA	<2.5 U	NA
1,4-Diethyl Benzene	105-05-5	ug/l	<2 U	<2 U	<2 U	<2 U	<2 U	<2 U	<2 U	<2 U	<2 U	<2 U	NA	<2 U	NA	<2 U	NA
1,4-Dioxane (P-Dioxane)	123-91-1	ug/l	<250 U	<250 U	<250 U	NA	<250 U	NA	<250 U	<250 U	<250 U	<250 U	NA	<250 U	NA	<250 U	NA
2,2-Dichloropropane	594-20-7	ug/l	<2.5 U	<2.5 U	<2.5 U	<2.5 U	<2.5 U	<2.5 U	<2.5 U	<2.5 U	<2.5 U	<2.5 U	NA	<2.5 U	NA	<2.5 U	NA
2-Chlorotoluene	95-49-8	ug/l	<2.5 U	<2.5 U	<2.5 U	<2.5 U	<2.5 U	<2.5 U	<2.5 U	<2.5 U	<2.5 U	<2.5 U	NA	<2.5 U	NA	<2.5 U	NA
2-Hexanone (MBK)	591-78-6	ug/l	<5 U	<5 U	<5 U	<5 U	<5 U	<5 U	<5 U	<5 U	<5 U	<5 U	NA	<5 U	NA	<5 U	NA
4-Chlorotoluene	106-43-4	ug/l	<2.5 U	<2.5 U	<2.5 U	<2.5 U	<2.5 U	<2.5 U	<2.5 U	<2.5 U	<2.5 U	<2.5 U	NA	<2.5 U	NA	<2.5 U	NA
4-Ethyltoluene	622-96-8	ug/l	<2 U	<2 U	<2 U	<2 U	<2 U	<2 U	<2 U	<2 U	<2 U	<2 U	NA	<2 U	NA	<2 U	NA
Acetone	67-64-1	ug/l	<5 U	<5 U	<5 U	<5 U	<5 U	<5 U	<5 U	1.7 J	<5 U	<5 U	NA	<5 U	NA	1.5 J	NA
Acrolein	107-02-8	ug/l	<5 U	<5 U	<5 U	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Acrylonitrile	107-13-1	ug/l	<5 U	<5 U	<5 U	<5 U	<5 U	<5 U	<5 U	<5 U	<5 U	<5 U	NA	<5 U	NA	<5 U	NA
Benzene	71-43-2	ug/l	<0.5 U	<0.5 U	<0.5 U	<0.5 U	<0.5 U	<0.5 U	<0.5 U	<0.5 U	<0.5 U	<0.5 U	NA	<0.5 U	NA	<0.5 U	NA
Bromobenzene	108-86-1	ug/l	<2.5 U	<2.5 U	<2.5 U	<2.5 U	<2.5 U	<2.5 U	<2.5 U	<2.5 U	<2.5 U	<2.5 U	NA	<2.5 U	NA	<2.5 U	NA
Bromochloromethane	74-97-5	ug/l	<2.5 U	<2.5 U	<2.5 U	<2.5 U	<2.5 U	<2.5 U	<2.5 U	<2.5 U	<2.5 U	<2.5 U	NA	<2.5 U	NA	<2.5 U	NA
Bromodichloromethane	75-27-4	ug/l	<0.5 U	<0.5 U	<0.5 U	<0.5 U	<0.5 U	<0.5 U	<0.5 U	<0.5 U	<0.5 U	<0.5 U	NA	<0.5 U	NA	<0.5 U	NA
Bromoform	75-25-2	ug/l	<2 U	<2 U	<2 U	<2 U	<2 U	<2 U	<2 U	<2 U	<2 U	<2 U	NA	<2 U	NA	<2 U	NA
Bromomethane	74-83-9	ug/l	<2.5 U	<2.5 U	<2.5 U	<2.5 U	<2.5 U	<2.5 U	<2.5 U	<2.5 U	<2.5 U	<2.5 U	NA	<2.5 U	NA	<2.5 U	NA
Carbon Disulfide	75-15-0	ug/l	<5 U	<5 U	<5 U	<5 U	<5 U	<5 U	<5 U	<5 U	<5 U	<5 U	NA	<5 U	NA	<5 U	NA
Carbon Tetrachloride	56-23-5	ug/l	<0.5 U	<0.5 U	<0.5 U	<0.5 U	<0.5 U	<0.5 U	<0.5 U	<0.5 U	<0.5 U	<0.5 U	NA	<0.5 U	NA	<0.5 U	NA
Chlorobenzene	108-90-7	ug/l	<2.5 U	<2.5 U	<2.5 U	<2.5 U	<2.5 U	<2.5 U	<2.5 U	<2.5 U	<2.5 U	<2.5 U	NA	<2.5 U	NA	<2.5 U	NA
Chloroethane	75-00-3	ug/l	<2.5 U	<2.5 U	<2.5 U	<2.5 U	<2.5 U	<2.5 U	<2.5 U	<2.5 U	<2.5 U	<2.5 U	NA	<2.5 U	NA	<2.5 U	NA
Chloroform	67-66-3	ug/l	<2.5 U	<2.5 U	<2.5 U	<2.5 U	<2.5 U	<2.5 U	<2.5 U	<2.5 U	<2.5 U	<2.5 U	NA	<2.5 U	NA	<2.5 U	NA
Chloromethane	74-87-3	ug/l	<2.5 U	<2.5 U	<2.5 U	<2.5 U	<2.5 U	<2.5 U	<2.5 U	<2.5 U	<2.5 U	<2.5 U	NA	<2.5 U	NA	<2.5 U	NA
Cis-1,2-Dichloroethene	156-59-2	ug/l	<2.5 U	<2.5 U	<2.5 U	<2.5 U	<2.5 U	<2.5 U	<2.5 U	<2.5 U	<2.5 U	<2.5 U	NA	<2.5 U	NA	<2.5 U	NA
Cis-1,3-Dichloropropene	10061-01-5	ug/l	<0.5 U	<0.5 U	<0.5 U	<0.5 U	<0.5 U	<0.5 U	<0.5 U	<0.5 U	<0.5 U	<0.5 U	NA	<0.5 U	NA	<0.5 U	NA
Cyclohexane	110-82-7	ug/l	<10 U	<10 U	<10 U	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Cymene	99-87-6	ug/l	<2.5 U	<2.5 U	<2.5 U	<2.5 U	<2.5 U	<2.5 U	<2.5 U	<2.5 U	<2.5 U	<2.5 U	NA	<2.5 U	NA	<2.5 U	NA
Dibromochloromethane	124-48-1	ug/l	<0.5 U	<0.5 U	<0.5 U	<0.5 U	<0.5 U	<0.5 U	<0.5 U	<0.5 U	<0.5 U	<0.5 U	NA	<0.5 U	NA	<0.5 U	NA
Dibromomethane	74-95-3	ug/l	<5 U	<5 U	<5 U	<5 U	<5 U	<5 U	<5 U	<5 U	<5 U	<5 U	NA	<5 U	NA	<5 U	NA
Dichlorodifluoromethane	75-71-8	ug/l	<5 U	<5 U	<5 U	<5 U	<5 U	<5 U	<5 U	<5 U	<5 U	<5 U	NA	<5 U	NA	<5 U	NA
Diethyl Ether (Ethyl Ether)	60-29-7	ug/l	<2.5 U	<2.5 U	<2.5 U	<2.5 U	<2.5 U	<2.5 U	<2.5 U	<2.5 U	<2.5 U	<2.5 U	NA	<2.5 U	NA	<2.5 U	NA
Ethylbenzene	100-41-4	ug/l	<2.5 U	<2.5 U	<2.5 U	<2.5 U	<2.5 U	<2.5 U	<2.5 U	<2.5 U	<2.5 U	<2.5 U	NA	<2.5 U	NA	<2.5 U	NA
Hexachlorobutadiene	87-68-3	ug/l	<2.5 U	<2.5 U	<2.5 U	<2.5 U	<2.5 U	NA	<2.5 U	<2.5 U	<2.5 U	<2.5 U	NA	<2.5 U	NA	<2.5 U	NA
Isopropylbenzene (Cumene)	98-82-8	ug/l	<2.5 U	<2.5 U	<2.5 U	<2.5 U	<2.5 U	<2.5 U	<2.5 U	<2.5 U	<2.5 U	<2.5 U	NA	<2.5 U	NA	<2.5 U	NA
M,P-Xylene	179601-23-1	ug/l	<2.5 U	<2.5 U	<2.5 U	<2.5 U	<2.5 U	<2.5 U	<2.5 U	<2.5 U	<2.5 U	<2.5 U	NA	<2.5 U	NA	<2.5 U	NA
Methyl Acetate	79-20-9	ug/l	<2 U	<2 U	<2 U	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Methyl Ethyl Ketone (2-Butanone)	78-93-3	ug/l	<5 U	<5 U	<5 U	<5 U	<5 U	<5 U	<5 U	<5 U	<5 U	<5 U	NA	<5 U	NA	<5 U	NA
Methyl Isobutyl Ketone (4-Methyl-2-Pentanone)	108-10-1	ug/l	<5 U	<5 U	<5 U	<5 U	<5 U	<5 U	<5 U	<5 U	<5 U	<5 U	NA	<5 U	NA	<5 U	NA
Methylcyclohexane	108-87-2	ug/l	<10 U	<10 U	<10 U	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Methylene Chloride	75-09-2	ug/l	<2.5 U	<2.5 U	<2.5 U	<2.5 U	<2.5 U	<2.5 U	<2.5 U	<2.5 U	<2.5 U	<2.5 U	NA	<2.5 U	NA	<2.5 U	NA
Naphthalene	91-20-3	ug/l	<2.5 U	<2.5 U	<2.5 U	<2.5 U	<2.5 U	NA	<2.5 U	<2.5 U	<2.5 U	<2.5 U	NA	<2.5 U	NA	<2.5 U	NA
n-Butylbenzene	104-51-8	ug/l	<2.5 U	<2.5 U	<2.5 U	<2.5 U	<2.5 U	<2.5 U	<2.5 U	<2.5 U	<2.5 U	<2.5 U	NA	<2.5 U	NA	<2.5 U	NA
n-Propylbenzene	103-65-1	ug/l	<2.5 U	<2.5 U	<2.5 U	<2.5 U	<2.5 U	<2.5 U	<2.5 U	<2.5 U	<2.5 U	<2.5 U	NA	<2.5 U	NA	<2.5 U	NA
o-Xylene (1,2-Dimethylbenzene)	95-47-6	ug/l	<2.5 U	<2.5 U	<2.5 U	<2.5 U	<2.5 U	<2.5 U	<2.5 U	<2.5 U	<2.5 U	<2.5 U	NA	<2.5 U	NA	<2.5 U	NA
Sec-Butylbenzene	135-98-8	ug/l	<2.5 U	<2.5 U	<2.5 U	<2.5 U	<2.5 U	<2.5 U	<2.5 U	<2.5 U	<2.5 U	<2.5 U	NA	<2.5 U	NA	<2.5 U	NA
Styrene	100-42-5	ug/l	<2.5 U	<2.5 U	<2.5 U	<2.5 U	<2.5 U	<2.5 U	<2.5 U	<2.5 U	<2.5 U	<2.5 U	NA	<2.5 U	NA	<2.5 U	NA
T-Butylbenzene	98-06-6	ug/l	<2.5 U	<2.5 U	<2.5 U	<2.5 U	<2.5 U	<2.5 U	<2.5 U	<2.5 U	<2.5 U	<2.5 U	NA	<2.5 U	NA	<2.5 U	NA
Tert-Butyl Alcohol	75-65-0	ug/l	<10 U	<10 U	<10 U	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Tert-Butyl Methyl Ether (MTBE)	1634-04-4	ug/l	<2.5 U	<2.5 U	<2.5 U	<2.5 U	<2.5 U	<2.5 U	<2.5 U	<2.5 U	<2.5 U	<2.5 U	NA	<2.5 U	NA	<2.5 U	NA
Tetrachloroethene (PCE)	127-18-4	ug/l	<0.5 U	<0.5 U	<0.5 U	<0.5 U	<0.5 U	<0.5 U	<0.5 U	<0.5 U	<0.5 U	<0.5 U	NA	<0.5 U	NA	<0.5 U	NA
Toluene	108-88-3	ug/l	<2.5 U	<2.5 U	<2.5 U	<2.5 U	<2.5 U	<2.5 U	<2.5 U	<2.5 U	<2.5 U	<2.5 U	NA	<2.5 U	NA	<2.5 U	NA
Total 1,2-Dichloroethene (Cis and Trans)	540-59-0	ug/l	NA	NA	NA	<2.5 U	<2.5 U	<2.5 U	<2.5 U	<2.5 U	<2.5 U	<2.5 U	NA	<2.5 U	NA	<2.5 U	NA
Total Xylenes	1330-20-7	ug/l	<2.5 U	<2.5 U	<2.5 U	<2.5 U	<2.5 U	<2.5 U	<2.5 U	<2.5 U	<2.5 U	<2.5 U	NA	<2.5 U	NA	<2.5 U	NA
Total, 1,3-Dichloropropene (Cis And Trans)	542-75-6	ug/l	<0.5 U	<0.5 U	<0.5 U	<0.5 U	<0.5 U	<0.5 U	<0.5 U	<0.5 U	<0.5 U	<0.5 U	NA	<0.5 U	NA	<0.5 U	NA
Trans-1,2-Dichloroethene	156-60-5	ug/l	<2.5 U	<2.5 U	<2.5 U	<2.5 U	<2.5 U	<2.5 U	<2.5 U	<2.5 U	<2.5 U	<2.5 U	NA	<2.5 U	NA	<2.5 U	NA
Trans-1,3-Dichloropropene	10061-02-6	ug/l	<0.5 U	<0.5 U	<0.5 U	<0.5 U	<0.5 U	<0.5 U	<0.5 U	<0.5 U	<0.5 U	<0.5 U	NA	<0.5 U	NA	<0.5 U	NA
Trans-1,4-Dichloro-2-Butene	110-57-6	ug/l	<2.5 U	<2.5 U	<2.5 U	<2.5 U	<2.5 U	<2.5 U	<2.5 U	<2.5 U	<2.5 U	<2.5 U	NA	<2.5 U	NA	<2.5 U	NA
Trichloroethene (TCE)	79-01-6	ug/l	<0.5 U	<0.5 U	<0.5 U	<0.5 U	<0.5 U	<0.5 U	<0.5 U	<0.5 U	<0.5 U	<0.5 U	NA	<0.5 U	NA	<0.5 U	NA
Trichlorofluoromethane	75-69-4	ug/l	<2.5 U	<2.5 U	<2.5 U	<2.5 U	<2.5 U	<2.5 U	<2.5 U	<2.5 U	<2.5 U	<2.5 U	NA	<2.5 U	NA	<2.5 U	NA
Vinyl Acetate	108-05-4	ug/l	<5 U	<5 U	<5 U	<5 U	<5 U	<5 U	<5 U	<5 U	<5 U	<5 U	NA	<5 U	NA	<5 U	NA
Vinyl Chloride	75-01-4	ug/l	<1 U	<1 U	<1 U	<1 U	<1 U	<1 U	<1 U	<1 U	<1 U	<1 U	NA	<1 U	NA	<1 U	NA

Table 6
Remedial Investigation Report
Quality Assurance/Quality Control Sample Analytical Results

C Block
Brooklyn, New York
NYSDEC BCP Site No.: C224435
Langan Project No.: 170229030

Analyte	CAS Number	Sample Type	TB	FB	TB	FB	TB	FB	TB	TB	TB	TB	FB	TB	FB	TB	FB
		Sample Name	TB_051022	FB01_051222	TB02_051222	SOFB01_072522	SOTB01_072522	SOFB02_072622	SOTB02_072622	SOTB03_072722	SOTB04_072822	SOTB05_072922	GWFB01_080122	GWTB01_080122	SOFB03_080122	SOTB06_080122	GWFB02_080222
		Sample Date	05/10/2022	05/12/2022	05/12/2022	07/25/2022	07/25/2022	07/26/2022	07/26/2022	07/27/2022	07/28/2022	07/29/2022	08/01/2022	08/01/2022	08/01/2022	08/01/2022	08/02/2022
		Unit	Result	Result	Result	Result	Result	Result	Result	Result	Result	Result	Result	Result	Result	Result	Result
Semi-Volatile Organic Compounds																	
1,2,4,5-Tetrachlorobenzene	95-94-3	ug/l	NA	<10 U	NA	<10 U	NA	<10 U	NA	NA	NA	NA	NA	NA	NA	NA	NA
1,2,4-Trichlorobenzene	120-82-1	ug/l	NA	<5 U	NA	<5 U	NA	<5 U	NA	NA	NA	NA	NA	NA	NA	NA	NA
1,2-Dichlorobenzene	95-50-1	ug/l	NA	<2 U	NA	<2 U	NA	<2 U	NA	NA	NA	NA	NA	NA	NA	NA	NA
1,3-Dichlorobenzene	541-73-1	ug/l	NA	<2 U	NA	<2 U	NA	<2 U	NA	NA	NA	NA	NA	NA	NA	NA	NA
1,4-Dichlorobenzene	106-46-7	ug/l	NA	<2 U	NA	<2 U	NA	<2 U	NA	NA	NA	NA	NA	NA	NA	NA	NA
1,4-Dioxane (P-Dioxane)	123-91-1	ug/l	NA	NA	NA	<0.15 U	NA	<0.139 U	NA	NA	NA	NA	NA	NA	NA	NA	NA
2,3,4,6-Tetrachlorophenol	58-90-2	ug/l	NA	<5 U	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
2,4,5-Trichlorophenol	95-95-4	ug/l	NA	<5 U	NA	<5 U	NA	<5 U	NA	NA	NA	NA	NA	NA	NA	NA	NA
2,4,6-Trichlorophenol	88-06-2	ug/l	NA	<5 U	NA	<5 U	NA	<5 U	NA	NA	NA	NA	NA	NA	NA	NA	NA
2,4-Dichlorophenol	120-83-2	ug/l	NA	<5 U	NA	<5 U	NA	<5 U	NA	NA	NA	NA	NA	NA	NA	NA	NA
2,4-Dimethylphenol	105-67-9	ug/l	NA	<5 U	NA	<5 U	NA	<5 U	NA	NA	NA	NA	NA	NA	NA	NA	NA
2,4-Dinitrophenol	51-28-5	ug/l	NA	<20 U	NA	<20 U	NA	<20 U	NA	NA	NA	NA	NA	NA	NA	NA	NA
2,4-Dinitrotoluene	121-14-2	ug/l	NA	<5 U	NA	<5 U	NA	<5 U	NA	NA	NA	NA	NA	NA	NA	NA	NA
2,6-Dinitrotoluene	606-20-2	ug/l	NA	<5 U	NA	<5 U	NA	<5 U	NA	NA	NA	NA	NA	NA	NA	NA	NA
2-Chloronaphthalene	91-58-7	ug/l	NA	<0.2 U	NA	<2 U	NA	<0.2 U	NA	NA	NA	NA	NA	NA	NA	NA	NA
2-Chlorophenol	95-57-8	ug/l	NA	<2 U	NA	<2 U	NA	<2 U	NA	NA	NA	NA	NA	NA	NA	NA	NA
2-Methylnaphthalene	91-57-6	ug/l	NA	0.05 J	NA	<2 U	NA	<0.1 U	NA	NA	NA	NA	NA	NA	NA	NA	NA
2-Methylphenol (o-Cresol)	95-48-7	ug/l	NA	<5 U	NA	<5 U	NA	<5 U	NA	NA	NA	NA	NA	NA	NA	NA	NA
2-Nitroaniline	88-74-4	ug/l	NA	<5 U	NA	<5 U	NA	<5 U	NA	NA	NA	NA	NA	NA	NA	NA	NA
2-Nitrophenol	88-75-5	ug/l	NA	<10 U	NA	<10 U	NA	<10 U	NA	NA	NA	NA	NA	NA	NA	NA	NA
3 & 4 Methylphenol (m&p Cresol)	65794-96-9	ug/l	NA	<5 U	NA	<5 U	NA	<5 U	NA	NA	NA	NA	NA	NA	NA	NA	NA
3,3'-Dichlorobenzidine	91-94-1	ug/l	NA	<5 U	NA	<5 U	NA	<5 U	NA	NA	NA	NA	NA	NA	NA	NA	NA
3-Nitroaniline	99-09-2	ug/l	NA	<5 U	NA	<5 U	NA	<5 U	NA	NA	NA	NA	NA	NA	NA	NA	NA
4,6-Dinitro-2-Methylphenol	534-52-1	ug/l	NA	<10 U	NA	<10 U	NA	<10 U	NA	NA	NA	NA	NA	NA	NA	NA	NA
4-Bromophenyl Phenyl Ether	101-55-3	ug/l	NA	<2 U	NA	<2 U	NA	<2 U	NA	NA	NA	NA	NA	NA	NA	NA	NA
4-Chloro-3-Methylphenol	59-50-7	ug/l	NA	<2 U	NA	<2 U	NA	<2 U	NA	NA	NA	NA	NA	NA	NA	NA	NA
4-Chloroaniline	106-47-8	ug/l	NA	<5 U	NA	<5 U	NA	<5 U	NA	NA	NA	NA	NA	NA	NA	NA	NA
4-Chlorophenyl Phenyl Ether	7005-72-3	ug/l	NA	<2 U	NA	<2 U	NA	<2 U	NA	NA	NA	NA	NA	NA	NA	NA	NA
4-Nitroaniline	100-01-6	ug/l	NA	<5 U	NA	<5 U	NA	<5 U	NA	NA	NA	NA	NA	NA	NA	NA	NA
4-Nitrophenol	100-02-7	ug/l	NA	<10 U	NA	<10 U	NA	<10 U	NA	NA	NA	NA	NA	NA	NA	NA	NA
Acenaphthene	83-32-9	ug/l	NA	<0.1 U	NA	<2 U	NA	<0.1 U	NA	NA	NA	NA	NA	NA	NA	NA	NA
Acenaphthylene	208-96-8	ug/l	NA	<0.1 U	NA	<2 U	NA	<0.1 U	NA	NA	NA	NA	NA	NA	NA	NA	NA
Acetophenone	98-86-2	ug/l	NA	<5 U	NA	<5 U	NA	<5 U	NA	NA	NA	NA	NA	NA	NA	NA	NA
Anthracene	120-12-7	ug/l	NA	0.03 J	NA	<2 U	NA	<0.1 U	NA	NA	NA	NA	NA	NA	NA	NA	NA
Atrazine	1912-24-9	ug/l	NA	<10 U	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Azobenzene	103-33-3	ug/l	NA	<2 U	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Benzaldehyde	100-52-7	ug/l	NA	<5 U	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Benzidine	92-87-5	ug/l	NA	<20 U	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Benzo(a)anthracene	56-55-3	ug/l	NA	<0.1 U	NA	<2 U	NA	0.02 J	NA	NA	NA	NA	NA	NA	NA	NA	NA
Benzo(a)pyrene	50-32-8	ug/l	NA	<0.1 U	NA	<2 U	NA	<0.1 U	NA	NA	NA	NA	NA	NA	NA	NA	NA
Benzo(b)fluoranthene	205-99-2	ug/l	NA	<0.1 U	NA	<2 U	NA	<0.1 U	NA	NA	NA	NA	NA	NA	NA	NA	NA
Benzo(g,h,i)Perylene	191-24-2	ug/l	NA	<0.1 U	NA	<2 U	NA	<0.1 U	NA	NA	NA	NA	NA	NA	NA	NA	NA
Benzo(k)fluoranthene	207-08-9	ug/l	NA	<0.1 U	NA	<2 U	NA	<0.1 U	NA	NA	NA	NA	NA	NA	NA	NA	NA
Benzoic Acid	65-85-0	ug/l	NA	<50 U	NA	<50 U	NA	<50 U	NA	NA	NA	NA	NA	NA	NA	NA	NA
Benzyl Alcohol	100-51-6	ug/l	NA	<2 U	NA	<2 U	NA	<2 U	NA	NA	NA	NA	NA	NA	NA	NA	NA
Benzyl Butyl Phthalate	85-68-7	ug/l	NA	<5 U	NA	<5 U	NA	<5 U	NA	NA	NA	NA	NA	NA	NA	NA	NA
Biphenyl (Diphenyl)	92-52-4	ug/l	NA	<2 U	NA	<2 U	NA	<2 U	NA	NA	NA	NA	NA	NA	NA	NA	NA
Bis(2-chloroethoxy) methane	111-91-1	ug/l	NA	<5 U	NA	<5 U	NA	<5 U	NA	NA	NA	NA	NA	NA	NA	NA	NA
Bis(2-chloroethyl) ether (2-chloroethyl ether)	111-44-4	ug/l	NA	<2 U	NA	<2 U	NA	<2 U	NA	NA	NA	NA	NA	NA	NA	NA	NA
Bis(2-chloroisopropyl) ether	108-60-1	ug/l	NA	<2 U	NA	<2 U	NA	<2 U	NA	NA	NA	NA	NA	NA	NA	NA	NA
Bis(2-ethylhexyl) phthalate	117-81-7	ug/l	NA	<3 U	NA	2.1 J	NA	<3 U	NA	NA	NA	NA	NA	NA	NA	NA	NA
Caprolactam	105-60-2	ug/l	NA	<10 U	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Carbazole	86-74-8	ug/l	NA	<2 U	NA	<2 U	NA	<2 U	NA	NA	NA	NA	NA	NA	NA	NA	NA
Chrysene	218-01-9	ug/l	NA	<0.1 U	NA	<2 U	NA	<0.1 U	NA	NA	NA	NA	NA	NA	NA	NA	NA
Dibenz(a,h)anthracene	53-70-3	ug/l	NA	<0.1 U	NA	<2 U	NA	<0.1 U	NA	NA	NA	NA	NA	NA	NA	NA	NA
Dibenzofuran	132-64-9	ug/l	NA	<2 U	NA	<2 U	NA	<2 U	NA	NA	NA	NA	NA	NA	NA	NA	NA
Dibutyl phthalate	84-74-2	ug/l	NA	0.96 J	NA	<5 U	NA	<5 U	NA	NA	NA	NA	NA	NA	NA	NA	NA
Diethyl phthalate	84-66-2	ug/l	NA	<5 U	NA	<5 U	NA	<5 U	NA	NA	NA	NA	NA	NA	NA	NA	NA
Dimethyl phthalate	131-11-3	ug/l	NA	<5 U	NA	<5 U	NA	<5 U	NA	NA	NA	NA	NA	NA	NA	NA	NA
Dioctyl phthalate	117-84-0	ug/l	NA	<5 U	NA	<5 U	NA	<5 U	NA	NA	NA	NA	NA	NA	NA	NA	NA
Fluoranthene	206-44-0	ug/l	NA	0.03 J	NA	<2 U	NA	<0.1 U	NA	NA	NA	NA	NA	NA	NA	NA	NA
Fluorene	86-73-7	ug/l	NA	0.04 J	NA	<2 U	NA	<0.1 U	NA	NA	NA	NA	NA	NA	NA	NA	NA
Hexachlorobenzene	118-74-1	ug/l	NA	0.06 J	NA	<2 U	NA	<0.8 U	NA	NA	NA	NA	NA	NA	NA	NA	NA
Hexachlorobutadiene	87-68-3	ug/l	NA	<0.5 U	NA	<2 U	NA	<0.5 U	NA	NA	NA	NA	NA	NA	NA	NA	NA
Hexachlorocyclopentadiene	77-47-4	ug/l	NA	<20 U	NA	<20 U	NA	<20 U	NA	NA	NA	NA	NA	NA	NA	NA	NA
Hexachloroethane	67-72-1	ug/l	NA	<0.8 U	NA	<2 U	NA	<0.8 U	NA	NA	NA	NA	NA	NA	NA	NA	NA
Indeno(1,2,3-cd)pyrene	193-39-5	ug/l	NA	<0.1 U	NA	<2 U	NA	<0.1 U	NA	NA	NA	NA	NA	NA	NA	NA	NA
Isophorone	78-59-1	ug/l	NA	<5 U	NA	<5 U	NA	<5 U	NA	NA	NA	NA	NA	NA	NA	NA	NA
Naphthalene	91-20-3	ug/l	NA	0.39 B	NA	<2 U	NA	<0.1 U	NA	NA	NA	NA	NA	NA	NA	NA	NA
Nitrobenzene	98-95-3	ug/l	NA	<2 U	NA	<2 U	NA	<2 U	NA	NA	NA	NA	NA	NA	NA	NA	NA
n-Nitrosodimethylamine	62-75-9	ug/l	NA	<2 U	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
n-Nitrosodi-N-Propylamine	621-64-7	ug/l	NA	<5 U	NA	<5 U	NA	<5 U	NA	NA	NA	NA	NA	NA	NA	NA	NA
n-Nitrosodiphenylamine	86-30-6	ug/l	NA	<2 U	NA	<2 U	NA	<2 U	NA	NA	NA	NA	NA	NA	NA	NA	NA
Pentachlorophenol	87-86-5	ug/l	NA	<0.8 U	NA	<10 U	NA	<0.8 U	NA	NA	NA	NA	NA	NA	NA	NA	NA
Phenanthrene	85-01-8	ug/l	NA	0.07 J	NA	<2 U	NA	0.03 J	NA	NA	NA	NA	NA	NA	NA	NA	NA
Phenol	108-95-2	ug/l	NA	<5 U	NA	<5 U	NA	<5 U	NA	NA	NA	NA	NA	NA	NA	NA	NA
Pyrene	129-00-0	ug/l	NA	<0.1 U	NA	<2 U	NA	<0.1 U	NA	NA	NA	NA	NA	NA	NA	NA	NA

Table 6
Remedial Investigation Report
Quality Assurance/Quality Control Sample Analytical Results

C Block
Brooklyn, New York
NYSDEC BCP Site No.: C224435
Langan Project No.: 170229030

Analyte	CAS Number	Sample Type	TB	FB	TB	FB	TB	FB	TB	TB	TB	TB	FB	TB	FB	TB	FB
		Sample Name	TB_051022	FB01_051222	TB02_051222	SOFB01_072522	SOTB01_072522	SOFB02_072622	SOTB02_072622	SOTB03_072722	SOTB04_072822	SOTB05_072922	GWFB01_080122	GWTB01_080122	SOFB03_080122	SOTB06_080122	GWFB02_080222
		Sample Date	05/10/2022	05/12/2022	05/12/2022	07/25/2022	07/25/2022	07/26/2022	07/26/2022	07/27/2022	07/28/2022	07/29/2022	08/01/2022	08/01/2022	08/01/2022	08/01/2022	08/02/2022
		Unit	Result	Result	Result	Result	Result	Result	Result	Result	Result	Result	Result	Result	Result	Result	Result
Pesticides																	
4,4'-DDD	72-54-8	ug/l	NA	<0.029 U	NA	<0.029 U	NA	<0.029 U	NA	NA	NA	NA	NA	NA	NA	NA	NA
4,4'-DDE	72-55-9	ug/l	NA	<0.029 U	NA	<0.029 U	NA	<0.029 U	NA	NA	NA	NA	NA	NA	NA	NA	NA
4,4'-DDT	50-29-3	ug/l	NA	<0.029 U	NA	<0.029 U	NA	<0.029 U	NA	NA	NA	NA	NA	NA	NA	NA	NA
Aldrin	309-00-2	ug/l	NA	<0.014 U	NA	<0.014 U	NA	<0.014 U	NA	NA	NA	NA	NA	NA	NA	NA	NA
Alpha BHC (Alpha Hexachlorocyclohexane)	319-84-6	ug/l	NA	<0.014 U	NA	<0.014 U	NA	<0.014 U	NA	NA	NA	NA	NA	NA	NA	NA	NA
Alpha Chlordane	5103-71-9	ug/l	NA	<0.014 U	NA	<0.014 U	NA	<0.014 U	NA	NA	NA	NA	NA	NA	NA	NA	NA
Alpha Endosulfan	959-98-8	ug/l	NA	<0.014 U	NA	<0.014 U	NA	<0.014 U	NA	NA	NA	NA	NA	NA	NA	NA	NA
Beta Bhc (Beta Hexachlorocyclohexane)	319-85-7	ug/l	NA	<0.014 U	NA	<0.014 U	NA	<0.014 U	NA	NA	NA	NA	NA	NA	NA	NA	NA
Beta Endosulfan	33213-65-9	ug/l	NA	<0.029 U	NA	<0.029 U	NA	<0.029 U	NA	NA	NA	NA	NA	NA	NA	NA	NA
Chlordane (alpha and gamma)	57-74-9	ug/l	NA	<0.143 U	NA	<0.143 U	NA	<0.143 U	NA	NA	NA	NA	NA	NA	NA	NA	NA
Delta Bhc (Delta Hexachlorocyclohexane)	319-86-8	ug/l	NA	<0.014 U	NA	<0.014 U	NA	<0.014 U	NA	NA	NA	NA	NA	NA	NA	NA	NA
Dieldrin	60-57-1	ug/l	NA	<0.029 U	NA	<0.029 U	NA	<0.029 U	NA	NA	NA	NA	NA	NA	NA	NA	NA
Endosulfan Sulfate	1031-07-8	ug/l	NA	<0.029 U	NA	<0.029 U	NA	<0.029 U	NA	NA	NA	NA	NA	NA	NA	NA	NA
Endrin	72-20-8	ug/l	NA	<0.029 U	NA	<0.029 U	NA	<0.029 U	NA	NA	NA	NA	NA	NA	NA	NA	NA
Endrin Aldehyde	7421-93-4	ug/l	NA	<0.029 U	NA	<0.029 U	NA	<0.029 U	NA	NA	NA	NA	NA	NA	NA	NA	NA
Endrin Ketone	53494-70-5	ug/l	NA	<0.029 U	NA	<0.029 U	NA	<0.029 U	NA	NA	NA	NA	NA	NA	NA	NA	NA
Gamma Bhc (Lindane)	58-89-9	ug/l	NA	<0.014 U	NA	<0.014 U	NA	<0.014 U	NA	NA	NA	NA	NA	NA	NA	NA	NA
Gamma Chlordane (Trans)	5103-74-2	ug/l	NA	<0.014 U	NA	<0.014 U	NA	<0.014 U	NA	NA	NA	NA	NA	NA	NA	NA	NA
Heptachlor	76-44-8	ug/l	NA	<0.014 U	NA	<0.014 U	NA	<0.014 U	NA	NA	NA	NA	NA	NA	NA	NA	NA
Heptachlor Epoxide	1024-57-3	ug/l	NA	<0.014 U	NA	<0.014 U	NA	<0.014 U	NA	NA	NA	NA	NA	NA	NA	NA	NA
Methoxychlor	72-43-5	ug/l	NA	<0.143 U	NA	<0.143 U	NA	<0.143 U	NA	NA	NA	NA	NA	NA	NA	NA	NA
Toxaphene	8001-35-2	ug/l	NA	<0.143 U	NA	<0.143 U	NA	<0.143 U	NA	NA	NA	NA	NA	NA	NA	NA	NA
Herbicides																	
2,4,5-T (Trichlorophenoxyacetic Acid)	93-76-5	ug/l	NA	<2 U	NA	<2 U	NA	<2 U	NA	NA	NA	NA	NA	NA	NA	NA	NA
2,4-D (Dichlorophenoxyacetic Acid)	94-75-7	ug/l	NA	<10 U	NA	<10 U	NA	<10 U	NA	NA	NA	NA	NA	NA	NA	NA	NA
Silvex (2,4,5-Tp)	93-72-1	ug/l	NA	<2 U	NA	<2 U	NA	<2 U	NA	NA	NA	NA	NA	NA	NA	NA	NA
Polychlorinated Biphenyl																	
PCB-1016 (Aroclor 1016)	12674-11-2	ug/l	NA	<0.071 U	NA	<0.071 U	NA	<0.071 U	NA	NA	NA	NA	NA	NA	NA	NA	NA
PCB-1221 (Aroclor 1221)	11104-28-2	ug/l	NA	<0.071 U	NA	<0.071 U	NA	<0.071 U	NA	NA	NA	NA	NA	NA	NA	NA	NA
PCB-1232 (Aroclor 1232)	11141-16-5	ug/l	NA	<0.071 U	NA	<0.071 U	NA	<0.071 U	NA	NA	NA	NA	NA	NA	NA	NA	NA
PCB-1242 (Aroclor 1242)	53469-21-9	ug/l	NA	<0.071 U	NA	<0.071 U	NA	<0.071 U	NA	NA	NA	NA	NA	NA	NA	NA	NA
PCB-1248 (Aroclor 1248)	12672-29-6	ug/l	NA	<0.071 U	NA	<0.071 U	NA	<0.071 U	NA	NA	NA	NA	NA	NA	NA	NA	NA
PCB-1254 (Aroclor 1254)	11097-69-1	ug/l	NA	<0.071 U	NA	<0.071 U	NA	<0.071 U	NA	NA	NA	NA	NA	NA	NA	NA	NA
PCB-1260 (Aroclor 1260)	11096-82-5	ug/l	NA	<0.071 U	NA	<0.071 U	NA	<0.071 U	NA	NA	NA	NA	NA	NA	NA	NA	NA
PCB-1262 (Aroclor 1262)	37324-23-5	ug/l	NA	<0.071 U	NA	<0.071 U	NA	<0.071 U	NA	NA	NA	NA	NA	NA	NA	NA	NA
PCB-1268 (Aroclor 1268)	11100-14-4	ug/l	NA	<0.071 U	NA	<0.071 U	NA	<0.071 U	NA	NA	NA	NA	NA	NA	NA	NA	NA
Total PCBs	1336-36-3	ug/l	NA	<0.071 U	NA	<0.071 U	NA	<0.071 U	NA	NA	NA	NA	NA	NA	NA	NA	NA
Metals - Dissolved																	
Aluminum	7429-90-5	ug/l	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Antimony	7440-36-0	ug/l	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Arsenic	7440-38-2	ug/l	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Barium	7440-39-3	ug/l	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Beryllium	7440-41-7	ug/l	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Cadmium	7440-43-9	ug/l	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Calcium	7440-70-2	ug/l	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Chromium, Total	7440-47-3	ug/l	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Cobalt	7440-48-4	ug/l	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Copper	7440-50-8	ug/l	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Iron	7439-89-6	ug/l	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Lead	7439-92-1	ug/l	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Magnesium	7439-95-4	ug/l	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Manganese	7439-96-5	ug/l	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Mercury	7439-97-6	ug/l	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Nickel	7440-02-0	ug/l	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Potassium	7440-09-7	ug/l	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Selenium	7782-49-2	ug/l	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Silver	7440-22-4	ug/l	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Sodium	7440-23-5	ug/l	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Thallium	7440-28-0	ug/l	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Vanadium	7440-62-2	ug/l	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Zinc	7440-66-6	ug/l	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA

Table 6
Remedial Investigation Report
Quality Assurance/Quality Control Sample Analytical Results

C Block
Brooklyn, New York
NYSDEC BCP Site No.: C224435
Langan Project No.: 170229030

Analyte	CAS Number	Sample Type	TB	FB	TB	FB	TB	FB	TB	TB	TB	TB	FB	TB	FB	TB	FB
		Sample Name	TB_051022	FB01_051222	TB02_051222	SOFB01_072522	SOTB01_072522	SOFB02_072622	SOTB02_072622	SOTB03_072722	SOTB04_072822	SOTB05_072922	GWFB01_080122	GWTB01_080122	SOFB03_080122	SOTB06_080122	GWFB02_080222
		Sample Date	05/10/2022	05/12/2022	05/12/2022	07/25/2022	07/25/2022	07/26/2022	07/26/2022	07/27/2022	07/28/2022	07/29/2022	08/01/2022	08/01/2022	08/01/2022	08/01/2022	08/02/2022
		Unit	Result	Result	Result	Result	Result	Result	Result	Result	Result	Result	Result	Result	Result	Result	Result
Metals - Total																	
Aluminum	7429-90-5	ug/l	NA	3.48 J	NA	<10 U	NA	<10 U	NA	NA	NA	NA	NA	NA	NA	NA	NA
Antimony	7440-36-0	ug/l	NA	0.47 J	NA	<4 U	NA	<4 U	NA	NA	NA	NA	NA	NA	NA	NA	NA
Arsenic	7440-38-2	ug/l	NA	<0.5 U	NA	<0.5 U	NA	<0.5 U	NA	NA	NA	NA	NA	NA	NA	NA	NA
Barium	7440-39-3	ug/l	NA	<0.5 U	NA	<0.5 U	NA	<0.5 U	NA	NA	NA	NA	NA	NA	NA	NA	NA
Beryllium	7440-41-7	ug/l	NA	<0.5 U	NA	<0.5 U	NA	<0.5 U	NA	NA	NA	NA	NA	NA	NA	NA	NA
Cadmium	7440-43-9	ug/l	NA	<0.2 U	NA	<0.2 U	NA	<0.2 U	NA	NA	NA	NA	NA	NA	NA	NA	NA
Calcium	7440-70-2	ug/l	NA	<100 U	NA	<100 U	NA	<100 U	NA	NA	NA	NA	NA	NA	NA	NA	NA
Chromium, Hexavalent	18540-29-9	ug/l	NA	<10 U	NA	<10 U	NA	<10 U	NA	NA	NA	NA	NA	NA	NA	NA	NA
Chromium, Total	7440-47-3	ug/l	NA	<1 U	NA	<1 U	NA	<1 U	NA	NA	NA	NA	NA	NA	NA	NA	NA
Chromium, Trivalent	16065-83-1	ug/l	NA	<10 U	NA	<10 U	NA	<10 U	NA	NA	NA	NA	NA	NA	NA	NA	NA
Cobalt	7440-48-4	ug/l	NA	<0.5 U	NA	<0.5 U	NA	<0.5 U	NA	NA	NA	NA	NA	NA	NA	NA	NA
Copper	7440-50-8	ug/l	NA	<1 U	NA	<1 U	NA	<1 U	NA	NA	NA	NA	NA	NA	NA	NA	NA
Cyanide	57-12-5	ug/l	NA	<5 U	NA	<5 U	NA	<5 U	NA	NA	NA	NA	NA	NA	NA	NA	NA
Iron	7439-89-6	ug/l	NA	<50 U	NA	<50 U	NA	<50 U	NA	NA	NA	NA	NA	NA	NA	NA	NA
Lead	7439-92-1	ug/l	NA	<1 U	NA	<1 U	NA	<1 U	NA	NA	NA	NA	NA	NA	NA	NA	NA
Magnesium	7439-95-4	ug/l	NA	<70 U	NA	<70 U	NA	<70 U	NA	NA	NA	NA	NA	NA	NA	NA	NA
Manganese	7439-96-5	ug/l	NA	<1 U	NA	<1 U	NA	<1 U	NA	NA	NA	NA	NA	NA	NA	NA	NA
Mercury	7439-97-6	ug/l	NA	<0.2 U	NA	<0.2 U	NA	<0.2 U	NA	NA	NA	NA	NA	NA	NA	NA	NA
Nickel	7440-02-0	ug/l	NA	<2 U	NA	<2 U	NA	<2 U	NA	NA	NA	NA	NA	NA	NA	NA	NA
Potassium	7440-09-7	ug/l	NA	<100 U	NA	<100 U	NA	<100 U	NA	NA	NA	NA	NA	NA	NA	NA	NA
Selenium	7782-49-2	ug/l	NA	<5 U	NA	<5 U	NA	<5 U	NA	NA	NA	NA	NA	NA	NA	NA	NA
Silver	7440-22-4	ug/l	NA	<0.4 U	NA	<0.4 U	NA	<0.4 U	NA	NA	NA	NA	NA	NA	NA	NA	NA
Sodium	7440-23-5	ug/l	NA	<100 U	NA	<100 U	NA	54.8 J	NA	NA	NA	NA	NA	NA	NA	NA	NA
Thallium	7440-28-0	ug/l	NA	0.15 J	NA	<1 U	NA	<1 U	NA	NA	NA	NA	NA	NA	NA	NA	NA
Vanadium	7440-62-2	ug/l	NA	<5 U	NA	<5 U	NA	<5 U	NA	NA	NA	NA	NA	NA	NA	NA	NA
Zinc	7440-66-6	ug/l	NA	<10 U	NA	<10 U	NA	<10 U	NA	NA	NA	NA	NA	NA	NA	NA	NA
Per- and Polyfluoroalkyl Substances																	
11-Chloroeicosafluoro-3-Oxaundecane-1-Sulfonic Acid (11Cl-PF3OUd	763051-92-9	ug/l	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
1H,1H,2H,2H-Perfluorodecane Sulfonic Acid (8:2 FTS)	39108-34-4	ug/l	NA	NA	NA	<0.00176 U	NA	<0.00185 U	NA	NA	NA	NA	<0.00181 U	NA	<0.00175 U	NA	<0.00177 U
1H,1H,2H,2H-Perfluorohexane Sulfonic Acid (4:2 FTS)	757124-72-4	ug/l	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
1H,1H,2H,2H-Perfluorooctane Sulfonic Acid (6:2 FTS)	27619-97-2	ug/l	NA	NA	NA	<0.00176 U	NA	<0.00185 U	NA	NA	NA	NA	<0.00181 U	NA	<0.00175 U	NA	<0.00177 U
2H,2H,3H,3H-Perfluorooctanoic Acid (5:3 FTCA)	914637-49-3	ug/l	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
3-Perfluoroheptyl Propanoic Acid (7:3 FTCA)	812-70-4	ug/l	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
3-Perfluoropropyl Propanoic Acid (3:3 FTCA)	356-02-5	ug/l	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
4,8-Dioxa-3H-perfluorononanoic Acid (ADONA)	919005-14-4	ug/l	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
9-Chlorohexadecafluoro-3-Oxanonane-1-Sulfonic Acid (9Cl-PF3ONS)	756426-58-1	ug/l	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Hexafluoropropylene Oxide Dimer Acid (HFPO-DA)	13252-13-6	ug/l	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
N-ethyl Perfluorooctanesulfonamide (NEtFOSA)	4151-50-2	ug/l	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
N-ethyl Perfluorooctanesulfonamidoacetic Acid (NEtFOSAA)	2991-50-6	ug/l	NA	NA	NA	<0.00176 U	NA	<0.00185 U	NA	NA	NA	NA	<0.00181 U	NA	<0.00175 U	NA	<0.00177 U
N-ethyl Perfluorooctanesulfonamidoethanol (NEtFOSE)	1691-99-2	ug/l	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
N-methyl Perfluorooctanesulfonamide (NMeFOSA)	31506-32-8	ug/l	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
N-methyl Perfluorooctanesulfonamidoacetic Acid (NMeFOSAA)	2355-31-9	ug/l	NA	NA	NA	<0.00176 U	NA	<0.00185 U	NA	NA	NA	NA	<0.00181 U	NA	<0.00175 U	NA	<0.00177 U
N-methyl Perfluorooctanesulfonamidoethanol (NMeFOSE)	24448-09-7	ug/l	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Nonafluoro-3,6-dioxaheptanoic Acid (NFDHA)	151772-58-6	ug/l	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Perfluoro(2-ethoxyethane)sulfonic Acid (PFEESA)	113507-82-7	ug/l	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Perfluoro-3-methoxypropanoic Acid (PFMPA)	377-73-1	ug/l	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Perfluoro-4-methoxybutanoic Acid (PFMBA)	863090-89-5	ug/l	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Perfluorobutanesulfonic Acid (PFBS)	375-73-5	ug/l	NA	NA	NA	<0.00176 U	NA	<0.00185 U	NA	NA	NA	NA	<0.00181 U	NA	<0.00175 U	NA	<0.00177 U
Perfluorobutanoic Acid (PFBA)	375-22-4	ug/l	NA	NA	NA	<0.00176 U	NA	<0.00185 U	NA	NA	NA	NA	<0.00181 U	NA	<0.00175 U	NA	<0.00177 U
Perfluorodecanesulfonic Acid (PFDS)	335-77-3	ug/l	NA	NA	NA	<0.00176 U	NA	<0.00185 U	NA	NA	NA	NA	<0.00181 U	NA	<0.00175 U	NA	<0.00177 U
Perfluorodecanoic Acid (PFDA)	335-76-2	ug/l	NA	NA	NA	<0.00176 U	NA	<0.00185 U	NA	NA	NA	NA	<0.00181 U	NA	<0.00175 U	NA	<0.00177 U
Perfluorododecanesulfonic Acid (PFDoS)	79780-39-5	ug/l	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Perfluorododecanoic Acid (PFDoA)	307-55-1	ug/l	NA	NA	NA	<0.00176 U	NA	<0.00185 U	NA	NA	NA	NA	<0.00181 U	NA	<0.00175 U	NA	<0.00177 U
Perfluoroheptanesulfonic Acid (PFHpS)	375-92-8	ug/l	NA	NA	NA	<0.00176 U	NA	<0.00185 U	NA	NA	NA	NA	<0.00181 U	NA	<0.00175 U	NA	<0.00177 U
Perfluoroheptanoic Acid (PFHpA)	375-85-9	ug/l	NA	NA	NA	<0.00176 U	NA	<0.00185 U	NA	NA	NA	NA	<0.00181 U	NA	<0.00175 U	NA	<0.00177 U
Perfluorohexanesulfonic Acid (PFHxS)	355-46-4	ug/l	NA	NA	NA	<0.00176 U	NA	<0.00185 U	NA	NA	NA	NA	<0.00181 U	NA	<0.00175 U	NA	<0.00177 U
Perfluorohexanoic Acid (PFHxA)	307-24-4	ug/l	NA	NA	NA	<0.00176 U	NA	<0.00185 U	NA	NA	NA	NA	<0.00181 U	NA	<0.00175 U	NA	<0.00177 U
Perfluorononanesulfonic Acid (PFNS)	68259-12-1	ug/l	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Perfluorononanoic Acid (PFNA)	375-95-1	ug/l	NA	NA	NA	<0.00176 U	NA	<0.00185 U	NA	NA	NA	NA	<0.00181 U	NA	<0.00175 U	NA	<0.00177 U
Perfluorooctanesulfonamide (PFOSA)	754-91-6	ug/l	NA	NA	NA	<0.00176 U	NA	<0.00185 U	NA	NA	NA	NA	<0.00181 U	NA	<0.00175 U	NA	<0.00177 U
Perfluorooctanesulfonic Acid (PFOS)	1763-23-1	ug/l	NA	NA	NA	<0.00176 U	NA	<0.00185 U	NA	NA	NA	NA	<0.00181 U	NA	<0.00175 U	NA	<0.00177 U
Perfluorooctanoic Acid (PFOA)	335-67-1	ug/l	NA	NA	NA	<0.00176 U	NA	<0.00185 U	NA	NA	NA	NA	<0.00181 U	NA	<0.00175 U	NA	<0.00177 U
Perfluoropentanesulfonic Acid (PFPeS)	2706-91-4	ug/l	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Perfluoropentanoic Acid (PFPeA)	2706-90-3	ug/l	NA	NA	NA	<0.00176 U	NA	<0.00185 U	NA	NA	NA	NA	<0.00181 U	NA	<0.00175 U	NA	<0.00177 U
Perfluorotetradecanoic Acid (PFTeDA)	376-06-7	ug/l	NA	NA	NA	<0.00176 U	NA	<0.00185 U	NA	NA	NA	NA	<0.00181 U	NA	<0.00175 U	NA	<0.00177 U
Perfluorotridecanoic Acid (PFTrDA)	72629-94-8	ug/l	NA	NA	NA	<0.00176 U	NA	<0.00185 U	NA	NA	NA	NA	<0.00181 U	NA	<0.00175 U	NA	<0.00177 U
Perfluoroundecanoic Acid (PFUnA)	2058-94-8	ug/l	NA	NA	NA	<0.00176 U	NA	<0.00185 U	NA	NA	NA	NA	<0.00181 U	NA	<0.00175 U	NA	<0.00177 U
Total PFOA and PFOS	TOTPFOAPFOS	ug/l	NA	NA	NA	<0.00176 U	NA	<0.00185 U	NA	NA	NA	NA	<0.00181 U	NA	<0.00175 U	NA	<0.00177 U

Table 6
Remedial Investigation Report
Quality Assurance/Quality Control Sample Analytical Results

C Block
Brooklyn, New York
NYSDEC BCP Site No.: C224435
Langan Project No.: 170229030

Analyte	CAS Number	Sample Type	TB	FB	TB	FB	TB	FB	TB	FB	TB	FB	TB	FB	FB	FB
		Sample Name	GWTB02_080222	SOFB04_080222	SOTB07_080222	GWFB03_080322	GWTB03_080322	SOFB05_080322	SOTB08_080322	GWFB04_080422	GWTB04_080422	GWFB05_080522	GWTB05_080522	GWFB01_011226	GWFB02_011326	GWFB03_011426
		Sample Date	08/02/2022	08/02/2022	08/02/2022	08/03/2022	08/03/2022	08/03/2022	08/03/2022	08/04/2022	08/04/2022	08/05/2022	08/05/2022	01/12/2026	01/13/2026	01/14/2026
		Unit	Result	Result	Result	Result	Result	Result	Result	Result	Result	Result	Result	Result	Result	Result
Volatile Organic Compounds																
1,1,1,2-Tetrachloroethane	630-20-6	ug/l	<2.5 U	<2.5 U	<2.5 U	<2.5 U	<2.5 U	NA	<2.5 U	NA	<2.5 U	NA	<2.5 U	NA	NA	NA
1,1,1-Trichloroethane	71-55-6	ug/l	<2.5 U	<2.5 U	<2.5 U	<2.5 U	<2.5 U	NA	<2.5 U	NA	<2.5 U	NA	<2.5 U	NA	NA	NA
1,1,2,2-Tetrachloroethane	79-34-5	ug/l	<0.5 U	<0.5 U	<0.5 U	<0.5 U	<0.5 U	NA	<0.5 U	NA	<0.5 U	NA	<0.5 U	NA	NA	NA
1,1,2-Trichloro-1,2,2-Trifluoroethane	76-13-1	ug/l	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
1,1,2-Trichloroethane	79-00-5	ug/l	<1.5 U	<1.5 U	<1.5 U	<1.5 U	<1.5 U	NA	<1.5 U	NA	<1.5 U	NA	<1.5 U	NA	NA	NA
1,1-Dichloroethane	75-34-3	ug/l	<2.5 U	<2.5 U	<2.5 U	<2.5 U	<2.5 U	NA	<2.5 U	NA	<2.5 U	NA	<2.5 U	NA	NA	NA
1,1-Dichloroethene	75-35-4	ug/l	<0.5 U	<0.5 U	<0.5 U	<0.5 U	<0.5 U	NA	<0.5 U	NA	<0.5 U	NA	<0.5 U	NA	NA	NA
1,1-Dichloropropene	563-58-6	ug/l	<2.5 U	<2.5 U	<2.5 U	<2.5 U	<2.5 U	NA	<2.5 U	NA	<2.5 U	NA	<2.5 U	NA	NA	NA
1,2,3-Trichlorobenzene	87-61-6	ug/l	<2.5 U	<2.5 U	<2.5 U	<2.5 U	<2.5 U	NA	<2.5 U	NA	<2.5 U	NA	<2.5 U	NA	NA	NA
1,2,3-Trichloropropane	96-18-4	ug/l	<2.5 U	<2.5 U	<2.5 U	<2.5 U	<2.5 U	NA	<2.5 U	NA	<2.5 U	NA	<2.5 U	NA	NA	NA
1,2,4,5-Tetramethylbenzene	95-93-2	ug/l	<2 U	<2 U	<2 U	<2 U	<2 U	NA	<2 U	NA	<2 U	NA	<2 U	NA	NA	NA
1,2,4-Trichlorobenzene	120-82-1	ug/l	<2.5 U	<2.5 U	<2.5 U	<2.5 U	<2.5 U	NA	<2.5 U	NA	<2.5 U	NA	<2.5 U	NA	NA	NA
1,2,4-Trimethylbenzene	95-63-6	ug/l	<2.5 U	<2.5 U	<2.5 U	<2.5 U	<2.5 U	NA	<2.5 U	NA	<2.5 U	NA	<2.5 U	NA	NA	NA
1,2-Dibromo-3-Chloropropane	96-12-8	ug/l	<2.5 U	<2.5 U	<2.5 U	<2.5 U	<2.5 U	NA	<2.5 U	NA	<2.5 U	NA	<2.5 U	NA	NA	NA
1,2-Dibromoethane (Ethylene Dibromide)	106-93-4	ug/l	<2 U	<2 U	<2 U	<2 U	<2 U	NA	<2 U	NA	<2 U	NA	<2 U	NA	NA	NA
1,2-Dichlorobenzene	95-50-1	ug/l	<2.5 U	<2.5 U	<2.5 U	<2.5 U	<2.5 U	NA	<2.5 U	NA	<2.5 U	NA	<2.5 U	NA	NA	NA
1,2-Dichloroethane	107-06-2	ug/l	<0.5 U	<0.5 U	<0.5 U	<0.5 U	<0.5 U	NA	<0.5 U	NA	<0.5 U	NA	<0.5 U	NA	NA	NA
1,2-Dichloropropane	78-87-5	ug/l	<1 U	<1 U	<1 U	<1 U	<1 U	NA	<1 U	NA	<1 U	NA	<1 U	NA	NA	NA
1,3,5-Trimethylbenzene (Mesitylene)	108-67-8	ug/l	<2.5 U	<2.5 U	<2.5 U	<2.5 U	<2.5 U	NA	<2.5 U	NA	<2.5 U	NA	<2.5 U	NA	NA	NA
1,3-Dichlorobenzene	541-73-1	ug/l	<2.5 U	<2.5 U	<2.5 U	<2.5 U	<2.5 U	NA	<2.5 U	NA	<2.5 U	NA	<2.5 U	NA	NA	NA
1,3-Dichloropropane	142-28-9	ug/l	<2.5 U	<2.5 U	<2.5 U	<2.5 U	<2.5 U	NA	<2.5 U	NA	<2.5 U	NA	<2.5 U	NA	NA	NA
1,4-Dichlorobenzene	106-46-7	ug/l	<2.5 U	<2.5 U	<2.5 U	<2.5 U	<2.5 U	NA	<2.5 U	NA	<2.5 U	NA	<2.5 U	NA	NA	NA
1,4-Diethyl Benzene	105-05-5	ug/l	<2 U	<2 U	<2 U	<2 U	<2 U	NA	<2 U	NA	<2 U	NA	<2 U	NA	NA	NA
1,4-Dioxane (P-Dioxane)	123-91-1	ug/l	<250 U	NA	<250 U	<250 U	<250 U	NA	<250 U	NA	<250 U	NA	<250 U	NA	NA	NA
2,2-Dichloropropane	594-20-7	ug/l	<2.5 U	<2.5 U	<2.5 U	<2.5 U	<2.5 U	NA	<2.5 U	NA	<2.5 U	NA	<2.5 U	NA	NA	NA
2-Chlorotoluene	95-49-8	ug/l	<2.5 U	<2.5 U	<2.5 U	<2.5 U	<2.5 U	NA	<2.5 U	NA	<2.5 U	NA	<2.5 U	NA	NA	NA
2-Hexanone (MBK)	591-78-6	ug/l	<5 U	<5 U	<5 U	<5 U	<5 U	NA	<5 U	NA	<5 U	NA	<5 U	NA	NA	NA
4-Chlorotoluene	106-43-4	ug/l	<2.5 U	<2.5 U	<2.5 U	<2.5 U	<2.5 U	NA	<2.5 U	NA	<2.5 U	NA	<2.5 U	NA	NA	NA
4-Ethyltoluene	622-96-8	ug/l	<2 U	<2 U	<2 U	<2 U	<2 U	NA	<2 U	NA	<2 U	NA	<2 U	NA	NA	NA
Acetone	67-64-1	ug/l	<5 U	<5 U	<5 U	<5 U	<5 U	NA	<5 U	NA	2.4 J	NA	<5 U	NA	NA	NA
Acrolein	107-02-8	ug/l	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Acrylonitrile	107-13-1	ug/l	<5 U	<5 U	<5 U	<5 U	<5 U	NA	<5 U	NA	<5 U	NA	<5 U	NA	NA	NA
Benzene	71-43-2	ug/l	<0.5 U	<0.5 U	<0.5 U	<0.5 U	<0.5 U	NA	<0.5 U	NA	<0.5 U	NA	<0.5 U	NA	NA	NA
Bromobenzene	108-86-1	ug/l	<2.5 U	<2.5 U	<2.5 U	<2.5 U	<2.5 U	NA	<2.5 U	NA	<2.5 U	NA	<2.5 U	NA	NA	NA
Bromochloromethane	74-97-5	ug/l	<2.5 U	<2.5 U	<2.5 U	<2.5 U	<2.5 U	NA	<2.5 U	NA	<2.5 U	NA	<2.5 U	NA	NA	NA
Bromodichloromethane	75-27-4	ug/l	<0.5 U	<0.5 U	<0.5 U	<0.5 U	<0.5 U	NA	<0.5 U	NA	<0.5 U	NA	<0.5 U	NA	NA	NA
Bromoform	75-25-2	ug/l	<2 U	<2 U	<2 U	<2 U	<2 U	NA	<2 U	NA	<2 U	NA	<2 U	NA	NA	NA
Bromomethane	74-83-9	ug/l	<2.5 U	<2.5 U	<2.5 U	<2.5 U	<2.5 U	NA	<2.5 U	NA	<2.5 U	NA	<2.5 U	NA	NA	NA
Carbon Disulfide	75-15-0	ug/l	<5 U	<5 U	<5 U	<5 U	<5 U	NA	<5 U	NA	<5 U	NA	<5 U	NA	NA	NA
Carbon Tetrachloride	56-23-5	ug/l	<0.5 U	<0.5 U	<0.5 U	<0.5 U	<0.5 U	NA	<0.5 U	NA	<0.5 U	NA	<0.5 U	NA	NA	NA
Chlorobenzene	108-90-7	ug/l	<2.5 U	<2.5 U	<2.5 U	<2.5 U	<2.5 U	NA	<2.5 U	NA	<2.5 U	NA	<2.5 U	NA	NA	NA
Chloroethane	75-00-3	ug/l	<2.5 U	<2.5 U	<2.5 U	<2.5 U	<2.5 U	NA	<2.5 U	NA	<2.5 U	NA	<2.5 U	NA	NA	NA
Chloroform	67-66-3	ug/l	<2.5 U	<2.5 U	<2.5 U	<2.5 U	<2.5 U	NA	<2.5 U	NA	<2.5 U	NA	<2.5 U	NA	NA	NA
Chloromethane	74-87-3	ug/l	<2.5 U	<2.5 U	<2.5 U	<2.5 U	<2.5 U	NA	<2.5 U	NA	<2.5 U	NA	<2.5 U	NA	NA	NA
Cis-1,2-Dichloroethene	156-59-2	ug/l	<2.5 U	<2.5 U	<2.5 U	<2.5 U	<2.5 U	NA	<2.5 U	NA	<2.5 U	NA	<2.5 U	NA	NA	NA
Cis-1,3-Dichloropropene	10061-01-5	ug/l	<0.5 U	<0.5 U	<0.5 U	<0.5 U	<0.5 U	NA	<0.5 U	NA	<0.5 U	NA	<0.5 U	NA	NA	NA
Cyclohexane	110-82-7	ug/l	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Cymene	99-87-6	ug/l	<2.5 U	<2.5 U	<2.5 U	<2.5 U	<2.5 U	NA	<2.5 U	NA	<2.5 U	NA	<2.5 U	NA	NA	NA
Dibromochloromethane	124-48-1	ug/l	<0.5 U	<0.5 U	<0.5 U	<0.5 U	<0.5 U	NA	<0.5 U	NA	<0.5 U	NA	<0.5 U	NA	NA	NA
Dibromomethane	74-95-3	ug/l	<5 U	<5 U	<5 U	<5 U	<5 U	NA	<5 U	NA	<5 U	NA	<5 U	NA	NA	NA
Dichlorodifluoromethane	75-71-8	ug/l	<5 U	<5 U	<5 U	<5 U	<5 U	NA	<5 U	NA	<5 U	NA	<5 U	NA	NA	NA
Diethyl Ether (Ethyl Ether)	60-29-7	ug/l	<2.5 U	<2.5 U	<2.5 U	<2.5 U	<2.5 U	NA	<2.5 U	NA	<2.5 U	NA	<2.5 U	NA	NA	NA
Ethylbenzene	100-41-4	ug/l	<2.5 U	<2.5 U	<2.5 U	<2.5 U	<2.5 U	NA	<2.5 U	NA	<2.5 U	NA	<2.5 U	NA	NA	NA
Hexachlorobutadiene	87-68-3	ug/l	<2.5 U	NA	<2.5 U	<2.5 U	<2.5 U	NA	<2.5 U	NA	<2.5 U	NA	<2.5 U	NA	NA	NA
Isopropylbenzene (Cumene)	98-82-8	ug/l	<2.5 U	<2.5 U	<2.5 U	<2.5 U	<2.5 U	NA	<2.5 U	NA	<2.5 U	NA	<2.5 U	NA	NA	NA
M,P-Xylene	179601-23-1	ug/l	<2.5 U	<2.5 U	<2.5 U	<2.5 U	<2.5 U	NA	<2.5 U	NA	<2.5 U	NA	<2.5 U	NA	NA	NA
Methyl Acetate	79-20-9	ug/l	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Methyl Ethyl Ketone (2-Butanone)	78-93-3	ug/l	<5 U	<5 U	<5 U	<5 U	<5 U	NA	<5 U	NA	<5 U	NA	<5 U	NA	NA	NA
Methyl Isobutyl Ketone (4-Methyl-2-Pentanone)	108-10-1	ug/l	<5 U	<5 U	<5 U	<5 U	<5 U	NA	<5 U	NA	<5 U	NA	<5 U	NA	NA	NA
Methylcyclohexane	108-87-2	ug/l	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Methylene Chloride	75-09-2	ug/l	<2.5 U	<2.5 U	<2.5 U	<2.5 U	<2.5 U	NA	<2.5 U	NA	<2.5 U	NA	<2.5 U	NA	NA	NA
Naphthalene	91-20-3	ug/l	<2.5 U	NA	<2.5 U	<2.5 U	<2.5 U	NA	<2.5 U	NA	<2.5 U	NA	<2.5 U	NA	NA	NA
n-Butylbenzene	104-51-8	ug/l	<2.5 U	<2.5 U	<2.5 U	<2.5 U	<2.5 U	NA	<2.5 U	NA	<2.5 U	NA	<2.5 U	NA	NA	NA
n-Propylbenzene	103-65-1	ug/l	<2.5 U	<2.5 U	<2.5 U	<2.5 U	<2.5 U	NA	<2.5 U	NA	<2.5 U	NA	<2.5 U	NA	NA	NA
o-Xylene (1,2-Dimethylbenzene)	95-47-6	ug/l	<2.5 U	<2.5 U	<2.5 U	<2.5 U	<2.5 U	NA	<2.5 U	NA	<2.5 U	NA	<2.5 U	NA	NA	NA
Sec-Butylbenzene	135-98-8	ug/l	<2.5 U	<2.5 U	<2.5 U	<2.5 U	<2.5 U	NA	<2.5 U	NA	<2.5 U	NA	<2.5 U	NA	NA	NA
Styrene	100-42-5	ug/l	<2.5 U	<2.5 U	<2.5 U	<2.5 U	<2.5 U	NA	<2.5 U	NA	<2.5 U	NA	<2.5 U	NA	NA	NA
T-Butylbenzene	98-06-6	ug/l	<2.5 U	<2.5 U	<2.5 U	<2.5 U	<2.5 U	NA	<2.5 U	NA	<2.5 U	NA	<2.5 U	NA	NA	NA
Tert-Butyl Alcohol	75-65-0	ug/l	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Tert-Butyl Methyl Ether (MTBE)	1634-04-4	ug/l	<2.5 U	<2.5 U	<2.5 U	<2.5 U	<2.5 U	NA	<2.5 U	NA	<2.5 U	NA	<2.5 U	NA	NA	NA
Tetrachloroethene (PCE)	127-18-4	ug/l	<0.5 U	<0.5 U	<0.5 U	<0.5 U	<0.5 U	NA	<0.5 U	NA	<0.5 U	NA	<0.5 U	NA	NA	NA
Toluene	108-88-3	ug/l	<2.5 U	<2.5 U	<2.5 U	<2.5 U	<2.5 U	NA	<2.5 U	NA	<2.5 U	NA	<2.5 U	NA	NA	NA
Total 1,2-Dichloroethene (Cis and Trans)	540-59-0	ug/l	<2.5 U	<2.5 U	<2.5 U	<2.5 U	<2.5 U	NA	<2.5 U	NA	<2.5 U	NA	<2.5 U	NA	NA	NA
Total Xylenes	1330-20-7	ug/l	<2.5 U	<2.5 U	<2.5 U	<2.5 U	<2.5 U	NA	<2.5 U	NA	<2.5 U	NA	<2.5 U	NA	NA	NA
Total, 1,3-Dichloropropene (Cis And Trans)	542-75-6	ug/l	<0.5 U	<0.5 U	<0.5 U	<0.5 U	<0.5 U	NA	<0.5 U	NA	<0.5 U	NA	<0.5 U	NA	NA	NA
Trans-1,2-Dichloroethene	156-60-5	ug/l	<2.5 U	<2.5 U	<2.5 U	<2.5 U	<2.5 U	NA	<2.5 U	NA	<2.5 U	NA	<2.5 U	NA	NA	NA
Trans-1,3-Dichloropropene	10061-02-6	ug/l	<0.5 U	<0.5 U	<0.5 U	<0.5 U	<0.5 U	NA	<0.5 U	NA	<0.5 U	NA	<0.5 U	NA	NA	NA
Trans-1,4-Dichloro-2-Butene	110-57-6	ug/l	<2.5 U	<2.5 U	<2.5 U	<2.5 U	<2.5 U	NA	<2.5 U	NA	<2.5 U	NA	<2.5 U	NA	NA	NA
Trichloroethene (TCE)	79-01-6	ug/l	<0.5 U	<0.5 U	<0.5 U	<0.5 U	<0.5 U	NA	<0.5 U	NA	<0.5 U	NA	<0.5 U	NA	NA	NA
Trichlorofluoromethane	75-69-4	ug/l	<2.5 U	<2.5 U	<2.5 U	<2.5 U	<2.5 U	NA	<2.5 U	NA	<2.5 U	NA	<2.5 U	NA	NA	NA
Vinyl Acetate	108-05-4	ug/l	<5 U	<5 U	<5 U	<5 U	<5 U	NA	<5 U	NA	<5 U	NA	<5 U	NA	NA	NA
Vinyl Chloride	75-01-4	ug/l	<1 U	<1 U	<1 U	<1 U	<1 U	NA	<1 U	NA	<1 U	NA	<1 U	NA	NA	NA

Table 6
Remedial Investigation Report
Quality Assurance/Quality Control Sample Analytical Results

C Block
Brooklyn, New York
NYSDEC BCP Site No.: C224435
Langan Project No.: 170229030

Analyte	CAS Number	Sample Type	TB	FB	TB	FB	TB	FB	TB	FB	TB	FB	TB	FB	FB	FB
		Sample Name	GWTB02_080222	SOFB04_080222	SOTB07_080222	GWFB03_080322	GWTB03_080322	SOFB05_080322	SOTB08_080322	GWFB04_080422	GWTB04_080422	GWFB05_080522	GWTB05_080522	GWFB01_011226	GWFB02_011326	GWFB03_011426
		Sample Date	08/02/2022	08/02/2022	08/02/2022	08/03/2022	08/03/2022	08/03/2022	08/03/2022	08/04/2022	08/04/2022	08/05/2022	08/05/2022	01/12/2026	01/13/2026	01/14/2026
		Unit	Result	Result	Result	Result	Result	Result	Result	Result	Result	Result	Result	Result	Result	Result
Semi-Volatile Organic Compounds																
1,2,4,5-Tetrachlorobenzene	95-94-3	ug/l	NA	<10 U	NA	<10 U	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
1,2,4-Trichlorobenzene	120-82-1	ug/l	NA	<5 U	NA	<5 U	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
1,2-Dichlorobenzene	95-50-1	ug/l	NA	<2 U	NA	<2 U	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
1,3-Dichlorobenzene	541-73-1	ug/l	NA	<2 U	NA	<2 U	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
1,4-Dichlorobenzene	106-46-7	ug/l	NA	<2 U	NA	<2 U	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
1,4-Dioxane (P-Dioxane)	123-91-1	ug/l	NA	<0.15 U	NA	0.0372 J	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
2,3,4,6-Tetrachlorophenol	58-90-2	ug/l	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
2,4,5-Trichlorophenol	95-95-4	ug/l	NA	<5 U	NA	<5 U	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
2,4,6-Trichlorophenol	88-06-2	ug/l	NA	<5 U	NA	<5 U	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
2,4-Dichlorophenol	120-83-2	ug/l	NA	<5 U	NA	<5 U	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
2,4-Dimethylphenol	105-67-9	ug/l	NA	<5 U	NA	<5 U	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
2,4-Dinitrophenol	51-28-5	ug/l	NA	<20 U	NA	<20 U	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
2,4-Dinitrotoluene	121-14-2	ug/l	NA	<5 U	NA	<5 U	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
2,6-Dinitrotoluene	606-20-2	ug/l	NA	<5 U	NA	<5 U	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
2-Chloronaphthalene	91-58-7	ug/l	NA	<0.2 U	NA	<0.2 U	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
2-Chlorophenol	95-57-8	ug/l	NA	<2 U	NA	<2 U	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
2-Methylnaphthalene	91-57-6	ug/l	NA	<0.1 U	NA	<0.1 U	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
2-Methylphenol (o-Cresol)	95-48-7	ug/l	NA	<5 U	NA	<5 U	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
2-Nitroaniline	88-74-4	ug/l	NA	<5 U	NA	<5 U	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
2-Nitrophenol	88-75-5	ug/l	NA	<10 U	NA	<10 U	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
3 & 4 Methylphenol (m&p Cresol)	65794-96-9	ug/l	NA	<5 U	NA	<5 U	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
3,3'-Dichlorobenzidine	91-94-1	ug/l	NA	<5 U	NA	<5 U	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
3-Nitroaniline	99-09-2	ug/l	NA	<5 U	NA	<5 U	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
4,6-Dinitro-2-Methylphenol	534-52-1	ug/l	NA	<10 U	NA	<10 U	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
4-Bromophenyl Phenyl Ether	101-55-3	ug/l	NA	<2 U	NA	<2 U	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
4-Chloro-3-Methylphenol	59-50-7	ug/l	NA	<2 U	NA	<2 U	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
4-Chloroaniline	106-47-8	ug/l	NA	<5 U	NA	<5 U	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
4-Chlorophenyl Phenyl Ether	7005-72-3	ug/l	NA	<2 U	NA	<2 U	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
4-Nitroaniline	100-01-6	ug/l	NA	<5 U	NA	<5 U	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
4-Nitrophenol	100-02-7	ug/l	NA	<10 U	NA	<10 U	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Acenaphthene	83-32-9	ug/l	NA	<0.1 U	NA	0.02 J	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Acenaphthylene	208-96-8	ug/l	NA	<0.1 U	NA	<0.1 U	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Acetophenone	98-86-2	ug/l	NA	<5 U	NA	<5 U	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Anthracene	120-12-7	ug/l	NA	<0.1 U	NA	0.04 J	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Atrazine	1912-24-9	ug/l	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Azobenzene	103-33-3	ug/l	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Benzaldehyde	100-52-7	ug/l	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Benzidine	92-87-5	ug/l	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Benzo(a)anthracene	56-55-3	ug/l	NA	<0.1 U	NA	0.06 J	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Benzo(a)pyrene	50-32-8	ug/l	NA	<0.1 U	NA	0.02 J	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Benzo(b)fluoranthene	205-99-2	ug/l	NA	<0.1 U	NA	0.03 J	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Benzo(g,h,i)Perylene	191-24-2	ug/l	NA	<0.1 U	NA	<0.1 U	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Benzo(k)fluoranthene	207-08-9	ug/l	NA	<0.1 U	NA	0.01 J	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Benzoic Acid	65-85-0	ug/l	NA	<50 U	NA	<50 U	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Benzyl Alcohol	100-51-6	ug/l	NA	<2 U	NA	<2 U	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Benzyl Butyl Phthalate	85-68-7	ug/l	NA	<5 U	NA	<5 U	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Biphenyl (Diphenyl)	92-52-4	ug/l	NA	<2 U	NA	<2 U	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Bis(2-chloroethoxy) methane	111-91-1	ug/l	NA	<5 U	NA	<5 U	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Bis(2-chloroethyl) ether (2-chloroethyl ether)	111-44-4	ug/l	NA	<2 U	NA	<2 U	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Bis(2-chloroisopropyl) ether	108-60-1	ug/l	NA	<2 U	NA	<2 U	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Bis(2-ethylhexyl) phthalate	117-81-7	ug/l	NA	<3 U	NA	<3 U	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Caprolactam	105-60-2	ug/l	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Carbazole	86-74-8	ug/l	NA	<2 U	NA	<2 U	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Chrysene	218-01-9	ug/l	NA	<0.1 U	NA	0.04 J	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Dibenz(a,h)anthracene	53-70-3	ug/l	NA	<0.1 U	NA	<0.1 U	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Dibenzofuran	132-64-9	ug/l	NA	<2 U	NA	<2 U	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Dibutyl phthalate	84-74-2	ug/l	NA	<5 U	NA	<5 U	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Diethyl phthalate	84-66-2	ug/l	NA	<5 U	NA	<5 U	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Dimethyl phthalate	131-11-3	ug/l	NA	<5 U	NA	<5 U	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Dioctyl phthalate	117-84-0	ug/l	NA	<5 U	NA	<5 U	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Fluoranthene	206-44-0	ug/l	NA	<0.1 U	NA	0.11	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Fluorene	86-73-7	ug/l	NA	<0.1 U	NA	0.02 J	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Hexachlorobenzene	118-74-1	ug/l	NA	<0.8 U	NA	<0.8 U	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Hexachlorobutadiene	87-68-3	ug/l	NA	<0.5 U	NA	<0.5 U	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Hexachlorocyclopentadiene	77-47-4	ug/l	NA	<20 U	NA	<20 U	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Hexachloroethane	67-72-1	ug/l	NA	<0.8 U	NA	<0.8 U	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Indeno(1,2,3-cd)pyrene	193-39-5	ug/l	NA	<0.1 U	NA	<0.1 U	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Isophorone	78-59-1	ug/l	NA	<5 U	NA	<5 U	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Naphthalene	91-20-3	ug/l	NA	<0.1 U	NA	<0.1 U	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Nitrobenzene	98-95-3	ug/l	NA	<2 U	NA	<2 U	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
n-Nitrosodimethylamine	62-75-9	ug/l	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
n-Nitrosodi-N-Propylamine	621-64-7	ug/l	NA	<5 U	NA	<5 U	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
n-Nitrosodiphenylamine	86-30-6	ug/l	NA	<2 U	NA	<2 U	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Pentachlorophenol	87-86-5	ug/l	NA	<0.8 U	NA	<0.8 U	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Phenanthrene	85-01-8	ug/l	NA	<0.1 U	NA	0.16	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Phenol	108-95-2	ug/l	NA	<5 U	NA	<5 U	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Pyrene	129-00-0	ug/l	NA	<0.1 U	NA	0.09 J	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA

Table 6
Remedial Investigation Report
Quality Assurance/Quality Control Sample Analytical Results

C Block
Brooklyn, New York
NYSDEC BCP Site No.: C224435
Langan Project No.: 170229030

Analyte	CAS Number	Sample Type	TB	FB	TB	FB	TB	FB	TB	FB	TB	FB	TB	FB	FB	FB
		Sample Name	GWTB02_080222	SOFB04_080222	SOTB07_080222	GWFB03_080322	GWTB03_080322	SOFB05_080322	SOTB08_080322	GWFB04_080422	GWTB04_080422	GWFB05_080522	GWTB05_080522	GWFB01_011226	GWFB02_011326	GWFB03_011426
		Sample Date	08/02/2022	08/02/2022	08/02/2022	08/03/2022	08/03/2022	08/03/2022	08/03/2022	08/04/2022	08/04/2022	08/05/2022	08/05/2022	01/12/2026	01/13/2026	01/14/2026
		Unit	Result	Result	Result	Result	Result	Result	Result	Result	Result	Result	Result	Result	Result	Result
Pesticides																
4,4'-DDD	72-54-8	ug/l	NA	<0.029 U	NA	<0.029 U	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
4,4'-DDE	72-55-9	ug/l	NA	<0.029 U	NA	<0.029 U	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
4,4'-DDT	50-29-3	ug/l	NA	<0.029 U	NA	<0.029 U	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Aldrin	309-00-2	ug/l	NA	<0.014 U	NA	<0.014 U	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Alpha BHC (Alpha Hexachlorocyclohexane)	319-84-6	ug/l	NA	<0.014 U	NA	<0.014 U	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Alpha Chlordane	5103-71-9	ug/l	NA	<0.014 U	NA	<0.014 U	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Alpha Endosulfan	959-98-8	ug/l	NA	<0.014 U	NA	<0.014 U	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Beta Bhc (Beta Hexachlorocyclohexane)	319-85-7	ug/l	NA	<0.014 U	NA	<0.014 U	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Beta Endosulfan	33213-65-9	ug/l	NA	<0.029 U	NA	<0.029 U	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Chlordane (alpha and gamma)	57-74-9	ug/l	NA	<0.143 U	NA	<0.143 U	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Delta Bhc (Delta Hexachlorocyclohexane)	319-86-8	ug/l	NA	<0.014 U	NA	<0.014 U	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Dieldrin	60-57-1	ug/l	NA	<0.029 U	NA	<0.029 U	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Endosulfan Sulfate	1031-07-8	ug/l	NA	<0.029 U	NA	<0.029 U	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Endrin	72-20-8	ug/l	NA	<0.029 U	NA	<0.029 U	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Endrin Aldehyde	7421-93-4	ug/l	NA	<0.029 U	NA	<0.029 U	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Endrin Ketone	53494-70-5	ug/l	NA	<0.029 U	NA	<0.029 U	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Gamma Bhc (Lindane)	58-89-9	ug/l	NA	<0.014 U	NA	<0.014 U	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Gamma Chlordane (Trans)	5103-74-2	ug/l	NA	<0.014 U	NA	<0.014 U	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Heptachlor	76-44-8	ug/l	NA	<0.014 U	NA	<0.014 U	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Heptachlor Epoxide	1024-57-3	ug/l	NA	<0.014 U	NA	<0.014 U	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Methoxychlor	72-43-5	ug/l	NA	<0.143 U	NA	<0.143 U	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Toxaphene	8001-35-2	ug/l	NA	<0.143 U	NA	<0.143 U	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Herbicides																
2,4,5-T (Trichlorophenoxyacetic Acid)	93-76-5	ug/l	NA	<2 U	NA	<2 U	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
2,4-D (Dichlorophenoxyacetic Acid)	94-75-7	ug/l	NA	<10 U	NA	<10 U	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Silvex (2,4,5-Tp)	93-72-1	ug/l	NA	<2 U	NA	<2 U	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Polychlorinated Biphenyl																
PCB-1016 (Aroclor 1016)	12674-11-2	ug/l	NA	<0.071 U	NA	<0.071 U	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
PCB-1221 (Aroclor 1221)	11104-28-2	ug/l	NA	<0.071 U	NA	<0.071 U	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
PCB-1232 (Aroclor 1232)	11141-16-5	ug/l	NA	<0.071 U	NA	<0.071 U	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
PCB-1242 (Aroclor 1242)	53469-21-9	ug/l	NA	<0.071 U	NA	<0.071 U	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
PCB-1248 (Aroclor 1248)	12672-29-6	ug/l	NA	<0.071 U	NA	<0.071 U	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
PCB-1254 (Aroclor 1254)	11097-69-1	ug/l	NA	<0.071 U	NA	<0.071 U	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
PCB-1260 (Aroclor 1260)	11096-82-5	ug/l	NA	<0.071 U	NA	<0.071 U	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
PCB-1262 (Aroclor 1262)	37324-23-5	ug/l	NA	<0.071 U	NA	<0.071 U	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
PCB-1268 (Aroclor 1268)	11100-14-4	ug/l	NA	<0.071 U	NA	<0.071 U	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Total PCBs	1336-36-3	ug/l	NA	<0.071 U	NA	<0.071 U	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Metals - Dissolved																
Aluminum	7429-90-5	ug/l	NA	NA	NA	<10 U	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Antimony	7440-36-0	ug/l	NA	NA	NA	<4 U	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Arsenic	7440-38-2	ug/l	NA	NA	NA	<0.5 U	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Barium	7440-39-3	ug/l	NA	NA	NA	0.19 J	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Beryllium	7440-41-7	ug/l	NA	NA	NA	<0.5 U	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Cadmium	7440-43-9	ug/l	NA	NA	NA	<0.2 U	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Calcium	7440-70-2	ug/l	NA	NA	NA	<100 U	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Chromium, Total	7440-47-3	ug/l	NA	NA	NA	<1 U	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Cobalt	7440-48-4	ug/l	NA	NA	NA	<0.5 U	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Copper	7440-50-8	ug/l	NA	NA	NA	<1 U	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Iron	7439-89-6	ug/l	NA	NA	NA	<50 U	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Lead	7439-92-1	ug/l	NA	NA	NA	<1 U	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Magnesium	7439-95-4	ug/l	NA	NA	NA	<70 U	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Manganese	7439-96-5	ug/l	NA	NA	NA	<1 U	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Mercury	7439-97-6	ug/l	NA	NA	NA	<0.2 U	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Nickel	7440-02-0	ug/l	NA	NA	NA	<2 U	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Potassium	7440-09-7	ug/l	NA	NA	NA	<100 U	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Selenium	7782-49-2	ug/l	NA	NA	NA	<5 U	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Silver	7440-22-4	ug/l	NA	NA	NA	<0.4 U	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Sodium	7440-23-5	ug/l	NA	NA	NA	<200 U	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Thallium	7440-28-0	ug/l	NA	NA	NA	<1 U	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Vanadium	7440-62-2	ug/l	NA	NA	NA	<5 U	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Zinc	7440-66-6	ug/l	NA	NA	NA	<10 U	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA

Table 6
Remedial Investigation Report
Quality Assurance/Quality Control Sample Analytical Results

C Block
Brooklyn, New York
NYSDEC BCP Site No.: C224435
Langan Project No.: 170229030

Analyte	CAS Number	Sample Type	TB	FB	TB	FB	TB	FB	TB	FB	TB	FB	TB	FB	FB	FB
		Sample Name	GWTB02_080222	SOFB04_080222	SOTB07_080222	GWFB03_080322	GWTB03_080322	SOFB05_080322	SOTB08_080322	GWFB04_080422	GWTB04_080422	GWFB05_080522	GWTB05_080522	GWFB01_011226	GWFB02_011326	GWFB03_011426
		Sample Date	08/02/2022	08/02/2022	08/02/2022	08/03/2022	08/03/2022	08/03/2022	08/03/2022	08/04/2022	08/04/2022	08/05/2022	08/05/2022	01/12/2026	01/13/2026	01/14/2026
		Unit	Result	Result	Result	Result	Result	Result	Result	Result	Result	Result	Result	Result	Result	Result
Metals - Total																
Aluminum	7429-90-5	ug/l	NA	6.41 J	NA	<10 U	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Antimony	7440-36-0	ug/l	NA	<4 U	NA	<4 U	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Arsenic	7440-38-2	ug/l	NA	<0.5 U	NA	<0.5 U	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Barium	7440-39-3	ug/l	NA	<0.5 U	NA	0.18 J	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Beryllium	7440-41-7	ug/l	NA	<0.5 U	NA	<0.5 U	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Cadmium	7440-43-9	ug/l	NA	<0.2 U	NA	<0.2 U	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Calcium	7440-70-2	ug/l	NA	61.3 J	NA	<100 U	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Chromium, Hexavalent	18540-29-9	ug/l	NA	<10 U	NA	<10 U	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Chromium, Total	7440-47-3	ug/l	NA	<1 U	NA	<1 U	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Chromium, Trivalent	16065-83-1	ug/l	NA	<10 U	NA	<10 U	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Cobalt	7440-48-4	ug/l	NA	<0.5 U	NA	<0.5 U	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Copper	7440-50-8	ug/l	NA	<1 U	NA	<2 U	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Cyanide	57-12-5	ug/l	NA	<5 U	NA	<5 U	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Iron	7439-89-6	ug/l	NA	<50 U	NA	<50 U	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Lead	7439-92-1	ug/l	NA	<1 U	NA	<1 U	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Magnesium	7439-95-4	ug/l	NA	<70 U	NA	<70 U	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Manganese	7439-96-5	ug/l	NA	<1 U	NA	<1 U	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Mercury	7439-97-6	ug/l	NA	<0.2 U	NA	<0.2 U	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Nickel	7440-02-0	ug/l	NA	<2 U	NA	1.10 J	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Potassium	7440-09-7	ug/l	NA	<100 U	NA	<100 U	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Selenium	7782-49-2	ug/l	NA	<5 U	NA	<5 U	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Silver	7440-22-4	ug/l	NA	<0.4 U	NA	<0.4 U	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Sodium	7440-23-5	ug/l	NA	55.5 J	NA	218	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Thallium	7440-28-0	ug/l	NA	0.17 J	NA	<1 U	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Vanadium	7440-62-2	ug/l	NA	<5 U	NA	<5 U	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Zinc	7440-66-6	ug/l	NA	<10 U	NA	<10 U	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Per- and Polyfluoroalkyl Substances																
11-Chloroeicosafluoro-3-Oxaundecane-1-Sulfonic Acid (11Cl-PF3OUd	763051-92-9	ug/l	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	<0.00801 U	<0.00784 U	<0.00751 U
1H,1H,2H,2H-Perfluorodecane Sulfonic Acid (8:2 FTS)	39108-34-4	ug/l	NA	<0.00174 U	NA	<0.0018 U	NA	<0.0018 U	NA	<0.00176 U	NA	<0.0018 U	NA	<0.00814 U	<0.00797 U	<0.00763 U
1H,1H,2H,2H-Perfluorohexane Sulfonic Acid (4:2 FTS)	757124-72-4	ug/l	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	<0.00794 U	<0.00778 U	<0.00746 U
1H,1H,2H,2H-Perfluorooctane Sulfonic Acid (6:2 FTS)	27619-97-2	ug/l	NA	0.00116 J	NA	<0.0018 U	NA	<0.0018 U	NA	<0.00176 U	NA	<0.0018 U	NA	<0.00805 U	<0.00788 U	<0.00755 U
2H,2H,3H,3H-Perfluorooctanoic Acid (5:3 FTCA)	914637-49-3	ug/l	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	<0.053 U	<0.0519 U	<0.0497 U
3-Perfluoroheptyl Propanoic Acid (7:3 FTCA)	812-70-4	ug/l	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	<0.053 U	<0.0519 U	<0.0497 U
3-Perfluoropropyl Propanoic Acid (3:3 FTCA)	356-02-5	ug/l	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	<0.0106 U	<0.0104 U	<0.00994 U
4,8-Dioxa-3H-perfluorononanoic Acid (ADONA)	919005-14-4	ug/l	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	<0.00801 U	<0.00784 U	<0.00751 U
9-Chlorohexadecafluoro-3-Oxanonane-1-Sulfonic Acid (9Cl-PF3ONS)	756426-58-1	ug/l	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	<0.00792 U	<0.00776 U	<0.00744 U
Hexafluoropropylene Oxide Dimer Acid (HFPO-DA)	13252-13-6	ug/l	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	<0.00847 U	<0.0083 U	<0.00795 U
N-ethyl Perfluorooctanesulfonamide (NEtFOSA)	4151-50-2	ug/l	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	<0.00212 U	<0.00207 U	<0.00199 U
N-ethyl Perfluorooctanesulfonamidoacetic Acid (NEtFOSAA)	2991-50-6	ug/l	NA	<0.00174 U	NA	<0.0018 U	NA	<0.0018 U	NA	<0.00176 U	NA	<0.0018 U	NA	<0.00212 U	<0.00207 U	<0.00199 U
N-ethyl Perfluorooctanesulfonamidoethanol (NEtFOSE)	1691-99-2	ug/l	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	<0.0212 U	<0.0207 U	<0.0199 U
N-methyl Perfluorooctanesulfonamide (NMeFOSA)	31506-32-8	ug/l	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	<0.00212 U	<0.00207 U	<0.00199 U
N-methyl Perfluorooctanesulfonamidoacetic Acid (NMeFOSAA)	2355-31-9	ug/l	NA	<0.00174 U	NA	<0.0018 U	NA	<0.0018 U	NA	<0.00176 U	NA	<0.0018 U	NA	<0.00212 U	<0.00207 U	<0.00199 U
N-methyl Perfluorooctanesulfonamidoethanol (NMeFOSE)	24448-09-7	ug/l	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	<0.0212 U	<0.0207 U	<0.0199 U
Nonafluoro-3,6-dioxaheptanoic Acid (NFDHA)	151772-58-6	ug/l	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	<0.00424 U	<0.00415 U	<0.00398 U
Perfluoro(2-ethoxyethane)sulfonic Acid (PFEESA)	113507-82-7	ug/l	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	<0.00377 U	<0.00369 U	<0.00354 U
Perfluoro-3-methoxypropanoic Acid (PFMPA)	377-73-1	ug/l	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	<0.00424 U	<0.00415 U	<0.00398 U
Perfluoro-4-methoxybutanoic Acid (PFMBA)	863090-89-5	ug/l	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	<0.00424 U	<0.00415 U	<0.00398 U
Perfluorobutanesulfonic Acid (PFBS)	375-73-5	ug/l	NA	<0.00174 U	NA	<0.0018 U	NA	<0.0018 U	NA	<0.00176 U	NA	<0.0018 U	NA	<0.00188 U	<0.00184 U	<0.00176 U
Perfluorobutanoic Acid (PFBA)	375-22-4	ug/l	NA	<0.00174 U	NA	<0.0018 U	NA	<0.0018 U	NA	<0.00176 U	NA	<0.0018 U	NA	<0.00847 U	<0.0083 U	<0.00795 U
Perfluorodecanesulfonic Acid (PFDS)	335-77-3	ug/l	NA	<0.00174 U	NA	<0.0018 U	NA	<0.0018 U	NA	<0.00176 U	NA	<0.0018 U	NA	<0.00204 U	<0.002 U	<0.00192 U
Perfluorodecanoic Acid (PFDA)	335-76-2	ug/l	NA	<0.00174 U	NA	<0.0018 U	NA	<0.0018 U	NA	<0.00176 U	NA	<0.0018 U	NA	<0.00212 U	<0.00207 U	<0.00199 U
Perfluorododecanesulfonic Acid (PFDoS)	79780-39-5	ug/l	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	<0.00206 U	<0.00201 U	<0.00193 U
Perfluorododecanoic Acid (PFDoA)	307-55-1	ug/l	NA	<0.00174 U	NA	<0.0018 U	NA	<0.0018 U	NA	<0.00176 U	NA	<0.0018 U	NA	<0.00212 U	<0.00207 U	<0.00199 U
Perfluoroheptanesulfonic Acid (PFHpS)	375-92-8	ug/l	NA	<0.00174 U	NA	<0.0018 U	NA	<0.0018 U	NA	<0.00176 U	NA	<0.0018 U	NA	<0.00202 U	<0.00198 U	<0.0019 U
Perfluoroheptanoic Acid (PFHpA)	375-85-9	ug/l	NA	<0.00174 U	NA	<0.0018 U	NA	<0.0018 U	NA	<0.00176 U	NA	<0.0018 U	NA	<0.00212 U	<0.00207 U	<0.00199 U
Perfluorohexanesulfonic Acid (PFHxS)	355-46-4	ug/l	NA	<0.00174 U	NA	<0.0018 U	NA	<0.0018 U	NA	<0.00176 U	NA	<0.0018 U	NA	<0.00194 U	<0.0019 U	<0.00182 U
Perfluorohexanoic Acid (PFHxA)	307-24-4	ug/l	NA	<0.00174 U	NA	<0.0018 U	NA	<0.0018 U	NA	<0.00176 U	NA	<0.0018 U	NA	<0.00212 U	<0.00207 U	<0.00199 U
Perfluorononanesulfonic Acid (PFNS)	68259-12-1	ug/l	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	<0.00203 U	<0.00199 U	<0.00191 U
Perfluorononanoic Acid (PFNA)	375-95-1	ug/l	NA	<0.00174 U	NA	<0.0018 U	NA	<0.0018 U	NA	<0.00176 U	NA	<0.0018 U	NA	<0.00212 U	<0.00207 U	<0.00199 U
Perfluorooctanesulfonamide (PFOSA)	754-91-6	ug/l	NA	<0.00174 U	NA	<0.0018 U	NA	<0.0018 U	NA	<0.00176 U	NA	<0.0018 U	NA	<0.00212 U	<0.00207 U	<0.00199 U
Perfluorooctanesulfonic Acid (PFOS)	1763-23-1	ug/l	NA	<0.00174 U	NA	<0.0018 U	NA	<0.0018 U	NA	<0.00176 U	NA	<0.0018 U	NA	<0.00197 U	<0.00193 U	<0.00185 U
Perfluorooctanoic Acid (PFOA)	335-67-1	ug/l	NA	<0.00174 U	NA	<0.0018 U	NA	<0.0018 U	NA	<0.00176 U	NA	<0.0018 U	NA	<0.00212 U	<0.00207 U	<0.00199 U
Perfluoropentanesulfonic Acid (PFPeS)	2706-91-4	ug/l	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	<0.00199 U	<0.00195 U	<0.00187 U
Perfluoropentanoic Acid (PFPeA)	2706-90-3	ug/l	NA	<0.00174 U	NA	<0.0018 U	NA	<0.0018 U	NA	<0.00176 U	NA	<0.0018 U	NA	<0.00424 U	<0.00415 U	<0.00398 U
Perfluorotetradecanoic Acid (PFTeDA)	376-06-7	ug/l	NA	<0.00174 U	NA	<0.0018 U	NA	<0.0018 U	NA	<0.00176 U	NA	<0.0018 U	NA	<0.00212 U	<0.00207 U	<0.00199 U
Perfluorotridecanoic Acid (PFTrDA)	72629-94-8	ug/l	NA	<0.00174 U	NA	<0.0018 U	NA	<0.0018 U	NA	<0.00176 U	NA	<0.0018 U	NA	<0.00212 U	<0.00207 U	<0.00199 U
Perfluoroundecanoic Acid (PFUnA)	2058-94-8	ug/l	NA	<0.00174 U	NA	<0.0018 U	NA	<0.0018 U	NA	<0.00176 U	NA	<0.0018 U	NA	<0.00212 U	<0.00207 U	<0.00199 U
Total PFOA and PFOS	TOTPFOAPFOS	ug/l	NA	<0.00174 U	NA	<0.0018 U	NA	<0.0018 U	NA	<0.00176 U	NA	<0.0018 U	NA	NA	NA	NA

Table 5
Remedial Investigation Report
Quality Assurance/Quality Control Sample Analytical Results

Greenpoint Landing Parcel C
Brooklyn, New York
NYSDEC BCP Site No.: C224435
Langan Project No.: 170229030

Notes:

FB - Field Blank
TB - Trip Blank
CAS - Chemical Abstract Service
NS - No standard
ug/l - microgram per liter
NA - Not analyzed
RL - Reporting limit
<RL - Not detected

Qualifiers:

J - The analyte was detected above the method detection limit (MDL), but below the RL; therefore, the result is an estimated concentration.

U - The analyte was analyzed for, but was not detected at a level greater than or equal to the RL; the value shown in the table is the RL.

B - The analyte was found in the associated analysis batch blank.

APPENDIX A

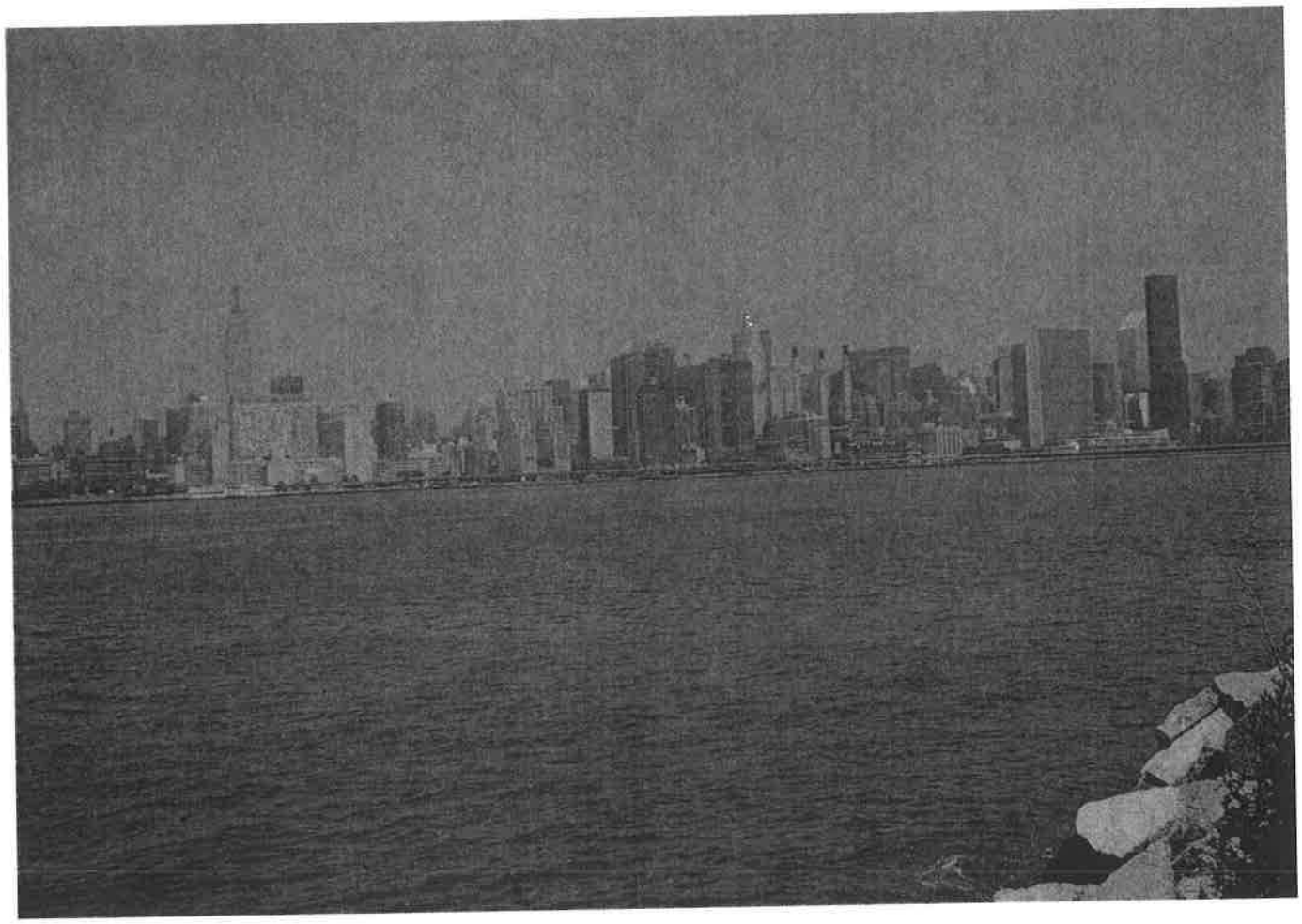
Previous Environmental Reports

Greenpoint Lumber Yard

Brooklyn, New York

PHASE I ENVIRONMENTAL SITE ASSESSMENT REPORT

Project Number: 30260-0001



Prepared for:

Park Tower Realty Corporation
499 Park Avenue
New York, New York 10022

Prepared by:

AKRF, Inc.
117 East 29th Street
New York, NY 10016-8022
(212) 696-0670

July 2001

EXECUTIVE SUMMARY

AKRF, Inc. was retained by Park Tower Realty Corporation to perform an Environmental Site Assessment of the approximately 21-acre former lumber yard located along West and Commercial Streets in the Greenpoint neighborhood of Brooklyn, New York (See Figure 1). The objective of this assessment is to identify any potential environmental concerns associated with the site resulting from past or current usage of the site as well as similar usage of neighboring properties. The site is currently used primarily for the storage and transfer of heavy equipment, trucks, contractor's materials and lumber. Twelve tenants currently occupy the site. The subject blocks are generally bounded to the north by Newtown Creek; to the east by portions of Commercial Street, Franklin Street and West Street; to the south by Huron Street; and to the west by the East River. The surrounding neighborhood is predominantly mixed-use residential and industrial in nature.

This assessment was performed in accordance with customary principles and practices in the environmental consulting industry, and in conformance with the scope and limitations of ASTM Standard E1527-00, *Standard Practice for Environmental Site Assessments: Phase I Environmental Site Assessment Practice*. Any exceptions to, or deletions from, this practice are described in Section 6.0 of this report.

The regulatory databases, Fire Department records, historical land-use atlases, and the visual site inspection indicate that the subject property has over a 100-year history of industrial use related primarily to the lumber and coal industries. Lumber Exchange Terminal, Inc, the current owner of the property, reportedly assembled the property in the 1930s, 1940s and 1950s. The owner began to phase out lumber yard operations in the 1980's when he began leasing portions of the property to industrial tenants, mainly for use as contractor's storage yards. Currently, only a small portion of the property remains occupied by Lumber Exchange Terminal, Inc. For the purpose of clarity, each Tax Block will be discussed individually (See Figure 2), and then potential environmental impairments located outside of the subject property will be discussed.

- **Tax Block 2520, Lot 57** - This portion of the property was historically occupied by a portion of the New York Dye - Wood Extract and Chemical Company ca. 1887 through ca. 1905 (also located on Block 2510); it was used for logwood, wagon and pattern storage. This Lot was also occupied by a portion of the New York Quebracho Extract Company ca. 1916 (also located on Block 2510); it contained a cooperage and a wagon house. Quebracho is a natural bark extract, rich in tannins, which is used to treat leather. Although quebracho is an organic substance, the process used to extract it may have involved the use or generation of hazardous materials or wastes. However, it appears this portion of the business was used more for storage than for manufacturing. Block 2520, Lot 57 was occupied by Lumber Exchange Terminal Inc. prior to 1942 through the present (Area 1 - Areas are shown in Figure 2). Other tenants currently occupying the Lot include Acquisitions Investment, Inc. (Area 2 - used for bus parking and minor repair) and Trochom Construction Corporation (a portion of Area 3 - used for auto parking and contractor's materials storage). This portion of the property currently contains a two-story brick office building (which

first appeared on Sanborn Maps in 1887), a large corrugated metal garage (which first appeared on Sanborn Maps in 1965), and a small guard shed near the Green Street entrance. Surface staining was observed in Areas 1, 2, and 3. 20- and 30-cubic yard waste containers were observed in Areas 2 and 3, respectively.

Suspect asbestos-containing materials, including boiler insulation, pipe insulation, spray-on fire proofing, floor and ceiling tiles were observed in the two-story brick building during site inspection. The roof was inaccessible at the time of inspection, however, due to the age of the structure, it can be assumed to contain asbestos. This structure was reportedly heated by fuel oil located in one 550-gallon tank enclosed behind a brick wall near the boiler room. In addition, one fuel pump was observed outside of the two-story brick building, which was reportedly serviced by two 550-gallon underground gasoline tanks. New York City Buildings Department Block and Lot records for Block 2520, Lot 57 included a 1935 Fuel Oil Permit for a 550-gallon underground storage tank to be located directly outside of a two-story office, a 1935 blueprint showing an underground gasoline tank located at the northwest corner of a two-story brick building, a 1938 Permit to install one 550-gallon underground gasoline tank and one fuel pump and a 1957 record showing one 550-gallon fuel oil tank within a two-story building. A search of computerized Fire Department records did not locate any heating or motor fuel oil records for the property.

The small guard shed may contain asbestos-containing and/or lead paint-containing materials, though none were observed during site inspection.

The eastern portion of the garage building was used primarily to store fork lifts and old car parts; the western portion of the garage was primarily used for the storage of car batteries, tires and tools. The area was illuminated with new-looking pole mounted fluorescent lights, however, old, ceiling mounted fluorescent lights (potentially with PCB-containing ballasts) were observed throughout the structure. One 275-gallon aboveground storage tank of hydraulic oil, one 275-gallon aboveground storage tank of motor oil and over twenty 55-gallon drums and several 5-gallon drums of petroleum products were observed in the eastern portion of the structure; several 55-gallon drums of lube oil and antifreeze and two oxygen and acetylene tanks were observed in the western portion. AKRF personnel were informed that auto and fork lift repair occurred in the areas directly east and west of the garage building. Severe surface staining and several 55-gallon drums of petroleum products were observed in these areas.

The fuel oil, gasoline, hydraulic oil and motor oil tanks; the 55- and 5-gallon containers of petroleum products; and the Block's current usage for auto repair could have contributed to petroleum contamination in soil and/or groundwater. The Block's former usage as a dye and chemical factory, as a quebracho extract company and as a lumber yard (if pressure treatment occurred on-site) could have contributed to hazardous materials contamination on-site. Asbestos-containing and/or lead paint containing building materials could be present in the two-story brick office building and/or in the corrugated metal garage on the Block. Finally, mercury-containing fluorescent lights and/or PBC-containing ballasts could be present in lighting fixtures in on-site structures.

- **Tax Block 2510** - This portion of the property was historically occupied by a portion of the New York Dye - Wood Extract and Chemical Company ca. 1887 through ca. 1905 (also located on Block 2520, Lot 57); it contained a large logwood storage shed, a small oil storage shed, an area with 15 wooden dye tanks, a large tank house, and storage, cutting and manufacturing buildings. This Lot was also occupied by a portion of the New York Quebracho Extract Company ca. 1916 (also located on Block 2510); it contained several storage sheds and industrial buildings, a large tank room and two areas with dye wood tanks and logwood tanks. This portion of the business appeared to have been used both for manufacturing and for storage. Block 2510 was occupied by Lumber Exchange Terminal Inc. prior to 1942 through 1989. Tenants currently occupying the Block include Trochom Construction Corporation (a portion of Area 3 - used for contractor's materials storage), Bay Crane Services, Inc., (Area 4 - used for storage of cranes and other large construction vehicles), Safway Steel Products, Inc./ Spring Scaffolding (a portion of Area 6 - used for storage of scaffolding materials) and Hylan Electrical Contracting, Inc. (Area 7 - used for storage of materials used to install fiber optic cabling). 55-gallon drums of water-based curing compounds for concrete surfaces, hydraulic oil and white resin and several five-gallon drums of silicon sealant were observed in Area 3. Surface staining was also observed in Area 3. Generators, several fork lifts and 55-gallon drums of fiber optic cable lubricator were observed in Area 6. 20- and 30-cubic yard waste containers were observed in Areas 3 and 6, respectively.

  The 55- and 5-gallon containers of chemicals and petroleum products and the Block's former usage as a dye and chemical factory, as a quebracho extract company and as a lumber yard (if pressure treatment occurred on-site) could have contributed to hazardous materials contamination on-site.

- **Tax Block 2502** - This portion of the property was historically occupied by A.K. Meserole & Company (a mason material and coal storage yard) and a portion of C. Winant's Spar Company ca. 1916; a portion of Nesmith and Constantine's Log Storage Yard and a two-story lumber shed belonging to P.M. Dingee & Sons ca. 1905; Export Auto Case Company and vacant land ca. 1916; vacant land ca. 1942; and the Lumber Exchange Terminal, Inc. ca. 1951 through ca. 2000. Tenants currently occupying the Block include Trochom Construction Corporation (a portion of Area 3 - used for contractor's materials storage), River Hauling, Inc. (a portion of Area 5 - used for temporary storage and transport of large items), Safway Steel Products, Inc. (a portion of Area 6 - used for storage of scaffolding materials) and Far Better Towing, Inc. / R-D Towing Corporation (Area 8 - used for the storage of repossessed automobiles). 55-gallon drums of water-based curing compounds for concrete surfaces, hydraulic oil and white resin and several five-gallon drums of silicon sealant were observed in Area 3. Surface staining was observed in Areas 3 and 5. Pony generators, several fork lifts and 55-gallon drums of fiber optic cable lubricator were observed in Area 6. 20- and 30-cubic yard waste containers were observed in Areas 3 and 6.

  The 55-gallon containers of chemicals and petroleum products currently on-site and the Block's former usage as a lumber yard (if pressure treatment occurred on-site) could have contributed to hazardous materials contamination on-site. Furthermore, illegal dumping of petroleum and/or hazardous materials could have occurred on historically vacant land.

- **Tax Block 2472, Lots 2, 32, 100, 410 and 425** - Block 2472 was historically occupied by a portion of C. Winant's Spar Company and Church and Reeves Lumber Yard ca. 1916; a portion of Nesmith and Constantine's Log Storage Yard, the Bergen & Company Lumber Yard and the O'Rourke Engineering Construction Company ca. 1905; the Bergen & Company Lumber Yard, a portion of the New York State Barge Canal Terminal; a portion of Alberene Stone Company Tub Storage and vacant land ca. 1916; the New York State Canal Terminal, Greenpoint Coal Docks, Inc. and vacant land ca. 1942 through ca. 1951; and the Lumber Exchange Terminal, Inc. ca. 1965 through ca. 2000. Sanborn Maps from the year 2000 indicated Block 2472 to also contain Two Guys Towing and Auto Repair and a parking lot. Current tenants include Far Better Towing, Inc. / R-D Towing Corporation (a portion of Area 8 - used to park repossessed automobiles), Lumber Exchange Terminal, Inc. (a portion of Area 1 - used to store lumber), River Hauling, Inc. (a portion of Area 5 - used for temporary storage and transport of large items), New York City Housing Authority (Area 9 - used to park cars and store materials), Henkles & McCoy (Area 10 - used to park cars and store contractor's materials), Supreme Trucking (Area 11 - used for parking and minor repair large cargo trucks and for the staging of large items), MWK Transport, Inc./SJK Transport (Area 12 - used for truck parking and the storage of materials), and Spring Scaffolding (Area 13 - used to store scaffolding materials). Several fork lifts, 55-gallon drums of hydraulic oil, a 20-cubic yard waste container and surface staining in several areas were observed in this portion of Area 5. It was reported that minor auto repairs, truck washing and tire changes were performed in Area 11. Several 55-gallon drums of lube oil were observed in Area 11. New York City Buildings Department computerized records for Block 2472, Lot 410 showed listings for Fuel Oil Permits for the following years: 1946, 1980, 1984 and 1988. It is unknown whether these potential tanks were located aboveground or underground.

  The 55-gallon containers of petroleum products currently on-site, the potential storage tanks on-site, the Block's former usage as a lumber yard (if pressure treatment occurred on-site), and the Block's current use for auto repair could have contributed to petroleum and/or hazardous materials contamination on-site. Furthermore, illegal dumping of petroleum and/or hazardous materials could have occurred on historically vacant land.

- **Block 2494, Lot 1** - Block 2494, Lot 1 was historically occupied by dwellings and stores ca. 1887 through ca. 1905; a garage and repair shop with a tank house and an underground storage tank ca. 1916; vacant land ca. 1951; and the Lumber Exchange Terminal ca. 1965 through 2000. Far Better Towing, Inc. / R-D Towing Corporation is the current occupant of the Lot (a portion of Area 8 - used to repair, park and auction seized vehicles). A trailer office and a one-story brick auto-repair shop were observed near the entrance to Area 8 (at the intersection of Franklin and Dupont Streets). The one-story building contained brick walls, concrete floors and a wood ceiling. The roof was not inspected, but can be assumed to contain asbestos. One 55-gallon drum of diesel fuel was observed in this building and three more were observed outside of the building. An employee of Far Better Towing, Inc. informed AKRF personnel that oil and tires are changed and minor repairs occur. No vehicles were reportedly fueled on the property. Piles of trash, tires, car parts, a

tank of carbon dioxide gas and one 275-gallon abandoned aboveground storage tank were observed surrounding the trailer and the one-story structure.

The 55-gallon containers of petroleum products currently on-site, the current and former auto-repair operation, the underground gasoline storage tank identified on the property, the hydraulic lift system identified on-site and the former usage as a lumber yard (if pressure treatment occurred on-site) could have contributed to petroleum and/or hazardous materials contamination on-site. Asbestos-containing and/or lead paint containing materials could be present in the one-story auto repair shop. Furthermore, illegal dumping of petroleum and/or hazardous materials could have occurred on historically vacant land.

- **Environmental Conditions Located Outside of the Subject Property** - In the New York State Resource Conservation and Recovery Act (RCRA) database, one Treatment, Storage, and Disposal facilities was identified within a one-mile radius of the subject area and ten RCRA generators were listed within a one-eighth mile radius of the project site. Several of these industrial facilities with known generation of hazardous wastes (including halogenated solvents) are located up-gradient with respect to groundwater to the subject property. Several facilities have Class One RCRA violations, indicating releases may have occurred. Groundwater quality may have been impaired by these operations.

RECOMMENDATIONS:

- AKRF recommends a Phase II Subsurface Site Investigation to determine the presence and possible extent of underground storage tanks as well as petroleum and/or hazardous materials contamination in on site soil and groundwater;

- AKRF recommends any identifies tanks be properly registered, if required, with the New York State Department of Environmental Conservation and the New York City Fire Department. Prior to any renovation or demolition activities with the potential to disturb known tanks, they should be property assessed, closed and removed from the property in accordance with all federal, state and local regulations;

- Prior to any renovation or demolition activities with the potential to disturb suspect asbestos containing materials, an asbestos survey should be conducted. If these materials prove to contain asbestos, they should be properly removed and disposed of in accordance with all sate and federal regulations;

- Any renovation or demolition activities with the potential to disturb lead-based paint must be performed in accordance with the applicable Occupational Safety and Health Administration regulation (OSHA 29 CFR 1926.62 - Lead Exposure in Construction). Current New York State Department of Environmental Conservation guidance permits the disposal of construction materials covered with lead-based paint as demolition debris within an approved landfill; and

- The suspect mercury-containing fluorescent lights and suspect PCB-containing lighting fixtures do not currently present a potential hazard to human health. Unless there is labeling or test data to indicate they are not mercury- and/or PCB-containing, if disposal is required, it should be in accordance with applicable federal, state, and local regulations and guidelines.

TABLE OF CONTENTS

EXECUTIVE SUMMARY i

1.0 INTRODUCTION 1

2.0 PHYSICAL SITE DESCRIPTION 3
- 2.1 General Site Conditions 3
- 2.2 Topography and Hydrogeology 6
- 2.3 Storage Tanks 6
- 2.4 Polychlorinated Biphenyls (PCBs) 7
- 2.5 Asbestos-Containing Materials (ACMs) 7
- 2.6 Lead Paint 8
- 2.7 Utilities 8
- 2.8 Waste Management and Chemical Handling 9
- 2.9 Radon 9

4.0 SITE HISTORY AND RECORDS REVIEW 10
- 4.1 Prior Ownership and Usage 10
- 4.2 Regulatory Review 14

5.0 CONCLUSIONS AND RECOMMENDATIONS 21

6.0 QUALIFICATIONS 22

7.0 REFERENCES 23

FIGURES

Figure 1 Project Site Location
Figure 2 Project Site Map

APPENDICES

Appendix A Photographic Documentation
Appendix B Historical Sanborn Maps
Appendix C Regulatory Records Review
Appendix D New York City Fire and Buildings Department Records

1.0 INTRODUCTION

AKRF, Inc. was retained by Park Tower Realty Corporation to perform an Environmental Site Assessment of the approximately 21-acre former lumber yard located at 171 West Street in the Greenpoint neighborhood of Brooklyn, New York. (Please see Figure 1 for a map of the area.) The legal definition of the subject property is Tax Block 2472, Lots 2, 32, 100, 410 and 425; Tax Block 2494, Lot 1; Tax Block 2502, Lot 1; Tax Block 2510, Lot 1; and Tax Block 2520, Lot 57, as shown in Figure 2. The subject blocks are generally bounded to the north by Newtown Creek; to the east by portions of Commercial Street, Franklin Street and West Street; to the south by Huron Street; and to the west by the East River. The site is currently used primarily for the storage and transfer of heavy equipment, trucks, contractor's materials and lumber. Twelve tenants currently occupy the site (see Figure 2).

The scope of services for this assessment included the following:

- Visual observations of the project site and surrounding property were made to identify potential sources or indications of chemical contamination. The potential sources of contamination included, but were not limited to, underground storage tanks (USTs), aboveground storage tanks (ASTs), objects that could potentially contain polychlorinated biphenyls (PCBs), and areas where hazardous materials were used, stored, treated, generated and/or disposed. Indications of chemical contamination include stained surfaces and chemical odors.

  In addition, readily observable portions of the properties immediately adjacent to the site were viewed from public rights-of-way to identify or determine the likelihood of any of the aforementioned potential sources of contamination.
- Published geological and groundwater information was obtained from available sources to determine the possibility of contamination from off-site sources.
- A visual inspection of the property was conducted to identify and evaluate the condition of any suspect asbestos-containing building materials (ACMs).
- The property was evaluated for the potential presence of lead-based paint, and the condition of painted surfaces was assessed.
- A review of radon concentrations in Kings County (Brooklyn) was conducted to determine if radon levels in the general area complied with United States Environmental Protection Agency (US EPA) guidelines.
- Historical land-use atlases for the site and adjacent properties were reviewed to evaluate previous land use.
- The following federal regulatory databases were reviewed to determine the regulatory status of the site, adjacent properties, and properties within a predetermined study area: National Priority List (NPL); Comprehensive Environmental Response, Compensation, and Liability Information System (CERCLIS); Emergency Response Notification System (ERNS); Toxic Chemical Release Inventory System (TRIS); the Permit Compliance System of Toxic Wastewater Discharges (WWD); and the US EPA Civil Enforcement Docket. The federal listing of facilities that are subject to corrective action under the Resource Conservation and Recovery Act (CORRACTS) is discussed with the State databases of RCRA listings.

- The following state regulatory databases were reviewed to determine the regulatory status of the site, adjacent properties, and properties within a predetermined study area: the listings of hazardous material spills (SPILLS), Resource Conservation and Recovery Act Notifiers (RCRA), Chemical Bulk Storage (CBS), Solid Waste Facilities (SWF), Petroleum Bulk Storage (PBS), State Inactive Hazardous Waste Disposal Sites (SHWS), Major Oil Storage Facilities (MOSF), and Air Discharge Facilities (ADF).
- A review of available local Fire Department and Buildings Department records was conducted to obtain any information pertinent to the assessment of the environmental condition of the subject property. Specifically, records regarding past and present on-site fuel oil tanks and historical uses were requested and reviewed.

2.0 PHYSICAL SITE DESCRIPTION

Visual inspection of the site and adjacent areas was performed on June 28, 2001 by Mimi Sotiriou of AKRF, accompanied by John Doyle and Ramon Quintero of Lumber Exchange Terminal, Inc. The inspection was conducted at 10:00 AM. At the time of the inspection, the weather was clear, the visibility was good, and the premises were adequately illuminated. The site was inspected for the presence of stained surfaces and soils, stressed vegetation, storage tanks, drums, leaking pipes, transformers, suspect asbestos-containing materials, suspect lead-containing paint, or any other evidence of hazardous material usage and storage on-site. Photographs documenting the site inspection are included in Appendix A.

2.1 General Site Conditions

The project site consisted of an approximately 20-acre parcel of land, used primarily for the storage and transfer of heavy equipment, trucks, contractor's materials and lumber. Twelve tenants currently occupy the site (see Figure 2 for approximate tenant location). Partial fences partitioned the tenants apart on the property. The majority of the site consisted of a flat, asphalt-paved lot. Only three structures were noted on the property: a two-story brick office building and a corrugated metal garage located in Area 1 and a small one-story brick auto repair shop located in Area 8. Each tenant area will be described separately below:

Area 1: **Lumber Exchange Terminal, Inc.**

The portion of Area 1 that is located at the intersection of Green Street and West Street contained one two-story brick and concrete office building and one large corrugated metal garage on an asphalt-paved area. The office and the garage were used by both the Lumber Exchange Terminal, Inc. and by Acquisitions Investments, Inc. to a lesser extent.

The two-story office building was reportedly built as a barn. The building is currently used primarily for office use; however, a tool room and a storage room were located in the western portion of the first floor of the building. The floors of the building consisted of concrete, wood, ceramic (bathrooms) or several colors of 9" and 12" suspect asbestos-containing vinyl floor tiles. The walls of the building consisted of brick, concrete, plaster, wood and 1'x1' ceiling tile. The ceilings of the structure consisted of wood, concrete, plaster, and suspect asbestos-containing 1'x1' and 2'x4' suspended ceiling tiles. The ceiling of the garage room was sprayed with suspect asbestos-containing fire proofing material. The roof of the building was inaccessible at the time of inspection. Mr. Doyle informed AKRF personnel that no roof replacement activities, only patching, had been performed to his knowledge.

The two-story building was cooled with window-mounted air conditioning units. It was heated with oil-heated hot water. A boiler room was located in the western portion of the first floor. This room contained a domestic hot water heater and a boiler covered with suspect asbestos-containing insulation. Some pipes in this area were also covered with suspect asbestos-containing thermal insulation and other were un-insulated. One 550-gallon fuel oil tank was reportedly located in a concrete and brick enclosed wall adjacent to the boiler room.

The garage had a concrete floor and corrugated metal walls and roof. The area was illuminated with new-looking pole mounted fluorescent lights, however, old, ceiling mounted fluorescent lights (potentially with PCB-containing ballasts) were observed throughout the structure.

Lumber Exchange Terminal, Inc. occupied the eastern portion and Acquisitions Investments, Inc. occupied the western portion. The eastern portion of the garage was used primarily to store fork lifts and old car parts. One 275-gallon aboveground storage tank of hydraulic oil and one 275-gallon aboveground storage tank of motor oil were observed against the eastern wall of the structure. Additionally, over twenty 55-gallon drums and several 5-gallon drums of petroleum products were observed in the eastern portion of the garage. Mr. Quintero informed AKRF personnel that no auto repair is performed by Lumber Exchange Terminal, Inc. in this portion of the garage; it is performed in the paved area between the garage and the two-story office building.

The western portion of the garage was primarily used for the storage of car batteries, tires and tools. Several 55-gallon drums of lube oil and antifreeze and two oxygen and acetylene tanks were observed in this area. Mr. Quintero informed AKRF that no bus repair is performed in this portion of the garage; it is performed in Area 2 of the site, where double-decker buses are parked.

The remainder of Area 1 consisted of an asphalt paved area. One fuel pump was located directly east-adjacent to the two-story structure. Two 550-gallon underground gasoline tanks are reportedly connected to this pump. Several machines and old generators were located to the east of the garage building on the paved area. Severe surface staining was observed on the asphalt located between the two-story building and the garage. Several 55-gallon drums of unknown materials were located in this area.

A small guard shack was observed at the entrance to the property, on green street. This structure was constructed of concrete and brick, with plywood and plaster interior walls, ceilings and floors.

The portion of Area 1 located at the intersection of Commercial and Dupont Streets consisted of an asphalt-paved area with large piles of neatly-stacked lumber. Surface staining was observed in the area.

Area 2 **- Acquisitions Investments, Inc.**

Area 2 was used for double-decker tour bus parking. More than ten double-decker buses were observed parked on the asphalt-paved lot. One 20-yard waste container was also observed. Mr. Quintero informed AKRF personnel that no fuel tanks exist in this area; the buses are fueled by a fuel truck. Minor bus repair, however, was reportedly performed in this area; stained surfaces were observed.

Area 3 **- Trochom Construction Corp.**

Trochom Construction Corp used Area 3 for the storage of materials used to repair streets. The portion of Area 3 located north of Area 2 consists of an asphalt-paved parking area. Several cars and contractor's materials were stored in this area. A small wooden shack, formerly used by longshoremen, was located in this area.

The portion of Area 3 located south of Area 6 consisted of a paved, flat area. Surface staining was observed in several areas. One stream roller, one street cleaner, pipes, steel mesh, traffic lights and other street-related materials were stored in this area. 55-gallon drums of water based curing compounds for concrete surfaces, hydraulic oil and white resin and several five-gallon drums of silicon sealant were observed stored in this area. One thirty cubic yard container of wood waste was located in this portion of Area 3.

Area 4 **- Bay Crane Service, Inc.**

Area 4 was used for the storage of large cranes and other large construction equipment. The area consisted of a paved lot.

Area 5 **- River Hauling, Inc.**

River Hauling, Inc. arranges for the temporary storage and transport of very large items, including new storage tanks, heating, ventilation and air conditioning (HVAC) equipment, and computer equipment. The portion of Area 5 located north of Area 4 consisted of a flat paved lot. This portion of Area 5 was used to store HVAC equipment. The portion of Area 5 located east of Area 12 consisted of a paved lot. Surface staining was observed in several locations. This area was used for truck parking and to store HVAC units, lumber, computer equipment, metal storage cubes, computer equipment and storage tanks. Several fork lifts and 55-gallon drums of transformer fluid were observed in this portion of Area 5. Three large trailer offices were located on the property. A 20-cubic yard waste container was also located in this area.

Area 6 **- Safway Steel Products, Inc.**

Safway Steel Products, Inc. and Spring Scaffolding used Area 6 to store materials used to construct scaffolding, including steel poles and corrugated metal sheets. A trailer office, a corrugated metal shed, fork lifts, and one 20-cubic yard water container filled with household debris, wood and scaffolding netting were observed in Area 6. Area 6 was paved with asphalt.

Area 7 **- Hylan Electrical Contracting, Inc.**

Hylan Electrical Contracting, Inc. installs cable and computer fiber optic cabling. Area 7, a paved lot, was used to store large spools of cable, pony generators, trucks, 55-gallon drums of fiber optic cable lubricator, and metal storage cubes. Several fork lifts were observed in Area 7.

Area 8 **- Far Better Towing, Inc. and R-D Towing Corp.**

Far Better Towing, Inc. and R-D Towing Corp. tow and impound cars and hold car auctions. The paved lot was filled with parked cars. A trailer office and a one-story brick auto-repair shop were observed near the entrance to Area 8 (at the intersection of Franklin and Dupont Streets). The one-story building contained brick walls, concrete floors and a wood ceiling. The roof was not inspected. The structure contained one hydraulic car lift system, tools, tires, and car parts. One 55-gallon drum of diesel fuel was observed in this building and three more were observed outside of the building. An employee of Far Better Towing, Inc. informed AKRF personnel that oil and tires are changed and minor repairs occur on-site. No vehicles were reportedly fueled on the property. Piles of trash, tires, car parts, a tank of carbon dioxide gas and one 275-gallon abandoned aboveground storage tank were observed surrounding the trailer and the one-story structure.

Area 9 **- New York City Housing Authority**

Area 9 was inaccessible at the time of inspection. An eight-foot high chain link fence with a locking gate bounded the property on all sides. From a public sidewalk, AKRF personnel observed several metal storage cubes, a trailer office, and trucks and cars parked on a paved lot.

Area 10 **- Henkels & McCoy, Inc.**

Henkles & McCoy, Inc. are construction contractors. The paved lot was nearly empty, except for cars, one front end loader, several pipes and a two cubic yard waste container.

Area 11 **- Supreme Trucking, Inc.**

Supreme Trucking, Inc. arranges for the transport of large items. Several large closed cargo truck and cabs and two fork lifts were parked in this area. An employee of Supreme Trucking, Inc. informed AKRF personnel that minor auto repair, truck washing and tire changes were performed on the property. Several 55-gallon drums of lube oil were observed on Area 11.

Area 12 **- MWK Transport, Inc. / SJK Transport**

MWK Transport, Inc./SJK Transport arranges for the transport of large items. Area 12 was inaccessible at the time of inspection. An eight-foot high chain link fence with a locking gate bounded the property on all sides. From a public sidewalk, AKRF personnel observed one metal storage cube and several trucks and cars parked on a paved lot.

Area 13 **- Spring Scaffolding**

Spring Scaffolding is the tenant of Area 5, however, they only use the area to store scaffolding materials when they are conducting high volumes of business. At the time of inspection, this area appeared to be being used by River Hauling for the storage of large items.

2.2 Topography and Hydrogeology

The surface topography slopes down to the north towards Newtown Creek and to the west towards the East River. Based on reports compiled by the U.S. Geological Survey, the property lies at an elevations ranging from approximately five to fifteen feet above the National Geodetic Vertical Datum of 1929 (an approximation of mean sea level). The approximate depth to bedrock is 50 feet below the surface, with groundwater most likely situated approximately five to fifteen feet below the surface. Groundwater most likely flows in a northerly direction toward Newtown Creek and/or in a westerly direction towards the East River. However, actual groundwater flow at the site can be affected by many factors, including past filling activities, underground utilities and other subsurface openings, tidal fluctuations, and other factors beyond the scope of this study. Groundwater in Brooklyn is not used as a source of potable water.

2.3 Storage Tanks

2.3.1 Underground Storage Tanks (USTs)

During site inspection, one fuel pump was observed outside of the two-story office building in Area 1. Two 550-gallon gasoline tanks were reportedly associated with this pump. New York City Buildings Department Block and Lot records for Block 2520, Lot 57 included a 1935 Fuel Oil Permit for a 550-gallon underground storage tank to be located directly outside of a two-story office, a 1935 blueprint showing a gasoline tank located at the northwest corner of a two-story brick building, a 1938 Permit to install one 550-gallon gasoline tank and one fuel pump, and a 1957 record showing one 550-gallon fuel oil tank within a two-story building. Gasoline tanks are almost always required to be installed underground. New York City Buildings Department computerized records for Block 2472, Lot 410 showed listings for Fuel Oil Permits for the following years: 1946, 1980, 1984 and 1988. It is unknown whether these potential tanks were located aboveground or underground.

Off-site USTs are discussed in Sections 4.2.2.

2.3.2 Aboveground Storage Tanks (ASTs)

One 550-gallon fuel oil tank was reportedly located behind a brick and concrete wall adjacent to the boiler room in the two-story office building in Area 1. One 275-gallon aboveground storage tank of hydraulic oil and one 275-gallon aboveground storage tank of motor oil were observed against the eastern wall of the corrugated metal garage structure in Area 1. An abandoned 275-gallon aboveground storage tank was observed behind an office trailer in Area 8. The tenant of Area 5 arranges for the transport of storage tanks; several new storage tanks were observed in this area.

New York City Buildings Department Block and Lot records for Block 2492, Lot 1 included a record showing one 550-gallon fuel oil tank within a two-story building. New York City Buildings Department computerized records for Block 2472, Lot 410 showed listings for Fuel Oil Permits for the following years: 1946, 1980, 1984 and 1988. It is unknown whether these potential tanks were located aboveground or underground.

2.4 Polychlorinated Biphenyls (PCBs)

Prior to 1979, PCBs were widely used for their cooling properties in electrical equipment such as transformers, capacitors, switches, and voltage regulators. No known transformers are currently located on-site.

Transformers were observed in Areas 1 and 7. Hydraulic oil associated with fork lifts (observed in many Areas of the property) would not be expected to contain PCBs. Fluorescent lighting fixtures observed in the corrugated metal garage in Area 1 may include PCB-containing components, including capacitors and potting compounds. There was no observed evidence of leaks or stains from these lighting fixtures and they do not currently present a potential hazard to building occupants.

2.5 Asbestos-Containing Materials (ACMs)

The United States Occupational Safety and Health Administration (OSHA) has amended Part 1910 to Title 29 of the Code of Federal Regulations which addresses occupational exposure to asbestos. The final rule, applicable to general industry (29 CFR 1910.1001), construction (29 CFR 1926.1101, previously 1926.58), and the shipyard industry (29 CFR 1915.1001) became effective on October 1, 1995. All thermal systems insulation; sprayed-on, troweled-on or otherwise applied surfacing materials (including decorative plaster, acoustical materials, and fireproofing); asphalt; and vinyl flooring materials in buildings constructed prior to 1981 are presumed to contain asbestos unless proven otherwise.

The regulation requires owners of buildings to inform housekeeping, custodial and maintenance workers of the presence, location, and quantity of confirmed or presumed asbestos that they may come into contact with or disturb in the course of their work activities. These employees and/or employers of employees must receive asbestos awareness training each year at no expense to them. Building owners must provide appropriate warning signs and labels, as defined specifically in the regulation, and meet certain requirements on the care of these surfaces (such as resilient floor coverings). An Operations and Maintenance Plan is recommended for buildings built prior to 1981 that have not been proven to be free of asbestos. Building owners must

maintain records concerning the presence, location, and quantity of known or suspected ACMs for the duration of ownership and transfer these records to successive owners.

Mimi Sotiriou, a New York State licensed asbestos inspector, conducted a limited visual inspection for potential asbestos-containing materials in the accessible areas on-site. Asbestos is typically found in the form of friable or non-friable materials. Friable materials are those which can be crushed or reduced to a powder by hand pressure and, as such, are associated with a higher risk of producing potentially hazardous dust. Conversely, non-friable materials (such as older vinyl floor tiles or built-up roofing materials) do not typically produce significant amounts of asbestos dust while intact. As such, non-friable materials do not constitute a threat to health and may remain in place unless they will be disturbed by renovation activities.

Suspect asbestos-containing materials were observed in the two-story office building in Area 1 during site inspection. Thermal pipe insulation and boiler insulation were observed in the boiler room. Spray-on fire proofing was observed on the ceiling of the storage room. Several colors of 9" and 12" vinyl floor tiles and 1'x1' and 2'x4' ceiling tiles were also observed. The roof of this structure was not accessible at the time of inspection, however, Mr. Doyle was unaware of any roof replacement activities, only patching activities.

No suspect asbestos-containing materials were observed during site inspection in the corrugated metal garage or in the small guard shed in Area 1. No suspect asbestos-containing materials were observed in the one-story brick auto repair shop in Area 8 during site inspection. The roofs of these buildings were not accessible at the time of inspection. It should be noted that older flat roofs composed of tar paper materials are typically constructed of multiple layers, some of which may consist of asbestos- containing materials.

2.6 Lead Paint

The use of lead paint in commercial structures was severely restricted by the Consumer Products Safety Commission in 1977. Since the current two-story brick office building on Area 1 was reportedly completed prior to 1887 and the current corrugated metal garage also on Area 1 was reportedly completed prior to 1965, lead-based paint may be present in the buildings. It is unknown when the one-story guard building in Area 1 and the one-story auto repair building in Area 8 were constructed; it will be assumed that it was prior to 1977. Lead paint is potentially hazardous when in a deteriorating condition (i.e., chipped, broken, crumbling, pulverized); lead is potentially harmful to humans, particularly children, if ingested, inhaled, or otherwise absorbed.

Painted surfaces observed in the two-story brick office building, the corrugated metal garage and the small guard shed located in Area 1 and small one-story brick auto repair shop located in Area 8 were in good condition.

2.7 Utilities

Keyspan and Consolidated Edison provides natural gas and electricity, respectively, to the three on-site structures. Municipal water and sewage services are provided to the property.

2.8 Waste Management and Chemical Handling

Any wastes produced by tenants are collected and removed from the property by private haulers. 55-gallon drums of several different petroleum and other products were observed throughout the property, as were larger dumpsters (20- and 30-cubic yard). Stained surfaces, indicative of poor chemical handling, were observed in most Areas of the property.

2.9 Radon

Radon is a colorless, odorless gas produced by the radioactive decay of certain elements. The most common sources of radon are igneous and metamorphic rocks containing uranium (such as pitchblende), granite, shale, or phosphate, as well as soils or sediments derived from these parent materials. Radon may also be found in soils contaminated with certain industrial wastes (such as uranium or phosphate mine tailings) or in earth-derived building products which include industrial wastes that contain phosphate slag. In areas where the potential for radon accumulation is high, special ventilation systems may offset potential health hazards.

According to data compiled by the Bureau of Radiation Protection, a division of the New York State Department of Health, Kings County (Brooklyn) has one of the lower average levels of basement radon measurements in New York State, 1.9 picocuries/liter. The US EPA recommended action level is 4.0 picocuries/liter.

3.0 ADJACENT LAND USE

The subject property is located in a mixed-use residential, commercial and industrial area of Brooklyn. An envelope factory was observed directly south-adjacent to Areas 1, 2 and 3. Industrial structures and lofts (some have been converted to residences) were observed on blocks east of West and Franklin Streets. A playground was observed west and south of Commercial Street. A baseball diamond was observed adjacent to Areas 1, 9 and 10 on the property. A paved lot used for parking and storage was observed east of Area 5. And Newtown Creek and the East River were located north and west of the property, respectively.

4.0 SITE HISTORY AND RECORDS REVIEW

4.1 Prior Ownership and Usage

4.1.1 Historical Land-Use Maps

Historical insurance maps were reviewed for indications of industrial usage or other evidence suggesting the use or disposal of hazardous materials on or adjacent to the subject property. Specifically, Sanborn Fire Insurance maps from 1887, 1905, 1916, 1942, 1951, 1965, 1979, 1989, and 2000 were reviewed. Copies of portions of these maps are included in Appendix B.

1887

Sanborn Maps from 1887 indicated Block 2520, Lot 57 and Block 2510 to be occupied by New York Dye-Wood Extract and Chemical Company. Block 2520, Lot 57 was used for logwood storage and was shown to contain a two-story structure used for wagon and pattern storage in the eastern portion of the Lot, where the current two-story brick building is located in Area 1. Block 2510 was shown to contain a large logwood storage shed, a small oil storage shed, an area with 15 wooden dye tanks, a tank house, and storage, cutting and manufacturing buildings.

The southwestern portion of Block 2502 was shown to contain A. K. Meserole & Company - a mason material and coal storage yard. The remainder of Block 2502 and the southern portion of Block 2472 were shown to be occupied by C. Winant's Spar Yard. Church and Reeves Lumber Yard was indicated on the eastern portion of Block 2472. Finally, Block 2494, Lot 1 was shown to be vacant, except for a residence hall and two dwellings located near Franklin Street. The remainder of Block 2494, Lot 1 was shown to be vacant.

A lumber yard was indicated south-adjacent to the subject property on Block 2520. A sugar refining company was indicated east-adjacent to Block 2472. Vacant land, residential buildings, a piano manufacturer, a veneer factory, a machine shop, and a lubricator factory were indicated south of Commercial Street and east of West Street on the subject property.

1905

Sanborn Maps from 1905 indicated Block 2520, Lot 57 and Block 2510 to continue to be occupied by New York Dye-wood Extract and Chemical Company. Block 2502 and the southern portion of Block 2472 were shown to be occupied by Nesmith and Constantine Log Storage Yard, a two-story lumber shed belonging to P.M. Dingee & Sons (at the corner of Freeman and West Streets), and a small mahogany storage yard (at the intersection of Eagle and West Streets) which extended onto Block 2494. The remainder of Block 2472 was shown to be occupied by Bergen & Company Lumber Yard and by the O'Rourke Engineering Construction Company. Finally, Block 2494, Lot 1 was shown to contain the International Mahogany Company at the intersection of Eagle and West Streets and two dwellings and a store fronting Franklin Street. The remainder of Block 2494, Lot 1 was shown to be vacant.

A mahogany and veneer yard was indicated south-adjacent to the subject property on Block 2520. A sugar refining company was indicated east-adjacent to Block 2472. Vacant land, residential buildings, a lubricator factory and an iron works were indicated south of Commercial Street and east of West Street on the subject property. No further significant changes were indicated for the subject property or for the surrounding area.

1916

Sanborn Maps from 1916 indicated Block 2520, Lot 57 and Block 2510 to be occupied by New York Quebracho Extract Company. Several storage shed, a cooperage, a wagon house, several industrial buildings, a tank room, and two areas shown to contain dye wood tanks and logwood tanks were associated with this company. It should be noted that much of the writing on these maps was illegible. The southeastern corner of Block 2502 was shown to be occupied by Export Auto Case Company, a manufacturer and packing facility; the remainder of the block was shown to be vacant. Block 2472 was shown to be occupied by Bergen & Company Lumber Yard, a portion of the New York State Barge Canal Terminal, a portion of Alberene Stone Company Tub Storage, and by vacant land. Finally, Block 2494, Lot 1 was shown to contain a dwelling at the intersection of Eagle and West Streets and a garage and auto repair shop with a pump house and an underground gasoline tank at the intersection of Dupont and Franklin Streets. The remainder of the Lot was shown to be vacant.

A lumber company was indicated south-adjacent to the subject property on Block 2520. West Street Improvement Company was indicated east-adjacent to Block 2472; two large tanks of unknown contents were indicated on the western property boundary. Vacant land, residential buildings, a machine shop, a display fixtures factory, and a plating and machine store were indicated south of Commercial Street and east of West Street on the subject property. No further significant changes were indicated for the subject property or for the surrounding area.

1942

Sanborn Maps from 1942 indicated Block 2520, Lot 57 and Block 2510 to be occupied by Lumber Exchange Terminal, Inc. A small two-story structure and a large one- to two-story lumber shed were indicated on Lot 57. A gas tank was shown to be located adjacent to the two-story building. Block 2502 was shown to be vacant. Block 2472 was shown to contain the New York State Canal Terminal, Greenpoint Coal Docks, Inc., and vacant land. Finally, Block 2494, Lot 1 was shown to be vacant except for a lumber shed fronting Franklin Street.

Vacant land was indicated south-adjacent to the subject property on Block 2520. Brooklyn and Queens Transit Corporation Trolley Car Storage was indicated east-adjacent to Block 2472. A steam laundry was indicated adjacent to the subject property on Block 2494. Vacant land, residential and commercial buildings, industrial structures, and two garages were indicated south of Commercial Street and east of West Street on the subject property. A store with four gasoline tanks was indicated at the intersection of Clay and Commercial Streets. No further significant changes were indicated for the subject property or for the surrounding area.

1951

Sanborn Maps from 1951 indicated Block 2520, Lot 57, Block 2510, Block 2502, Block 2494 and the southwestern portion of Block 2472 to be occupied by Lumber Exchange Terminal, Inc. The northeastern portion of Block 2472 was shown to contain Greenpoint Coal Docks, Inc. The New York State Canal Terminal occupied a pier off of Block 2472.

Vacant land was indicated south-adjacent to the subject property on Block 2520. Brooklyn and Queens Transit Corporation Trolley Car Storage was indicated east-adjacent to Block 2472. A steam laundry was indicated adjacent to the subject property on Block 2494. Vacant land, residential and commercial buildings, industrial structures, a sheet metal works, display fixture manufacturing, and a public park were indicated south of Commercial Street and east of West Street on the subject property. A store with four gasoline tanks was indicated at the intersection

of Clay and Commercial Streets. No further significant changes were indicated for the subject property or for the surrounding area.

1965

Sanborn Maps from 1965 indicated Block 2520, Lot 57; Block 2510; Block 2494, and Block 2502; Block 2472, Lots 2, 32, 100, 410 and 425 to be occupied by Lumber Exchange Terminal, Inc. The majority of the property was shown to be used for lumber storage. A shed (approximately the same size as the current corrugated metal garage located in Area 1) was shown to have replaced the larger shed shown in the 1951 Map. The New York State Canal Terminal occupied a pier off of Block 2472.

Vacant land and four dry cement tanks were indicated south-adjacent to the subject property on Block 2520. The New York City Transit System Crosstown Depot was indicated east-adjacent to Block 2472. A steam laundry was indicated adjacent to the subject property on Block 2494. Residential and commercial buildings, industrial structures, a sheet metal works, a display fixture manufacturing facility, and a public park were indicated south of Commercial Street and east of West Street on the subject property. No further significant changes were indicated for the subject property or for the surrounding area.

1979

Sanborn Maps from 1979 indicated Block 2520, Lot 57; Block 2510; Block 2494, and Block 2502; Block 2472, Lots 2, 32, 100, 410 and 425 to be occupied by Lumber Exchange Terminal, Inc.

A two-story structure labeled ‘Metal Products’ and a two- to three-story manufacturing and commercial structure were indicated south-adjacent to the subject property on Block 2520. The New York City Transit System Crosstown Depot was indicated east-adjacent to Block 2472. In addition to the steam laundry, a sludge tank was indicated on Block 2474. Vacant land, residential and commercial buildings, industrial structures, manufacturing facilities, and a public park were indicated south of Commercial Street and east of West Street on the subject property. No further significant changes were indicated for the subject property or for the surrounding area.

1989

Sanborn Maps from 1989 indicated Block 2520, Lot 57; Block 2510; Block 2494, and Block 2502; Block 2472, Lots 2, 32, 100, 410 and 425 to be occupied by Lumber Exchange Terminal, Inc.

A two-story structure labeled ‘Devon Lithography, Inc.’ and a two- to three-story manufacturing and commercial structure were indicated south-adjacent to the subject property on Block 2520. The New York City Transit System Crosstown Depot was indicated east-adjacent to Block 2472. A steam laundry and a sludge tank were indicated on Block 2474. Vacant land, residential and commercial buildings, industrial structures, manufacturing facilities, and a public park were indicated south of Commercial Street and east of West Street on the subject property. No further significant changes were indicated for the subject property or for the surrounding area.

2000

Sanborn Maps from 2000 indicated Block 2520, Lot 57; Block 2510; Block 2494, and the southwestern portion of Block 2472 to be occupied by Lumber Exchange Terminal, Inc. The

northeastern portion of Block 2472 was shown to contain Two Guy's Towing and Auto Repair and a parking lot.

Vacant land, residential and commercial buildings, industrial structures, manufacturing facilities, a steam laundry, a sludge storage tank, and a public park were indicated south of Commercial Street and east of West Street on the subject property. No further significant changes were indicated for the subject property or for the surrounding area.

To summarize, the Sanborn maps indicate that the subject property was developed prior to 1887 and has maintained its industrial functions for more than 110 years. Construction for the current two-story brick office building on Area 1 was reportedly completed prior to 1887. Construction for the current corrugated metal garage also on Area 1 was reportedly completed prior to 1965. Block 2520, Lot 57 and Block 2510 reportedly contained the New York Dye - Wood Extract and Chemical Company ca 1887 through ca. 1905; the New York Quebracho Extract Company ca. 1916; and the Lumber Exchange Terminal, Inc. ca. 1942 through ca. 2000. Block 2502 reportedly contained A.K. Meserole & Company (a mason material and coal storage yard) and a portion of C. Winant's Spar Company ca. 1916; a portion of Nesmith and Constantine's Log Storage Yard and a two-story lumber shed belonging to P.M. Dingee & Sons ca. 1905; Export Auto Case Company and vacant land ca. 1916; vacant land ca. 1942; and the Lumber Exchange Terminal, Inc. ca. 1951 through ca. 2000. Block 2472 was shown to contain a portion of C. Winant's Spar Company and Church and Reeves Lumber Yard ca. 1916; a portion of Nesmith and Constantine's Log Storage Yard, the Bergen & Company Lumber Yard and the O'Rourke Engineering Construction Company ca. 1905; the Bergen & Company Lumber Yard, a portion of the New York State Barge Canal Terminal; a portion of Alberene Stone Company Tub Storage and vacant land ca. 1916; the New York State Canal Terminal, Greenpoint Coal Docks, Inc. and vacant land ca. 1942 through ca. 1951; and the Lumber Exchange Terminal, Inc. ca. 1965 through ca. 2000. Sanborn Maps from the year 2000 indicated Block 2472 to also contain Two Guys Towing and Auto Repair and a parking lot. Block 2494, Lot 1 was shown to contain dwellings and stores ca. 1887 through ca. 1905; a garage and repair shop with a tank house and an underground storage tank ca. 1916; vacant land ca. 1951; and the Lumber Exchange Terminal ca. 1965 through 2000.

4.1.2 Historical Aerial Photographs

Complete and thorough coverage was available for the subject property utilizing historical land-use maps. The maps typically include detailed information such as dates of construction, building occupants or a vacant status, and use and/or zoning use of structures on the site and surrounding area. Aerial photographs would most likely not provide additional, unique information that is pertinent to the environmental condition of the property. As such, aerial photographs were not reviewed for the project site.

4.1.4 Site Interviews

Mr. John Doyle, a 40-year employee of Lumber Exchange Terminal, Inc. and Mr. Ramon Quintero, a 19-year employee of Lumber Exchange Terminal, Inc. toured AKRF personnel during site inspection and answered all pertinent questions. Mr. Doyle stated that the Lumber Exchange Terminal property was assembled mostly in the 1930's and has served as a lumber yard until the 1980's, when the owner began to phase out lumber yard operations and began leasing portions of the property to industrial tenants, mainly for use as contractor's storage

yards. Mr. Doyle also stated that lumber was never pressure treated in the yard; it was simply stored, cut, and bundled for transport. To his knowledge, the only storage tanks on the property are two 550-gallon underground gasoline tanks associated with the pump in Area 1; one 550-gallon aboveground fuel oil tank associated with the two-story brick office building in Area 1; one 275-gallon aboveground storage tank of hydraulic oil and one 275-gallon aboveground storage tank of motor oil associated with the corrugated metal garage in Area 1; and one abandoned 275-gallon aboveground storage tank in Area 8. Additionally, Mr. Doyle stated that there were three mailing addresses that he knew for the property: 171 West Street, 237 Franklin Street, and 37 Commercial Street. These were the addresses used to search New York City Fire Department records. For more information, please see Section 2.0.

4.2 Regulatory Review

Toxics Targeting, Inc. of Ithaca, New York, was contracted to obtain information regarding the regulatory status of the property and the surrounding area. This information included records from databases maintained by the US EPA and New York State Department of Environmental Conservation (NYS DEC). AKRF reviewed these records to identify the use, generation, storage, treatment and/or disposal of hazardous materials and chemicals, or releases of such materials which may impact the project site. Copies of the pertinent sections of the Toxics Targeting, Inc. report are included in Appendix C.

4.2.1 Federal

The federal records reviewed included the National Priority List (NPL) Comprehensive Environmental Response, Compensation, and Liability Information System (CERCLIS); Emergency Response Notification System (ERNS); Toxic Chemical Release Inventory System (TRIS); the Permit Compliance System of Toxic Wastewater Discharges (WWD); and the US EPA Civil Enforcement Docket. The federal listing of facilities which are subject to corrective action under the Resource Conservation and Recovery Act (CORRACTS) is discussed with the State databases of RCRA listings.

National Priority List (NPL)

The NPL is the US EPA's database of some of the most serious uncontrolled or abandoned hazardous waste sites identified for probable remedial action under the Superfund Program. These sites may constitute an immediate threat to human health and the environment. Due to the amount of public attention focused on NPL sites, they pose a significant risk of stigmatizing surrounding properties and potentially impacting property values.

No NPL sites were identified within a one-mile radius of the project site.

Comprehensive Environmental Response, Compensation and Liability Information System (CERCLIS)

CERCLIS is a compilation of known or suspected, uncontrolled or abandoned hazardous waste sites which the US EPA has investigated, or plans to investigate, for a release or threatened release of hazardous substances pursuant to the Superfund Act of 1980 (CERCLA). Some of these sites may constitute a potential threat to human health and the environment. While it has been determined by the US EPA that some CERCLIS sites require no action, others could pose a real or perceived environmental threat to neighboring properties, thus impacting property values.

One CERCLIS sites was reported within a one-mile radius of the subject property. Brooklyn Union Gas / Williamsburgh Works, located at the intersection of Kent Avenue and North 12th Street, approximately 3,265 feet southeast of the subject property, is the location of a former manufactured gas plant. One of the byproducts produced during operation of the plant was a hydrocarbon tar, which was temporarily stored on the site until sold for use in roofing or road surfacing. This site was given a No Further Remediation Action Planned (NFRAP) listing. Furthermore, this site is located greater than a half-mile away from the subject property and any contamination would be expected to flow towards the East River.

Emergency Response Notification System (ERNS)

This federal database compiled by the Emergency Response Notification System records and stores information on reported releases of petroleum and other potentially hazardous substances.

The subject property is not currently listed as an ERNS site.

Toxic Chemical Release Inventory System (TRIS)

The TRIS contains information reported to the US EPA and/or NYS DEC by a variety of industries on their annual estimated releases of certain chemicals to the environment. The TRIS was mandated by Title III of the Superfund Amendments and Reauthorization Act (SARA) of 1986. Available information includes the maximum amount of chemicals stored on-site; the estimated quantity emitted into the air, discharged into bodies of water, injected underground, or released to land; methods used in waste treatment and their efficiency; and data on the transfer of chemicals off-site.

One TRIS sites was identified within a one-eighth mile radius of the project site. Liquimark, located at 19 Clay Street, approximately 410 feet northeast of the subject property, was listed in this database, however, no chemical information was provided.

Permit Compliance System of Toxic Wastewater Discharges (WWD)

This federal- and state- maintained database contains a listing of sites which discharge wastewater containing potentially hazardous chemicals.

No WWD facilities were reported within a one-eighth mile radius of the subject property.

United States Environmental Protection Agency Civil Enforcement Docket

This database is the US EPA's system for tracking civil judiciary cases filed on behalf of the agency by the Department of Justice.

No facilities are listed in the US EPA's Civil Enforcement Docket within a one-eighth mile radius of the subject property.

4.2.2 State

The state records reviewed included the listings of hazardous material spills (SPILLS), Resource Conservation and Recovery Act Notifiers (RCRA), Chemical Bulk Storage (CBS), Solid Waste Facilities (SWF), Petroleum Bulk Storage (PBS), State Inactive Hazardous Waste Disposal Sites (SHWS), Major Oil Storage Facilities (MOSF), and Air Discharge Facilities (ADF).

New York SPILLS Database

The New York SPILLS database includes a list of releases reported to the NYS DEC, including those attributed to tank test failures and tank failures. The tank test failures list only covers tanks that are below ground, while the tank failures list includes tanks that are either below or above ground. This database also lists spills that occur during the transportation of chemicals.

Sixty-five releases were reported within a quarter of a mile radius of the subject property, thirty three of which were within one-eighth of a mile. The closest active release involved the report of an one pint of unknown petroleum on three gallons of water in Manhole # 4273, located at the intersection of Freeman Street and West Street in April of 2000. The majority of other active spills reported within 450 feet of the subject property are either tank test failures or reports of discoveries of petroleum in manholes. These releases typically involve less than one gallon of spilled material, and most occurred aboveground and have been cleaned up with due diligence. Most small quantity on-land releases do not spread beyond the directly adjacent properties, and they are often contained within the immediate vicinity of the spill. As such, none of the listings for the surrounding area would be expected to have significantly affected the subject property.

Resource Conservation and Recovery Act (RCRA) Notifiers Listings

The NYS DEC's Bureau of Hazardous Waste Facility Compliance regulates hazardous waste from the point of generation to the point of disposal. The identified sites tracked on this list are those which have filed notification forms in accordance with the Resource Conservation and Recovery Act requirements regarding their hazardous waste activity. These sites include treatment, storage and disposal facilities (TSDs); small-quantity and large-quantity generators; and transporters of hazardous waste regulated under RCRA. The discussion below includes the CORRACTS listings (if any) of facilities which are subject to corrective action under RCRA.

One TSD facilities was identified within a one-mile radius of the subject area. Ten RCRA generators were listed within a one-eighth mile radius of the project site. Several of these industrial facilities with known generation of hazardous wastes (including halogenated solvents) are located up-gradient with respect to groundwater to the subject property. Several facilities have Class One RCRA violations, indicating releases may have occurred. Groundwater quality may have been impaired by these operations.

Kosan Industrial Corp., a treatment, storage and disposal facility located at 5-49 49th Avenue, is located north of Newtown Creek in Long Island City, therefore, it would not be expected to affect the subject property.

The following generators were listed within one-eighth mile of the subject property:

- NuHart Company, located at 49 Dupont Street, at the intersection of Franklin Street, across the street from the subject property, was listed twice as a Large Quantity Generator of Solid Wastes that exhibits the characteristics of ignitability and corrosivity, barium, spent halogenated solvents, and formaldehyde in 1990 and 1997. One Class One and one Class Two violation were listed for this facility;
- Consolidated Edison, located at 7466-7489 Huron Street, approximately 190 feet southeast of the subject property, was listed as a generator of lead in 1997;
- New York City Transit Authority, located at 65 Commercial Street, northeast adjacent to the subject property, was listed as a Large Quantity Generator of spent non-halogenated solvents, spent halogenated solvents; solid waste that exhibits the characteristic of ignitability, lead and benzene in 1992, 1993, 1996 and 1998. Two Class One violations were listed for this facility;
- Liquimark, located at 71 Green Street, approximately 205 feet southeast of the subject property, was listed in this database for generating solid waste that exhibits the characteristic

of corrosivity and spent non-halogenated solvents in 1994. Nine Class One violations were reported for this facility;

- Harte & Company, Inc., located at 77 Commercial Street, approximately 225 feet northeast of the subject property, was listed in this database as a Large Quantity Generator, however, no chemical information was provided;
- Pat & Doms Body & Fender Repair, located at 246 Franklin Street, approximately 300 feet east of the subject property, was listed as a Small Quantity Generator of five different kinds of waste in 1990;
- Huxley Envelope Corporation, located at 145 West Street, approximately 332 feet to the southeast of the subject property, was listed as a Large Quantity Generator of spent halogenated solvents used in degreasing in 1994. One Class One violation was reported for this facility;
- Interflo Technologies, located at 19 Clay Street, approximately 400 feet northeast of the subject property, was listed in this database for having generated four different kinds of waste in 1994 and 1995. Twenty-four violations were reported for this facility; and
- Electrical Precision Mete, located at 214 Franklin Street, approximately 470 feet southeast of the subject property, was listed in this database, however, not hazardous waste information was provided.

Chemical Bulk Storage (CBS) Database

The New York CBS is a list of facilities that store regulated non-petroleum substances in aboveground tanks with capacities greater than 185 gallons and/or in underground tanks of any size.

No CBS facilities were identified within a one-eighth mile radius of the subject property.

Solid Waste Facilities (SWF)

This database includes a listing of landfills, incinerators, transfer stations, recycling centers, and other sites that manage solid waste.

Fourteen SWFs were reported within a one-mile radius of the project site, the closest of which was DH Farney Contractors, Inc., located at 5502 Sencond Street, approximately 1270 feet north of the subject property. This facility was listed as a Large Transfer Station of residential waste. No waste is stored or disposed at transfer stations; waste is mainly transferred from small garbage trucks to larger vehicles for transportation to a landfill, recycling center or incinerator. These facilities are, therefore, unlikely to affect soil or groundwater conditions at the project site.

Petroleum Bulk Storage (PBS) Database

The New York State PBS lists commercial facilities with registered petroleum tanks located either above or below ground in excess of 1,100 gallons and less than 400,000 gallons.

Eleven PBS listings were reported within an eighth of a mile radius of the subject property, three of which are in the immediate vicinity. The closest three listings for bulk petroleum storage are summarized below:

- Eagle Street Association, located at 48 Eagle Street, directly across the street from the subject property, was listed as having two 10,000-gallon and one 6,000-gallon, closed-in-place, underground, #1, 2 or 4 fuel oil tanks;

- Rialto Products, Inc., located at 61-65 Green Street, directly across West Street from the subject property, was listed as having one, in-service, 2,000-gallon vaulted underground, #1, 2 or 4 fuel oil tank; and
- Deven Lithographers, Inc., located at 15 Huron Street, directly south-adjacent to the subject property on Block 2520, was listed as having one 5,000-gallon, underground, #1, 2 or 4 fuel oil tank.

It should also be noted that the Crosstown Bus Depot, located directly northeast-adjacent to the subject property, was listed as having seven closed underground and aboveground storage tanks with a total capacity of 18,320 gallons. This depot is located cross-gradient from the subject property with respect to groundwater and would therefore be less likely to have affected the subject property unless very large unreported releases occurred.

During site inspection, one 275-gallon aboveground storage tank of hydraulic oil and one 275-gallon aboveground storage tank of motor oil were observed in the corrugated metal garage in Area 1 and one abandoned 275-gallon aboveground storage tank was observed behind an office trailer in Area 8. Mr. Doyle reported that two 550-gallon underground gasoline tanks were associated with the fuel pump in Area 1 and one 550-gallon aboveground fuel oil tank was associated with the two-story brick office building in Area 1. The fuel oil tank was not observed during site inspection.

New York City Fire Department computerized records did not list any motor vehicle fuel tank of heating oil tanks for the subject property. New York City Buildings Department Block and Lot records for Block 2520, Lot 57 included a 1935 Fuel Oil Permit for a 550-gallon underground storage tank to be located directly outside of a two-story office, a 1935 blueprint showing a gasoline tank located at the northwest corner of a two-story brick building, and a 1938 Permit to install one 550-gallon gasoline tank and one fuel pump. New York City Buildings Department Block and Lot records for Block 2492, Lot 1 included a record showing one 550-gallon fuel oil tank within a two-story building. New York City Buildings Department computerized records for Block 2472, Lot 410 showed listings for Fuel Oil Permits for the following years: 1946, 1980, 1984 and 1988.

State Inactive Hazardous Waste Disposal Site Registry (SHWS)

This database maintains information and aids decision-making regarding the investigation and clean-up of hazardous sites. The Registry's information includes the clean-up status, type of clean-up, types and quantities of contaminants involved, and the assessment of health and environmental concerns.

Six State listed inactive Hazardous Waste Sites were reported within a one-mile radius of the project site, however, all of these are located greater than one-half mile away from the subject property and are, therefore, unlikely to be of concern.

Major Oil Storage Facilities (MOSF) Database

These facilities may be on-shore facilities or vessels, with petroleum storage capacities of 400,000 gallons or more.

Eight MOSFs were reported within a 1-mile radius of the project site, however, all are located either in Long Island City (across Newtown Creek) or greater than one-half mile away from the subject property and are, therefore, not of concern.

Air Discharge Facilities Index (ADF)

This listing of sites tracked by the New York State Regulatory Compliance Information System includes address information on each facility and the source of its associated air emissions.

Twelve ADF listings were reported within a one-eighth mile radius of the subject property. The closest three listings are summarized below:

- Courier Packaging, Inc, at both 220 West Street and 48 Eagle Street, was listed as having the potential to release volatile organic compounds. The address listed for this facility, 220 West Street, would place it in Area 8 of the subject property, however, Courier Packaging, Inc. is not currently a tenant of the property. Therefore, the facility is likely located at 48 Eagle Street, directly across the street from the subject property;
- Consolidated Laundries; located at 32-48 Eagle Street, adjacent to Area 8 on the subject property, was listed in this database, however, no further information was provided; and
- NuHart & Company, located at 49 Dupont Street, approximately 40 feet northeast of the subject property, was listed twice in this database as having the actual or potential emissions of volatile organic compounds above the applicable major source thresholds. This facility was reportedly in violation with regard to procedural compliance.

4.2.3 Local

Records maintained by the New York City Fire and Buildings Departments were investigated to determine the potential presence of hazardous materials. These records typically include fuel oil, gasoline and waste oil tank installation applications and permits and records of prior uses. Mr. Doyle stated that there were three mailing addresses that he knew for the property: 171 West Street, 237 Franklin Street, and 37 Commercial Street. These were the addressed used to search New York City Fire Department records. Buildings Department records were requested for Block and Lots of the subject property, however, the following computerized records were available: Block 2472, Lot 410; Block 2492, Lot 1; Block 2510, Lot 1; and Block 2520, Lot 57. The following Block and Lot folders were available for review: Block 2494, Lot 1; Block 2502, Lot 1; and Block 2520, Lot 57. Copies of pertinent legible information are included in Appendix D.

New York City Fire Department computerized records did not list any motor vehicle fuel tank of heating oil tanks for the subject property.

New York City Buildings Department Block and Lot records for Block 2520, Lot 57 included an 1890 blue print for the construction of a brick building, a 1935 Fuel Oil Permit for a 550-gallon underground storage tank to be located directly outside of a two-story office, a 1935 blueprint showing a gasoline tank located at the northwest corner of a two-story brick building, a 1938 Permit to install one 550-gallon gasoline tank and one fuel pump, and a 1935 New Building Permit to construct a garage.

New York City Buildings Department Block and Lot records for Block 2492, Lot 1 included a record showing one 550-gallon fuel oil tank within a two-story building. This record indicated the property to be occupied by the Greenpoint Lumber Exchange.

New York City Buildings Department Block 2502, Lot 1 included a 1936 Demolition Permit for a frame dwelling house shown on the southeast corner of the block. This Permit was addressed to the Newtown Creek Coal and Coke Company, Inc.

New York City Buildings Department computerized records for Block 2472, Lot 410 showed listings for Fuel Oil Permits for the following years: 1946, 1980, 1984 and 1988.

5.0 CONCLUSIONS AND RECOMMENDATIONS

Based on the results of our investigation, there appears to be a high potential for environmental impairments. The following concerns are noted:

The regulatory databases, Fire Department records, historical land-use atlases, and the visual site inspection indicate that the subject property has over a 100-year history of industrial use related primarily to the lumber and coal industries. Lumber Exchange Terminal, Inc, the current owner of the property, reportedly assembled the property in the 1930s, 1940s and 1950s. The owner began to phase out lumber yard operations in the 1980's when he began leasing portions of the property to industrial tenants, mainly for use as contractor's storage yards. Currently, only a small portion of the property remains occupied by Lumber Exchange Terminal, Inc. For the purpose of clarity, each Tax Block will be discussed individually (See Figure 2), and then potential environmental impairments located outside of the subject property will be discussed.

- **Tax Block 2520, Lot 57** - This portion of the property was historically occupied by a portion of the New York Dye - Wood Extract and Chemical Company ca. 1887 through ca. 1905 (also located on Block 2510); it was used for logwood, wagon and pattern storage. This Lot was also occupied by a portion of the New York Quebracho Extract Company ca. 1916 (also located on Block 2510); it contained a cooperage and a wagon house. Quebracho is a natural bark extract, rich in tannins, which is used to treat leather. Although quebracho is an organic substance, the process used to extract it may have involved the use or generation of hazardous materials or wastes. However, it appears this portion of the business was used more for storage than for manufacturing. Block 2520, Lot 57 was occupied by Lumber Exchange Terminal Inc. prior to 1942 through the present (Area 1 - Areas are shown in Figure 2). Other tenants currently occupying the Lot include Acquisitions Investment, Inc. (Area 2 - used for bus parking and minor repair) and Trochom Construction Corporation (a portion of Area 3 - used for auto parking and contractor's materials storage). This portion of the property currently contains a two-story brick office building (which first appeared on Sanborn Maps in 1887), a large corrugated metal garage (which first appeared on Sanborn Maps in 1965), and a small guard shed near the Green Street entrance. Surface staining was observed in Areas 1, 2, and 3. 20- and 30-cubic yard waste containers were observed in Areas 2 and 3, respectively.

  Suspect asbestos-containing materials, including boiler insulation, pipe insulation, spray-on fire proofing, floor and ceiling tiles were observed in the two-story brick building during site inspection. The roof was inaccessible at the time of inspection, however, due to the age of the structure, it can be assumed to contain asbestos. This structure was reportedly heated by fuel oil located in one 550-gallon tank enclosed behind a brick wall near the boiler room. In addition, one fuel pump was observed outside of the two-story brick building, which was reportedly serviced by two 550-gallon underground gasoline tanks. New York City Buildings Department Block and Lot records for Block 2520, Lot 57 included a 1935 Fuel Oil Permit for a 550-gallon underground storage tank to be located directly outside of a two-story office, a 1935 blueprint showing an underground gasoline tank located at the northwest corner of a two-story brick building, a 1938 Permit to install one 550-gallon underground gasoline tank and one fuel pump and a 1957 record showing one 550-gallon fuel oil tank within a two-story building. A search of computerized Fire Department records did not locate any heating or motor fuel oil records for the property.

The small guard shed may contain asbestos-containing and/or lead paint-containing materials, though none were observed during site inspection.

The eastern portion of the garage building was used primarily to store fork lifts and old car parts; the western portion of the garage was primarily used for the storage of car batteries, tires and tools. The area was illuminated with new-looking pole mounted fluorescent lights, however, old, ceiling mounted fluorescent lights (potentially with PCB-containing ballasts) were observed throughout the structure. One 275-gallon aboveground storage tank of hydraulic oil, one 275-gallon aboveground storage tank of motor oil and over twenty 55-gallon drums and several 5-gallon drums of petroleum products were observed in the eastern portion of the structure; several 55-gallon drums of lube oil and antifreeze and two oxygen and acetylene tanks were observed in the western portion. AKRF personnel were informed that auto and fork lift repair occurred in the areas directly east and west of the garage building. Severe surface staining and several 55-gallon drums of petroleum products were observed in these areas.

The fuel oil, gasoline, hydraulic oil and motor oil tanks; the 55- and 5-gallon containers of petroleum products; and the Block's current usage for auto repair could have contributed to petroleum contamination in soil and/or groundwater. The Block's former usage as a dye and chemical factory, as a quebracho extract company and as a lumber yard (if pressure treatment occurred on-site) could have contributed to hazardous materials contamination on-site. Asbestos-containing and/or lead paint containing building materials could be present in the two-story brick office building and/or in the corrugated metal garage on the Block. Finally, mercury-containing fluorescent lights and/or PBC-containing ballasts could be present in lighting fixtures in on-site structures.

- **Tax Block 2510** - This portion of the property was historically occupied by a portion of the New York Dye - Wood Extract and Chemical Company ca. 1887 through ca. 1905 (also located on Block 2520, Lot 57); it contained a large logwood storage shed, a small oil storage shed, an area with 15 wooden dye tanks, a large tank house, and storage, cutting and manufacturing buildings. This Lot was also occupied by a portion of the New York Quebracho Extract Company ca. 1916 (also located on Block 2510); it contained several storage sheds and industrial buildings, a large tank room and two areas with dye wood tanks and logwood tanks. This portion of the business appeared to have been used both for manufacturing and for storage. Block 2510 was occupied by Lumber Exchange Terminal Inc. prior to 1942 through 1989. Tenants currently occupying the Block include Trochom Construction Corporation (a portion of Area 3 - used for contractor's materials storage), Bay Crane Services, Inc., (Area 4 - used for storage of cranes and other large construction vehicles), Safway Steel Products, Inc./ Spring Scaffolding (a portion of Area 6 - used for storage of scaffolding materials) and Hylan Electrical Contracting, Inc. (Area 7 - used for storage of materials used to install fiber optic cabling). 55-gallon drums of water-based curing compounds for concrete surfaces, hydraulic oil and white resin and several five-gallon drums of silicon sealant were observed in Area 3. Surface staining was also observed in Area 3. Generators, several fork lifts and 55-gallon drums of fiber optic cable lubricator were observed in Area 6. 20- and 30-cubic yard waste containers were observed in Areas 3 and 6, respectively.

  The 55- and 5-gallon containers of chemicals and petroleum products and the Block's former usage as a dye and chemical factory, as a quebracho extract company and as a lumber yard (if pressure treatment occurred on-site) could have contributed to hazardous materials contamination on-site.

- **Tax Block 2502** - This portion of the property was historically occupied by A.K. Meserole & Company (a mason material and coal storage yard) and a portion of C. Winant's Spar Company ca. 1916; a portion of Nesmith and Constantine's Log Storage Yard and a two-story lumber shed belonging to P.M. Dingee & Sons ca. 1905; Export Auto Case Company and vacant land ca. 1916; vacant land ca. 1942; and the Lumber Exchange Terminal, Inc. ca. 1951 through ca. 2000. Tenants currently occupying the Block include Trochom Construction Corporation (a portion of Area 3 - used for contractor's materials storage), River Hauling, Inc. (a portion of Area 5 - used for temporary storage and transport of large items), Safway Steel Products, Inc. (a portion of Area 6 - used for storage of scaffolding materials) and Far Better Towing, Inc. / R-D Towing Corporation (Area 8 - used for the storage of repossessed automobiles). 55-gallon drums of water-based curing compounds for concrete surfaces, hydraulic oil and white resin and several five-gallon drums of silicon sealant were observed in Area 3. Surface staining was observed in Areas 3 and 5. Pony generators, several fork lifts and 55-gallon drums of fiber optic cable lubricator were observed in Area 6. 20- and 30-cubic yard waste containers were observed in Areas 3 and 6.

  The 55-gallon containers of chemicals and petroleum products currently on-site and the Block's former usage as a lumber yard (if pressure treatment occurred on-site) could have contributed to hazardous materials contamination on-site. Furthermore, illegal dumping of petroleum and/or hazardous materials could have occurred on historically vacant land.

- **Tax Block 2472, Lots 2, 32, 100, 410 and 425** - Block 2472 was historically occupied by a portion of C. Winant's Spar Company and Church and Reeves Lumber Yard ca. 1916; a portion of Nesmith and Constantine's Log Storage Yard, the Bergen & Company Lumber Yard and the O'Rourke Engineering Construction Company ca. 1905; the Bergen & Company Lumber Yard, a portion of the New York State Barge Canal Terminal; a portion of Alberene Stone Company Tub Storage and vacant land ca. 1916; the New York State Canal Terminal, Greenpoint Coal Docks, Inc. and vacant land ca. 1942 through ca. 1951; and the Lumber Exchange Terminal, Inc. ca. 1965 through ca. 2000. Sanborn Maps from the year 2000 indicated Block 2472 to also contain Two Guys Towing and Auto Repair and a parking lot. Current tenants include Far Better Towing, Inc. / R-D Towing Corporation (a portion of Area 8 - used to park repossessed automobiles), Lumber Exchange Terminal, Inc. (a portion of Area 1 - used to store lumber), River Hauling, Inc. (a portion of Area 5 - used for temporary storage and transport of large items), New York City Housing Authority (Area 9 - used to park cars and store materials), Henkles & McCoy (Area 10 - used to park cars and store contractor's materials), Supreme Trucking (Area 11 - used for parking and minor repair large cargo trucks and for the staging of large items), MWK Transport, Inc./SJK Transport (Area 12 - used for truck parking and the storage of materials), and Spring Scaffolding (Area 13 - used to store scaffolding materials). Several fork lifts, 55-gallon drums of hydraulic oil, a 20-cubic yard waste container and surface staining in several areas were observed in this portion of Area 5. It was reported that minor auto repairs, truck washing and tire changes were performed in Area 11. Several 55-gallon drums of lube oil were observed in Area 11. New York City Buildings Department computerized records for Block 2472, Lot 410 showed listings for Fuel Oil Permits for the following years: 1946, 1980, 1984 and 1988. It is unknown whether these potential tanks were located aboveground or underground.

  The 55-gallon containers of petroleum products currently on-site, the potential storage tanks on-site, the Block's former usage as a lumber yard (if pressure treatment occurred on-site), and

the Block's current use for auto repair could have contributed to petroleum and/or hazardous materials contamination on-site. Furthermore, illegal dumping of petroleum and/or hazardous materials could have occurred on historically vacant land.

- **Block 2494, Lot 1** - Block 2494, Lot 1 was historically occupied by dwellings and stores ca. 1887 through ca. 1905; a garage and repair shop with a tank house and an underground storage tank ca. 1916; vacant land ca. 1951; and the Lumber Exchange Terminal ca. 1965 through 2000. Far Better Towing, Inc. / R-D Towing Corporation is the current occupant of the Lot (a portion of Area 8 - used to repair, park and auction seized vehicles). A trailer office and a one-story brick auto-repair shop were observed near the entrance to Area 8 (at the intersection of Franklin and Dupont Streets). The one-story building contained brick walls, concrete floors and a wood ceiling. The roof was not inspected, but can be assumed to contain asbestos. One 55-gallon drum of diesel fuel was observed in this building and three more were observed outside of the building. An employee of Far Better Towing, Inc. informed AKRF personnel that oil and tires are changed and minor repairs occur. No vehicles were reportedly fueled on the property. Piles of trash, tires, car parts, a tank of carbon dioxide gas and one 275-gallon abandoned aboveground storage tank were observed surrounding the trailer and the one-story structure.

  The 55-gallon containers of petroleum products currently on-site, the current and former auto-repair operation, the underground gasoline storage tank identified on the property, the hydraulic lift system identified on-site and the former usage as a lumber yard (if pressure treatment occurred on-site) could have contributed to petroleum and/or hazardous materials contamination on-site. Asbestos-containing and/or lead paint containing materials could be present in the one-story auto repair shop. Furthermore, illegal dumping of petroleum and/or hazardous materials could have occurred on historically vacant land.

- **Environmental Conditions Located Outside of the Subject Property** - In the New York State Resource Conservation and Recovery Act (RCRA) database, one Treatment, Storage, and Disposal facilities was identified within a one-mile radius of the subject area and ten RCRA generators were listed within a one-eighth mile radius of the project site. Several of these industrial facilities with known generation of hazardous wastes (including halogenated solvents) are located up-gradient with respect to groundwater to the subject property. Several facilities have Class One RCRA violations, indicating releases may have occurred. Groundwater quality may have been impaired by these operations.

RECOMMENDATIONS:

- AKRF recommends a Phase II Subsurface Site Investigation to determine the presence and possible extent of underground storage tanks as well as petroleum and/or hazardous materials contamination in on site soil and groundwater;

- AKRF recommends any identifies tanks be properly registered, if required, with the New York State Department of Environmental Conservation and the New York City Fire Department. Prior to any renovation or demolition activities with the potential to disturb known tanks, they should be

property assessed, closed and removed from the property in accordance with all federal, state and local regulations;

- Prior to any renovation or demolition activities with the potential to disturb suspect asbestos containing materials, an asbestos survey should be conducted. If these materials prove to contain asbestos, they should be properly removed and disposed of in accordance with all sate and federal regulations;

- Any renovation or demolition activities with the potential to disturb lead-based paint must be performed in accordance with the applicable Occupational Safety and Health Administration regulation (OSHA 29 CFR 1926.62 - Lead Exposure in Construction). Current New York State Department of Environmental Conservation guidance permits the disposal of construction materials covered with lead-based paint as demolition debris within an approved landfill; and

- The suspect mercury-containing fluorescent lights and suspect PCB-containing lighting fixtures do not currently present a potential hazard to human health. Unless there is labeling or test data to indicate they are not mercury- and/or PCB-containing, if disposal is required, it should be in accordance with applicable federal, state, and local regulations and guidelines.

6.0 QUALIFICATIONS

The purpose of this assessment was to convey a professional opinion about the potential presence or absence of contamination, or possible sources of contamination on the property and to identify existing and/or potential environmental problems associated with the property.

The assessment was performed in accordance with customary principles and practices in the environmental consulting industry and in accordance with ASTM Standard E1527-00, *Standard Practice for Environmental Site Assessments: Phase I Environmental Site Assessment Practice*. It is intended for use as a supplement to the property appraisal and is only to be used as a guide in determining the possible presence or absence of hazardous materials on the subject property at the time of the inspection. This assessment is based upon the review of readily available records relating to previous use of both the project site and the surrounding area, as well as a visual inspection of the current condition of the property. Environmental characteristics at this site and surrounding sites may be subject to change in the future.

This Phase I Assessment is not and should not be construed as, a guarantee, warranty, or certification of the presence or absence of hazardous substances, which can be made only with testing and contains no formal plans or recommendations to rectify or remediate the presence of any hazardous substances which may be subject to regulatory approval. This report is not a regulatory compliance audit.

A preliminary visual screening was performed to identify suspect asbestos-containing materials in readily accessible and visible areas. Hidden materials, such as those inside walls, crawl spaces and inside duct work were not accessed.

This report is based on services performed by AKRF, Inc. professional staff and observation of the site and its surrounding area. We represent that observations made in this assessment are accurate to the best of our knowledge and that no findings or observations concerning the potential presence of hazardous substances have been withheld or amended. The research and inspections have been carried to a level that meets accepted industry and professional standards. Nevertheless, AKRF and the undersigned shall have no liability or obligation to any party other than Park Tower Realty Corp. and their successors or assignees and AKRF's obligations and liabilities to the above, their successors or assignees is limited to fraudulent statements made, or negligent or willful acts or omissions.

7.0 REFERENCES

1. Toxics Targeting, Inc.; *Greenpoint Lumber Yard, Brooklyn, New York*; Regulatory Radius Search; June 19, 2001.
2. U.S. Geological Survey; *Brooklyn Quadrangle—New York*; 7.5 Minute Series (Topographic); Scale 1:24,000; 1966; Photorevised 1979.
3. U.S. Geological Survey; *Reconnaissance of the Ground-Water Resources of Kings and Queens Counties, New York*; U.S. Geological Survey; Open-File Report 81-1186; 1981.
4. U.S. Geological Survey; *The Water-Table Aquifer in Long Island, New York in March-April 1984*; Water Resources Investigations Report 86-4189, Plate 1A-Water Table Altitude-West; 1984.
5. New York State Department of Health: Office of Public Health—Environmental Radiation Section; *Basement Radon Screening Data*; December, 1999.





QUADRANGLE LOCATION

SCALE IN FEET

0' 1000' 2000' 4000'

SCALE: 1"=2000'

N

SOURCE:

USGS TOPOGRAPHIC MAP - BROOKLYN, N.Y.
QUADRANGLE - DATED 1967, PHOTOREVISED 1979

GREENPOINT LUMBER YARD
Brooklyn, New York

PROJECT SITE LOCATION

AKRF, Inc.

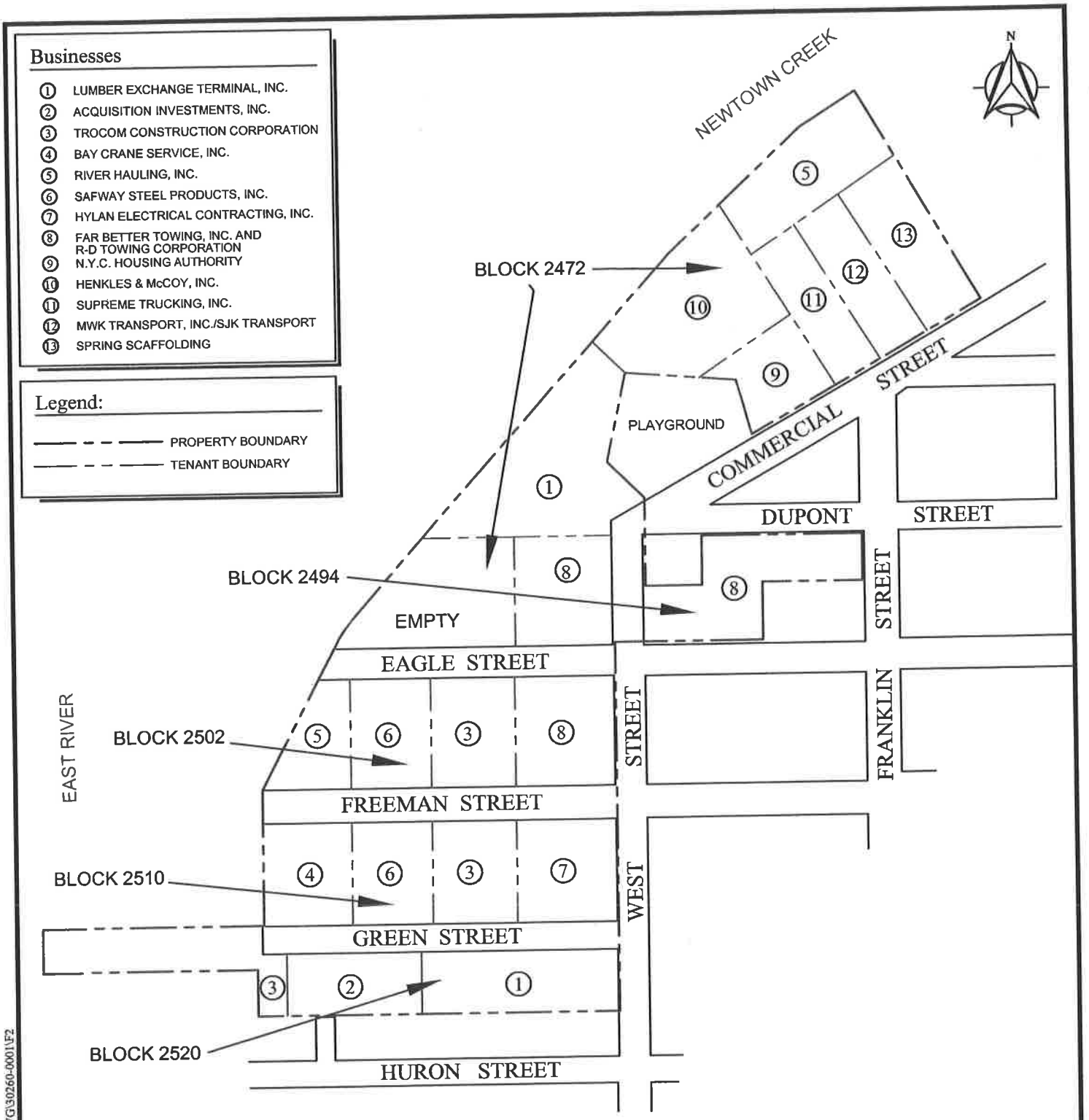
Environmental Consultants
117 East 29th Street New York, N.Y. 10016

DATE
06.28.01

PROJECT No.
30260

FIGURE No.
1

2001 AKRF, Inc. Environmental Consultants C:\MSPUB\30260-0001\F1.pub



GREENPOINT LUMBER YARD
Brooklyn, New York

PROJECT SITE DETAIL

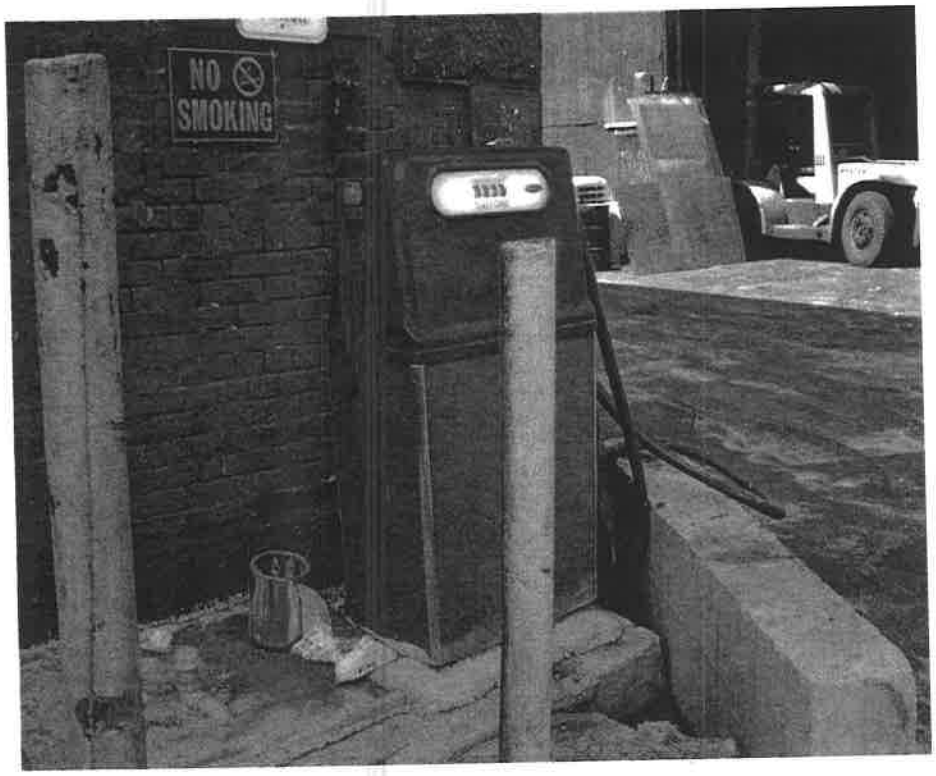
AKRF, Inc.
Environmental Consultants
117 East 29th Street, New York, N.Y. 10016

DATE 06.28.01
PROJECT No. 30260
FIGURE No. 2

2001 AKRF, Inc. Environmental Consultants C:\AKRF-DWG\30260-0001\F2

APPENDIX A
PHOTOGRAPHIC DOCUMENTATION

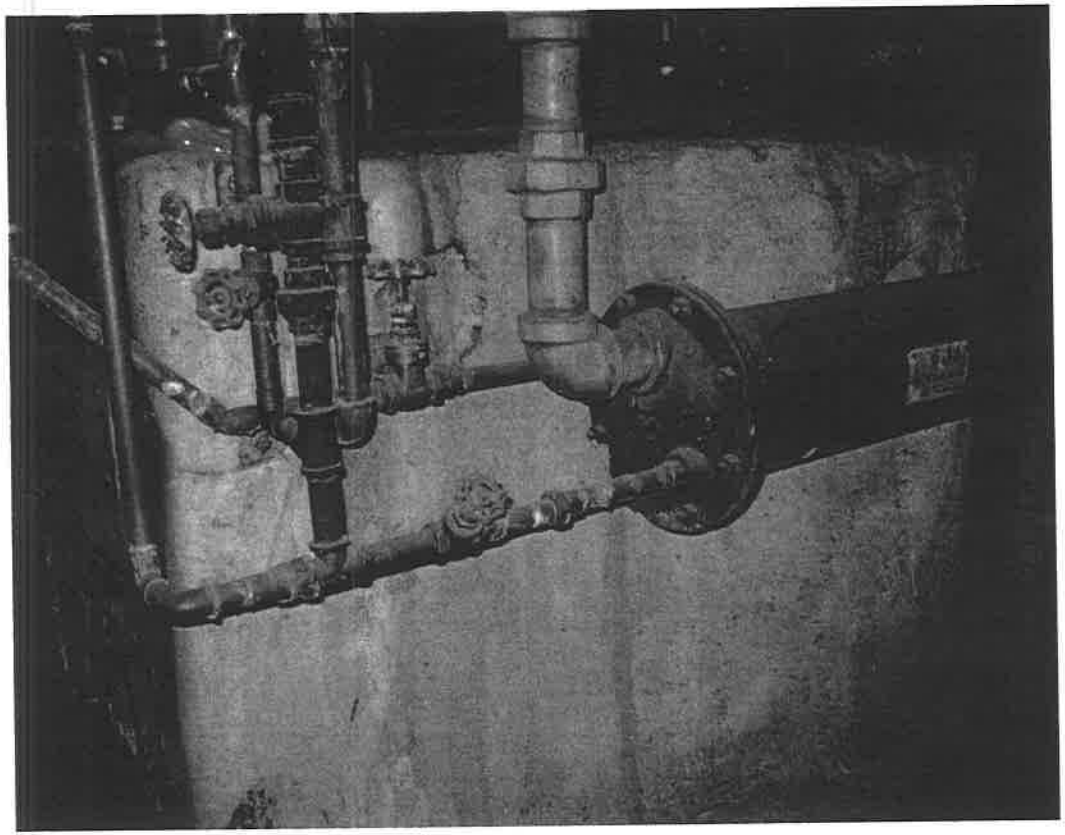
Photograph 1. COVER - View of Manhattan from the waterfront of the Greenpoint Lumber Yard.



Photograph 2. Fuel pump located outside of two-story brick office in Area 1.

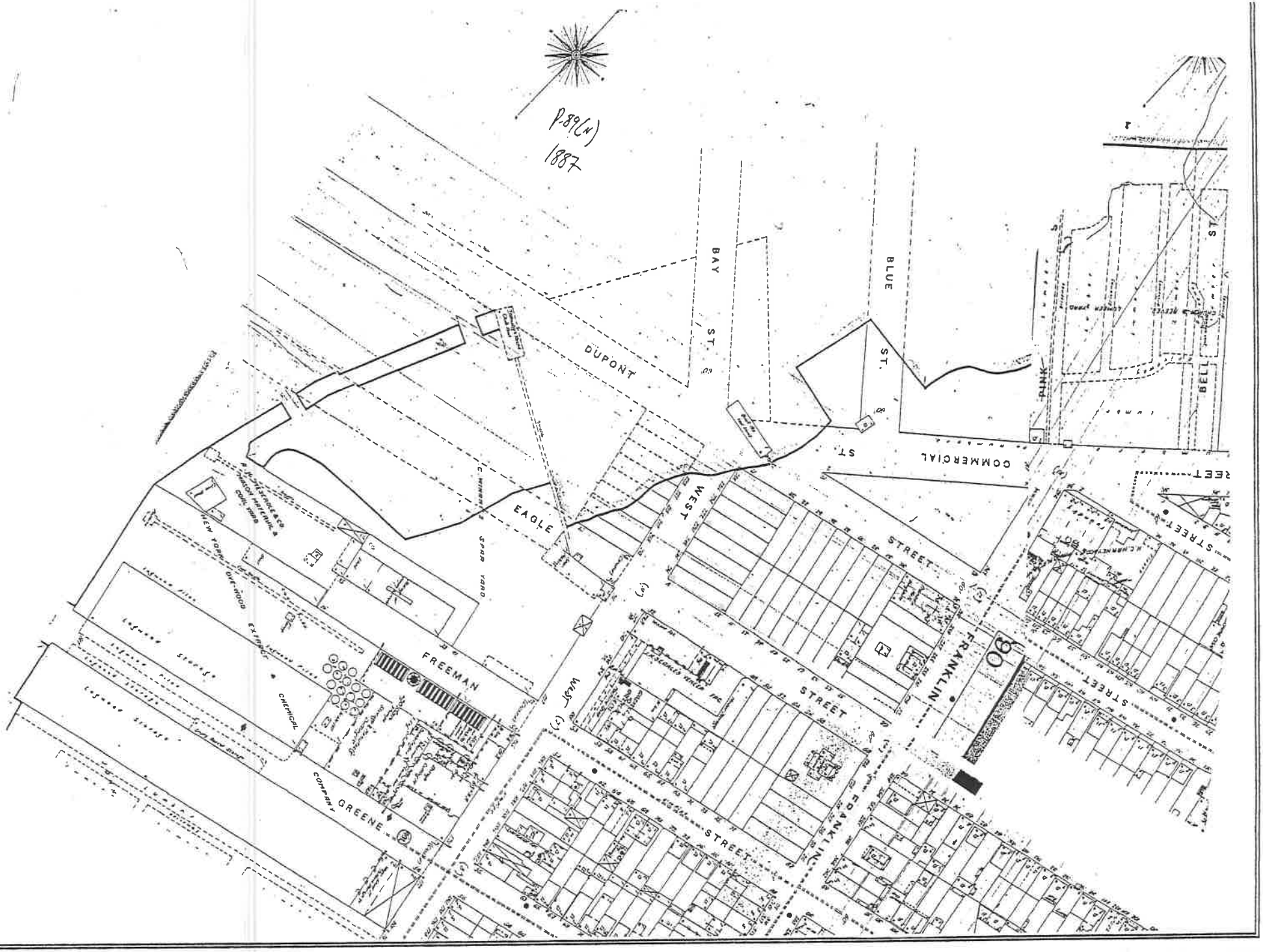


Photograph 3. Stained surface soil in Area 3.

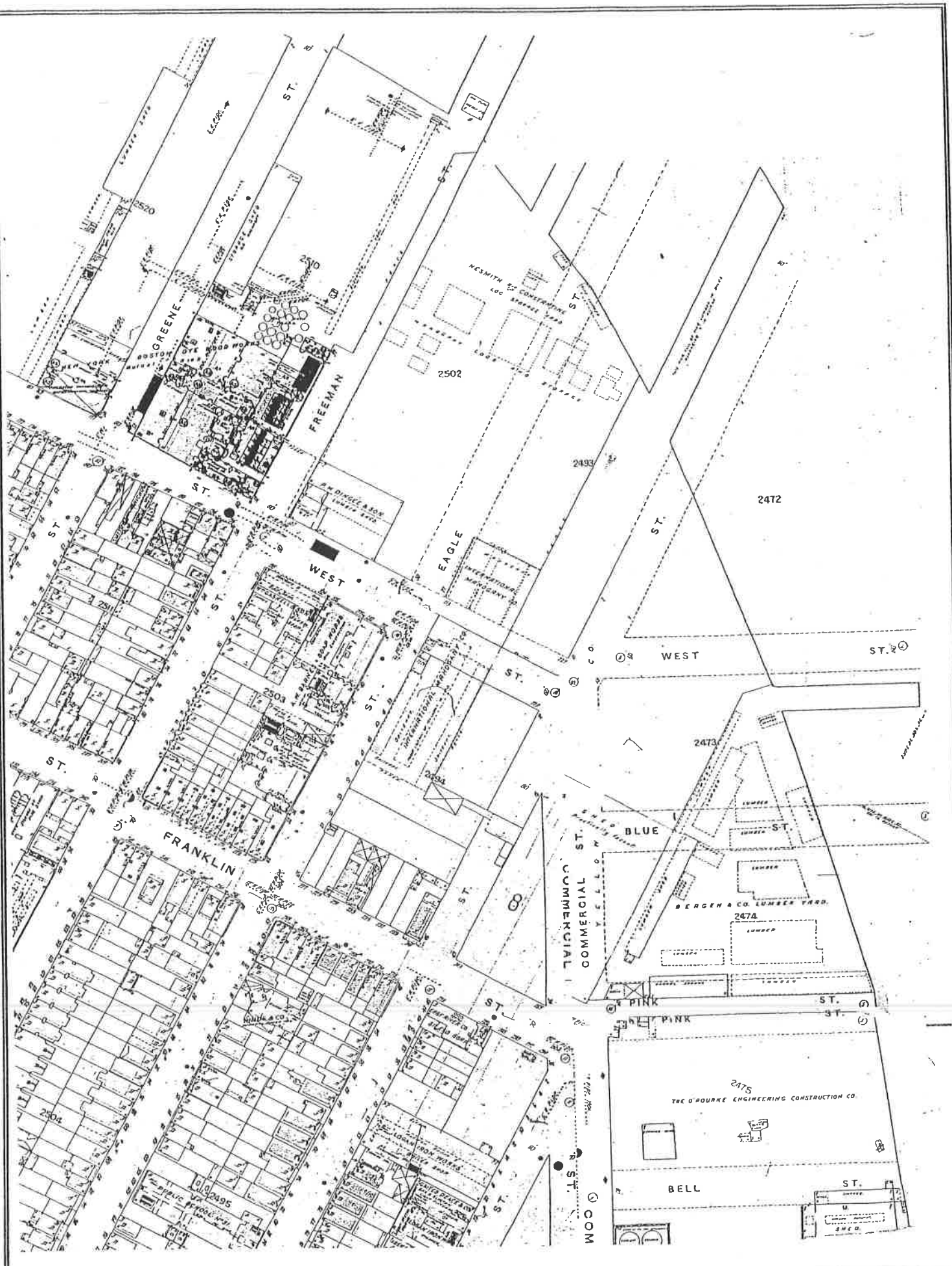


Photograph 4. Suspect asbestos-containing thermal insulation on boiler in two-story brick office building in Area 1.

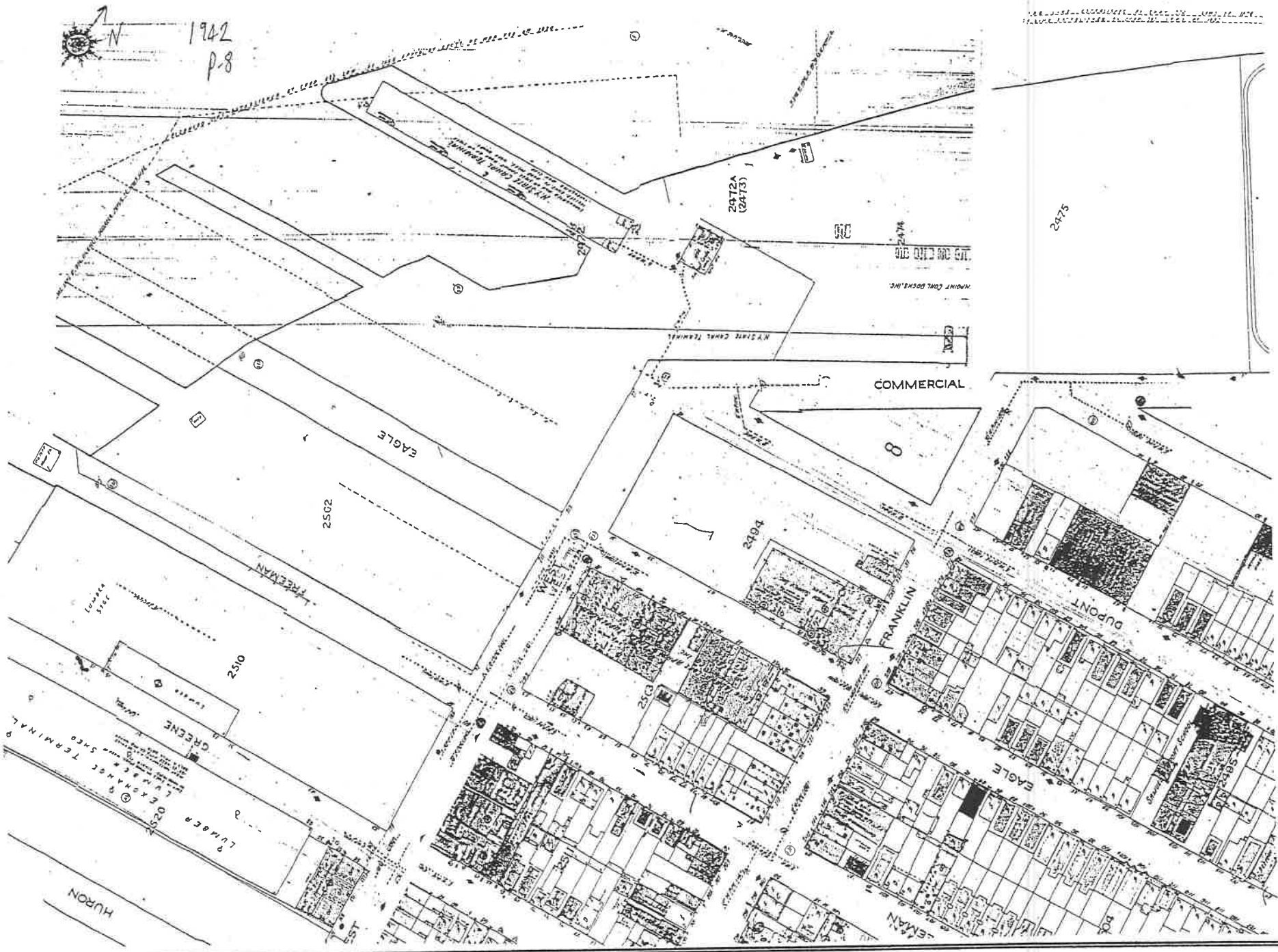
APPENDIX B
HISTORICAL SANBORN MAPS



HISTORICAL SANBORN MAP 1887

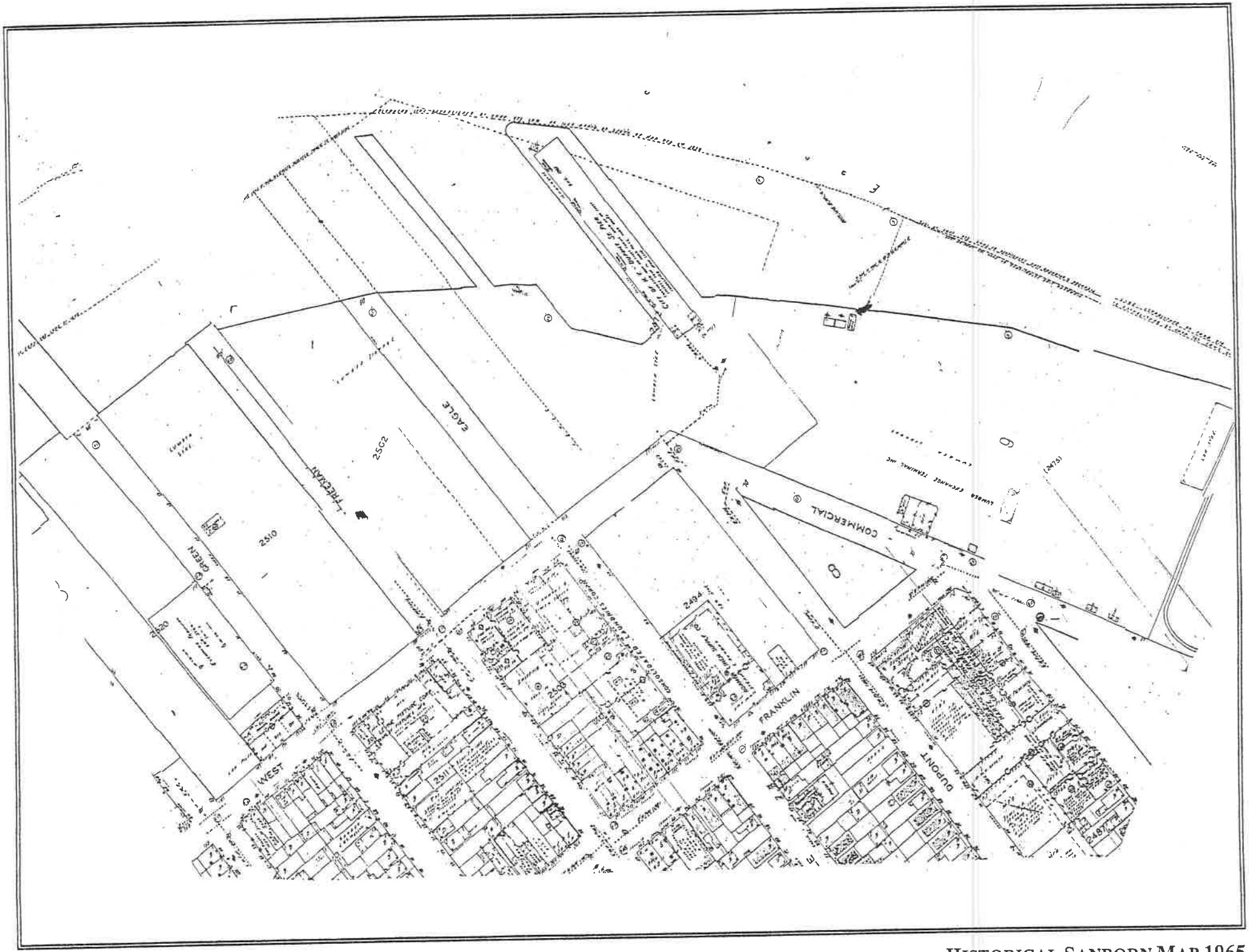

GREENE
FREEMAN
EAGLE
WEST
FRANKLIN
BLUE
PINK
BELL
COMMERCIAL
2502
2493
2472
2473
2474
2475
2503
2504
2495
BERGEN & CO. LUMBER YARD
THE O'ROURKE ENGINEERING CONSTRUCTION CO.

GREENE
FREEMAN
EAGLE
2502
2493
2472
2473
2474
2475
2504
2503
2494
BLUE
PINK
BELL
FRANKLIN
DUPONT
COMMERCIAL
8
BERGEN & Co. LUMBER YARD
N.Y. STATE BARGE CANAL TERMINAL
Bryant Auto Case Co.



HISTORICAL SANBORN MAP 1942

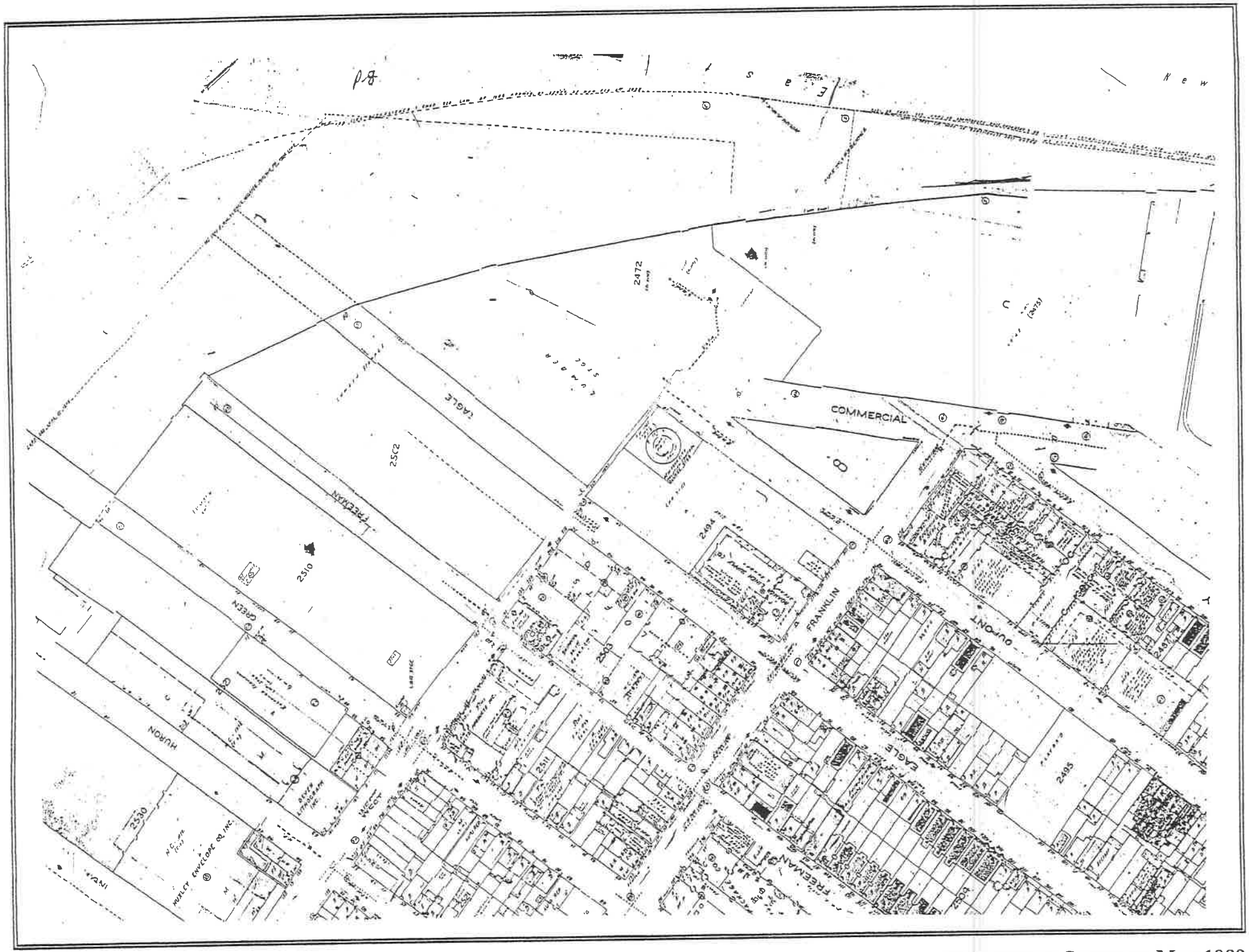
HISTORICAL SANBORN MAP 1951



HISTORICAL SANBORN MAP 1965



HISTORICAL SANBORN MAP 1979



HISTORICAL SANBORN MAP 1080

HISTORICAL SANBORN MAP 2000
HURON
GREEN
FREEMAN
EAGLE
WEST
FRANKLIN
DUPONT
COMMERCIAL
2510
2502
2472
249A
8
PLAYGROUND
LUMBER YARD
TWO GUYS TOWING AND AUTO REPAIR
BUS PARKG
NEW YORK CITY TRANSIT

APPENDIX C
REGULATORY RECORDS REVIEW

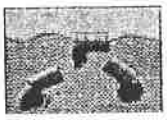
Toxics Targeting Computerized Environmental Report

Greenpoint Lumber Yard
Brooklyn, NY 11222

June 19, 2001

Toxic Site Databases Analyzed In Your Report

Search Radius

One-Mile 

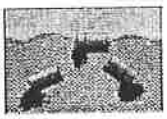
1) ***New York Inactive Hazardous Waste Disposal Site Registry:*** a state listing of sites that can pose environmental or public health hazards requiring investigation or clean up.

One-Mile 

2) ***CERCLIS*** (Comprehensive Environmental Response, Compensation and Liability Information System): a federal listing of sites that can pose environmental or public health hazards requiring investigation or clean up.

One-Mile 

3) ***National Priority List for Federal Superfund Cleanup:*** a listing of sites known to pose environmental or health hazards that are being investigated or cleaned up under the Federal Superfund program.

One-Mile 

4) ***New York Hazardous Substance Disposal Site Draft Study:*** a state listing of sites contaminated with toxic substances that can pose environmental or public health hazards. These sites are not eligible for state clean up funding programs.

One-Mile 

5) ***New York Solid Waste Facilities Registry, including New York City 1934 Sites:*** active and inactive landfills, incinerators, transfer stations or other solid waste management facilities.

One-Mile 

6) ***New York State Major Oil Storage Facilities:*** sites with more than a 400,000 gallon capacity for storing petroleum products.

One-Mile 

7) ***New York and Federal Hazardous Waste Treatment, Storage or Disposal Facilities:*** sites reported by the NYS manifest system and the USEPA's Resource Conservation and Recovery Act Information System.

- ***RCRA violations:*** waste facilities with violations reported by the USEPA pursuant to the Resource Conservation and Recovery Act.
- ***RCRIS corrective action activity (CORRACTS):*** waste facilities with RCRIS corrective action activity reported by the USEPA.

Half-Mile 

8a) ***Toxic Spills: active*** stationary source spills reported to state environmental authorities, including unremediated leaking underground storage tanks.

Half-Mile 

8b) ***Toxic Spills: closed*** stationary and non-stationary source spills reported to state authorities, including remediated leaking underground storage tanks.

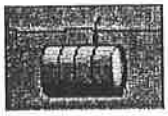
Quarter-Mile 

9) ***New York and Local Petroleum Bulk Storage Facilities:*** sites with more than an 1,100 gallon capacity for storing petroleum products.

Quarter-Mile 

10) ***New York and Federal Hazardous Waste Generators and Transporters:*** sites reported by the NYS manifest system and the USEPA's Resource Conservation and Recovery Act Information System.

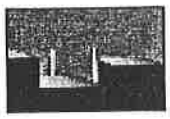
- ***RCRA violations:*** waste facilities with violations reported by the USEPA pursuant to the Resource Conservation and Recovery Act.
- ***RCRIS corrective action activity (CORRACTS):*** waste facilities with RCRIS corrective action activity reported by the USEPA.

Quarter-Mile 

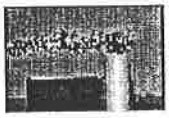
11) ***New York Chemical Bulk Storage Facilities:*** Sites storing hazardous substances listed in 6 NYCRR Part 597 in aboveground tanks with capacities of 185 gallons or more and/or underground tanks of any size

Quarter-Mile 

12) ***New York Toxic Release Inventory Facilities:*** discharges of selected toxic chemicals to air, land, water or treatment facilities.

Quarter-Mile 

13) ***Historic New York City Utility Sites (1890's to 1940's):*** power generating stations, manufactured gas plants, gas storage facilities, maintenance yards and other gas and electric utility sites.

Quarter-Mile 

14) ***Air Discharges:*** Air pollution point sources monitored by U.S. EPA and/or state and local air regulatory agencies.

Quarter-Mile 

15) ***Federal Permit Compliance System Toxic Wastewater Discharges:*** permitted toxic wastewater discharges.

Quarter-Mile 

16) ***Federal Civil Enforcement Docket:*** civil judiciary cases filed on behalf of the U. S. Environmental Protection Agency by the Department of Justice.

Property only 

17) ***ERNS: Federal Emergency Response Notification System Spills:*** a listing of federally reported spills.

Limitations Of The Information In Your Report

The information presented in your *Computerized Environmental Report* has been obtained from various local, state and federal government agencies. Please be aware that: **1)** additional information on individual sites may be available, **2)** newly discovered sites are continually reported and **3)** all map locations are approximate. As a result, this report is intended to be the FIRST STEP in the process of identifying and evaluating possible environmental threats to specific properties and can only serve as a guide for conducting on-site visits or additional, more detailed toxic hazard research.

Toxics Targeting tries to ensure that the information in your report is presented accurately and with minimal alteration. The only systematic changes that are made correct obvious address errors in order to allow sites to be mapped. Any address changes that are made are noted in the map information section at the top of each corresponding *Toxic Site Profile*. Since the information presented in your report is not edited, please be aware that it can contain reporting errors or typographical mistakes made by the site owners/operators or government agencies that produced the information. Please be aware of some other limitations of the information in your report:

- The computerized map used by *Toxics Targeting* is the same one used by the U. S. Census. While the map is generally accurate, no map is perfect. In addition, *Toxics Targeting's* mapping methods estimate where toxic site addresses are located if the address is not specifically designated on the Census map. FOR THESE REASONS, ALL MAP LOCATIONS OF ADDRESSES AND REPORTED TOXIC SITES SHOULD BE CONSIDERED APPROXIMATE AND SHOULD BE VERIFIED BY ON-SITE VISITS;

- UNDISCOVERED, UNREPORTED OR UNMAPPABLE TOXIC SITES MIGHT NOT BE IDENTIFIED BY THIS REPORT'S CHECK OF 17 TOXIC SITE CATEGORIES. TOXIC SITES REPORTED IN OTHER GOVERNMENT DATABASES MIGHT ALSO EXIST. FOR THESE REASONS, YOUR REPORT MIGHT NOT IDENTIFY ALL THE TOXIC SITES THAT EXIST IN THE AREA IT SEARCHES;

- The appendix of your report contains a listing of sites that could not be mapped due to incomplete or erroneous address information or other mapping problems. This listing includes unmappable toxic sites in zip code areas within one mile of the target address as well as toxic sites without zip codes reported in the same county. IF YOU WOULD LIKE INFORMATION ON ANY OF THE LISTED SITES, PLEASE CONTACT *TOXICS TARGETING AND REFER TO THE SITE ID NUMBER.*

- Some toxic sites identified in your report may be classified as **known hazards**. Most of the toxic sites identified in your report involve **potential hazards** related to the on-site use, manufacture, handling, storage, transport or disposal of toxic chemicals. Some of the toxic sites identified in your report may be the addresses of parties responsible for toxic sites located elsewhere. YOU SHOULD ONLY CONCLUDE THAT TOXIC HAZARDS ACTUALLY EXIST AT A SPECIFIC SITE WHEN GOVERNMENT AUTHORITIES MAKE THAT DETERMINATION OR WHEN THAT CONCLUSION IS FULLY DOCUMENTED BY THE FINDINGS OF AN APPROPRIATE SITE INVESTIGATION UNDERTAKEN BY LICENSED PROFESSIONALS;

- Compass directions and distances are approximate. Compass directions are calculated from the subject property address to the mapped location of each identified toxic site. The compass direction does not necessarily refer to the closest property boundary of an identified toxic site. The compass direction also can vary substantially for toxic sites that are located very close to the subject property address.

- The information presented in your report is a summary of the information that *Toxics Targeting* obtains from government agencies on reported toxic sites. YOU MAY BE ABLE TO OBTAIN ADDITIONAL INFORMATION ABOUT REPORTED SITES WITH THE FREEDOM OF INFORMATION REQUEST FORM LETTERS THAT ARE PROVIDED ON THE INSIDE OF THE BACK COVER.

Section One:

Report Summary

- *Table One:* *Number of Identified Toxic Sites By Distance Interval*
- *Table Two:* *Identified Toxic Sites By Direction*
- *Table Three:* *Identified Toxic Sites Ranked By Proximity*
- *Table Four:* *Identified Toxic Sites By Category*
- *Map One:* *One-Mile Radius Map*
- *Map Two:* *Half-Mile Radius Map*
- *Map Three:* *Quarter-Mile Radius Map*
- *Map Four:* *Quarter-Mile Radius Close up Map*

Copyright 2001 Toxics Targeting, Inc.

NUMBER OF IDENTIFIED SITES BY DISTANCE INTERVAL

All Sections 4, 2, 9, 11 -16

Database Searched	0 - 100 ft	100 ft - 1/8 mi	1/8 mi - 1/4 mi	1/4 mi - 1/2 mi	1/2 mi - 1 mi	Site(s) Category Totals
NYS Inactive Hazardous Waste Disposal Sites *	0	0	0	[illegible]	[illegible]	6
CERCLIS Sites *	0	0	0	[illegible]	[illegible]	3
National Priority List Sites *	0	0	0	0	0	0
Hazardous Substance Waste Disposal Sites *	0	0	0	[illegible]	[illegible]	5
NYS Solid Waste Facilities *	0	0	[illegible]	[illegible]	[illegible]	14
NYS Major Oil Storage Facilities *	0	0	0	2	6	8
RCRA Hazardous Waste Treatment, Storage, Disposal Sites *	0	0	0	0	1	1
NYS Toxic Spills (incl. Leaking Undrgrnd Storage Tanks) **	13	20	32	75(39)	Not searched	140(39)
Local & State Petroleum Bulk Storage Sites ***	3	8	9	Not searched	Not searched	20
RCRA Hazardous Waste Generators & Transporters ***	2	8	9	Not searched	Not searched	19
NYS Chemical Bulk Storage Sites ***	0	0	2	Not searched	Not searched	2
Toxic Release Inventory Sites (TRI) ***	0	1	1	Not searched	Not searched	2
Historic Utility Facilities ***	0	0	0	Not searched	Not searched	0
Permit Compliance System Toxic Wastewater Discharges ***	0	0	0	Not searched	Not searched	0
NYS Air Discharges ***	6	6	9	Not searched	Not searched	21
Civil Enforcement Docket Facilities ***	0	0	1	Not searched	Not searched	1
ERNS (Onsite) *****	0	Not searched	Not searched	Not searched	Not searched	0
Distance Interval Totals	24	43	64	84(39)	27	242(39)

Search Radius: * 1 Mile Search Radius ** 1/2 Mile Search Radius *** 1/4 Mile Search Radius **** 1/8 Mile Search Radius ***** on-site only

Numbers in ( ) indicate spills not mapped and profiled, and are found in the tables at the end of the active and closed spills sections.
See these tables for a description of the parameters involved with identifying these spills.

Identified Toxic Sites by Category

Greenpoint Lumber Yard
Brooklyn, NY 11222

Compass directions can vary substantially for sites located very close to the subject property address.

CERCLIS/NYSDEC Inactive Hazardous Waste Sites

MAP ID#	FACILITY NAME	FACILITY STREET	DISTANCE & DIRECTION
	MOBIL OIL BROOKLYN TERMINAL	300 N. HENRY ST.	3928 feet to the E
	FORMER MANHATTAN ADHESIVES PLANT	425-459 GREENPOINT AVE.	3931 feet to the E
9	MOBIL OIL BROOKLYN TERMINAL	300 N. HENRY ST.	4639 feet to the ESE
10	FORMER MANHATTAN ADHESIVES PLANT	425-459 GREENPOINT AVE.	4675 feet to the E

NYSDEC Inactive Hazardous Waste Sites

MAP ID#	FACILITY NAME	FACILITY STREET	DISTANCE & DIRECTION
3	BROOKLYN NORTH 1 GARAGE	50 KENT AVENUE	3716 feet to the S
	CARBONA PRODUCTS	330 CALYER STREET	3866 feet to the ESE
	KENT TERMINAL	KENT AVE. BETWEEN N.5TH & N.11TH ST.	4037 feet to the S
[illegible]	AMTRAK SUNNYSIDE YARD	39-29 HONEYWELL STREET	4504 feet to the NE

CERCLIS Sites

AP ID#	FACILITY NAME	FACILITY STREET	DISTANCE & DIRECTION
	BKLYN UNION GAS /WILLIAMSBURGH WORKS	KENT AVE N 12TH ST /E RIV	3265 feet to the SSE
2	BKLYN UNION GAS /WILLIAMSBURGH WORKS	KENT AVE N 12TH ST /E RIV	3572 feet to the S

Hazardous Substance Waste Disposal Sites

AP ID#	FACILITY NAME	FACILITY STREET	DISTANCE & DIRECTION
11	BUG, WILLIAMSBURG WORKS	KENT AVENUE, NORTH 12TH STREET	3265 feet to the SSE
12	BUG, WILLIAMSBURG WORKS	KENT AVENUE, NORTH 12TH STREET	3572 feet to the S
[illegible]3	MANHATTAN ADHESIVES	425-459 GREEN POINT AVENUE	3931 feet to the E
[illegible]4	BROOKLYN TERMINAL/MOBILE OIL	300 N. HENRY STREET	4031 feet to the E
[illegible]5	BROOKLYN TERMINAL/MOBILE OIL	300 N. HENRY STREET	4650 feet to the ESE
16	MANHATTAN ADHESIVES	425-459 GREEN POINT AVENUE	4678 feet to the E

Solid Waste Facilities

AP ID#	FACILITY NAME	FACILITY STREET	DISTANCE & DIRECTION
17	DH FARNEY CONT. INC.		1267 feet to the N
18	MANHATTAN AVE. RECYCLING		1352 feet to the NE
[illegible]9	ECONOMY CONTAINER SERVICE		1469 feet to the NE
[illegible]0	MICHAEL FERRONE		2079 feet to the E
[illegible]1	PRONTO DEMO. CORP		2492 feet to the E
22	PEREZ INTERBORO T.S.		2782 feet to the ENE
[illegible]3	NEWTOWN CREEK DREDG SLF		2782 feet to the ENE
[illegible]4	LOSTRITTO & CALANDRILLO		2918 feet to the SE
[illegible]5	NYCDOS MTS @ GREENPOINT	NORTH HENRY STREET	3525 feet to the E
26	NORTH 12 STREET T.S.		3618 feet to the S
27	GREENPOINT INCINERATOR		3943 feet to the E
[illegible]8	SUMMIT CARTING INC.		4671 feet to the E
[illegible]9	NATIONAL PAPER STOCK CART		4767 feet to the SSE
30	NEKBOH RECYCLING INC.		4899 feet to the S

Major Oil Storage Facilities

AP ID#	FACILITY NAME	FACILITY STREET	DISTANCE & DIRECTION
[illegible]1	DITMAS OIL-LONG ISLAND CITY	53-02 11TH ST.	2007 feet to the NE
32	MOTIVA ENTERPRISES, LLC	25 PAIDGE AVENUE	2135 feet to the ENE
[illegible]3	DITMAS OIL-LONG ISLAND CITY	53-02 11TH ST.	2404 feet to the NE
[illegible]4	EXXON COMPANY USA	320 FREEMAN STREET	2748 feet to the E
[illegible]5	EXXON COMPANY USA	320 FREEMAN STREET	3037 feet to the E
36	EAST RIVER GENERATING STATION TANK FARM	14TH STREET & EAST RIVER	3113 feet to the SW
37	BAYSIDE FUEL OIL DEPOT CORP.	1 NORTH 12TH STREET	3137 feet to the S
[illegible]8	EAST RIVER GENERATING STATION TANK FARM	14TH STREET & EAST RIVER	3462 feet to the SW
[illegible]9	FORMER MOBIL GREENPOINT TERMINAL	403 GREENPOINT AVENUE	4225 feet to the E
40	METRO TERMINALS CORP.	498 KINGSLAND AVENUE	4370 feet to the E
41	MOBIL OIL CORPORATION BROOKLYN TERMINAL	300 NORTH HENRY STREET	4639 feet to the ESE

Hazardous Waste Treatment, Storage, Disposal Facilities

MAP ID#	FACILITY NAME	FACILITY STREET	DISTANCE & DIRECTION
42	KOSAN INDUSTRIAL CORP	5-49 49TH AVENUE	3093 feet to the NNE

Active Tank Failures

AP ID#	FACILITY NAME	FACILITY STREET	DISTANCE & DIRECTION
43	65 COMMERCIAL ST/BKLYN	65 COMMERCIAL STREET	201 feet to the NE
44	25 PAIDGE AVE/BKLYN/SHELL	25 PAIDGE AVENUE	2130 feet to the ENE

Active Tank Test Failures

MAP ID#	FACILITY NAME	FACILITY STREET	DISTANCE & DIRECTION
45	29 ASH ST	29 ASH ST	1540 feet to the NE
3	29 ASH ST/BKLYN/UNIVERSAL	29 ASH ST	1540 feet to the NE
7	52-00 2ND ST/QU'NS/NORVAL	52000 2ND ST	2186 feet to the NNE
48	SHIMENTO TRUCKING INC.	11 WEST STREET	2334 feet to the SSE
49	54 FRANKLIN ST/BKLYN	54 FRANKLIN ST	2565 feet to the SSE

Active Haz Spills (Unknown Causes & Other Causes)

MAP ID#	FACILITY NAME	FACILITY STREET	DISTANCE & DIRECTION
50	MANHOLE 4273	FREEMAN ST & WEST ST	0 feet
51	MANHOLE 64829	FRANKLIN AVE/DUPONT AVE	2 feet to the NE*
2	MANHOLE 64829	FRANKLIN &DUPONT ST	2 feet to the NE*
3	MANHOLE #64829	FRANKLIN ST/OFF DUPONT	2 feet to the NE*
54	MANHOLE #64829	FRANKFORD ST & DUPONT ST	2 feet to the NE*
55	MANHOLE #64829	FRANKLIN AV & DUPONT ST	2 feet to the NE*
6	TM # 2792	55 FREEMAN ST	28 feet to the E*
7	TM 2792	55 FREEMAN ST	28 feet to the E*
58	TM2815	55 FREEMAN ST	28 feet to the E*
59	RESIDENCE	87 EAGLE STREET	188 feet to the ENE*
60	VAULT 852	10-20 CLAY ST	249 feet to the NE
1	VS 1106	2-20 CLAY ST	276 feet to the NE
62	V# 1109 & V# 852	20 CLAY ST	320 feet to the NE
63	MANHOLE 70407	I/F/I 20 CLAY ST	336 feet to the NE
64	VALUT 7059	INDIA ST/WEST ST	363 feet to the SSE
5	VAULT 5337	INDIA ST/ WEST ST	363 feet to the SSE
6	MANHOLE #4276	HURON ST / FRANKLIN ST	456 feet to the ESE
67	COMMERCIAL ST/BOX&CLAY ST	COMMERCIAL ST / BOX ST	716 feet to the NE
68		1079 MANHATTEN AVE	885 feet to the ENE
9	1071 MANHATTAN AVENUE	1071 MANHATTAN AVENUE	891 feet to the ENE
0	1109 MANHATTAN AVE	1109 MANHATTAN AVE	915 feet to the ENE
71	BTWN DUPONT & FREEDOM ST	MANHATTAN AV	927 feet to the ENE
72	MANHOLE #4294	MANHATEEN AV & BOX ST	1034 feet to the NE
73	MANHOLE AT BOX STREET AND	MANHATTAN AVE	1034 feet to the NE
4	MH 4285	MANHATTAN AVE/COMMERCIAL	1185 feet to the NE
5	NEW TOWN CREEK	1205 MANHATTAN AVE	1275 feet to the NE
76	TM 0647	HERON STREET/MANHATTAN AV	1293 feet to the E
77	TM #647	HURON ST/MANHATTEN AVE	1293 feet to the E
8	140 GREENPOINT AVE	140 GREENPOINT AVE	1621 feet to the SE
9		CLAY ST & MCGUINNES BL	1636 feet to the ENE
80	MANHOLE 19726	54TH AV WEST OF 2ND ST	1664 feet to the NNE
81	MANHOLE 19726	54TH AV / 2ND ST	1664 feet to the NNE
2	MANHOLE 19726	54TH AVE & 2ND ST	1664 feet to the NNE
3	TM 1081	NOBLE ST /W OF WEST ST	1679 feet to the SSE
84	MCGUINESS & BOX ST	MCGUINESS & BOX ST	1697 feet to the ENE
85	MANHOLE 4297	BOX ST & PAIDGE AVE	1714 feet to the ENE
86		137 MILTON ST	1784 feet to the SE
7	109 NOBLE ST/BROOKLYN	109 NOBLE STREET	1794 feet to the SE
8	MANHATTAN AND GREENPOINT	AVE MANHOLE-4327	1818 feet to the SE
89		MANHATTAN AV & GREENPOINT	1818 feet to the SE
90	VAULT 2772	45 WEST ST	1893 feet to the SSE
1	54-08 VERNON BLVD/QUEENS	54008 VERNON BLVD	1950 feet to the NE
2	PULASKI BRDG/SHELL TERMNL	NEWTOWN CREEK	1966 feet to the NE
93	MANHOLE #62845	MCGUINESS BLVE/INDIA ST	2041 feet to the E
94	MANHOLE 71304	MCGUINNESS BL/INDIA ST	2041 feet to the E
95	RZ METAL CORP	247 HURON ST	2078 feet to the E
6	NEW TOWN CREEK	PULASKI BR AND BUDWEISER	2082 feet to the NE
97	SHELL OIL CO	25 PAIDGE AV-WELS 15,16	2130 feet to the ENE
98	25 PAIDGE AVE/BKLYN	25 PAIDGE AVE	2130 feet to the ENE
99		53RD AVE/VERNON BLVD	2133 feet to the NE
00	MH #19726	2ND ST & BORDEN AVE	2193 feet to the NNE
01	QUEENS MIDTOWN TUNNEL	BORDEN & 2ND ST	2193 feet to the NNE
102	MCGUISNESS BL	BET JAVVA & KENT	2233 feet to the ESE
103	MCGUINNESS & 54 AVE.	MCGUINNESS & 54 AVE.	2332 feet to the NE
04	11 WEST STREET	11 WEST STREET	2334 feet to the SSE
05	NEWTOWN CREEK- PAIGE AVE	NEWTON CREEK -PAIGE AVE	2374 feet to the ENE
106	N E C / B N S	10-26 53RD AVE	2399 feet to the NE
107	MERIT GAS STATION	210 GREENPOINT AVE	2432 feet to the ESE
08	210 GREEN PT AVE.	210 GREEN PT AVE.	2432 feet to the ESE
09	AMERADA HESS	210 GREENPOINT AVE	2432 feet to the ESE
10	FORMER SHELL STATION	256 MCGUINNESS BLVD	2438 feet to the ESE

11	VAULT 5803	QUAY ST/WEST ST	2450 feet to the SSE
12	VS 5761	QUAY ST/ E OF WEST ST	2461 feet to the SSE
113	MANHOLE #5761	QUA STREET & FRANKLYN AV	2482 feet to the SSE

Active Haz Spills (Miscellaneous Spill Causes)

MAP ID#	FACILITY NAME	FACILITY STREET	DISTANCE & DIRECTION
114	FRANKLIN STREET	HURON STREET	456 feet to the ESE
115	EAGLE ST & MANHATTAN AVE.	EAGLE ST / MANHATTAN AVE	927 feet to the ENE
116	EAGLE ST / MANHATTAN ST	EAGLE ST / MANH ST	927 feet to the ENE
17	VAULT #V4191	FREEMAN/MANHATTAN	999 feet to the E
118		535 54TH AVE	1822 feet to the NNE
119	PULASKI SERVICE STATION	321 MCGUINNESS BLVD	1852 feet to the E
120	OAK ST &FRANKLIN AV/BKLYN	OAK ST / FRANKLIN AVE	1969 feet to the SSE
21	502 BORDEN AVE/LIRR	502 BORDEN AVE	2245 feet to the NNE
22	LONG ISLAND CITY PASS YAR	5-01 BORDEN AV	2303 feet to the NNE
123	5TH ST & 51ST AVE	5TH ST & 51ST AVE	2526 feet to the NNE

Closed Status Tank Failures

MAP ID#	FACILITY NAME	FACILITY STREET	DISTANCE & DIRECTION
124	203 JAVA ST.	203 JAVA ST	2104 feet to the ESE

Closed Status Tank Test Failures

MAP ID#	FACILITY NAME	FACILITY STREET	DISTANCE & DIRECTION
125	145 WEST STREET	145 WEST STREET	331 feet to the SSE
126	145 WEST STREET	145 WEST STREET	331 feet to the SSE
127	FINK BAKING	5-35 54TH AVE	1822 feet to the NNE
128	02-24 51ST AVE/	02-24 51ST AVE	2425 feet to the NNE

Closed Status Spills (Unknown Causes & Other Causes)

MAP ID#	FACILITY NAME	FACILITY STREET	DISTANCE & DIRECTION
29	EAST RIVER	EAST RIVER- & GREEN ST	8 feet to the SW*
30	GREENPOINT DOCK	DUPONT STREET	21 feet to the NNW*
131	262 FRANKLIN ST/BKLYN	262 FRANKLIN STREET	98 feet to the ENE*
132	MANHOLE 7489	66 URON ST	191 feet to the SE*
133	HUXLEY ENVELOPE/WEST ST	HUXLEY ENVELOPE/WEST ST	331 feet to the SSE
34	STEVEN SUPPLY CO	15 CLAY ST	363 feet to the NE
35	15 CLAY ST	15 CLAY ST	363 feet to the NE
136	MANHOLE 7489	HURRON ST/FRANKLIN AVE	456 feet to the ESE
137	MANHOLE 4284	COMMERCIAL ST AND BOX ST	716 feet to the NE
38	SB 8622	111 JAVA ST	985 feet to the SE
39	SERVICE BOX 8463	210/212 FREEMAN AVENUE	999 feet to the E
140	118 JAVA STREET	118 JAVE STREET	1045 feet to the SE
141	MANHOLE #TM642	BOX ST E OF MANHATTAN AV	1177 feet to the NE
42	TRANSFORMER MANHOLE	MANHATTAN AVE &COMMERCIAL	1185 feet to the NE
43	MANHOLE 4285	MANHATTEN AV & COMERCIAL	1185 feet to the NE
144	MANHOLE #4285	MANHATTEN AV & COMM.ST.	1185 feet to the NE
145	MANHATTAN AVE & ASH ST	MANHATTAN AVE & ASH ST	1185 feet to the NE
146	NEWTOWN CREEK	1205 MANHATTAN AVE	1275 feet to the NE
47	1155-1205 MANHATTAN AVE	1155-1205 MANAHATTAN AVE	1275 feet to the NE
48	116 GREENPOINT AVE	116 GREENPOINT AVE	1450 feet to the SE
149	MCGUINESS BLVD/CLAY ST	MCGUINESS BLVD/CLAY ST	1636 feet to the ENE
150	NEWTOWN CREEK/MANH AVE	NEWTOWN CREEK/MANH AVE	1712 feet to the NE
51	FRANKLIN & NOBLE ST	FRANKLIN & NOBLE ST	1720 feet to the SSE
52	CON ED MANHOLE 4313	MC GUINNESS & HURON ST	1879 feet to the E
153	315 MCGUINESS BLVD	315 MCGUINESS BLVD	1900 feet to the E
154	BORDEN AVE/LIRR PASS YARD	BORDEN AVE/LIRR PASS YARD	2011 feet to the NNE
55	54TH AVA & VERNON BLVD	54TH AVE & VERNON BLVD	2026 feet to the NE
56	54 STREET/VERNON BLVD	54 STREET/VERNON BLVD	2026 feet to the NE
157	24 PAIGE AVENUE	24 PAIGE AVENUE	2056 feet to the ENE
158	217 INDIA STREET	217 INDIA STREET	2228 feet to the E
159	262 HURON ST	262 HURON ST	2287 feet to the E
60		266 MCGUINNESS BLVD	2308 feet to the ESE
61	10-26 53RD AVENUE	10-26 53RD AVENUE	2399 feet to the NE
162	GREENPOINT AVE	GREENPOINT AVENUE &	2414 feet to the ESE
163	GREEN ST & PROVOST/BKLYN	GREEN ST & PROVOST	2455 feet to the E
64	GASETERIA / QUEENS	GASETERIA 11TH & BORDEN	2593 feet to the NE

Closed Status Spills (Miscellaneous Spill Causes)

MAP ID#	FACILITY NAME	FACILITY STREET	DISTANCE & DIRECTION
165	DUPONT ST/COMMERCIAL ST	DUPONT ST / COMMERCIAL ST	0 feet
66	77 COMMERCIAL STREET	77 COMMERCIAL ST	233 feet to the NE
167	COMMERCIAL ST	FRANKLIN ST	240 feet to the NE

68	FRANKLIN / HURON STREETS	FRANKLIN / HURON STREETS	456 feet to the ESE
69	182 FREEMAN ST/BKLYN	182 FREEMAN STREET	1120 feet to the E
170	166 EAGLE ST	166 EAGLE ST	1126 feet to the ENE
171		111 INDIA ST	1164 feet to the ESE
72	1155-1205 MANHATTAN AVE	1155-1205 MANHATTAN AVE	1275 feet to the NE
73	1205 MANHATTAN AVE	1205 MANHATTAN AVE.	1275 feet to the NE
174	1205 MANHATTAN AVE	1205 MANHATTAN AVE	1275 feet to the NE
175	1205 MANHATTAN AVE/BKLYN	1205 MANHATTAN AVENUE	1275 feet to the NE
176	MANH AVE/NEWTOWN CREEK	MANH AVE/NEWTOWN CREEK	1712 feet to the NE
77	LI PASSENGER YARD	LI PASSENGER YARD	2011 feet to the NNE
78	860 MANHATTAN AVE/BKLYN	860 MANHATTAN AVENUE	2127 feet to the SE
179	25 PAIDGE AVE/BKLYN	25 PAIDGE AVENUE	2130 feet to the ENE
180	LONG ISLAND CITY YARD	5-02 BORDEN AVENUE	2245 feet to the NNE
81	266 FREEMAN ST/BROOKLYN	266 FREEMAN STREET	2256 feet to the E
82	SHELL GAS STATION	KENT ST/MCGINESS BLVD	2281 feet to the ESE

Petroleum Bulk Storage Sites

MAP ID#	FACILITY NAME	FACILITY STREET	DISTANCE & DIRECTION
83	EAGLE STREEET ASSOC.	48 EAGLE STREET	21 feet to the ENE*
84	RIALTO PRODUCTS INC	61-65 GREEN STREET	75 feet to the ESE*
185	DEVEN LITHOGRAPHERS, INC.	15 HURON STREET	99 feet to the S*
186	223 FRANKLIN ST	223 FRANKLIN ST	183 feet to the ENE*
87	CROSSTOWN BUS DEPOT	65 COMMERCIAL ST	195 feet to the NE*
88	FORMER UNITED FEATHER & DOWN INC.	77 COMMERCIAL STREET	227 feet to the NE
189	HUXLEY ENVELOPE CORPORATION	145 WEST STREET	332 feet to the SSE
190	OSCAR'S SERVICE STATION INC	193 FRANKLIN ST	399 feet to the ESE
91	STS CYRIL & METHODIOS RC SCH	96 DUPONT ST	600 feet to the ENE
92	KENT TRANS AMERICA CLOTHING CO	122 WEST ST	616 feet to the SSE
193	65 JAVA STREET	65 JAVA STREET	643 feet to the SE
194	MICHAEL PISTILLI	85 JAVA ST	766 feet to the SE
195	74 INDIA	74 INDIA ST	785 feet to the ESE
96	129 HURON ST	129 HURON ST	906 feet to the ESE
197	GREENPOINT HOTEL	1109 MANHATTAN AVENUE	921 feet to the ENE
198	DUPONT ASSOC	127 DUPONT ST	992 feet to the ENE
199	MADIS GREENPOINT REALTY CO	96 WEST ST	1044 feet to the SSE
00	GUARD GENERAL MERCHANDISE CO	61 GREENPOINT AVE	1247 feet to the SE
01	GREENPOINT MANUFACTURING & DESIGN CENTER	155-1205 MANHATTAN AVENUE	1265 feet to the NE
202	APARTMENT HOUSE	168 HURON STREET	1295 feet to the E

Hazardous Waste Generators, Transporters

MAP ID#	FACILITY NAME	FACILITY STREET	DISTANCE & DIRECTION
203	NUHART COMPANY	49 DUPONT STREET	31 feet to the NE*
204	NU HART	49 DUPONT STREET	31 feet to the NE*
205	CON ED	7489 - 66 HURON ST	187 feet to the SE*
06	NEW YORK CITY TRANSIT AUTHORITY	65 COMMERCIAL AVENUE	195 feet to the NE*
07	LIQUIMARK	71 GREEN ST	205 feet to the ESE
208	HARTE & CO INC	77 COMMERCIAL ST	227 feet to the NE
209	PAT & DOMS BODY & FENDERREPAIR	246 FRANKLIN STREET	300 feet to the E
10	HUXLEY ENVELOPE CORPORATION	145 WEST STREET	332 feet to the SSE
11	INTERFLO TECHNOLOGIES	19 CLAY ST	401 feet to the NE
212	ELECTRICAL PRECISION METE	214 FRANKLIN ST	467 feet to the ESE
213	VANGUARD INCORPORATED	10 JAVA ST	760 feet to the SSE
14	KELLY CLEANERS	1036 MANHATTAN AVENUE	1059 feet to the E
15	PORT AUTHORITY NEW YORK/NEW JERSEY	HUNTERS PT 5500 2ND ST	1103 feet to the N
16	APHRODITE CLEANERS II	1019 MANHATTAN AVENUE	1152 feet to the E
217	NYNEX	GREEN ST & MANHATTAN	1169 feet to the E
218	CONSOLIDATED EDISON CO OF NY INC	FRANKLIN ST F/O 113	1233 feet to the SSE
19	NEW YORK CITY DEPT OF ENVIROMENTAL PROTECTION	1205 MANHATTAN AVENUE	1282 feet to the NE
20	MINERALS & METALS - M & R CORP	1205 MANHATTAN AVE	1282 feet to the NE
221	ANHEUSER BUSCH DISTRIBUTORS	55-01 SECOND STREET	1301 feet to the NNE

Chemical Bulk Storage Facilities

MAP ID#	FACILITY NAME	FACILITY STREET	DISTANCE & DIRECTION
222	NEWTOWN CREEK WATER POLLUTION CONTROL PLANT	310 GREENPOINT AVENUE	909 feet to the WSW
223	MOTIVA ENTERPRISES LLC	25 PAIDGE AVENUE	1227 feet to the NE

Toxic Release Inventory Sites

MAP ID#	FACILITY NAME	FACILITY STREET	DISTANCE & DIRECTION
224	LIQUIMARK	19 CLAY ST.	409 feet to the NE
225	VANGUARD CORP	10 JAVA STREET	761 feet to the SSE

Air Discharge Sites

MAP ID#	FACILITY NAME	FACILITY STREET	DISTANCE & DIRECTION
226	COURIER PACKAGING	220 WEST STREET	0 feet
27	COURIER PACKAGING CO.ENTRANCE ON WEST ST	48 EAGLE STREET	35 feet to the ENE*
28	CONSOLIDATED LAUNDRIES IN	3248 EAGLE STREET	35 feet to the ENE*
229	NUHART COMPANY	49 DUPONT STREET	40 feet to the NE*
230	NUHART & COMPANY	49 DUPONT STREET	40 feet to the NE*
231	RIALTO PRODUCTS INC	61 GREEN STREET	74 feet to the ESE*
32	NYCTA CROSSTOWN ANNEX	65 COMMERCIAL STREET	206 feet to the NE
33	HARTE & CO INC	14 CLAY ST	267 feet to the NE
234	OSCAR SERVICE STATIO	193 FRANKLIN STREET	404 feet to the ESE
235	REDOUND INDUSTRIES, INC - INTERFLO TECH	19 CLAY STREET	409 feet to the NE
36	DISTINCTION IN WOODS LTD	106 GREEN ST	638 feet to the ESE
37	DISTINCTION IN WOODS LTD	106 GREEN STREET	638 feet to the ESE
238	METROPOLITAN PACKAGING MANUFAC	68 JAVA STREET	695 feet to the SE
239	VANGUARD DIVERSIFIED INC	10 JAVA ST	756 feet to the SSE
40	VANGUARD/DIV STACOR	10 JAVA ST	756 feet to the SSE
41	METROPOLITAN PACKAGING	67-73 KENT STREET	933 feet to the SSE
242	KELLY CLEANERS	1036 MANHATTAN AVENUE	1070 feet to the E
243	S & G INC.	1155 MANHATTAN AVE	1278 feet to the NE
244	DISTINCTION IN WOOD INC.	1155-1205 MANHATTAN AVENUE	1278 feet to the NE
45	ASBESTOS FREE INC	144 FRANKLIN ST	1281 feet to the SE
46	ASBESTOS FREE INC.	144 FRANKLIN ST.	1281 feet to the SE

Civil Enforcement Docket Sites

AP ID#	FACILITY NAME	FACILITY STREET	DISTANCE & DIRECTION
47	VANGUARD DIVERSIFIED INC	10 JAVA ST	764 feet to the S

Identified Toxic Sites by Direction

Greenpoint Lumber Yard
Brooklyn, NY 11222

* Compass directions can vary substantially for sites located very close to the subject property address.

Sites less than 100 feet from subject property sorted by distance

Map Id#	Site Name	Site Street	Approximate Distance & Direction From Property	Toxic Site Category
50	MANHOLE 4273	FREEMAN ST & WEST ST	0 feet	Active Haz Spill (Unknown/Other Cause)
165	DUPONT ST/COMMERCIAL ST	DUPONT ST / COMMERCIAL ST	0 feet	Closed Status Spill (Misc. Spill Cause)
226	COURIER PACKAGING	220 WEST STREET	0 feet	Air Discharge Site
51	MANHOLE 64829	FRANKLIN AVE/DUPONT AVE	2 feet to the NE*	Active Haz Spill (Unknown/Other Cause)
52	MANHOLE 64829	FRANKLIN &DUPONT ST	2 feet to the NE*	Active Haz Spill (Unknown/Other Cause)
53	MANHOLE #64829	FRANKLIN ST/OFF DUPONT	2 feet to the NE*	Active Haz Spill (Unknown/Other Cause)
54	MANHOLE #64829	FRANKFORD ST & DUPONT ST	2 feet to the NE*	Active Haz Spill (Unknown/Other Cause)
55	MANHOLE #64829	FRANKLIN AV & DUPONT ST	2 feet to the NE*	Active Haz Spill (Unknown/Other Cause)
129	EAST RIVER	EAST RIVER- & GREEN ST	8 feet to the SW*	Closed Status Spill (Unk/Other Cause)
130	GREENPOINT DOCK	DUPONT STREET	21 feet to the NNW*	Closed Status Spill (Unk/Other Cause)
183	EAGLE STREEET ASSOC.	48 EAGLE STREET	21 feet to the ENE*	Petroleum Bulk Storage Site
56	TM # 2792	55 FREEMAN ST	28 feet to the E*	Active Haz Spill (Unknown/Other Cause)
57	TM 2792	55 FREEMAN ST	28 feet to the E*	Active Haz Spill (Unknown/Other Cause)
58	TM2815	55 FREEMAN ST	28 feet to the E*	Active Haz Spill (Unknown/Other Cause)
203	NUHART COMPANY	49 DUPONT STREET	31 feet to the NE*	Hazardous Waste Generator/Transporter
204	NU HART	49 DUPONT STREET	31 feet to the NE*	Hazardous Waste Generator/Transporter
227	COURIER PACKAGING CO.ENTRANCE ON WEST ST	48 EAGLE STREET	35 feet to the ENE*	Air Discharge Site
228	CONSOLIDATED LAUNDRIES IN	3248 EAGLE STREET	35 feet to the ENE*	Air Discharge Site
229	NUHART COMPANY	49 DUPONT STREET	40 feet to the NE*	Air Discharge Site
230	NUHART & COMPANY	49 DUPONT STREET	40 feet to the NE*	Air Discharge Site
231	RIALTO PRODUCTS INC	61 GREEN STREET	74 feet to the ESE*	Air Discharge Site
184	RIALTO PRODUCTS INC	61-65 GREEN STREET	75 feet to the ESE*	Petroleum Bulk Storage Site
131	262 FRANKLIN ST/BKLYN	262 FRANKLIN STREET	98 feet to the ENE*	Closed Status Spill (Unk/Other Cause)
185	DEVEN LITHOGRAPHERS, INC.	15 HURON STREET	99 feet to the S*	Petroleum Bulk Storage Site

Sites between 100 ft and 660 ft from the subject property sorted by direction and distance

Map Id#	Site Name	Site Street	Approximate Distance & Direction From Property	Toxic Site Category
187	CROSSTOWN BUS DEPOT	65 COMMERCIAL ST	195 feet to the NE*	Petroleum Bulk Storage Site
206	NEW YORK CITY TRANSIT AUTHORITY	65 COMMERCIAL AVENUE	195 feet to the NE*	Hazardous Waste Generator/Transporter
43	65 COMMERCIAL ST/BKLYN	65 COMMERCIAL STREET	201 feet to the NE	Active Tank Failure
232	NYCTA CROSSTOWN ANNEX	65 COMMERCIAL STREET	206 feet to the NE	Air Discharge Site
188	FORMER UNITED FEATHER & DOWN INC.	77 COMMERCIAL STREET	227 feet to the NE	Petroleum Bulk Storage Site
208	HARTE & CO INC	77 COMMERCIAL ST	227 feet to the NE	Hazardous Waste Generator/Transporter
166	77 COMMERCIAL STREET	77 COMMERCIAL ST	233 feet to the NE	Closed Status Spill (Misc. Spill Cause)
167	COMMERCIAL ST	FRANKLIN ST	240 feet to the NE	Closed Status Spill (Misc. Spill Cause)
60	VAULT 852	10-20 CLAY ST	249 feet to the NE	Active Haz Spill (Unknown/Other Cause)
233	HARTE & CO INC	14 CLAY ST	267 feet to the NE	Air Discharge Site

61	VS 1756	2-20 CLAY ST	276 feet to the NE	Active Haz Spill (Unknown/Other Cause)
62	V# 1109 & V# 852	20 CLAY ST	320 feet to the NE	Active Haz Spill (Unknown/Other Cause)
63	MANHOLE 70407	I/F/I 20 CLAY ST	336 feet to the NE	Active Haz Spill (Unknown/Other Cause)
134	STEVEN SUPPLY CO	15 CLAY ST	363 feet to the NE	Closed Status Spill (Unk/Other Cause)
135	15 CLAY ST	15 CLAY ST	363 feet to the NE	Closed Status Spill (Unk/Other Cause)
211	INTERFLO TECHNOLOGIES	19 CLAY ST	401 feet to the NE	Hazardous Waste Generator/Transporter
224	LIQUIMARK	19 CLAY ST.	409 feet to the NE	Toxic Release Inventory Site
235	REDOUND INDUSTRIES, INC - INTERFLO TECH	19 CLAY STREET	409 feet to the NE	Air Discharge Site
186	223 FRANKLIN ST	223 FRANKLIN ST	183 feet to the ENE*	Petroleum Bulk Storage Site
59	RESIDENCE	87 EAGLE STREET	188 feet to the ENE*	Active Haz Spill (Unknown/Other Cause)
191	STS CYRIL & METHODIOS RC SCH	96 DUPONT ST	600 feet to the ENE	Petroleum Bulk Storage Site
209	PAT & DOMS BODY & FENDERREPAIR	246 FRANKLIN STREET	300 feet to the E	Hazardous Waste Generator/Transporter
207	LIQUIMARK	71 GREEN ST	205 feet to the ESE	Hazardous Waste Generator/Transporter
190	OSCAR'S SERVICE STATION INC	193 FRANKLIN ST	399 feet to the ESE	Petroleum Bulk Storage Site
234	OSCAR SERVICE STATIO	193 FRANKLIN STREET	404 feet to the ESE	Air Discharge Site
66	MANHOLE #4276	HURON ST / FRANKLIN ST	456 feet to the ESE	Active Haz Spill (Unknown/Other Cause)
114	FRANKLIN STREET	HURON STREET	456 feet to the ESE	Active Haz Spill (Misc. Spill Cause)
136	MANHOLE 7489	HURRON ST/FRANKLIN AVE	456 feet to the ESE	Closed Status Spill (Unk/Other Cause)
168	FRANKLIN / HURON STREETS	FRANKLIN / HURON STREETS	456 feet to the ESE	Closed Status Spill (Misc. Spill Cause)
212	ELECTRICAL PRECISION METE	214 FRANKLIN ST	467 feet to the ESE	Hazardous Waste Generator/Transporter
236	DISTINCTION IN WOODS LTD	106 GREEN ST	638 feet to the ESE	Air Discharge Site
237	DISTINCTION IN WOODS LTD	106 GREEN STREET	638 feet to the ESE	Air Discharge Site
205	CON ED	7489 - 66 HURON ST	187 feet to the SE*	Hazardous Waste Generator/Transporter
132	MANHOLE 7489	66 URON ST	191 feet to the SE*	Closed Status Spill (Unk/Other Cause)
193	65 JAVA STREET	65 JAVA STREET	643 feet to the SE	Petroleum Bulk Storage Site
125	145 WEST STREET	145 WEST STREET	331 feet to the SSE	Closed Status Tank Test Failure
126	145 WEST STREET	145 WEST STREET	331 feet to the SSE	Closed Status Tank Test Failure
133	HUXLEY ENVELOPE/WEST ST	HUXLEY ENVELOPE/WEST ST	331 feet to the SSE	Closed Status Spill (Unk/Other Cause)
189	HUXLEY ENVELOPE CORPORATION	145 WEST STREET	332 feet to the SSE	Petroleum Bulk Storage Site
210	HUXLEY ENVELOPE CORPORATION	145 WEST STREET	332 feet to the SSE	Hazardous Waste Generator/Transporter
64	VALUT 7059	INDIA ST/WEST ST	363 feet to the SSE	Active Haz Spill (Unknown/Other Cause)
65	VAULT 5337	INDIA ST/ WEST ST	363 feet to the SSE	Active Haz Spill (Unknown/Other Cause)
192	KENT TRANS AMERICA CLOTHING CO	122 WEST ST	616 feet to the SSE	Petroleum Bulk Storage Site

Sites equal to or greater than 660 ft from subject property sorted by direction and distance

Map Id#	Site Name	Site Street	Approximate Distance & Direction From Property	Toxic Site Category
215	PORT AUTHORITY NEW YORK/NEW JERSEY	HUNTERS PT 5500 2ND ST	1103 feet to the N	Hazardous Waste Generator/Transporter
17	DH FARNEY CONT. INC.		1267 feet to the N	Solid Waste Facility
221	ANHEUSER BUSCH DISTRIBUTORS	55-01 SECOND STREET	1301 feet to the NNE	Hazardous Waste Generator/Transporter
80	MANHOLE 19726	54TH AV WEST OF 2ND ST	1664 feet to the NNE	Active Haz Spill (Unknown/Other Cause)
81	MANHOLE 19726	54TH AV / 2ND ST	1664 feet to the NNE	Active Haz Spill (Unknown/Other Cause)
82	MANHOLE 19726	54TH AVE & 2ND ST	1664 feet to the NNE	Active Haz Spill (Unknown/Other Cause)

127	FINK BAKING	535 [illegible] AVE	1022 fee[illegible] to the NNE	Active Haz Spill (Misc. Spill Cause)
154	BORDEN AVE/LIRR PASS YARD	5-35 54TH AVE	1822 feet to the NNE	Closed Status Tank Test Failure
177	LI PASSENGER YARD	BORDEN AVE/LIRR PASS YARD	2011 feet to the NNE	Closed Status Spill (Unk/Other Cause)
47	52-00 2ND ST/QU'NS/NORVAL	LI PASSENGER YARD	2011 feet to the NNE	Closed Status Spill (Misc. Spill Cause)
100	MH #19726	52000 2ND ST	2186 feet to the NNE	Active Tank Test Failure
101	QUEENS MIDTOWN TUNNEL	2ND ST & BORDEN AVE	2193 feet to the NNE	Active Haz Spill (Unknown/Other Cause)
121	502 BORDEN AVE/LIRR	BORDEN & 2ND ST	2193 feet to the NNE	Active Haz Spill (Unknown/Other Cause)
180	LONG ISLAND CITY YARD	502 BORDEN AVE	2245 feet to the NNE	Active Haz Spill (Misc. Spill Cause)
122	LONG ISLAND CITY PASS YAR	5-02 BORDEN AVENUE	2245 feet to the NNE	Closed Status Spill (Misc. Spill Cause)
128	02-24 51ST AVE/	5-01 BORDEN AV	2303 feet to the NNE	Active Haz Spill (Misc. Spill Cause)
123	5TH ST & 51ST AVE	02-24 51ST AVE	2425 feet to the NNE	Closed Status Tank Test Failure
42	KOSAN INDUSTRIAL CORP	5TH ST & 51ST AVE	2526 feet to the NNE	Active Haz Spill (Misc. Spill Cause)
		5-49 49TH AVENUE	3093 feet to the NNE	Hazardous Waste Treat, Storage, Disposal
67	COMMERCIAL ST/BOX&CLAY ST	COMMERCIAL ST / BOX ST	716 feet to the NE	Active Haz Spill (Unknown/Other Cause)
137	MANHOLE 4284	COMMERCIAL ST AND BOX ST	716 feet to the NE	Closed Status Spill (Unk/Other Cause)
72	MANHOLE #4294	MANHATEEN AV & BOX ST	1034 feet to the NE	Active Haz Spill (Unknown/Other Cause)
73	MANHOLE AT BOX STREET AND	MANHATTAN AVE	1034 feet to the NE	Active Haz Spill (Unknown/Other Cause)
141	MANHOLE #TM642	BOX ST E OF MANHATTAN AV	1177 feet to the NE	Closed Status Spill (Unk/Other Cause)
74	MH 4285	MANHATTAN AVE/COMMERCIAL	1185 feet to the NE	Active Haz Spill (Unknown/Other Cause)
142	TRANSFORMER MANHOLE	MANHATTAN AVE &COMMERCIAL	1185 feet to the NE	Closed Status Spill (Unk/Other Cause)
143	MANHOLE 4285	MANHATTEN AV & COMERCIAL	1185 feet to the NE	Closed Status Spill (Unk/Other Cause)
144	MANHOLE #4285	MANHATTEN AV & COMM.ST.	1185 feet to the NE	Closed Status Spill (Unk/Other Cause)
145	MANHATTAN AVE & ASH ST	MANHATTAN AVE & ASH ST	1185 feet to the NE	Closed Status Spill (Unk/Other Cause)
223	MOTIVA ENTERPRISES LLC	25 PAIDGE AVENUE	1227 feet to the NE	Chemical Bulk Storage Facility
201	GREENPOINT MANUFACTURING & DESIGN CENTER	1155-1205 MANHATTAN AVENUE	1265 feet to the NE	Petroleum Bulk Storage Site
75	NEW TOWN CREEK	1205 MANHATTAN AVE	1275 feet to the NE	Active Haz Spill (Unknown/Other Cause)
146	NEWTOWN CREEK	1205 MANHATTAN AVE	1275 feet to the NE	Closed Status Spill (Unk/Other Cause)
147	1155-1205 MANHATTAN AVE	1155-1205 MANAHATTAN AVE	1275 feet to the NE	Closed Status Spill (Unk/Other Cause)
172	1155-1205 MANHATTAN AVE	1155-1205 MANHATTAN AVE	1275 feet to the NE	Closed Status Spill (Misc. Spill Cause)
173	1205 MANHATTAN AVE	1205 MANHATTAN AVE.	1275 feet to the NE	Closed Status Spill (Misc. Spill Cause)
174	1205 MANHATTAN AVE	1205 MANHATTAN AVE	1275 feet to the NE	Closed Status Spill (Misc. Spill Cause)
175	1205 MANHATTAN AVE/BKLYN	1205 MANHATTAN AVENUE	1275 feet to the NE	Closed Status Spill (Misc. Spill Cause)
243	S & G INC.	1155 MANHATTAN AVE	1278 feet to the NE	Air Discharge Site
244	DISTINCTION IN WOOD INC.	1155-1205 MANHATTAN AVENUE	1278 feet to the NE	Air Discharge Site
219	NEW YORK CITY DEPT OF ENVIROMENTAL PROTE	CTION 1205 MANHATTAN AVENUE	1282 feet to the NE	Hazardous Waste Generator/Transporter
220	MINERALS & METALS - M & R CORP	1205 MANHATTAN AVE	1282 feet to the NE	Hazardous Waste Generator/Transporter
18	MANHATTAN AVE. RECYCLING		1352 feet to the NE	Solid Waste Facility
19	ECONOMY CONTAINER SERVICE		1469 feet to the NE	Solid Waste Facility
45	29 ASH ST	29 ASH ST	1540 feet to the NE	Active Tank Test Failure
46	29 ASH ST/BKLYN/UNIVERSAL	29 ASH ST	1540 feet to the NE	Active Tank Test Failure
150	NEWTOWN CREEK/MANH AVE	NEWTOWN CREEK/MANH AVE	1712 feet to the NE	Closed Status Spill (Unk/Other Cause)
176	MANH AVE/NEWTOWN CREEK	MANH AVE/NEWTOWN CREEK	1712 feet to the NE	Closed Status Spill (Misc. Spill Cause)
91	54-08 VERNON BLVD/QUEENS	54008 VERNON BLVD	1950 feet to the NE	Active Haz Spill (Unknown/Other Cause)
92	PULASKI BRDG/SHELL TERMNL	NEWTOWN CREEK	1966 feet to the NE	Active Haz Spill (Unknown/Other Cause)
31	DITMAS OIL-LONG ISLAND CITY	53-02 11TH ST.	2007 feet to the NE	Major Oil Storage Facility
155	54TH AVA & VERNON BLVD	54TH AVE & VERNON BLVD	2026 feet to the NE	Closed Status Spill (Unk/Other Cause)
156	54 STREET/VERNON BLVD	54 STREET/VERNON BLVD	2026 feet to the NE	Closed Status Spill (Unk/Other Cause)
96	NEW TOWN CREEK	PULASKI BR AND BUDWEISER	2082 feet to the NE	Active Haz Spill (Unknown/Other Cause)
99		53RD AVE/VERNON BLVD	2133 feet to the NE	Active Haz Spill (Unknown/Other Cause)
103	MCGUINNESS & 54 AVE.	MCGUINNESS & 54 AVE.	2332 feet to the NE	Active Haz Spill (Unknown/Other Cause)
106	N E C / B N S	10-26 53RD AVE	2399 feet to the NE	Active Haz Spill (Unknown/Other Cause)
161	10-26 53RD AVENUE	10-26 53RD AVENUE	2399 feet to the NE	Closed Status Spill (Unk/Other Cause)

55	DITMAS OIL-LONG ISLAND CITY	53-[illegible] 11TH S[illegible]	[illegible]04 feet to the NE	Major Oil Storage Facility
164	GASETERIA / QUEENS	GASETERIA 11TH & BORDEN	2593 feet to the NE	Closed Status Spill (Unk/Other Cause)
8	AMTRAK SUNNYSIDE YARD	39-29 HONEYWELL STREET	4504 feet to the NE	NYSDEC Inactive Haz Waste Site
68		1079 MANHATTEN AVE	885 feet to the ENE	Active Haz Spill (Unknown/Other Cause)
69	1071 MANHATTAN AVENUE	1071 MANHATTAN AVENUE	891 feet to the ENE	Active Haz Spill (Unknown/Other Cause)
70	1109 MANHATTAN AVE	1109 MANHATTAN AVE	915 feet to the ENE	Active Haz Spill (Unknown/Other Cause)
197	GREENPOINT HOTEL	1109 MANHATTAN AVENUE	921 feet to the ENE	Petroleum Bulk Storage Site
71	BTWN DUPONT & FREEDOM ST	MANHATTAN AV	927 feet to the ENE	Active Haz Spill (Unknown/Other Cause)
115	EAGLE ST & MANHATTAN AVE.	EAGLE ST / MANHATTAN AVE	927 feet to the ENE	Active Haz Spill (Misc. Spill Cause)
116	EAGLE ST / MANHATTAN ST	EAGLE ST / MANH ST	927 feet to the ENE	Active Haz Spill (Misc. Spill Cause)
198	DUPONT ASSOC	127 DUPONT ST	992 feet to the ENE	Petroleum Bulk Storage Site
170	166 EAGLE ST	166 EAGLE ST	1126 feet to the ENE	Closed Status Spill (Misc. Spill Cause)
79		CLAY ST & MCGUINNES BL	1636 feet to the ENE	Active Haz Spill (Unknown/Other Cause)
149	MCGUINESS BLVD/CLAY ST	MCGUINESS BLVD/CLAY ST	1636 feet to the ENE	Closed Status Spill (Unk/Other Cause)
84	MCGUINESS & BOX ST	MCGUINESS & BOX ST	1697 feet to the ENE	Active Haz Spill (Unknown/Other Cause)
85	MANHOLE 4297	BOX ST & PAIDGE AVE	1714 feet to the ENE	Active Haz Spill (Unknown/Other Cause)
157	24 PAIGE AVENUE	24 PAIGE AVENUE	2056 feet to the ENE	Closed Status Spill (Unk/Other Cause)
44	25 PAIDGE AVE/BKLYN/SHELL	25 PAIDGE AVENUE	2130 feet to the ENE	Active Tank Failure
97	SHELL OIL CO	25 PAIDGE AV-WELS 15,16	2130 feet to the ENE	Active Haz Spill (Unknown/Other Cause)
98	25 PAIDGE AVE/BKLYN	25 PAIDGE AVE	2130 feet to the ENE	Active Haz Spill (Unknown/Other Cause)
179	25 PAIDGE AVE/BKLYN	25 PAIDGE AVENUE	2130 feet to the ENE	Closed Status Spill (Misc. Spill Cause)
32	MOTIVA ENTERPRISES, LLC	25 PAIDGE AVENUE	2135 feet to the ENE	Major Oil Storage Facility
105	NEWTOWN CREEK- PAIGE AVE	NEWTON CREEK -PAIGE AVE	2374 feet to the ENE	Active Haz Spill (Unknown/Other Cause)
22	PEREZ INTERBORO T.S.		2782 feet to the ENE	Solid Waste Facility
23	NEWTOWN CREEK DREDG SLF		2782 feet to the ENE	Solid Waste Facility
117	VAULT #V4191	FREEMAN/MANHATTAN	999 feet to the E	Active Haz Spill (Misc. Spill Cause)
139	SERVICE BOX 8463	210/212 FREEMAN AVENUE	999 feet to the E	Closed Status Spill (Unk/Other Cause)
214	KELLY CLEANERS	1036 MANHATTAN AVENUE	1059 feet to the E	Hazardous Waste Generator/Transporter
242	KELLY CLEANERS	1036 MANHATTAN AVENUE	1070 feet to the E	Air Discharge Site
169	182 FREEMAN ST/BKLYN	182 FREEMAN STREET	1120 feet to the E	Closed Status Spill (Misc. Spill Cause)
216	APHRODITE CLEANERS II	1019 MANHATTAN AVENUE	1152 feet to the E	Hazardous Waste Generator/Transporter
217	NYNEX	GREEN ST & MANHATTAN	1169 feet to the E	Hazardous Waste Generator/Transporter
76	TM 0647	HERON STREET/MANHATTAN AV	1293 feet to the E	Active Haz Spill (Unknown/Other Cause)
77	TM #647	HURON ST/MANHATTEN AVE	1293 feet to the E	Active Haz Spill (Unknown/Other Cause)
202	APARTMENT HOUSE	168 HURON STREET	1295 feet to the E	Petroleum Bulk Storage Site
119	PULASKI SERVICE STATION	321 MCGUINNESS BLVD	1852 feet to the E	Active Haz Spill (Misc. Spill Cause)
152	CON ED MANHOLE 4313	MC GUINNESS & HURON ST	1879 feet to the E	Closed Status Spill (Unk/Other Cause)
153	315 MCGUINESS BLVD	315 MCGUINESS BLVD	1900 feet to the E	Closed Status Spill (Unk/Other Cause)
93	MANHOLE #62845	MCGUINESS BLVE/INDIA ST	2041 feet to the E	Active Haz Spill (Unknown/Other Cause)
94	MANHOLE 71304	MCGUINNESS BL/INDIA ST	2041 feet to the E	Active Haz Spill (Unknown/Other Cause)
95	RZ METAL CORP	247 HURON ST	2078 feet to the E	Active Haz Spill (Unknown/Other Cause)
20	MICHAEL FERRONE		2079 feet to the E	Solid Waste Facility
158	217 INDIA STREET	217 INDIA STREET	2228 feet to the E	Closed Status Spill (Unk/Other Cause)
181	266 FREEMAN ST/BROOKLYN	266 FREEMAN STREET	2256 feet to the E	Closed Status Spill (Misc. Spill Cause)
159	262 HURON ST	262 HURON ST	2287 feet to the E	Closed Status Spill (Unk/Other Cause)
163	GREEN ST & PROVOST/BKLYN	GREEN ST & PROVOST	2455 feet to the E	Closed Status Spill (Unk/Other Cause)
21	PRONTO DEMO. CORP		2492 feet to the E	Solid Waste Facility
34	EXXON COMPANY USA	320 FREEMAN STREET	2748 feet to the E	Major Oil Storage Facility
35	EXXON COMPANY USA	320 FREEMAN STREET	3037 feet to the E	Major Oil Storage Facility
25	NYCDOS MTS @ GREENPOINT	NORTH HENRY STREET	3525 feet to the E	Solid Waste Facility
5	MOBIL OIL BROOKLYN TERMINAL	300 N. HENRY ST.	3928 feet to the E	CERCLIS/NYSDEC Inactive Haz Waste Site

6	FORMER MANHATTAN ADHESIVES PLANT	425-459 GREENPOINT AVE.	3931 feet to the E	CERCLIS/NYSDEC Inactive Haz Waste Site
13	MANHATTAN ADHESIVES	425-459 GREEN POINT AVENUE	3931 feet to the E	Hazardous Substance Waste Disposal Site
27	GREENPOINT INCINERATOR		3943 feet to the E	Solid Waste Facility
14	BROOKLYN TERMINAL/MOBILE OIL	300 N. HENRY STREET	4031 feet to the E	Hazardous Substance Waste Disposal Site
39	FORMER MOBIL GREENPOINT TERMINAL	403 GREENPOINT AVENUE	4225 feet to the E	Major Oil Storage Facility
40	METRO TERMINALS CORP.	498 KINGSLAND AVENUE	4370 feet to the E	Major Oil Storage Facility
28	SUMMIT CARTING INC.		4671 feet to the E	Solid Waste Facility
10	FORMER MANHATTAN ADHESIVES PLANT	425-459 GREENPOINT AVE.	4675 feet to the E	CERCLIS/NYSDEC Inactive Haz Waste Site
16	MANHATTAN ADHESIVES	425-459 GREEN POINT AVENUE	4678 feet to the E	Hazardous Substance Waste Disposal Site
195	74 INDIA	74 INDIA ST	785 feet to the ESE	Petroleum Bulk Storage Site
196	129 HURON ST	129 HURON ST	906 feet to the ESE	Petroleum Bulk Storage Site
171		111 INDIA ST	1164 feet to the ESE	Closed Status Spill (Misc. Spill Cause)
124	203 JAVA ST.	203 JAVA ST	2104 feet to the ESE	Closed Status Tank Failure
102	MCGUISNESS BL	BET JAVVA & KENT	2233 feet to the ESE	Active Haz Spill (Unknown/Other Cause)
182	SHELL GAS STATION	KENT ST/MCGINESS BLVD	2281 feet to the ESE	Closed Status Spill (Misc. Spill Cause)
160		266 MCGUINNESS BLVD	2308 feet to the ESE	Closed Status Spill (Unk/Other Cause)
162	GREENPOINT AVE	GREENPOINT AVENUE &	2414 feet to the ESE	Closed Status Spill (Unk/Other Cause)
107	MERIT GAS STATION	210 GREENPOINT AVE	2432 feet to the ESE	Active Haz Spill (Unknown/Other Cause)
108	210 GREEN PT AVE.	210 GREEN PT AVE.	2432 feet to the ESE	Active Haz Spill (Unknown/Other Cause)
109	AMERADA HESS	210 GREENPOINT AVE	2432 feet to the ESE	Active Haz Spill (Unknown/Other Cause)
110	FORMER SHELL STATION	256 MCGUINNESS BLVD	2438 feet to the ESE	Active Haz Spill (Unknown/Other Cause)
4	CARBONA PRODUCTS	330 CALYER STREET	3866 feet to the ESE	NYSDEC Inactive Haz Waste Site
9	MOBIL OIL BROOKLYN TERMINAL	300 N. HENRY ST.	4639 feet to the ESE	CERCLIS/NYSDEC Inactive Haz Waste Site
41	MOBIL OIL CORPORATION BROOKLYN TERMINAL	300 NORTH HENRY STREET	4639 feet to the ESE	Major Oil Storage Facility
15	BROOKLYN TERMINAL/MOBILE OIL	300 N. HENRY STREET	4650 feet to the ESE	Hazardous Substance Waste Disposal Site
238	METROPOLITAN PACKAGING MANUFAC	68 JAVA STREET	695 feet to the SE	Air Discharge Site
194	MICHAEL PISTILLI	85 JAVA ST	766 feet to the SE	Petroleum Bulk Storage Site
138	SB 8622	111 JAVA ST	985 feet to the SE	Closed Status Spill (Unk/Other Cause)
140	118 JAVA STREET	118 JAVE STREET	1045 feet to the SE	Closed Status Spill (Unk/Other Cause)
200	GUARD GENERAL MERCHANDISE CO	61 GREENPOINT AVE	1247 feet to the SE	Petroleum Bulk Storage Site
245	ASBESTOS FREE INC	144 FRANKLIN ST	1281 feet to the SE	Air Discharge Site
246	ASBESTOS FREE INC.	144 FRANKLIN ST.	1281 feet to the SE	Air Discharge Site
148	116 GREENPOINT AVE	116 GREENPOINT AVE	1450 feet to the SE	Closed Status Spill (Unk/Other Cause)
78	140 GREENPOINT AVE	140 GREENPOINT AVE	1621 feet to the SE	Active Haz Spill (Unknown/Other Cause)
86		137 MILTON ST	1784 feet to the SE	Active Haz Spill (Unknown/Other Cause)
87	109 NOBLE ST/BROOKLYN	109 NOBLE STREET	1794 feet to the SE	Active Haz Spill (Unknown/Other Cause)
88	MANHATTAN AND GREENPOINT	AVE MANHOLE-4327	1818 feet to the SE	Active Haz Spill (Unknown/Other Cause)
89		MANHATTAN AV & GREENPOINT	1818 feet to the SE	Active Haz Spill (Unknown/Other Cause)
178	860 MANHATTAN AVE/BKLYN	860 MANHATTAN AVENUE	2127 feet to the SE	Closed Status Spill (Misc. Spill Cause)
24	LOSTRITTO & CALANDRILLO		2918 feet to the SE	Solid Waste Facility
239	VANGUARD DIVERSIFIED INC	10 JAVA ST	756 feet to the SSE	Air Discharge Site
240	VANGUARD/DIV STACOR	10 JAVA ST	756 feet to the SSE	Air Discharge Site
213	VANGUARD INCORPORATED	10 JAVA ST	760 feet to the SSE	Hazardous Waste Generator/Transporter
225	VANGUARD CORP	10 JAVA STREET	761 feet to the SSE	Toxic Release Inventory Site
241	METROPOLITAN PACKAGING	67-73 KENT STREET	933 feet to the SSE	Air Discharge Site
199	MADIS GREENPOINT REALTY CO	96 WEST ST	1044 feet to the SSE	Petroleum Bulk Storage Site
218	CONSOLIDATED EDISON CO OF NY INC	FRANKLIN ST F/O 113	1233 feet to the SSE	Hazardous Waste Generator/Transporter
83	TM 1081	NOBLE ST /W OF WEST ST	1679 feet to the SSE	Active Haz Spill (Unknown/Other Cause)
151	FRANKLIN & NOBLE ST	FRANKLIN & NOBLE ST	1720 feet to the SSE	Closed Status Spill (Unk/Other Cause)
90	VAULT 2772	45 WEST ST	1893 feet to the SSE	Active Haz Spill (Unknown/Other Cause)

	OAI :FRA AV/E I	OA / FRA N AVI	..969 fe ..e SS_	Active ..az Spill (...sc. Spill Cause)
48	SHIMENTO TRUCKING INC.	11 WEST STREET	2334 feet to the SSE	Active Tank Test Failure
104	11 WEST STREET	11 WEST STREET	2334 feet to the SSE	Active Haz Spill (Unknown/Other Cause)
111	VAULT 5803	QUAY ST/WEST ST	2450 feet to the SSE	Active Haz Spill (Unknown/Other Cause)
112	VS 5761	QUAY ST/ E OF WEST ST	2461 feet to the SSE	Active Haz Spill (Unknown/Other Cause)
113	MANHOLE #5761	QUA STREET & FRANKLYN AV	2482 feet to the SSE	Active Haz Spill (Unknown/Other Cause)
49	54 FRANKLIN ST/BKLYN	54 FRANKLIN ST	2565 feet to the SSE	Active Tank Test Failure
1	BKLYN UNION GAS /WILLIAMSBURGH WORKS	KENT AVE N 12TH ST /E RIV	3265 feet to the SSE	CERCLIS Site
11	BUG, WILLIAMSBURG WORKS	KENT AVENUE, NORTH 12TH STREET	3265 feet to the SSE	Hazardous Substance Waste Disposal Site
29	NATIONAL PAPER STOCK CART		4767 feet to the SSE	Solid Waste Facility
247	VANGUARD DIVERSIFIED INC	10 JAVA ST	764 feet to the S	Civil Enforcement Docket Site
37	BAYSIDE FUEL OIL DEPOT CORP.	1 NORTH 12TH STREET	3137 feet to the S	Major Oil Storage Facility
2	BKLYN UNION GAS /WILLIAMSBURGH WORKS	KENT AVE N 12TH ST /E RIV	3572 feet to the S	CERCLIS Site
12	BUG, WILLIAMSBURG WORKS	KENT AVENUE, NORTH 12TH STREET	3572 feet to the S	Hazardous Substance Waste Disposal Site
26	NORTH 12 STREET T.S.		3618 feet to the S	Solid Waste Facility
3	BROOKLYN NORTH 1 GARAGE	50 KENT AVENUE	3716 feet to the S	NYSDEC Inactive Haz Waste Site
7	KENT TERMINAL	KENT AVE. BETWEEN N.5TH & N.11TH ST.	4037 feet to the S	NYSDEC Inactive Haz Waste Site
30	NEKBOH RECYCLING INC.		4899 feet to the S	Solid Waste Facility
36	EAST RIVER GENERATING STATION TANK FARM	14TH STREET & EAST RIVER	3113 feet to the SW	Major Oil Storage Facility
38	EAST RIVER GENERATING STATION TANK FARM	14TH STREET & EAST RIVER	3462 feet to the SW	Major Oil Storage Facility
222	NEWTOWN CREEK WATER POLLUTION CONTROL PLANT	301 GREENPOINT AVENUE	909 feet to the WSW	Chemical Bulk Storage Facility

Identified Toxic Sites by Proximity

Greenpoint Lumber Yard, Brooklyn, NY 11222

* Compass directions can vary substantially for sites located very close to the subject property address.

Map Id#	Site Name	Site Street	Approximate Distance & Direction From Property	Toxic Site Category
50	MANHOLE 4273	FREEMAN ST & WEST ST	0 feet	Active Haz Spill (Unknown/Other Cause)
165	DUPONT ST/COMMERCIAL ST	DUPONT ST / COMMERCIAL ST	0 feet	Closed Status Spill (Misc. Spill Cause)
226	COURIER PACKAGING	220 WEST STREET	0 feet	Air Discharge Site
51	MANHOLE 64829	FRANKLIN AVE/DUPONT AVE	2 feet to the NE*	Active Haz Spill (Unknown/Other Cause)
52	MANHOLE 64829	FRANKLIN &DUPONT ST	2 feet to the NE*	Active Haz Spill (Unknown/Other Cause)
53	MANHOLE #64829	FRANKLIN ST/OFF DUPONT	2 feet to the NE*	Active Haz Spill (Unknown/Other Cause)
54	MANHOLE #64829	FRANKFORD ST & DUPONT ST	2 feet to the NE*	Active Haz Spill (Unknown/Other Cause)
55	MANHOLE #64829	FRANKLIN AV & DUPONT ST	2 feet to the NE*	Active Haz Spill (Unknown/Other Cause)
129	EAST RIVER	EAST RIVER- & GREEN ST	8 feet to the SW*	Closed Status Spill (Unk/Other Cause)
130	GREENPOINT DOCK	DUPONT STREET	21 feet to the NNW*	Closed Status Spill (Unk/Other Cause)
183	EAGLE STREEET ASSOC.	48 EAGLE STREET	21 feet to the ENE*	Petroleum Bulk Storage Site
56	TM # 2792	55 FREEMAN ST	28 feet to the E*	Active Haz Spill (Unknown/Other Cause)
57	TM 2792	55 FREEMAN ST	28 feet to the E*	Active Haz Spill (Unknown/Other Cause)
58	TM2815	55 FREEMAN ST	28 feet to the E*	Active Haz Spill (Unknown/Other Cause)
203	NUHART COMPANY	49 DUPONT STREET	31 feet to the NE*	Hazardous Waste Generator/Transporter
204	NU HART	49 DUPONT STREET	31 feet to the NE*	Hazardous Waste Generator/Transporter
227	COURIER PACKAGING CO.ENTRANCE ON WEST ST	48 EAGLE STREET	35 feet to the ENE*	Air Discharge Site
228	CONSOLIDATED LAUNDRIES IN	3248 EAGLE STREET	35 feet to the ENE*	Air Discharge Site
229	NUHART COMPANY	49 DUPONT STREET	40 feet to the NE*	Air Discharge Site
230	NUHART & COMPANY	49 DUPONT STREET	40 feet to the NE*	Air Discharge Site
231	RIALTO PRODUCTS INC	61 GREEN STREET	74 feet to the ESE*	Air Discharge Site
184	RIALTO PRODUCTS INC	61-65 GREEN STREET	75 feet to the ESE*	Petroleum Bulk Storage Site
131	262 FRANKLIN ST/BKLYN	262 FRANKLIN STREET	98 feet to the ENE*	Closed Status Spill (Unk/Other Cause)
185	DEVEN LITHOGRAPHERS, INC.	15 HURON STREET	99 feet to the S*	Petroleum Bulk Storage Site
186	223 FRANKLIN ST	223 FRANKLIN ST	183 feet to the ENE*	Petroleum Bulk Storage Site
205	CON ED	7489 - 66 HURON ST	187 feet to the SE*	Hazardous Waste Generator/Transporter
59	RESIDENCE	87 EAGLE STREET	188 feet to the ENE*	Active Haz Spill (Unknown/Other Cause)
132	MANHOLE 7489	66 URON ST	191 feet to the SE*	Closed Status Spill (Unk/Other Cause)
187	CROSSTOWN BUS DEPOT	65 COMMERCIAL ST	195 feet to the NE*	Petroleum Bulk Storage Site
206	NEW YORK CITY TRANSIT AUTHORITY	65 COMMERCIAL AVENUE	195 feet to the NE*	Hazardous Waste Generator/Transporter
43	65 COMMERCIAL ST/BKLYN	65 COMMERCIAL STREET	201 feet to the NE	Active Tank Failure
207	LIQUIMARK	71 GREEN ST	205 feet to the ESE	Hazardous Waste Generator/Transporter
232	NYCTA CROSSTOWN ANNEX	65 COMMERCIAL STREET	206 feet to the NE	Air Discharge Site
188	FORMER UNITED FEATHER & DOWN INC.	77 COMMERCIAL STREET	227 feet to the NE	Petroleum Bulk Storage Site
208	HARTE & CO INC	77 COMMERCIAL ST	227 feet to the NE	Hazardous Waste Generator/Transporter
166	77 COMMERCIAL STREET	77 COMMERCIAL ST	233 feet to the NE	Closed Status Spill (Misc. Spill Cause)
167	COMMERCIAL ST	FRANKLIN ST	240 feet to the NE	Closed Status Spill (Misc. Spill Cause)
60	VAULT 852	10-20 CLAY ST	249 feet to the NE	Active Haz Spill (Unknown/Other Cause)
233	HARTE & CO INC	14 CLAY ST	267 feet to the NE	Air Discharge Site
61	VS 1106	2-20 CLAY ST	276 feet to the NE	Active Haz Spill (Unknown/Other Cause)
209	PAT & DOMS BODY & FENDERREPAIR	246 FRANKLIN STREET	300 feet to the E	Hazardous Waste Generator/Transporter
62	V# 1109 & V# 852	20 CLAY ST	320 feet to the NE	Active Haz Spill (Unknown/Other Cause)
125	145 WEST STREET	145 WEST STREET	331 feet to the SSE	Closed Status Tank Test Failure
126	145 WEST STREET	145 WEST STREET	331 feet to the SSE	Closed Status Tank Test Failure
133	HUXLEY ENVELOPE/WEST ST	HUXLEY ENVELOPE/WEST ST	331 feet to the SSE	Closed Status Spill (Unk/Other Cause)

189	HUXLEY ENVELOPE CORPORATION	1 WEST STREET	332 feet to the SSE	Petroleum Bulk Storage Site
210	HUXLEY ENVELOPE CORPORATION	145 WEST STREET	332 feet to the SSE	Hazardous Waste Generator/Transporter
63	MANHOLE 70407	I/F/I 20 CLAY ST	336 feet to the NE	Active Haz Spill (Unknown/Other Cause)
64	VALUT 7059	INDIA ST/WEST ST	363 feet to the SSE	Active Haz Spill (Unknown/Other Cause)
65	VAULT 5337	INDIA ST/ WEST ST	363 feet to the SSE	Active Haz Spill (Unknown/Other Cause)
134	STEVEN SUPPLY CO	15 CLAY ST	363 feet to the NE	Closed Status Spill (Unk/Other Cause)
135	15 CLAY ST	15 CLAY ST	363 feet to the NE	Closed Status Spill (Unk/Other Cause)
190	OSCAR'S SERVICE STATION INC	193 FRANKLIN ST	399 feet to the ESE	Petroleum Bulk Storage Site
211	INTERFLO TECHNOLOGIES	19 CLAY ST	401 feet to the NE	Hazardous Waste Generator/Transporter
234	OSCAR SERVICE STATIO	193 FRANKLIN STREET	404 feet to the ESE	Air Discharge Site
224	LIQUIMARK	19 CLAY ST.	409 feet to the NE	Toxic Release Inventory Site
235	REDOUND INDUSTRIES, INC - INTERFLO TECH	19 CLAY STREET	409 feet to the NE	Air Discharge Site
66	MANHOLE #4276	HURON ST / FRANKLIN ST	456 feet to the ESE	Active Haz Spill (Unknown/Other Cause)
114	FRANKLIN STREET	HURON STREET	456 feet to the ESE	Active Haz Spill (Misc. Spill Cause)
136	MANHOLE 7489	HURRON ST/FRANKLIN AVE	456 feet to the ESE	Closed Status Spill (Unk/Other Cause)
168	FRANKLIN / HURON STREETS	FRANKLIN / HURON STREETS	456 feet to the ESE	Closed Status Spill (Misc. Spill Cause)
212	ELECTRICAL PRECISION METE	214 FRANKLIN ST	467 feet to the ESE	Hazardous Waste Generator/Transporter
191	STS CYRIL & METHODIOS RC SCH	96 DUPONT ST	600 feet to the ENE	Petroleum Bulk Storage Site
192	KENT TRANS AMERICA CLOTHING CO	122 WEST ST	616 feet to the SSE	Petroleum Bulk Storage Site
236	DISTINCTION IN WOODS LTD	106 GREEN ST	638 feet to the ESE	Air Discharge Site
237	DISTINCTION IN WOODS LTD	106 GREEN STREET	638 feet to the ESE	Air Discharge Site
193	65 JAVA STREET	65 JAVA STREET	643 feet to the SE	Petroleum Bulk Storage Site
238	METROPOLITAN PACKAGING MANUFAC	68 JAVA STREET	695 feet to the SE	Air Discharge Site
67	COMMERCIAL ST/BOX&CLAY ST	COMMERCIAL ST / BOX ST	716 feet to the NE	Active Haz Spill (Unknown/Other Cause)
137	MANHOLE 4284	COMMERCIAL ST AND BOX ST	716 feet to the NE	Closed Status Spill (Unk/Other Cause)
239	VANGUARD DIVERSIFIED INC	10 JAVA ST	756 feet to the SSE	Air Discharge Site
240	VANGUARD/DIV STACOR	10 JAVA ST	756 feet to the SSE	Air Discharge Site
213	VANGUARD INCORPORATED	10 JAVA ST	760 feet to the SSE	Hazardous Waste Generator/Transporter
225	VANGUARD CORP	10 JAVA STREET	761 feet to the SSE	Toxic Release Inventory Site
247	VANGUARD DIVERSIFIED INC	10 JAVA ST	764 feet to the S	Civil Enforcement Docket Site
194	MICHAEL PISTILLI	85 JAVA ST	766 feet to the SE	Petroleum Bulk Storage Site
195	74 INDIA	74 INDIA ST	785 feet to the ESE	Petroleum Bulk Storage Site
68		1079 MANHATTEN AVE	885 feet to the ENE	Active Haz Spill (Unknown/Other Cause)
69	1071 MANHATTAN AVENUE	1071 MANHATTAN AVENUE	891 feet to the ENE	Active Haz Spill (Unknown/Other Cause)
196	129 HURON ST	129 HURON ST	906 feet to the ESE	Petroleum Bulk Storage Site
222	NEWTOWN CREEK WATER POLLUTION CONTROL PLANT	301 GREENPOINT AVENUE	909 feet to the WSW	Chemical Bulk Storage Facility
70	1109 MANHATTAN AVE	1109 MANHATTAN AVE	915 feet to the ENE	Active Haz Spill (Unknown/Other Cause)
197	GREENPOINT HOTEL	1109 MANHATTAN AVENUE	921 feet to the ENE	Petroleum Bulk Storage Site
71	BTWN DUPONT & FREEDOM ST	MANHATTAN AV	927 feet to the ENE	Active Haz Spill (Unknown/Other Cause)
115	EAGLE ST & MANHATTAN AVE.	EAGLE ST / MANHATTAN AVE	927 feet to the ENE	Active Haz Spill (Misc. Spill Cause)
116	EAGLE ST / MANHATTAN ST	EAGLE ST / MANH ST	927 feet to the ENE	Active Haz Spill (Misc. Spill Cause)
241	METROPOLITAN PACKAGING	67-73 KENT STREET	933 feet to the SSE	Air Discharge Site
138	SB 8622	111 JAVA ST	985 feet to the SE	Closed Status Spill (Unk/Other Cause)
198	DUPONT ASSOC	127 DUPONT ST	992 feet to the ENE	Petroleum Bulk Storage Site
117	VAULT #V4191	FREEMAN/MANHATTAN	999 feet to the E	Active Haz Spill (Misc. Spill Cause)
139	SERVICE BOX 8463	210/212 FREEMAN AVENUE	999 feet to the E	Closed Status Spill (Unk/Other Cause)
72	MANHOLE #4294	MANHATEEN AV & BOX ST	1034 feet to the NE	Active Haz Spill (Unknown/Other Cause)
73	MANHOLE AT BOX STREET AND	MANHATTAN AVE	1034 feet to the NE	Active Haz Spill (Unknown/Other Cause)
199	MADIS GREENPOINT REALTY CO	96 WEST ST	1044 feet to the SSE	Petroleum Bulk Storage Site
140	118 JAVA STREET	118 JAVE STREET	1045 feet to the SE	Closed Status Spill (Unk/Other Cause)
214	KELLY CLEANERS	1036 MANHATTAN AVENUE	1059 feet to the E	Hazardous Waste Generator/Transporter
242	KELLY CLEANERS	1036 MANHATTAN AVENUE	1070 feet to the E	Air Discharge Site
215	PORT AUTHORITY NEW YORK/NEW JERSEY	HUNTERS PT 5500 2ND ST	1103 feet to the N	Hazardous Waste Generator/Transporter

169	182 FREEMAN ST/BKLYN	182 FREEMAN STREET	1120 feet to the E	Closed Status Spill (Misc. Spill Cause)
170	166 EAGLE ST	166 EAGLE ST	1126 feet to the ENE	Closed Status Spill (Misc. Spill Cause)
216	APHRODITE CLEANERS II	1019 MANHATTAN AVENUE	1152 feet to the E	Hazardous Waste Generator/Transporter
171		111 INDIA ST	1164 feet to the ESE	Closed Status Spill (Misc. Spill Cause)
217	NYNEX	GREEN ST & MANHATTAN	1169 feet to the E	Hazardous Waste Generator/Transporter
141	MANHOLE #TM642	BOX ST E OF MANHATTAN AV	1177 feet to the NE	Closed Status Spill (Unk/Other Cause)
74	MH 4285	MANHATTAN AVE/COMMERCIAL	1185 feet to the NE	Active Haz Spill (Unknown/Other Cause)
142	TRANSFORMER MANHOLE	MANHATTAN AVE &COMMERCIAL	1185 feet to the NE	Closed Status Spill (Unk/Other Cause)
143	MANHOLE 4285	MANHATTEN AV & COMERCIAL	1185 feet to the NE	Closed Status Spill (Unk/Other Cause)
144	MANHOLE #4285	MANHATTEN AV & COMM.ST.	1185 feet to the NE	Closed Status Spill (Unk/Other Cause)
145	MANHATTAN AVE & ASH ST	MANHATTAN AVE & ASH ST	1185 feet to the NE	Closed Status Spill (Unk/Other Cause)
223	MOTIVA ENTERPRISES LLC	25 PAIDGE AVENUE	1227 feet to the NE	Chemical Bulk Storage Facility
218	CONSOLIDATED EDISON CO OF NY INC	FRANKLIN ST F/O 113	1233 feet to the SSE	Hazardous Waste Generator/Transporter
200	GUARD GENERAL MERCHANDISE CO	61 GREENPOINT AVE	1247 feet to the SE	Petroleum Bulk Storage Site
201	GREENPOINT MANUFACTURING & DESIGN CENTER	1155-1205 MANHATTAN AVENUE	1265 feet to the NE	Petroleum Bulk Storage Site
17	DH FARNEY CONT. INC.		1267 feet to the N	Solid Waste Facility
75	NEW TOWN CREEK	1205 MANHATTAN AVE	1275 feet to the NE	Active Haz Spill (Unknown/Other Cause)
146	NEWTOWN CREEK	1205 MANHATTAN AVE	1275 feet to the NE	Closed Status Spill (Unk/Other Cause)
147	1155-1205 MANHATTAN AVE	1155-1205 MANAHATTAN AVE	1275 feet to the NE	Closed Status Spill (Unk/Other Cause)
172	1155-1205 MANHATTAN AVE	1155-1205 MANHATTAN AVE	1275 feet to the NE	Closed Status Spill (Misc. Spill Cause)
173	1205 MANHATTAN AVE	1205 MANHATTAN AVE.	1275 feet to the NE	Closed Status Spill (Misc. Spill Cause)
174	1205 MANHATTAN AVE	1205 MANHATTAN AVE	1275 feet to the NE	Closed Status Spill (Misc. Spill Cause)
175	1205 MANHATTAN AVE/BKLYN	1205 MANHATTAN AVENUE	1275 feet to the NE	Closed Status Spill (Misc. Spill Cause)
243	S & G INC.	1155 MANHATTAN AVE	1278 feet to the NE	Air Discharge Site
244	DISTINCTION IN WOOD INC.	1155-1205 MANHATTAN AVENUE	1278 feet to the NE	Air Discharge Site
245	ASBESTOS FREE INC	144 FRANKLIN ST	1281 feet to the SE	Air Discharge Site
246	ASBESTOS FREE INC.	144 FRANKLIN ST.	1281 feet to the SE	Air Discharge Site
219	NEW YORK CITY DEPT OF ENVIROMENTAL PROTE	CTION 1205 MANHATTAN AVENUE	1282 feet to the NE	Hazardous Waste Generator/Transporter
220	MINERALS & METALS - M & R CORP	1205 MANHATTAN AVE	1282 feet to the NE	Hazardous Waste Generator/Transporter
76	TM 0647	HERON STREET/MANHATTAN AV	1293 feet to the E	Active Haz Spill (Unknown/Other Cause)
77	TM #647	HURON ST/MANHATTEN AVE	1293 feet to the E	Active Haz Spill (Unknown/Other Cause)
202	APARTMENT HOUSE	168 HURON STREET	1295 feet to the E	Petroleum Bulk Storage Site
221	ANHEUSER BUSCH DISTRIBUTORS	55-01 SECOND STREET	1301 feet to the NNE	Hazardous Waste Generator/Transporter
18	MANHATTAN AVE. RECYCLING		1352 feet to the NE	Solid Waste Facility
148	116 GREENPOINT AVE	116 GREENPOINT AVE	1450 feet to the SE	Closed Status Spill (Unk/Other Cause)
19	ECONOMY CONTAINER SERVICE		1469 feet to the NE	Solid Waste Facility
45	29 ASH ST	29 ASH ST	1540 feet to the NE	Active Tank Test Failure
46	29 ASH ST/BKLYN/UNIVERSAL	29 ASH ST	1540 feet to the NE	Active Tank Test Failure
78	140 GREENPOINT AVE	140 GREENPOINT AVE	1621 feet to the SE	Active Haz Spill (Unknown/Other Cause)
79		CLAY ST & MCGUINNES BL	1636 feet to the ENE	Active Haz Spill (Unknown/Other Cause)
149	MCGUINESS BLVD/CLAY ST	MCGUINESS BLVD/CLAY ST	1636 feet to the ENE	Closed Status Spill (Unk/Other Cause)
80	MANHOLE 19726	54TH AV WEST OF 2ND ST	1664 feet to the NNE	Active Haz Spill (Unknown/Other Cause)
81	MANHOLE 19726	54TH AV / 2ND ST	1664 feet to the NNE	Active Haz Spill (Unknown/Other Cause)
82	MANHOLE 19726	54TH AVE & 2ND ST	1664 feet to the NNE	Active Haz Spill (Unknown/Other Cause)
83	TM 1081	NOBLE ST /W OF WEST ST	1679 feet to the SSE	Active Haz Spill (Unknown/Other Cause)
84	MCGUINESS & BOX ST	MCGUINESS & BOX ST	1697 feet to the ENE	Active Haz Spill (Unknown/Other Cause)
150	NEWTOWN CREEK/MANH AVE	NEWTOWN CREEK/MANH AVE	1712 feet to the NE	Closed Status Spill (Unk/Other Cause)
176	MANH AVE/NEWTOWN CREEK	MANH AVE/NEWTOWN CREEK	1712 feet to the NE	Closed Status Spill (Misc. Spill Cause)
85	MANHOLE 4297	BOX ST & PAIDGE AVE	1714 feet to the ENE	Active Haz Spill (Unknown/Other Cause)
151	FRANKLIN & NOBLE ST	FRANKLIN & NOBLE ST	1720 feet to the SSE	Closed Status Spill (Unk/Other Cause)
86		137 MILTON ST	1784 feet to the SE	Active Haz Spill (Unknown/Other Cause)
87	109 NOBLE ST/BROOKLYN	109 NOBLE STREET	1794 feet to the SE	Active Haz Spill (Unknown/Other Cause)
88	MANHATTAN AND GREENPOINT	AVE MANHOLE-4327	1818 feet to the SE	Active Haz Spill (Unknown/Other Cause)

118			
127	FINK BAKING	[illegible]ATTA[illegible] & GR[illegible] OINT	1818 [illegible] the SE	Active Haz Spill (Unknown/Other Cause)
119	PULASKI SERVICE STATION	535 54TH AVE	1822 feet to the NNE	Active Haz Spill (Misc. Spill Cause)
152	CON ED MANHOLE 4313	5-35 54TH AVE	1822 feet to the NNE	Closed Status Tank Test Failure
90	VAULT 2772	321 MCGUINNESS BLVD	1852 feet to the E	Active Haz Spill (Misc. Spill Cause)
153	315 MCGUINESS BLVD	MC GUINNESS & HURON ST	1879 feet to the E	Closed Status Spill (Unk/Other Cause)
91	54-08 VERNON BLVD/QUEENS	45 WEST ST	1893 feet to the SSE	Active Haz Spill (Unknown/Other Cause)
92	PULASKI BRDG/SHELL TERMNL	315 MCGUINESS BLVD	1900 feet to the E	Closed Status Spill (Unk/Other Cause)
120	OAK ST &FRANKLIN AV/BKLYN	54008 VERNON BLVD	1950 feet to the NE	Active Haz Spill (Unknown/Other Cause)
31	DITMAS OIL-LONG ISLAND CITY	NEWTOWN CREEK	1966 feet to the NE	Active Haz Spill (Unknown/Other Cause)
154	BORDEN AVE/LIRR PASS YARD	OAK ST / FRANKLIN AVE	1969 feet to the SSE	Active Haz Spill (Misc. Spill Cause)
177	LI PASSENGER YARD	53-02 11TH ST.	2007 feet to the NE	Major Oil Storage Facility
155	54TH AVA & VERNON BLVD	BORDEN AVE/LIRR PASS YARD	2011 feet to the NNE	Closed Status Spill (Unk/Other Cause)
156	54 STREET/VERNON BLVD	LI PASSENGER YARD	2011 feet to the NNE	Closed Status Spill (Misc. Spill Cause)
93	MANHOLE #62845	54TH AVE & VERNON BLVD	2026 feet to the NE	Closed Status Spill (Unk/Other Cause)
94	MANHOLE 71304	54 STREET/VERNON BLVD	2026 feet to the NE	Closed Status Spill (Unk/Other Cause)
157	24 PAIGE AVENUE	MCGUINESS BLVE/INDIA ST	2041 feet to the E	Active Haz Spill (Unknown/Other Cause)
95	RZ METAL CORP	MCGUINNESS BL/INDIA ST	2041 feet to the E	Active Haz Spill (Unknown/Other Cause)
20	MICHAEL FERRONE	24 PAIGE AVENUE	2056 feet to the ENE	Closed Status Spill (Unk/Other Cause)
96	NEW TOWN CREEK	247 HURON ST	2078 feet to the E	Active Haz Spill (Unknown/Other Cause)
124	203 JAVA ST.		2079 feet to the E	Solid Waste Facility
178	860 MANHATTAN AVE/BKLYN	PULASKI BR AND BUDWEISER	2082 feet to the NE	Active Haz Spill (Unknown/Other Cause)
44	25 PAIDGE AVE/BKLYN/SHELL	203 JAVA ST	2104 feet to the ESE	Closed Status Tank Failure
97	SHELL OIL CO	860 MANHATTAN AVENUE	2127 feet to the SE	Closed Status Spill (Misc. Spill Cause)
98	25 PAIDGE AVE/BKLYN	25 PAIDGE AVENUE	2130 feet to the ENE	Active Tank Failure
179	25 PAIDGE AVE/BKLYN	25 PAIDGE AV-WELS 15,16	2130 feet to the ENE	Active Haz Spill (Unknown/Other Cause)
99		25 PAIDGE AVE	2130 feet to the ENE	Active Haz Spill (Unknown/Other Cause)
32	MOTIVA ENTERPRISES, LLC	25 PAIDGE AVENUE	2130 feet to the ENE	Closed Status Spill (Misc. Spill Cause)
47	52-00 2ND ST/QU'NS/NORVAL	53RD AVE/VERNON BLVD	2133 feet to the NE	Active Haz Spill (Unknown/Other Cause)
100	MH #19726	25 PAIDGE AVENUE	2135 feet to the ENE	Major Oil Storage Facility
101	QUEENS MIDTOWN TUNNEL	52000 2ND ST	2186 feet to the NNE	Active Tank Test Failure
158	217 INDIA STREET	2ND ST & BORDEN AVE	2193 feet to the NNE	Active Haz Spill (Unknown/Other Cause)
102	MCGUISNESS BL	BORDEN & 2ND ST	2193 feet to the NNE	Active Haz Spill (Unknown/Other Cause)
121	502 BORDEN AVE/LIRR	217 INDIA STREET	2228 feet to the E	Closed Status Spill (Unk/Other Cause)
180	LONG ISLAND CITY YARD	BET JAVVA & KENT	2233 feet to the ESE	Active Haz Spill (Unknown/Other Cause)
181	266 FREEMAN ST/BROOKLYN	502 BORDEN AVE	2245 feet to the NNE	Active Haz Spill (Misc. Spill Cause)
182	SHELL GAS STATION	5-02 BORDEN AVENUE	2245 feet to the NNE	Closed Status Spill (Misc. Spill Cause)
159	262 HURON ST	266 FREEMAN STREET	2256 feet to the E	Closed Status Spill (Misc. Spill Cause)
122	LONG ISLAND CITY PASS YAR	KENT ST/MCGINESS BLVD	2281 feet to the ESE	Closed Status Spill (Misc. Spill Cause)
160		262 HURON ST	2287 feet to the E	Closed Status Spill (Unk/Other Cause)
103	MCGUINNESS & 54 AVE.	5-01 BORDEN AV	2303 feet to the NNE	Active Haz Spill (Misc. Spill Cause)
48	SHIMENTO TRUCKING INC.	266 MCGUINNESS BLVD	2308 feet to the ESE	Closed Status Spill (Unk/Other Cause)
104	11 WEST STREET	MCGUINNESS & 54 AVE.	2332 feet to the NE	Active Haz Spill (Unknown/Other Cause)
105	NEWTOWN CREEK- PAIGE AVE	11 WEST STREET	2334 feet to the SSE	Active Tank Test Failure
106	N E C / B N S	11 WEST STREET	2334 feet to the SSE	Active Haz Spill (Unknown/Other Cause)
161	10-26 53RD AVENUE	NEWTON CREEK -PAIGE AVE	2374 feet to the ENE	Active Haz Spill (Unknown/Other Cause)
33	DITMAS OIL-LONG ISLAND CITY	10-26 53RD AVE	2399 feet to the NE	Active Haz Spill (Unknown/Other Cause)
162	GREENPOINT AVE	10-26 53RD AVENUE	2399 feet to the NE	Closed Status Spill (Unk/Other Cause)
128	02-24 51ST AVE/	53-02 11TH ST.	2404 feet to the NE	Major Oil Storage Facility
107	MERIT GAS STATION	GREENPOINT AVENUE &	2414 feet to the ESE	Closed Status Spill (Unk/Other Cause)
108	210 GREEN PT AVE.	02-24 51ST AVE	2425 feet to the NNE	Closed Status Tank Test Failure
109	AMERADA HESS	210 GREENPOINT AVE	2432 feet to the ESE	Active Haz Spill (Unknown/Other Cause)
		210 GREEN PT AVE.	2432 feet to the ESE	Active Haz Spill (Unknown/Other Cause)
		210 GREENPOINT AVE	2432 feet to the ESE	Active Haz Spill (Unknown/Other Cause)

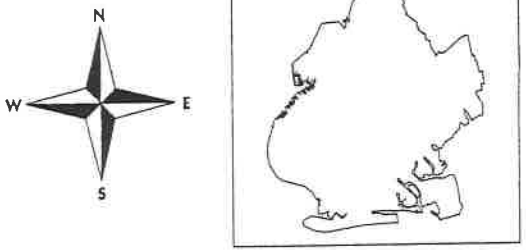
	IER S STA	2 GUI 3 BL	2438 the E	Acti Haz Spil. (Unknown, Other Cause)
111	VAULT 5803	QUAY ST/WEST ST	2450 feet to the SSE	Active Haz Spill (Unknown/Other Cause)
163	GREEN ST & PROVOST/BKLYN	GREEN ST & PROVOST	2455 feet to the E	Closed Status Spill (Unk/Other Cause)
112	VS 5761	QUAY ST/ E OF WEST ST	2461 feet to the SSE	Active Haz Spill (Unknown/Other Cause)
113	MANHOLE #5761	QUA STREET & FRANKLYN AV	2482 feet to the SSE	Active Haz Spill (Unknown/Other Cause)
21	PRONTO DEMO. CORP		2492 feet to the E	Solid Waste Facility
123	5TH ST & 51ST AVE	5TH ST & 51ST AVE	2526 feet to the NNE	Active Haz Spill (Misc. Spill Cause)
49	54 FRANKLIN ST/BKLYN	54 FRANKLIN ST	2565 feet to the SSE	Active Tank Test Failure
164	GASETERIA / QUEENS	GASETERIA 11TH & BORDEN	2593 feet to the NE	Closed Status Spill (Unk/Other Cause)
34	EXXON COMPANY USA	320 FREEMAN STREET	2748 feet to the E	Major Oil Storage Facility
22	PEREZ INTERBORO T.S.		2782 feet to the ENE	Solid Waste Facility
23	NEWTOWN CREEK DREDG SLF		2782 feet to the ENE	Solid Waste Facility
24	LOSTRITTO & CALANDRILLO		2918 feet to the SE	Solid Waste Facility
35	EXXON COMPANY USA	320 FREEMAN STREET	3037 feet to the E	Major Oil Storage Facility
42	KOSAN INDUSTRIAL CORP	5-49 49TH AVENUE	3093 feet to the NNE	Hazardous Waste Treat, Storage, Disposal
36	EAST RIVER GENERATING STATION TANK FARM	14TH STREET & EAST RIVER	3113 feet to the SW	Major Oil Storage Facility
37	BAYSIDE FUEL OIL DEPOT CORP.	1 NORTH 12TH STREET	3137 feet to the S	Major Oil Storage Facility
1	BKLYN UNION GAS /WILLIAMSBURGH WORKS	KENT AVE N 12TH ST /E RIV	3265 feet to the SSE	CERCLIS Site
11	BUG, WILLIAMSBURG WORKS	KENT AVENUE, NORTH 12TH STREET	3265 feet to the SSE	Hazardous Substance Waste Disposal Site
38	EAST RIVER GENERATING STATION TANK FARM	14TH STREET & EAST RIVER	3462 feet to the SW	Major Oil Storage Facility
25	NYCDOS MTS @ GREENPOINT	NORTH HENRY STREET	3525 feet to the E	Solid Waste Facility
2	BKLYN UNION GAS /WILLIAMSBURGH WORKS	KENT AVE N 12TH ST /E RIV	3572 feet to the S	CERCLIS Site
12	BUG, WILLIAMSBURG WORKS	KENT AVENUE, NORTH 12TH STREET	3572 feet to the S	Hazardous Substance Waste Disposal Site
26	NORTH 12 STREET T.S.		3618 feet to the S	Solid Waste Facility
3	BROOKLYN NORTH 1 GARAGE	50 KENT AVENUE	3716 feet to the S	NYSDEC Inactive Haz Waste Site
4	CARBONA PRODUCTS	330 CALYER STREET	3866 feet to the ESE	NYSDEC Inactive Haz Waste Site
5	MOBIL OIL BROOKLYN TERMINAL	300 N. HENRY ST.	3928 feet to the E	CERCLIS/NYSDEC Inactive Haz Waste Site
6	FORMER MANHATTAN ADHESIVES PLANT	425-459 GREENPOINT AVE.	3931 feet to the E	CERCLIS/NYSDEC Inactive Haz Waste Site
13	MANHATTAN ADHESIVES	425-459 GREEN POINT AVENUE	3931 feet to the E	Hazardous Substance Waste Disposal Site
27	GREENPOINT INCINERATOR		3943 feet to the E	Solid Waste Facility
14	BROOKLYN TERMINAL/MOBILE OIL	300 N. HENRY STREET	4031 feet to the E	Hazardous Substance Waste Disposal Site
7	KENT TERMINAL	KENT AVE. BETWEEN N.5TH & N.11TH ST.	4037 feet to the S	NYSDEC Inactive Haz Waste Site
39	FORMER MOBIL GREENPOINT TERMINAL	403 GREENPOINT AVENUE	4225 feet to the E	Major Oil Storage Facility
40	METRO TERMINALS CORP.	498 KINGSLAND AVENUE	4370 feet to the E	Major Oil Storage Facility
8	AMTRAK SUNNYSIDE YARD	39-29 HONEYWELL STREET	4504 feet to the NE	NYSDEC Inactive Haz Waste Site
9	MOBIL OIL BROOKLYN TERMINAL	300 N. HENRY ST.	4639 feet to the ESE	CERCLIS/NYSDEC Inactive Haz Waste Site
41	MOBIL OIL CORPORATION BROOKLYN TERMINAL	300 NORTH HENRY STREET	4639 feet to the ESE	Major Oil Storage Facility
15	BROOKLYN TERMINAL/MOBILE OIL	300 N. HENRY STREET	4650 feet to the ESE	Hazardous Substance Waste Disposal Site
28	SUMMIT CARTING INC.		4671 feet to the E	Solid Waste Facility
10	FORMER MANHATTAN ADHESIVES PLANT	425-459 GREENPOINT AVE.	4675 feet to the E	CERCLIS/NYSDEC Inactive Haz Waste Site
16	MANHATTAN ADHESIVES	425-459 GREEN POINT AVENUE	4678 feet to the E	Hazardous Substance Waste Disposal Site
29	NATIONAL PAPER STOCK CART		4767 feet to the SSE	Solid Waste Facility
30	NEKBOH RECYCLING INC.		4899 feet to the S	Solid Waste Facility

Toxics Targeting
1 Mile Buffer Search Map

Greenpoint Lumber Yard

Brooklyn, NY 11222

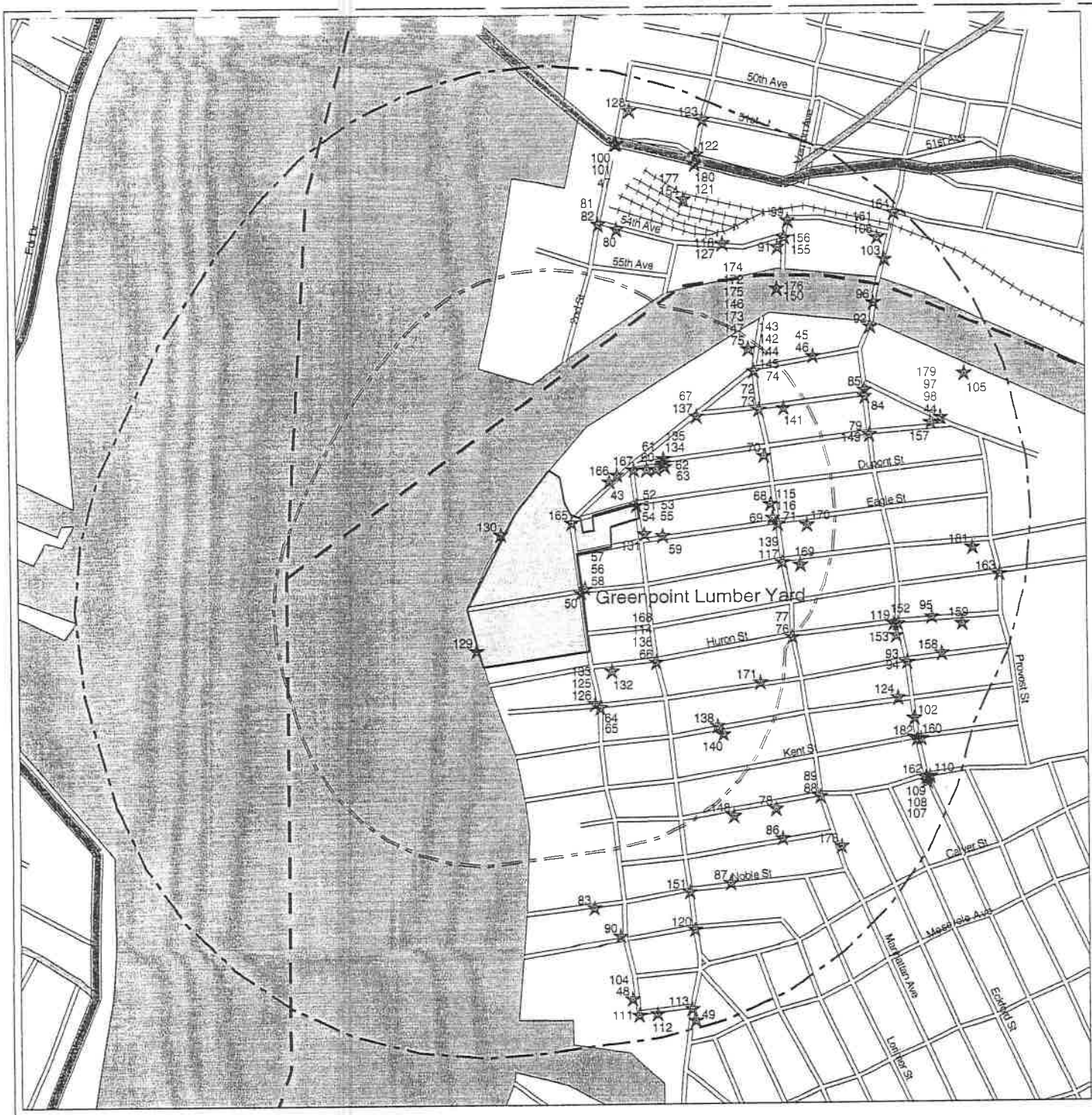




Kings County

- NPL/CERCLIS/NYSDEC Inactive Hazardous Waste Disposal Site
- Hazardous Waste Treater, Storer, Disposer
- Hazardous Substance Waste Disposal Site
- Solid Waste Facility
- Major Oil Storage Facility

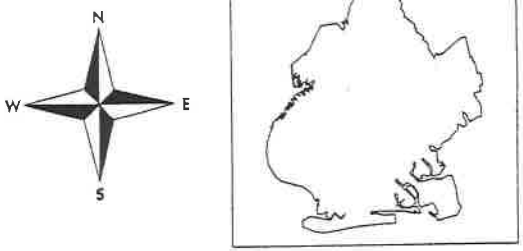
- Subject Area
- Waterbody
- Minor Roads
- Major Roads
- County Border
- Expressways
- Railroad Tracks
- 1 Mile Radius
- 1/2 Mile Radius
- 1/4 Mile Radius
- 1/8 Mile Radius



Toxics Targeting
1/2 Mile Buffer Search Map

Greenpoint Lumber Yard

Brooklyn, NY 11222



Kings County

MTBE Gasoline Additive Spill

Hazardous Material Spill

Subject Area

Minor Roads

Major Roads

Expressways

1 Mile Radius

1/4 Mile Radius

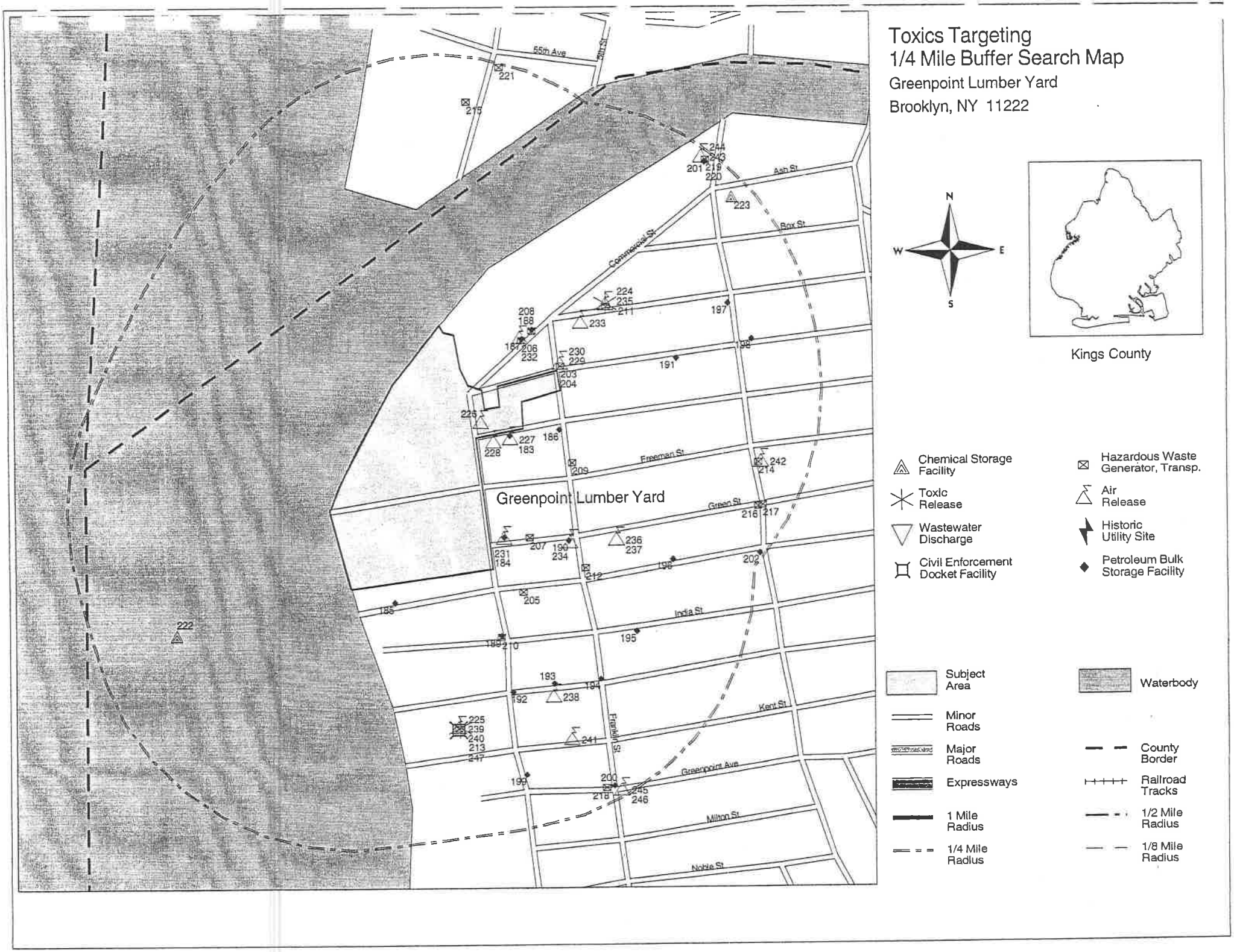
Waterbody

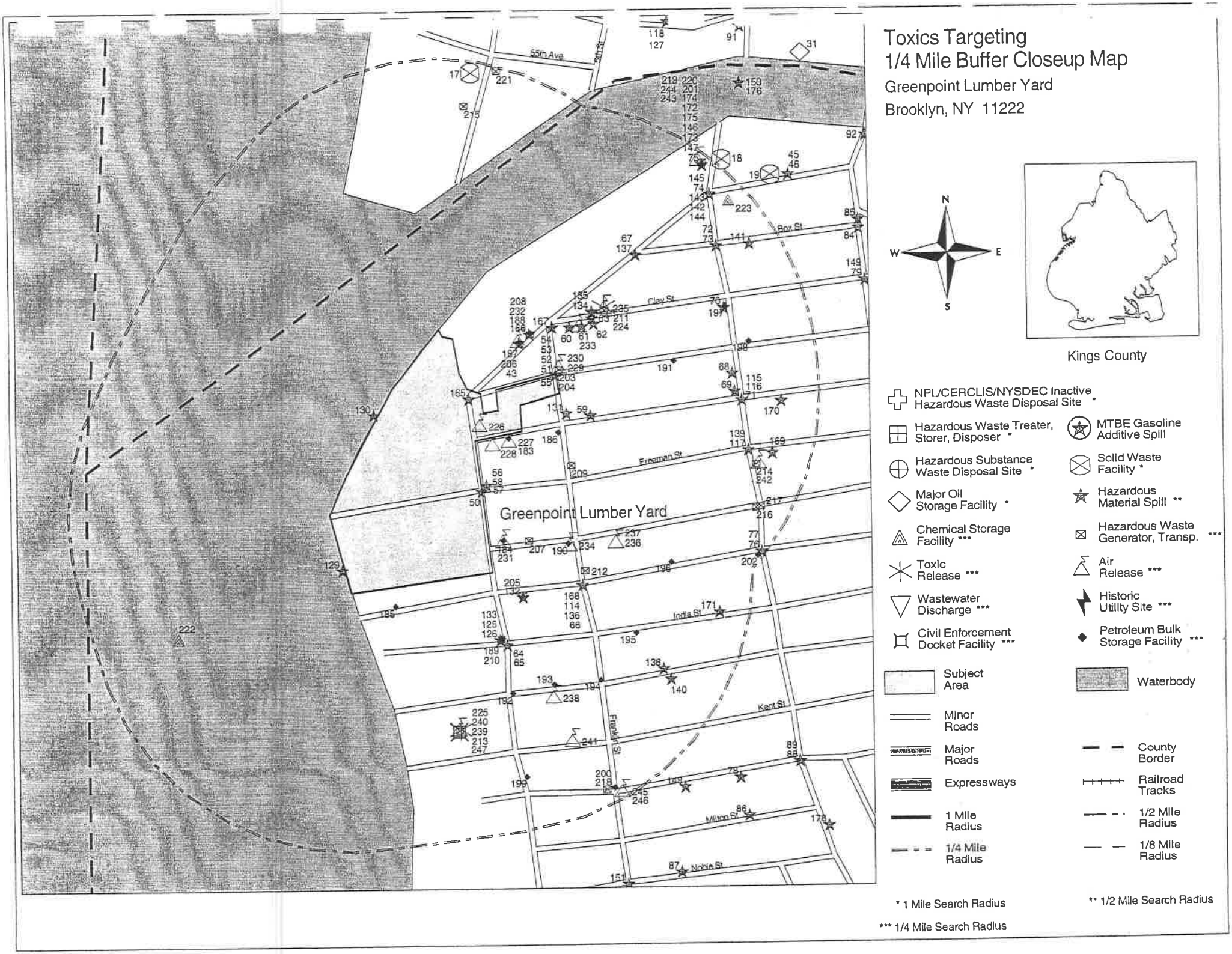
County Border

Railroad Tracks

1/2 Mile Radius

1/8 Mile Radius


Toxics Targeting
1/4 Mile Buffer Search Map
Greenpoint Lumber Yard
Brooklyn, NY 11222
N
W
E
S
Kings County
Greenpoint Lumber Yard
55th Ave
Ash St
Box St
Commercial St
Freeman St
Green St
India St
Kent St
Franklin St
Greenpoint Ave
Milton St
Noble St
Chemical Storage Facility
Toxic Release
Wastewater Discharge
Civil Enforcement Docket Facility
Hazardous Waste Generator, Transp.
Air Release
Historic Utility Site
Petroleum Bulk Storage Facility
Subject Area
Minor Roads
Major Roads
Expressways
1 Mile Radius
1/4 Mile Radius
Waterbody
County Border
Railroad Tracks
1/2 Mile Radius
1/8 Mile Radius


Toxics Targeting
1/4 Mile Buffer Closeup Map
Greenpoint Lumber Yard
Brooklyn, NY 11222
N
W
E
S
Kings County
NPL/CERCLIS/NYSDEC Inactive Hazardous Waste Disposal Site *
Hazardous Waste Treater, Storer, Disposer *
Hazardous Substance Waste Disposal Site *
Major Oil Storage Facility *
Chemical Storage Facility ***
Toxic Release ***
Wastewater Discharge ***
Civil Enforcement Docket Facility ***
MTBE Gasoline Additive Spill
Solid Waste Facility *
Hazardous Material Spill **
Hazardous Waste Generator, Transp. ***
Air Release ***
Historic Utility Site ***
Petroleum Bulk Storage Facility ***
Subject Area
Waterbody
Minor Roads
Major Roads
Expressways
1 Mile Radius
1/4 Mile Radius
County Border
Railroad Tracks
1/2 Mile Radius
1/8 Mile Radius
* 1 Mile Search Radius
** 1/2 Mile Search Radius
*** 1/4 Mile Search Radius
Greenpoint Lumber Yard
55th Ave
Box St
Clay St
Freeman St
India St
Kent St
Franklin St
Milton St
Noble St

How Toxic Site Locations Are Mapped

Toxics Targeting maps toxic site locations on a computerized version of the U. S. Census map using addresses and map coordinates provided by site owners/operators or government agencies. In order to allow site locations to be verified independently, the information used to map each site is presented in the first section of each *Toxic Site Profile,* along with a description of the mapping technique used and any address corrections that were made in order to locate toxic sites with incomplete or inadequate site location information. The mapping process is explained below.

Map Identification Number: 12 Site Name: Acme World Manufacturing, Inc.

Site Address: 55 Main Street Anytown, NY 11797

MAP LOCATION INFORMATION

Site location mapped by:

Address Matching

1) Most toxic sites are mapped by matching addresses provided by site owners/operators or government agencies with locations on a computerized version of the U. S. Census map. These site locations are identified "address-matched."

Note: Some sites have an address match location and a map coordinate location. Both locations are mapped because they can be equally correct.

or Map Coordinate

2) Some toxic sites are located using map coordinates provided by site owners/operators or governnent agencies. These site locations are identified "map coordinate." Map coordinates for Toxics Wastewater Discharges, Toxic Release Inventory sites and Major Oil Storage Facilities should be considered suspect .

or Manual Mapping

or Site Visit

3) Incomplete addresses or map coordinates require some site locations to be determined by commercial street maps (manual mapping), site visits, map coordinates from other databases and address location services. Application of any of these methods is identified accordingly.

ADDRESS CHANGE INFORMATION

Revised Street: NO CHANGE

Revised zip code: NO CHANGE

4) Site addresses are sometimes corrected to eliminate obvious errors that prevent sites from being mapped. All address corrections are noted here.

Information Source Guide

Toxics Targeting's Computerized Environmental Reports contain government and other information compiled on 17 categories of reported known or potential toxic sites. Each toxic site database is described below with information detailing a) the source of the information, b) the date when each database is covered to and c) when *Toxics Targeting* obtained the information..

1) **Inactive Hazardous Waste Disposal Site Registry**: New York State database that maintains information and aids decision making regarding the investigation and cleanup of toxic sites. The Registry's data includes two-page profiles noting site name, ID number, description, classification, cleanup status, types of cleanup, owner information, types and quantities of contaminants, and assessment of health and environmental problems. ASTM required.* Fannie Mae required.**
Source: New York State Department of Environmental Conservation.[2]
Profile data updated through: 5/24/2000. Data obtained by Toxics Targeting: 10/5/2000.
New Facilities updated to: 5/24/2000. Data obtained by Toxics Targeting: 10/5/2000.

2) **CERCLIS**: Toxic sites listed in the Federal Comprehensive Environmental Response, Compensation and Liability Information System. NPL sites are also included in CERCLIS. ASTM required.* Fannie Mae required.**
Source: U. S. Environmental Protection Agency.[1]
Profile data updated through: 12/28/2000. Data obtained by Toxics Targeting: 2/4/2001.
New Facilities updated through: 12/28/2000. Data obtained by Toxics Targeting: 2/4/2001.

3) **National Priority List for Federal Superfund Cleanup**: Toxic sites nominated for cleanup under the Federal Superfund program. Annual compilation of special two-page detailed profiles of NPL sites. ASTM required.* Fannie Mae required.**
Source: U. S. Environmental Protection Agency.[1]
Profile data updated from: 6/2000-9/2000. Data obtained by Toxics Targeting: 2/1/2001.
New Facilities updated through: 12/19/2000. Data obtained by Toxics Targeting: 2/1/2001.

4) **Hazardous Substance Waste Disposal Site Study**: NYS database of waste disposal sites that may pose threats to public health or the environment, but cannot be remediated using monies from the Hazardous Waste Remedial Fund.
Source: New York State Department of Environmental Conservation.[2]
Data updated to: 5/16/2000. Data obtained by Toxics Targeting: 5/16/2000.

5) **Solid Waste Facilities**: NYS database of solid waste facilities, including, but not limited to, landfills, incinerators, transfer stations, recycling centers. ASTM required.* Fannie Mae required.**
Source: New York State Department of Environmental Conservation.[2]
Data updated to: 1/01/1998. Data obtained by Toxics Targeting: 6/30/1998.

Also includes a listing of solid waste disposal sites operated by New York City municipal authorities circa 1934.
Source: City of New York Department of Sanitation (1984). Waste Disposal Problem in New York City: A Proposal For Action.

6) **Major Oil Storage Facilities**: NYS database of facilities licensed pursuant The to Article 12 of the Navigation Law, 6NYCRR Parts 610 and 17NYCRR Part 30, such as onshore facilities or vessels, with petroleum storage capacities equal to or greater than four hundred thousand gallons. Fannie Mae required.**
Source: New York State Department of Environmental Conservation.[2] Data update schedule: rolling basis.
New facilities updated through: 7/1/2000. New facilities data obtained by Toxics Targeting: 7/17/2000.
Tank data updated through: 7/1/2000. Tank data obtained by Toxics Targeting: 7/17/2000.

7) **RCRA Hazardous Waste Treatment, Storage or Disposal Facility Databases:**

(a) **Manifest Information**: New York State database of hazardous waste facilities and shipments regulated by the DEC's Bureau of Hazardous Waste Facility Compliance pursuant to New York State Law and the Resource Conservation and Recovery Act (RCRA).
ASTM required.* Fannie Mae required.**
Source: New York State Department of Environmental Conservation.[2]
Manifest transactions data updated to: 1/01/1999. Manifest transactions data obtained by Toxics Targeting: 3/27/1999.
New facilities updated through: 1/01/1999. New facilities obtained by Toxics Targeting: 3/27/1999.

(b) **Notifier Information**: U. S. Environmental Protection Agency database of hazardous facilities regulated pursuant to the Resource Conservation and Recovery Act (RCRA).
ASTM required.* Fannie Mae required.**
Source: U. S. Environmental Protection Agency[1]
New facilities updated through: 3/26/1998. Data obtained by Toxics Targeting: 4/9/1998.
Data attributes updated through: 12/22/1998. Data obtained by Toxics Targeting: 3/30/1999.

(c) **RCRA Violations Information:**
U. S. Environmental Protection Agency database of violations data reported for facilities regulated pursuant to the Resource Conservation and Recovery Act (RCRA).
Source: U. S. Environmental Protection Agency[1]
New facilities updated through: 3/26/1998. Data obtained by Toxics Targeting: 4/9/1998.
Data attributes updated through: 12/23/1998. Data obtained by Toxics Targeting: 12/30/1998.

(d) **RCRIS Corrective Action Activity (CORRACTS) Information:** U. S. Environmental Protection Agency (EPA) database of hazardous waste facilities with corrective action activity. This data is part of the RCRIS National Oversight database.
Source: U. S. Environmental Protection Agency[1]
Data updated through: 4/20/2000. Data obtained by Toxics Targeting: 5/10/2000.

8) **Spills Information Database:** Spills reported to the DEC as required by one or more of the following: Article 12 of the Navigation Law, 6 NYCRR Section 613.8 (from Petroleum Bulk Storage Regulations) or 6 NYCRR Section 595.2 (from Chemical Bulk Storage Regulations). The database includes *active* and *closed* spills reported between 4/1/1986 and 4/1/2001.
ASTM required.* Fannie Mae.** Source: NYS Department of Environmental Conservation.[2]
New spill additions data updated through: 04/01/2001. New spill additions data obtained by Toxics Targeting: 04/46/2001.
Spill attribute data updated through: 04/01/2001. Spill attribute data obtained by Toxics Targeting: 04/26/2001.

Active spills: paperwork not completed. Closed spills: paperwork completed.
Both active and closed spills may or may not have been cleaned up (see Date Cleanup Ceased in spill profiles).

9) **Petroleum Bulk Storage Facilities:** Local and State databases of aboveground and underground petroleum storage facilities with a combined storage capacity over 1,100 gallons. ASTM required.* Fannie Mae required.**

All New York Counties except Cortland, Nassau, Rockland, and Suffolk:
Source: NYS Department of Environmental Conservation.[2]
Update schedule: rolling basis, with summary compilations made available approximately every three months
Facility data updated through: 1/1/2001 (10/1/98 for Westchester Co.). Facility data obtained by Toxics Targeting: 2/16/2001.
Tank data updated through: 1/1/2001 (10/1/98 for Westchester Co.). Tank data obtained by Toxics Targeting: 2/16/2001.

Nassau County:
Heat producing products and other products with less than 1,000 gallons storage capacity:
Source: Nassau County Department of Health.[3] Data update schedule: rolling basis
Data updated through: 10/4/2000. Data obtained by Toxics Targeting: 11/5/2000.

Generally non-heat producing products with more than 1,000 gallons storage capacity:
Source: Nassau County Fire Marshall. [4] Data update schedule: rolling basis with annual update
Data updated through: 9/27/1996. Data obtained by Toxics Targeting: 11/20/1996.

Rockland County:
Source: Rockland County Department of Health. [5]
Data updated through: 8/11/1998. Data obtained by Toxics Targeting: 8/17/1998.

Suffolk County:
Source: Suffolk County Department of Health Services. [6]
Data updated through: 1/12/1999. Data obtained by Toxics Targeting: 2/26/1999.

10. **RCRA Hazardous Waste Generators and/or Transporters Databases:**

(a) **Manifest Information:** New York State database of hazardous waste facilities and shipments regulated by the New York State Department of Environmental Conservation's Bureau of Hazardous Waste Facility Compliance pursuant to New York State Law. ASTM required.* Fannie Mae required.**
Source: New York State Department of Environmental Conservation.[2]
Manifest transactions data updated to: 1/01/1999. Manifest transactions data obtained by Toxics Targeting: 3/27/1999.
New facilities updated through: 1/01/1999. New facilities obtained by Toxics Targeting: 3/27/1999.

(b) **RCRA Notifier Information:** U. S. Environmental Protection Agency database of hazardous waste facilities regulated pursuant to the Resource Conservation and Recovery Act (RCRA).
Source: U. S. Environmental Protection Agency[1]
New facilities updated through: 3/26/1998. Data obtained by Toxics Targeting: 4/9/1998.
Data attributes updated through: 12/22/1998. Data obtained by Toxics Targeting: 3/30/1999.

(c) **RCRA Violations Information**: U. S. Environmental Protection Agency database of violations data reported for facilities regulated pursuant to the Resource Conservation and Recovery Act (RCRA).
Source: U. S. Environmental Protection Agency[1]
New facilities updated through: 3/26/1998. Data obtained by Toxics Targeting: 4/9/1998.
Data attributes updated through: 12/23/1998. Data obtained by Toxics Targeting: 12/30/1998.

(d) **RCRIS Corrective Action Activity (CORRACTS) Information**: U. S. Environmental Protection Agency (EPA) database of hazardous waste facilities with corrective action activity. This data is part of the RCRIS National Oversight database.
Source: U. S. Environmental Protection Agency[1]
Data updated through: 4/20/2000. Data obtained by Toxics Targeting: 5/10/2000.

11) **Chemical Bulk Storage Facilities**: New York State database of facilities compiled pursuant to 6NYCRR Part 596 that store regulated substances listed in 6NYCRR Part 597 in aboveground tanks with capacities greater than 185 gallons and /or in underground tanks of any size. ASTM required.* Fannie Mae required.**
Source: New York State Department of Environmental Conservation.[2]
Data updated through: 4/1/2000. Data obtained by Toxics Targeting: 4/7/2000.

12) **Toxic Release Inventory**: New York State and Federal database of manufacturing facilities required under Section 313 of the Federal Emergency Planning and Community Right-to-Know Act to report releases to the air, water and land of any specifically listed toxic chemical. See Fannie Mae requirement** below.
Source: NYS Department of Environmental Conservation[2]/U. S. Environmental Protection Agency.[1]
Data update schedule: rolling basis, with annual information summary for previous year's activities available from NYSDEC each July 1, with corrections and additional information available approximately mid-August.
Data updated through: 5/9/1996. Data obtained by Toxics Targeting: 5/14/1996

13) **Historic New York City Utility Facilities (1898 to 1950)**: An inventory of selected power generating stations, manufactured gas plants, gas storage facilities, maintenance yards and other gas and electric utility sites identified in various historic documents, maps and annual reports of New York utility companies, including: Sanborn Fire Insurance Maps of NYC (1898-1950); Consolidated Edison Co. Annual Reports (1922-1939); Consolidated Edison Co. Map: "Boroughs of Manhattan and the Bronx Showing Distribution Mains of the New York Edison Co.," (1922); and Consolidated Edison document: "Generating and Annex Stations," (1911).

14) **Air Discharge Facilities**: EPA AIRS database containing address information on each air emission facility and the type of air pollutant emission it is. Compliance information is also provided on each pollutant as well as the facility itself.
See Fannie Mae requirement** below. Source: U. S. Environmental Protection Agency[1]
Data updated through: 11/24/1999. Data obtained by Toxics Targeting: 1/06/2000

15) **Toxic Wastewater Discharges (Permit Compliance System)**: Federal database of discharges of wastewater to surface waters and groundwaters. See Fannie Mae requirement** below. Source: U. S. Environmental Protection Agency.[1]
Data updated through: 9/23/1996. Data obtained by Toxics Targeting: 9/30/1996

16) **U. S. Environmental Protection Agency Civil Enforcement Docket**: This database is the U. S. EPA's system for tracking civil judiciary cases filed on behalf of the agency by the Department of Justice. Fannie Mae required.**
Source: U. S. Environmental Protection Agency.[1]
Date updated through: 4/1996. Date information obtained by Toxics Targeting: 8/1996

17) **Emergency Response Notification System (ERNS)**: Federal database of spills compiled by the Emergency Response Notification System. ASTM required.* See Fannie Mae requirement** below. Source: U. S. Environmental Protection Agency.[1]
Data updated through: 1/31/2000. Data obtained by Toxics Targeting: 2/15/2000

*American Society of Testing Materials Standards on Environmental Site Assessments for Commercial Real Estate (E 1527-93, E 1528-93).
** Fannie Mae's Part X Environmental Hazards Management Procedures specify 1.0 mile searches for "any state or Federal list of hazardous waste sites (e.g. CERCLIS, HWDMS etc.)." Searches for the property and adjacent properties are specified for "chemical manufacturing plants," "obvious high risk neighbors engaging in storing or transporting hazardous waste, chemicals or substances" and "...any documented or visible evidence of dangerous waste handling... (e.g. stressed vegetation, stained soil, open or leaking containers, foul fumes or smells, oily ponds, etc." Searches for property and adjacent properties can include sites up to a quarter mile away (W. Hayward, Director, Multi-Family Business Planning and Control, Fannie Mae, personal communication, 5/94).

[1]U. S. Environmental Protection Agency, 290 Broadway, NY, NY 10007-1866.

[2]NYS Department of Environmental Conservation, 50 Wolf Road, Albany, NY 12233.

[3]Nassau County Department of Health, Bureau of Land Resources Management, 240 Old Country Road, Mineola, NY 11501.

[4]Nassau County Fire Commission, Office of the Fire Marshall, 899 Jerusalem Avenue, P. O. Box 128, Uniondale, NY 11553.

[5]Rockland County Department of Health, The Dr. Robert Yeager Health Center, Building D, Sanitorium Road, Pomona, NY 10970.

[6]Suffolk County Department of Health Services, Hazardous Materials Management, 15 Horseblock Place, Farmingville, NY 11738-1220.

APPENDIX D
NEW YORK CITY FIRE AND BUILDINGS DEPARTMENT RECORDS

A-95A (7/97) 110-971135-110

FIRE DEPARTMENT • CITY OF NEW YORK
BUREAU OF REVENUE MANAGEMENT
9 MetroTech East
Brooklyn, N.Y. 11201-3857

PLEASE HOLD FOLDERS

RECORD SEARCH REQUEST
UNDERGROUND STORAGE TANKS

MAIL TO:

AKRF, Inc.
117 East 29th Street
New York, NY 10016
(212) 340-9779

Search No. 08402

The undersigned requests the following information:

237 Franklin Street (ADDRESS) Brooklyn (BOROUGH)

For Buried Motor **Vehicle Fuel Tanks** Only

- [X] NR 1. No. and size of tanks (includes date of installation) ..... Fee $10.00
- [X] 2. No. and size of sealed and/or removed tanks ..... Fee $10.00
- [ ] 3. Most recent tank and/or piping test results, including type of test performed Fee $10.00
- [ ] 4. History of leaks ..... Fee $10.00
- [ ] 5. Pending Headquarters violation orders ..... Fee $10.00
- [ ] 6. Other _____ Fee $10.00

Total $20.00

State applicants interest in or relation to premises:
Environmental Review
(THE CITY OF NEW YORK IS NOT BEING SUED, NOR IS THERE ANY INTENTION TO SUE THE CITY OF NEW YORK)

Signed Nikki Sotiriou

Date 6/28/01

DO NOT WRITE BELOW THIS LINE

Gentlemen:

In reply to your request concerning the premises mentioned above, please be advised that as of 9 A.M., our records show the following: (ADDITIONAL COMMENTS ARE MADE ON REVERSE SIDE).

D, E, F or VOIDED

NO RECORD

Searched By: Eileen 6/29/01

VIOLATIONS RECORDED ABOVE ARE ONLY THOSE WHICH ARE A MATTER OF RECORD IN HEADQUARTERS OF THE BUREAU OF FIRE PREVENTION, AND MAY NOT INCLUDE VIOLATIONS ISSUED BY LOCAL UNITS.

MAXIMUM RESPONSE TIME 20 BUSINESS DAYS.

A-96A (7/97) 110-971136-110

FIRE DEPARTMENT • CITY OF NEW YORK
BUREAU OF REVENUE MANAGEMENT
9 MetroTech East
Brooklyn, N.Y. 11201-3857

PLEASE HOLD FOLDERS

RECORD SEARCH REQUEST
FUEL (HEATING) OIL

TO:

Search No.

AKRF, Inc.
117 East 29th Street
New York, NY 10016
(212) 340-9779

undersigned requests the following information re: Premises

237 Franklin Street — ADDRESS
Brooklyn — BOROUGH

el (Heating) Oil Tanks Only

1. No. and Size of tanks (includes date of installation) ..... Fee: $10.00
2. No. and Size of sealed and/or removed tanks ..... Fee: $10.00
   Searched by _____ Date _____
3. Pending Headquarters violation orders ..... Fee: $10.00
4. Other _____ Fee: $10.00

e: The N.Y.C. Fire Department Does Not Conduct Tests on Fuel (Heating) Oil Tanks. total $20

Applicants interest in or relation to premises:

Environmental Review

Signed Mimi Sotiriou

Date 6/28/01

DO NOT WRITE BELOW THIS LINE

tl-men:

In reply to your request concerning the premises mentioned above, please be advised that as of 9 A.M., _____ our records show the following:

(MAKE ADDITIONAL COMMENTS ON REVERSE SIDE)

R,C Accounts

No Record

rc ed by: [signature] 6/29/01

ATIONS RECORDED ABOVE ARE ONLY THOSE WHICH ARE A MATTER OF RECORD IN HEADQUARTERS OF THE BUREAU OF FIRE 'E"TION, AND MAY NOT INCLUDE VIOLATIONS ISSUED BY LOCAL UNITS, UNLESS A SUMMONS FOR "FAILURE TO COMPLY" WAS EI ALL REPORTED TANK INFORMATION COMES FROM RECORDS WHICH EXIST IN THE FIRE DEPARTMENT DISTRICT OFFICE FOLDERS)N :OMPUTER FILES.

MAXIMUM RESPONSE TIME 20 BUSINESS DAYS

A-95A (7/97) 110-971135-110

FIRE DEPARTMENT • CITY OF NEW YORK
BUREAU OF REVENUE MANAGEMENT
9 MetroTech East
Brooklyn, N.Y. 11201-3857

PLEASE HOLD FOLDERS

RECORD SEARCH REQUEST
UNDERGROUND STORAGE TANKS

MAIL TO:

AKRF, Inc.
117 East 29th Street
New York, NY 10016
(212) 340-9779

Search No. _____

The undersigned requests the following information:

171 West Street (ADDRESS) Brooklyn (BOROUGH)

For Buried Motor **Vehicle Fuel Tanks** Only

- [X] 1. No. and size of tanks (includes date of installation) ..... Fee $10.00
- [X] 2. No. and size of sealed and/or removed tanks ..... Fee $10.00
- [ ] 3. Most recent tank and/or piping test results, including type of test performed Fee $10.00
- [ ] 4. History of leaks ..... Fee $10.00
- [ ] 5. Pending Headquarters violation orders ..... Fee $10.00
- [ ] 6. Other _____ Fee $10.00

Total $10.00

State applicants interest in or relation to premises:
Environmental Review
(THE CITY OF NEW YORK IS NOT BEING SUED, NOR IS THERE ANY INTENTION TO SUE THE CITY OF NEW YORK)

Signed Nikki Sotiriou

Date 6/28/01

DO NOT WRITE BELOW THIS LINE

Gentlemen:

In reply to your request concerning the premises mentioned above, please be advised that as of 9 A.M., _____ our records show the following: (ADDITIONAL COMMENTS ARE MADE ON REVERSE SIDE).

D, E, F or VOIDED

No Record.

Searched By: [signature] 6/29/01

VIOLATIONS RECORDED ABOVE ARE ONLY THOSE WHICH ARE A MATTER OF RECORD IN HEADQUARTERS OF THE BUREAU OF FIRE PREVENTION, AND MAY NOT INCLUDE VIOLATIONS ISSUED BY LOCAL UNITS.

MAXIMUM RESPONSE TIME 20 BUSINESS DAYS.

A-96A (7/97) 110-971136-110

FIRE DEPARTMENT • CITY OF NEW YORK
BUREAU OF REVENUE MANAGEMENT
9 MetroTech East
Brooklyn, N.Y. 11201-3857

PLEASE HOLD FOLDERS

RECORD SEARCH REQUEST
FUEL (HEATING) OIL

AIL TO: Search No. _____

AKRF, Inc.
117 East 29th Street
New York, NY 10016
(212) 340-9779

.e undersigned requests the following information re: Premises

171 West Street (ADDRESS) Brooklyn (BOROUGH)

)I Fuel (Heating) Oil Tanks Only

(1.) No. and Size of tanks (includes date of installation) ..... Fee: $10.00

2. No. and Size of sealed and/or removed tanks ..... Fee: $10.00

Searched by _____ Date _____

3. Pending Headquarters violation orders ..... Fee: $10.00

4. Other _____ Fee: $10.00

total $20.

ol : The N.Y.C. Fire Department Does Not Conduct Tests on Fuel (Heating) Oil Tanks.

tate Applicants interest in or relation to premises:

Environmental Review

Signed Melissa Sotiriou

Date 6/28/01

DO NOT WRITE BELOW THIS LINE

entlemen:

n reply to your request concerning the premises mentioned above, please be advised that as of 9 A.M., _____ our records show the following:

(MAKE ADDITIONAL COMMENTS ON REVERSE SIDE)

R,C Accounts

No Record.

es :hed by: J Leone 6/29/01

OLATIONS RECORDED ABOVE ARE ONLY THOSE WHICH ARE A MATTER OF RECORD IN HEADQUARTERS OF THE BUREAU OF FIRE EVENTION, AND MAY NOT INCLUDE VIOLATIONS ISSUED BY LOCAL UNITS, UNLESS A SUMMONS FOR "FAILURE TO COMPLY" WAS D. ALL REPORTED TANK INFORMATION COMES FROM RECORDS WHICH EXIST IN THE FIRE DEPARTMENT DISTRICT OFFICE FOLDERS I COMPUTER FILES.

MAXIMUM RESPONSE TIME 20 BUSINESS DAYS

A-95A (7/97) 110-971135-110

FIRE DEPARTMENT • CITY OF NEW YORK
BUREAU OF REVENUE MANAGEMENT
9 MetroTech East
Brooklyn, N.Y. 11201-3857

PLEASE HOLD FOLDERS

RECORD SEARCH REQUEST
UNDERGROUND STORAGE TANKS

MAIL TO:

AKRF, Inc.
117 East 29th Street
New York, NY 10016
(212) 340-9779

Search No._____

he undersigned requests the following information:

37 Commercial Street (ADDRESS) Brooklyn (BOROUGH)

For Buried Motor **Vehicle Fuel Tanks** Only

- [X] NR 1. No. and size of tanks (includes date of installation) ..... Fee $10.00
- [X] 2. No. and size of sealed and/or removed tanks ..... Fee $10.00
- [ ] 3. Most recent tank and/or piping test results, including type of test performed Fee $10.00
- [ ] 4. History of leaks ..... Fee $10.00
- [ ] 5. Pending Headquarters violation orders ..... Fee $10.00
- [ ] 6. Other _____ Fee $10.00

Total $10.00

tate applicants interest in or relation to premises:
Environmental Review
(THE CITY OF NEW YORK IS NOT BEING SUED, NOR IS THERE ANY INTENTION TO SUE THE CITY OF NEW YORK)

Signed Mimi Sotiriou

Date 6/28/01

DO NOT WRITE BELOW THIS LINE

Gentlemen:

In reply to your request concerning the premises mentioned above, please be advised that as of 9 A.M., our records show the following: (ADDITIONAL

OMMENTS ARE MADE ON REVERSE SIDE).

D, E, F or VOIDED

NO RECORD

earched By: Melanie 6/29/01

VIOLATIONS RECORDED ABOVE ARE ONLY THOSE WHICH ARE A MATTER OF RECORD IN HEADQUARTERS OF THE BUREAU OF RE PREVENTION, AND MAY NOT INCLUDE VIOLATIONS ISSUED BY LOCAL UNITS.

MAXIMUM RESPONSE TIME 20 BUSINESS DAYS.

A-96A (7/97) 110-971136-110

FIRE DEPARTMENT • CITY OF NEW YORK
BUREAU OF REVENUE MANAGEMENT
9 MetroTech East
Brooklyn, N.Y. 11201-3857

PLEASE HOLD FOLDERS

RECORD SEARCH REQUEST
FUEL (HEATING) OIL

IL TO: Search No.

AKRF, Inc.
117 East 29th Street
New York, NY 10016
(212) 340-9779

: undersigned requests the following information re: Premises

37 Commercial Street — ADDRESS
Brooklyn — BOROUGH

l el (Heating) Oil Tanks Only

1. No. and Size of tanks (includes date of installation) ..... Fee: $10.00
2. No. and Size of sealed and/or removed tanks ..... Fee: $10.00
   Searched by _____ Date _____
3. Pending Headquarters violation orders ..... Fee: $10.00
4. Other _____ Fee: $10.00

e. The N.Y.C. Fire Department Does Not Conduct Tests on Fuel (Heating) Oil Tanks. total $20

'e Applicants interest in or relation to premises:

Environmental Review

Signed Milli Sotanaro
Date 6/28/01

DO NOT WRITE BELOW THIS LINE

ıtlemen:

I reply to your request concerning the premises mentioned above, please be advised that as of 9 A.M., _____ our records show the following:
(MAKE ADDITIONAL COMMENTS ON REVERSE SIDE)

R,C Accounts

NO RECORD

rc ed by: Isl Lane 6/29/01

ATIONS RECORDED ABOVE ARE ONLY THOSE WHICH ARE A MATTER OF RECORD IN HEADQUARTERS OF THE BUREAU OF FIRE 'ENTION, AND MAY NOT INCLUDE VIOLATIONS ISSUED BY LOCAL UNITS, UNLESS A SUMMONS FOR "FAILURE TO COMPLY" WAS
ALL REPORTED TANK INFORMATION COMES FROM RECORDS WHICH EXIST IN THE FIRE DEPARTMENT DISTRICT OFFICE FOLDERS :OMPUTER FILES.

MAXIMUM RESPONSE TIME 20 BUSINESS DAYS

WARNING ANY PERSON REMOVING PLANS OR OTHER RECORDS FROM THE JURISDICTION OF THIS DEPARTMENT WILL BE PROSECUTED TO THE FULL EXTENT OF THE LAW.

Please deliver to the undersigned the following public records for:
Examination ☒ Amendment ☐ Consultation ☐ Recommendation ☐ Permit ☐

(Please Print)
Name Mimi Sotiriou
Firm or Agency AKRF, Inc. Phone (212) 696-0670
Address 117 East 29th Street Borough Manhattan
Relationship to property Agent (Owner, Lessee, Architect, Engineer, Attorney, Agent, Contractor, Plumber, etc.) Representing the Owner (Owner, Lessee, etc.)

Record(s) Received ..... (Signature)

Record(s) Received ..... (Date/Time) (Signature) plan desk clerk Record(s) Received ..... (Date/Time) (Signature) plan desk clerk

B FORM 69

Please check Plans ☒ Applications ☒

BLOCK 2510 LOT 1 (Application)
N.B. Alt. Misc. etc. No. ..... 19 .....
LOCATION .....
BOROUGH Brooklyn

WARNING ANY PERSON REMOVING PLANS OR OTHER RECORDS FROM THE JURISDICTION OF THIS DEPARTMENT WILL BE PROSECUTED TO THE FULL EXTENT OF THE LAW.

Please deliver to the undersigned the following public records for:
Examination ☒ Amendment ☐ Consultation ☐ Recommendation ☐ Permit ☐

(Please Print)
Name Mimi Sotiriou
Firm or Agency AKRF, Inc. Phone (212) 696-0670
Address 117 East 29th Street Borough Manhattan
Relationship to property Agent (Owner, Lessee, Architect, Engineer, Attorney, Agent, Contractor, Plumber, etc.) Representing the Owner (Owner, Lessee, etc.)

Record(s) Received ..... (Signature)

Record(s) Received ..... (Date/Time) (Signature) plan desk clerk Record(s) Received ..... (Date/Time) (Signature) plan desk clerk

B FORM 69

Please check Plans ☒ Applications ☒

BLOCK 2520 LOT 67 (Application)
N.B. Alt. Misc. etc. No. ..... 19 .....
LOCATION .....
BOROUGH Brooklyn

WARNING ANY PERSON REMOVING PLANS OR OTHER RECORDS FROM THE JURISDICTION OF THIS DEPARTMENT WILL BE PROSECUTED TO THE FULL EXTENT OF THE LAW.

Please deliver to the undersigned the following public records for:
Examination ☒ Amendment ☐ Consultation ☐ Recommendation ☐ Permit ☐

(Please Print)
Name Mimi Sotiriou Phone (212) 696-0670
Firm or Agency AKRF, Inc.
Address 117 East 29th Street Borough: Manhattan
Relationship to property Agent (Owner, Lessee, Architect, Engineer, Attorney, Agent, Contractor, Plumber, etc.) Representing the Owner (Owner, Lessee, etc.)

Record(s) Received ..... (Signature)

Record(s) Received ..... (Date/Time) (Signature) plan desk clerk

Record(s) Received ..... (Date/Time) (Signature) plan desk clerk

B FORM 69

Please check Plans ☒ Applications ☒

BOROUGH Brooklyn

LOCATION

N.B. Alt. Misc. etc. No. 19

BLOCK 2494 Application LOT 1

WARNING ANY PERSON REMOVING PLANS OR OTHER RECORDS FROM THE JURISDICTION OF THIS DEPARTMENT WILL BE PROSECUTED TO THE FULL EXTENT OF THE LAW.

Please deliver to the undersigned the following public records for:
Examination ☒ Amendment ☐ Consultation ☐ Recommendation ☐ Permit ☐

(Please Print)
Name Mimi Sotiriou Phone (212) 696-0670
Firm or Agency AKRF, Inc.
Address 117 East 29th Street Borough: Manhattan
Relationship to property Agent (Owner, Lessee, Architect, Engineer, Attorney, Agent, Contractor, Plumber, etc.) Representing the Owner (Owner, Lessee, etc.)

Record(s) Received ..... (Signature)

Record(s) Received ..... (Date/Time) (Signature) plan desk clerk

Record(s) Received ..... (Date/Time) (Signature) plan desk clerk

B FORM 69

Please check Plans ☒ Applications ☒

BOROUGH Brooklyn

LOCATION

N.B. Alt. Misc. etc. No. 19

BLOCK 2502 Application LOT 1

THE CITY OF NEW YORK
DEPARTMENT OF BUILDINGS

G 901

Block & Lot
2 Customers waiting to be served
8:44am 6-29-01

THE CITY OF NEW YORK
DEPARTMENT OF BUILDINGS

G 900

Block & Lot
1 Customers waiting to be served
8:42am 6-29-01

Lots 2, 32, 100,

BLOCK 2472 LOT 410, 425
Application

N.B. Alt. Misc. etc. No. 19

LOCATION

BOROUGH Brooklyn

Please check Plans ☒ Applications ☒

ANY PERSON REMOVING PLANS OR OTHER RECORDS FROM THE JURISDICTION OF THIS DEPARTMENT WILL BE PROSECUTED TO THE FULL EXTENT OF THE LAW.

igned the following public records for:

dment ☐ Consultation ☐ Recommendation ☐ Permit ☐

Sathiou

F, Inc. Phone (212) 696-0670

ast 29th Street Borough Manhattan

Agent Representing the Owner
Owner, Lessee, Architect, Engineer, Attorney, Agent, Contractor, Plumber, etc. Owner, Lessee, etc.

Signature

Record(s) Received Date/Time (Signature) plan desk clerk

(Signature) plan desk clerk

B FORM 69

```
 7/24/01          FINAL CITY REAL PROPERTY PROFILE OVERVIEW          BTSPI070
 ..... WEST STREET ..... 3 BROOKLYN          11222 BIN# 3064007

 LOW STREET          179 - 199          HEALTH AREA : 01          TAX BLK: 2510,
 CROSS STREET        172 - 202          CENSUS TRACT: 0177        TAX LOT: 1....
 OPEN STREET         A - BA             COMMUNITY BD: 301         CONDO  :
                                        MULTIPLE BUILDING: 01     VACANT :

 SPECIAL PLACE NAME :                                          PROPERTY RECORD(S)
 ADDITIONAL REMARKS :
 ANGLE RECIPANCY CODE : 74-MIDDLE TANGLE          LANDMARK STATUS:

 COOPING FOR THIS BIN                                    APPROVED VERIFIED : NO
  TOTAL UNITS      : 0      : 0      ADDRESS/BUILDING (PF4)      SPECIAL STATUS :
   TOTAL BLDGS     : 0      : 0      OPEN                          LOCAL LAW : NO
            HIGH   : 1      : 1      OPEN      (PF12)              SRO : NO
  COMPLAINTS       : 0      : 0      OPEN      (PF11)

 PF 3/A/7 = PREVIOUS   ENTER KEY= ADDITIONS   PF 3/A/7 = NEW ADDR/BTN/BLK-LOT
 PF 6 = BUILDING       (TYPE : .... )         PF 9/10  = BROWSE BIN/BLK-LOT
 PF 11 AREA'S FILED                           PF 1A    = BROWSE 1   PROPERTY RECORDS
 PF 14 = PLUTO/RPAD/TAX BBL FINDY             PF 1A    = ADDITIONAL PROPERTY INFO

 7/24/01          1          ADDITIONS AT 179 WEST STREET BROOKLYN          BTSPOCV3
                                 BLOCK: 02510   LOT: 00001                  PAGE 1

 1 VALUE (02/2010 FINAL)

 PF 7=PREV SCREEN   PFA=PREPARER(ENTER TYPE .... )   FOR , NO. TO FROM
```

```
 X 2470)          FUNCTION: ALTERATION PROPERTY PROFILE OVERVIEW X          BTSPI070
  ..........  FRANKLIN STREET.....................  X BROOKLYN          11222 BIN# 3043799

 FRANKLIN STREET        X/St - X41                  HEALTH AREA : 01        TAX BLK: 2494,
 FRANKLIN STREET        1-14 - 20                   DEMANDS TRACT: 077      TAX LOT: 1....
 ANGLE STREET           51 - 49                     COMMUNITY BD: 301       CONDO  :
                                                    MULTI STRUCT: 01        VACANT :
```

SPECIAL PLACE NAME : 1 PROPERTY RECORD(S)

BUILDING REMARKS :

ZONE INCONSISTENCY CODE : 74-MISCELLANEOUS LANDMARK STATUS:

```
 CURRENT BBL INFORMATION                                    RECORD VERIFIED : YES
  BILLING          : 12          : 1      ADDRESS/BILLING (PF4)   SPECIAL STATUS :
  TAX ACCOUNT DATA : 0           : 0      (PFN                    LEGAL LAW : NO
                PIR: 0           : 0      (PFN       (PF12)       SRO : NO
  COMPLAINTS       : 0           : 0      (PFN       (PF11)
```

PF 1 = PREVIOUS ENTER KEY= ALTERNATE PF 2/3/7 = NEW ADDR/BIN/BLK-LOT
PF 5 = BUILDING (TYPE : ....) PF 9/10 = ARCHIVE BIN/BLK-LOT
PF 11 = AREA/S FILED PF 12 = ARCHIVE : PROPERTY RECORDS
PF 14 = PRO/HPD/DEP USE ONLY PF 16 = ADDTNL PROPERTY INFO

```
A/24/01)          ALTERATION AT 2470 FRANKLIN STREET, BROOKLYN          BTAP00V3
                  BLOCK: 02494   LOT: 00001                             PAGE 1

 ALT  A1-A2-(OA)-0.0      ALT  A1-A2-00          ALT  ERROR
  DEMO  (3V-2V             LEG  (1-2V             MIA  1/17-2/25-45-1130A0
  MISC  (01-20             NB   (1000-2V4         NB   14.17-25
  PWD  70-2A               TEMP 2A0-.1            TEMP 9V-3V
```

PF 4 = PREV BLOCKFACE PF 6=PREMISE(ENTER (YR: ....) DOB : NOT TO ZOOM

```
* 24/01          PUBLIC ACCESS PROPERTY PROFILE INQUIRY                    BISPI070
/.............. COMMERCIAL STREET.............. IN BROOKLYN                 11222 BIN# 3043475

  MERCIAL STREET      77 - 77                  HEALTH AREA : 01       TAX BLK: 2472,
                                               CENSUS TRACT: 177      TAX LOT: 410,
                                               COMMUNITY BD: 301      CONDO  :
                                               MAP INDEX NO: 01       VACANT :

* ================================================================================
(N SPECIAL PLACE NAME :                                    ) PROPERTY RECORD(S)
(R BUILDING REMARKS   :
* ANCE OCCUPANCY CODE : R1-FACTORY/INDUSTRIAL  LANDMARK STATUS:

 COUNTS FOR DATA BIN                                        RECORD VERIFIED : YES
  TOTAL          : 14     : 3     OTHER/FUTURE (PF4)        SPECIAL STATUS :
  ERASURE ONLY   : 11     : 1     OPEN                      LOCAL LAW : NO
  PICK           : 0      : 0     OPEN      (PF16)          SRO : NO
  COMPLAINTS     : 0      : 0     OPEN      (PF17)

PF 3 = ELEVATOR   ENTER KEY= ADDRESS  PF 23/24 = NEW ADDR/BIN/BLK-LOT
PF 8 = BUILDING   (TYPE : ____ )      PF 9/10  = ERASURE BIN/BLK-LOT
PF 13 = DOB/ARA                       PF 15    = ERASURE 1   PROPERTY RECORDS
PF 14 = DEP/HPD/TIF/ DRF (ONLY        PF 16    = ADDITIONAL PROPERTY INFO

* 24/01    24    ADDRESS AT 77 COMMERCIAL STREET BROOKLYN                  BISPDCV3
                  BLOCK: 02472   LOT: 00410                                PAGE 1

  DOB   (BIAA-24)          DOB   (BA1.1-24)          DEM   119-2X
  DEM   B3-24              DEM   11A-24              DEM   34B-30
  EN    9AA.1-4A ✓         EN    .179-00(77) ✓       EN    477-84(77) ✓
  EN    92A-BB ✓           NB    14929-1.1           NB    11A33-33
  NB    971-.0             NB    A1.8-.1             NB    15977-35
  NB    11029-01           PBB   1010-54(77)         SHED  17882-17
  SFR   27A-021.AA         V*    07AB4P011           V*    0829931L1629126801
  V*    021097L1A2912.A20  V*    041A97L1A2912ZA1Y7  V     0207001LA2911B3BB

* =
* =
*
* =
*
* =
*
* =

PF-PREV SCREEN   PFA-REFRESH(ENTR TYPE ____ )   (DOB, NYC TAX 700M
```

GREENPOINT LUMBER YARD

BROOKLYN, NEW YORK

PHASE II SITE INVESTIGATION REPORT

Prepared for:

Park Tower Realty Corp.
499 Park Avenue
New York, New York 10022

Prepared by:

AKRF, Inc.
117 East 29th Street
New York, NY 10016
(212)-696-0670

October 2, 2001

TABLE OF CONTENTS

1.0 INTRODUCTION 1
1.1 Site Description 1
1.2 Previous Studies 2

2.0 SOIL BORINGS AND MONITORING WELLS 2
2.1 Summary of the Site Investigation 2
2.2 Soil Sampling Methodology 2
2.3 Groundwater Sampling Methodology 3
2.4 Chain-of-Custody 3
2.5 Laboratory Testing 4

3.0 SAMPLE ANALYSIS RESULTS 4
3.1 Field Contamination 5
3.2 Volatile Organic Compounds 5
3.3 Semivolatile Organic Compounds 6
3.4 Metals 6
3.5 Pesticides 7
3.6 PCBs 7

4.0 CONCLUSIONS 7

TABLES

Table 1: Soil and Groundwater Sampling Summary
Table 2: Levels of Volaile Organic Compounds Detected in Soil and Groundwater Samples
Table 3: Levels of Semivolatile Organic Compounds Detected in Soil Samples
Table 4: Levels of Semivolatile Organic Compounds Detected in Groundwater Samples
Table 5: Levels of Metals Detected in Soil Samples
Table 6: Levels of Metals Detected in Groundwater Samples (Total and Dissolved)
Table 7: Levels of Pesticides Detected in Soil Samples
Table 8: Levels of PCBs Detected in Soil Samples

APPENDICES

Appendix A - Boring Logs
Appendix B - Laboratory Analytical Results

1.0 INTRODUCTION

A subsurface investigation was performed on the approximately 20+-acre Greenpoint Lumber Yard Site (Project Site or Site) in the Greenpoint neighborhood of Brooklyn, New York to identify potential contamination in the soil and groundwater. The Project Site consists of Tax Block 2472, Lots 1, 32, 100, 410 and 425; Tax Block 2494, Lot 1; Tax Block 2502, Lot 1; Tax Block 2510, Lot 1; and Tax Block 2520, Lot 57. The subject blocks are generally bounded to the north by Newtown Creek; to the east by portions of Commercial, Franklin and West Streets; to the south by Huron Street; and to the west by the East River. Please see Figure 1 for Project Site Location.

The Phase II Environmental Site Investigation addresses recommendations made by AKRF, Inc. in a Phase I Environmental Site Assessment performed on the Project Site in July 2001. The Investigation was performed on August 16 and 17, 2001. Five soil borings and five soil boring / groundwater monitoring wells were completed as part of the investigation. This report summarizes the results of the soil and groundwater testing and includes conclusions and recommendations.

The Greenpoint Lumber Yard site has over a 100-year history primarily as a lumber yard. Other historical non-lumber-related uses included:

- New York Dye - Wood Extract and Chemical Company ca. 1887 through ca. 1905 (Tax Block 2520, Lot 57 and Tax Block 2510);
- New York Quebracho Extract Company ca. 1916 (Tax Block 2520, Lot 57 and Tax Block 2510);
- A.K. Meserole & Company, a mason material and coal storage yard) ca. 1916 (Tax Block 2502);
- C. Winant's Spar Company ca. 1916 (Tax Block 2502);
- Export Auto Case Company ca. 1916 (Tax Bloxk 2502);
- O'Rouke Engineering and Construction Company ca. 1905 (Tax Block 2472);
- New York State Barge Canal Terminal and Alberene Stone Company Tub Storage ca. 1916 (Tax Block 2472);
- Greenpoint Coal Docks, Inc. ca. 1942 through ca. 1951 (Tax Block 2472).

The main environmental concerns related to the redevelopment of the site include potential former site usage for pressure-treating lumber, an on-site former extract and chemical company, current auto repair and auto parking uses and several potential underground petroleum storage tanks. Lumber yards, where pressure treatment occurred, are typically contaminated with creosote (a coal tar derivative, which contains elevated levels of polyaromatic hydrocarbons and phenols) or with heavy metals (such as chromium or arsenic). Substances used by the chemical and extract companies could have impacted subsurface soil and/or groundwater with any number of contaminants. Additionally, aboveground and potential underground storage tanks were noted in the Phase I report and portions of the property are currently used for auto repair. In the areas

of known or potential tanks, subsurface petroleum and/or PCB contamination could be present. Solvent contamination could be present in areas historically used for auto repair.

1.1 Site Description

The Project Site currently contains the following structures: a two-story brick and concrete office, a small brick guard shed and a large corrugated metal garage near the intersection of Green and West Streets; and a second brick guard shack, which has been converted for auto repair, at the intersection of Dupont and Franklin Streets. The remainder of the property consists of open areas which are used by 13 tenants, primarily for contractor's materials storage.

The surface topography on the Project Site generally slopes downward to the north, toward Newtown Creek and to the west, toward the East River. Based on reports compiled by the U.S. Geological Survey, the surface elevation of the Site is approximately five to fifteen feet (National Geodetic Vertical Datum of 1929), depending on the area of the Site. Groundwater is located approximately six to fifteen feet below the surface of the site. The expected direction of groundwater flow would be to the north, toward Newtown Creek and/or to the west, toward the East River.

1.2 Previous Studies

A Phase I Environmental Site Assessment was performed by AKRF, Inc. in July 2001 on the Project Site. An Addendum to the Phase I Environmental Site Assessment was issues by AKRF, Inc. on July 17, 2001. The Phase I Assessment met the requirements of the American Society for Testing and Materials (ASTM), as established by ASTM Standard E 1527-00, and included a site inspection, a review of historical fire insurance (Sanborn) maps and a review of federal, state and local regulatory databases. Recognized environmental conditions included former site usage as a lumber yard and the possible former on-site pressure treatment of lumber; a former on-site chemical and extract company; the current use for auto parking and repair; and aboveground and potential underground petroleum storage tanks.

2.0 SOIL BORINGS AND MONITORING WELLS

2.1 Summary of the Site Investigation

Soil and groundwater boring and sampling activities occurred on August 16 and 17, 2001. AKRF's field crew consisted of Mimi Sotiriou and Melissa McGoogan. Aquifer Drilling and Testing advanced the soil borings and installed temporary groundwater monitoring wells.

Five soil borings and five soil boring / groundwater monitoring wells were completed. The borings were biased towards the location of the former chemical and extract

companies, areas near potential underground storage tanks, and areas where lumber storage and possible treatment occurred. Please see Figure 2 for the Boring and Monitoring Well locations. Borings were advanced to groundwater level except B-2, where refusal was encountered three times at 3' below grade. MW-1, MW-2 and MW-4 served as up-gradient sampling locations with respect to groundwater.

2.2 Soil Sampling Methodology

At each sampling location, a Geoprobe rig was used to drive a sampling probe into the soil. Soil samples were collected by driving the soil sampling probe with a four-foot teflon liner into the soil at four foot intervals until groundwater was reached. Soil gas was screened in the teflon liner at one foot intervals using a photoionization detector (PID). Two soil samples were collected from each boring location based on field observations. If no field contamination was apparent (visual, odor or PID readings), a sample from the two foot interval immediately beneath the original ground surface (excluding any overlying asphalt or concrete) and a sample from the groundwater interface were collected. The soil samples were containerized in accordance with EPA analytical protocols. Each sample was labeled, sealed, and chilled in a cooler for shipment to the laboratory. Soil samples were analyzed for volatile organic compounds (EPA Method 8260), semivolatile organic compounds (EPA Methods 8270) and target analyte list metals (EPA Method 6010). Selected surface soil samples were tested for polychlorinated biphenyls (PCBs) and pesticides (EPA Methods 8081 and 8082, respectively). Where insufficient material was collected, parameters were selected based on field observation. Please see Table 1 in the Tables section of this report for a summary of analytical parameters.

Nine soil borings were completed to groundwater depth. Refusal was encountered at one location (B-3) at 3' below grade; groundwater was not encountered at this location. Please see Appendix A for Boring Logs.

2.3 Groundwater Sampling Methodology

At five locations, the sampling probe was driven down to approximately four feet beneath the groundwater table to recover a sample of groundwater. Once this depth was reached, a two-inch screen was installed below the water table to extract a groundwater sample. Dedicated Teflon tubing was used to attempt to evacuate at least five well volumes prior to sampling for each well. The groundwater samples were containerized in accordance with EPA analytical protocols. Each sample was labeled, sealed, and chilled in a cooler for shipment to the laboratory. Groundwater samples were analyzed for volatile organic compounds (EPA Method 8260), semivolatile organic compounds (EPA Methods 8270) and target analyte list metals (EPA Method 6010) (both filtered and unfiltered samples).

2.4 Chain of Custody

To ensure the integrity of samples taken, a strict chain of custody record was maintained on each sample. This began after sampling with the entry in the sampler's field log book of the sampling details:

a) Date and time of sampling;
b) Sample location (as specific as possible);
c) The unique sample number, size, and container(s) used;
d) Sample description;
e) Weather conditions (if applicable); and
f) Any additional comments.

In addition, a record was kept of the sample's progress from the sample site to the laboratory where it was analyzed. This was the chain-of-custody form. The form included:

a) The sample number;
b) The sampler's name;
c) Date and time of sampling;
d) Location at which the sample was taken, including the address, if possible;
e) A description of the sample, as best known;
f) Signatures of people involved in the chain of possession; and
g) Inclusive dates of possession of each person in the chain.

The chain-of-custody form accompanied the sample throughout its trip to the laboratory. Accompanying the chain-of-custody record, or included in it, was a request to the laboratory for sample analyses. Information required included:

a) Name of person receiving the sample;
b) Laboratory sample number;
c) Date of sample receipt;
d) Sample allocation; and
e) Analyses to be performed.

Finally, on arrival at the laboratory, the sample custodian entered the sample in the laboratory's sample log book. The chain-of-custody is kept on file at the laboratory.

2.5 Laboratory Testing

American Analytical Laboratories (NYSDOH certified, #11418) of Farmingdale, New York, a New York State ELAP-certified laboratory performed all laboratory analysis. The laboratory operates a Quality Assurance/Quality Control (QA/QC) program that

consists of proper laboratory practices (including the required chain-of-custody), an internal quality control program, and external quality control audits by New York State.

3.0 SAMPLE ANALYSIS RESULTS

The analytical data is summarized in eight tables in the Tables section of this report. Complete analytical results, including compounds not detected, are in Appendix B of this report. Soil samples are designated by the boring location and depth below grade. For example, B-3(5'-7') is from boring location B-3 at a depth of five to seven feet below grade. Soil analysis data was generally evaluated relative to the Recommended Soil Clean-up Objective values in the NYS DEC Division of Hazardous Waste Remediation document TAGM 4046, issued in 1994. Groundwater data was evaluated relative to the GA Standards and Guidelines Values contained in NYS DEC TOGS 1.1.1 Ambient Water Quality Handling, Guidance Values and Groundwater Effluent Limitations.

3.1 Field Conditions

Borings were advanced to between three and fifteen feet below grade. Refusal occurred three times at 3 feet below grade at B-2. Because a limited amount of soil was recovered from this boring, only one sample was analyzed from 0'-1' below grade.

The subsurface materials encountered consisted primarily of fill material. The soil was mostly brown to black sand and clay with fragments of schist and pebbles. Wood chips, bricks, coal, ash and slag were noted in the fill material. Coal and ash were mostly observed in borings from the north central portion of the Site (B-4, B-5 and MW-3). The Phase I Environmental Site Assessment stated that a former coal storage yard was indicated on Block 2502 in Sanborn Maps from 1916 and Greenpoint Coal Docks, Inc. was indicated on Tax Block 2472 in Sanborn Maps from 1941 and 1951. Wood chips and bricks were mostly observed in borings from the southern portion of the site (B-1, B-2, B-3, and MW-2). Petroleum odors and elevated PID readings were noted in MW-1, which was located near an operational gas pump and near underground petroleum storage tank(s). An unusual organic- or petroleum-like odor was observed in MW-2 on Block 2502, which also historically contained an extract and a chemical company.

Only a limited amount of groundwater was recovered from all five groundwater wells on-site. Therefore, the wells were not purged prior to sampling and whatever liquid was recovered was used for sample material. After the liquid settled in the sample containers, sediment was evident in most jars.

3.2 Volatile Organic Compounds

Please see Table 2 for a summary of detected volatile organic compounds in soil and groundwater samples. Acetone was detected in B-1(1'-2'), B-1(4'-5'), MW-1(5'-6'), MW-1(8'-9'), MW-2(5'-7') and MW-2(9'-11'). Although two of the levels of acetone detected

(290 ppb and 780 ppb) are above the TAGM Recommended Soil Cleanup Objective, acetone is most likely a field and/or laboratory artifact and likely not actually present in the soil. No other volatile organic compounds were detected in soil samples

Several volatile organic compounds were detected in the groundwater sample from MW-1, including ethylbenzene (8 ppb); m+p xylene (14 ppb); o-xylene (8 ppb); 1,3,5-trimethylbenzene (8 ppb); and 1,2,4-trimethylbenzene (30 ppb). These compounds are typically associated with gasoline. This well is located near a gasoline pump and potential petroleum underground storage tanks. All detected levels were less than the NYS DEC Class GA Drinking Water Standard. No other volatile organic compounds were detected in groundwater samples.

3.3 Semivolatile Organic Compounds

Please see Tables 3 and 4 for a summary of detected semivolatile organic compounds in soil and groundwater samples. The vast majority of the semivolatile organic compounds detected in the soil samples were polycyclic aromatic hydrocarbons (PAHs). PAHs are a class of compounds found in ash, coal, coal tar, coal ash and some petroleum products. PAHs are widely distributed in the urban environment, and the levels detected are generally typical of urban fill material. Borings in the vicinity of the former on-site coal yard (B-3, B-4, B-5 and MW-3) exhibited the most elevated levels of PAHs. Naphthalene was noted in several boring (B-1, B-3, MW-1, MW-2, MW-3 and MW-4), which may be indicative of petroleum contamination. However, the detected levels of naphthalene were all below the TAGM Recommended Soil Cleanup Objectives (RSCOs). Several individual SVOCs were detected above TAGM RSCOs, however total SVOCs (primarily PAHs) for each sample were less than TAGM RSCO of 500,000 ppb. Total levels of SVOCs ranged from 220 ppb to 472,700 ppb.

No semivolatile organic compounds were detected in groundwater samples, except for naphthalene at MW-1 (18 ppb). MW-1 is located near an operational gasoline pump and gasoline underground storage tank(s). The detected level of naphthalene is slightly above the Class GA Guidance Value of 10 ppb; no Standard exists for naphthalene. The Guidance Value is based on protection for aesthetic purposes (odor or color) in drinking water. Groundwater in Brooklyn is not used as a source of drinking water.

3.4 Metals

Please see Tables 5 and 6 for a summary of detected metals (reported in ppm) in soil and groundwater samples (total and dissolved groundwater samples). Only iron was detected above TAGM Objectives in all of the soil sampled (maximum level of 27,360 ppm in MW-3 (0'-2')). Other metals which were detected above the TAGM include barium (maximum level of 429 ppm in MW-3(0'-2')), beryllium (maximum level of 0.598 ppm in B-3(8'-10')), cadmium (maximum level of 2.05 ppm in B-3(1'-3')), chromium (maximum level of 25.7 ppm in MW-2(5'-7')), copper (maximum level of 116 ppm in

MW-2(5'-7')), nickel (maximum level of 22.3 ppm in B-3(1'-3')), zinc (maximum level of 395 ppm in MW-3(0'-2')) and mercury (maximum level of 0.799 ppm in MW-3(0'-2')). The TAGM objectives are based on background values in the Eastern USA, not on risk-based objectives. When compared with US EPA Generic Soil Screening Levels (health-based levels), the detected levels of metals in soil are generally typical of urban fill material and are below levels which would be expected to pose a hazard to human health even if routine exposure were to occur.

Because the wells were not purged prior to sampling, the levels of metals detected in unfiltered samples should not be considered indicative of actual groundwater concentrations. Results were reported in ppm and ppb, however, the Class GA Standards (developed assuming use as drinking water) were reported in ppm. Several metals, including iron, magnesium, manganese and sodium, were detected above Class GA Standards in filtered groundwater samples. These are likely unrelated to site usage and are present throughout the area. The levels are of minimal concern to human health or the environment because extensive dilution would occur following discharge into surface water. Groundwater in Brooklyn is not used as a potable source.

3.5 Pesticides

Please see Table 7 for a summary of detected pesticides in soil samples. Endosulfan I (60 ppb), 4,4'-DDT (9.6 ppb) and endrin keytone (9.2 ppb) were detected in MW-5 (0'-2'). The detected levels are below NYS DEC Class GA Ambient Water Quality Standards. Pesticides were not detected in any of the other soil samples. Pesticides were not analyzed in groundwater samples.

3.6 PCBs

Please see Table 8 for a summary of detected PCBs in soil samples. Aroclor-1254 and Aroclor-1260 were detected in sample B-2(0'-1'). The levels detected at the B-2 location (130 ppb and 170 ppb, respectively) do not exceed the Recommended Soil Clean-up Objective for surface (0'-2')soil, which is total PCBs of 1,000 ppb. PCBs were not analyzed in groundwater samples.

4.0 CONCLUSIONS

Results from this preliminary investigation did not detect extensive soil and/or groundwater contamination at the locations tested. The following conclusions can be made:

- A limited amount of soil and groundwater contamination by semivolatile organic compounds was detected near MW-1, where an operational gasoline pump and presumably tank(s) are currently located. Detected levels of total semivolatile organic compounds in soil samples collected from MW-1 were less than the TAGM

Recommended Soil Cleanup Objective. The groundwater sample from MW-1 contained levels of naphthalene above the Class GA Groundwater Guidance Value. The Guidance Values were developed based on groundwater used as drinking water. As MW-1 was located near a gasoline pump and as several of the detected semivolatile organic compounds are often associated with petroleum contamination, a spill was reported to the New York State Department of Environmental Conservation. The spill number for the property is 0106864;

- Because only low levels of phenols and heavy metals were detected in soil samples, the elevated levels of detected PAHs in soil and groundwater can be more likely attributed to the site's former use as a coal storage yard, than to the potential former usage for pressure treating of lumber; and

- The former New York Dye - Wood Extract and Chemical Company and the New York Quebracho Extract Company were formerly located on Tax Block 2520, Lot 57 and Tax Block 2510. No significant contamination was detected in borings located on these Blocks (B-1, B-2 and MW-1).

Tables

TABLE 1: Soil and Groundwater Sampling Summary

Sample Location	Matrix	Sample Depth(s)	Analytical Parameters				
			VOCs 8260	SVOCs 8270	Pesticides 8081	PCBs 8082	TAL Metals
B-1	soil	1' - 2'	x	x			x
	soil	4'-5'	x	x			x
B-2	soil	0'–1'	x	x	x	x	x
B-3	soil	1'-3'	x	x			x
	soil	8'-10'	x	x			x
B-4	soil	2'-4'	x	x			x
	soil	6'-8'	x	x			x
B-5	soil	2'-4'	x	x	x	x	x
	soil	5'-7'	x	x			x
MW-1	soil	5'-6'	x	x			x
	soil	8'-9'	x	x			x
	liquid		x	x			f/u
MW-2	soil	5'-7'	x	x			x
	soil	9'-11'	x	x			x
	liquid		x	x			f/u
MW-3	soil	0'-2'	x	x	x	x	x
	soil	5'-7'	x	x			x
	liquid		x	x			f/u
MW-4	soil	0'-2'	x	x			x
	soil	13'-15'	x	x			x
	liquid		x	x			f/u
MW-5	soil	0'-2'	x	x	x	x	x
	soil	4'-6'	x	x			x
	liquid		x	x			f/u

Notes:

f/u = filtered and unfiltered samples

Table 2: Levels of Volatile Organic Compounds Detected in Soil and Groundwater Samples

Parameter	B-1 (1'-2') Soil (ppb)	B-1 (4'-5') Soil (ppb)	MW-1 (5'-6') Soil (ppb)	MW-1 (8'-9) Soil (ppb)	MW-2 (5'-7') Soil (ppb)	MW-2 (9'-11') Soil (ppb)	MW-1 Liquid (ppb)	TAGM Recommended Soil Cleanup Objective (ppb)	NYS DEC Class GA Drinking Water Standard (ppb)
acetone	290	110	780	96	130	120		200	50
ethylbenzene							8	5,500	5
m+p xylene							14	1,200	5
o-xylene							8	1,200	5
1,3,5-trimethylbenzene							8	3,300	5
1,2,4-trimethylbenzene							8	10,000	5

Table 3: Levels of Semivolatile Organic Compounds Detected in Soil Samples

Parameter	B-1 (1'-2') Soil (ppb)	B-1 ('4-5') Soil (ppb)	B-2 (0'-1') Soil (ppb)	B-3 (1'-3') Soil (ppb)	B-3 (8'-10') Soil (ppb)	B-4 (2'-4') Soil (ppb)	B-4 (6'-8') Soil (ppb)	B-5 (2'-4') Soil (ppb)	B-5 (5'-7') Soil (ppb)	MW-1 (5'-6') Soil (ppb)	MW-1 (8'-9') Soil (ppb)	MW-2 (5'-7') Soil (ppb)	MW-2 (9'-11') Soil (ppb)	MW-3 (0'-2') Soil (ppb)	MW-3 (5'-7') Soil (ppb)	MW-4 (0'-2') Soil (ppb)	MW-4 (13'-15') Soil (ppb)	MW-5 (0'-2') Soil (ppb)	MW-5 (4'-6') Soil (ppb)	TAGM Recommended Soil Cleanup Objective (ppb)
2-methylphenol												220		190						100 or MDL
benzoic acid	280								200	230							170			2,700
napthlanene	110			460	87						110		74		3,800		150			13,000
2-Methylnapthalene	130	95	100	1,200					28		88	590	56		1,500	1,600	120			36,400
acenaphthylene			150	120								170	68	170	620		120	460	1,200	41,000
acenaphthene			240	80	170				53		100	270	140	200	3,800	6,100	360			50,000
dibenzofuran				170	95				47		46	210	98	98	2,300	2,800	220		640	6,200
fluorene			320	280	140				61		100	500	190	250	4,500	5,300	380	450	1,200	50,000*
phenanthrene	170	160	3,900	1,400	1,500	640		120	570		800	3,200	1,200	2,800	31,000	79,000	6,100	7,300	15,000	50,000*
anthracene	45		980	260	380	130			130		190	750	370	670	7,600	9,200	830	1,400	3,300	50,000*
carbazole			210	90	110				60		91		110	300	3,300	6,200	590	540	1,000	--
di-n-butyl phthlate				110																8,100
fluoranthene	230	150	5,600	1,100	2,100	1,500		150	490		690	4,900	1,300	4,400	30,000	86,000	7,100	11,000	20,000	50,000*
pyrene	290	220	7,800	990	2,100	2,700		200	460		780	4,500	1,200	3,900	24,000	76,000	5,900	10,000	18,000	50,000*
benzo-(a)-anthracene	140	110	4,000	570	970	1,200		87	220		360	2,100	910	2,000	12,000	30,000	2,600	5,400	9,200	224 or MDL
chrysene	160	140	4,400	740	1,000	1,400		110	220		380	2,800	940	2,200	11,000	38,000	3,200	5,300	9,000	400
bis(2-ethylhexy)phthalate	730	840	440	110	460		220	2,400	2,500	2,200	1,600	910	660	100	660			350	430	50,000*
benzo-(b)-fluoranthene	270	260	6,000	520	940	1,800		120	300		510	3,200	1,400	2,500	13,000	40,000	3,400	4,700	10,000	1,100
benzo-(k)-fluoranthene	280	270	6,400	360	670	1,900		130	310		540	3,400	1,500	880	4,500	14,000	1,400	4,100	3,400	1,100
benzo-(a)-pyrene	170	150	3,800	500	950	1,300		92	220		310	1,800	840	2,000	10,000	31,000	2,600	5,000	8,200	61 or MDL
indeno(1,2,3-c,d)pyrene		96	540	310	550	1,100		69	150		240	1,100	83	1,200	5,600	20,000	1,900	3,200	4,900	3,200
dibenzo-(a,h)-anthracene			1,100	110	150	100					86	520	190	340	1,700	5,500	490	820	1,400	14 or MDL
benzo-(g,h,i)-perylene	170	100	2,800	340	620	1,200		94	170		230	1,300	440	1,300	5,200	22,000	2,000	3,400	5,000	50,000*
TOTAL:	**3,175**	**2,591**	**48,780**	**9,820**	**12,992**	**14,970**	**220**	**3,572**	**6,289**	**2,430**	**7,251**	**32,440**	**11,770**	**25,498**	**176,080**	**472,700**	**39,630**	**92,220**	**111,870**	**500,000***

Notes:

-- No TAGM Objective given for this parameter.

* As per TAGM #4046, total VOCs < 10,000 ppb, total non-carcinogenic Semi-VOCs < 500,000 ppb, individual non-carcinogenic Semi-VOCs < 50,000 ppb, and total carcinogenic semi-VOCs < 10,000

MDL = Method Detection Limit

Table 4: Levels of Semivolatile Organic Compounds Detected in Groundwater Samples

Parameter	MW-1 Liquid (ppb)	NYS DEC Class GA Ambient Water Quality Guidance Value (ppb)
naphthalene	18	10

Table 5: Levels of Metals Detected in Soil Samples

Parameter	B-1 (1'-2') Soil (ppm)	B-1 ('4-5') Soil (ppm)	B-2 (0'-1') Soil (ppm)	B-3 (1'-3') Soil (ppm)	B-3 (8'-10') Soil (ppm)	B-4 (2'-4') Soil (ppm)	B-4 (6'-8') Soil (ppm)	B-5 (2'-4') Soil (ppm)	B-5 (5'-7') Soil (ppm)	MW-1 (5'-6') Soil (ppm)	MW-1 (8'-9') Soil (ppm)	MW-2 (5'-7') Soil (ppm)	MW-2 (9'-11') Soil (ppm)	MW-3 (0'-2') Soil (ppm)	MW-3 (5'-7') Soil (ppm)	MW-4 (0'-2') Soil (ppm)	MW-4 (13'-15') Soil (ppm)	MW-5 (0'-2') Soil (ppm)	MW-5 (4'-6') Soil (ppm)	TAGM Recommended Soil Cleanup Objective (ppm)
silver				0.845							0.633									SB
aluminum	7,584	6.432	2,569	2,981	10,192	3,783	751	3,481	8,197	2,904	5,040	4,525	6,270	17,314	8,150	3,000	3,028	5,445	1,864	SB
barium	35.5	44.5	51.4	103	73.5	68.4	11.3	127	33.0	16.0	48.6	108	87.2	429	119	51.3	23.3	54.6	5.22	300 or SB
beryllium					0.598															0.16 or SB
calcium	6,960	6,144	75,688	3,043	24,871	3,905	2,750	14,069	1,237	1,545	4,282	4,131	15,485	24,325	1,695	3,950	1,196	72,765	8,371	SB
cadmium	0.058			2.05										0.667				0.554		1 or SB
cobalt				2.52		0.608	1.68			0.528		0.597				0.999	1.53			30 or SB
chromium	11.1	11.7	3.89	5.95	9.05	7.32	2.65	4.27	9.66	6.76	8.04	25.7	7.35	19.2	14.90	6.49	7.15	4.04		10 or SB
copper	16.5	18.2	32.2	72.8	53.3	44.5	11.4	5.30	16.2	7.67	14.1	116	40.6	67.5	57.6	25.7	14.5	14.1	1.68	25 or SB
iron	14,880	16,464	8,477	15,216	9,771	12,005	3,344	5,655	14,793	7,304	9,456	13,123	13,348	27,360	17,950	9,360	9,875	7,128	5,874	2,000 or SB
potassium	474	507		647	3,796	384	117		357	306	396	1,549	2,052	385	496	342	512	14,929	12.3	SB
magnesium	1896	3,638	34,773	1,906	4,558	1,019	1,121	2,637	2,561	2,209	1,747	3,534	2,617	6,156	2,010	1,056	1,649	20,939	1,156	SB
manganese	190	311	134	246	93.7	110	17.5	61.4	170	66.2	100	71.3	219	255	262	132	289	83.4	1.76	SB
sodium	189	151	209	146	438	419	318	136	74.7	140	172	153	160	83.6	101	97.5	84.4	350	13.8	SB
nickel	9.08	9.79	6.35	22.3	8.79	16.9	6.04	4.14	9.22	6.76	8.0	20.8	7.03	10.0	9.44	7.43	7.55	4.89		13 or SB
lead	32.4	31.1	61.1	191	150	380	8.54	291	12.5	3.57	75.4	77.8	329	315	294	56.0	10.3	122	12.3	SB
antimony						21.7						3.60								SB
vanadium	17.7	23.4	80.4	9.56	19.8	13.1	4.91	9.28	14.2	10.6	13.2	28.8	14.1	20.5	20.4	13.9	12.1	43.9		150 or SB
zinc	25.7	47.4	66.4	321	39.2	75.6	6.53	129	31.8	13.2	37.8	127	47.5	395	220	60.3	41.4	164	2.72	20 or SB
mercury		0.140	0.105	0.119			0.107		0.103	0.114	0.338		0.94	0.799	1.12	0.200	0.101	0.330	0.157	0.1

NOTES:

SB = site background

Table 6: Levels of Metals Detected in Groundwater Samples (Total and Dissolved)

Parameter	MW-1 Liquid Total (ppb)	MW-1 Liquid Dissolved (ppb)	MW-2 Liquid Total (ppm)	MW-2 Liquid Dissolved (ppm)	MW-3 Liquid Total (ppm)	MW-3 Liquid Dissolved (ppm)	MW-4 Liquid Total (ppm)	MW-4 Liquid Dissolved (ppm)	MW-5 Liquid Total (ppm)	MW-5 Liquid Dissolved (ppm)	Class GA Ambient Water Quality Standard (ppm)
silver			134								0.05
aluminum	195	152	98.2	1.38	41.0	0.605	1,128	0.870	172	1.60	--
barium	2.18	0.126	2.74	0.048	1.13	0.063	8.25	0.054	11.4		1
calcium	168	88.8	1,513	346	92.7	70.3	296	127	1,163	313	--
cobalt			0.348				0.429				--
chromium	0.906		0.517		0.09		3.09		0.465		0.05
copper	0.858		3.05		1.63		7.05		3.61		0.2
iron	765	1.25	643	0.309	81.5	0.196	3,650	0.626	727		0.3
potassium	29.9	11.3	36.8	19.4	27.1	27.3	187	2.73	22.5	13.3	--
magnesium	124	43.2	113	59.6	93.0	69.9	558	18.8	171	55.1	35*
manganese	22.4	2.53	10.4	1.37	1.82	0.517	109	6.32	7.61	0.350	0.3
sodium	231	311	95.2	85.1	445	474	20.6	14.3	110	96.8	20
nickel	0.516		1.1		0.068		3.06		0.633		--
lead	0.355		5.83		1.28		2.39		23.6		0.025
antimony			0.076								0.003*
vanadium	0.812	0.163	0.812	0.188	0.237	0.198	3.41	0.066	0.897	0.173	--
zinc	3.47		6.86	0.053	2.11	0.122	11.8	0.032	9.62		0.3
mercury	0.0035		0.011				0.002		0.003		0.002

NOTES:

– No Standard or Guidance Value given for this parameter

* Guidance Value; no Standard exists for this parameter

Table 7: Levels of Pesticides Detected in Soil Samples

Parameter	MW-5 (0'-2') Soil (ppb)	TAGM 4046 Recommended Soil Cleanup Objective (ppb)
endosulfan I	60	900
4,4'-DDT	9.6	2,100
endrin ketone	9.2	--

Notes:

-- No Recommended Soil Cleanup Objective exists for this parameter

Table 8: Levels of PCBs Detected in Soil Samples

Parameter	B-2(0'-1') Soil (ppb)	TAGM Recommended Soil Cleanup Objective (ppb)
Archlor-1254	130	
Archlor-1260	170	
	TOTAL: 300	**1,000 for surface (0'-2') soil**

APPENDIX A

BORING LOGS

AKRF, Inc.
Environmental Consultants

117 East 29th Street
New York, NY 10016
Phone: 212.696.0670
Faz: 212.447.5546

Log of Boring: B-1

Project Number: 30260-0005
Project Name: Greenpoint Lumber Yard
Address: Brooklyn, NY

Depth	Symbol	Description	Sample	Number	Type	Blow Counts	Recovery	OVM	Remarks
		ASPHALT		0-1	SS			NA	
		Black sandy soil with FILL (brick chips, wood, resin)		*1-2	SS			58.8	
				2-3	SS			2.4	
				3-4	SS			1.4	
		Brown-black clayey soil with pebbles.		*4-5	SS			42.5	
5		Black FILL with wood chips.		5-6	SS			18.4	
		Light brown sandy soil with wood chips.		6-7	SS			0.6	
		Light brown sandy soil with wood chips.		7-8	SS			0.2	Wet at 8'
		Groundwater encountered at approximately 8 feet below grade. *Soil sample sent to laboratory. SS - soil sample NA - not analyzed							
10									

Driller: Aquifer Drilling and Testing
Drill Method: Geoprobe
Borehole Diameter: 2 Inches
Water Level:
GS Elevation: Feet

Logged By: MS/MM
Checked By: MS
Start Date: 8/16/01
Finish Date: 8/16/01

C:\Boring Logs\Greenpoint Lumber Yard\Greenpoint.wl2

AKRF, Inc.

Environmental Consultants

117 East 29th Street
New York, NY 10016
Phone: 212.696.0670
Faz: 212.447.5546

Log of Boring: B-2

Project Number: 30260-0005
Project Name: Greenpoint Lumber Yard
Address: Brooklyn, NY

Depth	Symbol	Description	Sample	Number	Type	Blow Counts	Recovery	OVM	Remarks
		White and black SILT with Fill.		*0-1	SS			3.5	
		Red BRICK.		1-2	SS			0.7	
		ROCK (granite - schist).		2-3	SS			1.8	
5		End of boring at approximately 3 feet below grade due to refusal. Groundwater not encountered. *Soil sample sent to laboratory. SS - soil sample							

Driller: Aquifer Drilling and Testing
Drill Method: Geoprobe
Borehole Diameter: 2 Inches
Water Level:
GS Elevation: Feet

Logged By: MS/MM
Checked By: MS
Start Date: 8/16/01
Finish Date: 8/16/01

C:\Boring Logs\Greenpoint Lumber Yard\Greenpoint.wl2

AKRF, Inc.

Environmental Consultants

117 East 29th Street
New York, NY 10016
Phone: 212.696.0670
Faz: 212.447.5546

Log of Boring: B-3

Project Number: 30260-0005
Project Name: Greenpoint Lumber Yard
Address: Brooklyn, NY

Depth	Symbol	Description	Sample	Number	Type	Blow Counts	Recovery	OVM	Remarks
		ASPHALT, concrete and sand.		0-1	SS			0.2	
		Black FILL with coal, brick and sand, some slag.		*1-3	SS			0.1	
		same as above						0.1	
				3-4	SS			ND	
				4-5	SS			0.1	
5				5-6	SS			0.1	
		Light brown SILT and fine SAND with misc. Fill (brick, ash, coal), some black fill.		6-7	SS			ND	
		same as above		7-8	SS			0.1	
				*8-10	SS			ND	
					SS			ND	Wet at 10'
10									
		Groundwater encountered at appoximately 10 feet below grade. *Soil sample sent to laboratory. SS - soil sample ND - not detected							

Driller: Aquifer Drilling and Testing
Drill Method: Geoprobe
Borehole Diameter: 2 Inches
Water Level:
GS Elevation: Feet

Logged By: MS/MM
Checked By: MS
Start Date: 8/17/01
Finish Date: 8/17/01

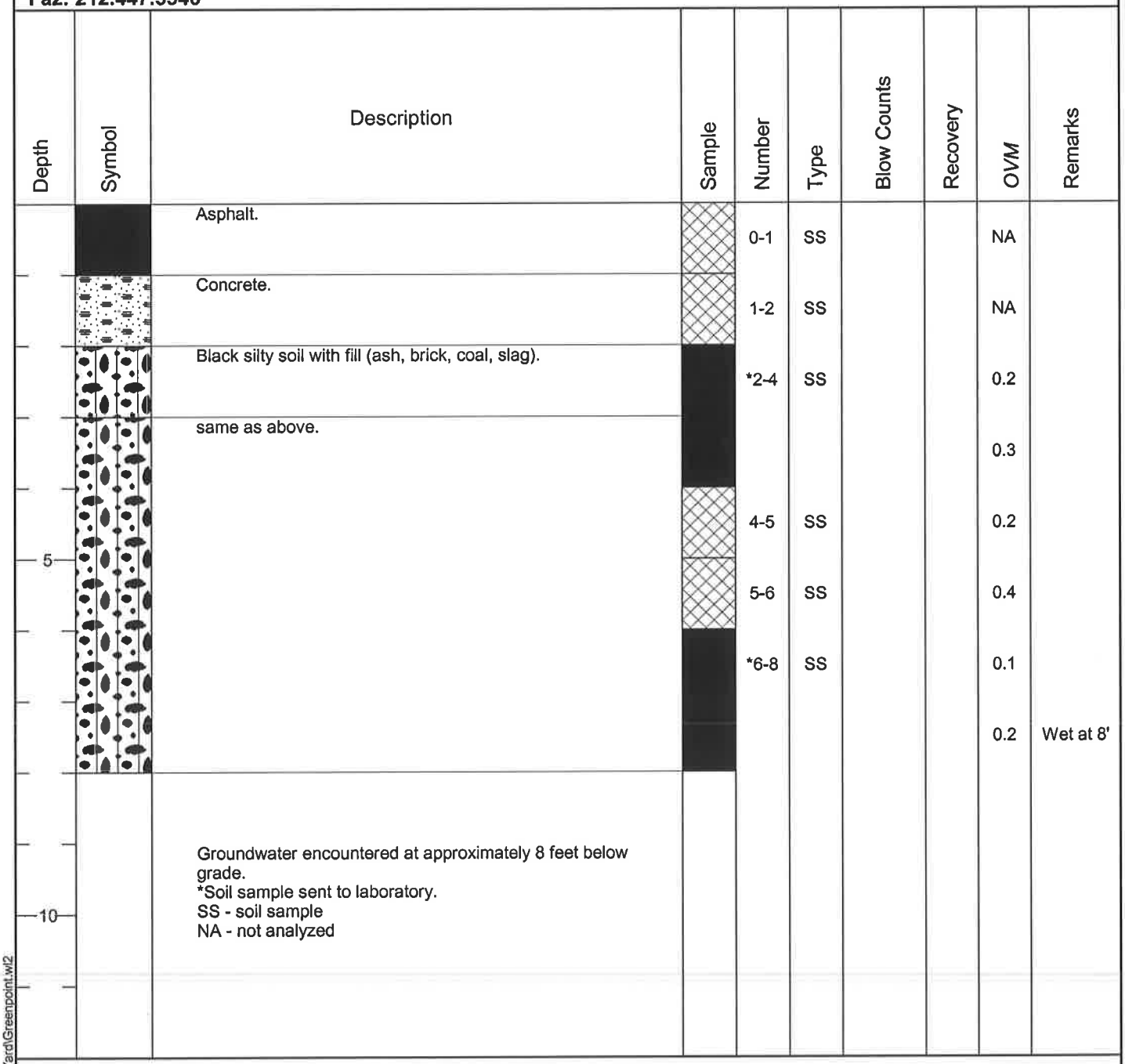
C:\Boring Logs\Greenpoint Lumber Yard\Greenpoint.wl2

AKRF, Inc.
Environmental Consultants

117 East 29th Street
New York, NY 10016
Phone: 212.696.0670
Faz: 212.447.5546

Log of Boring: B-4

Project Number: 30260-0005
Project Name: Greenpoint Lumber Yard
Address: Brooklyn, NY



Driller: Aquifer Drilling and Testing
Drill Method: Geoprobe
Borehole Diameter: 2 Inches
Water Level:
GS Elevation: Feet

Logged By: MS/MM
Checked By: MS
Start Date: 8/16/01
Finish Date: 8/16/01

C:\Boring Logs\Greenpoint Lumber Yard\Greenpoint.wl2

AKRF, Inc.

Environmental Consultants

117 East 29th Street
New York, NY 10016
Phone: 212.696.0670
Faz: 212.447.5546

Log of Boring: B-5

Project Number: 30260-0005
Project Name: Greenpoint Lumber Yard
Address: Brooklyn, NY

Depth	Symbol	Description	Sample	Number	Type	Blow Counts	Recovery	OVM	Remarks
		ASPHALT.		0-1	SS			2.5	
		FILL (coal, ash).		1-2	SS			0.2	
		Orange SILT		*2-4	SS			1.7	
		Red SILT							
		Rock, ash, coal, slag (FILL)						1.3	
		same as above.		4-5	SS			1.7	
5		Fine to medium SAND and SILT with layers of silty Clay		*5-7	SS			0.4	
		Silty CLAY						1.1	Wet at 7'
		Groundwater encountered at approximately 7 feet below grade. *Soil sample sent to laboratory. SS - soil sample.							
10									

Driller: Aquifer Drilling and Testing
Drill Method: Geoprobe
Borehole Diameter: 2 Inches
Water Level:
GS Elevation: Feet

Logged By: MS/MM
Checked By: MS
Start Date: 8/16/01
Finish Date: 8/16/01

C:\Boring Logs\Greenpoint Lumber Yard\Greenpoint.wl2

AKRF, Inc.

Environmental Consultants

117 East 29th Street
New York, NY 10016
Phone: 212.696.0670
Faz: 212.447.5546

Log of Boring: MW-1

Project Number: 30260-0005
Project Name: Greenpoint Lumber Yard
Address: Brooklyn, NY

Depth	Symbol	Description	Sample	Number	Type	Blow Counts	Recovery	OVM	Remarks
		CONCRETE		0-1.5	SS			NA	
		Black stained clayey soil.		1.5-2.5	SS			542	
		Light brown sandy soil.		2.5-3.5	SS			1152	petrol-like odor
				3.5-4	SS			724	
				4-5	SS			1201	
5		Light brown clayey soil.		*5-6	SS			1888	petrol-like odor
				6-7	SS			669	
				7-8	SS			1160	
		Dark brown clayey soil.		*8-9	SS			1319	
		Dark brown sandy soil.		9-10	SS			38.4	
10		Orange-yellow sandy soil.		10-11	SS			2.7	wet at 11'
				11-12	SS			2.7	
		Orange-brown sandy soil.		12-13	SS			23.1	
				13-14	SS			4.4	refusal at 14'
15		End of boring at approximately 14' below grade due to refusal. Groundwater encountered at approximately 11' below grade. Temporary monitor well installed and groundwater sample collected. *Soil sample sent to laboratory. SS - soil sample NA - not analyzed							

Driller: Aquifer Drilling and Testing
Drill Method: Geoprobe
Borehole Diameter: 2 Inches
Water Level:
GS Elevation: Feet

Logged By: MS/MM
Checked By: MS
Start Date: 8/16/01
Finish Date: 8/16/01

C:\Boring Logs\Greenpoint Lumber Yard\Greenpoint.wl2

AKRF, Inc.

Environmental Consultants

117 East 29th Street
New York, NY 10016
Phone: 212.696.0670
Faz: 212.447.5546

Log of Boring: MW-2

Project Number: 30260-0005
Project Name: Greenpoint Lumber Yard
Address: Brooklyn, NY

Depth	Symbol	Description	Sample	Number	Type	Blow Counts	Recovery	OVM	Remarks
		ASPHALT							
		FILL (brick, schist, coal, ash).		1-2	SS			0.2	
		FILL (brick, schist, coal, ash, concrete).		2-3	SS			0.1	
		Same as above.		3-4	SS			0.2	
		FILL (concrete)		4-5	SS			1.4	
5		Black silty FILL with wood, slag, ash. Organic/petroleum odor.		*5-7	SS			14.7	
		Same as above. Same organic/petroleum odor.			SS			2.3	
		Black/brown sandy SILT. Organic/petroleum odor.		7-8	SS			0.9	
		Same as above.		8-9	SS			NA	
				*9-11	SS			NA	
10									
		End of boring at approximately 11' below grade. Temporary well installed and groundwater sample collected. * soil sample sent to laboratory SS - soil sample NA - not analyzed							
15									

Driller: Aquifer Drilling and Testing
Drill Method: Geoprobe
Borehole Diameter: 2 Inches
Water Level:
GS Elevation: Feet

Logged By: MS/MM
Checked By: MS
Start Date: 8/16/01
Finish Date: 8/16/01

C:\Boring Logs\Greenpoint Lumber Yard\Greenpoint.wl2

AKRF, Inc.

Environmental Consultants

117 East 29th Street
New York, NY 10016
Phone: 212.696.0670
Faz: 212.447.5546

Log of Boring: MW-3

Project Number: 30260-0005
Project Name: Greenpoint Lumber Yard
Address: Brooklyn, NY

Depth	Symbol	Description	Sample	Number	Type	Blow Counts	Recovery	OVM	Remarks
		Light brown silty SAND, some slag.		*0-2	SS			0.1	
								ND	
				2-3	SS			0.1	
		FILL (wood, slag, brick, ash, coal).		3-4	SS			0.1	
		Light brown silty SAND		4-5	SS			ND	
5		Same as above.		*5-7	SS			0.1	
								ND	Wet at 7'
		Groundwater encountered at approximately 7 feet below grade. Temporary well installed and groundwater sample collected. *Soil sample sent to laboratory. SS - soil sample ND - not detected							

Driller: Aquifer Drilling and Testing
Drill Method: Geoprobe
Borehole Diameter: 2 Inches
Water Level:
GS Elevation: Feet

Logged By: MS/MM
Checked By: MS
Start Date: 8/17/01
Finish Date: 8/17/01

C:\Boring Logs\Greenpoint Lumber Yard\Greenpoint.wl2

AKRF, Inc.

Environmental Consultants

117 East 29th Street
New York, NY 10016
Phone: 212.696.0670
Faz: 212.447.5546

Log of Boring: MW-4

Project Number: 30260-0005
Project Name: Greenpoint Lumber Yard
Address: Brooklyn, NY

Depth	Symbol	Description	Sample	Number	Type	Blow Counts	Recovery	OVM	Remarks
		ASPHALT		*0-2	SS			3.0	
		Black FILL with coal, slag, coarse Sand.			SS			0.4	
		Medium to coarse, orange-brown SAND, some pebbles, schist fragments.		2-3	SS			ND	
		Same as above.		3-4	SS			ND	
				4-5	SS			ND	
5				5-6	SS			ND	
				6-7	SS			ND	
				7-8	SS			ND	
				8-9	SS			0.7	
				9-10	SS			ND	
10				10-11	SS			ND	
				11-12	SS			ND	
				12-13	SS			1.0	
		Medium to coarse, orange-brown SAND, some pebbles, schist fragments. 2" Silty SAND lens at 14'.		*13-15	SS			ND	
					SS			ND	Wet at 15'
15									
		Groundwater encountered at approximately 15 feet below grade. Temporary well installed and groundwater sample collected. *Soil sample sent to laboratory. SS - soil sample ND - not detected							

Driller: Aquifer Drilling and Testing
Drill Method: Geoprobe
Borehole Diameter: 2 Inches
Water Level:
GS Elevation: Feet

Logged By: MS/MM
Checked By: MS
Start Date: 8/17/01
Finish Date: 8/17/01

C:\Boring Logs\Greenpoint Lumber Yard\GreenpointLwl2

AKRF, Inc.

Environmental Consultants

117 East 29th Street
New York, NY 10016
Phone: 212.696.0670
Faz: 212.447.5546

Log of Boring: MW-5

Project Number: 30260-0005
Project Name: Greenpoint Lumber Yard
Address: Brooklyn, NY

Depth	Symbol	Description	Sample	Number	Type	Blow Counts	Recovery	OVM	Remarks
		FILL (bricks, concrete, coal, ash, wood)		*0-2	SS			ND	
					SS			ND	
				2-3	SS			ND	
				3-4	SS			ND	
				*4-6	SS			ND	
5					SS			0.3	Wet at 6'

Groundwater encountered at approximately 6 feet below grade.
Temporary monitor well installed and groundwater sample collected.
*Soil sample sent to laboratory.
SS - soil sample
ND - not detected

Driller: Aquifer Drilling and Testing
Drill Method: Geoprobe
Borehole Diameter: 2 Inches
Water Level:
GS Elevation: -6 Feet

Logged By: MS/MM
Checked By: MS
Start Date: 8/17/01
Finish Date: 8/17/01

C:\Boring Logs\Greenpoint Lumber Yard\Greenpoint.wl2

APPENDIX B

LABORATORY ANALYSIS RESULTS

AKRF, Inc.
Site: Greenpoint Lumber Yard

Sample ID:		B1 [1-2]	B1 [4-5]	B2 [0-1]	B4 [2-4]	B4 [6-8]	B5 [2-4]	TAGM 4046	NYS DEC
Laboratory ID:		0020174	0020175	0020176	0020177	0020178	0020179	Rec. Soil	Class GA Ambient
Sampling Date:		08/16/01	08/16/01	08/16/01	08/16/01	08/16/01	08/16/01	Cleanup Obj.	Water Qual.
Units:		ug/kg	ug/kg	ug/kg	ug/kg	ug/kg	ug/kg	ug/kg	Standards
									mg/L
SW-846 8260									
PARAMETER	CAS No.								
Dichlorodifluoromethane	75-71-8	<5	<5	<5	<5	<5	<5	*	5
Chloromethane	74-87-3	<5	<5	<5	<5	<5	<5	*	*
Vinyl Chloride	75-01-4	<5	<5	<5	<5	<5	<5	200	2
Bromomethane	74-83-9	<5	<5	<5	<5	<5	<5	*	5
Chloroethane	75-00-3	<5	<5	<5	<5	<5	<5	1,900	50
Trichlorofluoromethane	75-69-4	<5	<5	<5	<5	<5	<5	*	5
Acetone	67-64-1	290	110	<5	<5	<5	<5	200	50
1,1-Dichloroethene	75-35-4	<5	<5	<5	<5	<5	<5	400	5
Vinyl Acetate	108-05-4	<5	<5	<5	<5	<5	<5	*	*
Carbon Disulfide	75-15-0	<5	<5	<5	<5	<5	<5	2,700	50
Methylene Chloride	75-09-2	<5	<5	<5	<5	<5	<5	100	5
trans-1,2-Dichloroethene	156-60-5	<5	<5	<5	<5	<5	<5	300	5
1,1-Dichloroethane	75-34-3	<5	<5	<5	<5	<5	<5	200	5
2-Butanone	78-93-3	<5	<5	<5	<5	<5	<5	300	50
2,2-Dichloropropane	594-20-7	<5	<5	<5	<5	<5	<5	*	5
cis-1,2-Dichloroethene	156-59-2	<5	<5	<5	<5	<5	<5	*	5
Chloroform	67-66-3	<5	<5	<5	<5	<5	<5	300	7
Bromochloromethane	74-97-5	<5	<5	<5	<5	<5	<5	*	5
1,1,1-Trichloroethane	71-55-6	<5	<5	<5	<5	<5	<5	800	5
1,1-Dichloropropene	563-58-6	<5	<5	<5	<5	<5	<5	*	5
Carbon Tetrachloride	56-23-5	<5	<5	<5	<5	<5	<5	600	5
2-Chloroethyl vinyl ether	110-75-8	<5	<5	<5	<5	<5	<5	*	*
1,2-Dichloroethane	107-06-2	<5	<5	<5	<5	<5	<5	100	5
Benzene	71-43-2	<5	<5	<5	<5	<5	<5	60	0.7
Trichloroethene	79-01-6	<5	<5	<5	<5	<5	<5	700	5
1,2-Dichloropropane	78-87-5	<5	<5	<5	<5	<5	<5	*	1
Bromodichloromethane	75-27-4	<5	<5	<5	<5	<5	<5	*	50
4-Methyl-2-Pentanone	108-10-1	<5	<5	<5	<5	<5	<5	1,000	50
Dibromomethane	74-95-3	<5	<5	<5	<5	<5	<5	*	5
cis-1,3-Dichloropropene	10061-01-5	<5	<5	<5	<5	<5	<5	*	5
Toluene	108-88-3	<5	<5	<5	<5	<5	<5	1,500	5
trans-1,3-Dichloropropene	10061-02-6	<5	<5	<5	<5	<5	<5	*	*
1,1,2-Trichloroethane	79-00-5	<5	<5	<5	<5	<5	<5	*	5

*No Standard or Guidance Value given for GW / no RSCO given for soil.

AKRF, Inc.
Site: Greenpoint Lumber Yard

Sample ID:		B1 [1-2]	B1 [4-5]	B2 [0-1]	B4 [2-4]	B4 [6-8]	B5 [2-4]	TAGM 4046	NYS DEC
Laboratory ID:		0020174	0020175	0020176	0020177	0020178	0020179	Rec. Soil	Class GA Ambient
Sampling Date:		08/16/01	08/16/01	08/16/01	08/16/01	08/16/01	08/16/01	Cleanup Obj.	Water Qual.
Units:		ug/kg	ug/kg	ug/kg	ug/kg	ug/kg	ug/kg	ug/kg	Standards
									mg/L
SW-846 8260									
Parameter	CAS No.								
2-Hexanone	591-78-6	<5	<5	<5	<5	<5	<5	*	**50
1,3-Dichloropropane	142-28-9	<5	<5	<5	<5	<5	<5	300	5
Tetrachloroethene	127-18-4	<5	<5	<5	<5	<5	<5	1,400	5
Chlorodibromomethane	124-48-1	<5	<5	<5	<5	<5	<5	*	*
1,2-Dibromoethane	106-93-4	<5	<5	<5	<5	<5	<5	*	*
Chlorobenzene	108-90-7	<5	<5	<5	<5	<5	<5	1,700	5
1,1,1,2-Tetrachloroethane	630-20-6	<5	<5	<5	<5	<5	<5	*	5
Ethylbenzene	100-41-4	<5	<5	<5	<5	<5	<5	5,500	5
m+p Xylene	108-38-3/106-42-3	<10	<10	<10	<10	<10	<10	1,200	5
o-Xylene	95-47-6	<5	<5	<5	<5	<5	<5	1,200	5
Styrene	100-42-5	<5	<5	<5	<5	<5	<5	*	5
Isopropylbenzene	98-82-8	<5	<5	<5	<5	<5	<5	*	5
Bromoform	75-25-2	<5	<5	<5	<5	<5	<5	*	**50
1,2,3-Trichloropropane	96-18-4	<5	<5	<5	<5	<5	<5	400	5
n-Propylbenzene	103-65-1	<5	<5	<5	<5	<5	<5	*	5
Bromobenzene	108-86-1	<5	<5	<5	<5	<5	<5	*	5
1,3,5-Trimethylbenzene	108-67-8	<5	<5	<5	<5	<5	<5	*	5
2-Chlorotoluene	95-49-8	<5	<5	<5	<5	<5	<5	*	5
4-Chlorotoluene	106-43-4	<5	<5	<5	<5	<5	<5	*	5
tert-Butylbenzene	98-06-6	<5	<5	<5	<5	<5	<5	*	5
1,2,4-Trimethylbenzene	95-63-6	<5	<5	<5	<5	<5	<5	*	5
sec-Butylbenzene	135-98-8	<5	<5	<5	<5	<5	<5	*	5
4-Isopropyltoluene	99-87-6	<5	<5	<5	<5	<5	<5	*	5
1,1,2,2-Tetrachloroethane	79-34-5	<5	<5	<5	<5	<5	<5	600	5
1,3-Dichlorobenzene	541-73-1	<5	<5	<5	<5	<5	<5	1,600	5
1,4-Dichlorobenzene	106-46-7	<5	<5	<5	<5	<5	<5	8,500	5
1,2-Dichlorobenzene	95-50-1	<5	<5	<5	<5	<5	<5	7,900	4.7
n-Butylbenzene	104-51-8	<5	<5	<5	<5	<5	<5	*	5
1,2-Dibromo-3-chloropropane	96-12-8	<5	<5	<5	<5	<5	<5	*	0.04
1,2,4-Trichlorobenzene	120-82-1	<5	<5	<5	<5	<5	<5	3,400	5
Hexachlorobutadiene	87-68-3	<5	<5	<5	<5	<5	<5	*	0.5
Naphthalene	91-20-3	<5	<5	<5	<5	<5	<5	*	**10
1,2,3-Trichlorobenzene	87-61-6	<5	<5	<5	<5	<5	<5	*	5

*No Standard or Guidance Value given for GW / no RSCO given for soil.

** Guidance Value, no Standard exists.

AKRF, Inc.
Site: Greenpoint Lumber Yard

Sample ID:		B5 [5-7]	MW-1 [5-6]	MW-1 [8-9]	MW-1	MW-2 [5-7]	MW-2 [9-11]	TAGM 4046	NYS DEC
Laboratory ID:		0020180	0020181	0020182	0020183	0020184	0020185	Rec. Soil	Class GA Ambient
Sampling Date:		08/16/01	08/16/01	08/16/01	08/16/01	08/16/01	08/16/01	Cleanup Obj.	Water Qual.
Units:		ug/kg	ug/kg	ug/kg	ug/L	ug/kg	ug/kg	ug/kg	Standards
									mg/L
SW-846 8260									
PARAMETER	CAS No.								
Dichlorodifluoromethane	75-71-8	<5	<5	<5	<1	<5	<5	*	5
Chloromethane	74-87-3	<5	<5	<5	<1	<5	<5	*	*
Vinyl Chloride	75-01-4	<5	<5	<5	<1	<5	<5	200	2
Bromomethane	74-83-9	<5	<5	<5	<1	<5	<5	*	5
Chloroethane	75-00-3	<5	<5	<5	<1	<5	<5	1,900	50
Trichlorofluoromethane	75-69-4	<5	<5	<5	<1	<5	<5	*	5
Acetone	67-64-1	<5	780	96	<1	130	120	200	50
1,1-Dichloroethene	75-35-4	<5	<5	<5	<1	<5	<5	400	5
Vinyl Acetate	108-05-4	<5	<5	<5	<1	<5	<5	*	*
Carbon Disulfide	75-15-0	<5	<5	<5	<1	<5	<5	2,700	50
Methylene Chloride	75-09-2	<5	<5	<5	<1	<5	<5	100	5
trans-1,2-Dichloroethene	156-60-5	<5	<5	<5	<1	<5	<5	300	5
1,1-Dichloroethane	75-34-3	<5	<5	<5	<1	<5	<5	200	5
2-Butanone	78-93-3	<5	<5	<5	<1	<5	<5	300	50
2,2-Dichloropropane	594-20-7	<5	<5	<5	<1	<5	<5	*	5
cis-1,2-Dichloroethene	156-59-2	<5	<5	<5	<1	<5	<5	*	5
Chloroform	67-66-3	<5	<5	<5	<1	<5	<5	300	7
Bromochloromethane	74-97-5	<5	<5	<5	<1	<5	<5	*	5
1,1,1-Trichloroethane	71-55-6	<5	<5	<5	<1	<5	<5	800	5
1,1-Dichloropropene	563-58-6	<5	<5	<5	<1	<5	<5	*	5
Carbon Tetrachloride	56-23-5	<5	<5	<5	<1	<5	<5	600	5
2-Chloroethyl vinyl ether	110-75-8	<5	<5	<5	<1	<5	<5	*	*
1,2-Dichloroethane	107-06-2	<5	<5	<5	<1	<5	<5	100	5
Benzene	71-43-2	<5	<5	<5	<1	<5	<5	60	0.7
Trichloroethene	79-01-6	<5	<5	<5	<1	<5	<5	700	5
1,2-Dichloropropane	78-87-5	<5	<5	<5	<1	<5	<5	*	1
Bromodichloromethane	75-27-4	<5	<5	<5	<1	<5	<5	*	50
4-Methyl-2-Pentanone	108-10-1	<5	<5	<5	<1	<5	<5	1,000	50
Dibromomethane	74-95-3	<5	<5	<5	<1	<5	<5	*	5
cis-1,3-Dichloropropene	10061-01-5	<5	<5	<5	<1	<5	<5	*	5
Toluene	108-88-3	<5	<5	<5	<1	<5	<5	1,500	5
trans-1,3-Dichloropropene	10061-02-6	<5	<5	<5	<1	<5	<5	*	*
1,1,2-Trichloroethane	79-00-5	<5	<5	<5	<1	<5	<5	*	5

*No Standard or Guidance Value given for GW / no RSCO given for soil.

AKRF, Inc.
Site: Greenpoint Lumber Yard

Sample ID:		B5 [5-7]	MW-1 [5-6]	MW-1 [8-9]	MW-1	MW-2 [5-7]	MW-2 [9-11]	TAGM 4046	NYS DEC
Laboratory ID:		0020180	0020181	0020182	0020183	0020184	0020185	Rec. Soil	Class GA Ambient
Sampling Date:		08/16/01	08/16/01	08/16/01	08/16/01	08/16/01	08/16/01	Cleanup Obj.	Water Qual.
Units:		ug/kg	ug/kg	ug/kg	ug/L	ug/kg	ug/kg	ug/kg	Standards
									mg/L
SW-846 8260									
Parameter	CAS No.								
2-Hexanone	591-78-6	<5	<5	<5	<1	<5	<5	*	**50
1,3-Dichloropropane	142-28-9	<5	<5	<5	<1	<5	<5	300	5
Tetrachloroethene	127-18-4	<5	<5	<5	<1	<5	<5	1,400	5
Chlorodibromomethane	124-48-1	<5	<5	<5	<1	<5	<5	*	*
1,2-Dibromoethane	106-93-4	<5	<5	<5	<1	<5	<5	*	*
Chlorobenzene	108-90-7	<5	<5	<5	<1	<5	<5	1,700	5
1,1,1,2-Tetrachloroethane	630-20-6	<5	<5	<5	<1	<5	<5	*	5
Ethylbenzene	100-41-4	<5	8	<5	<1	<5	<5	5,500	5
m+p Xylene	108-38-3/106-42-3	<10	14	<10	<2	<10	<10	1,200	5
o-Xylene	95-47-6	<5	8	<5	<1	<5	<5	1,200	5
Styrene	100-42-5	<5	<5	<5	<1	<5	<5	*	5
Isopropylbenzene	98-82-8	<5	<5	<5	<1	<5	<5	*	5
Bromoform	75-25-2	<5	<5	<5	<1	<5	<5	*	**50
1,2,3-Trichloropropane	96-18-4	<5	<5	<5	<1	<5	<5	400	5
n-Propylbenzene	103-65-1	<5	<5	<5	<1	<5	<5	*	5
Bromobenzene	108-86-1	<5	<5	<5	<1	<5	<5	*	5
1,3,5-Trimethylbenzene	108-67-8	<5	8	<5	<1	<5	<5	*	5
2-Chlorotoluene	95-49-8	<5	<5	<5	<1	<5	<5	*	5
4-Chlorotoluene	106-43-4	<5	<5	<5	<1	<5	<5	*	5
tert-Butylbenzene	98-06-6	<5	<5	<5	<1	<5	<5	*	5
1,2,4-Trimethylbenzene	95-63-6	<5	30	<5	<1	<5	<5	*	5
sec-Butylbenzene	135-98-8	<5	<5	<5	<1	<5	<5	*	5
4-Isopropyltoluene	99-87-6	<5	<5	<5	<1	<5	<5	*	5
1,1,2,2-Tetrachloroethane	79-34-5	<5	<5	<5	<1	<5	<5	600	5
1,3-Dichlorobenzene	541-73-1	<5	<5	<5	<1	<5	<5	1,600	5
1,4-Dichlorobenzene	106-46-7	<5	<5	<5	<1	<5	<5	8,500	5
1,2-Dichlorobenzene	95-50-1	<5	<5	<5	<1	<5	<5	7,900	4.7
n-Butylbenzene	104-51-8	<5	<5	<5	<1	<5	<5	*	5
1,2-Dibromo-3-chloropropane	96-12-8	<5	<5	<5	<1	<5	<5	*	0.04
1,2,4-Trichlorobenzene	120-82-1	<5	<5	<5	<1	<5	<5	3,400	5
Hexachlorobutadiene	87-68-3	<5	<5	<5	<1	<5	<5	*	0.5
Naphthalene	91-20-3	<5	<5	<5	<1	<5	<5	*	**10
1,2,3-Trichlorobenzene	87-61-6	<5	<5	<5	<1	<5	<5	*	5

*No Standard or Guidance Value given for GW / no RSCO given for soil.

** Guidance Value, no Standard exists.

AKRF, Inc.
Site: Greenpoint Lumber Yard

Sample ID:		B-3 [1-3]	B-3 [8-10]	MW-2	MW-3 [0-2]	MW-3 [5-7]	MW-3	TAGM 4046	NYS DEC
Laboratory ID:		0020196	0020197	0020198	0020199	0020200	0020201	Rec. Soil	Class GA Ambient
Sampling Date:		08/17/01	08/17/01	08/17/01	08/17/01	08/17/01	08/17/01	Cleanup Obj.	Water Qual.
Units:		ug/kg	ug/kg	ug/L	ug/kg	ug/kg	ug/L	ug/kg	Standards
									mg/L
SW-846 8260									
PARAMETER	CAS No.								
Dichlorodifluoromethane	75-71-8	<5	<5	<1	<5	<5	<1	*	5
Chloromethane	74-87-3	<5	<5	<1	<5	<5	<1	*	*
Vinyl Chloride	75-01-4	<5	<5	<1	<5	<5	<1	200	2
Bromomethane	74-83-9	<5	<5	<1	<5	<5	<1	*	5
Chloroethane	75-00-3	<5	<5	<1	<5	<5	<1	1,900	50
Trichlorofluoromethane	75-69-4	<5	<5	<1	<5	<5	<1	*	5
Acetone	67-64-1	<5	<5	<1	<5	<5	<1	200	50
1,1-Dichloroethene	75-35-4	<5	<5	<1	<5	<5	<1	400	5
Vinyl Acetate	108-05-4	<5	<5	<1	<5	<5	<1	*	*
Carbon Disulfide	75-15-0	<5	<5	<1	<5	<5	<1	2,700	50
Methylene Chloride	75-09-2	<5	<5	<1	<5	<5	<1	100	5
trans-1,2-Dichloroethene	156-60-5	<5	<5	<1	<5	<5	<1	300	5
1,1-Dichloroethane	75-34-3	<5	<5	<1	<5	<5	<1	200	5
2-Butanone	78-93-3	<5	<5	<1	<5	<5	<1	300	50
2,2-Dichloropropane	594-20-7	<5	<5	<1	<5	<5	<1	*	5
cis-1,2-Dichloroethene	156-59-2	<5	<5	<1	<5	<5	<1	*	5
Chloroform	67-66-3	<5	<5	<1	<5	<5	<1	300	7
Bromochloromethane	74-97-5	<5	<5	<1	<5	<5	<1	*	5
1,1,1-Trichloroethane	71-55-6	<5	<5	<1	<5	<5	<1	800	5
1,1-Dichloropropene	563-58-6	<5	<5	<1	<5	<5	<1	*	5
Carbon Tetrachloride	56-23-5	<5	<5	<1	<5	<5	<1	600	5
2-Chloroethyl vinyl ether	110-75-8	<5	<5	<1	<5	<5	<1	*	*
1,2-Dichloroethane	107-06-2	<5	<5	<1	<5	<5	<1	100	5
Benzene	71-43-2	<5	<5	<1	<5	<5	<1	60	0.7
Trichloroethene	79-01-6	<5	<5	<1	<5	<5	<1	700	5
1,2-Dichloropropane	78-87-5	<5	<5	<1	<5	<5	<1	*	1
Bromodichloromethane	75-27-4	<5	<5	<1	<5	<5	<1	*	50
4-Methyl-2-Pentanone	108-10-1	<5	<5	<1	<5	<5	<1	1,000	50
Dibromomethane	74-95-3	<5	<5	<1	<5	<5	<1	*	5
cis-1,3-Dichloropropene	10061-01-5	<5	<5	<1	<5	<5	<1	*	5
Toluene	108-88-3	<5	<5	<1	<5	<5	<1	1,500	5
trans-1,3-Dichloropropene	10061-02-6	<5	<5	<1	<5	<5	<1	*	*
1,1,2-Trichloroethane	79-00-5	<5	<5	<1	<5	<5	<1	*	5

*No Standard or Guidance Value given for GW / no RSCO given for soil.

AKRF, Inc.
Site: Greenpoint Lumber Yard

Sample ID:		B-3 [1-3]	B-3 [8-10]	MW-2	MW-3 [0-2]	MW-3 [5-7]	MW-3	TAGM 4046	NYS DEC
Laboratory ID:		0020196	0020197	0020198	0020199	0020200	0020201	Rec. Soil	Class GA Ambient
Sampling Date:		08/17/01	08/17/01	08/17/01	08/17/01	08/17/01	08/17/01	Cleanup Obj.	Water Qual.
Units:		ug/kg	ug/kg	ug/L	ug/kg	ug/kg	ug/L	ug/kg	Standards
									mg/L
SW-846 8260									
Parameter	CAS No.								
2-Hexanone	591-78-6	<5	<5	<1	<5	<5	<1	*	**50
1,3-Dichloropropane	142-28-9	<5	<5	<1	<5	<5	<1	300	5
Tetrachloroethene	127-18-4	<5	<5	<1	<5	<5	<1	1,400	5
Chlorodibromomethane	124-48-1	<5	<5	<1	<5	<5	<1	*	*
1,2-Dibromoethane	106-93-4	<5	<5	<1	<5	<5	<1	*	*
Chlorobenzene	108-90-7	<5	<5	<1	<5	<5	<1	1,700	5
1,1,1,2-Tetrachloroethane	630-20-6	<5	<5	<1	<5	<5	<1	*	5
Ethylbenzene	100-41-4	<5	<5	<1	<5	<5	<1	5,500	5
m+p Xylene	108-38-3/106-42-3	<10	<10	<2	<10	<10	<2	1,200	5
o-Xylene	95-47-6	<5	<5	<1	<5	<5	<1	1,200	5
Styrene	100-42-5	<5	<5	<1	<5	<5	<1	*	5
Isopropylbenzene	98-82-8	<5	<5	<1	<5	<5	<1	*	5
Bromoform	75-25-2	<5	<5	<1	<5	<5	<1	*	**50
1,2,3-Trichloropropane	96-18-4	<5	<5	<1	<5	<5	<1	400	5
n-Propylbenzene	103-65-1	<5	<5	<1	<5	<5	<1	*	5
Bromobenzene	108-86-1	<5	<5	<1	<5	<5	<1	*	5
1,3,5-Trimethylbenzene	108-67-8	<5	<5	<1	<5	<5	<1	*	5
2-Chlorotoluene	95-49-8	<5	<5	<1	<5	<5	<1	*	5
4-Chlorotoluene	106-43-4	<5	<5	<1	<5	<5	<1	*	5
tert-Butylbenzene	98-06-6	<5	<5	<1	<5	<5	<1	*	5
1,2,4-Trimethylbenzene	95-63-6	<5	<5	<1	<5	<5	<1	*	5
sec-Butylbenzene	135-98-8	<5	<5	<1	<5	<5	<1	*	5
4-Isopropyltoluene	99-87-6	<5	<5	<1	<5	<5	<1	*	5
1,1,2,2-Tetrachloroethane	79-34-5	<5	<5	<1	<5	<5	<1	600	5
1,3-Dichlorobenzene	541-73-1	<5	<5	<1	<5	<5	<1	1,600	5
1,4-Dichlorobenzene	106-46-7	<5	<5	<1	<5	<5	<1	8,500	5
1,2-Dichlorobenzene	95-50-1	<5	<5	<1	<5	<5	<1	7,900	4.7
n-Butylbenzene	104-51-8	<5	<5	<1	<5	<5	<1	*	5
1,2-Dibromo-3-chloropropane	96-12-8	<5	<5	<1	<5	<5	<1	*	0.04
1,2,4-Trichlorobenzene	120-82-1	<5	<5	<1	<5	<5	<1	3,400	5
Hexachlorobutadiene	87-68-3	<5	<5	<1	<5	<5	<1	*	0.5
Naphthalene	91-20-3	<5	<5	<1	<5	<5	<1	*	**10
1,2,3-Trichlorobenzene	87-61-6	<5	<5	<1	<5	<5	<1	*	5

*No Standard or Guidance Value given for GW / no RSCO given for soil.

** Guidance Value, no Standard exists.

AKRF, Inc.
Site: Greenpoint Lumber Yard

Sample ID:		MW-4 [0-2]	MW-4 [13-15]	MW-4	MW-5 [0-2]	MW-5 [4-6]	MW-5	TAGM 4046	NYS DEC
Laboratory ID:		0020202	0020203	0020204	0020205	0020206	0020207	Rec. Soil	Class GA Ambient
Sampling Date:		08/17/01	08/17/01	08/17/01	08/17/01	08/17/01	08/17/01	Cleanup Obj.	Water Qual.
Units:		ug/kg	ug/kg	ug/L	ug/kg	ug/kg	ug/L	ug/kg	Standards
									mg/L
SW-846 8260									
PARAMETER	CAS No.								
Dichlorodifluoromethane	75-71-8	<5	<5	<1	<5	<5	<1	*	5
Chloromethane	74-87-3	<5	<5	<1	<5	<5	<1	*	*
Vinyl Chloride	75-01-4	<5	<5	<1	<5	<5	<1	200	2
Bromomethane	74-83-9	<5	<5	<1	<5	<5	<1	*	5
Chloroethane	75-00-3	<5	<5	<1	<5	<5	<1	1,900	50
Trichlorofluoromethane	75-69-4	<5	<5	<1	<5	<5	<1	*	5
Acetone	67-64-1	<5	<5	<1	<5	<5	<1	200	50
1,1-Dichloroethene	75-35-4	<5	<5	<1	<5	<5	<1	400	5
Vinyl Acetate	108-05-4	<5	<5	<1	<5	<5	<1	*	*
Carbon Disulfide	75-15-0	<5	<5	<1	<5	<5	<1	2,700	50
Methylene Chloride	75-09-2	<5	<5	<1	<5	<5	<1	100	5
trans-1,2-Dichloroethene	156-60-5	<5	<5	<1	<5	<5	<1	300	5
1,1-Dichloroethane	75-34-3	<5	<5	<1	<5	<5	<1	200	5
2-Butanone	78-93-3	<5	<5	<1	<5	<5	<1	300	50
2,2-Dichloropropane	594-20-7	<5	<5	<1	<5	<5	<1	*	5
cis-1,2-Dichloroethene	156-59-2	<5	<5	<1	<5	<5	<1	*	5
Chloroform	67-66-3	<5	<5	<1	<5	<5	<1	300	7
Bromochloromethane	74-97-5	<5	<5	<1	<5	<5	<1	*	5
1,1,1-Trichloroethane	71-55-6	<5	<5	<1	<5	<5	<1	800	5
1,1-Dichloropropene	563-58-6	<5	<5	<1	<5	<5	<1	*	5
Carbon Tetrachloride	56-23-5	<5	<5	<1	<5	<5	<1	600	5
2-Chloroethyl vinyl ether	110-75-8	<5	<5	<1	<5	<5	<1	*	*
1,2-Dichloroethane	107-06-2	<5	<5	<1	<5	<5	<1	100	5
Benzene	71-43-2	<5	<5	<1	<5	<5	<1	60	0.7
Trichloroethene	79-01-6	<5	<5	<1	<5	<5	<1	700	5
1,2-Dichloropropane	78-87-5	<5	<5	<1	<5	<5	<1	*	1
Bromodichloromethane	75-27-4	<5	<5	<1	<5	<5	<1	*	50
4-Methyl-2-Pentanone	108-10-1	<5	<5	<1	<5	<5	<1	1,000	50
Dibromomethane	74-95-3	<5	<5	<1	<5	<5	<1	*	5
cis-1,3-Dichloropropene	10061-01-5	<5	<5	<1	<5	<5	<1	*	5
Toluene	108-88-3	<5	<5	<1	<5	<5	<1	1,500	5
trans-1,3-Dichloropropene	10061-02-6	<5	<5	<1	<5	<5	<1	*	*
1,1,2-Trichloroethane	79-00-5	<5	<5	<1	<5	<5	<1	*	5

*No Standard or Guidance Value given for GW / no RSCO given for soil.

AKRF, Inc.
Site: Greenpoint Lumber Yard

Sample ID:		MW-4 [0-2]	MW-4 [13-15]	MW-4	MW-5 [0-2]	MW-5 [4-6]	MW-5	TAGM 4046	NYS DEC
Laboratory ID:		0020202	0020203	0020204	0020205	0020206	0020207	Rec. Soil	Class GA Ambient
Sampling Date:		08/17/01	08/17/01	08/17/01	08/17/01	08/17/01	08/17/01	Cleanup Obj.	Water Qual.
Units:		ug/kg	ug/kg	ug/L	ug/kg	ug/kg	ug/L	ug/kg	Standards
									mg/L
SW-846 8260									
Parameter	CAS No.								
2-Hexanone	591-78-6	<5	<5	<1	<5	<5	<1	*	**50
1,3-Dichloropropane	142-28-9	<5	<5	<1	<5	<5	<1	300	5
Tetrachloroethene	127-18-4	<5	<5	<1	<5	<5	<1	1,400	5
Chlorodibromomethane	124-48-1	<5	<5	<1	<5	<5	<1	*	*
1,2-Dibromoethane	106-93-4	<5	<5	<1	<5	<5	<1	*	*
Chlorobenzene	108-90-7	<5	<5	<1	<5	<5	<1	1,700	5
1,1,1,2-Tetrachloroethane	630-20-6	<5	<5	<1	<5	<5	<1	*	5
Ethylbenzene	100-41-4	<5	<5	<1	<5	<5	<1	5,500	5
m+p Xylene	108-38-3/106-42-3	<10	<10	<2	<10	<10	<2	1,200	5
o-Xylene	95-47-6	<5	<5	<1	<5	<5	<1	1,200	5
Styrene	100-42-5	<5	<5	<1	<5	<5	<1	*	5
Isopropylbenzene	98-82-8	<5	<5	<1	<5	<5	<1	*	5
Bromoform	75-25-2	<5	<5	<1	<5	<5	<1	*	**50
1,2,3-Trichloropropane	96-18-4	<5	<5	<1	<5	<5	<1	400	5
n-Propylbenzene	103-65-1	<5	<5	<1	<5	<5	<1	*	5
Bromobenzene	108-86-1	<5	<5	<1	<5	<5	<1	*	5
1,3,5-Trimethylbenzene	108-67-8	<5	<5	<1	<5	<5	<1	*	5
2-Chlorotoluene	95-49-8	<5	<5	<1	<5	<5	<1	*	5
4-Chlorotoluene	106-43-4	<5	<5	<1	<5	<5	<1	*	5
tert-Butylbenzene	98-06-6	<5	<5	<1	<5	<5	<1	*	5
1,2,4-Trimethylbenzene	95-63-6	<5	<5	<1	<5	<5	<1	*	5
sec-Butylbenzene	135-98-8	<5	<5	<1	<5	<5	<1	*	5
4-Isopropyltoluene	99-87-6	<5	<5	<1	<5	<5	<1	*	5
1,1,2,2-Tetrachloroethane	79-34-5	<5	<5	<1	<5	<5	<1	600	5
1,3-Dichlorobenzene	541-73-1	<5	<5	<1	<5	<5	<1	1,600	5
1,4-Dichlorobenzene	106-46-7	<5	<5	<1	<5	<5	<1	8,500	5
1,2-Dichlorobenzene	95-50-1	<5	<5	<1	<5	<5	<1	7,900	4.7
n-Butylbenzene	104-51-8	<5	<5	<1	<5	<5	<1	*	5
1,2-Dibromo-3-chloropropane	96-12-8	<5	<5	<1	<5	<5	<1	*	0.04
1,2,4-Trichlorobenzene	120-82-1	<5	<5	<1	<5	<5	<1	3,400	5
Hexachlorobutadiene	87-68-3	<5	<5	<1	<5	<5	<1	*	0.5
Naphthalene	91-20-3	<5	<5	<1	<5	<5	<1	*	**10
1,2,3-Trichlorobenzene	87-61-6	<5	<5	<1	<5	<5	<1	*	5

*No Standard or Guidance Value given for GW / no RSCO given for soil.

** Guidance Value, no Standard exists.

AKRF, Inc.
Site: Greenpoint Lumber Yard

Sample ID:		B1 [1-2]	B1 [4-5]	B2 [0-1]	B4 [2-4]	B4 [6-8]	B5 [2-4]	TAGM 4046	NYS DEC
Laboratory ID:		0020174	0020175	0020176	0020177	0020178	0020179	Rec. Soil	Class GA Ambient
Sampling Date:		08/16/01	08/16/01	08/16/01	08/16/01	08/16/01	08/16/01	Cleanup Obj.	Water Qual.
Units:		ug/kg	ug/kg	ug/kg	ug/kg	ug/kg	ug/kg	ug/kg	Standards
									mg/L
SW-846 8270									
Parameter	CAS No.								
Pyridine	110-86-1	<40	<40	<40	<40	<40	<40	*	**50
N-Nitrosodimethylamine	62-75-9	<40	<40	<40	<40	<40	<40	*	*
Aniline	62-53-3	<40	<40	<40	<40	<40	<40	1,000	5
Bis(2-chloroethyl)ether	111-44-4	<40	<40	<40	<40	<40	<40	*	1
Phenol	108-95-1	<40	<40	<40	<40	<40	<40	30 or MDL	1
2-Chlorophenol	95-57-8	<40	<40	<40	<40	<40	<40	800	*
1,3-Dichlorobenzene	541-73-1	<40	<40	<40	<40	<40	<40	1,600	5
1,4-Dichlorobenzene	106-46-7	<40	<40	<40	<40	<40	<40	8,500	5
1,2-Dichlorobenzene	95-50-1	<40	<40	<40	<40	<40	<40	7,900	4.7
Benzyl Alcohol	100-51-6	<40	<40	<40	<40	<40	<40	*	*
Bis(2-chloroisopropyl)ether	108-60-1	<40	<40	<40	<40	<40	<40	*	*
2-Methylphenol	95-48-7	<40	<40	<40	<40	<40	<40	100 or MDL	*
Hexachloroethane	67-72-1	<40	<40	<40	<40	<40	<40	*	*
N-Nitrosodi-n-propylamine	621-64-7	<40	<40	<40	<40	<40	<40	*	*
3+4-Methylphenol	108-39-4 / 106-44-5	<40	<40	<40	<40	<40	<40	*	*
Nitrobenzene	98-95-3	<40	<40	<40	<40	<40	<40	200 or MDL	5
Isophorone	78-59-1	<40	<40	<40	<40	<40	<40	4,400	50*
2- Nitrophenol	88-75-5	<40	<40	<40	<40	<40	<40	330 or MDL	*
2,4-Dimethylphenol	105-67-9	<40	<40	<40	<40	<40	<40	*	*
Benzoic Acid	65-85-0	280	<70	<70	<70	<70	<70	2,700	*
Bis(2-chloroethoxy)methane	111-91-1	<40	<40	<40	<40	<40	<40	*	*
2,4-Dichlorophenol	102-83-2	<40	<40	<40	<40	<40	<40	400	1
1,2,4-Trichlorobenzene	120-82-1	<40	<40	<40	<40	<40	<40	3,400	5
Naphthalene	91-20-3	110	<40	<40	<40	<40	<40	13,000	**10
4-Chloroaniline	106-47-8	<40	<40	<40	<40	<40	<40	220 or MDL	*
Hexachlorobutadiene	87-68-3	<40	<40	<40	<40	<40	<40	*	5
4-Chloro-3-methylphenol	59-50-7	<40	<40	<40	<40	<40	<40	240 or MDL	*
2-Methylnaphthalene	91-57-6	130	95	100	<40	<40	<40	36,400	*
Hexachlorocyclopentadiene	77-47-4	<40	<40	<40	<40	<40	<40	*	5
2,4,5-Trichlorophenol	95-95-4	<40	<40	<40	<40	<40	<40	*	*
2,4,6-Trichlorophenol	88-06-2	<40	<40	<40	<40	<40	<40	1,000	*
2-Chloronaphthalene	91-58-7	<40	<40	<40	<40	<40	<40	*	**10
2-Nitroaniline	88-74-4	<40	<40	<40	<40	<40	<40	430 or MDL	*
Acenaphthylene	208-96-8	<40	<40	150	<40	<40	<40	41,000	*
Dimethyl Phthalate	131-11-3	<40	<40	<40	<40	<40	<40	2,000	*50

*No Standard or Guidance Value given for GW / no RSCO given for soil.

** Guidance Value, no Standard exists.

AKRF, Inc.
Site: Greenpoint Lumber Yard

Sample ID:		B1 [1-2]	B1 [4-5]	B2 [0-1]	B4 [2-4]	B4 [6-8]	B5 [2-4]	TAGM 4046	NYS DEC
Laboratory ID:		0020174	0020175	0020176	0020177	0020178	0020179	Rec. Soil	Class GA Ambient
Sampling Date:		08/16/01	08/16/01	08/16/01	08/16/01	08/16/01	08/16/01	Cleanup Obj.	Water Qual.
		ug/kg	ug/kg	ug/kg	ug/kg	ug/kg	ug/kg	ug/kg	Standards
									mg/L
SW-846 8270									
Parameter	CAS No.								
2,6-Dinitrotoluene	606-20-2	<40	<40	<40	<40	<40	<40	1,000	5
Acenaphthene	83-32-9	<40	<40	240	<40	<40	<40	50,000	**20
3-Nitroaniline	99-09-2	<40	<40	<40	<40	<40	<40	0.5 or MDL	*
2,4-Dinitrophenol	51-28-5	<70	<70	<70	<70	<70	<70	200 or MDL	*
Dibenzofuran	132-64-9	<40	<40	<40	<40	<40	<40	6,200	*
2,4-Dinitrotoluene	121-14-2	<40	<40	<40	<40	<40	<40	1,000	*
4-Nitrophenol	100-02-7	<50	<50	<50	<50	<50	<50	100 or MDL	*
Fluorene	86-73-7	<40	<40	320	<40	<40	<40	50,000	**50
4-Chlorophenyl phenyl ether	7005-72-3	<40	<40	<40	<40	<40	<40	*	*
Azobenzene	103-33-3	<40	<40	<40	<40	<40	<40	*	*
Diethyl Phthalate	84-66-2	<40	<40	<40	<40	<40	<40	7,100	**50
4-Nitroaniline	100-01-6	<50	<50	<50	<50	<50	<50	*	*
4,6-Dinitro-2-methylphenol	534-52-1	<40	<40	<40	<40	<40	<40	*	*
N-Nitrosodiphenylamine	86-30-6	<40	<40	<40	<40	<40	<40	*	**50
4-Bromophenyl phenyl ether	101-55-3	<40	<40	<40	<40	<40	<40	*	*
Hexachlorobenzene	118-74-1	<40	<40	<40	<40	<40	<40	410	0.35
Pentachlorophenol	87-86-5	<60	<60	<60	<60	<60	<60	1,000 or MDL	1
Phenanthrene	85-01-8	170	160	3,900	640	<40	120	50,000	**50
Anthracene	120-12-7	45	<40	980	130	<40	<40	50,000	**50
Carbazole	86-74-8	<40	<40	210	<40	<40	<40	*	*
Di-n-butyl Phthalate	84-74-2	<40	<40	<40	<40	<40	<40	8,100	50
Fluoranthene	206-44-0	230	150	5,600	1,500	<40	150	50,000	**50
Benzidine	92-87-5	<40	<40	<40	<40	<40	<40	*	5
Pyrene	129-00-0	290	220	7,800	2,700	<40	200	50,000	**50
Butyl benzyl Phthalate	85-68-7	<40	<40	<40	<40	<40	<40	50,000	**50
3,3´-Dichlorobenzidine	91-94-1	<40	<40	<40	<40	<40	<40	n/a	*
Benzo(a)anthracene	56-55-3	140	110	4,000	1,200	<40	87	224 or MDL	**0.002
Chrysene	218-01-9	160	140	4,400	1,400	<40	110	400	**0.002
Bis(2-ethylhexyl)Phthalate	117-81-7	730	840	440	<40	220	2,400	50,000	50
Di-n-octyl Phthalate	117-84-0	<40	<40	<40	<40	<40	<40	50,000	**50
Benzo(b)fluoranthene	205-99-2	270	260	6,000	1,800	<40	120	1,100	**0.002
Benzo(k)fluoranthene	207-08-9	280	270	6,400	1,900	<40	130	1,100	**0.002
Benzo(a)pyrene	50-32-8	170	150	3,800	1,300	<40	92	61 or MDL	*
Indeno(1,2,3-c,d)pyrene	193-39-5	<40	96	540	1,100	<40	69	3,200	**0.002
Dibenzo(a,h)anthracene	53-70-3	<40	<40	1,100	100	<40	<40	14 or MDL	*
Benzo(g,h,i)perylene	191-24-2	170	100	2,800	1,200	<40	94	50,000	*
	TOTAL:	3,175	2,591	48,780	14,970	220	3,572	500,000	

*No Standard or Guidance Value given for GW / no RSCO given for soil.

** Guidance Value, no Standard exists.

AKRF, Inc.
Site: Greenpoint Lumber Yard

Sample ID:		B5 [5-7]	MW-1 [5-6]	MW-1 [8-9]	MW-1	MW-2 [5-7]	MW-2 [9-11]	TAGM 4046	NYS DEC
Laboratory ID:		0020180	0020181	0020182	0020183	0020184	0020185	Rec. Soil	Class GA Ambient
Sampling Date:		08/16/01	08/16/01	08/16/01	08/16/01	08/16/01	08/16/01	Cleanup Obj.	Water Qual.
Units:		ug/kg	ug/kg	ug/kg	ug/L	ug/kg	ug/kg	ug/kg	Standards
									mg/L
SW-846 8270									
Parameter	CAS No.								
Pyridine	110-86-1	<40	<40	<40	<5	<40	<40	*	**50
N-Nitrosodimethylamine	62-75-9	<40	<40	<40	<5	<40	<40	*	*
Aniline	62-53-3	<40	<40	<40	<5	<40	<40	1,000	5
Bis(2-chloroethyl)ether	111-44-4	<40	<40	<40	<5	<40	<40	*	1
Phenol	108-95-1	<40	<40	<40	<5	<40	<40	30 or MDL	1
2-Chlorophenol	95-57-8	<40	<40	<40	<5	<40	<40	800	*
1,3-Dichlorobenzene	541-73-1	<40	<40	<40	<5	<40	<40	1,600	5
1,4-Dichlorobenzene	106-46-7	<40	<40	<40	<5	<40	<40	8,500	5
1,2-Dichlorobenzene	95-50-1	<40	<40	<40	<5	<40	<40	7,900	4.7
Benzyl Alcohol	100-51-6	<40	<40	<40	<5	<40	<40	*	*
Bis(2-chloroisopropyl)ether	108-60-1	<40	<40	<40	<5	<40	<40	*	*
2-Methylphenol	95-48-7	<40	<40	<40	<5	220	<40	100 or MDL	*
Hexachloroethane	67-72-1	<40	<40	<40	<5	<40	<40	*	*
N-Nitrosodi-n-propylamine	621-64-7	<40	<40	<40	<5	<40	<40	*	*
3+4-Methylphenol	108-39-4 / 106-44-5	<40	<40	<40	<5	<40	<40	*	*
Nitrobenzene	98-95-3	<40	<40	<40	<5	<40	<40	200 or MDL	5
Isophorone	78-59-1	<40	<40	<40	<5	<40	<40	4,400	50*
2- Nitrophenol	88-75-5	<40	<40	<40	<5	<40	<40	330 or MDL	*
2,4-Dimethylphenol	105-67-9	<40	<40	<40	<5	<40	<40	*	*
Benzoic Acid	65-85-0	200	230	<40	<5	<70	<70	2,700	*
Bis(2-chloroethoxy)methane	111-91-1	<40	<40	<40	<5	<40	<40	*	*
2,4-Dichlorophenol	102-83-2	<40	<40	<40	<5	<40	<40	400	1
1,2,4-Trichlorobenzene	120-82-1	<40	<40	<40	<5	<40	<40	3,400	5
Naphthalene	91-20-3	<40	<40	110	18	<40	74	13,000	**10
4-Chloroaniline	106-47-8	<40	<40	<40	<5	<40	<40	220 or MDL	*
Hexachlorobutadiene	87-68-3	<40	<40	<40	<5	<40	<40	*	5
4-Chloro-3-methylphenol	59-50-7	<40	<40	<40	<5	<40	<40	240 or MDL	*
2-Methylnaphthalene	91-57-6	28	<40	88	<5	590	56	36,400	*
Hexachlorocyclopentadiene	77-47-4	<40	<40	<40	<5	<40	<40	*	5
2,4,5-Trichlorophenol	95-95-4	<40	<40	<40	<5	<40	<40	*	*
2,4,6-Trichlorophenol	88-06-2	<40	<40	<40	<5	<40	<40	1,000	*
2-Chloronaphthalene	91-58-7	<40	<40	<40	<5	<40	<40	*	**10
2-Nitroaniline	88-74-4	<40	<40	<40	<5	<40	<40	430 or MDL	*
Acenaphthylene	208-96-8	<40	<40	<40	<5	170	68	41,000	*
Dimethyl Phthalate	131-11-3	<40	<40	<40	<5	<40	<40	2,000	*50

*No Standard or Guidance Value given for GW / no RSCO given for soil.

** Guidance Value, no Standard exists.

AKRF, Inc.
Site: Greenpoint Lumber Yard

Sample ID:		B5 [5-7]	MW-1 [5-6]	MW-1 [8-9]	MW-1	MW-2 [5-7]	MW-2 [9-11]	TAGM 4046	NYS DEC
Laboratory ID:		0020180	0020181	0020182	0020183	0020184	0020185	Rec. Soil	Class GA Ambient
Sampling Date:		08/16/01	08/16/01	08/16/01	08/16/01	08/16/01	08/16/01	Cleanup Obj.	Water Qual.
		ug/kg	ug/kg	ug/kg	ug/L	ug/kg	ug/kg	ug/kg	Standards
									mg/L
SW-846 8270									
Parameter	CAS No.								
2,6-Dinitrotoluene	606-20-2	<40	<40	<40	<5	<40	<40	1,000	5
Acenaphthene	83-32-9	53	<40	100	<5	270	140	50,000	**20
3-Nitroaniline	99-09-2	<40	<40	<40	<5	<40	<40	0.5 or MDL	*
2,4-Dinitrophenol	51-28-5	<70	<70	<70	<5	<70	<70	200 or MDL	*
Dibenzofuran	132-64-9	47	<40	46	<5	210	98	6,200	*
2,4-Dinitrotoluene	121-14-2	<40	<40	<40	<5	<40	<40	1,000	*
4-Nitrophenol	100-02-7	<50	<50	<50	<5	<50	<50	100 or MDL	*
Fluorene	86-73-7	61	<40	100	<5	500	190	50,000	**50
4-Chlorophenyl phenyl ether	7005-72-3	<40	<40	<40	<5	<40	<40	*	*
Azobenzene	103-33-3	<40	<40	<40	<5	<40	<40	*	*
Diethyl Phthalate	84-66-2	<40	<40	<40	<5	<40	<40	7,100	**50
4-Nitroaniline	100-01-6	<50	<50	<50	<5	<50	<50	*	*
4,6-Dinitro-2-methylphenol	534-52-1	<40	<40	<40	<5	<40	<40	*	*
N-Nitrosodiphenylamine	86-30-6	<40	<40	<40	<5	<40	<40	*	**50
4-Bromophenyl phenyl ether	101-55-3	<40	<40	<40	<5	<40	<40	*	*
Hexachlorobenzene	118-74-1	<40	<40	<40	<5	<40	<40	410	0.35
Pentachlorophenol	87-86-5	<60	<60	<60	<5	<60	<60	1,000 or MDL	1
Phenanthrene	85-01-8	570	<40	800	<5	3,200	1,200	50,000	**50
Anthracene	120-12-7	130	<40	190	<5	750	370	50,000	**50
Carbazole	86-74-8	60	<40	91	<5	<40	110	*	*
Di-n-butyl Phthalate	84-74-2	<40	<40	<40	<5	<40	<40	8,100	50
Fluoranthene	206-44-0	490	<40	690	<5	4,900	1,300	50,000	**50
Benzidine	92-87-5	<40	<40	<40	<5	<40	<40	*	5
Pyrene	129-00-0	460	<40	780	<5	4,500	1,200	50,000	**50
Butyl benzyl Phthalate	85-68-7	<40	<40	<40	<5	<40	<40	50,000	**50
3,3´-Dichlorobenzidine	91-94-1	<40	<40	<40	<5	<40	<40	n/a	*
Benzo(a)anthracene	56-55-3	220	<40	360	<5	2,100	910	224 or MDL	**0.002
Chrysene	218-01-9	220	<40	380	<5	2,800	940	400	**0.002
Bis(2-ethylhexyl)Phthalate	117-81-7	2,500	2,200	1,600	<5	910	660	50,000	50
Di-n-octyl Phthalate	117-84-0	<40	<40	<40	<5	<40	<40	50,000	**50
Benzo(b)fluoranthene	205-99-2	300	<40	510	<5	3,200	1,400	1,100	**0.002
Benzo(k)fluoranthene	207-08-9	310	<40	540	<5	3,400	1,500	1,100	**0.002
Benzo(a)pyrene	50-32-8	220	<40	310	<5	1,800	840	61 or MDL	*
Indeno(1,2,3-c,d)pyrene	193-39-5	150	<40	240	<5	1,100	83	3,200	**0.002
Dibenzo(a,h)anthracene	53-70-3	<40	<40	86	<5	520	190	14 or MDL	*
Benzo(g,h,i)perylene	191-24-2	170	<40	230	<5	1,300	440	50,000	*
	TOTAL:	6,289	2,430	7,251		32,440	11,770	500,000	

*No Standard or Guidance Value given for GW / no RSCO given for soil.

** Guidance Value, no Standard exists.

AKRF, Inc.
Site: Greenpoint Lumber Yard

Sample ID:		B-3 [1-3]	B-3 [8-10]	MW-2	MW-3 [0-2]	MW-3 [5-7]	MW-3	TAGM 4046	NYS DEC
Laboratory ID:		0020196	0020197	0020198	0020199	0020200	0020201	Rec. Soil	Class GA Ambient
Sampling Date:		08/17/01	08/17/01	08/17/01	08/17/01	08/17/01	08/17/01	Cleanup Obj.	Water Qual.
Units:		ug/kg	ug/kg	ug/L	ug/kg	ug/kg	ug/L	ug/kg	Standards
									mg/L
SW-846 8270									
Parameter	CAS No.								
Pyridine	110-86-1	<80	<80	<5	<80	<320	<5	*	**50
N-Nitrosodimethylamine	62-75-9	<80	<80	<5	<80	<320	<5	*	*
Aniline	62-53-3	<80	<80	<5	<80	<320	<5	1,000	5
Bis(2-chloroethyl)ether	111-44-4	<80	<80	<5	<80	<320	<5	*	1
Phenol	108-95-1	<80	<80	<5	<80	<320	<5	30 or MDL	1
2-Chlorophenol	95-57-8	<80	<80	<5	<80	<320	<5	800	*
1,3-Dichlorobenzene	541-73-1	<80	<80	<5	<80	<320	<5	1,600	5
1,4-Dichlorobenzene	106-46-7	<80	<80	<5	<80	<320	<5	8,500	5
1,2-Dichlorobenzene	95-50-1	<80	<80	<5	<80	<320	<5	7,900	4.7
Benzyl Alcohol	100-51-6	<80	<80	<5	<80	<320	<5	*	*
Bis(2-chloroisopropyl)ether	108-60-1	<80	<80	<5	<80	<320	<5	*	*
2-Methylphenol	95-48-7	<80	<80	<5	<80	<320	<5	100 or MDL	*
Hexachloroethane	67-72-1	<80	<80	<5	<80	<320	<5	*	*
N-Nitrosodi-n-propylamine	621-64-7	<80	<80	<5	<80	<320	<5	*	*
3+4-Methylphenol	108-39-4 / 106-44-5	<80	<80	<5	<80	<320	<5	*	*
Nitrobenzene	98-95-3	<80	<80	<5	<80	<320	<5	200 or MDL	5
Isophorone	78-59-1	<80	<80	<5	<80	<320	<5	4,400	50*
2- Nitrophenol	88-75-5	<80	<80	<5	<80	<320	<5	330 or MDL	*
2,4-Dimethylphenol	105-67-9	<80	<80	<5	<80	<320	<5	*	*
Benzoic Acid	65-85-0	<140	<140	<5	190	<560	<5	2,700	*
Bis(2-chloroethoxy)methane	111-91-1	<80	<80	<5	<80	<320	<5	*	*
2,4-Dichlorophenol	102-83-2	<80	<80	<5	<80	<320	<5	400	1
1,2,4-Trichlorobenzene	120-82-1	<80	<80	<5	<80	<320	<5	3,400	5
Naphthalene	91-20-3	460	87	<5	<80	3,800	<5	13,000	**10
4-Chloroaniline	106-47-8	<80	<80	<5	<80	<320	<5	220 or MDL	*
Hexachlorobutadiene	87-68-3	<80	<80	<5	<80	<320	<5	*	5
4-Chloro-3-methylphenol	59-50-7	<80	<80	<5	<80	<320	<5	240 or MDL	*
2-Methylnaphthalene	91-57-6	1,200	<80	<5	<80	1,500	<5	36,400	*
Hexachlorocyclopentadiene	77-47-4	<80	<80	<5	<80	<320	<5	*	5
2,4,5-Trichlorophenol	95-95-4	<80	<80	<5	<80	<320	<5	*	*
2,4,6-Trichlorophenol	88-06-2	<80	<80	<5	<80	<320	<5	1,000	*
2-Chloronaphthalene	91-58-7	<80	<80	<5	<80	<320	<5	*	**10
2-Nitroaniline	88-74-4	<80	<80	<5	<80	<320	<5	430 or MDL	*
Acenaphthylene	208-96-8	120	<80	<5	170	620	<5	41,000	*
Dimethyl Phthalate	131-11-3	<80	<80	<5	<80	<320	<5	2,000	*50

*No Standard or Guidance Value given for GW / no RSCO given for soil.

** Guidance Value, no Standard exists.

AKRF, Inc.
Site: Greenpoint Lumber Yard

Sample ID:		B-3 [1-3]	B-3 [8-10]	MW-2	MW-3 [0-2]	MW-3 [5-7]	MW-3	TAGM 4046	NYS DEC
Laboratory ID:		0020196	0020197	0020198	0020199	0020200	0020201	Rec. Soil	Class GA Ambient
Sampling Date:		08/17/01	08/17/01	08/17/01	08/17/01	08/17/01	08/17/01	Cleanup Obj.	Water Qual.
		ug/kg	ug/kg	ug/L	ug/kg	ug/kg	ug/L	ug/kg	Standards
									mg/L
SW-846 8270									
Parameter	CAS No.								
2,6-Dinitrotoluene	606-20-2	<80	<80	<5	<80	<320	<5	1,000	5
Acenaphthene	83-32-9	80	170	<5	200	3,800	<5	50,000	**20
3-Nitroaniline	99-09-2	<80	<80	<5	<80	<320	<5	0.5 or MDL	*
2,4-Dinitrophenol	51-28-5	<140	<140	<5	<140	<560	<5	200 or MDL	*
Dibenzofuran	132-64-9	170	95	<5	98	2,300	<5	6,200	*
2,4-Dinitrotoluene	121-14-2	<80	<80	<5	<80	<320	<5	1,000	*
4-Nitrophenol	100-02-7	<100	<100	<5	<100	<400	<5	100 or MDL	*
Fluorene	86-73-7	280	140	<5	250	4,500	<5	50,000	**50
4-Chlorophenyl phenyl ether	7005-72-3	<80	<80	<5	<80	<320	<5	*	*
Azobenzene	103-33-3	<80	<80	<5	<80	<320	<5	*	*
Diethyl Phthalate	84-66-2	<80	<80	<5	<80	<320	<5	7,100	**50
4-Nitroaniline	100-01-6	<100	<100	<5	<100	<400	<5	*	*
4,6-Dinitro-2-methylphenol	534-52-1	<80	<80	<5	<80	<320	<5	*	*
N-Nitrosodiphenylamine	86-30-6	<80	<80	<5	<80	<320	<5	*	**50
4-Bromophenyl phenyl ether	101-55-3	<80	<80	<5	<80	<320	<5	*	*
Hexachlorobenzene	118-74-1	<80	<80	<5	<80	<320	<5	410	0.35
Pentachlorophenol	87-86-5	<120	<120	<5	<60	<240	<5	1,000 or MDL	1
Phenanthrene	85-01-8	1,400	1,500	<5	2,800	31,000	<5	50,000	**50
Anthracene	120-12-7	260	380	<5	670	7,600	<5	50,000	**50
Carbazole	86-74-8	90	110	<5	300	3,300	<5	*	*
Di-n-butyl Phthalate	84-74-2	110	<80	<5	<80	<320	<5	8,100	50
Fluoranthene	206-44-0	1,100	2,100	<5	4,400	30,000	<5	50,000	**50
Benzidine	92-87-5	<80	<80	<5	<80	<320	<5	*	5
Pyrene	129-00-0	990	2,100	<5	3,900	24,000	<5	50,000	**50
Butyl benzyl Phthalate	85-68-7	<80	<80	<5	<80	<320	<5	50,000	**50
3,3'-Dichlorobenzidine	91-94-1	<80	<80	<5	<80	<320	<5	n/a	*
Benzo(a)anthracene	56-55-3	570	970	<5	2,000	12,000	<5	224 or MDL	**0.002
Chrysene	218-01-9	740	1,000	<5	2,200	11,000	<5	400	**0.002
Bis(2-ethylhexyl)Phthalate	117-81-7	110	460	<5	100	660	<5	50,000	50
Di-n-octyl Phthalate	117-84-0	<80	<80	<5	<80	<320	<5	50,000	**50
Benzo(b)fluoranthene	205-99-2	520	940	<5	2,500	13,000	<5	1,100	**0.002
Benzo(k)fluoranthene	207-08-9	360	670	<5	880	4,500	<5	1,100	**0.002
Benzo(a)pyrene	50-32-8	500	950	<5	2,000	10,000	<5	61 or MDL	*
Indeno(1,2,3-c,d)pyrene	193-39-5	310	550	<5	1,200	5,600	<5	3,200	**0.002
Dibenzo(a,h)anthracene	53-70-3	110	150	<5	340	1,700	<5	14 or MDL	*
Benzo(g,h,i)perylene	191-24-2	340	620	<5	1,300	5,200	<5	50,000	*
	TOTALS:	9,820	12,992		25,498	176,080		500,000	

*No Standard or Guidance Value given for GW / no RSCO given for soil.

** Guidance Value, no Standard exists.

AKRF, Inc.
Site: Greenpoint Lumber Yard

Sample ID:		MW-4 [0-2]	MW-4 [13-15]	MW-4	MW-5 [0-2]	MW-5 [4-6]	MW-5	TAGM 4046	NYS DEC
Laboratory ID:		0020202	0020203	0020204	0020205	0020206	0020207	Rec. Soil	Class GA Ambient
Sampling Date:		08/17/01	08/17/01	08/17/01	08/17/01	08/17/01	08/17/01	Cleanup Obj.	Water Qual.
Units:		ug/kg	ug/kg	ug/L	ug/kg	ug/kg	ug/L	ug/kg	Standards
									mg/L
SW-846 8270									
Parameter	CAS No.								
Pyridine	110-86-1	<1600	<80	<5	<320	<320	<5	*	**50
N-Nitrosodimethylamine	62-75-9	<1600	<80	<5	<320	<320	<5	*	*
Aniline	62-53-3	<1600	<80	<5	<320	<320	<5	1,000	5
Bis(2-chloroethyl)ether	111-44-4	<1600	<80	<5	<320	<320	<5	*	1
Phenol	108-95-1	<1600	<80	<5	<320	<320	<5	30 or MDL	1
2-Chlorophenol	95-57-8	<1600	<80	<5	<320	<320	<5	800	*
1,3-Dichlorobenzene	541-73-1	<1600	<80	<5	<320	<320	<5	1,600	5
1,4-Dichlorobenzene	106-46-7	<1600	<80	<5	<320	<320	<5	8,500	5
1,2-Dichlorobenzene	95-50-1	<1600	<80	<5	<320	<320	<5	7,900	4.7
Benzyl Alcohol	100-51-6	<1600	<80	<5	<320	<320	<5	*	*
Bis(2-chloroisopropyl)ether	108-60-1	<1600	<80	<5	<320	<320	<5	*	*
2-Methylphenol	95-48-7	<1600	<80	<5	<320	<320	<5	100 or MDL	*
Hexachloroethane	67-72-1	<1600	<80	<5	<320	<320	<5	*	*
N-Nitrosodi-n-propylamine	621-64-7	<1600	<80	<5	<320	<320	<5	*	*
3+4-Methylphenol	108-39-4 / 106-44-5	<1600	<80	<5	<320	<320	<5	*	*
Nitrobenzene	98-95-3	<1600	<80	<5	<320	<320	<5	200 or MDL	5
Isophorone	78-59-1	<1600	<80	<5	<320	<320	<5	4,400	50*
2- Nitrophenol	88-75-5	<1600	<80	<5	<320	<320	<5	330 or MDL	*
2,4-Dimethylphenol	105-67-9	<1600	<80	<5	<320	<320	<5	*	*
Benzoic Acid	65-85-0	<2800	170	<5	<560	<560	<5	2,700	*
Bis(2-chloroethoxy)methane	111-91-1	<1600	<80	<5	<320	<320	<5	*	*
2,4-Dichlorophenol	102-83-2	<1600	<80	<5	<320	<320	<5	400	1
1,2,4-Trichlorobenzene	120-82-1	<1600	<80	<5	<320	<320	<5	3,400	5
Naphthalene	91-20-3	2,000	150	<5	<320	<320	<5	13,000	**10
4-Chloroaniline	106-47-8	<1600	<80	<5	<320	<320	<5	220 or MDL	*
Hexachlorobutadiene	87-68-3	<1600	<80	<5	<320	<320	<5	*	5
4-Chloro-3-methylphenol	59-50-7	<1600	<80	<5	<320	<320	<5	240 or MDL	*
2-Methylnaphthalene	91-57-6	1,600	120	<5	<320	<320	<5	36,400	*
Hexachlorocyclopentadiene	77-47-4	<1600	<80	<5	<320	<320	<5	*	5
2,4,5-Trichlorophenol	95-95-4	<1600	<80	<5	<320	<320	<5	*	*
2,4,6-Trichlorophenol	88-06-2	<1600	<80	<5	<320	<320	<5	1,000	*
2-Chloronaphthalene	91-58-7	<1600	<80	<5	<320	<320	<5	*	**10
2-Nitroaniline	88-74-4	<1600	<80	<5	<320	<320	<5	430 or MDL	*
Acenaphthylene	208-96-8	<1600	120	<5	<320	<320	<5	41,000	*
Dimethyl Phthalate	131-11-3	<1600	<80	<5	<320	<320	<5	2,000	*50

*No Standard or Guidance Value given for GW / no RSCO given for soil.

** Guidance Value, no Standard exists.

AKRF, Inc.
Site: Greenpoint Lumber Yard

Sample ID:		MW-4 [0-2]	MW-4 [13-15]	MW-4	MW-5 [0-2]	MW-5 [4-6]	MW-5	TAGM 4046	NYS DEC
Laboratory ID:		0020202	0020203	0020204	0020205	0020206	0020207	Rec. Soil	Class GA Ambient
Sampling Date:		08/17/01	08/17/01	08/17/01	08/17/01	08/17/01	08/17/01	Cleanup Obj.	Water Qual.
		ug/kg	ug/kg	ug/L	ug/kg	ug/kg	ug/L	ug/kg	Standards
									mg/L
SW-846 8270									
Parameter	CAS No.								
2,6-Dinitrotoluene	606-20-2	<1600	<80	<5	<320	<320	<5	1,000	5
Acenaphthene	83-32-9	6,100	360	<5	460	1,200	<5	50,000	**20
3-Nitroaniline	99-09-2	<1600	<80	<5	<320	<320	<5	0.5 or MDL	*
2,4-Dinitrophenol	51-28-5	<2800	<140	<5	<560	<560	<5	200 or MDL	*
Dibenzofuran	132-64-9	2,800	220	<5	<320	640	<5	6,200	*
2,4-Dinitrotoluene	121-14-2	<1600	<80	<5	<320	<320	<5	1,000	*
4-Nitrophenol	100-02-7	<2000	<100	<5	<400	<400	<5	100 or MDL	*
Fluorene	86-73-7	5,300	380	<5	450	1,200	<5	50,000	**50
4-Chlorophenyl phenyl ether	7005-72-3	<1600	<80	<5	<320	<320	<5	*	*
Azobenzene	103-33-3	<1600	<80	<5	<320	<320	<5	*	*
Diethyl Phthalate	84-66-2	<1600	<80	<5	<320	<320	<5	7,100	**50
4-Nitroaniline	100-01-6	<2000	<100	<5	<400	<400	<5	*	*
4,6-Dinitro-2-methylphenol	534-52-1	<1600	<80	<5	<320	<320	<5	*	*
N-Nitrosodiphenylamine	86-30-6	<1600	<80	<5	<320	<320	<5	*	**50
4-Bromophenyl phenyl ether	101-55-3	<1600	<80	<5	<320	<320	<5	*	*
Hexachlorobenzene	118-74-1	<1600	<80	<5	<320	<320	<5	410	0.35
Pentachlorophenol	87-86-5	<2400	<120	<5	<480	<480	<5	1,000 or MDL	1
Phenanthrene	85-01-8	79,000	6,100	<5	7,300	15,000	<5	50,000	**50
Anthracene	120-12-7	9,200	830	<5	1,400	3,300	<5	50,000	**50
Carbazole	86-74-8	6,200	590	<5	540	1000	<5	*	*
Di-n-butyl Phthalate	84-74-2	<1600	<80	<5	<320	<320	<5	8,100	50
Fluoranthene	206-44-0	86,000	7,100	<5	11,000	20,000	<5	50,000	**50
Benzidine	92-87-5	<1600	<80	<5	<320	<320	<5	*	5
Pyrene	129-00-0	76,000	5,900	<5	10,000	18,000	<5	50,000	**50
Butyl benzyl Phthalate	85-68-7	<1600	<80	<5	<320	<320	<5	50,000	**50
3,3'-Dichlorobenzidine	91-94-1	<1600	<80	<5	<320	<320	<5	n/a	*
Benzo(a)anthracene	56-55-3	30,000	2,600	<5	5,400	9,200	<5	224 or MDL	**0.002
Chrysene	218-01-9	36,000	3,200	<5	5,300	9,000	<5	400	**0.002
Bis(2-ethylhexyl)Phthalate	117-81-7	<1600	<80	<5	350	430	<5	50,000	50
Di-n-octyl Phthalate	117-84-0	<1600	<80	<5	<320	<320	<5	50,000	**50
Benzo(b)fluoranthene	205-99-2	40,000	3,400	<5	4,700	10,000	<5	1,100	**0.002
Benzo(k)fluoranthene	207-08-9	14,000	1,400	<5	4,100	3,400	<5	1,100	**0.002
Benzo(a)pyrene	50-32-8	31,000	2,800	<5	5,000	8,200	<5	61 or MDL	*
Indeno(1,2,3-c,d)pyrene	193-39-5	20,000	1,900	<5	3,200	4,900	<5	3,200	**0.002
Dibenzo(a,h)anthracene	53-70-3	5,500	490	<5	820	1,400	<5	14 or MDL	*
Benzo(g,h,i)perylene	191-24-2	22,000	2,000	<5	3,400	5,000	<5	50,000	*
	TOTAL:	472,700	39,630		92,220	111,870		500,000	

*No Standard or Guidance Value given for GW / no RSCO given for soil.

** Guidance Value, no Standard exists.

AKRF, Inc.
Site: Greenpoint Lumber Yard

Sample ID:		B1 [1-2]	B1 [4-5]	B2 [0-1]	B4 [2-4]	B4 [6-8]	B5 [2-4]	TAGM 4046
Laboratory ID:		0020174	0020175	0020176	0020177	0020178	0020179	Rec. Soil
Sampling Date:		08/16/01	08/16/01	08/16/01	08/16/01	08/16/01	08/16/01	Cleanup Obj.
		ug/kg	ug/kg	ug/kg	ug/kg	ug/kg	ug/kg	ug/kg
Pesticides SW-846 8081								
Parameter	CAS No.							
DBCP	96-12-8	NA	NA	<5	NA	NA	<5	*
Hexachlorocyclopentadiene	77-47-4	NA	NA	<5	NA	NA	<5	*
Hexachlorobenzene	118-74-1	NA	NA	<5	NA	NA	<5	*
alpha-BHC	319-84-6	NA	NA	<5	NA	NA	<5	110
gamma-BHC(Lindane)	58-89-9	NA	NA	<5	NA	NA	<5	60
beta-BHC	319-85-7	NA	NA	<5	NA	NA	<5	200
Heptachlor	76-44-8	NA	NA	<5	NA	NA	<5	100
delta-BHC	319-86-8	NA	NA	<5	NA	NA	<5	300
Aldrin	309-00-2	NA	NA	<5	NA	NA	<5	41
Isodrin	465-73-6	NA	NA	<5	NA	NA	<5	*
Heptachlor Epoxide	1024-57-3	NA	NA	<5	NA	NA	<5	20
Endosulfan I	959-98-8	NA	NA	<5	NA	NA	<5	900
4,4'-DDE	72-55-9	NA	NA	<5	NA	NA	<5	2,100
Dieldrin	60-57-1	NA	NA	<5	NA	NA	<5	44
Endrin	72-20-8	NA	NA	<5	NA	NA	<5	100
Chlorobenzilate	510-15-6	NA	NA	<5	NA	NA	<5	*
4,4'-DDD	72-54-8	NA	NA	<5	NA	NA	<5	2,900
Endosulfan II	33213-65-9	NA	NA	<5	NA	NA	<5	900
4,4'-DDT	50-29-3	NA	NA	6	NA	NA	<5	2,100
Endrin Aldehyde	7421-93-4	NA	NA	<5	NA	NA	<5	*
Endosulfan Sulfate	1031-07-8	NA	NA	<5	NA	NA	<5	1,000
Methoxychlor	72-43-5	NA	NA	<5	NA	NA	<5	*
Endrin Ketone	53494-70-5	NA	NA	<5	NA	NA	<5	*
Chlordane	57-74-9	NA	NA	<5	NA	NA	<5	540
Toxaphene	8001-35-2	NA	NA	<10	NA	NA	<10	*

*No TAGM RSCO exists for this parameter

AKRF, Inc.
Site: Greenpoint Lumber Yard

Sample ID:		B5 [5-7]	MW-1 [5-6]	MW-1 [8-9]	MW-1	MW-2 [5-7]	MW-2 [9-11]	TAGM 4046	NYS DEC
Laboratory ID:		0020180	0020181	0020182	0020183	0020184	0020185	Rec. Soil	Class GA Ambient
Sampling Date:		08/16/01	08/16/01	08/16/01	08/16/01	08/16/01	08/16/01	Cleanup Obj.	Water Qual.
		ug/kg	ug/kg	ug/kg	ug/L	ug/kg	ug/kg	ug/kg	Standards
									mg/L
Pesticides SW-846 8081									
Parameter	**CAS No.**								
DBCP	96-12-8	NA	NA	NA	NA	NA	NA	*	*
Hexachlorocyclopentadiene	77-47-4	NA	NA	NA	NA	NA	NA	*	5
Hexachlorobenzene	118-74-1	NA	NA	NA	NA	NA	NA	*	0.04
alpha-BHC	319-84-6	NA	NA	NA	NA	NA	NA	110	<0.05
gamma-BHC(Lindane)	58-89-9	NA	NA	NA	NA	NA	NA	60	<0.05
beta-BHC	319-85-7	NA	NA	NA	NA	NA	NA	200	<0.05
Heptachlor	76-44-8	NA	NA	NA	NA	NA	NA	100	<0.01
delta-BHC	319-86-8	NA	NA	NA	NA	NA	NA	300	<0.05
Aldrin	309-00-2	NA	NA	NA	NA	NA	NA	41	<0.01
Isodrin	465-73-6	NA	NA	NA	NA	NA	NA	*	5
Heptachlor Epoxide	1024-57-3	NA	NA	NA	NA	NA	NA	20	<0.01
Endosulfan I	959-98-8	NA	NA	NA	NA	NA	NA	900	0.1
4,4'-DDE	72-55-9	NA	NA	NA	NA	NA	NA	2,100	<0.01
Dieldrin	60-57-1	NA	NA	NA	NA	NA	NA	44	<0.01
Endrin	72-20-8	NA	NA	NA	NA	NA	NA	100	<0.01
Chlorobenzilate	510-15-6	NA	NA	NA	NA	NA	NA	*	*
4,4'-DDD	72-54-8	NA	NA	NA	NA	NA	NA	2,900	<0.01
Endosulfan II	33213-65-9	NA	NA	NA	NA	NA	NA	900	0.1
4,4'-DDT	50-29-3	NA	NA	NA	NA	NA	NA	2,100	<0.01
Endrin Aldehyde	7421-93-4	NA	NA	NA	NA	NA	NA	*	5
Endosulfan Sulfate	1031-07-8	NA	NA	NA	NA	NA	NA	1,000	0.1
Methoxychlor	72-43-5	NA	NA	NA	NA	NA	NA	*	35
Endrin Ketone	53494-70-5	NA	NA	NA	NA	NA	NA	*	*
Chlordane	57-74-9	NA	NA	NA	NA	NA	NA	540	0.1
Toxaphene	8001-35-2	NA	NA	NA	NA	NA	NA	*	0.06

*No RSCO exists for this parameter.

AKRF, Inc.
Site: Greenpoint Lumber Yard

Sample ID:		B-3 [1-3]	B-3 [8-10]	MW-2	MW-3 [0-2]	MW-3 [5-7]	MW-3	TAGM 4046
Laboratory ID:		0020196	0020197	0020198	0020199	0020200	0020201	Rec. Soil
Sampling Date:		08/17/01	08/17/01	08/17/01	08/17/01	08/17/01	08/17/01	Cleanup Obj.
		ug/kg	ug/kg	ug/L	ug/kg	ug/kg	ug/L	ug/kg
Pesticides SW-846 8081								
Parameter	CAS No.							
DBCP	96-12-8	NA	NA	NA	<5	NA	NA	*
Hexachlorocyclopentadiene	77-47-4	NA	NA	NA	<5	NA	NA	*
Hexachlorobenzene	118-74-1	NA	NA	NA	<5	NA	NA	*
alpha-BHC	319-84-6	NA	NA	NA	<5	NA	NA	110
gamma-BHC(Lindane)	58-89-9	NA	NA	NA	<5	NA	NA	60
beta-BHC	319-85-7	NA	NA	NA	<5	NA	NA	200
Heptachlor	76-44-8	NA	NA	NA	<5	NA	NA	100
delta-BHC	319-86-8	NA	NA	NA	<5	NA	NA	300
Aldrin	309-00-2	NA	NA	NA	<5	NA	NA	41
Isodrin	465-73-6	NA	NA	NA	<5	NA	NA	*
Heptachlor Epoxide	1024-57-3	NA	NA	NA	<5	NA	NA	20
Endosulfan I	959-98-8	NA	NA	NA	<5	NA	NA	900
4,4'-DDE	72-55-9	NA	NA	NA	<5	NA	NA	2,100
Dieldrin	60-57-1	NA	NA	NA	<5	NA	NA	44
Endrin	72-20-8	NA	NA	NA	<5	NA	NA	100
Chlorobenzilate	510-15-6	NA	NA	NA	<5	NA	NA	*
4,4'-DDD	72-54-8	NA	NA	NA	<5	NA	NA	2,900
Endosulfan II	33213-65-9	NA	NA	NA	<5	NA	NA	900
4,4'-DDT	50-29-3	NA	NA	NA	<5	NA	NA	2,100
Endrin Aldehyde	7421-93-4	NA	NA	NA	<5	NA	NA	*
Endosulfan Sulfate	1031-07-8	NA	NA	NA	<5	NA	NA	1,000
Methoxychlor	72-43-5	NA	NA	NA	<5	NA	NA	*
Endrin Ketone	53494-70-5	NA	NA	NA	<5	NA	NA	*
Chlordane	57-74-9	NA	NA	NA	<5	NA	NA	540
Toxaphene	8001-35-2	NA	NA	NA	<10	NA	NA	*

*No RSCO exists for this parameter.

AKRF, Inc.
Site: Greenpoint Lumber Yard

Sample ID:		MW-4 [0-2]	MW-4 [13-15]	MW-4	MW-5 [0-2]	MW-5 [4-6]	MW-5	TAGM 4046
Laboratory ID:		0020202	0020203	0020204	0020205	0020206	0020207	Rec. Soil
Sampling Date:		08/17/01	08/17/01	08/17/01	08/17/01	08/17/01	08/17/01	Cleanup Obj.
		ug/kg	ug/kg	ug/L	ug/kg	ug/kg	ug/L	ug/kg
Pesticides SW-846 8081								
Parameter	CAS No.							
DBCP	96-12-8	NA	NA	NA	<5	NA	NA	*
Hexachlorocyclopentadiene	77-47-4	NA	NA	NA	<5	NA	NA	*
Hexachlorobenzene	118-74-1	NA	NA	NA	<5	NA	NA	*
alpha-BHC	319-84-6	NA	NA	NA	<5	NA	NA	110
gamma-BHC(Lindane)	58-89-9	NA	NA	NA	<5	NA	NA	60
beta-BHC	319-85-7	NA	NA	NA	<5	NA	NA	200
Heptachlor	76-44-8	NA	NA	NA	<5	NA	NA	100
delta-BHC	319-86-8	NA	NA	NA	<5	NA	NA	300
Aldrin	309-00-2	NA	NA	NA	<5	NA	NA	41
Isodrin	465-73-6	NA	NA	NA	<5	NA	NA	*
Heptachlor Epoxide	1024-57-3	NA	NA	NA	<5	NA	NA	20
Endosulfan I	959-98-8	NA	NA	NA	60	NA	NA	900
4,4'-DDE	72-55-9	NA	NA	NA	<5	NA	NA	2,100
Dieldrin	60-57-1	NA	NA	NA	<5	NA	NA	44
Endrin	72-20-8	NA	NA	NA	<5	NA	NA	100
Chlorobenzilate	510-15-6	NA	NA	NA	<5	NA	NA	*
4,4'-DDD	72-54-8	NA	NA	NA	<5	NA	NA	2,900
Endosulfan II	33213-65-9	NA	NA	NA	<5	NA	NA	900
4,4'-DDT	50-29-3	NA	NA	NA	9.6	NA	NA	2,100
Endrin Aldehyde	7421-93-4	NA	NA	NA	<5	NA	NA	*
Endosulfan Sulfate	1031-07-8	NA	NA	NA	<5	NA	NA	1,000
Methoxychlor	72-43-5	NA	NA	NA	<5	NA	NA	*
Endrin Ketone	53494-70-5	NA	NA	NA	9.2	NA	NA	*
Chlordane	57-74-9	NA	NA	NA	<5	NA	NA	540
Toxaphene	8001-35-2	NA	NA	NA	<10	NA	NA	*

*No RSCO exists for this parameter.

AKRF, Inc.
Site: Greenpoint Lumber Yard

Sample ID:		B1 [1-2]	B1 [4-5]	B2 [0-1]	B4 [2-4]	B4 [6-8]	B5 [2-4]	TAGM 4046
Laboratory ID:		0020174	0020175	0020176	0020177	0020178	0020179	Rec. Soil
Sampling Date:		08/16/01	08/16/01	08/16/01	08/16/01	08/16/01	08/16/01	Cleanup Obj.
		ug/kg	ug/kg	ug/kg	ug/kg	ug/kg	ug/kg	ug/kg
PBCs SW-846 8082								
Parameter	CAS No.							
Aroclor-1016	12674-11-2	NA	NA	<80	NA	NA	<80	***
Aroclor-1221	11104-28-2	NA	NA	<80	NA	NA	<80	***
Aroclor-1232	11141-16-5	NA	NA	<80	NA	NA	<80	***
Aroclor-1242	53469-21-9	NA	NA	<80	NA	NA	<80	***
Aroclor-1248	12672-29-6	NA	NA	<80	NA	NA	<80	***
Aroclor-1254	11097-69-1	NA	NA	130	NA	NA	<80	***
Aroclor-1260	11096-82-5	NA	NA	170	NA	NA	<80	***
	TOTAL:			300				1000 surface

AKRF, Inc.
Site: Greenpoint Lumber Yard

Sample ID:		B5 [5-7]	MW-1 [5-6]	MW-1 [8-9]	MW-1	MW-2 [5-7]	MW-2 [9-11]	TAGM 4046
Laboratory ID:		0020180	0020181	0020182	0020183	0020184	0020185	Rec. Soil
Sampling Date:		08/16/01	08/16/01	08/16/01	08/16/01	08/16/01	08/16/01	Cleanup Obj.
		ug/kg	ug/kg	ug/kg	ug/L	ug/kg	ug/kg	ug/kg
PBCs SW-846 8082								
Parameter	CAS No.							
Aroclor-1016	12674-11-2	NA	NA	NA	NA	NA	NA	***
Aroclor-1221	11104-28-2	NA	NA	NA	NA	NA	NA	***
Aroclor-1232	11141-16-5	NA	NA	NA	NA	NA	NA	***
Aroclor-1242	53469-21-9	NA	NA	NA	NA	NA	NA	***
Aroclor-1248	12672-29-6	NA	NA	NA	NA	NA	NA	***
Aroclor-1254	11097-69-1	NA	NA	NA	NA	NA	NA	***
Aroclor-1260	11096-82-5	NA	NA	NA	NA	NA	NA	***
	TOTAL:							1,000 surface

AKRF, Inc.
Site: Greenpoint Lumber Yard

Sample ID:		B-3 [1-3]	B-3 [8-10]	MW-2	MW-3 [0-2]	MW-3 [5-7]	MW-3	TAGM 4046
Laboratory ID:		0020196	0020197	0020198	0020199	0020200	0020201	Rec. Soil
Sampling Date:		08/17/01	08/17/01	08/17/01	08/17/01	08/17/01	08/17/01	Cleanup Obj.
		ug/kg	ug/kg	ug/L	ug/kg	ug/kg	ug/L	ug/kg
PBCs SW-846 8082								
Parameter	CAS No.							
Aroclor-1016	12674-11-2	NA	NA	NA	<80	NA	NA	***
Aroclor-1221	11104-28-2	NA	NA	NA	<80	NA	NA	***
Aroclor-1232	11141-16-5	NA	NA	NA	<80	NA	NA	***
Aroclor-1242	53469-21-9	NA	NA	NA	<80	NA	NA	***
Aroclor-1248	12672-29-6	NA	NA	NA	<80	NA	NA	***
Aroclor-1254	11097-69-1	NA	NA	NA	<80	NA	NA	***
Aroclor-1260	11096-82-5	NA	NA	NA	<80	NA	NA	***
	TOTAL:				0			1,000 surface

AKRF, Inc.
Site: Greenpoint Lumber Yard

Sample ID:		MW-4 [0-2]	MW-4 [13-15]	MW-4	MW-5 [0-2]	MW-5 [4-6]	MW-5	TAGM 4046
Laboratory ID:		0020202	0020203	0020204	0020205	0020206	0020207	Rec. Soil
Sampling Date:		08/17/01	08/17/01	08/17/01	08/17/01	08/17/01	08/17/01	Cleanup Obj.
		ug/kg	ug/kg	ug/L	ug/kg	ug/kg	ug/L	ug/kg
PBCs SW-846 8082								
Parameter	CAS No.							
Aroclor-1016	12674-11-2	NA	NA	NA	<80	NA	NA	***
Aroclor-1221	11104-28-2	NA	NA	NA	<80	NA	NA	***
Aroclor-1232	11141-16-5	NA	NA	NA	<80	NA	NA	***
Aroclor-1242	53469-21-9	NA	NA	NA	<80	NA	NA	***
Aroclor-1248	12672-29-6	NA	NA	NA	<80	NA	NA	***
Aroclor-1254	11097-69-1	NA	NA	NA	<80	NA	NA	***
Aroclor-1260	11096-82-5	NA	NA	NA	<80	NA	NA	***
	TOTAL:				0			1,000 surface

AKRF, Inc.
Site: Greenpoint Lumber Yard

Sample ID:		B1 [1-2]	B1 [4-5]	B2 [0-1]	B4 [2-4]	B4 [6-8]	B5 [2-4]	TAGM 4046	Class GA Ambient
Laboratory ID:		0020174	0020175	0020176	0020177	0020178	0020179	Rec. Soil	Water Qual.
Sampling Date:		08/16/01	08/16/01	08/16/01	08/16/01	08/16/01	08/16/01	Cleanup Obj.	Standards
Units:		ug/kg	ug/kg	ug/kg	ug/kg	ug/kg	ug/kg	mg/kg	mg/L
TAL METALS									
PARAMETER	REPORTING LIMIT								
Silver, Ag	0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	SB	0.05
Aluminum, Al	1.0	7,584	6,432	2,569	3,783	751	3,481	SB	*
Arsenic, As	1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	7.5 or SB	0.025
Barium, Ba	0.5	35.5	44.5	51.4	68.4	11.3	127	300 or SB	1
Beryllium, Be	0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	0.16 or SB	**0.003
Calcium, Ca	1.0	6,960	6,144	75,688	3,905	2,750	14,069	SB	*
Cadmium, Cd	0.5	0.058	<0.5	<0.5	<0.5	<0.5	<0.5	1 or SB	0.01
Cobalt, Co	0.5	<0.5	<0.5	<0.5	0.608	1.68	<0.5	30 or SB	*
Chromium, Cr	0.5	11.1	11.7	3.89	7.23	2.65	4.27	10 or SB	0.05
Copper, Cu	0.5	16.5	18.2	32.2	44.5	11.4	5.30	25 or SB	0.2
Iron, Fe	0.5	14,880	16,464	8,477	12,005	3,344	5,655	2,000 or SB	0.3
Potassium, K	3.0	474	507	<3.0	384	117	<3.0	SB	*
Magnesium, Mg	1.0	1,896	3,638	34,773	1,019	1,121	2,637	SB	**35
Manganese, Mn	0.5	190	311	134	110	17.5	61.4	SB	0.3
Sodium, Na	1.0	189	151	209	419	318	136	SB	20
Nickel, Ni	0.5	9.08	9.79	6.35	16.9	6.04	4.15	13 or SB	*
Lead, Pb	0.5	32.4	31.1	61.1	380	8.54	291	SB	0.025
Antimony, Sb	1.0	<1.0	<1.0	<1.0	21.7	<1.0	<1.0	SB	**.003
Selenium, Se	1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	2 or SB	0.01
Thallium, Tl	0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	SB	**.004
Vanadium, V	0.5	17.7	23.4	80.4	13.1	4.91	9.28	150 or SB	*
Zinc, Zn	0.5	25.7	47.4	66.4	75.6	6.53	129	20 or SB	0.3
Mercury, Hg	0.05	<0.05	0.140	0.105	<0.05	0.107	<0.05	0.1	0.002

*No Standard or Guidance Value given for GW / no RSCO given for soil.

** Guidance Value, no Standard exists.

SB = Site Background

AKRF, Inc.
Site: Greenpoint Lumber Yard

Sample ID:		B1 [1-2]	B1 [4-5]	B2 [0-1]	B4 [2-4]	B4 [6-8]	B5 [2-4]	TAGM 4046	Class GA Ambient
Laboratory ID:		0020174	0020175	0020176	0020177	0020178	0020179	Rec. Soil	Water Qual.
Sampling Date:		08/16/01	08/16/01	08/16/01	08/16/01	08/16/01	08/16/01	Cleanup Obj.	Standards
Units:		ug/kg	ug/kg	ug/kg	ug/kg	ug/kg	ug/kg	mg/kg	mg/L
TAL METALS (DISSOLVED)									
PARAMETER	REPORTING LIMIT								
Silver, Ag	0.5	NA	NA	NA	NA	NA	NA	SB	0.05
Aluminum, Al	1.0	NA	NA	NA	NA	NA	NA	SB	*
Arsenic, As	1.0	NA	NA	NA	NA	NA	NA	7.5 or SB	0.025
Barium, Ba	0.5	NA	NA	NA	NA	NA	NA	300 or SB	1
Beryllium, Be	0.5	NA	NA	NA	NA	NA	NA	0.16 or SB	**0.003
Calcium, Ca	1.0	NA	NA	NA	NA	NA	NA	SB	*
Cadmium, Cd	0.5	NA	NA	NA	NA	NA	NA	1 or SB	0.01
Cobalt, Co	0.5	NA	NA	NA	NA	NA	NA	30 or SB	*
Chromium, Cr	0.5	NA	NA	NA	NA	NA	NA	10 or SB	0.05
Copper, Cu	0.5	NA	NA	NA	NA	NA	NA	25 or SB	0.2
Iron, Fe	0.5	NA	NA	NA	NA	NA	NA	2,000 or SB	0.3
Potassium, K	3.0	NA	NA	NA	NA	NA	NA	SB	*
Magnesium, Mg	1.0	NA	NA	NA	NA	NA	NA	SB	**35
Manganese, Mn	0.5	NA	NA	NA	NA	NA	NA	SB	0.3
Sodium, Na	1.0	NA	NA	NA	NA	NA	NA	SB	20
Nickel, Ni	0.5	NA	NA	NA	NA	NA	NA	13 or SB	*
Lead, Pb	0.5	NA	NA	NA	NA	NA	NA	SB	0.025
Antimony, Sb	1.0	NA	NA	NA	NA	NA	NA	SB	**.003
Selenium, Se	1.0	NA	NA	NA	NA	NA	NA	2 or SB	0.01
Thallium, Tl	0.5	NA	NA	NA	NA	NA	NA	SB	**.004
Vanadium, V	0.5	NA	NA	NA	NA	NA	NA	150 or SB	*
Zinc, Zn	0.5	NA	NA	NA	NA	NA	NA	20 or SB	0.3
Mercury, Hg	0.05	NA	NA	NA	NA	NA	NA	0.1	0.002

*No Standard or Guidance Value given for GW / no RSCO given for soil.

** Guidance Value, no Standard exists.

;B = Site Background

AKRF, Inc.
Site: Greenpoint Lumber Yard

Sample ID:		B5 [5-7]	MW-1 [5-6]	MW-1 [8-9]	MW-1	MW-2 [5-7]	MW-2 [9-11]	TAGM 4046	Class GA Ambient
Laboratory ID:		0020180	0020181	0020182	0020183	0020184	0020185	Rec. Soil	Water Qual.
Sampling Date:		08/16/01	08/16/01	08/16/01	08/16/01	08/16/01	08/16/01	Cleanup Obj.	Standards
Units:		ug/kg	ug/kg	ug/kg	ug/L	ug/kg	ug/kg	mg/kg	mg/L
TAL METALS									
PARAMETER	REPORTING LIMIT								
Silver, Ag	0.5	<0.5	<0.5	0.633	<0.030	<0.5	<0.5	SB	0.05
Aluminum, Al	1.0	8,197	2,904	5,040	195	4,525	6,270	SB	*
Arsenic, As	1.0	<1.0	<1.0	<1.0	<0.025	<1.0	<1.0	7.5 or SB	0.025
Barium, Ba	0.5	33.0	16.0	48.6	2.18	108	87.2	300 or SB	1
Beryllium, Be	0.5	<0.5	<0.5	<0.5	<0.030	<0.5	<0.5	0.16 or SB	**0.003
Calcium, Ca	1.0	1,237	1,545	4,282	168	4,131	15,485	SB	*
Cadmium, Cd	0.5	<0.5	<0.5	<0.5	<0.030	<0.5	<0.5	1 or SB	0.01
Cobalt, Co	0.5	<0.5	0.528	<0.5	<0.050	0.597	<0.5	30 or SB	*
Chromium, Cr	0.5	9.66	6.76	8.04	0.906	25.7	7.35	10 or SB	0.05
Copper, Cu	0.5	16.2	7.67	14.1	0.858	116	40.6	25 or SB	0.2
Iron, Fe	0.5	14,793	7,304	9,456	765	13,123	13,348	2,000 or SB	0.3
Potassium, K	3.0	357	306	396	29.9	1,549	2,052	SB	*
Magnesium, Mg	1.0	2,561	2,209	1,747	124	3,534	2,617	SB	**35
Manganese, Mn	0.5	170	66.2	100	22.4	71.3	219	SB	0.3
Sodium, Na	1.0	74.7	140	172	231	153	160	SB	20
Nickel, Ni	0.5	9.22	6.76	8.00	0.516	20.8	7.30	13 or SB	*
Lead, Pb	0.5	12.5	3.57	75.4	0.355	77.8	329	SB	0.025
Antimony, Sb	1.0	<1.0	<1.0	<1.0	<0.050	3.60	<1.0	SB	**.003
Selenium, Se	1.0	<1.0	<1.0	<1.0	<0.025	<1.0	<1.0	2 or SB	0.01
Thallium, Tl	0.5	<0.5	<0.5	<0.5	<0.020	<0.5	<0.5	SB	**.004
Vanadium, V	0.5	14.2	10.6	13.2	0.812	28.8	14.1	150 or SB	*
Zinc, Zn	0.5	31.8	13.2	37.8	3.47	127	47.5	20 or SB	0.3
Mercury, Hg	0.05	0.103	0.114	0.338	0.0035	<0.05	0.094	0.1	0.002

*No Standard or Guidance Value given for GW / no RSCO given for soil.

** Guidance Value, no Standard exists.

SB = Site Background

AKRF, Inc.
Site: Greenpoint Lumber Yard

Sample ID:		B5 [5-7]	MW-1 [5-6]	MW-1 [8-9]	MW-1	MW-2 [5-7]	MW-2 [9-11]	TAGM 4046	Class GA Ambient
Laboratory ID:		0020180	0020181	0020182	0020183	0020184	0020185	Rec. Soil	Water Qual.
Sampling Date:		08/16/01	08/16/01	08/16/01	08/16/01	08/16/01	08/16/01	Cleanup Obj.	Standards
Units:		ug/kg	ug/kg	ug/kg	ug/L	ug/kg	ug/kg	mg/kg	mg/L
TAL METALS (DISSOLVED)									
PARAMETER	REPORTING LIMIT								
Silver, Ag	0.5	NA	NA	NA	<0.030	NA	NA	SB	0.05
Aluminum, Al	1.0	NA	NA	NA	1.52	NA	NA	SB	*
Arsenic, As	1.0	NA	NA	NA	<0.025	NA	NA	7.5 or SB	0.025
Barium, Ba	0.5	NA	NA	NA	0.126	NA	NA	300 or SB	1
Beryllium, Be	0.5	NA	NA	NA	<0.030	NA	NA	0.16 or SB	**0.003
Calcium, Ca	1.0	NA	NA	NA	88.8	NA	NA	SB	*
Cadmium, Cd	0.5	NA	NA	NA	<0.030	NA	NA	1 or SB	0.01
Cobalt, Co	0.5	NA	NA	NA	<0.050	NA	NA	30 or SB	*
Chromium, Cr	0.5	NA	NA	NA	<0.030	NA	NA	10 or SB	0.05
Copper, Cu	0.5	NA	NA	NA	<0.030	NA	NA	25 or SB	0.2
Iron, Fe	0.5	NA	NA	NA	1.25	NA	NA	2,000 or SB	0.3
Potassium, K	3.0	NA	NA	NA	11.3	NA	NA	SB	*
Magnesium, Mg	1.0	NA	NA	NA	43.2	NA	NA	SB	**35
Manganese, Mn	0.5	NA	NA	NA	2.53	NA	NA	SB	0.3
Sodium, Na	1.0	NA	NA	NA	311	NA	NA	SB	20
Nickel, Ni	0.5	NA	NA	NA	<0.030	NA	NA	13 or SB	*
Lead, Pb	0.5	NA	NA	NA	<0.030	NA	NA	SB	0.025
Antimony, Sb	1.0	NA	NA	NA	<0.050	NA	NA	SB	**.003
Selenium, Se	1.0	NA	NA	NA	<0.025	NA	NA	2 or SB	0.01
Thallium, Tl	0.5	NA	NA	NA	<0.020	NA	NA	SB	**.004
Vanadium, V	0.5	NA	NA	NA	0.163	NA	NA	150 or SB	*
Zinc, Zn	0.5	NA	NA	NA	<0.030	NA	NA	20 or SB	0.3
Mercury, Hg	0.05	NA	NA	NA	<0.002	NA	NA	0.1	0.002

*No Standard or Guidance Value given for GW / no RSCO given for soil.

** Guidance Value, no Standard exists.

SB = Site Background

AKRF, Inc.
Site: Greenpoint Lumber Yard

Sample ID:		B-3 [1-3]	B-3 [8-10]	MW-2	MW-3 [0-2]	MW-3 [5-7]	MW-3	TAGM 4046	Class GA Ambient
Laboratory ID:		0020196	0020197	0020198	0020199	0020200	0020201	Rec. Soil	Water Qual.
Sampling Date:		08/17/01	08/17/01	08/17/01	08/17/01	08/17/01	08/17/01	Cleanup Obj.	Standards
Units:		mg/kg	mg/kg	mg/L	mg/kg	mg/kg	mg/L	mg/kg	mg/L
TAL METALS									
PARAMETER	REPORTING LIMIT								
Silver, Ag	0.5	0.845	<0.5	134	<0.5	<0.5	<0.030	SB	0.05
Aluminum, Al	1.0	2,981	10,192	98.2	17,314	8,150	41.0	SB	*
Arsenic, As	1.0	<1.0	<1.0	<0.025	<1.0	<1.0	<0.025	7.5 or SB	0.025
Barium, Ba	0.5	103	73.5	2.74	429	119.0	1.13	300 or SB	1
Beryllium, Be	0.5	<0.5	0.598	<0.030	<0.5	<0.5	<0.030	0.16 or SB	**0.003
Calcium, Ca	1.0	3,043	24,871	1,513	24,325	1,695	92.7	SB	*
Cadmium, Cd	0.5	2.05	<0.5	<0.030	0.667	<0.5	<0.030	1 or SB	0.01
Cobalt, Co	0.5	2.52	<0.5	0.348	<0.5	<0.5	<0.050	30 or SB	*
Chromium, Cr	0.5	5.95	9.05	0.517	19.2	14.90	0.09	10 or SB	0.05
Copper, Cu	0.5	72.8	53.3	3.05	67.5	57.6	1.63	25 or SB	0.2
Iron, Fe	0.5	15,216	9,771	643	27,360	17,950	81.5	2,000 or SB	0.3
Potassium, K	3.0	647	3,796	36.8	385	496	27.1	SB	*
Magnesium, Mg	1.0	1,906	4,558	113	6,156	2,010	93.0	SB	**35
Manganese, Mn	0.5	246	93.7	10.4	255	262	1.82	SB	0.3
Sodium, Na	1.0	146	438	95.2	83.6	101	445	SB	20
Nickel, Ni	0.5	22.3	8.79	1.10	10.0	9.44	0.068	13 or SB	*
Lead, Pb	0.5	191	150	5.83	315	294	1.28	SB	0.025
Antimony, Sb	1.0	<1.0	<1.0	0.076	<1.0	<1.0	<0.050	SB	**.003
Selenium, Se	1.0	<1.0	<1.0	<0.025	<1.0	<1.0	<0.025	2 or SB	0.01
Thallium, Tl	0.5	<0.5	<0.5	<0.020	<0.5	<0.5	<0.020	SB	**.004
Vanadium, V	0.5	9.56	19.8	0.812	20.5	20.4	0.237	150 or SB	*
Zinc, Zn	0.5	321	39.2	6.86	395	220	2.11	20 or SB	0.3
Mercury, Hg	0.05	0.119	<0.05	0.011	0.799	1.12	<0.002	0.1	0.002

*No Standard or Guidance Value given for GW / no RSCO given for soil.

** Guidance Value, no Standard exists.

SB = Site Background

AKRF, Inc.
Site: Greenpoint Lumber Yard

Sample ID:		B-3 [1-3]	B-3 [8-10]	MW-2	MW-3 [0-2]	MW-3 [5-7]	MW-3	TAGM 4046	Class GA Ambient
Laboratory ID:		0020196	0020197	0020198	0020199	0020200	0020201	Rec. Soil	Water Qual.
Sampling Date:		08/17/01	08/17/01	08/17/01	08/17/01	08/17/01	08/17/01	Cleanup Obj.	Standards
Units:		mg/kg	mg/kg	mg/L	mg/kg	mg/kg	mg/L	mg/kg	mg/L
TAL METALS (DISSOLVED)									
PARAMETER	REPORTING LIMIT								
Silver, Ag	0.5	NA	NA	<0.030	NA	NA	<0.030	SB	0.05
Aluminum, Al	1.0	NA	NA	1.38	NA	NA	0.605	SB	*
Arsenic, As	1.0	NA	NA	<0.025	NA	NA	<0.025	7.5 or SB	0.025
Barium, Ba	0.5	NA	NA	0.048	NA	NA	0.063	300 or SB	1
Beryllium, Be	0.5	NA	NA	<0.030	NA	NA	<0.030	0.16 or SB	**0.003
Calcium, Ca	1.0	NA	NA	346	NA	NA	70.3	SB	*
Cadmium, Cd	0.5	NA	NA	<0.030	NA	NA	<0.030	1 or SB	0.01
Cobalt, Co	0.5	NA	NA	<0.050	NA	NA	<0.050	30 or SB	*
Chromium, Cr	0.5	NA	NA	<0.030	NA	NA	<0.030	10 or SB	0.05
Copper, Cu	0.5	NA	NA	<0.030	NA	NA	<0.030	25 or SB	0.2
Iron, Fe	0.5	NA	NA	0.309	NA	NA	0.196	2,000 or SB	0.3
Potassium, K	3.0	NA	NA	19.4	NA	NA	27.3	SB	*
Magnesium, Mg	1.0	NA	NA	59.6	NA	NA	69.9	SB	**35
Manganese, Mn	0.5	NA	NA	1.37	NA	NA	0.517	SB	0.3
Sodium, Na	1.0	NA	NA	85.1	NA	NA	474	SB	20
Nickel, Ni	0.5	NA	NA	<0.030	NA	NA	<0.030	13 or SB	*
Lead, Pb	0.5	NA	NA	<0.030	NA	NA	<0.030	SB	0.025
Antimony, Sb	1.0	NA	NA	<0.050	NA	NA	<0.050	SB	**.003
Selenium, Se	1.0	NA	NA	<0.025	NA	NA	<0.025	2 or SB	0.01
Thallium, Tl	0.5	NA	NA	<0.020	NA	NA	<0.020	SB	**.004
Vanadium, V	0.5	NA	NA	0.188	NA	NA	0.198	150 or SB	*
Zinc, Zn	0.5	NA	NA	0.053	NA	NA	0.122	20 or SB	0.3
Mercury, Hg	0.05	NA	NA	<0.002	NA	NA	<0.002	0.1	0.002

*No Standard or Guidance Value given for GW / no RSCO given for soil.

** Guidance Value, no Standard exists.

·B = Site Background

AKRF, Inc.
Site: Greenpoint Lumber Yard

Sample ID:		MW-4 [0-2]	MW-4 [13-15]	MW-4	MW-5 [0-2]	MW-5 [4-6]	MW-5	TAGM 4046	Class GA Ambient
Laboratory ID:		0020202	0020203	0020204	0020205	0020206	0020207	Rec. Soil	Water Qual.
Sampling Date:		08/17/01	08/17/01	08/17/01	08/17/01	08/17/01	08/17/01	Cleanup Obj.	Standards
Units:		mg/kg	mg/kg	mg/L	mg/kg	mg/kg	mg/L	mg/kg	mg/L
TAL METALS									
PARAMETER	REPORTING LIMIT								
Silver, Ag	0.5	<0.5	<0.5	<0.030	<0.5	<0.5	<0.030	SB	0.05
Aluminum, Al	1.0	3,000	3,028	1,128	5,445	1,864	172	SB	*
Arsenic, As	1.0	<1.0	<1.0	<0.025	<1.0	<1.0	<0.025	7.5 or SB	0.025
Barium, Ba	0.5	51.3	23.3	8.25	54.6	5.22	11.4	300 or SB	1
Beryllium, Be	0.5	<0.5	<0.5	<0.030	<0.5	<0.5	<0.030	0.16 or SB	**0.003
Calcium, Ca	1.0	3,950	1,196	296	72,765	8,371	1,163	SB	*
Cadmium, Cd	0.5	<0.5	<0.5	<0.030	0.554	<0.5	<0.030	1 or SB	0.01
Cobalt, Co	0.5	0.999	1.53	0.429	<0.5	<0.5	<0.050	30 or SB	*
Chromium, Cr	0.5	6.49	7.15	3.09	4.04	<0.5	0.465	10 or SB	0.05
Copper, Cu	0.5	25.7	14.5	7.05	14.1	1.68	3.81	25 or SB	0.2
Iron, Fe	0.5	9,360	9,875	3,650	7,128	5,874	727	2,000 or SB	0.3
Potassium, K	3.0	342	512	187	14,929	12.3	22.5	SB	*
Magnesium, Mg	1.0	1,056	1,649	558	20,939	1,156	171	SB	**35
Manganese, Mn	0.5	132	289	109	83.4	1.76	7.61	SB	0.3
Sodium, Na	1.0	97.5	84.4	20.6	350	13.8	110	SB	20
Nickel, Ni	0.5	7.43	7.55	3.06	4.89	<0.5	0.633	13 or SB	*
Lead, Pb	0.5	56.0	10.3	2.39	122	12.3	23.6	SB	0.025
Antimony, Sb	1.0	<1.0	<1.0	<0.050	<1.0	<1.0	<0.050	SB	**.003
Selenium, Se	1.0	<1.0	<1.0	<0.025	<1.0	<1.0	<0.005	2 or SB	0.01
Thallium, Tl	0.5	<0.5	<0.5	<0.020	<0.5	<0.5	<0.020	SB	**.004
Vanadium, V	0.5	13.9	12.1	3.41	43.9	<0.5	0.897	150 or SB	*
Zinc, Zn	0.5	60.3	41.4	11.8	164	2.72	9.62	20 or SB	0.3
Mercury, Hg	0.05	0.200	0.101	0.002	0.330	0.157	0.003	0.1	0.002

*No Standard or Guidance Value given ** Guidance SB = Site Background

AKRF, Inc.
Site: Greenpoint Lumber Yard

Sample ID:		MW-4 [0-2]	MW-4 [13-15]	MW-4	MW-5 [0-2]	MW-5 [4-6]	MW-5	TAGM 4046	Class GA Ambient
Laboratory ID:		0020202	0020203	0020204	0020205	0020206	0020207	Rec. Soil	Water Qual.
Sampling Date:		08/17/01	08/17/01	08/17/01	08/17/01	08/17/01	08/17/01	Cleanup Obj.	Standards
Units:		mg/kg	mg/kg	mg/L	mg/kg	mg/kg	mg/L	mg/kg	mg/L
TAL METALS (DISSOLVED)									
PARAMETER	REPORTING LIMIT								
Silver, Ag	0.5	NA	NA	<0.030	NA	NA	<0.030	SB	0.05
Aluminum, Al	1.0	NA	NA	0.870	NA	NA	1.60	SB	*
Arsenic, As	1.0	NA	NA	<0.025	NA	NA	<0.025	7.5 or SB	0.025
Barium, Ba	0.5	NA	NA	0.054	NA	NA	<0.030	300 or SB	1
Beryllium, Be	0.5	NA	NA	<0.030	NA	NA	<0.030	0.16 or SB	**0.003
Calcium, Ca	1.0	NA	NA	127	NA	NA	313	SB	*
Cadmium, Cd	0.5	NA	NA	<0.030	NA	NA	<0.030	1 or SB	0.01
Cobalt, Co	0.5	NA	NA	<0.050	NA	NA	<0.050	30 or SB	*
Chromium, Cr	0.5	NA	NA	<0.030	NA	NA	<0.030	10 or SB	0.05
Copper, Cu	0.5	NA	NA	<0.030	NA	NA	<0.030	25 or SB	0.2
Iron, Fe	0.5	NA	NA	0.626	NA	NA	<0.030	2,000 or SB	0.3
Potassium, K	3.0	NA	NA	2.73	NA	NA	13.3	SB	*
Magnesium, Mg	1.0	NA	NA	18.8	NA	NA	55.1	SB	**35
Manganese, Mn	0.5	NA	NA	6.32	NA	NA	0.350	SB	0.3
Sodium, Na	1.0	NA	NA	14.3	NA	NA	96.8	SB	20
Nickel, Ni	0.5	NA	NA	<0.030	NA	NA	<0.030	13 or SB	*
Lead, Pb	0.5	NA	NA	<0.030	NA	NA	<0.030	SB	0.025
Antimony, Sb	1.0	NA	NA	<0.050	NA	NA	<0.050	SB	**.003
Selenium, Se	1.0	NA	NA	<0.025	NA	NA	<0.025	2 or SB	0.01
Thallium, Tl	0.5	NA	NA	<0.020	NA	NA	<0.020	SB	**.004
Vanadium, V	0.5	NA	NA	0.066	NA	NA	0.173	150 or SB	*
Zinc, Zn	0.5	NA	NA	0.032	NA	NA	<0.030	20 or SB	0.3
Mercury, Hg	0.05	NA	NA	<0.002	NA	NA	<0.002	0.1	0.002

*No Standard or Guidance Value given for GW / no RSCO given for soil.

** Guidance Value, no Standard exists.

SB = Site Background

AMERICAN ANALYTICAL LABORATORIES, INC.

NYSDOH ELAP 11418
AIHA PAT, LPAT 102391
CTDOH PH-0205

Invoice #: 206701
Date: 08/28/01
PO #: Verbal-LB
Lab ID #: 0020174-0020185

Bill To:

AKRF Inc.
117 East 29th Street
New York, N.Y. 10016

Re: Greenpoint Lumber Yard – Project No.: 30260-0005

Item	Qty.	Description	Unit	Extended
1.	12	SW-846 8260	$100.00	$1,200.00
2.	12	SW-846 8270	$180.00	$2,160.00
3.	2	Pesticides	$95.00	$190.00
4.	2	PCBs	$65.00	$130.00
5.	13	TAL Metals	$120.00	$1,560.00

This Amount Due Upon Receipt: $5,240.00
To American Analytical Laboratories, Inc.

Interest charge 1.5% per month – 15 days after date of invoice

56 TOLEDO STREET • FARMINGDALE, NEW YORK 11735
(631) 454-6100 • FAX: (631) 454-8027

AMERICAN ANALYTICAL LABORATORIES, INC.

NYSDOH ELAP 11418
AIHA PAT, LPAT 102391
CTDOH PH-0205

August 28, 2001

Mimi Sotiriou
AKRF Inc.
117 East 29th Street
New York, N.Y. 10016

Re: Greenpoint Lumber Yard – Project No.: 30260-0005

Dear Mr. Sotiriou;

Enclosed please find the Laboratory Analysis Report for samples received on August 17, 2001. American Analytical Laboratories analyzed the samples through August 28, 2001 for the following;

SAMPLE ID	ANALYSIS
B1 [1-2]	SW-846 8260, SW-846 8270, TAL Metals
B1 [4-5]	SW-846 8260, SW-846 8270, TAL Metals
B2 [0-1]	SW-846 8260, SW-846 8270, Pesticides, PCBs, TAL Metals
B4 [2-4]	SW-846 8260, SW-846 8270, TAL Metals
B4 [6-8]	SW-846 8260, SW-846 8270, TAL Metals
B5 [2-4]	SW-846 8260, SW-846 8270, Pesticides, PCBs, TAL Metals
B5 [5-7]	SW-846 8260, SW-846 8270, TAL Metals
MW-1 [5-6]	SW-846 8260, SW-846 8270, TAL Metals
MW-1 [8-9]	SW-846 8260, SW-846 8270, TAL Metals
MW-1	SW-846 8260, SW-846 8270, TAL Metals, TAL Metals Dissolved
MW-2 [5-7]	SW-846 8260, SW-846 8270, TAL Metals
MW-2 [9-11]	SW-846 8260, SW-846 8270, TAL Metals

This report consists of 65 pages of analytical results

If you have any questions or require further information, please call at your convenience. American Analytical Laboratories would like to thank you for the opportunity to be of service to you.

Best Regards,

American Analytical Laboratories, Inc.

56 TOLEDO STREET • FARMINGDALE, NEW YORK 11735
(631) 454-6100 • FAX: (631) 454-8027

Client: AKRF Inc.	Sample ID: Greenpoint Lumber Yard -- Project No.: 30260-0005 (B1 [1-2])
Date Received: 08/17/01	Laboratory ID: 0020174
Date Extracted: NA	Matrix: Soil Level: Low
Date Analyzed: 08/21/01	ELAP#: 11418

VOLATILE ORGANICS
SW-846 METHOD 8260

PARAMETER	CAS No.	RESULTS ug/kg
Dichlorodifluoromethane	75-71-8	<5
Chloromethane	74-87-3	<5
Vinyl Chloride	75-01-4	<5
Bromomethane	74-83-9	<5
Chloroethane	75-00-3	<5
Trichlorofluoromethane	75-69-4	<5
Acetone	67-64-1	290
1,1-Dichloroethene	75-35-4	<5
Vinyl Acetate	108-05-4	<5
Carbon Disulfide	75-15-0	<5
Methylene Chloride	75-09-2	<5
trans-1,2-Dichloroethene	156-60-5	<5
1,1-Dichloroethane	75-34-3	<5
2-Butanone	78-93-3	<5
2,2-Dichloropropane	594-20-7	<5
cis-1,2-Dichloroethene	156-59-2	<5
Chloroform	67-66-3	<5
Bromochloromethane	74-97-5	<5
1,1,1-Trichloroethane	71-55-6	<5
1,1-Dichloropropene	563-58-6	<5
Carbon Tetrachloride	56-23-5	<5
2-Chloroethyl vinyl ether	110-75-8	<5
1,2-Dichloroethane	107-06-2	<5
Benzene	71-43-2	<5
Trichloroethene	79-01-6	<5
1,2-Dichloropropane	78-87-5	<5
Bromodichloromethane	75-27-4	<5
4-Methyl-2-Pentanone	108-10-1	<5
Dibromomethane	74-95-3	<5
cis-1,3-Dichloropropene	10061-01-5	<5
Toluene	108-88-3	<5
trans-1,3-Dichloropropene	10061-02-6	<5
1,1,2-Trichloroethane	79-00-5	<5

Lori Beyer
Laboratory Director

Client: AKRF Inc.	Sample ID: Greenpoint Lumber Yard – Project No.: 30260-0005 (B1 [1-2])
Date Received: 08/17/01	Laboratory ID: 0020174
Date Extracted: NA	Matrix: Soil Level: Low
Date Analyzed: 08/21/01	ELAP#: 11418

VOLATILE ORGANICS
SW-846 METHOD 8260

PARAMETER	CAS No.	RESULTS ug/kg
2-Hexanone	591-78-6	<5
1,3-Dichloropropane	142-28-9	<5
Tetrachloroethene	127-18-4	<5
Chlorodibromomethane	124-48-1	<5
1,2-Dibromoethane	106-93-4	<5
Chlorobenzene	108-90-7	<5
1,1,1,2-Tetrachloroethane	630-20-6	<5
Ethylbenzene	100-41-4	<5
m+p Xylene	108-38-3/106-42-3	<10
o-Xylene	95-47-6	<5
Styrene	100-42-5	<5
Isopropylbenzene	98-82-8	<5
Bromoform	75-25-2	<5
1,2,3-Trichloropropane	96-18-4	<5
n-Propylbenzene	103-65-1	<5
Bromobenzene	108-86-1	<5
1,3,5-Trimethylbenzene	108-67-8	<5
2-Chlorotoluene	95-49-8	<5
4-Chlorotoluene	106-43-4	<5
tert-Butylbenzene	98-06-6	<5
1,2,4-Trimethylbenzene	95-63-6	<5
sec-Butylbenzene	135-98-8	<5
4-Isopropyltoluene	99-87-6	<5
1,1,2,2-Tetrachloroethane	79-34-5	<5
1,3-Dichlorobenzene	541-73-1	<5
1,4-Dichlorobenzene	106-46-7	<5
1,2-Dichlorobenzene	95-50-1	<5
n-Butylbenzene	104-51-8	<5
1,2-Dibromo-3-chloropropane	96-12-8	<5
1,2,4-Trichlorobenzene	120-82-1	<5
Hexachlorobutadiene	87-68-3	<5
Naphthalene	91-20-3	<5
1,2,3-Trichlorobenzene	87-61-6	<5

Lori Beyer
Laboratory Director

AMERICAN ANALYTICAL LABORATORIES, INC.
56 TOLEDO STREET • FARMINGDALE, NEW YORK 11735 • (631) 454-6100 • FAX: (631) 454-8027

Client: AKRF Inc.	Sample ID: Greenpoint Lumber Yard – Project No.: 30206-0005 (B1 [1-2])
Date Received: 08/17/01	Laboratory ID: 0020174
Date Extracted: 08/21/01	Matrix: Soil
Date Analyzed: 08/24/01	ELAP#: 11418

SEMIVOLATILE ORGANICS
SW-846 METHOD 8270

PARAMETER	CAS No.	RESULTS ug/kg
Pyridine	110-86-1	<40
N-Nitrosodimethylamine	62-75-9	<40
Aniline	62-53-3	<40
Bis(2-chloroethyl)ether	111-44-4	<40
Phenol	108-95-1	<40
2-Chlorophenol	95-57-8	<40
1,3-Dichlorobenzene	541-73-1	<40
1,4-Dichlorobenzene	106-46-7	<40
1,2-Dichlorobenzene	95-50-1	<40
Benzyl Alcohol	100-51-6	<40
Bis(2-chloroisopropyl)ether	108-60-1	<40
2-Methylphenol	95-48-7	<40
Hexachloroethane	67-72-1	<40
N-Nitrosodi-n-propylamine	621-64-7	<40
3+4-Methylphenol	108-39-4 / 106-44-5	<40
Nitrobenzene	98-95-3	<40
Isophorone	78-59-1	<40
2- Nitrophenol	88-75-5	<40
2,4-Dimethylphenol	105-67-9	<40
Benzoic Acid	65-85-0	280
Bis(2-chloroethoxy)methane	111-91-1	<40
2,4-Dichlorophenol	102-83-2	<40
1,2,4-Trichlorobenzene	120-82-1	<40
Naphthalene	91-20-3	110
4-Chloroaniline	106-47-8	<40
Hexachlorobutadiene	87-68-3	<40
4-Chloro-3-methylphenol	59-50-7	<40
2-Methylnaphthalene	91-57-6	130
Hexachlorocyclopentadiene	77-47-4	<40
2,4,5-Trichlorophenol	95-95-4	<40
2,4,6-Trichlorophenol	88-06-2	<40
2-Chloronaphthalene	91-58-7	<40
2-Nitroaniline	88-74-4	<40
Acenaphthylene	208-96-8	<40
Dimethyl Phthalate	131-11-3	<40

Lori Beyer
Laboratory Director

AMERICAN ANALYTICAL LABORATORIES, INC.
56 TOLEDO STREET • FARMINGDALE, NEW YORK 11735 • (631) 454-6100 • FAX: (631) 454-8027

Client: AKRF Inc.	Sample ID: Greenpoint Lumber Yard – Project No.: 30206-0005 (B1 [1-2])
Date Received: 08/17/01	Laboratory ID: 0020174
Date Extracted: 08/21/01	Matrix: Soil
Date Analyzed: 08/24/01	ELAP#: 11418

SEMIVOLATILE ORGANICS
SW-846 METHOD 8270

PARAMETER	CAS No.	RESULTS ug/kg
2,6-Dinitrotoluene	606-20-2	<40
Acenaphthene	83-32-9	<40
3-Nitroaniline	99-09-2	<40
2,4-Dinitrophenol	51-28-5	<70
Dibenzofuran	132-64-9	<40
2,4-Dinitrotoluene	121-14-2	<40
4-Nitrophenol	100-02-7	<50
Fluorene	86-73-7	<40
4-Chlorophenyl phenyl ether	7005-72-3	<40
Azobenzene	103-33-3	<40
Diethyl Phthalate	84-66-2	<40
4-Nitroaniline	100-01-6	<50
4,6-Dinitro-2-methylphenol	534-52-1	<40
N-Nitrosodiphenylamine	86-30-6	<40
4-Bromophenyl phenyl ether	101-55-3	<40
Hexachlorobenzene	118-74-1	<40
Pentachlorophenol	87-86-5	<60
Phenanthrene	85-01-8	170
Anthracene	120-12-7	45
Carbazole	86-74-8	<40
Di-n-butyl Phthalate	84-74-2	<40
Fluoranthene	206-44-0	230
Benzidine	92-87-5	<40
Pyrene	129-00-0	290
Butyl benzyl Phthalate	85-68-7	<40
3,3´-Dichlorobenzidine	91-94-1	<40
Benzo(a)anthracene	56-55-3	140
Chrysene	218-01-9	160
Bis(2-ethylhexyl)Phthalate	117-81-7	730
Di-n-octyl Phthalate	117-84-0	<40
Benzo(b)fluoranthene	205-99-2	270
Benzo(k)fluoranthene	207-08-9	280
Benzo(a)pyrene	50-32-8	170
Indeno(1,2,3-c,d)pyrene	193-39-5	<40
Dibenzo(a,h)anthracene	53-70-3	<40
Benzo(g,h,i)perylene	191-24-2	170

Laboratory Director

AMERICAN ANALYTICAL LABORATORIES, INC.
56 TOLEDO STREET • FARMINGDALE, NEW YORK 11735 • (631) 454-6100 • FAX: (631) 454-8027

Client: AKRF Inc.	Sample ID: Greenpoint Lumber Yard – Project No.: 30206-0005 (B-1 [1-2])
Date Received: 08/17/01	Laboratory ID: 0020174
Date Extracted: 08/24/01	Matrix: Soil
Date Analyzed: 08/24/01	ELAP#: 11418

METALS ANALYSIS
TARGET ANALYTE LIST

PARAMETER	REPORTING LIMIT mg/kg	RESULTS mg/kg
Silver, Ag	0.5	<0.5
Aluminum, Al	1.0	7,584
Arsenic, As	1.0	<1.0
Barium, Ba	0.5	35.5
Beryllium, Be	0.5	<0.5
Calcium, Ca	1.0	6,960
Cadmium, Cd	0.5	0.058
Cobalt, Co	0.5	<0.5
Chromium, Cr	0.5	11.1
Copper, Cu	0.5	16.5
Iron, Fe	0.5	14,880
Potassium, K	3.0	474
Magnesium, Mg	1.0	1,896
Manganese, Mn	0.5	190
Sodium, Na	1.0	189
Nickel, Ni	0.5	9.08
Lead, Pb	0.5	32.4
Antimony, Sb	1.0	<1.0
Selenium, Se	1.0	<1.0
Thallium, Tl	0.5	<0.5
Vanadium, V	0.5	17.7
Zinc, Zn	0.5	25.7
Mercury, Hg	0.05	<0.05

Method: SW-846 6010/7000 Series

Laboratory Director

AMERICAN ANALYTICAL LABORATORIES, INC.
56 TOLEDO STREET • FARMINGDALE, NEW YORK 11735 • (631) 454-6100 • FAX: (631) 454-8027

Client: AKRF Inc.	Sample ID: Greenpoint Lumber Yard – Project No.: 30260-0005 (B1 [4-5])
Date Received: 08/17/01	Laboratory ID: 0020175
Date Extracted: NA	Matrix: Soil Level: Low
Date Analyzed: 08/21/01	ELAP#: 11418

VOLATILE ORGANICS
SW-846 METHOD 8260

PARAMETER	CAS No.	RESULTS ug/kg
Dichlorodifluoromethane	75-71-8	<5
Chloromethane	74-87-3	<5
Vinyl Chloride	75-01-4	<5
Bromomethane	74-83-9	<5
Chloroethane	75-00-3	<5
Trichlorofluoromethane	75-69-4	<5
Acetone	67-64-1	110
1,1-Dichloroethene	75-35-4	<5
Vinyl Acetate	108-05-4	<5
Carbon Disulfide	75-15-0	<5
Methylene Chloride	75-09-2	<5
trans-1,2-Dichloroethene	156-60-5	<5
1,1-Dichloroethane	75-34-3	<5
2-Butanone	78-93-3	<5
2,2-Dichloropropane	594-20-7	<5
cis-1,2-Dichloroethene	156-59-2	<5
Chloroform	67-66-3	<5
Bromochloromethane	74-97-5	<5
1,1,1-Trichloroethane	71-55-6	<5
1,1-Dichloropropene	563-58-6	<5
Carbon Tetrachloride	56-23-5	<5
2-Chloroethyl vinyl ether	110-75-8	<5
1,2-Dichloroethane	107-06-2	<5
Benzene	71-43-2	<5
Trichloroethene	79-01-6	<5
1,2-Dichloropropane	78-87-5	<5
Bromodichloromethane	75-27-4	<5
4-Methyl-2-Pentanone	108-10-1	<5
Dibromomethane	74-95-3	<5
cis-1,3-Dichloropropene	10061-01-5	<5
Toluene	108-88-3	<5
trans-1,3-Dichloropropene	10061-02-6	<5
1,1,2-Trichloroethane	79-00-5	<5

Lori Beyer
Laboratory Director

Client: AKRF Inc.	Sample ID: Greenpoint Lumber Yard – Project No.: 30260-0005 (B1 [4-5])
Date Received: 08/17/01	Laboratory ID: 0020175
Date Extracted: NA	Matrix: Soil Level: Low
Date Analyzed: 08/21/01	ELAP#: 11418

VOLATILE ORGANICS
SW-846 METHOD 8260

PARAMETER	CAS No.	RESULTS ug/kg
2-Hexanone	591-78-6	<5
1,3-Dichloropropane	142-28-9	<5
Tetrachloroethene	127-18-4	<5
Chlorodibromomethane	124-48-1	<5
1,2-Dibromoethane	106-93-4	<5
Chlorobenzene	108-90-7	<5
1,1,1,2-Tetrachloroethane	630-20-6	<5
Ethylbenzene	100-41-4	<5
m+p Xylene	108-38-3/106-42-3	<10
o-Xylene	95-47-6	<5
Styrene	100-42-5	<5
Isopropylbenzene	98-82-8	<5
Bromoform	75-25-2	<5
1,2,3-Trichloropropane	96-18-4	<5
n-Propylbenzene	103-65-1	<5
Bromobenzene	108-86-1	<5
1,3,5-Trimethylbenzene	108-67-8	<5
2-Chlorotoluene	95-49-8	<5
4-Chlorotoluene	106-43-4	<5
tert-Butylbenzene	98-06-6	<5
1,2,4-Trimethylbenzene	95-63-6	<5
sec-Butylbenzene	135-98-8	<5
4-Isopropyltoluene	99-87-6	<5
1,1,2,2-Tetrachloroethane	79-34-5	<5
1,3-Dichlorobenzene	541-73-1	<5
1,4-Dichlorobenzene	106-46-7	<5
1,2-Dichlorobenzene	95-50-1	<5
n-Butylbenzene	104-51-8	<5
1,2-Dibromo-3-chloropropane	96-12-8	<5
1,2,4-Trichlorobenzene	120-82-1	<5
Hexachlorobutadiene	87-68-3	<5
Naphthalene	91-20-3	<5
1,2,3-Trichlorobenzene	87-61-6	<5

Lori Beyer
Laboratory Director

AMERICAN ANALYTICAL LABORATORIES, INC.
56 TOLEDO STREET • FARMINGDALE, NEW YORK 11735 • (631) 454-6100 • FAX: (631) 454-8027

Client: AKRF Inc.	Sample ID: Greenpoint Lumber Yard – Project No.: 30206-0005 (B1 [4-5])
Date Received: 08/17/01	Laboratory ID: 0020175
Date Extracted: 08/21/01	Matrix: Soil
Date Analyzed: 08/24/01	ELAP#: 11418

SEMIVOLATILE ORGANICS
SW-846 METHOD 8270

PARAMETER	CAS No.	RESULTS ug/kg
Pyridine	110-86-1	<40
N-Nitrosodimethylamine	62-75-9	<40
Aniline	62-53-3	<40
Bis(2-chloroethyl)ether	111-44-4	<40
Phenol	108-95-1	<40
2-Chlorophenol	95-57-8	<40
1,3-Dichlorobenzene	541-73-1	<40
1,4-Dichlorobenzene	106-46-7	<40
1,2-Dichlorobenzene	95-50-1	<40
Benzyl Alcohol	100-51-6	<40
Bis(2-chloroisopropyl)ether	108-60-1	<40
2-Methylphenol	95-48-7	<40
Hexachloroethane	67-72-1	<40
N-Nitrosodi-n-propylamine	621-64-7	<40
3+4-Methylphenol	108-39-4 / 106-44-5	<40
Nitrobenzene	98-95-3	<40
Isophorone	78-59-1	<40
2- Nitrophenol	88-75-5	<40
2,4-Dimethylphenol	105-67-9	<40
Benzoic Acid	65-85-0	<70
Bis(2-chloroethoxy)methane	111-91-1	<40
2,4-Dichlorophenol	102-83-2	<40
1,2,4-Trichlorobenzene	120-82-1	<40
Naphthalene	91-20-3	<40
4-Chloroaniline	106-47-8	<40
Hexachlorobutadiene	87-68-3	<40
4-Chloro-3-methylphenol	59-50-7	<40
2-Methylnaphthalene	91-57-6	95
Hexachlorocyclopentadiene	77-47-4	<40
2,4,5-Trichlorophenol	95-95-4	<40
2,4,6-Trichlorophenol	88-06-2	<40
2-Chloronaphthalene	91-58-7	<40
2-Nitroaniline	88-74-4	<40
Acenaphthylene	208-96-8	<40
Dimethyl Phthalate	131-11-3	<40

Laboratory Director

AMERICAN ANALYTICAL LABORATORIES, INC.
56 TOLEDO STREET • FARMINGDALE, NEW YORK 11735 • (631) 454-6100 • FAX: (631) 454-8027

Client: AKRF Inc.	Sample ID: Greenpoint Lumber Yard – Project No.: 30206-0005 (B1 [4-5])
Date Received: 08/17/01	Laboratory ID: 0020175
Date Extracted: 08/21/01	Matrix: Soil
Date Analyzed: 08/24/01	ELAP#: 11418

SEMIVOLATILE ORGANICS
SW-846 METHOD 8270

PARAMETER	CAS No.	RESULTS ug/kg
2,6-Dinitrotoluene	606-20-2	<40
Acenaphthene	83-32-9	<40
3-Nitroaniline	99-09-2	<40
2,4-Dinitrophenol	51-28-5	<70
Dibenzofuran	132-64-9	<40
2,4-Dinitrotoluene	121-14-2	<40
4-Nitrophenol	100-02-7	<50
Fluorene	86-73-7	<40
4-Chlorophenyl phenyl ether	7005-72-3	<40
Azobenzene	103-33-3	<40
Diethyl Phthalate	84-66-2	<40
4-Nitroaniline	100-01-6	<50
4,6-Dinitro-2-methylphenol	534-52-1	<40
N-Nitrosodiphenylamine	86-30-6	<40
4-Bromophenyl phenyl ether	101-55-3	<40
Hexachlorobenzene	118-74-1	<40
Pentachlorophenol	87-86-5	<60
Phenanthrene	85-01-8	160
Anthracene	120-12-7	<40
Carbazole	86-74-8	<40
Di-n-butyl Phthalate	84-74-2	<40
Fluoranthene	206-44-0	150
Benzidine	92-87-5	<40
Pyrene	129-00-0	220
Butyl benzyl Phthalate	85-68-7	<40
3,3´-Dichlorobenzidine	91-94-1	<40
Benzo(a)anthracene	56-55-3	110
Chrysene	218-01-9	140
Bis(2-ethylhexyl)Phthalate	117-81-7	840
Di-n-octyl Phthalate	117-84-0	<40
Benzo(b)fluoranthene	205-99-2	260
Benzo(k)fluoranthene	207-08-9	270
Benzo(a)pyrene	50-32-8	150
Indeno(1,2,3-c,d)pyrene	193-39-5	96
Dibenzo(a,h)anthracene	53-70-3	<40
Benzo(g,h,i)perylene	191-24-2	100

Laboratory Director

AMERICAN ANALYTICAL LABORATORIES, INC.
56 TOLEDO STREET • FARMINGDALE, NEW YORK 11735 • (631) 454-6100 • FAX: (631) 454-8027

Client: AKRF Inc.	Sample ID: Greenpoint Lumber Yard – Project No.: 30206-0005 (B1 [4-5])
Date Received: 08/17/01	Laboratory ID: 0020175
Date Extracted: 08/24/01	Matrix: Soil
Date Analyzed: 08/24/01	ELAP#: 11418

METALS ANALYSIS
TARGET ANALYTE LIST

PARAMETER	REPORTING LIMIT mg/kg	RESULTS mg/kg
Silver, Ag	0.5	<0.5
Aluminum, Al	1.0	6,432
Arsenic, As	1.0	<1.0
Barium, Ba	0.5	44.5
Beryllium, Be	0.5	<0.5
Calcium, Ca	1.0	6,144
Cadmium, Cd	0.5	<0.5
Cobalt, Co	0.5	<0.5
Chromium, Cr	0.5	11.7
Copper, Cu	0.5	18.2
Iron, Fe	0.5	16,464
Potassium, K	3.0	507
Magnesium, Mg	1.0	3,638
Manganese, Mn	0.5	311
Sodium, Na	1.0	151
Nickel, Ni	0.5	9.79
Lead, Pb	0.5	31.1
Antimony, Sb	1.0	<1.0
Selenium, Se	1.0	<1.0
Thallium, Tl	0.5	<0.5
Vanadium, V	0.5	23.4
Zinc, Zn	0.5	47.4
Mercury, Hg	0.05	0.140

Method: SW-846 6010/7000 Series

Lori Beyer
Laboratory Director

AMERICAN ANALYTICAL LABORATORIES, INC.
56 TOLEDO STREET • FARMINGDALE, NEW YORK 11735 • (631) 454-6100 • FAX: (631) 454-8027

Client: AKRF Inc.	Sample ID: Greenpoint Lumber Yard – Project No.: 30260-0005 (B2 [0-1])
Date Received: 08/17/01	Laboratory ID: 0020176
Date Extracted: NA	Matrix: Soil Level: Low
Date Analyzed: 08/21/01	ELAP#: 11418

VOLATILE ORGANICS
SW-846 METHOD 8260

PARAMETER	CAS No.	RESULTS ug/kg
Dichlorodifluoromethane	75-71-8	<5
Chloromethane	74-87-3	<5
Vinyl Chloride	75-01-4	<5
Bromomethane	74-83-9	<5
Chloroethane	75-00-3	<5
Trichlorofluoromethane	75-69-4	<5
Acetone	67-64-1	<5
1,1-Dichloroethene	75-35-4	<5
Vinyl Acetate	108-05-4	<5
Carbon Disulfide	75-15-0	<5
Methylene Chloride	75-09-2	<5
trans-1,2-Dichloroethene	156-60-5	<5
1,1-Dichloroethane	75-34-3	<5
2-Butanone	78-93-3	<5
2,2-Dichloropropane	594-20-7	<5
cis-1,2-Dichloroethene	156-59-2	<5
Chloroform	67-66-3	<5
Bromochloromethane	74-97-5	<5
1,1,1-Trichloroethane	71-55-6	<5
1,1-Dichloropropene	563-58-6	<5
Carbon Tetrachloride	56-23-5	<5
2-Chloroethyl vinyl ether	110-75-8	<5
1,2-Dichloroethane	107-06-2	<5
Benzene	71-43-2	<5
Trichloroethene	79-01-6	<5
1,2-Dichloropropane	78-87-5	<5
Bromodichloromethane	75-27-4	<5
4-Methyl-2-Pentanone	108-10-1	<5
Dibromomethane	74-95-3	<5
cis-1,3-Dichloropropene	10061-01-5	<5
Toluene	108-88-3	<5
trans-1,3-Dichloropropene	10061-02-6	<5
1,1,2-Trichloroethane	79-00-5	<5

Lori Beyer
Laboratory Director

AMERICAN ANALYTICAL LABORATORIES, INC.
56 TOLEDO STREET • FARMINGDALE, NEW YORK 11735 • (631) 454-6100 • FAX: (631) 454-8027

Client: AKRF Inc.	Sample ID: Greenpoint Lumber Yard – Project No.: 30260-0005 (B2 [0-1])
Date Received: 08/17/01	Laboratory ID: 0020176
Date Extracted: NA	Matrix: Soil Level: Low
Date Analyzed: 08/21/01	ELAP#: 11418

VOLATILE ORGANICS
SW-846 METHOD 8260

PARAMETER	CAS No.	RESULTS ug/kg
2-Hexanone	591-78-6	<5
1,3-Dichloropropane	142-28-9	<5
Tetrachloroethene	127-18-4	<5
Chlorodibromomethane	124-48-1	<5
1,2-Dibromoethane	106-93-4	<5
Chlorobenzene	108-90-7	<5
1,1,1,2-Tetrachloroethane	630-20-6	<5
Ethylbenzene	100-41-4	<5
m+p Xylene	108-38-3/106-42-3	<10
o-Xylene	95-47-6	<5
Styrene	100-42-5	<5
Isopropylbenzene	98-82-8	<5
Bromoform	75-25-2	<5
1,2,3-Trichloropropane	96-18-4	<5
n-Propylbenzene	103-65-1	<5
Bromobenzene	108-86-1	<5
1,3,5-Trimethylbenzene	108-67-8	<5
2-Chlorotoluene	95-49-8	<5
4-Chlorotoluene	106-43-4	<5
tert-Butylbenzene	98-06-6	<5
1,2,4-Trimethylbenzene	95-63-6	<5
sec-Butylbenzene	135-98-8	<5
4-Isopropyltoluene	99-87-6	<5
1,1,2,2-Tetrachloroethane	79-34-5	<5
1,3-Dichlorobenzene	541-73-1	<5
1,4-Dichlorobenzene	106-46-7	<5
1,2-Dichlorobenzene	95-50-1	<5
n-Butylbenzene	104-51-8	<5
1,2-Dibromo-3-chloropropane	96-12-8	<5
1,2,4-Trichlorobenzene	120-82-1	<5
Hexachlorobutadiene	87-68-3	<5
Naphthalene	91-20-3	<5
1,2,3-Trichlorobenzene	87-61-6	<5

Laboratory Director

Client: AKRF Inc.	Sample ID: Greenpoint Lumber Yard – Project No.: 30206-0005 (B2 [0-1])
Date Received: 08/17/01	Laboratory ID: 0020176
Date Extracted: 08/21/01	Matrix: Soil
Date Analyzed: 08/24/01	ELAP#: 11418

SEMIVOLATILE ORGANICS
SW-846 METHOD 8270

PARAMETER	CAS No.	RESULTS ug/kg
Pyridine	110-86-1	<40
N-Nitrosodimethylamine	62-75-9	<40
Aniline	62-53-3	<40
Bis(2-chloroethyl)ether	111-44-4	<40
Phenol	108-95-1	<40
2-Chlorophenol	95-57-8	<40
1,3-Dichlorobenzene	541-73-1	<40
1,4-Dichlorobenzene	106-46-7	<40
1,2-Dichlorobenzene	95-50-1	<40
Benzyl Alcohol	100-51-6	<40
Bis(2-chloroisopropyl)ether	108-60-1	<40
2-Methylphenol	95-48-7	<40
Hexachloroethane	67-72-1	<40
N-Nitrosodi-n-propylamine	621-64-7	<40
3+4-Methylphenol	108-39-4 / 106-44-5	<40
Nitrobenzene	98-95-3	<40
Isophorone	78-59-1	<40
2- Nitrophenol	88-75-5	<40
2,4-Dimethylphenol	105-67-9	<40
Benzoic Acid	65-85-0	<70
Bis(2-chloroethoxy)methane	111-91-1	<40
2,4-Dichlorophenol	102-83-2	<40
1,2,4-Trichlorobenzene	120-82-1	<40
Naphthalene	91-20-3	<40
4-Chloroaniline	106-47-8	<40
Hexachlorobutadiene	87-68-3	<40
4-Chloro-3-methylphenol	59-50-7	<40
2-Methylnaphthalene	91-57-6	100
Hexachlorocyclopentadiene	77-47-4	<40
2,4,5-Trichlorophenol	95-95-4	<40
2,4,6-Trichlorophenol	88-06-2	<40
2-Chloronaphthalene	91-58-7	<40
2-Nitroaniline	88-74-4	<40
Acenaphthylene	208-96-8	150
Dimethyl Phthalate	131-11-3	<40

Lori Beyer
Laboratory Director

AMERICAN ANALYTICAL LABORATORIES, INC.
56 TOLEDO STREET • FARMINGDALE, NEW YORK 11735 • (631) 454-6100 • FAX: (631) 454-8027

Client: AKRF Inc.	Sample ID: Greenpoint Lumber Yard – Project No.: 30206-0005 (B2 [0-1])
Date Received: 08/17/01	Laboratory ID: 0020176
Date Extracted: 08/21/01	Matrix: Soil
Date Analyzed: 08/24/01	ELAP#: 11418

SEMIVOLATILE ORGANICS
SW-846 METHOD 8270

PARAMETER	CAS No.	RESULTS ug/kg
2,6-Dinitrotoluene	606-20-2	<40
Acenaphthene	83-32-9	240
3-Nitroaniline	99-09-2	<40
2,4-Dinitrophenol	51-28-5	<70
Dibenzofuran	132-64-9	<40
2,4-Dinitrotoluene	121-14-2	<40
4-Nitrophenol	100-02-7	<50
Fluorene	86-73-7	320
4-Chlorophenyl phenyl ether	7005-72-3	<40
Azobenzene	103-33-3	<40
Diethyl Phthalate	84-66-2	<40
4-Nitroaniline	100-01-6	<50
4,6-Dinitro-2-methylphenol	534-52-1	<40
N-Nitrosodiphenylamine	86-30-6	<40
4-Bromophenyl phenyl ether	101-55-3	<40
Hexachlorobenzene	118-74-1	<40
Pentachlorophenol	87-86-5	<60
Phenanthrene	85-01-8	3,900
Anthracene	120-12-7	980
Carbazole	86-74-8	210
Di-n-butyl Phthalate	84-74-2	<40
Fluoranthene	206-44-0	5,600
Benzidine	92-87-5	<40
Pyrene	129-00-0	7,800
Butyl benzyl Phthalate	85-68-7	<40
3,3´-Dichlorobenzidine	91-94-1	<40
Benzo(a)anthracene	56-55-3	4,000
Chrysene	218-01-9	4,400
Bis(2-ethylhexyl)Phthalate	117-81-7	440
Di-n-octyl Phthalate	117-84-0	<40
Benzo(b)fluoranthene	205-99-2	6,000
Benzo(k)fluoranthene	207-08-9	6,400
Benzo(a)pyrene	50-32-8	3,800
Indeno(1,2,3-c,d)pyrene	193-39-5	540
Dibenzo(a,h)anthracene	53-70-3	1,100
Benzo(g,h,i)perylene	191-24-2	2,800

Laboratory Director

AMERICAN ANALYTICAL LABORATORIES, INC.
56 TOLEDO STREET • FARMINGDALE, NEW YORK 11735 • (631) 454-6100 • FAX: (631) 454-8027

Client: AKRF Inc.	Sample ID: Greenpoint Lumber Yard – Project No.: 30206-0005 (B-2 [0-1])
Date Received: 08/17/01	Laboratory ID:0020176
Date Extracted: 08/23/01	Matrix: Soil
Date Analyzed: 08/25/01	ELAP#: 11418

PESTICIDES
SW-846 METHOD 8081

PARAMETER	CAS No.	RESULTS ug/kg
DBCP	96-12-8	<5
Hexachlorocyclopentadiene	77-47-4	<5
Hexachlorobenzene	118-74-1	<5
α-BHC	319-84-6	<5
γ-BHC(Lindane)	58-89-9	<5
β-BHC	319-85-7	<5
Heptachlor	76-44-8	<5
δ-BHC	319-86-8	<5
Aldrin	309-00-2	<5
Isodrin	465-73-6	<5
Heptachlor Epoxide	1024-57-3	<5
Endosulfan I	959-98-8	<5
4,4'-DDE	72-55-9	<5
Dieldrin	60-57-1	<5
Endrin	72-20-8	<5
Chlorobenzilate	510-15-6	<5
4,4'-DDD	72-54-8	<5
Endosulfan II	33213-65-9	<5
4,4'-DDT	50-29-3	6.4
Endrin Aldehyde	7421-93-4	<5
Endosulfan Sulfate	1031-07-8	<5
Methoxychlor	72-43-5	<5
Endrin Ketone	53494-70-5	<5
Chlordane	57-74-9	<5
Toxaphene	8001-35-2	<10

Laboratory Director

Client: AKRF Inc.	Sample ID: Greenpoint Lumber Yard – Project No.: 30206-0005 (B-2 [0-1])
Date Received: 08/17/01	Laboratory ID:0020176
Date Extracted: 08/23/01	Matrix: Soil
Date Analyzed: 08/25/01	ELAP#: 11418

PCBs as AROCLORS
SW-846 METHOD 8082

PARAMETER	CAS No.	RESULTS ug/kg
Aroclor-1016	12674-11-2	<80
Aroclor-1221	11104-28-2	<80
Aroclor-1232	11141-16-5	<80
Aroclor-1242	53469-21-9	<80
Aroclor-1248	12672-29-6	<80
Aroclor-1254	11097-69-1	130
Aroclor-1260	11096-82-5	170

Laboratory Director

AMERICAN ANALYTICAL LABORATORIES, INC.
56 TOLEDO STREET • FARMINGDALE, NEW YORK 11735 • (631) 454-6100 • FAX: (631) 454-8027

Client: AKRF Inc.	Sample ID: Greenpoint Lumber Yard – Project No.: 30206-0005 (B2 [0-1])
Date Received: 08/17/01	Laboratory ID: 0020176
Date Extracted: 08/24/01	Matrix: Soil
Date Analyzed: 08/24/01	ELAP#: 11418

METALS ANALYSIS
TARGET ANALYTE LIST

PARAMETER	REPORTING LIMIT mg/kg	RESULTS mg/kg
Silver, Ag	0.5	<0.5
Aluminum, Al	1.0	2,569
Arsenic, As	1.0	<1.0
Barium, Ba	0.5	51.4
Beryllium, Be	0.5	<0.5
Calcium, Ca	1.0	75,688
Cadmium, Cd	0.5	<0.5
Cobalt, Co	0.5	<0.5
Chromium, Cr	0.5	3.89
Copper, Cu	0.5	32.2
Iron, Fe	0.5	8,477
Potassium, K	3.0	<3.0
Magnesium, Mg	1.0	34,773
Manganese, Mn	0.5	134
Sodium, Na	1.0	209
Nickel, Ni	0.5	6.35
Lead, Pb	0.5	61.1
Antimony, Sb	1.0	<1.0
Selenium, Se	1.0	<1.0
Thallium, Tl	0.5	<0.5
Vanadium, V	0.5	80.4
Zinc, Zn	0.5	66.4
Mercury, Hg	0.05	0.105

Method: SW-846 6010/7000 Series

Laboratory Director

AMERICAN ANALYTICAL LABORATORIES, INC.
56 TOLEDO STREET • FARMINGDALE, NEW YORK 11735 • (631) 454-6100 • FAX: (631) 454-8027

Client: AKRF Inc.	Sample ID: Greenpoint Lumber Yard – Project No.: 30260-0005 (B4 [2-4])
Date Received: 08/17/01	Laboratory ID: 0020177
Date Extracted: NA	Matrix: Soil Level: Low
Date Analyzed: 08/21/01	ELAP#: 11418

VOLATILE ORGANICS
SW-846 METHOD 8260

PARAMETER	CAS No.	RESULTS ug/kg
Dichlorodifluoromethane	75-71-8	<5
Chloromethane	74-87-3	<5
Vinyl Chloride	75-01-4	<5
Bromomethane	74-83-9	<5
Chloroethane	75-00-3	<5
Trichlorofluoromethane	75-69-4	<5
Acetone	67-64-1	<5
1,1-Dichloroethene	75-35-4	<5
Vinyl Acetate	108-05-4	<5
Carbon Disulfide	75-15-0	<5
Methylene Chloride	75-09-2	<5
trans-1,2-Dichloroethene	156-60-5	<5
1,1-Dichloroethane	75-34-3	<5
2-Butanone	78-93-3	<5
2,2-Dichloropropane	594-20-7	<5
cis-1,2-Dichloroethene	156-59-2	<5
Chloroform	67-66-3	<5
Bromochloromethane	74-97-5	<5
1,1,1-Trichloroethane	71-55-6	<5
1,1-Dichloropropene	563-58-6	<5
Carbon Tetrachloride	56-23-5	<5
2-Chloroethyl vinyl ether	110-75-8	<5
1,2-Dichloroethane	107-06-2	<5
Benzene	71-43-2	<5
Trichloroethene	79-01-6	<5
1,2-Dichloropropane	78-87-5	<5
Bromodichloromethane	75-27-4	<5
4-Methyl-2-Pentanone	108-10-1	<5
Dibromomethane	74-95-3	<5
cis-1,3-Dichloropropene	10061-01-5	<5
Toluene	108-88-3	<5
trans-1,3-Dichloropropene	10061-02-6	<5
1,1,2-Trichloroethane	79-00-5	<5

Laboratory Director

AMERICAN ANALYTICAL LABORATORIES, INC.
56 TOLEDO STREET • FARMINGDALE, NEW YORK 11735 • (631) 454-6100 • FAX: (631) 454-8027

Client: AKRF Inc.	Sample ID: Greenpoint Lumber Yard – Project No.: 30260-0005 (B4 [2-4])
Date Received: 08/17/01	Laboratory ID: 0020177
Date Extracted: NA	Matrix: Soil Level: Low
Date Analyzed: 08/21/01	ELAP#: 11418

VOLATILE ORGANICS
SW-846 METHOD 8260

PARAMETER	CAS No.	RESULTS ug/kg
2-Hexanone	591-78-6	<5
1,3-Dichloropropane	142-28-9	<5
Tetrachloroethene	127-18-4	<5
Chlorodibromomethane	124-48-1	<5
1,2-Dibromoethane	106-93-4	<5
Chlorobenzene	108-90-7	<5
1,1,1,2-Tetrachloroethane	630-20-6	<5
Ethylbenzene	100-41-4	<5
m+p Xylene	108-38-3/106-42-3	<10
o-Xylene	95-47-6	<5
Styrene	100-42-5	<5
Isopropylbenzene	98-82-8	<5
Bromoform	75-25-2	<5
1,2,3-Trichloropropane	96-18-4	<5
n-Propylbenzene	103-65-1	<5
Bromobenzene	108-86-1	<5
1,3,5-Trimethylbenzene	108-67-8	<5
2-Chlorotoluene	95-49-8	<5
4-Chlorotoluene	106-43-4	<5
tert-Butylbenzene	98-06-6	<5
1,2,4-Trimethylbenzene	95-63-6	<5
sec-Butylbenzene	135-98-8	<5
4-Isopropyltoluene	99-87-6	<5
1,1,2,2-Tetrachloroethane	79-34-5	<5
1,3-Dichlorobenzene	541-73-1	<5
1,4-Dichlorobenzene	106-46-7	<5
1,2-Dichlorobenzene	95-50-1	<5
n-Butylbenzene	104-51-8	<5
1,2-Dibromo-3-chloropropane	96-12-8	<5
1,2,4-Trichlorobenzene	120-82-1	<5
Hexachlorobutadiene	87-68-3	<5
Naphthalene	91-20-3	<5
1,2,3-Trichlorobenzene	87-61-6	<5

Soni Beyer
Laboratory Director

AMERICAN ANALYTICAL LABORATORIES, INC.
56 TOLEDO STREET • FARMINGDALE, NEW YORK 11735 • (631) 454-6100 • FAX: (631) 454-8027

Client: AKRF Inc.	Sample ID: Greenpoint Lumber Yard – Project No.: 30206-0005 (B4 [2-4])
Date Received: 08/17/01	Laboratory ID: 0020177
Date Extracted: 08/21/01	Matrix: Soil
Date Analyzed: 08/24/01	ELAP#: 11418

SEMIVOLATILE ORGANICS
SW-846 METHOD 8270

PARAMETER	CAS No.	RESULTS ug/kg
Pyridine	110-86-1	<40
N-Nitrosodimethylamine	62-75-9	<40
Aniline	62-53-3	<40
Bis(2-chloroethyl)ether	111-44-4	<40
Phenol	108-95-1	<40
2-Chlorophenol	95-57-8	<40
1,3-Dichlorobenzene	541-73-1	<40
1,4-Dichlorobenzene	106-46-7	<40
1,2-Dichlorobenzene	95-50-1	<40
Benzyl Alcohol	100-51-6	<40
Bis(2-chloroisopropyl)ether	108-60-1	<40
2-Methylphenol	95-48-7	<40
Hexachloroethane	67-72-1	<40
N-Nitrosodi-n-propylamine	621-64-7	<40
3+4-Methylphenol	108-39-4 / 106-44-5	<40
Nitrobenzene	98-95-3	<40
Isophorone	78-59-1	<40
2- Nitrophenol	88-75-5	<40
2,4-Dimethylphenol	105-67-9	<40
Benzoic Acid	65-85-0	<70
Bis(2-chloroethoxy)methane	111-91-1	<40
2,4-Dichlorophenol	102-83-2	<40
1,2,4-Trichlorobenzene	120-82-1	<40
Naphthalene	91-20-3	<40
4-Chloroaniline	106-47-8	<40
Hexachlorobutadiene	87-68-3	<40
4-Chloro-3-methylphenol	59-50-7	<40
2-Methylnaphthalene	91-57-6	<40
Hexachlorocyclopentadiene	77-47-4	<40
2,4,5-Trichlorophenol	95-95-4	<40
2,4,6-Trichlorophenol	88-06-2	<40
2-Chloronaphthalene	91-58-7	<40
2-Nitroaniline	88-74-4	<40
Acenaphthylene	208-96-8	<40
Dimethyl Phthalate	131-11-3	<40

Laboratory Director

AMERICAN ANALYTICAL LABORATORIES, INC.
56 TOLEDO STREET • FARMINGDALE, NEW YORK 11735 • (631) 454-6100 • FAX: (631) 454-8027

Client: AKRF Inc.	Sample ID: Greenpoint Lumber Yard – Project No.: 30206-0005 (B4 [2-4])
Date Received: 08/17/01	Laboratory ID: 0020177
Date Extracted: 08/21/01	Matrix: Soil
Date Analyzed: 08/24/01	ELAP#: 11418

SEMIVOLATILE ORGANICS
SW-846 METHOD 8270

PARAMETER	CAS No.	RESULTS ug/kg
2,6-Dinitrotoluene	606-20-2	<40
Acenaphthene	83-32-9	<40
3-Nitroaniline	99-09-2	<40
2,4-Dinitrophenol	51-28-5	<70
Dibenzofuran	132-64-9	<40
2,4-Dinitrotoluene	121-14-2	<40
4-Nitrophenol	100-02-7	<50
Fluorene	86-73-7	<40
4-Chlorophenyl phenyl ether	7005-72-3	<40
Azobenzene	103-33-3	<40
Diethyl Phthalate	84-66-2	<40
4-Nitroaniline	100-01-6	<50
4,6-Dinitro-2-methylphenol	534-52-1	<40
N-Nitrosodiphenylamine	86-30-6	<40
4-Bromophenyl phenyl ether	101-55-3	<40
Hexachlorobenzene	118-74-1	<40
Pentachlorophenol	87-86-5	<60
Phenanthrene	85-01-8	640
Anthracene	120-12-7	130
Carbazole	86-74-8	<40
Di-n-butyl Phthalate	84-74-2	<40
Fluoranthene	206-44-0	1,500
Benzidine	92-87-5	<40
Pyrene	129-00-0	2,700
Butyl benzyl Phthalate	85-68-7	<40
3,3´-Dichlorobenzidine	91-94-1	<40
Benzo(a)anthracene	56-55-3	1,200
Chrysene	218-01-9	1,400
Bis(2-ethylhexyl)Phthalate	117-81-7	<40
Di-n-octyl Phthalate	117-84-0	<40
Benzo(b)fluoranthene	205-99-2	1,800
Benzo(k)fluoranthene	207-08-9	1,900
Benzo(a)pyrene	50-32-8	1,300
Indeno(1,2,3-c,d)pyrene	193-39-5	1,100
Dibenzo(a,h)anthracene	53-70-3	100
Benzo(g,h,i)perylene	191-24-2	1,200

Lori Beyer
Laboratory Director

AMERICAN ANALYTICAL LABORATORIES, INC.
56 TOLEDO STREET • FARMINGDALE, NEW YORK 11735 • (631) 454-6100 • FAX: (631) 454-8027

Client: AKRF Inc.	Sample ID: Greenpoint Lumber Yard – Project No.: 30206-0005 (B4 [2-4])
Date Received: 08/17/01	Laboratory ID: 0020177
Date Extracted: 08/24/01	Matrix: Soil
Date Analyzed: 08/24/01	ELAP#: 11418

METALS ANALYSIS
TARGET ANALYTE LIST

PARAMETER	REPORTING LIMIT mg/kg	RESULTS mg/kg
Silver, Ag	0.5	<0.5
Aluminum, Al	1.0	3,783
Arsenic, As	1.0	<1.0
Barium, Ba	0.5	68.4
Beryllium, Be	0.5	<0.5
Calcium, Ca	1.0	3,905
Cadmium, Cd	0.5	<0.5
Cobalt, Co	0.5	0.608
Chromium, Cr	0.5	7.23
Copper, Cu	0.5	44.5
Iron, Fe	0.5	12,005
Potassium, K	3.0	384
Magnesium, Mg	1.0	1,019
Manganese, Mn	0.5	110
Sodium, Na	1.0	419
Nickel, Ni	0.5	16.9
Lead, Pb	0.5	380
Antimony, Sb	1.0	21.7
Selenium, Se	1.0	<1.0
Thallium, Tl	0.5	<0.5
Vanadium, V	0.5	13.1
Zinc, Zn	0.5	75.6
Mercury, Hg	0.05	<0.05

Method: SW-846 6010/7000 Series

Laboratory Director

AMERICAN ANALYTICAL LABORATORIES, INC.
56 TOLEDO STREET • FARMINGDALE, NEW YORK 11735 • (631) 454-6100 • FAX: (631) 454-8027

Client: AKRF Inc.	Sample ID: Greenpoint Lumber Yard – Project No.: 30260-0005 (B4 [6-8])
Date Received: 08/17/01	Laboratory ID: 0020178
Date Extracted: NA	Matrix: Soil Level: Low
Date Analyzed: 08/21/01	ELAP#: 11418

VOLATILE ORGANICS
SW-846 METHOD 8260

PARAMETER	CAS No.	RESULTS ug/kg
Dichlorodifluoromethane	75-71-8	<5
Chloromethane	74-87-3	<5
Vinyl Chloride	75-01-4	<5
Bromomethane	74-83-9	<5
Chloroethane	75-00-3	<5
Trichlorofluoromethane	75-69-4	<5
Acetone	67-64-1	<5
1,1-Dichloroethene	75-35-4	<5
Vinyl Acetate	108-05-4	<5
Carbon Disulfide	75-15-0	<5
Methylene Chloride	75-09-2	<5
trans-1,2-Dichloroethene	156-60-5	<5
1,1-Dichloroethane	75-34-3	<5
2-Butanone	78-93-3	<5
2,2-Dichloropropane	594-20-7	<5
cis-1,2-Dichloroethene	156-59-2	<5
Chloroform	67-66-3	<5
Bromochloromethane	74-97-5	<5
1,1,1-Trichloroethane	71-55-6	<5
1,1-Dichloropropene	563-58-6	<5
Carbon Tetrachloride	56-23-5	<5
2-Chloroethyl vinyl ether	110-75-8	<5
1,2-Dichloroethane	107-06-2	<5
Benzene	71-43-2	<5
Trichloroethene	79-01-6	<5
1,2-Dichloropropane	78-87-5	<5
Bromodichloromethane	75-27-4	<5
4-Methyl-2-Pentanone	108-10-1	<5
Dibromomethane	74-95-3	<5
cis-1,3-Dichloropropene	10061-01-5	<5
Toluene	108-88-3	<5
trans-1,3-Dichloropropene	10061-02-6	<5
1,1,2-Trichloroethane	79-00-5	<5

Lori Beyer
Laboratory Director

AMERICAN ANALYTICAL LABORATORIES, INC.
56 TOLEDO STREET • FARMINGDALE, NEW YORK 11735 • (631) 454-6100 • FAX: (631) 454-8027

Client: AKRF Inc.	Sample ID: Greenpoint Lumber Yard – Project No.: 30260-0005 (B4 [6-8])
Date Received: 08/17/01	Laboratory ID: 0020178
Date Extracted: NA	Matrix: Soil Level: Low
Date Analyzed: 08/21/01	ELAP#: 11418

VOLATILE ORGANICS
SW-846 METHOD 8260

PARAMETER	CAS No.	RESULTS ug/kg
2-Hexanone	591-78-6	<5
1,3-Dichloropropane	142-28-9	<5
Tetrachloroethene	127-18-4	<5
Chlorodibromomethane	124-48-1	<5
1,2-Dibromoethane	106-93-4	<5
Chlorobenzene	108-90-7	<5
1,1,1,2-Tetrachloroethane	630-20-6	<5
Ethylbenzene	100-41-4	<5
m+p Xylene	108-38-3/106-42-3	<10
o-Xylene	95-47-6	<5
Styrene	100-42-5	<5
Isopropylbenzene	98-82-8	<5
Bromoform	75-25-2	<5
1,2,3-Trichloropropane	96-18-4	<5
n-Propylbenzene	103-65-1	<5
Bromobenzene	108-86-1	<5
1,3,5-Trimethylbenzene	108-67-8	<5
2-Chlorotoluene	95-49-8	<5
4-Chlorotoluene	106-43-4	<5
tert-Butylbenzene	98-06-6	<5
1,2,4-Trimethylbenzene	95-63-6	<5
sec-Butylbenzene	135-98-8	<5
4-Isopropyltoluene	99-87-6	<5
1,1,2,2-Tetrachloroethane	79-34-5	<5
1,3-Dichlorobenzene	541-73-1	<5
1,4-Dichlorobenzene	106-46-7	<5
1,2-Dichlorobenzene	95-50-1	<5
n-Butylbenzene	104-51-8	<5
1,2-Dibromo-3-chloropropane	96-12-8	<5
1,2,4-Trichlorobenzene	120-82-1	<5
Hexachlorobutadiene	87-68-3	<5
Naphthalene	91-20-3	<5
1,2,3-Trichlorobenzene	87-61-6	<5

Laboratory Director

AMERICAN ANALYTICAL LABORATORIES, INC.
56 TOLEDO STREET • FARMINGDALE, NEW YORK 11735 • (631) 454-6100 • FAX: (631) 454-8027

Client: AKRF Inc.	Sample ID: Greenpoint Lumber Yard – Project No.: 30206-0005 (B4 [6-8])
Date Received: 08/17/01	Laboratory ID: 0020178
Date Extracted: 08/21/01	Matrix: Soil
Date Analyzed: 08/24/01	ELAP#: 11418

SEMIVOLATILE ORGANICS
SW-846 METHOD 8270

PARAMETER	CAS No.	RESULTS ug/kg
Pyridine	110-86-1	<40
N-Nitrosodimethylamine	62-75-9	<40
Aniline	62-53-3	<40
Bis(2-chloroethyl)ether	111-44-4	<40
Phenol	108-95-1	<40
2-Chlorophenol	95-57-8	<40
1,3-Dichlorobenzene	541-73-1	<40
1,4-Dichlorobenzene	106-46-7	<40
1,2-Dichlorobenzene	95-50-1	<40
Benzyl Alcohol	100-51-6	<40
Bis(2-chloroisopropyl)ether	108-60-1	<40
2-Methylphenol	95-48-7	<40
Hexachloroethane	67-72-1	<40
N-Nitrosodi-n-propylamine	621-64-7	<40
3+4-Methylphenol	108-39-4 / 106-44-5	<40
Nitrobenzene	98-95-3	<40
Isophorone	78-59-1	<40
2- Nitrophenol	88-75-5	<40
2,4-Dimethylphenol	105-67-9	<40
Benzoic Acid	65-85-0	<70
Bis(2-chloroethoxy)methane	111-91-1	<40
2,4-Dichlorophenol	102-83-2	<40
1,2,4-Trichlorobenzene	120-82-1	<40
Naphthalene	91-20-3	<40
4-Chloroaniline	106-47-8	<40
Hexachlorobutadiene	87-68-3	<40
4-Chloro-3-methylphenol	59-50-7	<40
2-Methylnaphthalene	91-57-6	<40
Hexachlorocyclopentadiene	77-47-4	<40
2,4,5-Trichlorophenol	95-95-4	<40
2,4,6-Trichlorophenol	88-06-2	<40
2-Chloronaphthalene	91-58-7	<40
2-Nitroaniline	88-74-4	<40
Acenaphthylene	208-96-8	<40
Dimethyl Phthalate	131-11-3	<40

Lori Beyer
Laboratory Director

AMERICAN ANALYTICAL LABORATORIES, INC.
56 TOLEDO STREET • FARMINGDALE, NEW YORK 11735 • (631) 454-6100 • FAX: (631) 454-8027

Client: AKRF Inc.	Sample ID: Greenpoint Lumber Yard – Project No.: 30206-0005 (B4 [6-8])
Date Received: 08/17/01	Laboratory ID: 0020178
Date Extracted: 08/21/01	Matrix: Soil
Date Analyzed: 08/24/01	ELAP#: 11418

SEMIVOLATILE ORGANICS
SW-846 METHOD 8270

PARAMETER	CAS No.	RESULTS ug/kg
2,6-Dinitrotoluene	606-20-2	<40
Acenaphthene	83-32-9	<40
3-Nitroaniline	99-09-2	<40
2,4-Dinitrophenol	51-28-5	<70
Dibenzofuran	132-64-9	<40
2,4-Dinitrotoluene	121-14-2	<40
4-Nitrophenol	100-02-7	<50
Fluorene	86-73-7	<40
4-Chlorophenyl phenyl ether	7005-72-3	<40
Azobenzene	103-33-3	<40
Diethyl Phthalate	84-66-2	<40
4-Nitroaniline	100-01-6	<50
4,6-Dinitro-2-methylphenol	534-52-1	<40
N-Nitrosodiphenylamine	86-30-6	<40
4-Bromophenyl phenyl ether	101-55-3	<40
Hexachlorobenzene	118-74-1	<40
Pentachlorophenol	87-86-5	<60
Phenanthrene	85-01-8	<40
Anthracene	120-12-7	<40
Carbazole	86-74-8	<40
Di-n-butyl Phthalate	84-74-2	<40
Fluoranthene	206-44-0	<40
Benzidine	92-87-5	<40
Pyrene	129-00-0	<40
Butyl benzyl Phthalate	85-68-7	<40
3,3´-Dichlorobenzidine	91-94-1	<40
Benzo(a)anthracene	56-55-3	<40
Chrysene	218-01-9	<40
Bis(2-ethylhexyl)Phthalate	117-81-7	220
Di-n-octyl Phthalate	117-84-0	<40
Benzo(b)fluoranthene	205-99-2	<40
Benzo(k)fluoranthene	207-08-9	<40
Benzo(a)pyrene	50-32-8	<40
Indeno(1,2,3-c,d)pyrene	193-39-5	<40
Dibenzo(a,h)anthracene	53-70-3	<40
Benzo(g,h,i)perylene	191-24-2	<40

Laboratory Director

Client: AKRF Inc.	Sample ID: Greenpoint Lumber Yard – Project No.: 30206-0005 (B4 [6-8])
Date Received: 08/17/01	Laboratory ID: 0020178
Date Extracted: 08/24/01	Matrix: Soil
Date Analyzed: 08/24/01	ELAP#: 11418

METALS ANALYSIS
TARGET ANALYTE LIST

PARAMETER	REPORTING LIMIT mg/kg	RESULTS mg/kg
Silver, Ag	0.5	<0.5
Aluminum, Al	1.0	751
Arsenic, As	1.0	<1.0
Barium, Ba	0.5	11.3
Beryllium, Be	0.5	<0.5
Calcium, Ca	1.0	2,750
Cadmium, Cd	0.5	<0.5
Cobalt, Co	0.5	1.68
Chromium, Cr	0.5	2.65
Copper, Cu	0.5	11.4
Iron, Fe	0.5	3,344
Potassium, K	3.0	117
Magnesium, Mg	1.0	1,121
Manganese, Mn	0.5	17.5
Sodium, Na	1.0	318
Nickel, Ni	0.5	6.04
Lead, Pb	0.5	8.54
Antimony, Sb	1.0	<1.0
Selenium, Se	1.0	<1.0
Thallium, Tl	0.5	<0.5
Vanadium, V	0.5	4.91
Zinc, Zn	0.5	6.53
Mercury, Hg	0.05	0.107

Method: SW-846 6010/7000 Series

Lori Beyer
Laboratory Director

AMERICAN ANALYTICAL LABORATORIES, INC.
56 TOLEDO STREET • FARMINGDALE, NEW YORK 11735 • (631) 454-6100 • FAX: (631) 454-8027

Client: AKRF Inc.	Sample ID: Greenpoint Lumber Yard – Project No.: 30260-0005 (B5 [2-4])
Date Received: 08/17/01	Laboratory ID: 0020179
Date Extracted: NA	Matrix: Soil Level: Low
Date Analyzed: 08/21/01	ELAP#: 11418

VOLATILE ORGANICS
SW-846 METHOD 8260

PARAMETER	CAS No.	RESULTS ug/kg
Dichlorodifluoromethane	75-71-8	<5
Chloromethane	74-87-3	<5
Vinyl Chloride	75-01-4	<5
Bromomethane	74-83-9	<5
Chloroethane	75-00-3	<5
Trichlorofluoromethane	75-69-4	<5
Acetone	67-64-1	<5
1,1-Dichloroethene	75-35-4	<5
Vinyl Acetate	108-05-4	<5
Carbon Disulfide	75-15-0	<5
Methylene Chloride	75-09-2	<5
trans-1,2-Dichloroethene	156-60-5	<5
1,1-Dichloroethane	75-34-3	<5
2-Butanone	78-93-3	<5
2,2-Dichloropropane	594-20-7	<5
cis-1,2-Dichloroethene	156-59-2	<5
Chloroform	67-66-3	<5
Bromochloromethane	74-97-5	<5
1,1,1-Trichloroethane	71-55-6	<5
1,1-Dichloropropene	563-58-6	<5
Carbon Tetrachloride	56-23-5	<5
2-Chloroethyl vinyl ether	110-75-8	<5
1,2-Dichloroethane	107-06-2	<5
Benzene	71-43-2	<5
Trichloroethene	79-01-6	<5
1,2-Dichloropropane	78-87-5	<5
Bromodichloromethane	75-27-4	<5
4-Methyl-2-Pentanone	108-10-1	<5
Dibromomethane	74-95-3	<5
cis-1,3-Dichloropropene	10061-01-5	<5
Toluene	108-88-3	<5
trans-1,3-Dichloropropene	10061-02-6	<5
1,1,2-Trichloroethane	79-00-5	<5

Lori Beyer
Laboratory Director

Client: AKRF Inc.	Sample ID: Greenpoint Lumber Yard – Project No.: 30260-0005 (B5 [2-4])
Date Received: 08/17/01	Laboratory ID: 0020179
Date Extracted: NA	Matrix: Soil Level: Low
Date Analyzed: 08/21/01	ELAP#: 11418

VOLATILE ORGANICS
SW-846 METHOD 8260

PARAMETER	CAS No.	RESULTS ug/kg
2-Hexanone	591-78-6	<5
1,3-Dichloropropane	142-28-9	<5
Tetrachloroethene	127-18-4	<5
Chlorodibromomethane	124-48-1	<5
1,2-Dibromoethane	106-93-4	<5
Chlorobenzene	108-90-7	<5
1,1,1,2-Tetrachloroethane	630-20-6	<5
Ethylbenzene	100-41-4	<5
m+p Xylene	108-38-3/106-42-3	<10
o-Xylene	95-47-6	<5
Styrene	100-42-5	<5
Isopropylbenzene	98-82-8	<5
Bromoform	75-25-2	<5
1,2,3-Trichloropropane	96-18-4	<5
n-Propylbenzene	103-65-1	<5
Bromobenzene	108-86-1	<5
1,3,5-Trimethylbenzene	108-67-8	<5
2-Chlorotoluene	95-49-8	<5
4-Chlorotoluene	106-43-4	<5
tert-Butylbenzene	98-06-6	<5
1,2,4-Trimethylbenzene	95-63-6	<5
sec-Butylbenzene	135-98-8	<5
4-Isopropyltoluene	99-87-6	<5
1,1,2,2-Tetrachloroethane	79-34-5	<5
1,3-Dichlorobenzene	541-73-1	<5
1,4-Dichlorobenzene	106-46-7	<5
1,2-Dichlorobenzene	95-50-1	<5
n-Butylbenzene	104-51-8	<5
1,2-Dibromo-3-chloropropane	96-12-8	<5
1,2,4-Trichlorobenzene	120-82-1	<5
Hexachlorobutadiene	87-68-3	<5
Naphthalene	91-20-3	<5
1,2,3-Trichlorobenzene	87-61-6	<5

Laboratory Director

AMERICAN ANALYTICAL LABORATORIES, INC.
56 TOLEDO STREET • FARMINGDALE, NEW YORK 11735 • (631) 454-6100 • FAX: (631) 454-8027

Client: AKRF Inc.	Sample ID: Greenpoint Lumber Yard – Project No.: 30206-0005 (B5 [2-4])
Date Received: 08/17/01	Laboratory ID: 0020179
Date Extracted: 08/21/01	Matrix: Soil
Date Analyzed: 08/24/01	ELAP#: 11418

SEMIVOLATILE ORGANICS
SW-846 METHOD 8270

PARAMETER	CAS No.	RESULTS ug/kg
Pyridine	110-86-1	<40
N-Nitrosodimethylamine	62-75-9	<40
Aniline	62-53-3	<40
Bis(2-chloroethyl)ether	111-44-4	<40
Phenol	108-95-1	<40
2-Chlorophenol	95-57-8	<40
1,3-Dichlorobenzene	541-73-1	<40
1,4-Dichlorobenzene	106-46-7	<40
1,2-Dichlorobenzene	95-50-1	<40
Benzyl Alcohol	100-51-6	<40
Bis(2-chloroisopropyl)ether	108-60-1	<40
2-Methylphenol	95-48-7	<40
Hexachloroethane	67-72-1	<40
N-Nitrosodi-n-propylamine	621-64-7	<40
3+4-Methylphenol	108-39-4 / 106-44-5	<40
Nitrobenzene	98-95-3	<40
Isophorone	78-59-1	<40
2- Nitrophenol	88-75-5	<40
2,4-Dimethylphenol	105-67-9	<40
Benzoic Acid	65-85-0	<70
Bis(2-chloroethoxy)methane	111-91-1	<40
2,4-Dichlorophenol	102-83-2	<40
1,2,4-Trichlorobenzene	120-82-1	<40
Naphthalene	91-20-3	<40
4-Chloroaniline	106-47-8	<40
Hexachlorobutadiene	87-68-3	<40
4-Chloro-3-methylphenol	59-50-7	<40
2-Methylnaphthalene	91-57-6	<40
Hexachlorocyclopentadiene	77-47-4	<40
2,4,5-Trichlorophenol	95-95-4	<40
2,4,6-Trichlorophenol	88-06-2	<40
2-Chloronaphthalene	91-58-7	<40
2-Nitroaniline	88-74-4	<40
Acenaphthylene	208-96-8	<40
Dimethyl Phthalate	131-11-3	<40

Lori Beyer
Laboratory Director

AMERICAN ANALYTICAL LABORATORIES, INC.
56 TOLEDO STREET • FARMINGDALE, NEW YORK 11735 • (631) 454-6100 • FAX: (631) 454-8027

Client: AKRF Inc.	Sample ID: Greenpoint Lumber Yard – Project No.: 30206-0005 (B5 [2-4])
Date Received: 08/17/01	Laboratory ID: 0020179
Date Extracted: 08/21/01	Matrix: Soil
Date Analyzed: 08/24/01	ELAP#: 11418

SEMIVOLATILE ORGANICS
SW-846 METHOD 8270

PARAMETER	CAS No.	RESULTS ug/kg
2,6-Dinitrotoluene	606-20-2	<40
Acenaphthene	83-32-9	<40
3-Nitroaniline	99-09-2	<40
2,4-Dinitrophenol	51-28-5	<70
Dibenzofuran	132-64-9	<40
2,4-Dinitrotoluene	121-14-2	<40
4-Nitrophenol	100-02-7	<50
Fluorene	86-73-7	<40
4-Chlorophenyl phenyl ether	7005-72-3	<40
Azobenzene	103-33-3	<40
Diethyl Phthalate	84-66-2	<40
4-Nitroaniline	100-01-6	<50
4,6-Dinitro-2-methylphenol	534-52-1	<40
N-Nitrosodiphenylamine	86-30-6	<40
4-Bromophenyl phenyl ether	101-55-3	<40
Hexachlorobenzene	118-74-1	<40
Pentachlorophenol	87-86-5	<60
Phenanthrene	85-01-8	120
Anthracene	120-12-7	<40
Carbazole	86-74-8	<40
Di-n-butyl Phthalate	84-74-2	<40
Fluoranthene	206-44-0	150
Benzidine	92-87-5	<40
Pyrene	129-00-0	200
Butyl benzyl Phthalate	85-68-7	<40
3,3´-Dichlorobenzidine	91-94-1	<40
Benzo(a)anthracene	56-55-3	87
Chrysene	218-01-9	110
Bis(2-ethylhexyl)Phthalate	117-81-7	2,400
Di-n-octyl Phthalate	117-84-0	<40
Benzo(b)fluoranthene	205-99-2	120
Benzo(k)fluoranthene	207-08-9	130
Benzo(a)pyrene	50-32-8	92
Indeno(1,2,3-c,d)pyrene	193-39-5	69
Dibenzo(a,h)anthracene	53-70-3	<40
Benzo(g,h,i)perylene	191-24-2	94

Lori Beyer
Laboratory Director

AMERICAN ANALYTICAL LABORATORIES, INC.
56 TOLEDO STREET • FARMINGDALE, NEW YORK 11735 • (631) 454-6100 • FAX: (631) 454-8027

Client: AKRF Inc.	Sample ID: Greenpoint Lumber Yard – Project No.: 30206-0005 (B-5 [2-4])
Date Received: 08/17/01	Laboratory ID:0020179
Date Extracted: 08/23/01	Matrix: Soil
Date Analyzed: 08/25/01	ELAP#: 11418

PESTICIDES
SW-846 METHOD 8081

PARAMETER	CAS No.	RESULTS ug/kg
DBCP	96-12-8	<5
Hexachlorocyclopentadiene	77-47-4	<5
Hexachlorobenzene	118-74-1	<5
α-BHC	319-84-6	<5
γ-BHC(Lindane)	58-89-9	<5
β-BHC	319-85-7	<5
Heptachlor	76-44-8	<5
δ-BHC	319-86-8	<5
Aldrin	309-00-2	<5
Isodrin	465-73-6	<5
Heptachlor Epoxide	1024-57-3	<5
Endosulfan I	959-98-8	<5
4,4'-DDE	72-55-9	<5
Dieldrin	60-57-1	<5
Endrin	72-20-8	<5
Chlorobenzilate	510-15-6	<5
4,4'-DDD	72-54-8	<5
Endosulfan II	33213-65-9	<5
4,4'-DDT	50-29-3	<5
Endrin Aldehyde	7421-93-4	<5
Endosulfan Sulfate	1031-07-8	<5
Methoxychlor	72-43-5	<5
Endrin Ketone	53494-70-5	<5
Chlordane	57-74-9	<5
Toxaphene	8001-35-2	<10

Laboratory Director

Client: AKRF Inc.	Sample ID: Greenpoint Lumber Yard – Project No.: 30206-0005 (B-5 [2-4])
Date Received: 08/17/01	Laboratory ID:0020179
Date Extracted: 08/23/01	Matrix: Soil
Date Analyzed: 08/25/01	ELAP#: 11418

PCBs as AROCLORS
SW-846 METHOD 8082

PARAMETER	CAS No.	RESULTS ug/kg
Aroclor-1016	12674-11-2	<80
Aroclor-1221	11104-28-2	<80
Aroclor-1232	11141-16-5	<80
Aroclor-1242	53469-21-9	<80
Aroclor-1248	12672-29-6	<80
Aroclor-1254	11097-69-1	<80
Aroclor-1260	11096-82-5	<80

Laboratory Director

AMERICAN ANALYTICAL LABORATORIES, INC.
56 TOLEDO STREET • FARMINGDALE, NEW YORK 11735 • (631) 454-6100 • FAX: (631) 454-8027

Client: AKRF Inc.	Sample ID: Greenpoint Lumber Yard – Project No.: 30206-0005 (B5 [2-4])
Date Received: 08/17/01	Laboratory ID: 0020179
Date Extracted: 08/24/01	Matrix: Soil
Date Analyzed: 08/24/01	ELAP#: 11418

METALS ANALYSIS
TARGET ANALYTE LIST

PARAMETER	REPORTING LIMIT mg/kg	RESULTS mg/kg
Silver, Ag	0.5	<0.5
Aluminum, Al	1.0	3,481
Arsenic, As	1.0	<1.0
Barium, Ba	0.5	127
Beryllium, Be	0.5	<0.5
Calcium, Ca	1.0	14,069
Cadmium, Cd	0.5	<0.5
Cobalt, Co	0.5	<0.5
Chromium, Cr	0.5	4.27
Copper, Cu	0.5	5.30
Iron, Fe	0.5	5,655
Potassium, K	3.0	<3.0
Magnesium, Mg	1.0	2,637
Manganese, Mn	0.5	61.4
Sodium, Na	1.0	136
Nickel, Ni	0.5	4.15
Lead, Pb	0.5	291
Antimony, Sb	1.0	<1.0
Selenium, Se	1.0	<1.0
Thallium, Tl	0.5	<0.5
Vanadium, V	0.5	9.28
Zinc, Zn	0.5	129
Mercury, Hg	0.05	<0.05

Method: SW-846 6010/7000 Series

Lori Beyer
Laboratory Director

AMERICAN ANALYTICAL LABORATORIES, INC.
56 TOLEDO STREET • FARMINGDALE, NEW YORK 11735 • (631) 454-6100 • FAX: (631) 454-8027

Client: AKRF Inc.	Sample ID: Greenpoint Lumber Yard – Project No.: 30260-0005 (B5 [5-7])
Date Received: 08/17/01	Laboratory ID: 0020180
Date Extracted: NA	Matrix: Soil Level: Low
Date Analyzed: 08/21/01	ELAP#: 11418

VOLATILE ORGANICS
SW-846 METHOD 8260

PARAMETER	CAS No.	RESULTS ug/kg
Dichlorodifluoromethane	75-71-8	<5
Chloromethane	74-87-3	<5
Vinyl Chloride	75-01-4	<5
Bromomethane	74-83-9	<5
Chloroethane	75-00-3	<5
Trichlorofluoromethane	75-69-4	<5
Acetone	67-64-1	<5
1,1-Dichloroethene	75-35-4	<5
Vinyl Acetate	108-05-4	<5
Carbon Disulfide	75-15-0	<5
Methylene Chloride	75-09-2	<5
trans-1,2-Dichloroethene	156-60-5	<5
1,1-Dichloroethane	75-34-3	<5
2-Butanone	78-93-3	<5
2,2-Dichloropropane	594-20-7	<5
cis-1,2-Dichloroethene	156-59-2	<5
Chloroform	67-66-3	<5
Bromochloromethane	74-97-5	<5
1,1,1-Trichloroethane	71-55-6	<5
1,1-Dichloropropene	563-58-6	<5
Carbon Tetrachloride	56-23-5	<5
2-Chloroethyl vinyl ether	110-75-8	<5
1,2-Dichloroethane	107-06-2	<5
Benzene	71-43-2	<5
Trichloroethene	79-01-6	<5
1,2-Dichloropropane	78-87-5	<5
Bromodichloromethane	75-27-4	<5
4-Methyl-2-Pentanone	108-10-1	<5
Dibromomethane	74-95-3	<5
cis-1,3-Dichloropropene	10061-01-5	<5
Toluene	108-88-3	<5
trans-1,3-Dichloropropene	10061-02-6	<5
1,1,2-Trichloroethane	79-00-5	<5

Laboratory Director

Client: AKRF Inc.	Sample ID: Greenpoint Lumber Yard – Project No.: 30260-0005 (B5 [5-7])
Date Received: 08/17/01	Laboratory ID: 0020180
Date Extracted: NA	Matrix: Soil Level: Low
Date Analyzed: 08/21/01	ELAP#: 11418

VOLATILE ORGANICS
SW-846 METHOD 8260

PARAMETER	CAS No.	RESULTS ug/kg
2-Hexanone	591-78-6	<5
1,3-Dichloropropane	142-28-9	<5
Tetrachloroethene	127-18-4	<5
Chlorodibromomethane	124-48-1	<5
1,2-Dibromoethane	106-93-4	<5
Chlorobenzene	108-90-7	<5
1,1,1,2-Tetrachloroethane	630-20-6	<5
Ethylbenzene	100-41-4	<5
m+p Xylene	108-38-3/106-42-3	<10
o-Xylene	95-47-6	<5
Styrene	100-42-5	<5
Isopropylbenzene	98-82-8	<5
Bromoform	75-25-2	<5
1,2,3-Trichloropropane	96-18-4	<5
n-Propylbenzene	103-65-1	<5
Bromobenzene	108-86-1	<5
1,3,5-Trimethylbenzene	108-67-8	<5
2-Chlorotoluene	95-49-8	<5
4-Chlorotoluene	106-43-4	<5
tert-Butylbenzene	98-06-6	<5
1,2,4-Trimethylbenzene	95-63-6	<5
sec-Butylbenzene	135-98-8	<5
4-Isopropyltoluene	99-87-6	<5
1,1,2,2-Tetrachloroethane	79-34-5	<5
1,3-Dichlorobenzene	541-73-1	<5
1,4-Dichlorobenzene	106-46-7	<5
1,2-Dichlorobenzene	95-50-1	<5
n-Butylbenzene	104-51-8	<5
1,2-Dibromo-3-chloropropane	96-12-8	<5
1,2,4-Trichlorobenzene	120-82-1	<5
Hexachlorobutadiene	87-68-3	<5
Naphthalene	91-20-3	<5
1,2,3-Trichlorobenzene	87-61-6	<5

Laboratory Director

Client: AKRF Inc.	Sample ID: Greenpoint Lumber Yard – Project No.: 30206-0005 (B5 [5-7])
Date Received: 08/17/01	Laboratory ID: 0020180
Date Extracted: 08/21/01	Matrix: Soil
Date Analyzed: 08/24/01	ELAP#: 11418

SEMIVOLATILE ORGANICS
SW-846 METHOD 8270

PARAMETER	CAS No.	RESULTS ug/kg
Pyridine	110-86-1	<40
N-Nitrosodimethylamine	62-75-9	<40
Aniline	62-53-3	<40
Bis(2-chloroethyl)ether	111-44-4	<40
Phenol	108-95-1	<40
2-Chlorophenol	95-57-8	<40
1,3-Dichlorobenzene	541-73-1	<40
1,4-Dichlorobenzene	106-46-7	<40
1,2-Dichlorobenzene	95-50-1	<40
Benzyl Alcohol	100-51-6	<40
Bis(2-chloroisopropyl)ether	108-60-1	<40
2-Methylphenol	95-48-7	<40
Hexachloroethane	67-72-1	<40
N-Nitrosodi-n-propylamine	621-64-7	<40
3+4-Methylphenol	108-39-4 / 106-44-5	<40
Nitrobenzene	98-95-3	<40
Isophorone	78-59-1	<40
2- Nitrophenol	88-75-5	<40
2,4-Dimethylphenol	105-67-9	<40
Benzoic Acid	65-85-0	200
Bis(2-chloroethoxy)methane	111-91-1	<40
2,4-Dichlorophenol	102-83-2	<40
1,2,4-Trichlorobenzene	120-82-1	<40
Naphthalene	91-20-3	<40
4-Chloroaniline	106-47-8	<40
Hexachlorobutadiene	87-68-3	<40
4-Chloro-3-methylphenol	59-50-7	<40
2-Methylnaphthalene	91-57-6	28
Hexachlorocyclopentadiene	77-47-4	<40
2,4,5-Trichlorophenol	95-95-4	<40
2,4,6-Trichlorophenol	88-06-2	<40
2-Chloronaphthalene	91-58-7	<40
2-Nitroaniline	88-74-4	<40
Acenaphthylene	208-96-8	<40
Dimethyl Phthalate	131-11-3	<40

Lori Beyer
Laboratory Director

AMERICAN ANALYTICAL LABORATORIES, INC.
56 TOLEDO STREET • FARMINGDALE, NEW YORK 11735 • (631) 454-6100 • FAX: (631) 454-8027

Client: AKRF Inc.	Sample ID: Greenpoint Lumber Yard – Project No.: 30206-0005 (B5 [5-7])
Date Received: 08/17/01	Laboratory ID: 0020180
Date Extracted: 08/21/01	Matrix: Soil
Date Analyzed: 08/24/01	ELAP#: 11418

SEMIVOLATILE ORGANICS
SW-846 METHOD 8270

PARAMETER	CAS No.	RESULTS ug/kg
2,6-Dinitrotoluene	606-20-2	<40
Acenaphthene	83-32-9	53
3-Nitroaniline	99-09-2	<40
2,4-Dinitrophenol	51-28-5	<70
Dibenzofuran	132-64-9	47
2,4-Dinitrotoluene	121-14-2	<40
4-Nitrophenol	100-02-7	<50
Fluorene	86-73-7	61
4-Chlorophenyl phenyl ether	7005-72-3	<40
Azobenzene	103-33-3	<40
Diethyl Phthalate	84-66-2	<40
4-Nitroaniline	100-01-6	<50
4,6-Dinitro-2-methylphenol	534-52-1	<40
N-Nitrosodiphenylamine	86-30-6	<40
4-Bromophenyl phenyl ether	101-55-3	<40
Hexachlorobenzene	118-74-1	<40
Pentachlorophenol	87-86-5	<60
Phenanthrene	85-01-8	570
Anthracene	120-12-7	130
Carbazole	86-74-8	60
Di-n-butyl Phthalate	84-74-2	<40
Fluoranthene	206-44-0	490
Benzidine	92-87-5	<40
Pyrene	129-00-0	460
Butyl benzyl Phthalate	85-68-7	<40
3,3´-Dichlorobenzidine	91-94-1	<40
Benzo(a)anthracene	56-55-3	220
Chrysene	218-01-9	220
Bis(2-ethylhexyl)Phthalate	117-81-7	2,500
Di-n-octyl Phthalate	117-84-0	<40
Benzo(b)fluoranthene	205-99-2	300
Benzo(k)fluoranthene	207-08-9	310
Benzo(a)pyrene	50-32-8	220
Indeno(1,2,3-c,d)pyrene	193-39-5	150
Dibenzo(a,h)anthracene	53-70-3	<40
Benzo(g,h,i)perylene	191-24-2	170

Laboratory Director

Client: AKRF Inc.	Sample ID: Greenpoint Lumber Yard – Project No.: 30206-0005 (B5 [5-7])
Date Received: 08/17/01	Laboratory ID: 0020180
Date Extracted: 08/24/01	Matrix: Soil
Date Analyzed: 08/24/01	ELAP#: 11418

METALS ANALYSIS
TARGET ANALYTE LIST

PARAMETER	REPORTING LIMIT mg/kg	RESULTS mg/kg
Silver, Ag	0.5	<0.5
Aluminum, Al	1.0	8,197
Arsenic, As	1.0	<1.0
Barium, Ba	0.5	33.0
Beryllium, Be	0.5	<0.5
Calcium, Ca	1.0	1,237
Cadmium, Cd	0.5	<0.5
Cobalt, Co	0.5	<0.5
Chromium, Cr	0.5	9.66
Copper, Cu	0.5	16.2
Iron, Fe	0.5	14,793
Potassium, K	3.0	357
Magnesium, Mg	1.0	2,561
Manganese, Mn	0.5	170
Sodium, Na	1.0	74.7
Nickel, Ni	0.5	9.22
Lead, Pb	0.5	12.5
Antimony, Sb	1.0	<1.0
Selenium, Se	1.0	<1.0
Thallium, Tl	0.5	<0.5
Vanadium, V	0.5	14.2
Zinc, Zn	0.5	31.8
Mercury, Hg	0.05	0.103

Method: SW-846 6010/7000 Series

Lori Beyer
Laboratory Director

AMERICAN ANALYTICAL LABORATORIES, INC.
56 TOLEDO STREET • FARMINGDALE, NEW YORK 11735 • (631) 454-6100 • FAX: (631) 454-8027

Client: AKRF Inc.	Sample ID: Greenpoint Lumber Yard – Project No.: 30260-0005 (MW-1 [5-6])
Date Received: 08/17/01	Laboratory ID: 0020181
Date Extracted: NA	Matrix: Soil Level: Low
Date Analyzed: 08/21/01	ELAP#: 11418

VOLATILE ORGANICS
SW-846 METHOD 8260

PARAMETER	CAS No.	RESULTS ug/kg
Dichlorodifluoromethane	75-71-8	<5
Chloromethane	74-87-3	<5
Vinyl Chloride	75-01-4	<5
Bromomethane	74-83-9	<5
Chloroethane	75-00-3	<5
Trichlorofluoromethane	75-69-4	<5
Acetone	67-64-1	780
1,1-Dichloroethene	75-35-4	<5
Vinyl Acetate	108-05-4	<5
Carbon Disulfide	75-15-0	<5
Methylene Chloride	75-09-2	<5
trans-1,2-Dichloroethene	156-60-5	<5
1,1-Dichloroethane	75-34-3	<5
2-Butanone	78-93-3	<5
2,2-Dichloropropane	594-20-7	<5
cis-1,2-Dichloroethene	156-59-2	<5
Chloroform	67-66-3	<5
Bromochloromethane	74-97-5	<5
1,1,1-Trichloroethane	71-55-6	<5
1,1-Dichloropropene	563-58-6	<5
Carbon Tetrachloride	56-23-5	<5
2-Chloroethyl vinyl ether	110-75-8	<5
1,2-Dichloroethane	107-06-2	<5
Benzene	71-43-2	<5
Trichloroethene	79-01-6	<5
1,2-Dichloropropane	78-87-5	<5
Bromodichloromethane	75-27-4	<5
4-Methyl-2-Pentanone	108-10-1	<5
Dibromomethane	74-95-3	<5
cis-1,3-Dichloropropene	10061-01-5	<5
Toluene	108-88-3	<5
trans-1,3-Dichloropropene	10061-02-6	<5
1,1,2-Trichloroethane	79-00-5	<5

Lori Beyer
Laboratory Director

Client: AKRF Inc.	Sample ID: Greenpoint Lumber Yard – Project No.: 30260-0005 (MW-1 [5-6])
Date Received: 08/17/01	Laboratory ID: 0020181
Date Extracted: NA	Matrix: Soil Level: Low
Date Analyzed: 08/21/01	ELAP#: 11418

VOLATILE ORGANICS
SW-846 METHOD 8260

PARAMETER	CAS No.	RESULTS ug/kg
2-Hexanone	591-78-6	<5
1,3-Dichloropropane	142-28-9	<5
Tetrachloroethene	127-18-4	<5
Chlorodibromomethane	124-48-1	<5
1,2-Dibromoethane	106-93-4	<5
Chlorobenzene	108-90-7	<5
1,1,1,2-Tetrachloroethane	630-20-6	<5
Ethylbenzene	100-41-4	8
m+p Xylene	108-38-3/106-42-3	14
o-Xylene	95-47-6	8
Styrene	100-42-5	<5
Isopropylbenzene	98-82-8	<5
Bromoform	75-25-2	<5
1,2,3-Trichloropropane	96-18-4	<5
n-Propylbenzene	103-65-1	<5
Bromobenzene	108-86-1	<5
1,3,5-Trimethylbenzene	108-67-8	8
2-Chlorotoluene	95-49-8	<5
4-Chlorotoluene	106-43-4	<5
tert-Butylbenzene	98-06-6	<5
1,2,4-Trimethylbenzene	95-63-6	30
sec-Butylbenzene	135-98-8	<5
4-Isopropyltoluene	99-87-6	<5
1,1,2,2-Tetrachloroethane	79-34-5	<5
1,3-Dichlorobenzene	541-73-1	<5
1,4-Dichlorobenzene	106-46-7	<5
1,2-Dichlorobenzene	95-50-1	<5
n-Butylbenzene	104-51-8	<5
1,2-Dibromo-3-chloropropane	96-12-8	<5
1,2,4-Trichlorobenzene	120-82-1	<5
Hexachlorobutadiene	87-68-3	<5
Naphthalene	91-20-3	<5
1,2,3-Trichlorobenzene	87-61-6	<5

Laboratory Director

Client: AKRF Inc.	Sample ID: Greenpoint Lumber Yard – Project No.: 30206-0005 (MW-1 [5-6])
Date Received: 08/17/01	Laboratory ID: 0020181
Date Extracted: 08/21/01	Matrix: Soil
Date Analyzed: 08/24/01	ELAP#: 11418

SEMIVOLATILE ORGANICS
SW-846 METHOD 8270

PARAMETER	CAS No.	RESULTS ug/kg
Pyridine	110-86-1	<40
N-Nitrosodimethylamine	62-75-9	<40
Aniline	62-53-3	<40
Bis(2-chloroethyl)ether	111-44-4	<40
Phenol	108-95-1	<40
2-Chlorophenol	95-57-8	<40
1,3-Dichlorobenzene	541-73-1	<40
1,4-Dichlorobenzene	106-46-7	<40
1,2-Dichlorobenzene	95-50-1	<40
Benzyl Alcohol	100-51-6	<40
Bis(2-chloroisopropyl)ether	108-60-1	<40
2-Methylphenol	95-48-7	<40
Hexachloroethane	67-72-1	<40
N-Nitrosodi-n-propylamine	621-64-7	<40
3+4-Methylphenol	108-39-4 / 106-44-5	<40
Nitrobenzene	98-95-3	<40
Isophorone	78-59-1	<40
2- Nitrophenol	88-75-5	<40
2,4-Dimethylphenol	105-67-9	<40
Benzoic Acid	65-85-0	230
Bis(2-chloroethoxy)methane	111-91-1	<40
2,4-Dichlorophenol	102-83-2	<40
1,2,4-Trichlorobenzene	120-82-1	<40
Naphthalene	91-20-3	<40
4-Chloroaniline	106-47-8	<40
Hexachlorobutadiene	87-68-3	<40
4-Chloro-3-methylphenol	59-50-7	<40
2-Methylnaphthalene	91-57-6	<40
Hexachlorocyclopentadiene	77-47-4	<40
2,4,5-Trichlorophenol	95-95-4	<40
2,4,6-Trichlorophenol	88-06-2	<40
2-Chloronaphthalene	91-58-7	<40
2-Nitroaniline	88-74-4	<40
Acenaphthylene	208-96-8	<40
Dimethyl Phthalate	131-11-3	<40

Laboratory Director

AMERICAN ANALYTICAL LABORATORIES, INC.
56 TOLEDO STREET • FARMINGDALE, NEW YORK 11735 • (631) 454-6100 • FAX: (631) 454-8027

Client: AKRF Inc.	Sample ID: Greenpoint Lumber Yard – Project No.: 30206-0005 (MW-1 [5-6])
Date Received: 08/17/01	Laboratory ID: 0020181
Date Extracted: 08/21/01	Matrix: Soil
Date Analyzed: 08/24/01	ELAP#: 11418

SEMIVOLATILE ORGANICS
SW-846 METHOD 8270

PARAMETER	CAS No.	RESULTS ug/kg
2,6-Dinitrotoluene	606-20-2	<40
Acenaphthene	83-32-9	<40
3-Nitroaniline	99-09-2	<40
2,4-Dinitrophenol	51-28-5	<70
Dibenzofuran	132-64-9	<40
2,4-Dinitrotoluene	121-14-2	<40
4-Nitrophenol	100-02-7	<50
Fluorene	86-73-7	<40
4-Chlorophenyl phenyl ether	7005-72-3	<40
Azobenzene	103-33-3	<40
Diethyl Phthalate	84-66-2	<40
4-Nitroaniline	100-01-6	<50
4,6-Dinitro-2-methylphenol	534-52-1	<40
N-Nitrosodiphenylamine	86-30-6	<40
4-Bromophenyl phenyl ether	101-55-3	<40
Hexachlorobenzene	118-74-1	<40
Pentachlorophenol	87-86-5	<60
Phenanthrene	85-01-8	<40
Anthracene	120-12-7	<40
Carbazole	86-74-8	<40
Di-n-butyl Phthalate	84-74-2	<40
Fluoranthene	206-44-0	<40
Benzidine	92-87-5	<40
Pyrene	129-00-0	<40
Butyl benzyl Phthalate	85-68-7	<40
3,3´-Dichlorobenzidine	91-94-1	<40
Benzo(a)anthracene	56-55-3	<40
Chrysene	218-01-9	<40
Bis(2-ethylhexyl)Phthalate	117-81-7	2,200
Di-n-octyl Phthalate	117-84-0	<40
Benzo(b)fluoranthene	205-99-2	<40
Benzo(k)fluoranthene	207-08-9	<40
Benzo(a)pyrene	50-32-8	<40
Indeno(1,2,3-c,d)pyrene	193-39-5	<40
Dibenzo(a,h)anthracene	53-70-3	<40
Benzo(g,h,i)perylene	191-24-2	<40

Lori Beyer
Laboratory Director

AMERICAN ANALYTICAL LABORATORIES, INC.
56 TOLEDO STREET • FARMINGDALE, NEW YORK 11735 • (631) 454-6100 • FAX: (631) 454-8027

Client: AKRF Inc.	Sample ID: Greenpoint Lumber Yard – Project No.: 30206-0005 (MW-1 [5-6])
Date Received: 08/17/01	Laboratory ID: 0020181
Date Extracted: 08/24/01	Matrix: Soil
Date Analyzed: 08/24/01	ELAP#: 11418

METALS ANALYSIS
TARGET ANALYTE LIST

PARAMETER	REPORTING LIMIT mg/kg	RESULTS mg/kg
Silver, Ag	0.5	<0.5
Aluminum, Al	1.0	2,904
Arsenic, As	1.0	<1.0
Barium, Ba	0.5	16.0
Beryllium, Be	0.5	<0.5
Calcium, Ca	1.0	1,545
Cadmium, Cd	0.5	<0.5
Cobalt, Co	0.5	0.528
Chromium, Cr	0.5	6.76
Copper, Cu	0.5	7.67
Iron, Fe	0.5	7,304
Potassium, K	3.0	306
Magnesium, Mg	1.0	2,209
Manganese, Mn	0.5	66.2
Sodium, Na	1.0	140
Nickel, Ni	0.5	6.76
Lead, Pb	0.5	3.57
Antimony, Sb	1.0	<1.0
Selenium, Se	1.0	<1.0
Thallium, Tl	0.5	<0.5
Vanadium, V	0.5	10.6
Zinc, Zn	0.5	13.2
Mercury, Hg	0.05	0.114

Method: SW-846 6010/7000 Series

Laboratory Director

AMERICAN ANALYTICAL LABORATORIES, INC.
56 TOLEDO STREET • FARMINGDALE, NEW YORK 11735 • (631) 454-6100 • FAX: (631) 454-8027

Client: AKRF Inc.	Sample ID: Greenpoint Lumber Yard – Project No.: 30260-0005 (MW-1 [8-9])
Date Received: 08/17/01	Laboratory ID: 0020182
Date Extracted: NA	Matrix: Soil Level: Low
Date Analyzed: 08/21/01	ELAP#: 11418

VOLATILE ORGANICS
SW-846 METHOD 8260

PARAMETER	CAS No.	RESULTS ug/kg
Dichlorodifluoromethane	75-71-8	<5
Chloromethane	74-87-3	<5
Vinyl Chloride	75-01-4	<5
Bromomethane	74-83-9	<5
Chloroethane	75-00-3	<5
Trichlorofluoromethane	75-69-4	<5
Acetone	67-64-1	96
1,1-Dichloroethene	75-35-4	<5
Vinyl Acetate	108-05-4	<5
Carbon Disulfide	75-15-0	<5
Methylene Chloride	75-09-2	<5
trans-1,2-Dichloroethene	156-60-5	<5
1,1-Dichloroethane	75-34-3	<5
2-Butanone	78-93-3	<5
2,2-Dichloropropane	594-20-7	<5
cis-1,2-Dichloroethene	156-59-2	<5
Chloroform	67-66-3	<5
Bromochloromethane	74-97-5	<5
1,1,1-Trichloroethane	71-55-6	<5
1,1-Dichloropropene	563-58-6	<5
Carbon Tetrachloride	56-23-5	<5
2-Chloroethyl vinyl ether	110-75-8	<5
1,2-Dichloroethane	107-06-2	<5
Benzene	71-43-2	<5
Trichloroethene	79-01-6	<5
1,2-Dichloropropane	78-87-5	<5
Bromodichloromethane	75-27-4	<5
4-Methyl-2-Pentanone	108-10-1	<5
Dibromomethane	74-95-3	<5
cis-1,3-Dichloropropene	10061-01-5	<5
Toluene	108-88-3	<5
trans-1,3-Dichloropropene	10061-02-6	<5
1,1,2-Trichloroethane	79-00-5	<5

Laboratory Director

AMERICAN ANALYTICAL LABORATORIES, INC.
56 TOLEDO STREET • FARMINGDALE, NEW YORK 11735 • (631) 454-6100 • FAX: (631) 454-8027

Client: AKRF Inc.	Sample ID: Greenpoint Lumber Yard – Project No.: 30260-0005 (MW-1 [8-9])
Date Received: 08/17/01	Laboratory ID: 0020182
Date Extracted: NA	Matrix: Soil Level: Low
Date Analyzed: 08/21/01	ELAP#: 11418

VOLATILE ORGANICS
SW-846 METHOD 8260

PARAMETER	CAS No.	RESULTS ug/kg
2-Hexanone	591-78-6	<5
1,3-Dichloropropane	142-28-9	<5
Tetrachloroethene	127-18-4	<5
Chlorodibromomethane	124-48-1	<5
1,2-Dibromoethane	106-93-4	<5
Chlorobenzene	108-90-7	<5
1,1,1,2-Tetrachloroethane	630-20-6	<5
Ethylbenzene	100-41-4	<5
m+p Xylene	108-38-3/106-42-3	<10
o-Xylene	95-47-6	<5
Styrene	100-42-5	<5
Isopropylbenzene	98-82-8	<5
Bromoform	75-25-2	<5
1,2,3-Trichloropropane	96-18-4	<5
n-Propylbenzene	103-65-1	<5
Bromobenzene	108-86-1	<5
1,3,5-Trimethylbenzene	108-67-8	<5
2-Chlorotoluene	95-49-8	<5
4-Chlorotoluene	106-43-4	<5
tert-Butylbenzene	98-06-6	<5
1,2,4-Trimethylbenzene	95-63-6	<5
sec-Butylbenzene	135-98-8	<5
4-Isopropyltoluene	99-87-6	<5
1,1,2,2-Tetrachloroethane	79-34-5	<5
1,3-Dichlorobenzene	541-73-1	<5
1,4-Dichlorobenzene	106-46-7	<5
1,2-Dichlorobenzene	95-50-1	<5
n-Butylbenzene	104-51-8	<5
1,2-Dibromo-3-chloropropane	96-12-8	<5
1,2,4-Trichlorobenzene	120-82-1	<5
Hexachlorobutadiene	87-68-3	<5
Naphthalene	91-20-3	<5
1,2,3-Trichlorobenzene	87-61-6	<5

Laboratory Director

AMERICAN ANALYTICAL LABORATORIES, INC.
56 TOLEDO STREET • FARMINGDALE, NEW YORK 11735 • (631) 454-6100 • FAX: (631) 454-8027

Client: AKRF Inc.	Sample ID: Greenpoint Lumber Yard – Project No.: 30206-0005 (MW-1 [8-9])
Date Received: 08/17/01	Laboratory ID: 0020182
Date Extracted: 08/21/01	Matrix: Soil
Date Analyzed: 08/24/01	ELAP#: 11418

SEMIVOLATILE ORGANICS
SW-846 METHOD 8270

PARAMETER	CAS No.	RESULTS ug/kg
Pyridine	110-86-1	<40
N-Nitrosodimethylamine	62-75-9	<40
Aniline	62-53-3	<40
Bis(2-chloroethyl)ether	111-44-4	<40
Phenol	108-95-1	<40
2-Chlorophenol	95-57-8	<40
1,3-Dichlorobenzene	541-73-1	<40
1,4-Dichlorobenzene	106-46-7	<40
1,2-Dichlorobenzene	95-50-1	<40
Benzyl Alcohol	100-51-6	<40
Bis(2-chloroisopropyl)ether	108-60-1	<40
2-Methylphenol	95-48-7	<40
Hexachloroethane	67-72-1	<40
N-Nitrosodi-n-propylamine	621-64-7	<40
3+4-Methylphenol	108-39-4 / 106-44-5	<40
Nitrobenzene	98-95-3	<40
Isophorone	78-59-1	<40
2- Nitrophenol	88-75-5	<40
2,4-Dimethylphenol	105-67-9	<40
Benzoic Acid	65-85-0	<40
Bis(2-chloroethoxy)methane	111-91-1	<40
2,4-Dichlorophenol	102-83-2	<40
1,2,4-Trichlorobenzene	120-82-1	<40
Naphthalene	91-20-3	110
4-Chloroaniline	106-47-8	<40
Hexachlorobutadiene	87-68-3	<40
4-Chloro-3-methylphenol	59-50-7	<40
2-Methylnaphthalene	91-57-6	88
Hexachlorocyclopentadiene	77-47-4	<40
2,4,5-Trichlorophenol	95-95-4	<40
2,4,6-Trichlorophenol	88-06-2	<40
2-Chloronaphthalene	91-58-7	<40
2-Nitroaniline	88-74-4	<40
Acenaphthylene	208-96-8	<40
Dimethyl Phthalate	131-11-3	<40

Laboratory Director

AMERICAN ANALYTICAL LABORATORIES, INC.
56 TOLEDO STREET • FARMINGDALE, NEW YORK 11735 • (631) 454-6100 • FAX: (631) 454-8027

Client: AKRF Inc.	Sample ID: Greenpoint Lumber Yard – Project No.: 30206-0005 (MW-1 [8-9])
Date Received: 08/17/01	Laboratory ID: 0020182
Date Extracted: 08/21/01	Matrix: Soil
Date Analyzed: 08/24/01	ELAP#: 11418

SEMIVOLATILE ORGANICS
SW-846 METHOD 8270

PARAMETER	CAS No.	RESULTS ug/kg
2,6-Dinitrotoluene	606-20-2	<40
Acenaphthene	83-32-9	100
3-Nitroaniline	99-09-2	<40
2,4-Dinitrophenol	51-28-5	<70
Dibenzofuran	132-64-9	46
2,4-Dinitrotoluene	121-14-2	<40
4-Nitrophenol	100-02-7	<50
Fluorene	86-73-7	100
4-Chlorophenyl phenyl ether	7005-72-3	<40
Azobenzene	103-33-3	<40
Diethyl Phthalate	84-66-2	<40
4-Nitroaniline	100-01-6	<50
4,6-Dinitro-2-methylphenol	534-52-1	<40
N-Nitrosodiphenylamine	86-30-6	<40
4-Bromophenyl phenyl ether	101-55-3	<40
Hexachlorobenzene	118-74-1	<40
Pentachlorophenol	87-86-5	<60
Phenanthrene	85-01-8	800
Anthracene	120-12-7	190
Carbazole	86-74-8	91
Di-n-butyl Phthalate	84-74-2	<40
Fluoranthene	206-44-0	690
Benzidine	92-87-5	<40
Pyrene	129-00-0	780
Butyl benzyl Phthalate	85-68-7	<40
3,3´-Dichlorobenzidine	91-94-1	<40
Benzo(a)anthracene	56-55-3	360
Chrysene	218-01-9	380
Bis(2-ethylhexyl)Phthalate	117-81-7	1,600
Di-n-octyl Phthalate	117-84-0	<40
Benzo(b)fluoranthene	205-99-2	510
Benzo(k)fluoranthene	207-08-9	540
Benzo(a)pyrene	50-32-8	310
Indeno(1,2,3-c,d)pyrene	193-39-5	240
Dibenzo(a,h)anthracene	53-70-3	86
Benzo(g,h,i)perylene	191-24-2	230

Laboratory Director

AMERICAN ANALYTICAL LABORATORIES, INC.
56 TOLEDO STREET • FARMINGDALE, NEW YORK 11735 • (631) 454-6100 • FAX: (631) 454-8027

Client: AKRF Inc.	Sample ID: Greenpoint Lumber Yard – Project No.: 30206-0005 (MW-1 [8-9])
Date Received: 08/17/01	Laboratory ID: 0020182
Date Extracted: 08/24/01	Matrix: Soil
Date Analyzed: 08/24/01	ELAP#: 11418

METALS ANALYSIS
TARGET ANALYTE LIST

PARAMETER	REPORTING LIMIT mg/kg	RESULTS mg/kg
Silver, Ag	0.5	0.633
Aluminum, Al	1.0	5,040
Arsenic, As	1.0	<1.0
Barium, Ba	0.5	48.6
Beryllium, Be	0.5	<0.5
Calcium, Ca	1.0	4,282
Cadmium, Cd	0.5	<0.5
Cobalt, Co	0.5	<0.5
Chromium, Cr	0.5	8.04
Copper, Cu	0.5	14.1
Iron, Fe	0.5	9,456
Potassium, K	3.0	396
Magnesium, Mg	1.0	1,747
Manganese, Mn	0.5	100
Sodium, Na	1.0	172
Nickel, Ni	0.5	8.00
Lead, Pb	0.5	75.4
Antimony, Sb	1.0	<1.0
Selenium, Se	1.0	<1.0
Thallium, Tl	0.5	<0.5
Vanadium, V	0.5	13.2
Zinc, Zn	0.5	37.8
Mercury, Hg	0.05	0.338

Method: SW-846 6010/7000 Series

Laboratory Director

AMERICAN ANALYTICAL LABORATORIES, INC.
56 TOLEDO STREET • FARMINGDALE, NEW YORK 11735 • (631) 454-6100 • FAX: (631) 454-8027

Client: AKRF Inc.	Sample ID: Greenpoint Lumber Yard – Project No.: 30260-0005 (MW-1)
Date Received: 08/17/01	Laboratory ID: 0020183
Date Extracted: NA	Matrix: Liquid
Date Analyzed: 08/20/01	ELAP#: 11418

VOLATILE ORGANICS
SW-846 METHOD 8260

PARAMETER	CAS NO.	RESULTS ug/L
Dichlorodifluoromethane	75-71-8	<1
Chloromethane	74-87-3	<1
Vinyl Chloride	75-01-4	<1
Bromomethane	74-83-9	<1
Chloroethane	75-00-3	<1
Trichlorofluoromethane	75-69-4	<1
Acetone	67-64-1	<1
1,1-Dichloroethene	75-35-4	<1
Vinyl Acetate	108-05-4	<1
Carbon Disulfide	75-15-0	<1
Methylene Chloride	75-09-2	<1
trans-1,2-Dichloroethene	156-60-5	<1
1,1-Dichloroethane	75-34-3	<1
2-Butanone	78-93-3	<1
2,2-Dichloropropane	594-20-7	<1
cis-1,2-Dichloroethene	156-59-2	<1
Chloroform	67-66-3	<1
Bromochloromethane	74-97-5	<1
1,1,1-Trichloroethane	71-55-6	<1
1,1-Dichloropropene	563-58-6	<1
Carbon Tetrachloride	56-23-5	<1
2-Chloroethyl vinyl ether	110-75-8	<1
1,2-Dichloroethane	107-06-2	<1
Benzene	71-43-2	<1
Trichloroethene	79-01-6	<1
1,2-Dichloropropane	78-87-5	<1
Bromodichloromethane	75-27-4	<1
4-Methyl-2-Pentanone	108-10-1	<1
Dibromomethane	74-95-3	<1
cis-1,3-Dichloropropene	10061-01-5	<1
Toluene	108-88-3	<1
trans-1,3-Dichloropropene	10061-02-6	<1
1,1,2-Trichloroethane	79-00-5	<1

Laboratory Director

Client: AKRF Inc.	Sample ID: Greenpoint Lumber Yard – Project No.: 30260-0005 (MW-1)
Date Received: 08/17/01	Laboratory ID: 0020183
Date Extracted: NA	Matrix: Liquid
Date Analyzed: 08/20/01	ELAP#: 11418

VOLATILE ORGANICS
SW-846 METHOD 8260

PARAMETER	CAS NO.	RESULTS ug/L
2-Hexanone	591-78-6	<1
1,3-Dichloropropane	142-28-9	<1
Tetrachloroethene	127-18-4	<1
Chlorodibromomethane	124-48-1	<1
1,2-Dibromoethane	106-93-4	<1
Chlorobenzene	108-90-7	<1
1,1,1,2-Tetrachloroethane	630-20-6	<1
Ethylbenzene	100-41-4	<1
m+p Xylene	108-38-3/106-42-3	<2
o-Xylene	95-47-6	<1
Styrene	100-42-5	<1
Isopropylbenzene	98-82-8	<1
Bromoform	75-25-2	<1
1,2,3-Trichloropropane	96-18-4	<1
n-Propylbenzene	103-65-1	<1
Bromobenzene	108-86-1	<1
1,3,5-Trimethylbenzene	108-67-8	<1
2-Chlorotoluene	95-49-8	<1
4-Chlorotoluene	106-43-4	<1
tert-Butylbenzene	98-06-6	<1
1,2,4-Trimethylbenzene	95-63-6	<1
sec-Butylbenzene	135-98-8	<1
4-Isopropyltoluene	99-87-6	<1
1,1,2,2-Tetrachloroethane	79-34-5	<1
1,3-Dichlorobenzene	541-73-1	<1
1,4-Dichlorobenzene	106-46-7	<1
1,2-Dichlorobenzene	95-50-1	<1
n-Butylbenzene	104-51-8	<1
1,2-Dibromo-3-chloropropane	96-12-8	<1
1,2,4-Trichlorobenzene	120-82-1	<1
Hexachlorobutadiene	87-68-3	<1
Naphthalene	91-20-3	<1
1,2,3-Trichlorobenzene	87-61-6	<1

Laboratory Director

Client: AKRF Inc.	Sample ID: Greenpoint Lumber Yard – Project No.: 30206-0005 (MW-1)
Date Received: 08/17/01	Laboratory ID: 0020183
Date Extracted: 08/22/01	Matrix: Liquid
Date Analyzed: 08/23/01	ELAP#: 11418

SEMIVOLATILE ORGANICS
SW-846 METHOD 8270

PARAMETER	CAS No.	RESULTS ug/L
Pyridine	110-86-1	<5
N-Nitrosodimethylamine	62-75-9	<5
Aniline	62-53-3	<5
Bis(2-chloroethyl)ether	111-44-4	<5
Phenol	108-95-1	<5
2-Chlorophenol	95-57-8	<5
1,3-Dichlorobenzene	541-73-1	<5
1,4-Dichlorobenzene	106-46-7	<5
1,2-Dichlorobenzene	95-50-1	<5
Benzyl Alcohol	100-51-6	<5
Bis(2-chloroisopropyl)ether	108-60-1	<5
2-Methylphenol	95-48-7	<5
Hexachloroethane	67-72-1	<5
N-Nitrosodi-n-propylamine	621-64-7	<5
3+4-Methylphenol	108-39-4 / 106-44-5	<5
Nitrobenzene	98-95-3	<5
Isophorone	78-59-1	<5
2- Nitrophenol	88-75-5	<5
2,4-Dimethylphenol	105-67-9	<5
Benzoic Acid	65-85-0	<5
Bis(2-chloroethoxy)methane	111-91-1	<5
2,4-Dichlorophenol	102-83-2	<5
1,2,4-Trichlorobenzene	120-82-1	<5
Naphthalene	91-20-3	18
4-Chloroaniline	106-47-8	<5
Hexachlorobutadiene	87-68-3	<5
4-Chloro-3-methylphenol	59-50-7	<5
2-Methylnaphthalene	91-57-6	<5
Hexachlorocyclopentadiene	77-47-4	<5
2,4,5-Trichlorophenol	95-95-4	<5
2,4,6-Trichlorophenol	88-06-2	<5
2-Chloronaphthalene	91-58-7	<5
2-Nitroaniline	88-74-4	<5
Acenaphthylene	208-96-8	<5
Dimethyl Phthalate	131-11-3	<5

Laboratory Director

Client: AKRF Inc.	Sample ID: Greenpoint Lumber Yard – Project No.: 30206-0005 (MW-1)
Date Received: 08/17/01	Laboratory ID: 0020183
Date Extracted: 08/22/01	Matrix: Liquid
Date Analyzed: 08/23/01	ELAP#: 11418

SEMIVOLATILE ORGANICS
SW-846 METHOD 8270

PARAMETER	CAS No.	RESULTS ug/L
2,6-Dinitrotoluene	606-20-2	<5
Acenaphthene	83-32-9	<5
3-Nitroaniline	99-09-2	<5
2,4-Dinitrophenol	51-28-5	<5
Dibenzofuran	132-64-9	<5
2,4-Dinitrotoluene	121-14-2	<5
4-Nitrophenol	100-02-7	<5
Fluorene	86-73-7	<5
4-Chlorophenyl phenyl ether	7005-72-3	<5
Azobenzene	103-33-3	<5
Diethyl Phthalate	84-66-2	<5
4-Nitroaniline	100-01-6	<5
4,6-Dinitro-2-methylphenol	534-52-1	<5
N-Nitrosodiphenylamine	86-30-6	<5
4-Bromophenyl phenyl ether	101-55-3	<5
Hexachlorobenzene	118-74-1	<5
Pentachlorophenol	87-86-5	<5
Phenanthrene	85-01-8	<5
Anthracene	120-12-7	<5
Carbazole	86-74-8	<5
Di-n-butyl Phthalate	84-74-2	<5
Fluoranthene	206-44-0	<5
Benzidine	92-87-5	<5
Pyrene	129-00-0	<5
Butyl benzyl Phthalate	85-68-7	<5
3,3´-Dichlorobenzidine	91-94-1	<5
Benzo(a)anthracene	56-55-3	<5
Chrysene	218-01-9	<5
Bis(2-ethylhexyl)Phthalate	117-81-7	<5
Di-n-octyl Phthalate	117-84-0	<5
Benzo(b)fluoranthene	205-99-2	<5
Benzo(k)fluoranthene	207-08-9	<5
Benzo(a)pyrene	50-32-8	<5
Indeno(1,2,3-c,d)pyrene	193-39-5	<5
Dibenzo(a,h)anthracene	53-70-3	<5
Benzo(g,h,i)perylene	191-24-2	<5

Laboratory Director

Client: AKRF Inc.	Sample ID: Greenpoint Lumber Yard – Project No.: 30206-0005 (MW-1)
Date Received: 08/17/01	Laboratory ID: 0020183
Date Extracted: 08/24/01	Matrix: Liquid
Date Analyzed: 08/24/01	ELAP#: 11418

METALS ANALYSIS
TARGET ANALYTE LIST

PARAMETER	REPORTING LIMIT mg/L	RESULTS mg/L
Silver, Ag	0.030	<0.030
Aluminum, Al	0.050	195
Arsenic, As	0.025	<0.025
Barium, Ba	0.030	2.18
Beryllium, Be	0.030	<0.030
Calcium, Ca	0.040	168
Cadmium, Cd	0.030	<0.030
Cobalt, Co	0.050	<0.050
Chromium, Cr	0.030	0.906
Copper, Cu	0.030	0.858
Iron, Fe	0.030	765
Potassium, K	0.400	29.9
Magnesium, Mg	0.030	124
Manganese, Mn	0.030	22.4
Sodium, Na	0.050	231
Nickel, Ni	0.030	0.516
Lead, Pb	0.030	0.355
Antimony, Sb	0.050	<0.050
Selenium, Se	0.025	<0.025
Thallium, Tl	0.020	<0.020
Vanadium, V	0.030	0.812
Zinc, Zn	0.030	3.47
Mercury, Hg	0.002	0.0035

Analytical Methods:

SW-846 6010/7470 (ICP)

Laboratory Director

AMERICAN ANALYTICAL LABORATORIES, INC.
56 TOLEDO STREET • FARMINGDALE, NEW YORK 11735 • (631) 454-6100 • FAX: (631) 454-8027

Client: AKRF Inc.	Sample ID: Greenpoint Lumber Yard – Project No.: 30206-0005 (MW-1)
Date Received: 08/17/01	Laboratory ID: 0020183
Date Extracted: 08/24/01	Matrix: Liquid
Date Analyzed: 08/24/01	ELAP#: 11418

DISSOLVED METALS ANALYSIS
TARGET ANALYTE LIST

PARAMETER	REPORTING LIMIT mg/L	RESULTS mg/L
Silver, Ag	0.030	<0.030
Aluminum, Al	0.050	1.52
Arsenic, As	0.025	<0.025
Barium, Ba	0.030	0.126
Beryllium, Be	0.030	<0.030
Calcium, Ca	0.040	88.8
Cadmium, Cd	0.030	<0.030
Cobalt, Co	0.050	<0.050
Chromium, Cr	0.030	<0.030
Copper, Cu	0.030	<0.030
Iron, Fe	0.030	1.25
Potassium, K	0.400	11.3
Magnesium, Mg	0.030	43.2
Manganese, Mn	0.030	2.53
Sodium, Na	0.050	311
Nickel, Ni	0.030	<0.030
Lead, Pb	0.030	<0.030
Antimony, Sb	0.050	<0.050
Selenium, Se	0.025	<0.025
Thallium, Tl	0.020	<0.020
Vanadium, V	0.030	0.163
Zinc, Zn	0.030	<0.030
Mercury, Hg	0.002	<0.002

Analytical Methods:

SW-846 6010/7470 (ICP)

Laboratory Director

Client: AKRF Inc.	Sample ID: Greenpoint Lumber Yard – Project No.: 30260-0005 (MW-2 [5-7])
Date Received: 08/17/01	Laboratory ID: 0020184
Date Extracted: NA	Matrix: Soil Level: Low
Date Analyzed: 08/21/01	ELAP#: 11418

VOLATILE ORGANICS
SW-846 METHOD 8260

PARAMETER	CAS No.	RESULTS ug/kg
Dichlorodifluoromethane	75-71-8	<5
Chloromethane	74-87-3	<5
Vinyl Chloride	75-01-4	<5
Bromomethane	74-83-9	<5
Chloroethane	75-00-3	<5
Trichlorofluoromethane	75-69-4	<5
Acetone	67-64-1	130
1,1-Dichloroethene	75-35-4	<5
Vinyl Acetate	108-05-4	<5
Carbon Disulfide	75-15-0	<5
Methylene Chloride	75-09-2	<5
trans-1,2-Dichloroethene	156-60-5	<5
1,1-Dichloroethane	75-34-3	<5
2-Butanone	78-93-3	<5
2,2-Dichloropropane	594-20-7	<5
cis-1,2-Dichloroethene	156-59-2	<5
Chloroform	67-66-3	<5
Bromochloromethane	74-97-5	<5
1,1,1-Trichloroethane	71-55-6	<5
1,1-Dichloropropene	563-58-6	<5
Carbon Tetrachloride	56-23-5	<5
2-Chloroethyl vinyl ether	110-75-8	<5
1,2-Dichloroethane	107-06-2	<5
Benzene	71-43-2	<5
Trichloroethene	79-01-6	<5
1,2-Dichloropropane	78-87-5	<5
Bromodichloromethane	75-27-4	<5
4-Methyl-2-Pentanone	108-10-1	<5
Dibromomethane	74-95-3	<5
cis-1,3-Dichloropropene	10061-01-5	<5
Toluene	108-88-3	<5
trans-1,3-Dichloropropene	10061-02-6	<5
1,1,2-Trichloroethane	79-00-5	<5

Laboratory Director

Client: AKRF Inc.	Sample ID: Greenpoint Lumber Yard – Project No.: 30260-0005 (MW-2 [5-7])
Date Received: 08/17/01	Laboratory ID: 0020184
Date Extracted: NA	Matrix: Soil Level: Low
Date Analyzed: 08/21/01	ELAP#: 11418

VOLATILE ORGANICS
SW-846 METHOD 8260

PARAMETER	CAS No.	RESULTS ug/kg
2-Hexanone	591-78-6	<5
1,3-Dichloropropane	142-28-9	<5
Tetrachloroethene	127-18-4	<5
Chlorodibromomethane	124-48-1	<5
1,2-Dibromoethane	106-93-4	<5
Chlorobenzene	108-90-7	<5
1,1,1,2-Tetrachloroethane	630-20-6	<5
Ethylbenzene	100-41-4	<5
m+p Xylene	108-38-3/106-42-3	<10
o-Xylene	95-47-6	<5
Styrene	100-42-5	<5
Isopropylbenzene	98-82-8	<5
Bromoform	75-25-2	<5
1,2,3-Trichloropropane	96-18-4	<5
n-Propylbenzene	103-65-1	<5
Bromobenzene	108-86-1	<5
1,3,5-Trimethylbenzene	108-67-8	<5
2-Chlorotoluene	95-49-8	<5
4-Chlorotoluene	106-43-4	<5
tert-Butylbenzene	98-06-6	<5
1,2,4-Trimethylbenzene	95-63-6	<5
sec-Butylbenzene	135-98-8	<5
4-Isopropyltoluene	99-87-6	<5
1,1,2,2-Tetrachloroethane	79-34-5	<5
1,3-Dichlorobenzene	541-73-1	<5
1,4-Dichlorobenzene	106-46-7	<5
1,2-Dichlorobenzene	95-50-1	<5
n-Butylbenzene	104-51-8	<5
1,2-Dibromo-3-chloropropane	96-12-8	<5
1,2,4-Trichlorobenzene	120-82-1	<5
Hexachlorobutadiene	87-68-3	<5
Naphthalene	91-20-3	<5
1,2,3-Trichlorobenzene	87-61-6	<5

Laboratory Director

Client: AKRF Inc.	Sample ID: Greenpoint Lumber Yard – Project No.: 30206-0005 (MW-2 [5-7])
Date Received: 08/17/01	Laboratory ID: 0020184
Date Extracted: 08/22/01	Matrix: Soil
Date Analyzed: 08/24/01	ELAP#: 11418

SEMIVOLATILE ORGANICS
SW-846 METHOD 8270

PARAMETER	CAS No.	RESULTS ug/kg
Pyridine	110-86-1	<40
N-Nitrosodimethylamine	62-75-9	<40
Aniline	62-53-3	<40
Bis(2-chloroethyl)ether	111-44-4	<40
Phenol	108-95-1	<40
2-Chlorophenol	95-57-8	<40
1,3-Dichlorobenzene	541-73-1	<40
1,4-Dichlorobenzene	106-46-7	<40
1,2-Dichlorobenzene	95-50-1	<40
Benzyl Alcohol	100-51-6	<40
Bis(2-chloroisopropyl)ether	108-60-1	<40
2-Methylphenol	95-48-7	220
Hexachloroethane	67-72-1	<40
N-Nitrosodi-n-propylamine	621-64-7	<40
3+4-Methylphenol	108-39-4 / 106-44-5	<40
Nitrobenzene	98-95-3	<40
Isophorone	78-59-1	<40
2- Nitrophenol	88-75-5	<40
2,4-Dimethylphenol	105-67-9	<40
Benzoic Acid	65-85-0	<70
Bis(2-chloroethoxy)methane	111-91-1	<40
2,4-Dichlorophenol	102-83-2	<40
1,2,4-Trichlorobenzene	120-82-1	<40
Naphthalene	91-20-3	<40
4-Chloroaniline	106-47-8	<40
Hexachlorobutadiene	87-68-3	<40
4-Chloro-3-methylphenol	59-50-7	<40
2-Methylnaphthalene	91-57-6	590
Hexachlorocyclopentadiene	77-47-4	<40
2,4,5-Trichlorophenol	95-95-4	<40
2,4,6-Trichlorophenol	88-06-2	<40
2-Chloronaphthalene	91-58-7	<40
2-Nitroaniline	88-74-4	<40
Acenaphthylene	208-96-8	170
Dimethyl Phthalate	131-11-3	<40

Laboratory Director

AMERICAN ANALYTICAL LABORATORIES, INC.
56 TOLEDO STREET • FARMINGDALE, NEW YORK 11735 • (631) 454-6100 • FAX: (631) 454-8027

Client: AKRF Inc.	Sample ID: Greenpoint Lumber Yard – Project No.: 30206-0005 (MW-2 [5-7])
Date Received: 08/17/01	Laboratory ID: 0020184
Date Extracted: 08/22/01	Matrix: Soil
Date Analyzed: 08/24/01	ELAP#: 11418

SEMIVOLATILE ORGANICS
SW-846 METHOD 8270

PARAMETER	CAS No.	RESULTS ug/kg
2,6-Dinitrotoluene	606-20-2	<40
Acenaphthene	83-32-9	270
3-Nitroaniline	99-09-2	<40
2,4-Dinitrophenol	51-28-5	<70
Dibenzofuran	132-64-9	210
2,4-Dinitrotoluene	121-14-2	<40
4-Nitrophenol	100-02-7	<50
Fluorene	86-73-7	500
4-Chlorophenyl phenyl ether	7005-72-3	<40
Azobenzene	103-33-3	<40
Diethyl Phthalate	84-66-2	<40
4-Nitroaniline	100-01-6	<50
4,6-Dinitro-2-methylphenol	534-52-1	<40
N-Nitrosodiphenylamine	86-30-6	<40
4-Bromophenyl phenyl ether	101-55-3	<40
Hexachlorobenzene	118-74-1	<40
Pentachlorophenol	87-86-5	<60
Phenanthrene	85-01-8	3,200
Anthracene	120-12-7	750
Carbazole	86-74-8	<40
Di-n-butyl Phthalate	84-74-2	<40
Fluoranthene	206-44-0	4,900
Benzidine	92-87-5	<40
Pyrene	129-00-0	4,500
Butyl benzyl Phthalate	85-68-7	<40
3,3´-Dichlorobenzidine	91-94-1	<40
Benzo(a)anthracene	56-55-3	2,100
Chrysene	218-01-9	2,800
Bis(2-ethylhexyl)Phthalate	117-81-7	910
Di-n-octyl Phthalate	117-84-0	<40
Benzo(b)fluoranthene	205-99-2	3,200
Benzo(k)fluoranthene	207-08-9	3,400
Benzo(a)pyrene	50-32-8	1,800
Indeno(1,2,3-c,d)pyrene	193-39-5	1,100
Dibenzo(a,h)anthracene	53-70-3	520
Benzo(g,h,i)perylene	191-24-2	1,300

Lori Beyer
Laboratory Director

AMERICAN ANALYTICAL LABORATORIES, INC.
56 TOLEDO STREET • FARMINGDALE, NEW YORK 11735 • (631) 454-6100 • FAX: (631) 454-8027

Client: AKRF Inc.	Sample ID: Greenpoint Lumber Yard – Project No.: 30206-0005 (MW-2 [5-7])
Date Received: 08/17/01	Laboratory ID: 0020184
Date Extracted: 08/24/01	Matrix: Soil
Date Analyzed: 08/24/01	ELAP#: 11418

METALS ANALYSIS
TARGET ANALYTE LIST

PARAMETER	REPORTING LIMIT mg/kg	RESULTS mg/kg
Silver, Ag	0.5	<0.5
Aluminum, Al	1.0	4,525
Arsenic, As	1.0	<1.0
Barium, Ba	0.5	108
Beryllium, Be	0.5	<0.5
Calcium, Ca	1.0	4,131
Cadmium, Cd	0.5	<0.5
Cobalt, Co	0.5	0.597
Chromium, Cr	0.5	25.7
Copper, Cu	0.5	116
Iron, Fe	0.5	13,123
Potassium, K	3.0	1,549
Magnesium, Mg	1.0	3,534
Manganese, Mn	0.5	71.3
Sodium, Na	1.0	153
Nickel, Ni	0.5	20.8
Lead, Pb	0.5	77.8
Antimony, Sb	1.0	3.60
Selenium, Se	1.0	<1.0
Thallium, Tl	0.5	<0.5
Vanadium, V	0.5	28.8
Zinc, Zn	0.5	127
Mercury, Hg	0.05	<0.05

Method: SW-846 6010/7000 Series

Laboratory Director

AMERICAN ANALYTICAL LABORATORIES, INC.
56 TOLEDO STREET • FARMINGDALE, NEW YORK 11735 • (631) 454-6100 • FAX: (631) 454-8027

Client: AKRF Inc.	Sample ID: Greenpoint Lumber Yard – Project No.: 30260-0005 (MW-2 [9-11])
Date Received: 08/17/01	Laboratory ID: 0020185
Date Extracted: NA	Matrix: Soil Level: Low
Date Analyzed: 08/21/01	ELAP#: 11418

VOLATILE ORGANICS
SW-846 METHOD 8260

PARAMETER	CAS No.	RESULTS ug/kg
Dichlorodifluoromethane	75-71-8	<5
Chloromethane	74-87-3	<5
Vinyl Chloride	75-01-4	<5
Bromomethane	74-83-9	<5
Chloroethane	75-00-3	<5
Trichlorofluoromethane	75-69-4	<5
Acetone	67-64-1	120
1,1-Dichloroethene	75-35-4	<5
Vinyl Acetate	108-05-4	<5
Carbon Disulfide	75-15-0	<5
Methylene Chloride	75-09-2	<5
trans-1,2-Dichloroethene	156-60-5	<5
1,1-Dichloroethane	75-34-3	<5
2-Butanone	78-93-3	<5
2,2-Dichloropropane	594-20-7	<5
cis-1,2-Dichloroethene	156-59-2	<5
Chloroform	67-66-3	<5
Bromochloromethane	74-97-5	<5
1,1,1-Trichloroethane	71-55-6	<5
1,1-Dichloropropene	563-58-6	<5
Carbon Tetrachloride	56-23-5	<5
2-Chloroethyl vinyl ether	110-75-8	<5
1,2-Dichloroethane	107-06-2	<5
Benzene	71-43-2	<5
Trichloroethene	79-01-6	<5
1,2-Dichloropropane	78-87-5	<5
Bromodichloromethane	75-27-4	<5
4-Methyl-2-Pentanone	108-10-1	<5
Dibromomethane	74-95-3	<5
cis-1,3-Dichloropropene	10061-01-5	<5
Toluene	108-88-3	<5
trans-1,3-Dichloropropene	10061-02-6	<5
1,1,2-Trichloroethane	79-00-5	<5

Lori Beyer
Laboratory Director

AMERICAN ANALYTICAL LABORATORIES, INC.
56 TOLEDO STREET • FARMINGDALE, NEW YORK 11735 • (631) 454-6100 • FAX: (631) 454-8027

Client: AKRF Inc.	Sample ID: Greenpoint Lumber Yard – Project No.: 30260-0005 (MW-2 [9-11])
Date Received: 08/17/01	Laboratory ID: 0020185
Date Extracted: NA	Matrix: Soil Level: Low
Date Analyzed: 08/21/01	ELAP#: 11418

VOLATILE ORGANICS
SW-846 METHOD 8260

PARAMETER	CAS No.	RESULTS ug/kg
2-Hexanone	591-78-6	<5
1,3-Dichloropropane	142-28-9	<5
Tetrachloroethene	127-18-4	<5
Chlorodibromomethane	124-48-1	<5
1,2-Dibromoethane	106-93-4	<5
Chlorobenzene	108-90-7	<5
1,1,1,2-Tetrachloroethane	630-20-6	<5
Ethylbenzene	100-41-4	<5
m+p Xylene	108-38-3/106-42-3	<10
o-Xylene	95-47-6	<5
Styrene	100-42-5	<5
Isopropylbenzene	98-82-8	<5
Bromoform	75-25-2	<5
1,2,3-Trichloropropane	96-18-4	<5
n-Propylbenzene	103-65-1	<5
Bromobenzene	108-86-1	<5
1,3,5-Trimethylbenzene	108-67-8	<5
2-Chlorotoluene	95-49-8	<5
4-Chlorotoluene	106-43-4	<5
tert-Butylbenzene	98-06-6	<5
1,2,4-Trimethylbenzene	95-63-6	<5
sec-Butylbenzene	135-98-8	<5
4-Isopropyltoluene	99-87-6	<5
1,1,2,2-Tetrachloroethane	79-34-5	<5
1,3-Dichlorobenzene	541-73-1	<5
1,4-Dichlorobenzene	106-46-7	<5
1,2-Dichlorobenzene	95-50-1	<5
n-Butylbenzene	104-51-8	<5
1,2-Dibromo-3-chloropropane	96-12-8	<5
1,2,4-Trichlorobenzene	120-82-1	<5
Hexachlorobutadiene	87-68-3	<5
Naphthalene	91-20-3	<5
1,2,3-Trichlorobenzene	87-61-6	<5

Laboratory Director

Client: AKRF Inc.	Sample ID: Greenpoint Lumber Yard – Project No.: 30206-0005 (MW-2 [9-11])
Date Received: 08/17/01	Laboratory ID: 0020185
Date Extracted: 08/22/01	Matrix: Soil
Date Analyzed: 08/24/01	ELAP#: 11418

SEMIVOLATILE ORGANICS
SW-846 METHOD 8270

PARAMETER	CAS No.	RESULTS ug/kg
Pyridine	110-86-1	<40
N-Nitrosodimethylamine	62-75-9	<40
Aniline	62-53-3	<40
Bis(2-chloroethyl)ether	111-44-4	<40
Phenol	108-95-1	<40
2-Chlorophenol	95-57-8	<40
1,3-Dichlorobenzene	541-73-1	<40
1,4-Dichlorobenzene	106-46-7	<40
1,2-Dichlorobenzene	95-50-1	<40
Benzyl Alcohol	100-51-6	<40
Bis(2-chloroisopropyl)ether	108-60-1	<40
2-Methylphenol	95-48-7	<40
Hexachloroethane	67-72-1	<40
N-Nitrosodi-n-propylamine	621-64-7	<40
3+4-Methylphenol	108-39-4 / 106-44-5	<40
Nitrobenzene	98-95-3	<40
Isophorone	78-59-1	<40
2- Nitrophenol	88-75-5	<40
2,4-Dimethylphenol	105-67-9	<40
Benzoic Acid	65-85-0	<70
Bis(2-chloroethoxy)methane	111-91-1	<40
2,4-Dichlorophenol	102-83-2	<40
1,2,4-Trichlorobenzene	120-82-1	<40
Naphthalene	91-20-3	74
4-Chloroaniline	106-47-8	<40
Hexachlorobutadiene	87-68-3	<40
4-Chloro-3-methylphenol	59-50-7	<40
2-Methylnaphthalene	91-57-6	56
Hexachlorocyclopentadiene	77-47-4	<40
2,4,5-Trichlorophenol	95-95-4	<40
2,4,6-Trichlorophenol	88-06-2	<40
2-Chloronaphthalene	91-58-7	<40
2-Nitroaniline	88-74-4	<40
Acenaphthylene	208-96-8	68
Dimethyl Phthalate	131-11-3	<40

Lori Beyer
Laboratory Director

AMERICAN ANALYTICAL LABORATORIES, INC.
56 TOLEDO STREET • FARMINGDALE, NEW YORK 11735 • (631) 454-6100 • FAX: (631) 454-8027

Client: AKRF Inc.	Sample ID: Greenpoint Lumber Yard – Project No.: 30206-0005 (MW-2 [9-11])
Date Received: 08/17/01	Laboratory ID: 0020185
Date Extracted: 08/22/01	Matrix: Soil
Date Analyzed: 08/24/01	ELAP#: 11418

SEMIVOLATILE ORGANICS
SW-846 METHOD 8270

PARAMETER	CAS No.	RESULTS ug/kg
2,6-Dinitrotoluene	606-20-2	<40
Acenaphthene	83-32-9	140
3-Nitroaniline	99-09-2	<40
2,4-Dinitrophenol	51-28-5	<70
Dibenzofuran	132-64-9	98
2,4-Dinitrotoluene	121-14-2	<40
4-Nitrophenol	100-02-7	<50
Fluorene	86-73-7	190
4-Chlorophenyl phenyl ether	7005-72-3	<40
Azobenzene	103-33-3	<40
Diethyl Phthalate	84-66-2	<40
4-Nitroaniline	100-01-6	<50
4,6-Dinitro-2-methylphenol	534-52-1	<40
N-Nitrosodiphenylamine	86-30-6	<40
4-Bromophenyl phenyl ether	101-55-3	<40
Hexachlorobenzene	118-74-1	<40
Pentachlorophenol	87-86-5	<60
Phenanthrene	85-01-8	1,200
Anthracene	120-12-7	370
Carbazole	86-74-8	110
Di-n-butyl Phthalate	84-74-2	<40
Fluoranthene	206-44-0	1,300
Benzidine	92-87-5	<40
Pyrene	129-00-0	1,200
Butyl benzyl Phthalate	85-68-7	<40
3,3'-Dichlorobenzidine	91-94-1	<40
Benzo(a)anthracene	56-55-3	910
Chrysene	218-01-9	940
Bis(2-ethylhexyl)Phthalate	117-81-7	660
Di-n-octyl Phthalate	117-84-0	<40
Benzo(b)fluoranthene	205-99-2	1,400
Benzo(k)fluoranthene	207-08-9	1,500
Benzo(a)pyrene	50-32-8	840
Indeno(1,2,3-c,d)pyrene	193-39-5	83
Dibenzo(a,h)anthracene	53-70-3	190
Benzo(g,h,i)perylene	191-24-2	440

Laboratory Director

AMERICAN ANALYTICAL LABORATORIES, INC.
56 TOLEDO STREET • FARMINGDALE, NEW YORK 11735 • (631) 454-6100 • FAX: (631) 454-8027

Client: AKRF Inc.	Sample ID: Greenpoint Lumber Yard – Project No.: 30206-0005 (MW-2 [9-11])
Date Received: 08/17/01	Laboratory ID: 0020185
Date Extracted: 08/24/01-08/28/01	Matrix: Soil
Date Analyzed: 08/24/01-08/28/01	ELAP#: 11418

METALS ANALYSIS
TARGET ANALYTE LIST

PARAMETER	REPORTING LIMIT mg/kg	RESULTS mg/kg
Silver, Ag	0.5	<0.5
Aluminum, Al	1.0	6,270
Arsenic, As	1.0	<1.0
Barium, Ba	0.5	87.2
Beryllium, Be	0.5	<0.5
Calcium, Ca	1.0	15,485
Cadmium, Cd	0.5	<0.5
Cobalt, Co	0.5	<0.5
Chromium, Cr	0.5	7.35
Copper, Cu	0.5	40.6
Iron, Fe	0.5	13,348
Potassium, K	3.0	2,052
Magnesium, Mg	1.0	2,617
Manganese, Mn	0.5	219
Sodium, Na	1.0	160
Nickel, Ni	0.5	7.30
Lead, Pb	0.5	329
Antimony, Sb	1.0	<1.0
Selenium, Se	1.0	<1.0
Thallium, Tl	0.5	<0.5
Vanadium, V	0.5	14.1
Zinc, Zn	0.5	47.5
Mercury, Hg	0.05	0.094

Method: SW-846 6010/7000 Series

Laboratory Director

AMERICAN ANALYTICAL LABORATORIES, INC.
56 TOLEDO STREET • FARMINGDALE, NEW YORK 11735 • (631) 454-6100 • FAX: (631) 454-8027

AMERICAN ANALYTICAL LABORATORIES
56 TOLEDO STREET • FARMINGDALE, NEW YORK 11735
(631) 454-6100 • FAX (631) 454-8027 • email: AAL20000@aol.com

NYSDOH ELAP 11418
AIHA PAT, LPAT 102391
CTDOH PH-0205

CHAIN OF CUSTODY / REQUEST FOR ANALYSIS DOCUMENT

CLIENT NAME/ADDRESS: Mimi Sotiriou AKRF, Inc.
CONTACT: (212) 340-9779 (917) 612-7877
SAMPLER (SIGNATURE): Mimi Sotiriou DATE: 8/16/01 TIME: 6pm
SAMPLER NAME (PRINT): Mimi Sotiriou
SAMPLE(S) SEALED: YES / NO
CORRECT CONTAINER(S): YES / NO
PROJECT LOCATION: Greenpoint Lumber Yard 30260-0005
P.O.#: 30260-0005

LABORATORY ID #	MATRIX	TYPE	PRES.	SAMPLE # - LOCATION	ANALYSIS REQUIRED: B260	8270	TAL Metals	Pest 8082	PCB 8081
0020174	S	G		B1 (1-2)	X	X	X		
0020175	S			B1 (4-5)					
0020176	S			B2 (0-1)				X	X
0020177	S			B4 (2-4)					
0020178	S			B4 (6-8)					
0020179	S			B5 (2-4)				X	X
0020180	S			B5 (5-7)					
0020181	S			MW-1 (5-6)					
0020182	S			MW-1 (8-9)					
0020183	L			MW-1			F/UF		
0020184	S			MW-2 (5-7)					
0020185	S	↓		MW-2 (9-11)	↓	↓	↓		

MATRIX S=SOIL; L=LIQUID; SL=SLUDGE; A=AIR; W=WIPE; P=PAINT CHIPS; B=BULK MATERIAL
TYPE G=GRAB; C=COMPOSITE, SS=SPLIT SPOON

TURNAROUND REQUIRED: NORMAL ☒ STAT ☐ BY / /

COMMENTS / INSTRUCTIONS: Both Filtered + UnFiltered Metals in GW Sample MW-1

RELINQUISHED BY (SIGNATURE)	DATE / TIME	PRINTED NAME	RECEIVED BY LAB (SIGNATURE)	DATE / TIME	PRINTED NAME
Mimi Sotiriou	8/16 5pm	Mimi Sotiriou	[signature]	8/17/01 3:00	[signature]
RELINQUISHED BY (SIGNATURE)	DATE / TIME	PRINTED NAME	RECEIVED BY LAB (SIGNATURE)	DATE / TIME	PRINTED NAME

WHITE-OFFICE / CANARY-LAB / PINK-SAMPLE CUSTODIAN / GOLDENROD-CLIENT

AMERICAN ANALYTICAL LABORATORIES, INC.

NYSDOH	ELAP	11418
AIHA	PAT, LPAT	102391
CTDOH	PH-0205	

Invoice #: 206801
Date: 08/28/01
PO #: Verbal-LB
Lab ID #: 0020196-0020207

Bill To:

AKRF Inc.
117 East 29th Street
New York, N.Y. 10016

Re: Greenpoint Lumber Yard – Project No.: 30260-0005

Item	Qty.	Description	Unit	Extended
1.	12	SW-846 8260	$100.00	$1,200.00
2.	12	SW-846 8270	$180.00	$2,160.00
3.	2	Pesticides	$95.00	$190.00
4.	2	PCBs	$65.00	$130.00
5.	16	TAL Metals	$120.00	$1,920.00

This Amount Due Upon Receipt: $5,600.00
To American Analytical Laboratories, Inc.

Interest charge 1.5% per month – 15 days after date of invoice

56 TOLEDO STREET • FARMINGDALE, NEW YORK 11735
(631) 454-6100 • FAX: (631) 454-8027

AMERICAN ANALYTICAL LABORATORIES, INC.

NYSDOH ELAP 11418
AIHA PAT, LPAT 102391
CTDOH PH-0205

August 28, 2001

Mimi Sotiriou
AKRF Inc.
117 East 29th Street
New York, N.Y. 10016

Re: Greenpoint Lumber Yard – Project No.: 30260-0005

Dear Ms. Sotiriou;

Enclosed please find the Laboratory Analysis Report for samples received on August 17, 2001. American Analytical Laboratories analyzed the samples through August 28, 2001 for the following;

SAMPLE ID	ANALYSIS
B-3 [1-3]	SW-846 8260, SW-846 8270, TAL Metals
B-3 [8-10]	SW-846 8260, SW-846 8270, TAL Metals
MW-2	SW-846 8260, SW-846 8270, TAL Metals, TAL Metals Dissolved
MW-3 [0-2]	SW-846 8260, SW-846 8270, Pesticides, PCBs, TAL Metals
MW-3 [5-7]	SW-846 8260, SW-846 8270, TAL Metals
MW-3	SW-846 8260, SW-846 8270, TAL Metals, TAL Metals Dissolved
MW-4 [0-2]	SW-846 8260, SW-846 8270, TAL Metals
MW-4 [13-15]	SW-846 8260, SW-846 8270, TAL Metals
MW-4	SW-846 8260, SW-846 8270, TAL Metals, TAL Metals Dissolved
MW-5 [0-2]	SW-846 8260, SW-846 8270, Pesticides, PCBs, TAL Metals
MW-5 [4-6]	SW-846 8260, SW-846 8270, TAL Metals
MW-5	SW-846 8260, SW-846 8270, TAL Metals, TAL Metals Dissolved

This report consists of 72 pages of analytical results

If you have any questions or require further information, please call at your convenience. American Analytical Laboratories would like to thank you for the opportunity to be of service to you.

Best Regards,

American Analytical Laboratories, Inc.

56 TOLEDO STREET • FARMINGDALE, NEW YORK 11735
(631) 454-6100 • FAX: (631) 454-8027

Client: AKRF Inc.	Sample ID: Greenpoint Lumber Yard – Project No.: 30260-0005 (B-3 [1-3])
Date Received: 08/17/01	Laboratory ID: 0020196
Date Extracted: NA	Matrix: Soil Level: Low
Date Analyzed: 08/22/01	ELAP#: 11418

VOLATILE ORGANICS
SW-846 METHOD 8260

PARAMETER	CAS No.	RESULTS ug/kg
Dichlorodifluoromethane	75-71-8	<5
Chloromethane	74-87-3	<5
Vinyl Chloride	75-01-4	<5
Bromomethane	74-83-9	<5
Chloroethane	75-00-3	<5
Trichlorofluoromethane	75-69-4	<5
Acetone	67-64-1	<5
1,1-Dichloroethene	75-35-4	<5
Vinyl Acetate	108-05-4	<5
Carbon Disulfide	75-15-0	<5
Methylene Chloride	75-09-2	<5
trans-1,2-Dichloroethene	156-60-5	<5
1,1-Dichloroethane	75-34-3	<5
2-Butanone	78-93-3	<5
2,2-Dichloropropane	594-20-7	<5
cis-1,2-Dichloroethene	156-59-2	<5
Chloroform	67-66-3	<5
Bromochloromethane	74-97-5	<5
1,1,1-Trichloroethane	71-55-6	<5
1,1-Dichloropropene	563-58-6	<5
Carbon Tetrachloride	56-23-5	<5
2-Chloroethyl vinyl ether	110-75-8	<5
1,2-Dichloroethane	107-06-2	<5
Benzene	71-43-2	<5
Trichloroethene	79-01-6	<5
1,2-Dichloropropane	78-87-5	<5
Bromodichloromethane	75-27-4	<5
4-Methyl-2-Pentanone	108-10-1	<5
Dibromomethane	74-95-3	<5
cis-1,3-Dichloropropene	10061-01-5	<5
Toluene	108-88-3	<5
trans-1,3-Dichloropropene	10061-02-6	<5
1,1,2-Trichloroethane	79-00-5	<5

Laboratory Director

Client: AKRF Inc.	Sample ID: Greenpoint Lumber Yard – Project No.: 30260-0005 (B-3 [1-3])
Date Received: 08/17/01	Laboratory ID: 0020196
Date Extracted: NA	Matrix: Soil Level: Low
Date Analyzed: 08/22/01	ELAP#: 11418

VOLATILE ORGANICS
SW-846 METHOD 8260

PARAMETER	CAS No.	RESULTS ug/kg
2-Hexanone	591-78-6	<5
1,3-Dichloropropane	142-28-9	<5
Tetrachloroethene	127-18-4	<5
Chlorodibromomethane	124-48-1	<5
1,2-Dibromoethane	106-93-4	<5
Chlorobenzene	108-90-7	<5
1,1,1,2-Tetrachloroethane	630-20-6	<5
Ethylbenzene	100-41-4	<5
m+p Xylene	108-38-3/106-42-3	<10
o-Xylene	95-47-6	<5
Styrene	100-42-5	<5
Isopropylbenzene	98-82-8	<5
Bromoform	75-25-2	<5
1,2,3-Trichloropropane	96-18-4	<5
n-Propylbenzene	103-65-1	<5
Bromobenzene	108-86-1	<5
1,3,5-Trimethylbenzene	108-67-8	<5
2-Chlorotoluene	95-49-8	<5
4-Chlorotoluene	106-43-4	<5
tert-Butylbenzene	98-06-6	<5
1,2,4-Trimethylbenzene	95-63-6	<5
sec-Butylbenzene	135-98-8	<5
4-Isopropyltoluene	99-87-6	<5
1,1,2,2-Tetrachloroethane	79-34-5	<5
1,3-Dichlorobenzene	541-73-1	<5
1,4-Dichlorobenzene	106-46-7	<5
1,2-Dichlorobenzene	95-50-1	<5
n-Butylbenzene	104-51-8	<5
1,2-Dibromo-3-chloropropane	96-12-8	<5
1,2,4-Trichlorobenzene	120-82-1	<5
Hexachlorobutadiene	87-68-3	<5
Naphthalene	91-20-3	<5
1,2,3-Trichlorobenzene	87-61-6	<5

Laboratory Director

Client: AKRF Inc.	Sample ID: Greenpoint Lumber Yard – Project No.: 30260-0005 (B-3 [1-3])
Date Received: 08/17/01	Laboratory ID: 0020196
Date Extracted: 08/24/01	Matrix: Soil
Date Analyzed: 08/27/01	ELAP#: 11418

SEMIVOLATILE ORGANICS
SW-846 METHOD 8270

PARAMETER	CAS No.	RESULTS ug/kg
Pyridine	110-86-1	<80
N-Nitrosodimethylamine	62-75-9	<80
Aniline	62-53-3	<80
Bis(2-chloroethyl)ether	111-44-4	<80
Phenol	108-95-1	<80
2-Chlorophenol	95-57-8	<80
1,3-Dichlorobenzene	541-73-1	<80
1,4-Dichlorobenzene	106-46-7	<80
1,2-Dichlorobenzene	95-50-1	<80
Benzyl Alcohol	100-51-6	<80
Bis(2-chloroisopropyl)ether	108-60-1	<80
2-Methylphenol	95-48-7	<80
Hexachloroethane	67-72-1	<80
N-Nitrosodi-n-propylamine	621-64-7	<80
3+4-Methylphenol	108-39-4 / 106-44-5	<80
Nitrobenzene	98-95-3	<80
Isophorone	78-59-1	<80
2- Nitrophenol	88-75-5	<80
2,4-Dimethylphenol	105-67-9	<80
Benzoic Acid	65-85-0	<140
Bis(2-chloroethoxy)methane	111-91-1	<80
2,4-Dichlorophenol	102-83-2	<80
1,2,4-Trichlorobenzene	120-82-1	<80
Naphthalene	91-20-3	460
4-Chloroaniline	106-47-8	<80
Hexachlorobutadiene	87-68-3	<80
4-Chloro-3-methylphenol	59-50-7	<80
2-Methylnaphthalene	91-57-6	1,200
Hexachlorocyclopentadiene	77-47-4	<80
2,4,5-Trichlorophenol	95-95-4	<80
2,4,6-Trichlorophenol	88-06-2	<80
2-Chloronaphthalene	91-58-7	<80
2-Nitroaniline	88-74-4	<80
Acenaphthylene	208-96-8	120
Dimethyl Phthalate	131-11-3	<80

Laboratory Director

AMERICAN ANALYTICAL LABORATORIES, INC.
56 TOLEDO STREET • FARMINGDALE, NEW YORK 11735 • (631) 454-6100 • FAX: (631) 454-8027

Client: AKRF Inc.	Sample ID: Greenpoint Lumber Yard – Project No.: 30260-0005 (B-3 [1-3])
Date Received: 08/17/01	Laboratory ID: 0020196
Date Extracted: 08/24/01	Matrix: Soil
Date Analyzed: 08/27/01	ELAP#: 11418

SEMIVOLATILE ORGANICS
SW-846 METHOD 8270

PARAMETER	CAS No.	RESULTS ug/kg
2,6-Dinitrotoluene	606-20-2	<80
Acenaphthene	83-32-9	80
3-Nitroaniline	99-09-2	<80
2,4-Dinitrophenol	51-28-5	<140
Dibenzofuran	132-64-9	170
2,4-Dinitrotoluene	121-14-2	<80
4-Nitrophenol	100-02-7	<100
Fluorene	86-73-7	280
4-Chlorophenyl phenyl ether	7005-72-3	<80
Azobenzene	103-33-3	<80
Diethyl Phthalate	84-66-2	<80
4-Nitroaniline	100-01-6	<100
4,6-Dinitro-2-methylphenol	534-52-1	<80
N-Nitrosodiphenylamine	86-30-6	<80
4-Bromophenyl phenyl ether	101-55-3	<80
Hexachlorobenzene	118-74-1	<80
Pentachlorophenol	87-86-5	<120
Phenanthrene	85-01-8	1,400
Anthracene	120-12-7	260
Carbazole	86-74-8	90
Di-n-butyl Phthalate	84-74-2	110
Fluoranthene	206-44-0	1,100
Benzidine	92-87-5	<80
Pyrene	129-00-0	990
Butyl benzyl Phthalate	85-68-7	<80
3,3´-Dichlorobenzidine	91-94-1	<80
Benzo(a)anthracene	56-55-3	570
Chrysene	218-01-9	740
Bis(2-ethylhexyl)Phthalate	117-81-7	110
Di-n-octyl Phthalate	117-84-0	<80
Benzo(b)fluoranthene	205-99-2	520
Benzo(k)fluoranthene	207-08-9	360
Benzo(a)pyrene	50-32-8	500
Indeno(1,2,3-c,d)pyrene	193-39-5	310
Dibenzo(a,h)anthracene	53-70-3	110
Benzo(g,h,i)perylene	191-24-2	340

Laboratory Director

AMERICAN ANALYTICAL LABORATORIES, INC.
56 TOLEDO STREET • FARMINGDALE, NEW YORK 11735 • (631) 454-6100 • FAX: (631) 454-8027

Client: AKRF Inc.	Sample ID: Greenpoint Lumber Yard – Project No.: 30260-0005 (B-3 [1-3])
Date Received: 08/17/01	Laboratory ID: 0020196
Date Extracted: 08/24/01	Matrix: Soil
Date Analyzed: 08/24/01	ELAP#: 11418

METALS ANALYSIS
TARGET ANALYTE LIST

PARAMETER	REPORTING LIMIT mg/kg	RESULTS mg/kg
Silver, Ag	0.5	0.845
Aluminum, Al	1.0	2,981
Arsenic, As	1.0	<1.0
Barium, Ba	0.5	103
Beryllium, Be	0.5	<0.5
Calcium, Ca	1.0	3,043
Cadmium, Cd	0.5	2.05
Cobalt, Co	0.5	2.52
Chromium, Cr	0.5	5.95
Copper, Cu	0.5	72.8
Iron, Fe	0.5	15,216
Potassium, K	3.0	647
Magnesium, Mg	1.0	1,906
Manganese, Mn	0.5	246
Sodium, Na	1.0	146
Nickel, Ni	0.5	22.3
Lead, Pb	0.5	191
Antimony, Sb	1.0	<1.0
Selenium, Se	1.0	<1.0
Thallium, Tl	0.5	<0.5
Vanadium, V	0.5	9.56
Zinc, Zn	0.5	321
Mercury, Hg	0.05	0.119

Method: SW-846 6010/7000 Series

Tom Beyer
Laboratory Director

AMERICAN ANALYTICAL LABORATORIES, INC.
56 TOLEDO STREET • FARMINGDALE, NEW YORK 11735 • (631) 454-6100 • FAX: (631) 454-8027

Client: AKRF Inc.	Sample ID: Greenpoint Lumber Yard – Project No.: 30260-0005 (B3 [8-10])
Date Received: 08/17/01	Laboratory ID: 0020197
Date Extracted: NA	Matrix: Soil Level: Low
Date Analyzed: 08/22/01	ELAP#: 11418

VOLATILE ORGANICS
SW-846 METHOD 8260

PARAMETER	CAS No.	RESULTS ug/kg
Dichlorodifluoromethane	75-71-8	<5
Chloromethane	74-87-3	<5
Vinyl Chloride	75-01-4	<5
Bromomethane	74-83-9	<5
Chloroethane	75-00-3	<5
Trichlorofluoromethane	75-69-4	<5
Acetone	67-64-1	<5
1,1-Dichloroethene	75-35-4	<5
Vinyl Acetate	108-05-4	<5
Carbon Disulfide	75-15-0	<5
Methylene Chloride	75-09-2	<5
trans-1,2-Dichloroethene	156-60-5	<5
1,1-Dichloroethane	75-34-3	<5
2-Butanone	78-93-3	<5
2,2-Dichloropropane	594-20-7	<5
cis-1,2-Dichloroethene	156-59-2	<5
Chloroform	67-66-3	<5
Bromochloromethane	74-97-5	<5
1,1,1-Trichloroethane	71-55-6	<5
1,1-Dichloropropene	563-58-6	<5
Carbon Tetrachloride	56-23-5	<5
2-Chloroethyl vinyl ether	110-75-8	<5
1,2-Dichloroethane	107-06-2	<5
Benzene	71-43-2	<5
Trichloroethene	79-01-6	<5
1,2-Dichloropropane	78-87-5	<5
Bromodichloromethane	75-27-4	<5
4-Methyl-2-Pentanone	108-10-1	<5
Dibromomethane	74-95-3	<5
cis-1,3-Dichloropropene	10061-01-5	<5
Toluene	108-88-3	<5
trans-1,3-Dichloropropene	10061-02-6	<5
1,1,2-Trichloroethane	79-00-5	<5

Lou Beyer
Laboratory Director

Client: AKRF Inc.	Sample ID: Greenpoint Lumber Yard – Project No.: 30260-0005 (B3 [8-10])
Date Received: 08/17/01	Laboratory ID: 0020197
Date Extracted: NA	Matrix: Soil Level: Low
Date Analyzed: 08/22/01	ELAP#: 11418

VOLATILE ORGANICS
SW-846 METHOD 8260

PARAMETER	CAS No.	RESULTS ug/kg
2-Hexanone	591-78-6	<5
1,3-Dichloropropane	142-28-9	<5
Tetrachloroethene	127-18-4	<5
Chlorodibromomethane	124-48-1	<5
1,2-Dibromoethane	106-93-4	<5
Chlorobenzene	108-90-7	<5
1,1,1,2-Tetrachloroethane	630-20-6	<5
Ethylbenzene	100-41-4	<5
m+p Xylene	108-38-3/106-42-3	<10
o-Xylene	95-47-6	<5
Styrene	100-42-5	<5
Isopropylbenzene	98-82-8	<5
Bromoform	75-25-2	<5
1,2,3-Trichloropropane	96-18-4	<5
n-Propylbenzene	103-65-1	<5
Bromobenzene	108-86-1	<5
1,3,5-Trimethylbenzene	108-67-8	<5
2-Chlorotoluene	95-49-8	<5
4-Chlorotoluene	106-43-4	<5
tert-Butylbenzene	98-06-6	<5
1,2,4-Trimethylbenzene	95-63-6	<5
sec-Butylbenzene	135-98-8	<5
4-Isopropyltoluene	99-87-6	<5
1,1,2,2-Tetrachloroethane	79-34-5	<5
1,3-Dichlorobenzene	541-73-1	<5
1,4-Dichlorobenzene	106-46-7	<5
1,2-Dichlorobenzene	95-50-1	<5
n-Butylbenzene	104-51-8	<5
1,2-Dibromo-3-chloropropane	96-12-8	<5
1,2,4-Trichlorobenzene	120-82-1	<5
Hexachlorobutadiene	87-68-3	<5
Naphthalene	91-20-3	<5
1,2,3-Trichlorobenzene	87-61-6	<5

Laboratory Director

Client: AKRF Inc.	Sample ID: Greenpoint Lumber Yard – Project No.: 30260-0005 (B-3 [8-10])
Date Received: 08/17/01	Laboratory ID: 0020197
Date Extracted: 08/24/01	Matrix: Soil
Date Analyzed: 08/27/01	ELAP#: 11418

SEMIVOLATILE ORGANICS
SW-846 METHOD 8270

PARAMETER	CAS No.	RESULTS ug/kg
Pyridine	110-86-1	<80
N-Nitrosodimethylamine	62-75-9	<80
Aniline	62-53-3	<80
Bis(2-chloroethyl)ether	111-44-4	<80
Phenol	108-95-1	<80
2-Chlorophenol	95-57-8	<80
1,3-Dichlorobenzene	541-73-1	<80
1,4-Dichlorobenzene	106-46-7	<80
1,2-Dichlorobenzene	95-50-1	<80
Benzyl Alcohol	100-51-6	<80
Bis(2-chloroisopropyl)ether	108-60-1	<80
2-Methylphenol	95-48-7	<80
Hexachloroethane	67-72-1	<80
N-Nitrosodi-n-propylamine	621-64-7	<80
3+4-Methylphenol	108-39-4 / 106-44-5	<80
Nitrobenzene	98-95-3	<80
Isophorone	78-59-1	<80
2- Nitrophenol	88-75-5	<80
2,4-Dimethylphenol	105-67-9	<80
Benzoic Acid	65-85-0	<140
Bis(2-chloroethoxy)methane	111-91-1	<80
2,4-Dichlorophenol	102-83-2	<80
1,2,4-Trichlorobenzene	120-82-1	<80
Naphthalene	91-20-3	87
4-Chloroaniline	106-47-8	<80
Hexachlorobutadiene	87-68-3	<80
4-Chloro-3-methylphenol	59-50-7	<80
2-Methylnaphthalene	91-57-6	<80
Hexachlorocyclopentadiene	77-47-4	<80
2,4,5-Trichlorophenol	95-95-4	<80
2,4,6-Trichlorophenol	88-06-2	<80
2-Chloronaphthalene	91-58-7	<80
2-Nitroaniline	88-74-4	<80
Acenaphthylene	208-96-8	<80
Dimethyl Phthalate	131-11-3	<80

Laboratory Director

AMERICAN ANALYTICAL LABORATORIES, INC.
56 TOLEDO STREET • FARMINGDALE, NEW YORK 11735 • (631) 454-6100 • FAX: (631) 454-8027

Client: AKRF Inc.	Sample ID: Greenpoint Lumber Yard – Project No.: 30260-0005 (B-3 [8-10])
Date Received: 08/17/01	Laboratory ID: 0020197
Date Extracted: 08/24/01	Matrix: Soil
Date Analyzed: 08/27/01	ELAP#: 11418

SEMIVOLATILE ORGANICS
SW-846 METHOD 8270

PARAMETER	CAS No.	RESULTS ug/kg
2,6-Dinitrotoluene	606-20-2	<80
Acenaphthene	83-32-9	170
3-Nitroaniline	99-09-2	<80
2,4-Dinitrophenol	51-28-5	<140
Dibenzofuran	132-64-9	95
2,4-Dinitrotoluene	121-14-2	<80
4-Nitrophenol	100-02-7	<100
Fluorene	86-73-7	140
4-Chlorophenyl phenyl ether	7005-72-3	<80
Azobenzene	103-33-3	<80
Diethyl Phthalate	84-66-2	<80
4-Nitroaniline	100-01-6	<100
4,6-Dinitro-2-methylphenol	534-52-1	<80
N-Nitrosodiphenylamine	86-30-6	<80
4-Bromophenyl phenyl ether	101-55-3	<80
Hexachlorobenzene	118-74-1	<80
Pentachlorophenol	87-86-5	<120
Phenanthrene	85-01-8	1,500
Anthracene	120-12-7	380
Carbazole	86-74-8	110
Di-n-butyl Phthalate	84-74-2	<80
Fluoranthene	206-44-0	2,100
Benzidine	92-87-5	<80
Pyrene	129-00-0	2,100
Butyl benzyl Phthalate	85-68-7	<80
3,3´-Dichlorobenzidine	91-94-1	<80
Benzo(a)anthracene	56-55-3	970
Chrysene	218-01-9	1,000
Bis(2-ethylhexyl)Phthalate	117-81-7	460
Di-n-octyl Phthalate	117-84-0	<80
Benzo(b)fluoranthene	205-99-2	940
Benzo(k)fluoranthene	207-08-9	670
Benzo(a)pyrene	50-32-8	950
Indeno(1,2,3-c,d)pyrene	193-39-5	550
Dibenzo(a,h)anthracene	53-70-3	150
Benzo(g,h,i)perylene	191-24-2	620

Laboratory Director

Client: AKRF Inc.	Sample ID: Greenpoint Lumber Yard – Project No.: 30260-0005 (B-3 [8-10])
Date Received: 08/17/01	Laboratory ID: 0020197
Date Extracted: 08/24/01	Matrix: Soil
Date Analyzed: 08/24/01	ELAP#: 11418

METALS ANALYSIS
TARGET ANALYTE LIST

PARAMETER	REPORTING LIMIT mg/kg	RESULTS mg/kg
Silver, Ag	0.5	<0.5
Aluminum, Al	1.0	10,192
Arsenic, As	1.0	<1.0
Barium, Ba	0.5	73.5
Beryllium, Be	0.5	0.598
Calcium, Ca	1.0	24,871
Cadmium, Cd	0.5	<0.5
Cobalt, Co	0.5	<0.5
Chromium, Cr	0.5	9.05
Copper, Cu	0.5	53.3
Iron, Fe	0.5	9,771
Potassium, K	3.0	3,796
Magnesium, Mg	1.0	4,558
Manganese, Mn	0.5	93.7
Sodium, Na	1.0	438
Nickel, Ni	0.5	8.79
Lead, Pb	0.5	150
Antimony, Sb	1.0	<1.0
Selenium, Se	1.0	<1.0
Thallium, Tl	0.5	<0.5
Vanadium, V	0.5	19.8
Zinc, Zn	0.5	39.2
Mercury, Hg	0.05	<0.05

Method: SW-846 6010/7000 Series

Laboratory Director

AMERICAN ANALYTICAL LABORATORIES, INC.
56 TOLEDO STREET • FARMINGDALE, NEW YORK 11735 • (631) 454-6100 • FAX: (631) 454-8027

Client: AKRF Inc.	Sample ID: Greenpoint Lumber Yard – Project No.: 30260-0005 (MW-2)
Date Received: 08/17/01	Laboratory ID: 0020198
Date Extracted: NA	Matrix: Liquid
Date Analyzed: 08/22/01	ELAP#: 11418

VOLATILE ORGANICS
SW-846 METHOD 8260

PARAMETER	CAS NO.	RESULTS ug/L
Dichlorodifluoromethane	75-71-8	<1
Chloromethane	74-87-3	<1
Vinyl Chloride	75-01-4	<1
Bromomethane	74-83-9	<1
Chloroethane	75-00-3	<1
Trichlorofluoromethane	75-69-4	<1
Acetone	67-64-1	<1
1,1-Dichloroethene	75-35-4	<1
Vinyl Acetate	108-05-4	<1
Carbon Disulfide	75-15-0	<1
Methylene Chloride	75-09-2	<1
trans-1,2-Dichloroethene	156-60-5	<1
1,1-Dichloroethane	75-34-3	<1
2-Butanone	78-93-3	<1
2,2-Dichloropropane	594-20-7	<1
cis-1,2-Dichloroethene	156-59-2	<1
Chloroform	67-66-3	<1
Bromochloromethane	74-97-5	<1
1,1,1-Trichloroethane	71-55-6	<1
1,1-Dichloropropene	563-58-6	<1
Carbon Tetrachloride	56-23-5	<1
2-Chloroethyl vinyl ether	110-75-8	<1
1,2-Dichloroethane	107-06-2	<1
Benzene	71-43-2	<1
Trichloroethene	79-01-6	<1
1,2-Dichloropropane	78-87-5	<1
Bromodichloromethane	75-27-4	<1
4-Methyl-2-Pentanone	108-10-1	<1
Dibromomethane	74-95-3	<1
cis-1,3-Dichloropropene	10061-01-5	<1
Toluene	108-88-3	<1
trans-1,3-Dichloropropene	10061-02-6	<1
1,1,2-Trichloroethane	79-00-5	<1

Laboratory Director

AMERICAN ANALYTICAL LABORATORIES, INC.
56 TOLEDO STREET • FARMINGDALE, NEW YORK 11735 • (631) 454-6100 • FAX: (631) 454-8027

Client: AKRF Inc.	Sample ID: Greenpoint Lumber Yard – Project No.: 30260-0005 (MW-2)
Date Received: 08/17/01	Laboratory ID: 0020198
Date Extracted: NA	Matrix: Liquid
Date Analyzed: 08/22/01	ELAP#: 11418

VOLATILE ORGANICS
SW-846 METHOD 8260

PARAMETER	CAS NO.	RESULTS ug/L
2-Hexanone	591-78-6	<1
1,3-Dichloropropane	142-28-9	<1
Tetrachloroethene	127-18-4	<1
Chlorodibromomethane	124-48-1	<1
1,2-Dibromoethane	106-93-4	<1
Chlorobenzene	108-90-7	<1
1,1,1,2-Tetrachloroethane	630-20-6	<1
Ethylbenzene	100-41-4	<1
m+p Xylene	108-38-3/106-42-3	<2
o-Xylene	95-47-6	<1
Styrene	100-42-5	<1
Isopropylbenzene	98-82-8	<1
Bromoform	75-25-2	<1
1,2,3-Trichloropropane	96-18-4	<1
n-Propylbenzene	103-65-1	<1
Bromobenzene	108-86-1	<1
1,3,5-Trimethylbenzene	108-67-8	<1
2-Chlorotoluene	95-49-8	<1
4-Chlorotoluene	106-43-4	<1
tert-Butylbenzene	98-06-6	<1
1,2,4-Trimethylbenzene	95-63-6	<1
sec-Butylbenzene	135-98-8	<1
4-Isopropyltoluene	99-87-6	<1
1,1,2,2-Tetrachloroethane	79-34-5	<1
1,3-Dichlorobenzene	541-73-1	<1
1,4-Dichlorobenzene	106-46-7	<1
1,2-Dichlorobenzene	95-50-1	<1
n-Butylbenzene	104-51-8	<1
1,2-Dibromo-3-chloropropane	96-12-8	<1
1,2,4-Trichlorobenzene	120-82-1	<1
Hexachlorobutadiene	87-68-3	<1
Naphthalene	91-20-3	<1
1,2,3-Trichlorobenzene	87-61-6	<1

Laboratory Director

Client: AKRF Inc.	Sample ID: Greenpoint Lumber Yard – Project No.: 30260-0005 (MW-2)
Date Received: 08/17/01	Laboratory ID: 0020198
Date Extracted: 08/23/01	Matrix: Liquid
Date Analyzed: 08/23/01	ELAP#: 11418

SEMIVOLATILE ORGANICS
SW-846 METHOD 8270

PARAMETER	CAS No.	RESULTS ug/L
Pyridine	110-86-1	<5
N-Nitrosodimethylamine	62-75-9	<5
Aniline	62-53-3	<5
Bis(2-chloroethyl)ether	111-44-4	<5
Phenol	108-95-1	<5
2-Chlorophenol	95-57-8	<5
1,3-Dichlorobenzene	541-73-1	<5
1,4-Dichlorobenzene	106-46-7	<5
1,2-Dichlorobenzene	95-50-1	<5
Benzyl Alcohol	100-51-6	<5
Bis(2-chloroisopropyl)ether	108-60-1	<5
2-Methylphenol	95-48-7	<5
Hexachloroethane	67-72-1	<5
N-Nitrosodi-n-propylamine	621-64-7	<5
3+4-Methylphenol	108-39-4 / 106-44-5	<5
Nitrobenzene	98-95-3	<5
Isophorone	78-59-1	<5
2- Nitrophenol	88-75-5	<5
2,4-Dimethylphenol	105-67-9	<5
Benzoic Acid	65-85-0	<5
Bis(2-chloroethoxy)methane	111-91-1	<5
2,4-Dichlorophenol	102-83-2	<5
1,2,4-Trichlorobenzene	120-82-1	<5
Naphthalene	91-20-3	<5
4-Chloroaniline	106-47-8	<5
Hexachlorobutadiene	87-68-3	<5
4-Chloro-3-methylphenol	59-50-7	<5
2-Methylnaphthalene	91-57-6	<5
Hexachlorocyclopentadiene	77-47-4	<5
2,4,5-Trichlorophenol	95-95-4	<5
2,4,6-Trichlorophenol	88-06-2	<5
2-Chloronaphthalene	91-58-7	<5
2-Nitroaniline	88-74-4	<5
Acenaphthylene	208-96-8	<5
Dimethyl Phthalate	131-11-3	<5

Laboratory Director

AMERICAN ANALYTICAL LABORATORIES, INC.
56 TOLEDO STREET • FARMINGDALE, NEW YORK 11735 • (631) 454-6100 • FAX: (631) 454-8027

Client: AKRF Inc.	Sample ID: Greenpoint Lumber Yard – Project No.: 30260-0005 (MW-2)
Date Received: 08/17/01	Laboratory ID: 0020198
Date Extracted: 08/23/01	Matrix: Liquid
Date Analyzed: 08/23/01	ELAP#: 11418

SEMIVOLATILE ORGANICS
SW-846 METHOD 8270

PARAMETER	CAS No.	RESULTS ug/L
2,6-Dinitrotoluene	606-20-2	<5
Acenaphthene	83-32-9	<5
3-Nitroaniline	99-09-2	<5
2,4-Dinitrophenol	51-28-5	<5
Dibenzofuran	132-64-9	<5
2,4-Dinitrotoluene	121-14-2	<5
4-Nitrophenol	100-02-7	<5
Fluorene	86-73-7	<5
4-Chlorophenyl phenyl ether	7005-72-3	<5
Azobenzene	103-33-3	<5
Diethyl Phthalate	84-66-2	<5
4-Nitroaniline	100-01-6	<5
4,6-Dinitro-2-methylphenol	534-52-1	<5
N-Nitrosodiphenylamine	86-30-6	<5
4-Bromophenyl phenyl ether	101-55-3	<5
Hexachlorobenzene	118-74-1	<5
Pentachlorophenol	87-86-5	<5
Phenanthrene	85-01-8	<5
Anthracene	120-12-7	<5
Carbazole	86-74-8	<5
Di-n-butyl Phthalate	84-74-2	<5
Fluoranthene	206-44-0	<5
Benzidine	92-87-5	<5
Pyrene	129-00-0	<5
Butyl benzyl Phthalate	85-68-7	<5
3,3´-Dichlorobenzidine	91-94-1	<5
Benzo(a)anthracene	56-55-3	<5
Chrysene	218-01-9	<5
Bis(2-ethylhexyl)Phthalate	117-81-7	<5
Di-n-octyl Phthalate	117-84-0	<5
Benzo(b)fluoranthene	205-99-2	<5
Benzo(k)fluoranthene	207-08-9	<5
Benzo(a)pyrene	50-32-8	<5
Indeno(1,2,3-c,d)pyrene	193-39-5	<5
Dibenzo(a,h)anthracene	53-70-3	<5
Benzo(g,h,i)perylene	191-24-2	<5

Laboratory Director

AMERICAN ANALYTICAL LABORATORIES, INC.
56 TOLEDO STREET • FARMINGDALE, NEW YORK 11735 • (631) 454-6100 • FAX: (631) 454-8027

Client: AKRF Inc.	Sample ID: Greenpoint Lumber Yard – Project No.: 30260-0005 (MW-2)
Date Received: 08/17/01	Laboratory ID: 0020198
Date Extracted: 08/24/01	Matrix: Liquid
Date Analyzed: 08/24/01	ELAP#: 11418

METALS ANALYSIS
TARGET ANALYTE LIST

PARAMETER	REPORTING LIMIT mg/L	RESULTS mg/L
Silver, Ag	0.030	134
Aluminum, Al	0.050	98.2
Arsenic, As	0.025	<0.025
Barium, Ba	0.030	2.74
Beryllium, Be	0.030	<0.030
Calcium, Ca	0.040	1,513
Cadmium, Cd	0.030	<0.030
Cobalt, Co	0.050	0.348
Chromium, Cr	0.030	0.517
Copper, Cu	0.030	3.05
Iron, Fe	0.030	643
Potassium, K	0.400	36.8
Magnesium, Mg	0.030	113
Manganese, Mn	0.030	10.4
Sodium, Na	0.050	95.2
Nickel, Ni	0.030	1.10
Lead, Pb	0.030	5.83
Antimony, Sb	0.050	0.076
Selenium, Se	0.025	<0.025
Thallium, Tl	0.020	<0.020
Vanadium, V	0.030	0.812
Zinc, Zn	0.030	6.86
Mercury, Hg	0.002	0.011

Analytical Methods:

SW-846 6010/7470 (ICP)

Laboratory Director

AMERICAN ANALYTICAL LABORATORIES, INC.
56 TOLEDO STREET • FARMINGDALE, NEW YORK 11735 • (631) 454-6100 • FAX: (631) 454-8027

Client: AKRF Inc.	Sample ID: Greenpoint Lumber Yard – Project No.: 30260-0005 (MW-2)
Date Received: 08/17/01	Laboratory ID: 0020198
Date Extracted: 08/24/01	Matrix: Liquid
Date Analyzed: 08/24/01	ELAP#: 11418

DISSOLVED METALS ANALYSIS
TARGET ANALYTE LIST

PARAMETER	REPORTING LIMIT mg/L	RESULTS mg/L
Silver, Ag	0.030	<0.030
Aluminum, Al	0.050	1.38
Arsenic, As	0.025	<0.025
Barium, Ba	0.030	0.048
Beryllium, Be	0.030	<0.030
Calcium, Ca	0.040	346
Cadmium, Cd	0.030	<0.030
Cobalt, Co	0.050	<0.050
Chromium, Cr	0.030	<0.030
Copper, Cu	0.030	<0.030
Iron, Fe	0.030	0.309
Potassium, K	0.400	19.4
Magnesium, Mg	0.030	59.6
Manganese, Mn	0.030	1.37
Sodium, Na	0.050	85.1
Nickel, Ni	0.030	<0.030
Lead, Pb	0.030	<0.030
Antimony, Sb	0.050	<0.050
Selenium, Se	0.025	<0.025
Thallium, Tl	0.020	<0.020
Vanadium, V	0.030	0.188
Zinc, Zn	0.030	0.053
Mercury, Hg	0.002	<0.002

Analytical Methods:

SW-846 6010/7470 (ICP)

Laboratory Director

AMERICAN ANALYTICAL LABORATORIES, INC.
56 TOLEDO STREET • FARMINGDALE, NEW YORK 11735 • (631) 454-6100 • FAX: (631) 454-8027

Client: AKRF Inc.	Sample ID: Greenpoint Lumber Yard – Project No.: 30260-0005 (MW-3 [0-2])
Date Received: 08/17/01	Laboratory ID: 0020199
Date Extracted: NA	Matrix: Soil Level: Low
Date Analyzed: 08/22/01	ELAP#: 11418

VOLATILE ORGANICS
SW-846 METHOD 8260

PARAMETER	CAS No.	RESULTS ug/kg
Dichlorodifluoromethane	75-71-8	<5
Chloromethane	74-87-3	<5
Vinyl Chloride	75-01-4	<5
Bromomethane	74-83-9	<5
Chloroethane	75-00-3	<5
Trichlorofluoromethane	75-69-4	<5
Acetone	67-64-1	<5
1,1-Dichloroethene	75-35-4	<5
Vinyl Acetate	108-05-4	<5
Carbon Disulfide	75-15-0	<5
Methylene Chloride	75-09-2	<5
trans-1,2-Dichloroethene	156-60-5	<5
1,1-Dichloroethane	75-34-3	<5
2-Butanone	78-93-3	<5
2,2-Dichloropropane	594-20-7	<5
cis-1,2-Dichloroethene	156-59-2	<5
Chloroform	67-66-3	<5
Bromochloromethane	74-97-5	<5
1,1,1-Trichloroethane	71-55-6	<5
1,1-Dichloropropene	563-58-6	<5
Carbon Tetrachloride	56-23-5	<5
2-Chloroethyl vinyl ether	110-75-8	<5
1,2-Dichloroethane	107-06-2	<5
Benzene	71-43-2	<5
Trichloroethene	79-01-6	<5
1,2-Dichloropropane	78-87-5	<5
Bromodichloromethane	75-27-4	<5
4-Methyl-2-Pentanone	108-10-1	<5
Dibromomethane	74-95-3	<5
cis-1,3-Dichloropropene	10061-01-5	<5
Toluene	108-88-3	<5
trans-1,3-Dichloropropene	10061-02-6	<5
1,1,2-Trichloroethane	79-00-5	<5

Lori Beyer
Laboratory Director

AMERICAN ANALYTICAL LABORATORIES, INC.
56 TOLEDO STREET • FARMINGDALE, NEW YORK 11735 • (631) 454-6100 • FAX: (631) 454-8027

Client: AKRF Inc.	Sample ID: Greenpoint Lumber Yard – Project No.: 30260-0005 (MW-3 [0-2])
Date Received: 08/17/01	Laboratory ID: 0020199
Date Extracted: NA	Matrix: Soil Level: Low
Date Analyzed: 08/22/01	ELAP#: 11418

VOLATILE ORGANICS
SW-846 METHOD 8260

PARAMETER	CAS No.	RESULTS ug/kg
2-Hexanone	591-78-6	<5
1,3-Dichloropropane	142-28-9	<5
Tetrachloroethene	127-18-4	<5
Chlorodibromomethane	124-48-1	<5
1,2-Dibromoethane	106-93-4	<5
Chlorobenzene	108-90-7	<5
1,1,1,2-Tetrachloroethane	630-20-6	<5
Ethylbenzene	100-41-4	<5
m+p Xylene	108-38-3/106-42-3	<10
o-Xylene	95-47-6	<5
Styrene	100-42-5	<5
Isopropylbenzene	98-82-8	<5
Bromoform	75-25-2	<5
1,2,3-Trichloropropane	96-18-4	<5
n-Propylbenzene	103-65-1	<5
Bromobenzene	108-86-1	<5
1,3,5-Trimethylbenzene	108-67-8	<5
2-Chlorotoluene	95-49-8	<5
4-Chlorotoluene	106-43-4	<5
tert-Butylbenzene	98-06-6	<5
1,2,4-Trimethylbenzene	95-63-6	<5
sec-Butylbenzene	135-98-8	<5
4-Isopropyltoluene	99-87-6	<5
1,1,2,2-Tetrachloroethane	79-34-5	<5
1,3-Dichlorobenzene	541-73-1	<5
1,4-Dichlorobenzene	106-46-7	<5
1,2-Dichlorobenzene	95-50-1	<5
n-Butylbenzene	104-51-8	<5
1,2-Dibromo-3-chloropropane	96-12-8	<5
1,2,4-Trichlorobenzene	120-82-1	<5
Hexachlorobutadiene	87-68-3	<5
Naphthalene	91-20-3	<5
1,2,3-Trichlorobenzene	87-61-6	<5

Laboratory Director

Client: AKRF Inc.	Sample ID: Greenpoint Lumber Yard – Project No.: 30260-0005 (MW-3 [0-2])
Date Received: 08/17/01	Laboratory ID: 0020199
Date Extracted: 08/24/01	Matrix: Soil
Date Analyzed: 08/27/01	ELAP#: 11418

SEMIVOLATILE ORGANICS
SW-846 METHOD 8270

PARAMETER	CAS No.	RESULTS ug/kg
Pyridine	110-86-1	<80
N-Nitrosodimethylamine	62-75-9	<80
Aniline	62-53-3	<80
Bis(2-chloroethyl)ether	111-44-4	<80
Phenol	108-95-1	<80
2-Chlorophenol	95-57-8	<80
1,3-Dichlorobenzene	541-73-1	<80
1,4-Dichlorobenzene	106-46-7	<80
1,2-Dichlorobenzene	95-50-1	<80
Benzyl Alcohol	100-51-6	<80
Bis(2-chloroisopropyl)ether	108-60-1	<80
2-Methylphenol	95-48-7	<80
Hexachloroethane	67-72-1	<80
N-Nitrosodi-n-propylamine	621-64-7	<80
3+4-Methylphenol	108-39-4 / 106-44-5	<80
Nitrobenzene	98-95-3	<80
Isophorone	78-59-1	<80
2- Nitrophenol	88-75-5	<80
2,4-Dimethylphenol	105-67-9	<80
Benzoic Acid	65-85-0	190
Bis(2-chloroethoxy)methane	111-91-1	<80
2,4-Dichlorophenol	102-83-2	<80
1,2,4-Trichlorobenzene	120-82-1	<80
Naphthalene	91-20-3	<80
4-Chloroaniline	106-47-8	<80
Hexachlorobutadiene	87-68-3	<80
4-Chloro-3-methylphenol	59-50-7	<80
2-Methylnaphthalene	91-57-6	<80
Hexachlorocyclopentadiene	77-47-4	<80
2,4,5-Trichlorophenol	95-95-4	<80
2,4,6-Trichlorophenol	88-06-2	<80
2-Chloronaphthalene	91-58-7	<80
2-Nitroaniline	88-74-4	<80
Acenaphthylene	208-96-8	170
Dimethyl Phthalate	131-11-3	<80

Laboratory Director

AMERICAN ANALYTICAL LABORATORIES, INC.
56 TOLEDO STREET • FARMINGDALE, NEW YORK 11735 • (631) 454-6100 • FAX: (631) 454-8027

Client: AKRF Inc.	Sample ID: Greenpoint Lumber Yard – Project No.: 30260-0005 (MW-3 [0-2])
Date Received: 08/17/01	Laboratory ID: 0020199
Date Extracted: 08/24/01	Matrix: Soil
Date Analyzed: 08/27/01	ELAP#: 11418

SEMIVOLATILE ORGANICS
SW-846 METHOD 8270

PARAMETER	CAS No.	RESULTS ug/kg
2,6-Dinitrotoluene	606-20-2	<80
Acenaphthene	83-32-9	200
3-Nitroaniline	99-09-2	<80
2,4-Dinitrophenol	51-28-5	<140
Dibenzofuran	132-64-9	98
2,4-Dinitrotoluene	121-14-2	<80
4-Nitrophenol	100-02-7	<100
Fluorene	86-73-7	250
4-Chlorophenyl phenyl ether	7005-72-3	<80
Azobenzene	103-33-3	<80
Diethyl Phthalate	84-66-2	<80
4-Nitroaniline	100-01-6	<100
4,6-Dinitro-2-methylphenol	534-52-1	<80
N-Nitrosodiphenylamine	86-30-6	<80
4-Bromophenyl phenyl ether	101-55-3	<80
Hexachlorobenzene	118-74-1	<80
Pentachlorophenol	87-86-5	<60
Phenanthrene	85-01-8	2,800
Anthracene	120-12-7	670
Carbazole	86-74-8	300
Di-n-butyl Phthalate	84-74-2	<80
Fluoranthene	206-44-0	4,400
Benzidine	92-87-5	<80
Pyrene	129-00-0	3,900
Butyl benzyl Phthalate	85-68-7	<80
3,3´-Dichlorobenzidine	91-94-1	<80
Benzo(a)anthracene	56-55-3	2,000
Chrysene	218-01-9	2,200
Bis(2-ethylhexyl)Phthalate	117-81-7	100
Di-n-octyl Phthalate	117-84-0	<80
Benzo(b)fluoranthene	205-99-2	2,500
Benzo(k)fluoranthene	207-08-9	880
Benzo(a)pyrene	50-32-8	2,000
Indeno(1,2,3-c,d)pyrene	193-39-5	1,200
Dibenzo(a,h)anthracene	53-70-3	340
Benzo(g,h,i)perylene	191-24-2	1,300

Laboratory Director

AMERICAN ANALYTICAL LABORATORIES, INC.
56 TOLEDO STREET • FARMINGDALE, NEW YORK 11735 • (631) 454-6100 • FAX: (631) 454-8027

Client: AKRF Inc.	Sample ID: Greenpoint Lumber Yard – Project No.: 30260-0005 (MW-3 [0-2])
Date Received: 08/17/01	Laboratory ID:0020199
Date Extracted: 08/23/01	Matrix: Soil
Date Analyzed: 08/25/01	ELAP#: 11418

PESTICIDES
SW-846 METHOD 8081

PARAMETER	CAS No.	RESULTS ug/kg
DBCP	96-12-8	<5
Hexachlorocyclopentadiene	77-47-4	<5
Hexachlorobenzene	118-74-1	<5
α-BHC	319-84-6	<5
γ-BHC(Lindane)	58-89-9	<5
β-BHC	319-85-7	<5
Heptachlor	76-44-8	<5
δ-BHC	319-86-8	<5
Aldrin	309-00-2	<5
Isodrin	465-73-6	<5
Heptachlor Epoxide	1024-57-3	<5
Endosulfan I	959-98-8	<5
4,4'-DDE	72-55-9	<5
Dieldrin	60-57-1	<5
Endrin	72-20-8	<5
Chlorobenzilate	510-15-6	<5
4,4'-DDD	72-54-8	<5
Endosulfan II	33213-65-9	<5
4,4'-DDT	50-29-3	<5
Endrin Aldehyde	7421-93-4	<5
Endosulfan Sulfate	1031-07-8	<5
Methoxychlor	72-43-5	<5
Endrin Ketone	53494-70-5	<5
Chlordane	57-74-9	<5
Toxaphene	8001-35-2	<10

Laboratory Director

Client: AKRF Inc.	Sample ID: Greenpoint Lumber Yard – Project No.: 30260-0005 (MW-3 [0-2])
Date Received: 08/17/01	Laboratory ID:0020199
Date Extracted: 08/23/01	Matrix: Soil
Date Analyzed: 08/25/01	ELAP#: 11418

PCBs as AROCLORS
SW-846 METHOD 8082

PARAMETER	CAS No.	RESULTS ug/kg
Aroclor-1016	12674-11-2	<80
Aroclor-1221	11104-28-2	<80
Aroclor-1232	11141-16-5	<80
Aroclor-1242	53469-21-9	<80
Aroclor-1248	12672-29-6	<80
Aroclor-1254	11097-69-1	<80
Aroclor-1260	11096-82-5	<80

Laboratory Director

AMERICAN ANALYTICAL LABORATORIES, INC.
56 TOLEDO STREET • FARMINGDALE, NEW YORK 11735 • (631) 454-6100 • FAX: (631) 454-8027

Client: AKRF Inc.	Sample ID: Greenpoint Lumber Yard – Project No.: 30260-0005 (MW-3 [0-2])
Date Received: 08/17/01	Laboratory ID: 0020199
Date Extracted: 08/24/01	Matrix: Soil
Date Analyzed: 08/24/01	ELAP#: 11418

METALS ANALYSIS
TARGET ANALYTE LIST

PARAMETER	REPORTING LIMIT mg/kg	RESULTS mg/kg
Silver, Ag	0.5	<0.5
Aluminum, Al	1.0	17,314
Arsenic, As	1.0	<1.0
Barium, Ba	0.5	429
Beryllium, Be	0.5	<0.5
Calcium, Ca	1.0	24,325
Cadmium, Cd	0.5	0.667
Cobalt, Co	0.5	<0.5
Chromium, Cr	0.5	19.2
Copper, Cu	0.5	67.5
Iron, Fe	0.5	27,360
Potassium, K	3.0	385
Magnesium, Mg	1.0	6,156
Manganese, Mn	0.5	255
Sodium, Na	1.0	83.6
Nickel, Ni	0.5	10.0
Lead, Pb	0.5	315
Antimony, Sb	1.0	<1.0
Selenium, Se	1.0	<1.0
Thallium, Tl	0.5	<0.5
Vanadium, V	0.5	20.5
Zinc, Zn	0.5	395
Mercury, Hg	0.05	0.799

Method: SW-846 6010/7000 Series

Laboratory Director

AMERICAN ANALYTICAL LABORATORIES, INC.
56 TOLEDO STREET • FARMINGDALE, NEW YORK 11735 • (631) 454-6100 • FAX: (631) 454-8027

Client: AKRF Inc.	Sample ID: Greenpoint Lumber Yard – Project No.: 30260-0005 (MW-3 [5-7])
Date Received: 08/17/01	Laboratory ID: 0020200
Date Extracted: NA	Matrix: Soil Level: Low
Date Analyzed: 08/22/01	ELAP#: 11418

VOLATILE ORGANICS
SW-846 METHOD 8260

PARAMETER	CAS No.	RESULTS ug/kg
Dichlorodifluoromethane	75-71-8	<5
Chloromethane	74-87-3	<5
Vinyl Chloride	75-01-4	<5
Bromomethane	74-83-9	<5
Chloroethane	75-00-3	<5
Trichlorofluoromethane	75-69-4	<5
Acetone	67-64-1	<5
1,1-Dichloroethene	75-35-4	<5
Vinyl Acetate	108-05-4	<5
Carbon Disulfide	75-15-0	<5
Methylene Chloride	75-09-2	<5
trans-1,2-Dichloroethene	156-60-5	<5
1,1-Dichloroethane	75-34-3	<5
2-Butanone	78-93-3	<5
2,2-Dichloropropane	594-20-7	<5
cis-1,2-Dichloroethene	156-59-2	<5
Chloroform	67-66-3	<5
Bromochloromethane	74-97-5	<5
1,1,1-Trichloroethane	71-55-6	<5
1,1-Dichloropropene	563-58-6	<5
Carbon Tetrachloride	56-23-5	<5
2-Chloroethyl vinyl ether	110-75-8	<5
1,2-Dichloroethane	107-06-2	<5
Benzene	71-43-2	<5
Trichloroethene	79-01-6	<5
1,2-Dichloropropane	78-87-5	<5
Bromodichloromethane	75-27-4	<5
4-Methyl-2-Pentanone	108-10-1	<5
Dibromomethane	74-95-3	<5
cis-1,3-Dichloropropene	10061-01-5	<5
Toluene	108-88-3	<5
trans-1,3-Dichloropropene	10061-02-6	<5
1,1,2-Trichloroethane	79-00-5	<5

Lou Beyer
Laboratory Director

Client: AKRF Inc.	Sample ID: Greenpoint Lumber Yard – Project No.: 30260-0005 (MW-3 [5-7])
Date Received: 08/17/01	Laboratory ID: 0020200
Date Extracted: NA	Matrix: Soil Level: Low
Date Analyzed: 08/22/01	ELAP#: 11418

VOLATILE ORGANICS
SW-846 METHOD 8260

PARAMETER	CAS No.	RESULTS ug/kg
2-Hexanone	591-78-6	<5
1,3-Dichloropropane	142-28-9	<5
Tetrachloroethene	127-18-4	<5
Chlorodibromomethane	124-48-1	<5
1,2-Dibromoethane	106-93-4	<5
Chlorobenzene	108-90-7	<5
1,1,1,2-Tetrachloroethane	630-20-6	<5
Ethylbenzene	100-41-4	<5
m+p Xylene	108-38-3/106-42-3	<10
o-Xylene	95-47-6	<5
Styrene	100-42-5	<5
Isopropylbenzene	98-82-8	<5
Bromoform	75-25-2	<5
1,2,3-Trichloropropane	96-18-4	<5
n-Propylbenzene	103-65-1	<5
Bromobenzene	108-86-1	<5
1,3,5-Trimethylbenzene	108-67-8	<5
2-Chlorotoluene	95-49-8	<5
4-Chlorotoluene	106-43-4	<5
tert-Butylbenzene	98-06-6	<5
1,2,4-Trimethylbenzene	95-63-6	<5
sec-Butylbenzene	135-98-8	<5
4-Isopropyltoluene	99-87-6	<5
1,1,2,2-Tetrachloroethane	79-34-5	<5
1,3-Dichlorobenzene	541-73-1	<5
1,4-Dichlorobenzene	106-46-7	<5
1,2-Dichlorobenzene	95-50-1	<5
n-Butylbenzene	104-51-8	<5
1,2-Dibromo-3-chloropropane	96-12-8	<5
1,2,4-Trichlorobenzene	120-82-1	<5
Hexachlorobutadiene	87-68-3	<5
Naphthalene	91-20-3	<5
1,2,3-Trichlorobenzene	87-61-6	<5

Laboratory Director

Client: AKRF Inc.	Sample ID: Greenpoint Lumber Yard – Project No.: 30260-0005 (MW-3 [5-7])
Date Received: 08/17/01	Laboratory ID: 0020200
Date Extracted: 08/24/01	Matrix: Soil
Date Analyzed: 08/27/01	ELAP#: 11418

SEMIVOLATILE ORGANICS
SW-846 METHOD 8270

PARAMETER	CAS No.	RESULTS ug/kg
Pyridine	110-86-1	<320
N-Nitrosodimethylamine	62-75-9	<320
Aniline	62-53-3	<320
Bis(2-chloroethyl)ether	111-44-4	<320
Phenol	108-95-1	<320
2-Chlorophenol	95-57-8	<320
1,3-Dichlorobenzene	541-73-1	<320
1,4-Dichlorobenzene	106-46-7	<320
1,2-Dichlorobenzene	95-50-1	<320
Benzyl Alcohol	100-51-6	<320
Bis(2-chloroisopropyl)ether	108-60-1	<320
2-Methylphenol	95-48-7	<320
Hexachloroethane	67-72-1	<320
N-Nitrosodi-n-propylamine	621-64-7	<320
3+4-Methylphenol	108-39-4 / 106-44-5	<320
Nitrobenzene	98-95-3	<320
Isophorone	78-59-1	<320
2- Nitrophenol	88-75-5	<320
2,4-Dimethylphenol	105-67-9	<320
Benzoic Acid	65-85-0	<560
Bis(2-chloroethoxy)methane	111-91-1	<320
2,4-Dichlorophenol	102-83-2	<320
1,2,4-Trichlorobenzene	120-82-1	<320
Naphthalene	91-20-3	3,800
4-Chloroaniline	106-47-8	<320
Hexachlorobutadiene	87-68-3	<320
4-Chloro-3-methylphenol	59-50-7	<320
2-Methylnaphthalene	91-57-6	1,500
Hexachlorocyclopentadiene	77-47-4	<320
2,4,5-Trichlorophenol	95-95-4	<320
2,4,6-Trichlorophenol	88-06-2	<320
2-Chloronaphthalene	91-58-7	<320
2-Nitroaniline	88-74-4	<320
Acenaphthylene	208-96-8	620
Dimethyl Phthalate	131-11-3	<320

Lai Beyer
Laboratory Director

Client: AKRF Inc.	Sample ID: Greenpoint Lumber Yard – Project No.: 30260-0005 (MW-3 [5-7])
Date Received: 08/17/01	Laboratory ID: 0020200
Date Extracted: 08/24/01	Matrix: Soil
Date Analyzed: 08/27/01	ELAP#: 11418

SEMIVOLATILE ORGANICS
SW-846 METHOD 8270

PARAMETER	CAS No.	RESULTS ug/kg
2,6-Dinitrotoluene	606-20-2	<320
Acenaphthene	83-32-9	3,800
3-Nitroaniline	99-09-2	<320
2,4-Dinitrophenol	51-28-5	<560
Dibenzofuran	132-64-9	2,300
2,4-Dinitrotoluene	121-14-2	<320
4-Nitrophenol	100-02-7	<400
Fluorene	86-73-7	4,500
4-Chlorophenyl phenyl ether	7005-72-3	<320
Azobenzene	103-33-3	<320
Diethyl Phthalate	84-66-2	<320
4-Nitroaniline	100-01-6	<400
4,6-Dinitro-2-methylphenol	534-52-1	<320
N-Nitrosodiphenylamine	86-30-6	<320
4-Bromophenyl phenyl ether	101-55-3	<320
Hexachlorobenzene	118-74-1	<320
Pentachlorophenol	87-86-5	<240
Phenanthrene	85-01-8	31,000
Anthracene	120-12-7	7,600
Carbazole	86-74-8	3,300
Di-n-butyl Phthalate	84-74-2	<320
Fluoranthene	206-44-0	30,000
Benzidine	92-87-5	<320
Pyrene	129-00-0	24,000
Butyl benzyl Phthalate	85-68-7	<320
3,3´-Dichlorobenzidine	91-94-1	<320
Benzo(a)anthracene	56-55-3	12,000
Chrysene	218-01-9	11,000
Bis(2-ethylhexyl)Phthalate	117-81-7	660
Di-n-octyl Phthalate	117-84-0	<320
Benzo(b)fluoranthene	205-99-2	13,000
Benzo(k)fluoranthene	207-08-9	4,500
Benzo(a)pyrene	50-32-8	10,000
Indeno(1,2,3-c,d)pyrene	193-39-5	5,600
Dibenzo(a,h)anthracene	53-70-3	1,700
Benzo(g,h,i)perylene	191-24-2	5,200

Laboratory Director

Client: AKRF Inc.	Sample ID: Greenpoint Lumber Yard – Project No.: 30260-0005 (MW-3 [5-7])
Date Received: 08/17/01	Laboratory ID: 0020200
Date Extracted: 08/24/01	Matrix: Soil
Date Analyzed: 08/24/01	ELAP#: 11418

METALS ANALYSIS
TARGET ANALYTE LIST

PARAMETER	REPORTING LIMIT mg/kg	RESULTS mg/kg
Silver, Ag	0.5	<0.5
Aluminum, Al	1.0	8,150
Arsenic, As	1.0	<1.0
Barium, Ba	0.5	119
Beryllium, Be	0.5	<0.5
Calcium, Ca	1.0	1,695
Cadmium, Cd	0.5	<0.5
Cobalt, Co	0.5	<0.5
Chromium, Cr	0.5	14.9
Copper, Cu	0.5	57.6
Iron, Fe	0.5	17,950
Potassium, K	3.0	496
Magnesium, Mg	1.0	2,010
Manganese, Mn	0.5	262
Sodium, Na	1.0	101
Nickel, Ni	0.5	9.44
Lead, Pb	0.5	294
Antimony, Sb	1.0	<1.0
Selenium, Se	1.0	<1.0
Thallium, Tl	0.5	<0.5
Vanadium, V	0.5	20.4
Zinc, Zn	0.5	220
Mercury, Hg	0.05	1.12

Method: SW-846 6010/7000 Series

Laboratory Director

AMERICAN ANALYTICAL LABORATORIES, INC.
56 TOLEDO STREET • FARMINGDALE, NEW YORK 11735 • (631) 454-6100 • FAX: (631) 454-8027

Client: AKRF Inc.	Sample ID: Greenpoint Lumber Yard – Project No.: 30260-0005 (MW-3)
Date Received: 08/17/01	Laboratory ID: 0020201
Date Extracted: NA	Matrix: Liquid
Date Analyzed: 08/22/01	ELAP#: 11418

VOLATILE ORGANICS
SW-846 METHOD 8260

PARAMETER	CAS NO.	RESULTS ug/L
Dichlorodifluoromethane	75-71-8	<1
Chloromethane	74-87-3	<1
Vinyl Chloride	75-01-4	<1
Bromomethane	74-83-9	<1
Chloroethane	75-00-3	<1
Trichlorofluoromethane	75-69-4	<1
Acetone	67-64-1	<1
1,1-Dichloroethene	75-35-4	<1
Vinyl Acetate	108-05-4	<1
Carbon Disulfide	75-15-0	<1
Methylene Chloride	75-09-2	<1
trans-1,2-Dichloroethene	156-60-5	<1
1,1-Dichloroethane	75-34-3	<1
2-Butanone	78-93-3	<1
2,2-Dichloropropane	594-20-7	<1
cis-1,2-Dichloroethene	156-59-2	<1
Chloroform	67-66-3	<1
Bromochloromethane	74-97-5	<1
1,1,1-Trichloroethane	71-55-6	<1
1,1-Dichloropropene	563-58-6	<1
Carbon Tetrachloride	56-23-5	<1
2-Chloroethyl vinyl ether	110-75-8	<1
1,2-Dichloroethane	107-06-2	<1
Benzene	71-43-2	<1
Trichloroethene	79-01-6	<1
1,2-Dichloropropane	78-87-5	<1
Bromodichloromethane	75-27-4	<1
4-Methyl-2-Pentanone	108-10-1	<1
Dibromomethane	74-95-3	<1
cis-1,3-Dichloropropene	10061-01-5	<1
Toluene	108-88-3	<1
trans-1,3-Dichloropropene	10061-02-6	<1
1,1,2-Trichloroethane	79-00-5	<1

Laboratory Director

AMERICAN ANALYTICAL LABORATORIES, INC.
56 TOLEDO STREET • FARMINGDALE, NEW YORK 11735 • (631) 454-6100 • FAX: (631) 454-8027

Client: AKRF Inc.	Sample ID: Greenpoint Lumber Yard – Project No.: 30260-0005 (MW-3)
Date Received: 08/17/01	Laboratory ID: 0020201
Date Extracted: NA	Matrix: Liquid
Date Analyzed: 08/22/01	ELAP#: 11418

VOLATILE ORGANICS
SW-846 METHOD 8260

PARAMETER	CAS NO.	RESULTS ug/L
2-Hexanone	591-78-6	<1
1,3-Dichloropropane	142-28-9	<1
Tetrachloroethene	127-18-4	<1
Chlorodibromomethane	124-48-1	<1
1,2-Dibromoethane	106-93-4	<1
Chlorobenzene	108-90-7	<1
1,1,1,2-Tetrachloroethane	630-20-6	<1
Ethylbenzene	100-41-4	<1
m+p Xylene	108-38-3/106-42-3	<2
o-Xylene	95-47-6	<1
Styrene	100-42-5	<1
Isopropylbenzene	98-82-8	<1
Bromoform	75-25-2	<1
1,2,3-Trichloropropane	96-18-4	<1
n-Propylbenzene	103-65-1	<1
Bromobenzene	108-86-1	<1
1,3,5-Trimethylbenzene	108-67-8	<1
2-Chlorotoluene	95-49-8	<1
4-Chlorotoluene	106-43-4	<1
tert-Butylbenzene	98-06-6	<1
1,2,4-Trimethylbenzene	95-63-6	<1
sec-Butylbenzene	135-98-8	<1
4-Isopropyltoluene	99-87-6	<1
1,1,2,2-Tetrachloroethane	79-34-5	<1
1,3-Dichlorobenzene	541-73-1	<1
1,4-Dichlorobenzene	106-46-7	<1
1,2-Dichlorobenzene	95-50-1	<1
n-Butylbenzene	104-51-8	<1
1,2-Dibromo-3-chloropropane	96-12-8	<1
1,2,4-Trichlorobenzene	120-82-1	<1
Hexachlorobutadiene	87-68-3	<1
Naphthalene	91-20-3	<1
1,2,3-Trichlorobenzene	87-61-6	<1

Laboratory Director

AMERICAN ANALYTICAL LABORATORIES, INC.
56 TOLEDO STREET • FARMINGDALE, NEW YORK 11735 • (631) 454-6100 • FAX: (631) 454-8027

Client: AKRF Inc.	Sample ID: Greenpoint Lumber Yard – Project No.: 30260-0005 (MW-3)
Date Received: 08/17/01	Laboratory ID: 0020201
Date Extracted: 08/23/01	Matrix: Liquid
Date Analyzed: 08/23/01	ELAP#: 11418

SEMIVOLATILE ORGANICS
SW-846 METHOD 8270

PARAMETER	CAS No.	RESULTS ug/L
Pyridine	110-86-1	<5
N-Nitrosodimethylamine	62-75-9	<5
Aniline	62-53-3	<5
Bis(2-chloroethyl)ether	111-44-4	<5
Phenol	108-95-1	<5
2-Chlorophenol	95-57-8	<5
1,3-Dichlorobenzene	541-73-1	<5
1,4-Dichlorobenzene	106-46-7	<5
1,2-Dichlorobenzene	95-50-1	<5
Benzyl Alcohol	100-51-6	<5
Bis(2-chloroisopropyl)ether	108-60-1	<5
2-Methylphenol	95-48-7	<5
Hexachloroethane	67-72-1	<5
N-Nitrosodi-n-propylamine	621-64-7	<5
3+4-Methylphenol	108-39-4 / 106-44-5	<5
Nitrobenzene	98-95-3	<5
Isophorone	78-59-1	<5
2- Nitrophenol	88-75-5	<5
2,4-Dimethylphenol	105-67-9	<5
Benzoic Acid	65-85-0	<5
Bis(2-chloroethoxy)methane	111-91-1	<5
2,4-Dichlorophenol	102-83-2	<5
1,2,4-Trichlorobenzene	120-82-1	<5
Naphthalene	91-20-3	<5
4-Chloroaniline	106-47-8	<5
Hexachlorobutadiene	87-68-3	<5
4-Chloro-3-methylphenol	59-50-7	<5
2-Methylnaphthalene	91-57-6	<5
Hexachlorocyclopentadiene	77-47-4	<5
2,4,5-Trichlorophenol	95-95-4	<5
2,4,6-Trichlorophenol	88-06-2	<5
2-Chloronaphthalene	91-58-7	<5
2-Nitroaniline	88-74-4	<5
Acenaphthylene	208-96-8	<5
Dimethyl Phthalate	131-11-3	<5

Laboratory Director

AMERICAN ANALYTICAL LABORATORIES, INC.
56 TOLEDO STREET • FARMINGDALE, NEW YORK 11735 • (631) 454-6100 • FAX: (631) 454-8027

Client: AKRF Inc.	Sample ID: Greenpoint Lumber Yard – Project No.: 30260-0005 (MW-3)
Date Received: 08/17/01	Laboratory ID: 0020201
Date Extracted: 08/23/01	Matrix: Liquid
Date Analyzed: 08/23/01	ELAP#: 11418

SEMIVOLATILE ORGANICS
SW-846 METHOD 8270

PARAMETER	CAS No.	RESULTS ug/L
2,6-Dinitrotoluene	606-20-2	<5
Acenaphthene	83-32-9	<5
3-Nitroaniline	99-09-2	<5
2,4-Dinitrophenol	51-28-5	<5
Dibenzofuran	132-64-9	<5
2,4-Dinitrotoluene	121-14-2	<5
4-Nitrophenol	100-02-7	<5
Fluorene	86-73-7	<5
4-Chlorophenyl phenyl ether	7005-72-3	<5
Azobenzene	103-33-3	<5
Diethyl Phthalate	84-66-2	<5
4-Nitroaniline	100-01-6	<5
4,6-Dinitro-2-methylphenol	534-52-1	<5
N-Nitrosodiphenylamine	86-30-6	<5
4-Bromophenyl phenyl ether	101-55-3	<5
Hexachlorobenzene	118-74-1	<5
Pentachlorophenol	87-86-5	<5
Phenanthrene	85-01-8	<5
Anthracene	120-12-7	<5
Carbazole	86-74-8	<5
Di-n-butyl Phthalate	84-74-2	<5
Fluoranthene	206-44-0	<5
Benzidine	92-87-5	<5
Pyrene	129-00-0	<5
Butyl benzyl Phthalate	85-68-7	<5
3,3′-Dichlorobenzidine	91-94-1	<5
Benzo(a)anthracene	56-55-3	<5
Chrysene	218-01-9	<5
Bis(2-ethylhexyl)Phthalate	117-81-7	<5
Di-n-octyl Phthalate	117-84-0	<5
Benzo(b)fluoranthene	205-99-2	<5
Benzo(k)fluoranthene	207-08-9	<5
Benzo(a)pyrene	50-32-8	<5
Indeno(1,2,3-c,d)pyrene	193-39-5	<5
Dibenzo(a,h)anthracene	53-70-3	<5
Benzo(g,h,i)perylene	191-24-2	<5

Laboratory Director

Client: AKRF Inc.	Sample ID: Greenpoint Lumber Yard – Project No.: 30260-0005 (MW-3)
Date Received: 08/17/01	Laboratory ID: 0020201
Date Extracted: 08/24/01	Matrix: Liquid
Date Analyzed: 08/24/01	ELAP#: 11418

METALS ANALYSIS
TARGET ANALYTE LIST

PARAMETER	REPORTING LIMIT mg/L	RESULTS mg/L
Silver, Ag	0.030	<0.030
Aluminum, Al	0.050	41
Arsenic, As	0.025	<0.025
Barium, Ba	0.030	1.13
Beryllium, Be	0.030	<0.030
Calcium, Ca	0.040	92.7
Cadmium, Cd	0.030	<0.030
Cobalt, Co	0.050	<0.050
Chromium, Cr	0.030	0.086
Copper, Cu	0.030	1.63
Iron, Fe	0.030	81.5
Potassium, K	0.400	27.1
Magnesium, Mg	0.030	93.0
Manganese, Mn	0.030	1.82
Sodium, Na	0.050	445
Nickel, Ni	0.030	0.068
Lead, Pb	0.030	1.28
Antimony, Sb	0.050	<0.050
Selenium, Se	0.025	<0.025
Thallium, Tl	0.020	<0.020
Vanadium, V	0.030	0.237
Zinc, Zn	0.030	2.11
Mercury, Hg	0.002	<0.002

Analytical Methods:

SW-846 6010/7470 (ICP)

Laboratory Director

AMERICAN ANALYTICAL LABORATORIES, INC.
56 TOLEDO STREET • FARMINGDALE, NEW YORK 11735 • (631) 454-6100 • FAX: (631) 454-8027

Client: AKRF Inc.	Sample ID: Greenpoint Lumber Yard – Project No.: 30260-0005 (MW-3)
Date Received: 08/17/01	Laboratory ID: 0020201
Date Extracted: 08/24/01	Matrix: Liquid
Date Analyzed: 08/24/01	ELAP#: 11418

DISSOLVED METALS ANALYSIS
TARGET ANALYTE LIST

PARAMETER	REPORTING LIMIT mg/L	RESULTS mg/L
Silver, Ag	0.030	<0.030
Aluminum, Al	0.050	0.605
Arsenic, As	0.025	<0.025
Barium, Ba	0.030	0.063
Beryllium, Be	0.030	<0.030
Calcium, Ca	0.040	70.3
Cadmium, Cd	0.030	<0.030
Cobalt, Co	0.050	<0.050
Chromium, Cr	0.030	<0.030
Copper, Cu	0.030	<0.030
Iron, Fe	0.030	0.196
Potassium, K	0.400	27.3
Magnesium, Mg	0.030	69.9
Manganese, Mn	0.030	0.517
Sodium, Na	0.050	474
Nickel, Ni	0.030	<0.030
Lead, Pb	0.030	<0.030
Antimony, Sb	0.050	<0.050
Selenium, Se	0.025	<0.025
Thallium, Tl	0.020	<0.020
Vanadium, V	0.030	0.198
Zinc, Zn	0.030	0.122
Mercury, Hg	0.002	<0.002

Analytical Methods:

SW-846 6010/7470 (ICP)

Laboratory Director

AMERICAN ANALYTICAL LABORATORIES, INC.
56 TOLEDO STREET • FARMINGDALE, NEW YORK 11735 • (631) 454-6100 • FAX: (631) 454-8027

Client: AKRF Inc.	Sample ID: Greenpoint Lumber Yard – Project No.: 30260-0005 (MW-4 [0-2])
Date Received: 08/17/01	Laboratory ID: 0020202
Date Extracted: NA	Matrix: Soil Level: Low
Date Analyzed: 08/22/01	ELAP#: 11418

VOLATILE ORGANICS
SW-846 METHOD 8260

PARAMETER	CAS No.	RESULTS ug/kg
Dichlorodifluoromethane	75-71-8	<5
Chloromethane	74-87-3	<5
Vinyl Chloride	75-01-4	<5
Bromomethane	74-83-9	<5
Chloroethane	75-00-3	<5
Trichlorofluoromethane	75-69-4	<5
Acetone	67-64-1	<5
1,1-Dichloroethene	75-35-4	<5
Vinyl Acetate	108-05-4	<5
Carbon Disulfide	75-15-0	<5
Methylene Chloride	75-09-2	<5
trans-1,2-Dichloroethene	156-60-5	<5
1,1-Dichloroethane	75-34-3	<5
2-Butanone	78-93-3	<5
2,2-Dichloropropane	594-20-7	<5
cis-1,2-Dichloroethene	156-59-2	<5
Chloroform	67-66-3	<5
Bromochloromethane	74-97-5	<5
1,1,1-Trichloroethane	71-55-6	<5
1,1-Dichloropropene	563-58-6	<5
Carbon Tetrachloride	56-23-5	<5
2-Chloroethyl vinyl ether	110-75-8	<5
1,2-Dichloroethane	107-06-2	<5
Benzene	71-43-2	<5
Trichloroethene	79-01-6	<5
1,2-Dichloropropane	78-87-5	<5
Bromodichloromethane	75-27-4	<5
4-Methyl-2-Pentanone	108-10-1	<5
Dibromomethane	74-95-3	<5
cis-1,3-Dichloropropene	10061-01-5	<5
Toluene	108-88-3	<5
trans-1,3-Dichloropropene	10061-02-6	<5
1,1,2-Trichloroethane	79-00-5	<5

Laboratory Director

AMERICAN ANALYTICAL LABORATORIES, INC.
56 TOLEDO STREET • FARMINGDALE, NEW YORK 11735 • (631) 454-6100 • FAX: (631) 454-8027

Client: AKRF Inc.	Sample ID: Greenpoint Lumber Yard – Project No.: 30260-0005 (MW-4 [0-2])
Date Received: 08/17/01	Laboratory ID: 0020202
Date Extracted: NA	Matrix: Soil Level: Low
Date Analyzed: 08/22/01	ELAP#: 11418

VOLATILE ORGANICS
SW-846 METHOD 8260

PARAMETER	CAS No.	RESULTS ug/kg
2-Hexanone	591-78-6	<5
1,3-Dichloropropane	142-28-9	<5
Tetrachloroethene	127-18-4	<5
Chlorodibromomethane	124-48-1	<5
1,2-Dibromoethane	106-93-4	<5
Chlorobenzene	108-90-7	<5
1,1,1,2-Tetrachloroethane	630-20-6	<5
Ethylbenzene	100-41-4	<5
m+p Xylene	108-38-3/106-42-3	<10
o-Xylene	95-47-6	<5
Styrene	100-42-5	<5
Isopropylbenzene	98-82-8	<5
Bromoform	75-25-2	<5
1,2,3-Trichloropropane	96-18-4	<5
n-Propylbenzene	103-65-1	<5
Bromobenzene	108-86-1	<5
1,3,5-Trimethylbenzene	108-67-8	<5
2-Chlorotoluene	95-49-8	<5
4-Chlorotoluene	106-43-4	<5
tert-Butylbenzene	98-06-6	<5
1,2,4-Trimethylbenzene	95-63-6	<5
sec-Butylbenzene	135-98-8	<5
4-Isopropyltoluene	99-87-6	<5
1,1,2,2-Tetrachloroethane	79-34-5	<5
1,3-Dichlorobenzene	541-73-1	<5
1,4-Dichlorobenzene	106-46-7	<5
1,2-Dichlorobenzene	95-50-1	<5
n-Butylbenzene	104-51-8	<5
1,2-Dibromo-3-chloropropane	96-12-8	<5
1,2,4-Trichlorobenzene	120-82-1	<5
Hexachlorobutadiene	87-68-3	<5
Naphthalene	91-20-3	<5
1,2,3-Trichlorobenzene	87-61-6	<5

Laboratory Director

Client: AKRF Inc.	Sample ID: Greenpoint Lumber Yard – Project No.: 30260-0005 (MW-4 [0-2])
Date Received: 08/17/01	Laboratory ID: 0020202
Date Extracted: 08/24/01	Matrix: Soil
Date Analyzed: 08/27/01	ELAP#: 11418

SEMIVOLATILE ORGANICS
SW-846 METHOD 8270

PARAMETER	CAS No.	RESULTS ug/kg
Pyridine	110-86-1	<1600
N-Nitrosodimethylamine	62-75-9	<1600
Aniline	62-53-3	<1600
Bis(2-chloroethyl)ether	111-44-4	<1600
Phenol	108-95-1	<1600
2-Chlorophenol	95-57-8	<1600
1,3-Dichlorobenzene	541-73-1	<1600
1,4-Dichlorobenzene	106-46-7	<1600
1,2-Dichlorobenzene	95-50-1	<1600
Benzyl Alcohol	100-51-6	<1600
Bis(2-chloroisopropyl)ether	108-60-1	<1600
2-Methylphenol	95-48-7	<1600
Hexachloroethane	67-72-1	<1600
N-Nitrosodi-n-propylamine	621-64-7	<1600
3+4-Methylphenol	108-39-4 / 106-44-5	<1600
Nitrobenzene	98-95-3	<1600
Isophorone	78-59-1	<1600
2- Nitrophenol	88-75-5	<1600
2,4-Dimethylphenol	105-67-9	<1600
Benzoic Acid	65-85-0	<2800
Bis(2-chloroethoxy)methane	111-91-1	<1600
2,4-Dichlorophenol	102-83-2	<1600
1,2,4-Trichlorobenzene	120-82-1	<1600
Naphthalene	91-20-3	2,000
4-Chloroaniline	106-47-8	<1600
Hexachlorobutadiene	87-68-3	<1600
4-Chloro-3-methylphenol	59-50-7	<1600
2-Methylnaphthalene	91-57-6	1,600
Hexachlorocyclopentadiene	77-47-4	<1600
2,4,5-Trichlorophenol	95-95-4	<1600
2,4,6-Trichlorophenol	88-06-2	<1600
2-Chloronaphthalene	91-58-7	<1600
2-Nitroaniline	88-74-4	<1600
Acenaphthylene	208-96-8	<1600
Dimethyl Phthalate	131-11-3	<1600

Laboratory Director

Client: AKRF Inc.	Sample ID: Greenpoint Lumber Yard – Project No.: 30260-0005 (MW-4 [0-2])
Date Received: 08/17/01	Laboratory ID: 0020202
Date Extracted: 08/24/01	Matrix: Soil
Date Analyzed: 08/27/01	ELAP#: 11418

SEMIVOLATILE ORGANICS
SW-846 METHOD 8270

PARAMETER	CAS No.	RESULTS ug/kg
2,6-Dinitrotoluene	606-20-2	<1600
Acenaphthene	83-32-9	6,100
3-Nitroaniline	99-09-2	<1600
2,4-Dinitrophenol	51-28-5	<2800
Dibenzofuran	132-64-9	2,800
2,4-Dinitrotoluene	121-14-2	<1600
4-Nitrophenol	100-02-7	<2000
Fluorene	86-73-7	5,300
4-Chlorophenyl phenyl ether	7005-72-3	<1600
Azobenzene	103-33-3	<1600
Diethyl Phthalate	84-66-2	<1600
4-Nitroaniline	100-01-6	<2000
4,6-Dinitro-2-methylphenol	534-52-1	<1600
N-Nitrosodiphenylamine	86-30-6	<1600
4-Bromophenyl phenyl ether	101-55-3	<1600
Hexachlorobenzene	118-74-1	<1600
Pentachlorophenol	87-86-5	<2400
Phenanthrene	85-01-8	79,000
Anthracene	120-12-7	9,200
Carbazole	86-74-8	6,200
Di-n-butyl Phthalate	84-74-2	<1600
Fluoranthene	206-44-0	86,000
Benzidine	92-87-5	<1600
Pyrene	129-00-0	76,000
Butyl benzyl Phthalate	85-68-7	<1600
3,3´-Dichlorobenzidine	91-94-1	<1600
Benzo(a)anthracene	56-55-3	30,000
Chrysene	218-01-9	38,000
Bis(2-ethylhexyl)Phthalate	117-81-7	<1600
Di-n-octyl Phthalate	117-84-0	<1600
Benzo(b)fluoranthene	205-99-2	40,000
Benzo(k)fluoranthene	207-08-9	14,000
Benzo(a)pyrene	50-32-8	31,000
Indeno(1,2,3-c,d)pyrene	193-39-5	20,000
Dibenzo(a,h)anthracene	53-70-3	5,500
Benzo(g,h,i)perylene	191-24-2	22,000

Laboratory Director

Client: AKRF Inc.	Sample ID: Greenpoint Lumber Yard – Project No.: 30260-0005 (MW-4 [0-2])
Date Received: 08/17/01	Laboratory ID: 0020202
Date Extracted: 08/24/01	Matrix: Soil
Date Analyzed: 08/24/01	ELAP#: 11418

METALS ANALYSIS
TARGET ANALYTE LIST

PARAMETER	REPORTING LIMIT mg/kg	RESULTS mg/kg
Silver, Ag	0.5	<0.5
Aluminum, Al	1.0	3,000
Arsenic, As	1.0	<1.0
Barium, Ba	0.5	51.3
Beryllium, Be	0.5	<0.5
Calcium, Ca	1.0	3,950
Cadmium, Cd	0.5	<0.5
Cobalt, Co	0.5	0.999
Chromium, Cr	0.5	6.49
Copper, Cu	0.5	25.7
Iron, Fe	0.5	9,360
Potassium, K	3.0	342
Magnesium, Mg	1.0	1,056
Manganese, Mn	0.5	132
Sodium, Na	1.0	97.5
Nickel, Ni	0.5	7.43
Lead, Pb	0.5	56.0
Antimony, Sb	1.0	<1.0
Selenium, Se	1.0	<1.0
Thallium, Tl	0.5	<0.5
Vanadium, V	0.5	13.9
Zinc, Zn	0.5	60.3
Mercury, Hg	0.05	0.200

Method: SW-846 6010/7000 Series

Laboratory Director

AMERICAN ANALYTICAL LABORATORIES, INC.
56 TOLEDO STREET • FARMINGDALE, NEW YORK 11735 • (631) 454-6100 • FAX: (631) 454-8027

Client: AKRF Inc.	Sample ID: Greenpoint Lumber Yard – Project No.: 30260-0005 (MW-4 [13-15])
Date Received: 08/17/01	Laboratory ID: 0020203
Date Extracted: NA	Matrix: Soil Level: Low
Date Analyzed: 08/22/01	ELAP#: 11418

VOLATILE ORGANICS
SW-846 METHOD 8260

PARAMETER	CAS No.	RESULTS ug/kg
Dichlorodifluoromethane	75-71-8	<5
Chloromethane	74-87-3	<5
Vinyl Chloride	75-01-4	<5
Bromomethane	74-83-9	<5
Chloroethane	75-00-3	<5
Trichlorofluoromethane	75-69-4	<5
Acetone	67-64-1	<5
1,1-Dichloroethene	75-35-4	<5
Vinyl Acetate	108-05-4	<5
Carbon Disulfide	75-15-0	<5
Methylene Chloride	75-09-2	<5
trans-1,2-Dichloroethene	156-60-5	<5
1,1-Dichloroethane	75-34-3	<5
2-Butanone	78-93-3	<5
2,2-Dichloropropane	594-20-7	<5
cis-1,2-Dichloroethene	156-59-2	<5
Chloroform	67-66-3	<5
Bromochloromethane	74-97-5	<5
1,1,1-Trichloroethane	71-55-6	<5
1,1-Dichloropropene	563-58-6	<5
Carbon Tetrachloride	56-23-5	<5
2-Chloroethyl vinyl ether	110-75-8	<5
1,2-Dichloroethane	107-06-2	<5
Benzene	71-43-2	<5
Trichloroethene	79-01-6	<5
1,2-Dichloropropane	78-87-5	<5
Bromodichloromethane	75-27-4	<5
4-Methyl-2-Pentanone	108-10-1	<5
Dibromomethane	74-95-3	<5
cis-1,3-Dichloropropene	10061-01-5	<5
Toluene	108-88-3	<5
trans-1,3-Dichloropropene	10061-02-6	<5
1,1,2-Trichloroethane	79-00-5	<5

Laboratory Director

AMERICAN ANALYTICAL LABORATORIES, INC.
56 TOLEDO STREET • FARMINGDALE, NEW YORK 11735 • (631) 454-6100 • FAX: (631) 454-8027

Client: AKRF Inc.	Sample ID: Greenpoint Lumber Yard – Project No.: 30260-0005 (MW-4 [13-15])
Date Received: 08/17/01	Laboratory ID: 0020203
Date Extracted: NA	Matrix: Soil Level: Low
Date Analyzed: 08/22/01	ELAP#: 11418

VOLATILE ORGANICS
SW-846 METHOD 8260

PARAMETER	CAS No.	RESULTS ug/kg
2-Hexanone	591-78-6	<5
1,3-Dichloropropane	142-28-9	<5
Tetrachloroethene	127-18-4	<5
Chlorodibromomethane	124-48-1	<5
1,2-Dibromoethane	106-93-4	<5
Chlorobenzene	108-90-7	<5
1,1,1,2-Tetrachloroethane	630-20-6	<5
Ethylbenzene	100-41-4	<5
m+p Xylene	108-38-3/106-42-3	<10
o-Xylene	95-47-6	<5
Styrene	100-42-5	<5
Isopropylbenzene	98-82-8	<5
Bromoform	75-25-2	<5
1,2,3-Trichloropropane	96-18-4	<5
n-Propylbenzene	103-65-1	<5
Bromobenzene	108-86-1	<5
1,3,5-Trimethylbenzene	108-67-8	<5
2-Chlorotoluene	95-49-8	<5
4-Chlorotoluene	106-43-4	<5
tert-Butylbenzene	98-06-6	<5
1,2,4-Trimethylbenzene	95-63-6	<5
sec-Butylbenzene	135-98-8	<5
4-Isopropyltoluene	99-87-6	<5
1,1,2,2-Tetrachloroethane	79-34-5	<5
1,3-Dichlorobenzene	541-73-1	<5
1,4-Dichlorobenzene	106-46-7	<5
1,2-Dichlorobenzene	95-50-1	<5
n-Butylbenzene	104-51-8	<5
1,2-Dibromo-3-chloropropane	96-12-8	<5
1,2,4-Trichlorobenzene	120-82-1	<5
Hexachlorobutadiene	87-68-3	<5
Naphthalene	91-20-3	<5
1,2,3-Trichlorobenzene	87-61-6	<5

Laboratory Director

AMERICAN ANALYTICAL LABORATORIES, INC.
56 TOLEDO STREET • FARMINGDALE, NEW YORK 11735 • (631) 454-6100 • FAX: (631) 454-8027

Client: AKRF Inc.	Sample ID: Greenpoint Lumber Yard – Project No.: 30260-0005 (MW-4 [13-15])
Date Received: 08/17/01	Laboratory ID: 0020203
Date Extracted: 08/24/01	Matrix: Soil
Date Analyzed: 08/27/01	ELAP#: 11418

SEMIVOLATILE ORGANICS
SW-846 METHOD 8270

PARAMETER	CAS No.	RESULTS ug/kg
Pyridine	110-86-1	<80
N-Nitrosodimethylamine	62-75-9	<80
Aniline	62-53-3	<80
Bis(2-chloroethyl)ether	111-44-4	<80
Phenol	108-95-1	<80
2-Chlorophenol	95-57-8	<80
1,3-Dichlorobenzene	541-73-1	<80
1,4-Dichlorobenzene	106-46-7	<80
1,2-Dichlorobenzene	95-50-1	<80
Benzyl Alcohol	100-51-6	<80
Bis(2-chloroisopropyl)ether	108-60-1	<80
2-Methylphenol	95-48-7	<80
Hexachloroethane	67-72-1	<80
N-Nitrosodi-n-propylamine	621-64-7	<80
3+4-Methylphenol	108-39-4 / 106-44-5	<80
Nitrobenzene	98-95-3	<80
Isophorone	78-59-1	<80
2- Nitrophenol	88-75-5	<80
2,4-Dimethylphenol	105-67-9	<80
Benzoic Acid	65-85-0	170
Bis(2-chloroethoxy)methane	111-91-1	<80
2,4-Dichlorophenol	102-83-2	<80
1,2,4-Trichlorobenzene	120-82-1	<80
Naphthalene	91-20-3	150
4-Chloroaniline	106-47-8	<80
Hexachlorobutadiene	87-68-3	<80
4-Chloro-3-methylphenol	59-50-7	<80
2-Methylnaphthalene	91-57-6	120
Hexachlorocyclopentadiene	77-47-4	<80
2,4,5-Trichlorophenol	95-95-4	<80
2,4,6-Trichlorophenol	88-06-2	<80
2-Chloronaphthalene	91-58-7	<80
2-Nitroaniline	88-74-4	<80
Acenaphthylene	208-96-8	120
Dimethyl Phthalate	131-11-3	<80

Laboratory Director

Client: AKRF Inc.	Sample ID: Greenpoint Lumber Yard – Project No.: 30260-0005 (MW-4 [13-15])
Date Received: 08/17/01	Laboratory ID: 0020203
Date Extracted: 08/24/01	Matrix: Soil
Date Analyzed: 08/27/01	ELAP#: 11418

SEMIVOLATILE ORGANICS
SW-846 METHOD 8270

PARAMETER	CAS No.	RESULTS ug/kg
2,6-Dinitrotoluene	606-20-2	<80
Acenaphthene	83-32-9	360
3-Nitroaniline	99-09-2	<80
2,4-Dinitrophenol	51-28-5	<140
Dibenzofuran	132-64-9	220
2,4-Dinitrotoluene	121-14-2	<80
4-Nitrophenol	100-02-7	<100
Fluorene	86-73-7	380
4-Chlorophenyl phenyl ether	7005-72-3	<80
Azobenzene	103-33-3	<80
Diethyl Phthalate	84-66-2	<80
4-Nitroaniline	100-01-6	<100
4,6-Dinitro-2-methylphenol	534-52-1	<80
N-Nitrosodiphenylamine	86-30-6	<80
4-Bromophenyl phenyl ether	101-55-3	<80
Hexachlorobenzene	118-74-1	<80
Pentachlorophenol	87-86-5	<120
Phenanthrene	85-01-8	6,100
Anthracene	120-12-7	830
Carbazole	86-74-8	590
Di-n-butyl Phthalate	84-74-2	<80
Fluoranthene	206-44-0	7,100
Benzidine	92-87-5	<80
Pyrene	129-00-0	5,900
Butyl benzyl Phthalate	85-68-7	<80
3,3´-Dichlorobenzidine	91-94-1	<80
Benzo(a)anthracene	56-55-3	2,600
Chrysene	218-01-9	3,200
Bis(2-ethylhexyl)Phthalate	117-81-7	<80
Di-n-octyl Phthalate	117-84-0	<80
Benzo(b)fluoranthene	205-99-2	3,400
Benzo(k)fluoranthene	207-08-9	1,400
Benzo(a)pyrene	50-32-8	2,600
Indeno(1,2,3-c,d)pyrene	193-39-5	1,900
Dibenzo(a,h)anthracene	53-70-3	490
Benzo(g,h,i)perylene	191-24-2	2,000

Laboratory Director

AMERICAN ANALYTICAL LABORATORIES, INC.
56 TOLEDO STREET • FARMINGDALE, NEW YORK 11735 • (631) 454-6100 • FAX: (631) 454-8027

Client: AKRF Inc.	Sample ID: Greenpoint Lumber Yard – Project No.: 30260-0005 (MW-4 [13-15])
Date Received: 08/17/01	Laboratory ID: 0020203
Date Extracted: 08/24/01	Matrix: Soil
Date Analyzed: 08/24/01	ELAP#: 11418

METALS ANALYSIS
TARGET ANALYTE LIST

PARAMETER	REPORTING LIMIT mg/kg	RESULTS mg/kg
Silver, Ag	0.5	<0.5
Aluminum, Al	1.0	3,028
Arsenic, As	1.0	<1.0
Barium, Ba	0.5	23.3
Beryllium, Be	0.5	<0.5
Calcium, Ca	1.0	1,196
Cadmium, Cd	0.5	<0.5
Cobalt, Co	0.5	1.53
Chromium, Cr	0.5	7.15
Copper, Cu	0.5	14.5
Iron, Fe	0.5	9,875
Potassium, K	3.0	512
Magnesium, Mg	1.0	1,649
Manganese, Mn	0.5	289
Sodium, Na	1.0	84.4
Nickel, Ni	0.5	7.55
Lead, Pb	0.5	10.3
Antimony, Sb	1.0	<1.0
Selenium, Se	1.0	<1.0
Thallium, Tl	0.5	<0.5
Vanadium, V	0.5	12.1
Zinc, Zn	0.5	41.4
Mercury, Hg	0.05	0.101

Method: SW-846 6010/7000 Series

Laboratory Director

AMERICAN ANALYTICAL LABORATORIES, INC.
56 TOLEDO STREET • FARMINGDALE, NEW YORK 11735 • (631) 454-6100 • FAX: (631) 454-8027

Client: AKRF Inc.	Sample ID: Greenpoint Lumber Yard – Project No.: 30260-0005 (MW-4)
Date Received: 08/17/01	Laboratory ID: 0020204
Date Extracted: NA	Matrix: Liquid
Date Analyzed: 08/22/01	ELAP#: 11418

VOLATILE ORGANICS
SW-846 METHOD 8260

PARAMETER	CAS NO.	RESULTS ug/L
Dichlorodifluoromethane	75-71-8	<1
Chloromethane	74-87-3	<1
Vinyl Chloride	75-01-4	<1
Bromomethane	74-83-9	<1
Chloroethane	75-00-3	<1
Trichlorofluoromethane	75-69-4	<1
Acetone	67-64-1	<1
1,1-Dichloroethene	75-35-4	<1
Vinyl Acetate	108-05-4	<1
Carbon Disulfide	75-15-0	<1
Methylene Chloride	75-09-2	<1
trans-1,2-Dichloroethene	156-60-5	<1
1,1-Dichloroethane	75-34-3	<1
2-Butanone	78-93-3	<1
2,2-Dichloropropane	594-20-7	<1
cis-1,2-Dichloroethene	156-59-2	<1
Chloroform	67-66-3	<1
Bromochloromethane	74-97-5	<1
1,1,1-Trichloroethane	71-55-6	<1
1,1-Dichloropropene	563-58-6	<1
Carbon Tetrachloride	56-23-5	<1
2-Chloroethyl vinyl ether	110-75-8	<1
1,2-Dichloroethane	107-06-2	<1
Benzene	71-43-2	<1
Trichloroethene	79-01-6	<1
1,2-Dichloropropane	78-87-5	<1
Bromodichloromethane	75-27-4	<1
4-Methyl-2-Pentanone	108-10-1	<1
Dibromomethane	74-95-3	<1
cis-1,3-Dichloropropene	10061-01-5	<1
Toluene	108-88-3	<1
trans-1,3-Dichloropropene	10061-02-6	<1
1,1,2-Trichloroethane	79-00-5	<1

Laboratory Director

AMERICAN ANALYTICAL LABORATORIES, INC.
56 TOLEDO STREET • FARMINGDALE, NEW YORK 11735 • (631) 454-6100 • FAX: (631) 454-8027

Client: AKRF Inc.	Sample ID: Greenpoint Lumber Yard – Project No.: 30260-0005 (MW-4)
Date Received: 08/17/01	Laboratory ID: 0020204
Date Extracted: NA	Matrix: Liquid
Date Analyzed: 08/22/01	ELAP#: 11418

VOLATILE ORGANICS
SW-846 METHOD 8260

PARAMETER	CAS NO.	RESULTS ug/L
2-Hexanone	591-78-6	<1
1,3-Dichloropropane	142-28-9	<1
Tetrachloroethene	127-18-4	<1
Chlorodibromomethane	124-48-1	<1
1,2-Dibromoethane	106-93-4	<1
Chlorobenzene	108-90-7	<1
1,1,1,2-Tetrachloroethane	630-20-6	<1
Ethylbenzene	100-41-4	<1
m+p Xylene	108-38-3/106-42-3	<2
o-Xylene	95-47-6	<1
Styrene	100-42-5	<1
Isopropylbenzene	98-82-8	<1
Bromoform	75-25-2	<1
1,2,3-Trichloropropane	96-18-4	<1
n-Propylbenzene	103-65-1	<1
Bromobenzene	108-86-1	<1
1,3,5-Trimethylbenzene	108-67-8	<1
2-Chlorotoluene	95-49-8	<1
4-Chlorotoluene	106-43-4	<1
tert-Butylbenzene	98-06-6	<1
1,2,4-Trimethylbenzene	95-63-6	<1
sec-Butylbenzene	135-98-8	<1
4-Isopropyltoluene	99-87-6	<1
1,1,2,2-Tetrachloroethane	79-34-5	<1
1,3-Dichlorobenzene	541-73-1	<1
1,4-Dichlorobenzene	106-46-7	<1
1,2-Dichlorobenzene	95-50-1	<1
n-Butylbenzene	104-51-8	<1
1,2-Dibromo-3-chloropropane	96-12-8	<1
1,2,4-Trichlorobenzene	120-82-1	<1
Hexachlorobutadiene	87-68-3	<1
Naphthalene	91-20-3	<1
1,2,3-Trichlorobenzene	87-61-6	<1

Laboratory Director

AMERICAN ANALYTICAL LABORATORIES, INC.
56 TOLEDO STREET • FARMINGDALE, NEW YORK 11735 • (631) 454-6100 • FAX: (631) 454-8027

Client: AKRF Inc.	Sample ID: Greenpoint Lumber Yard – Project No.: 30260-0005 (MW-4)
Date Received: 08/17/01	Laboratory ID: 0020204
Date Extracted: 08/23/01	Matrix: Liquid
Date Analyzed: 08/24/01	ELAP#: 11418

SEMIVOLATILE ORGANICS
SW-846 METHOD 8270

PARAMETER	CAS No.	RESULTS ug/L
Pyridine	110-86-1	<5
N-Nitrosodimethylamine	62-75-9	<5
Aniline	62-53-3	<5
Bis(2-chloroethyl)ether	111-44-4	<5
Phenol	108-95-1	<5
2-Chlorophenol	95-57-8	<5
1,3-Dichlorobenzene	541-73-1	<5
1,4-Dichlorobenzene	106-46-7	<5
1,2-Dichlorobenzene	95-50-1	<5
Benzyl Alcohol	100-51-6	<5
Bis(2-chloroisopropyl)ether	108-60-1	<5
2-Methylphenol	95-48-7	<5
Hexachloroethane	67-72-1	<5
N-Nitrosodi-n-propylamine	621-64-7	<5
3+4-Methylphenol	108-39-4 / 106-44-5	<5
Nitrobenzene	98-95-3	<5
Isophorone	78-59-1	<5
2- Nitrophenol	88-75-5	<5
2,4-Dimethylphenol	105-67-9	<5
Benzoic Acid	65-85-0	<5
Bis(2-chloroethoxy)methane	111-91-1	<5
2,4-Dichlorophenol	102-83-2	<5
1,2,4-Trichlorobenzene	120-82-1	<5
Naphthalene	91-20-3	<5
4-Chloroaniline	106-47-8	<5
Hexachlorobutadiene	87-68-3	<5
4-Chloro-3-methylphenol	59-50-7	<5
2-Methylnaphthalene	91-57-6	<5
Hexachlorocyclopentadiene	77-47-4	<5
2,4,5-Trichlorophenol	95-95-4	<5
2,4,6-Trichlorophenol	88-06-2	<5
2-Chloronaphthalene	91-58-7	<5
2-Nitroaniline	88-74-4	<5
Acenaphthylene	208-96-8	<5
Dimethyl Phthalate	131-11-3	<5

Laboratory Director

AMERICAN ANALYTICAL LABORATORIES, INC.
56 TOLEDO STREET • FARMINGDALE, NEW YORK 11735 • (631) 454-6100 • FAX: (631) 454-8027

Client: AKRF Inc.	Sample ID: Greenpoint Lumber Yard – Project No.: 30260-0005 (MW-4)
Date Received: 08/17/01	Laboratory ID: 0020204
Date Extracted: 08/23/01	Matrix: Liquid
Date Analyzed: 08/24/01	ELAP#: 11418

SEMIVOLATILE ORGANICS
SW-846 METHOD 8270

PARAMETER	CAS No.	RESULTS ug/L
2,6-Dinitrotoluene	606-20-2	<5
Acenaphthene	83-32-9	<5
3-Nitroaniline	99-09-2	<5
2,4-Dinitrophenol	51-28-5	<5
Dibenzofuran	132-64-9	<5
2,4-Dinitrotoluene	121-14-2	<5
4-Nitrophenol	100-02-7	<5
Fluorene	86-73-7	<5
4-Chlorophenyl phenyl ether	7005-72-3	<5
Azobenzene	103-33-3	<5
Diethyl Phthalate	84-66-2	<5
4-Nitroaniline	100-01-6	<5
4,6-Dinitro-2-methylphenol	534-52-1	<5
N-Nitrosodiphenylamine	86-30-6	<5
4-Bromophenyl phenyl ether	101-55-3	<5
Hexachlorobenzene	118-74-1	<5
Pentachlorophenol	87-86-5	<5
Phenanthrene	85-01-8	<5
Anthracene	120-12-7	<5
Carbazole	86-74-8	<5
Di-n-butyl Phthalate	84-74-2	<5
Fluoranthene	206-44-0	<5
Benzidine	92-87-5	<5
Pyrene	129-00-0	<5
Butyl benzyl Phthalate	85-68-7	<5
3,3´-Dichlorobenzidine	91-94-1	<5
Benzo(a)anthracene	56-55-3	<5
Chrysene	218-01-9	<5
Bis(2-ethylhexyl)Phthalate	117-81-7	<5
Di-n-octyl Phthalate	117-84-0	<5
Benzo(b)fluoranthene	205-99-2	<5
Benzo(k)fluoranthene	207-08-9	<5
Benzo(a)pyrene	50-32-8	<5
Indeno(1,2,3-c,d)pyrene	193-39-5	<5
Dibenzo(a,h)anthracene	53-70-3	<5
Benzo(g,h,i)perylene	191-24-2	<5

Laboratory Director

Client: AKRF Inc.	Sample ID: Greenpoint Lumber Yard – Project No.: 30260-0005 (MW-4)
Date Received: 08/17/01	Laboratory ID: 0020204
Date Extracted: 08/24/01	Matrix: Liquid
Date Analyzed: 08/24/01	ELAP#: 11418

METALS ANALYSIS
TARGET ANALYTE LIST

PARAMETER	REPORTING LIMIT mg/L	RESULTS mg/L
Silver, Ag	0.030	<0.030
Aluminum, Al	0.050	1,128
Arsenic, As	0.025	<0.025
Barium, Ba	0.030	8.25
Beryllium, Be	0.030	<0.030
Calcium, Ca	0.040	296
Cadmium, Cd	0.030	<0.030
Cobalt, Co	0.050	0.429
Chromium, Cr	0.030	3.09
Copper, Cu	0.030	7.05
Iron, Fe	0.030	3,650
Potassium, K	0.400	187
Magnesium, Mg	0.030	558
Manganese, Mn	0.030	109
Sodium, Na	0.050	20.6
Nickel, Ni	0.030	3.06
Lead, Pb	0.030	2.39
Antimony, Sb	0.050	<0.050
Selenium, Se	0.025	<0.025
Thallium, Tl	0.020	<0.020
Vanadium, V	0.030	3.41
Zinc, Zn	0.030	11.8
Mercury, Hg	0.002	0.002

Analytical Methods:

SW-846 6010/7470 (ICP)

Laboratory Director

Client: AKRF Inc.	Sample ID: Greenpoint Lumber Yard – Project No.: 30260-0005 (MW-4)
Date Received: 08/17/01	Laboratory ID: 0020204
Date Extracted: 08/24/01	Matrix: Liquid
Date Analyzed: 08/24/01	ELAP#: 11418

DISSOLVED METALS ANALYSIS
TARGET ANALYTE LIST

PARAMETER	REPORTING LIMIT mg/L	RESULTS mg/L
Silver, Ag	0.030	<0.030
Aluminum, Al	0.050	0.870
Arsenic, As	0.025	<0.025
Barium, Ba	0.030	0.054
Beryllium, Be	0.030	<0.030
Calcium, Ca	0.040	127
Cadmium, Cd	0.030	<0.030
Cobalt, Co	0.050	<0.050
Chromium, Cr	0.030	<0.030
Copper, Cu	0.030	<0.030
Iron, Fe	0.030	0.626
Potassium, K	0.400	2.73
Magnesium, Mg	0.030	18.8
Manganese, Mn	0.030	6.32
Sodium, Na	0.050	14.3
Nickel, Ni	0.030	<0.030
Lead, Pb	0.030	<0.030
Antimony, Sb	0.050	<0.050
Selenium, Se	0.025	<0.025
Thallium, Tl	0.020	<0.020
Vanadium, V	0.030	0.066
Zinc, Zn	0.030	0.032
Mercury, Hg	0.002	<0.002

Analytical Methods:

SW-846 6010/7470 (ICP)

Laboratory Director

AMERICAN ANALYTICAL LABORATORIES, INC.
56 TOLEDO STREET • FARMINGDALE, NEW YORK 11735 • (631) 454-6100 • FAX: (631) 454-8027

Client: AKRF Inc.	Sample ID: Greenpoint Lumber Yard – Project No.: 30260-0005 (MW-5 [0-2])
Date Received: 08/17/01	Laboratory ID: 0020205
Date Extracted: NA	Matrix: Soil Level: Low
Date Analyzed: 08/22/01	ELAP#: 11418

VOLATILE ORGANICS
SW-846 METHOD 8260

PARAMETER	CAS No.	RESULTS ug/kg
Dichlorodifluoromethane	75-71-8	<5
Chloromethane	74-87-3	<5
Vinyl Chloride	75-01-4	<5
Bromomethane	74-83-9	<5
Chloroethane	75-00-3	<5
Trichlorofluoromethane	75-69-4	<5
Acetone	67-64-1	<5
1,1-Dichloroethene	75-35-4	<5
Vinyl Acetate	108-05-4	<5
Carbon Disulfide	75-15-0	<5
Methylene Chloride	75-09-2	<5
trans-1,2-Dichloroethene	156-60-5	<5
1,1-Dichloroethane	75-34-3	<5
2-Butanone	78-93-3	<5
2,2-Dichloropropane	594-20-7	<5
cis-1,2-Dichloroethene	156-59-2	<5
Chloroform	67-66-3	<5
Bromochloromethane	74-97-5	<5
1,1,1-Trichloroethane	71-55-6	<5
1,1-Dichloropropene	563-58-6	<5
Carbon Tetrachloride	56-23-5	<5
2-Chloroethyl vinyl ether	110-75-8	<5
1,2-Dichloroethane	107-06-2	<5
Benzene	71-43-2	<5
Trichloroethene	79-01-6	<5
1,2-Dichloropropane	78-87-5	<5
Bromodichloromethane	75-27-4	<5
4-Methyl-2-Pentanone	108-10-1	<5
Dibromomethane	74-95-3	<5
cis-1,3-Dichloropropene	10061-01-5	<5
Toluene	108-88-3	<5
trans-1,3-Dichloropropene	10061-02-6	<5
1,1,2-Trichloroethane	79-00-5	<5

Laboratory Director

Client: AKRF Inc.	Sample ID: Greenpoint Lumber Yard – Project No.: 30260-0005 (MW-5 [0-2])
Date Received: 08/17/01	Laboratory ID: 0020205
Date Extracted: NA	Matrix: Soil Level: Low
Date Analyzed: 08/22/01	ELAP#: 11418

VOLATILE ORGANICS
SW-846 METHOD 8260

PARAMETER	CAS No.	RESULTS ug/kg
2-Hexanone	591-78-6	<5
1,3-Dichloropropane	142-28-9	<5
Tetrachloroethene	127-18-4	<5
Chlorodibromomethane	124-48-1	<5
1,2-Dibromoethane	106-93-4	<5
Chlorobenzene	108-90-7	<5
1,1,1,2-Tetrachloroethane	630-20-6	<5
Ethylbenzene	100-41-4	<5
m+p Xylene	108-38-3/106-42-3	<10
o-Xylene	95-47-6	<5
Styrene	100-42-5	<5
Isopropylbenzene	98-82-8	<5
Bromoform	75-25-2	<5
1,2,3-Trichloropropane	96-18-4	<5
n-Propylbenzene	103-65-1	<5
Bromobenzene	108-86-1	<5
1,3,5-Trimethylbenzene	108-67-8	<5
2-Chlorotoluene	95-49-8	<5
4-Chlorotoluene	106-43-4	<5
tert-Butylbenzene	98-06-6	<5
1,2,4-Trimethylbenzene	95-63-6	<5
sec-Butylbenzene	135-98-8	<5
4-Isopropyltoluene	99-87-6	<5
1,1,2,2-Tetrachloroethane	79-34-5	<5
1,3-Dichlorobenzene	541-73-1	<5
1,4-Dichlorobenzene	106-46-7	<5
1,2-Dichlorobenzene	95-50-1	<5
n-Butylbenzene	104-51-8	<5
1,2-Dibromo-3-chloropropane	96-12-8	<5
1,2,4-Trichlorobenzene	120-82-1	<5
Hexachlorobutadiene	87-68-3	<5
Naphthalene	91-20-3	<5
1,2,3-Trichlorobenzene	87-61-6	<5

Laboratory Director

AMERICAN ANALYTICAL LABORATORIES, INC.
56 TOLEDO STREET • FARMINGDALE, NEW YORK 11735 • (631) 454-6100 • FAX: (631) 454-8027

Client: AKRF Inc.	Sample ID: Greenpoint Lumber Yard – Project No.: 30260-0005 (MW-5 [0-2])
Date Received: 08/17/01	Laboratory ID: 0020205
Date Extracted: 08/24/01	Matrix: Soil
Date Analyzed: 08/27/01	ELAP#: 11418

SEMIVOLATILE ORGANICS
SW-846 METHOD 8270

PARAMETER	CAS No.	RESULTS ug/kg
Pyridine	110-86-1	<320
N-Nitrosodimethylamine	62-75-9	<320
Aniline	62-53-3	<320
Bis(2-chloroethyl)ether	111-44-4	<320
Phenol	108-95-1	<320
2-Chlorophenol	95-57-8	<320
1,3-Dichlorobenzene	541-73-1	<320
1,4-Dichlorobenzene	106-46-7	<320
1,2-Dichlorobenzene	95-50-1	<320
Benzyl Alcohol	100-51-6	<320
Bis(2-chloroisopropyl)ether	108-60-1	<320
2-Methylphenol	95-48-7	<320
Hexachloroethane	67-72-1	<320
N-Nitrosodi-n-propylamine	621-64-7	<320
3+4-Methylphenol	108-39-4 / 106-44-5	<320
Nitrobenzene	98-95-3	<320
Isophorone	78-59-1	<320
2- Nitrophenol	88-75-5	<320
2,4-Dimethylphenol	105-67-9	<320
Benzoic Acid	65-85-0	<560
Bis(2-chloroethoxy)methane	111-91-1	<320
2,4-Dichlorophenol	102-83-2	<320
1,2,4-Trichlorobenzene	120-82-1	<320
Naphthalene	91-20-3	<320
4-Chloroaniline	106-47-8	<320
Hexachlorobutadiene	87-68-3	<320
4-Chloro-3-methylphenol	59-50-7	<320
2-Methylnaphthalene	91-57-6	<320
Hexachlorocyclopentadiene	77-47-4	<320
2,4,5-Trichlorophenol	95-95-4	<320
2,4,6-Trichlorophenol	88-06-2	<320
2-Chloronaphthalene	91-58-7	<320
2-Nitroaniline	88-74-4	<320
Acenaphthylene	208-96-8	<320
Dimethyl Phthalate	131-11-3	<320

Laboratory Director

AMERICAN ANALYTICAL LABORATORIES, INC.
56 TOLEDO STREET • FARMINGDALE, NEW YORK 11735 • (631) 454-6100 • FAX: (631) 454-8027

Client: AKRF Inc.	Sample ID: Greenpoint Lumber Yard – Project No.: 30260-0005 (MW-5 [0-2])
Date Received: 08/17/01	Laboratory ID: 0020205
Date Extracted: 08/24/01	Matrix: Soil
Date Analyzed: 08/27/01	ELAP#: 11418

SEMIVOLATILE ORGANICS
SW-846 METHOD 8270

PARAMETER	CAS No.	RESULTS ug/kg
2,6-Dinitrotoluene	606-20-2	<320
Acenaphthene	83-32-9	460
3-Nitroaniline	99-09-2	<320
2,4-Dinitrophenol	51-28-5	<560
Dibenzofuran	132-64-9	<320
2,4-Dinitrotoluene	121-14-2	<320
4-Nitrophenol	100-02-7	<400
Fluorene	86-73-7	450
4-Chlorophenyl phenyl ether	7005-72-3	<320
Azobenzene	103-33-3	<320
Diethyl Phthalate	84-66-2	<320
4-Nitroaniline	100-01-6	<400
4,6-Dinitro-2-methylphenol	534-52-1	<320
N-Nitrosodiphenylamine	86-30-6	<320
4-Bromophenyl phenyl ether	101-55-3	<320
Hexachlorobenzene	118-74-1	<320
Pentachlorophenol	87-86-5	<480
Phenanthrene	85-01-8	7,300
Anthracene	120-12-7	1,400
Carbazole	86-74-8	540
Di-n-butyl Phthalate	84-74-2	<320
Fluoranthene	206-44-0	11,000
Benzidine	92-87-5	<320
Pyrene	129-00-0	10,000
Butyl benzyl Phthalate	85-68-7	<320
3,3´-Dichlorobenzidine	91-94-1	<320
Benzo(a)anthracene	56-55-3	5,400
Chrysene	218-01-9	5,300
Bis(2-ethylhexyl)Phthalate	117-81-7	350
Di-n-octyl Phthalate	117-84-0	<320
Benzo(b)fluoranthene	205-99-2	4,700
Benzo(k)fluoranthene	207-08-9	4,100
Benzo(a)pyrene	50-32-8	5,000
Indeno(1,2,3-c,d)pyrene	193-39-5	3,200
Dibenzo(a,h)anthracene	53-70-3	820
Benzo(g,h,i)perylene	191-24-2	3,400

Laboratory Director

AMERICAN ANALYTICAL LABORATORIES, INC.
56 TOLEDO STREET • FARMINGDALE, NEW YORK 11735 • (631) 454-6100 • FAX: (631) 454-8027

Client: AKRF Inc.	Sample ID: Greenpoint Lumber Yard – Project No.: 30260-0005 (MW-5 [0-2])
Date Received: 08/17/01	Laboratory ID:0020205
Date Extracted: 08/23/01	Matrix: Soil
Date Analyzed: 08/25/01	ELAP#: 11418

PESTICIDES
SW-846 METHOD 8081

PARAMETER	CAS No.	RESULTS ug/kg
DBCP	96-12-8	<5
Hexachlorocyclopentadiene	77-47-4	<5
Hexachlorobenzene	118-74-1	<5
α-BHC	319-84-6	<5
γ-BHC(Lindane)	58-89-9	<5
β-BHC	319-85-7	<5
Heptachlor	76-44-8	<5
δ-BHC	319-86-8	<5
Aldrin	309-00-2	<5
Isodrin	465-73-6	<5
Heptachlor Epoxide	1024-57-3	<5
Endosulfan I	959-98-8	60
4,4'-DDE	72-55-9	<5
Dieldrin	60-57-1	<5
Endrin	72-20-8	<5
Chlorobenzilate	510-15-6	<5
4,4'-DDD	72-54-8	<5
Endosulfan II	33213-65-9	<5
4,4'-DDT	50-29-3	9.6
Endrin Aldehyde	7421-93-4	<5
Endosulfan Sulfate	1031-07-8	<5
Methoxychlor	72-43-5	<5
Endrin Ketone	53494-70-5	9.2
Chlordane	57-74-9	<5
Toxaphene	8001-35-2	<10

Laboratory Director

AMERICAN ANALYTICAL LABORATORIES, INC.
56 TOLEDO STREET • FARMINGDALE, NEW YORK 11735 • (631) 454-6100 • FAX: (631) 454-8027

Client: AKRF Inc.	Sample ID: Greenpoint Lumber Yard – Project No.: 30260-0005 (MW-5 [0-2])
Date Received: 08/17/01	Laboratory ID:0020205
Date Extracted: 08/23/01	Matrix: Soil
Date Analyzed: 08/25/01	ELAP#: 11418

PCBs as AROCLORS
SW-846 METHOD 8082

PARAMETER	CAS No.	RESULTS ug/kg
Aroclor-1016	12674-11-2	<80
Aroclor-1221	11104-28-2	<80
Aroclor-1232	11141-16-5	<80
Aroclor-1242	53469-21-9	<80
Aroclor-1248	12672-29-6	<80
Aroclor-1254	11097-69-1	<80
Aroclor-1260	11096-82-5	<80

Lori Beyer
Laboratory Director

Client: AKRF Inc.	Sample ID: Greenpoint Lumber Yard – Project No.: 30260-0005 (MW-5 [0-2])
Date Received: 08/17/01	Laboratory ID: 0020205
Date Extracted: 08/24/01	Matrix: Soil
Date Analyzed: 08/24/01	ELAP#: 11418

METALS ANALYSIS
TARGET ANALYTE LIST

PARAMETER	REPORTING LIMIT mg/kg	RESULTS mg/kg
Silver, Ag	0.5	<0.5
Aluminum, Al	1.0	5,445
Arsenic, As	1.0	<1.0
Barium, Ba	0.5	54.6
Beryllium, Be	0.5	<0.5
Calcium, Ca	1.0	72,765
Cadmium, Cd	0.5	0.554
Cobalt, Co	0.5	<0.5
Chromium, Cr	0.5	4.04
Copper, Cu	0.5	14.1
Iron, Fe	0.5	7,128
Potassium, K	3.0	14,929
Magnesium, Mg	1.0	20,939
Manganese, Mn	0.5	83.4
Sodium, Na	1.0	350
Nickel, Ni	0.5	4.89
Lead, Pb	0.5	122
Antimony, Sb	1.0	<1.0
Selenium, Se	1.0	<1.0
Thallium, Tl	0.5	<0.5
Vanadium, V	0.5	43.9
Zinc, Zn	0.5	164
Mercury, Hg	0.05	0.330

Method: SW-846 6010/7000 Series

Laboratory Director

AMERICAN ANALYTICAL LABORATORIES, INC.
56 TOLEDO STREET • FARMINGDALE, NEW YORK 11735 • (631) 454-6100 • FAX: (631) 454-8027

Client: AKRF Inc.	Sample ID: Greenpoint Lumber Yard – Project No.: 30260-0005 (MW-5 [4-6])
Date Received: 08/17/01	Laboratory ID: 0020206
Date Extracted: NA	Matrix: Soil Level: Low
Date Analyzed: 08/22/01	ELAP#: 11418

VOLATILE ORGANICS
SW-846 METHOD 8260

PARAMETER	CAS No.	RESULTS ug/kg
Dichlorodifluoromethane	75-71-8	<5
Chloromethane	74-87-3	<5
Vinyl Chloride	75-01-4	<5
Bromomethane	74-83-9	<5
Chloroethane	75-00-3	<5
Trichlorofluoromethane	75-69-4	<5
Acetone	67-64-1	<5
1,1-Dichloroethene	75-35-4	<5
Vinyl Acetate	108-05-4	<5
Carbon Disulfide	75-15-0	<5
Methylene Chloride	75-09-2	<5
trans-1,2-Dichloroethene	156-60-5	<5
1,1-Dichloroethane	75-34-3	<5
2-Butanone	78-93-3	<5
2,2-Dichloropropane	594-20-7	<5
cis-1,2-Dichloroethene	156-59-2	<5
Chloroform	67-66-3	<5
Bromochloromethane	74-97-5	<5
1,1,1-Trichloroethane	71-55-6	<5
1,1-Dichloropropene	563-58-6	<5
Carbon Tetrachloride	56-23-5	<5
2-Chloroethyl vinyl ether	110-75-8	<5
1,2-Dichloroethane	107-06-2	<5
Benzene	71-43-2	<5
Trichloroethene	79-01-6	<5
1,2-Dichloropropane	78-87-5	<5
Bromodichloromethane	75-27-4	<5
4-Methyl-2-Pentanone	108-10-1	<5
Dibromomethane	74-95-3	<5
cis-1,3-Dichloropropene	10061-01-5	<5
Toluene	108-88-3	<5
trans-1,3-Dichloropropene	10061-02-6	<5
1,1,2-Trichloroethane	79-00-5	<5

Laboratory Director

AMERICAN ANALYTICAL LABORATORIES, INC.
56 TOLEDO STREET • FARMINGDALE, NEW YORK 11735 • (631) 454-6100 • FAX: (631) 454-8027

Client: AKRF Inc.	Sample ID: Greenpoint Lumber Yard – Project No.: 30260-0005 (MW-5 [4-6])
Date Received: 08/17/01	Laboratory ID: 0020206
Date Extracted: NA	Matrix: Soil Level: Low
Date Analyzed: 08/22/01	ELAP#: 11418

VOLATILE ORGANICS
SW-846 METHOD 8260

PARAMETER	CAS No.	RESULTS ug/kg
2-Hexanone	591-78-6	<5
1,3-Dichloropropane	142-28-9	<5
Tetrachloroethene	127-18-4	<5
Chlorodibromomethane	124-48-1	<5
1,2-Dibromoethane	106-93-4	<5
Chlorobenzene	108-90-7	<5
1,1,1,2-Tetrachloroethane	630-20-6	<5
Ethylbenzene	100-41-4	<5
m+p Xylene	108-38-3/106-42-3	<10
o-Xylene	95-47-6	<5
Styrene	100-42-5	<5
Isopropylbenzene	98-82-8	<5
Bromoform	75-25-2	<5
1,2,3-Trichloropropane	96-18-4	<5
n-Propylbenzene	103-65-1	<5
Bromobenzene	108-86-1	<5
1,3,5-Trimethylbenzene	108-67-8	<5
2-Chlorotoluene	95-49-8	<5
4-Chlorotoluene	106-43-4	<5
tert-Butylbenzene	98-06-6	<5
1,2,4-Trimethylbenzene	95-63-6	<5
sec-Butylbenzene	135-98-8	<5
4-Isopropyltoluene	99-87-6	<5
1,1,2,2-Tetrachloroethane	79-34-5	<5
1,3-Dichlorobenzene	541-73-1	<5
1,4-Dichlorobenzene	106-46-7	<5
1,2-Dichlorobenzene	95-50-1	<5
n-Butylbenzene	104-51-8	<5
1,2-Dibromo-3-chloropropane	96-12-8	<5
1,2,4-Trichlorobenzene	120-82-1	<5
Hexachlorobutadiene	87-68-3	<5
Naphthalene	91-20-3	<5
1,2,3-Trichlorobenzene	87-61-6	<5

Laboratory Director

Client: AKRF Inc.	Sample ID: Greenpoint Lumber Yard – Project No.: 30260-0005 (MW-5 [4-6])
Date Received: 08/17/01	Laboratory ID: 0020206
Date Extracted: 08/24/01	Matrix: Soil
Date Analyzed: 08/27/01	ELAP#: 11418

SEMIVOLATILE ORGANICS
SW-846 METHOD 8270

PARAMETER	CAS No.	RESULTS ug/kg
Pyridine	110-86-1	<320
N-Nitrosodimethylamine	62-75-9	<320
Aniline	62-53-3	<320
Bis(2-chloroethyl)ether	111-44-4	<320
Phenol	108-95-1	<320
2-Chlorophenol	95-57-8	<320
1,3-Dichlorobenzene	541-73-1	<320
1,4-Dichlorobenzene	106-46-7	<320
1,2-Dichlorobenzene	95-50-1	<320
Benzyl Alcohol	100-51-6	<320
Bis(2-chloroisopropyl)ether	108-60-1	<320
2-Methylphenol	95-48-7	<320
Hexachloroethane	67-72-1	<320
N-Nitrosodi-n-propylamine	621-64-7	<320
3+4-Methylphenol	108-39-4 / 106-44-5	<320
Nitrobenzene	98-95-3	<320
Isophorone	78-59-1	<320
2- Nitrophenol	88-75-5	<320
2,4-Dimethylphenol	105-67-9	<320
Benzoic Acid	65-85-0	<560
Bis(2-chloroethoxy)methane	111-91-1	<320
2,4-Dichlorophenol	102-83-2	<320
1,2,4-Trichlorobenzene	120-82-1	<320
Naphthalene	91-20-3	<320
4-Chloroaniline	106-47-8	<320
Hexachlorobutadiene	87-68-3	<320
4-Chloro-3-methylphenol	59-50-7	<320
2-Methylnaphthalene	91-57-6	<320
Hexachlorocyclopentadiene	77-47-4	<320
2,4,5-Trichlorophenol	95-95-4	<320
2,4,6-Trichlorophenol	88-06-2	<320
2-Chloronaphthalene	91-58-7	<320
2-Nitroaniline	88-74-4	<320
Acenaphthylene	208-96-8	<320
Dimethyl Phthalate	131-11-3	<320

Laboratory Director

AMERICAN ANALYTICAL LABORATORIES, INC.
56 TOLEDO STREET • FARMINGDALE, NEW YORK 11735 • (631) 454-6100 • FAX: (631) 454-8027

Client: AKRF Inc.	Sample ID: Greenpoint Lumber Yard – Project No.: 30260-0005 (MW-5 [4-6])
Date Received: 08/17/01	Laboratory ID: 0020206
Date Extracted: 08/24/01	Matrix: Soil
Date Analyzed: 08/27/01	ELAP#: 11418

SEMIVOLATILE ORGANICS
SW-846 METHOD 8270

PARAMETER	CAS No.	RESULTS ug/kg
2,6-Dinitrotoluene	606-20-2	<320
Acenaphthene	83-32-9	1,200
3-Nitroaniline	99-09-2	<320
2,4-Dinitrophenol	51-28-5	<560
Dibenzofuran	132-64-9	640
2,4-Dinitrotoluene	121-14-2	<320
4-Nitrophenol	100-02-7	<400
Fluorene	86-73-7	1,200
4-Chlorophenyl phenyl ether	7005-72-3	<320
Azobenzene	103-33-3	<320
Diethyl Phthalate	84-66-2	<320
4-Nitroaniline	100-01-6	<400
4,6-Dinitro-2-methylphenol	534-52-1	<320
N-Nitrosodiphenylamine	86-30-6	<320
4-Bromophenyl phenyl ether	101-55-3	<320
Hexachlorobenzene	118-74-1	<320
Pentachlorophenol	87-86-5	<480
Phenanthrene	85-01-8	15,000
Anthracene	120-12-7	3,300
Carbazole	86-74-8	1000
Di-n-butyl Phthalate	84-74-2	<320
Fluoranthene	206-44-0	20,000
Benzidine	92-87-5	<320
Pyrene	129-00-0	18,000
Butyl benzyl Phthalate	85-68-7	<320
3,3´-Dichlorobenzidine	91-94-1	<320
Benzo(a)anthracene	56-55-3	9,200
Chrysene	218-01-9	9,000
Bis(2-ethylhexyl)Phthalate	117-81-7	430
Di-n-octyl Phthalate	117-84-0	<320
Benzo(b)fluoranthene	205-99-2	10,000
Benzo(k)fluoranthene	207-08-9	3,400
Benzo(a)pyrene	50-32-8	8,200
Indeno(1,2,3-c,d)pyrene	193-39-5	4,900
Dibenzo(a,h)anthracene	53-70-3	1,400
Benzo(g,h,i)perylene	191-24-2	5,000

Laboratory Director

Client: AKRF Inc.	Sample ID: Greenpoint Lumber Yard – Project No.: 30260-0005 (MW-5 [4-6])
Date Received: 08/17/01	Laboratory ID: 0020206
Date Extracted: 08/24/01	Matrix: Soil
Date Analyzed: 08/24/01	ELAP#: 11418

METALS ANALYSIS
TARGET ANALYTE LIST

PARAMETER	REPORTING LIMIT mg/kg	RESULTS mg/kg
Silver, Ag	0.5	<0.5
Aluminum, Al	1.0	1,864
Arsenic, As	1.0	<1.0
Barium, Ba	0.5	5.22
Beryllium, Be	0.5	<0.5
Calcium, Ca	1.0	8,371
Cadmium, Cd	0.5	<0.5
Cobalt, Co	0.5	<0.5
Chromium, Cr	0.5	<0.5
Copper, Cu	0.5	1.68
Iron, Fe	0.5	5,874
Potassium, K	3.0	12.3
Magnesium, Mg	1.0	1,156
Manganese, Mn	0.5	1.76
Sodium, Na	1.0	13.8
Nickel, Ni	0.5	<0.5
Lead, Pb	0.5	12.3
Antimony, Sb	1.0	<1.0
Selenium, Se	1.0	<1.0
Thallium, Tl	0.5	<0.5
Vanadium, V	0.5	<0.5
Zinc, Zn	0.5	2.72
Mercury, Hg	0.05	0.157

Method: SW-846 6010/7000 Series

Laboratory Director

AMERICAN ANALYTICAL LABORATORIES, INC.
56 TOLEDO STREET • FARMINGDALE, NEW YORK 11735 • (631) 454-6100 • FAX: (631) 454-8027

Client: AKRF Inc.	Sample ID: Greenpoint Lumber Yard – Project No.: 30260-0005 (MW-5)
Date Received: 08/17/01	Laboratory ID: 0020207
Date Extracted: NA	Matrix: Liquid
Date Analyzed: 08/22/01	ELAP#: 11418

VOLATILE ORGANICS
SW-846 METHOD 8260

PARAMETER	CAS NO.	RESULTS ug/L
Dichlorodifluoromethane	75-71-8	<1
Chloromethane	74-87-3	<1
Vinyl Chloride	75-01-4	<1
Bromomethane	74-83-9	<1
Chloroethane	75-00-3	<1
Trichlorofluoromethane	75-69-4	<1
Acetone	67-64-1	<1
1,1-Dichloroethene	75-35-4	<1
Vinyl Acetate	108-05-4	<1
Carbon Disulfide	75-15-0	<1
Methylene Chloride	75-09-2	<1
trans-1,2-Dichloroethene	156-60-5	<1
1,1-Dichloroethane	75-34-3	<1
2-Butanone	78-93-3	<1
2,2-Dichloropropane	594-20-7	<1
cis-1,2-Dichloroethene	156-59-2	<1
Chloroform	67-66-3	<1
Bromochloromethane	74-97-5	<1
1,1,1-Trichloroethane	71-55-6	<1
1,1-Dichloropropene	563-58-6	<1
Carbon Tetrachloride	56-23-5	<1
2-Chloroethyl vinyl ether	110-75-8	<1
1,2-Dichloroethane	107-06-2	<1
Benzene	71-43-2	<1
Trichloroethene	79-01-6	<1
1,2-Dichloropropane	78-87-5	<1
Bromodichloromethane	75-27-4	<1
4-Methyl-2-Pentanone	108-10-1	<1
Dibromomethane	74-95-3	<1
cis-1,3-Dichloropropene	10061-01-5	<1
Toluene	108-88-3	<1
trans-1,3-Dichloropropene	10061-02-6	<1
1,1,2-Trichloroethane	79-00-5	<1

Laboratory Director

AMERICAN ANALYTICAL LABORATORIES, INC.
56 TOLEDO STREET • FARMINGDALE, NEW YORK 11735 • (631) 454-6100 • FAX: (631) 454-8027

Client: AKRF Inc.	Sample ID: Greenpoint Lumber Yard – Project No.: 30260-0005 (MW-5)
Date Received: 08/17/01	Laboratory ID: 0020207
Date Extracted: NA	Matrix: Liquid
Date Analyzed: 08/22/01	ELAP#: 11418

VOLATILE ORGANICS
SW-846 METHOD 8260

PARAMETER	CAS NO.	RESULTS ug/L
2-Hexanone	591-78-6	<1
1,3-Dichloropropane	142-28-9	<1
Tetrachloroethene	127-18-4	<1
Chlorodibromomethane	124-48-1	<1
1,2-Dibromoethane	106-93-4	<1
Chlorobenzene	108-90-7	<1
1,1,1,2-Tetrachloroethane	630-20-6	<1
Ethylbenzene	100-41-4	<1
m+p Xylene	108-38-3/106-42-3	<2
o-Xylene	95-47-6	<1
Styrene	100-42-5	<1
Isopropylbenzene	98-82-8	<1
Bromoform	75-25-2	<1
1,2,3-Trichloropropane	96-18-4	<1
n-Propylbenzene	103-65-1	<1
Bromobenzene	108-86-1	<1
1,3,5-Trimethylbenzene	108-67-8	<1
2-Chlorotoluene	95-49-8	<1
4-Chlorotoluene	106-43-4	<1
tert-Butylbenzene	98-06-6	<1
1,2,4-Trimethylbenzene	95-63-6	<1
sec-Butylbenzene	135-98-8	<1
4-Isopropyltoluene	99-87-6	<1
1,1,2,2-Tetrachloroethane	79-34-5	<1
1,3-Dichlorobenzene	541-73-1	<1
1,4-Dichlorobenzene	106-46-7	<1
1,2-Dichlorobenzene	95-50-1	<1
n-Butylbenzene	104-51-8	<1
1,2-Dibromo-3-chloropropane	96-12-8	<1
1,2,4-Trichlorobenzene	120-82-1	<1
Hexachlorobutadiene	87-68-3	<1
Naphthalene	91-20-3	<1
1,2,3-Trichlorobenzene	87-61-6	<1

Laboratory Director

AMERICAN ANALYTICAL LABORATORIES, INC.
56 TOLEDO STREET • FARMINGDALE, NEW YORK 11735 • (631) 454-6100 • FAX: (631) 454-8027

Client: AKRF Inc.	Sample ID: Greenpoint Lumber Yard – Project No.: 30260-0005 (MW-5)
Date Received: 08/17/01	Laboratory ID: 0020207
Date Extracted: 08/23/01	Matrix: Liquid
Date Analyzed: 08/24/01	ELAP#: 11418

SEMIVOLATILE ORGANICS
SW-846 METHOD 8270

PARAMETER	CAS No.	RESULTS ug/L
Pyridine	110-86-1	<5
N-Nitrosodimethylamine	62-75-9	<5
Aniline	62-53-3	<5
Bis(2-chloroethyl)ether	111-44-4	<5
Phenol	108-95-1	<5
2-Chlorophenol	95-57-8	<5
1,3-Dichlorobenzene	541-73-1	<5
1,4-Dichlorobenzene	106-46-7	<5
1,2-Dichlorobenzene	95-50-1	<5
Benzyl Alcohol	100-51-6	<5
Bis(2-chloroisopropyl)ether	108-60-1	<5
2-Methylphenol	95-48-7	<5
Hexachloroethane	67-72-1	<5
N-Nitrosodi-n-propylamine	621-64-7	<5
3+4-Methylphenol	108-39-4 / 106-44-5	<5
Nitrobenzene	98-95-3	<5
Isophorone	78-59-1	<5
2- Nitrophenol	88-75-5	<5
2,4-Dimethylphenol	105-67-9	<5
Benzoic Acid	65-85-0	<5
Bis(2-chloroethoxy)methane	111-91-1	<5
2,4-Dichlorophenol	102-83-2	<5
1,2,4-Trichlorobenzene	120-82-1	<5
Naphthalene	91-20-3	<5
4-Chloroaniline	106-47-8	<5
Hexachlorobutadiene	87-68-3	<5
4-Chloro-3-methylphenol	59-50-7	<5
2-Methylnaphthalene	91-57-6	<5
Hexachlorocyclopentadiene	77-47-4	<5
2,4,5-Trichlorophenol	95-95-4	<5
2,4,6-Trichlorophenol	88-06-2	<5
2-Chloronaphthalene	91-58-7	<5
2-Nitroaniline	88-74-4	<5
Acenaphthylene	208-96-8	<5
Dimethyl Phthalate	131-11-3	<5

Laboratory Director

AMERICAN ANALYTICAL LABORATORIES, INC.
56 TOLEDO STREET • FARMINGDALE, NEW YORK 11735 • (631) 454-6100 • FAX: (631) 454-8027

Client: AKRF Inc.	Sample ID: Greenpoint Lumber Yard – Project No.: 30260-0005 (MW-5)
Date Received: 08/17/01	Laboratory ID: 0020207
Date Extracted: 08/23/01	Matrix: Liquid
Date Analyzed: 08/24/01	ELAP#: 11418

SEMIVOLATILE ORGANICS
SW-846 METHOD 8270

PARAMETER	CAS No.	RESULTS ug/L
2,6-Dinitrotoluene	606-20-2	<5
Acenaphthene	83-32-9	<5
3-Nitroaniline	99-09-2	<5
2,4-Dinitrophenol	51-28-5	<5
Dibenzofuran	132-64-9	<5
2,4-Dinitrotoluene	121-14-2	<5
4-Nitrophenol	100-02-7	<5
Fluorene	86-73-7	<5
4-Chlorophenyl phenyl ether	7005-72-3	<5
Azobenzene	103-33-3	<5
Diethyl Phthalate	84-66-2	<5
4-Nitroaniline	100-01-6	<5
4,6-Dinitro-2-methylphenol	534-52-1	<5
N-Nitrosodiphenylamine	86-30-6	<5
4-Bromophenyl phenyl ether	101-55-3	<5
Hexachlorobenzene	118-74-1	<5
Pentachlorophenol	87-86-5	<5
Phenanthrene	85-01-8	<5
Anthracene	120-12-7	<5
Carbazole	86-74-8	<5
Di-n-butyl Phthalate	84-74-2	<5
Fluoranthene	206-44-0	<5
Benzidine	92-87-5	<5
Pyrene	129-00-0	<5
Butyl benzyl Phthalate	85-68-7	<5
3,3´-Dichlorobenzidine	91-94-1	<5
Benzo(a)anthracene	56-55-3	<5
Chrysene	218-01-9	<5
Bis(2-ethylhexyl)Phthalate	117-81-7	<5
Di-n-octyl Phthalate	117-84-0	<5
Benzo(b)fluoranthene	205-99-2	<5
Benzo(k)fluoranthene	207-08-9	<5
Benzo(a)pyrene	50-32-8	<5
Indeno(1,2,3-c,d)pyrene	193-39-5	<5
Dibenzo(a,h)anthracene	53-70-3	<5
Benzo(g,h,i)perylene	191-24-2	<5

Laboratory Director

AMERICAN ANALYTICAL LABORATORIES, INC.
56 TOLEDO STREET • FARMINGDALE, NEW YORK 11735 • (631) 454-6100 • FAX: (631) 454-8027

Client: AKRF Inc.	Sample ID: Greenpoint Lumber Yard – Project No.: 30260-0005 (MW-5)
Date Received: 08/17/01	Laboratory ID: 0020207
Date Extracted: 08/24/01	Matrix: Liquid
Date Analyzed: 08/24/01	ELAP#: 11418

METALS ANALYSIS
TARGET ANALYTE LIST

PARAMETER	REPORTING LIMIT mg/L	RESULTS mg/L
Silver, Ag	0.030	<0.030
Aluminum, Al	0.050	172
Arsenic, As	0.025	<0.025
Barium, Ba	0.030	11.4
Beryllium, Be	0.030	<0.030
Calcium, Ca	0.040	1,163
Cadmium, Cd	0.030	<0.030
Cobalt, Co	0.050	<0.050
Chromium, Cr	0.030	0.465
Copper, Cu	0.030	3.61
Iron, Fe	0.030	727
Potassium, K	0.400	22.5
Magnesium, Mg	0.030	171
Manganese, Mn	0.030	7.61
Sodium, Na	0.050	110
Nickel, Ni	0.030	0.633
Lead, Pb	0.030	23.6
Antimony, Sb	0.050	<0.050
Selenium, Se	0.005	<0.005
Thallium, Tl	0.020	<0.020
Vanadium, V	0.030	0.897
Zinc, Zn	0.030	9.62
Mercury, Hg	0.002	0.003

Analytical Methods:

SW-846 6010/7470 (ICP)

Laboratory Director

AMERICAN ANALYTICAL LABORATORIES, INC.
56 TOLEDO STREET • FARMINGDALE, NEW YORK 11735 • (631) 454-6100 • FAX: (631) 454-8027

Client: AKRF Inc.	Sample ID: Greenpoint Lumber Yard – Project No.: 30260-0005 (MW-5)
Date Received: 08/17/01	Laboratory ID: 0020207
Date Extracted: 08/24/01	Matrix: Liquid
Date Analyzed: 08/24/01	ELAP#: 11418

DISSOLVED METALS ANALYSIS
TARGET ANALYTE LIST

PARAMETER	REPORTING LIMIT mg/L	RESULTS mg/L
Silver, Ag	0.030	<0.030
Aluminum, Al	0.050	1.60
Arsenic, As	0.025	<0.025
Barium, Ba	0.030	<0.030
Beryllium, Be	0.030	<0.030
Calcium, Ca	0.040	313
Cadmium, Cd	0.030	<0.030
Cobalt, Co	0.050	<0.050
Chromium, Cr	0.030	<0.030
Copper, Cu	0.030	<0.030
Iron, Fe	0.030	<0.030
Potassium, K	0.400	13.3
Magnesium, Mg	0.030	55.1
Manganese, Mn	0.030	0.350
Sodium, Na	0.050	96.8
Nickel, Ni	0.030	<0.030
Lead, Pb	0.030	<0.030
Antimony, Sb	0.050	<0.050
Selenium, Se	0.025	<0.025
Thallium, Tl	0.020	<0.020
Vanadium, V	0.030	0.173
Zinc, Zn	0.030	<0.030
Mercury, Hg	0.002	<0.002

Analytical Methods:

SW-846 6010/7470 (ICP)

Laboratory Director

AMERICAN ANALYTICAL LABORATORIES, INC.
56 TOLEDO STREET • FARMINGDALE, NEW YORK 11735 • (631) 454-6100 • FAX: (631) 454-8027

AMERICAN ANALYTICAL LABORATORIES
56 TOLEDO STREET • FARMINGDALE, NEW YORK 11735
(631) 454-6100 • FAX (631) 454-8027 • email: AAL20000@aol.com

NYSDOH	ELAP	11418
AIHA	PAT, LPAT	102391
CTDOH	PH-0205	

CHAIN OF CUSTODY / REQUEST FOR ANALYSIS DOCUMENT

CLIENT NAME/ADDRESS: Mimi Sotiriou AKRF, Inc

CONTACT: 212-340-9779 917-612-7877

SAMPLER (SIGNATURE): [signature] DATE: 8/17 TIME: 5pm

SAMPLER NAME (PRINT): Mimi Sotiriou

SAMPLE(S) SEALED: YES / NO

CORRECT CONTAINER(S): YES / NO

PROJECT LOCATION: Greenpoint Lumber Yard 30260-0005

LABORATORY ID #	MATRIX	TYPE	PRES.	SAMPLE # - LOCATION	8260	8270	TAL METALS	Pest 8082	PCB 8081	30260-0005 P.O.#
0020196	S	G		B-3 (1-3)	X	X	X			
0020197	S			B-3 (8-10)			X			
0020198	L			MW-2			F/UF			
0020199	S			MW-3 (0-2)			X	X	X	
0020200	S			MW-3 (5-7)			F/UF			
0020201	L			MW-3			X			
0020202	S			MW-4 (0-2)			X			
0020203	S			MW-4 (13-15)			X			
0020204	L			MW-4			F/UF			
0020205	S			MW-5 (0-2)			X	X	X	
0020206	S			MW-5 (4-6)			X			
0020207	L			MW 5			F/UF			

MATRIX S=SOIL; L=LIQUID; SL=SLUDGE; A=AIR; W=WIPE; P=PAINT CHIPS; B=BULK MATERIAL

TYPE G=GRAB; C=COMPOSITE, SS=SPLIT SPOON

TURNAROUND REQUIRED: NORMAL ☒ STAT ☐ BY 8/30/17

COMMENTS / INSTRUCTIONS: F and un-F liquid metals only & SVOC liquid MW-2

RELINQUISHED BY (SIGNATURE)	DATE / TIME	PRINTED NAME	RECEIVED BY LAB (SIGNATURE)	DATE / TIME	PRINTED NAME
[signature]	8/17 6pm	M. Sotiriou	[signature]	8/17/17	[signature]
RELINQUISHED BY (SIGNATURE)	DATE / TIME	PRINTED NAME	RECEIVED BY LAB (SIGNATURE)	DATE / TIME	PRINTED NAME

WHITE-OFFICE / CANARY-LAB / PINK-SAMPLE CUSTODIAN / GOLDENROD-CLIENT

Greenpoint Lumber Yard

BROOKLYN, NEW YORK

Supplemental Subsurface (Phase II) Investigation Report

AKRF Project Number: 30260

Prepared for:

Park Tower Realty Corp.
499 Park Avenue
New York, New York 10022

Prepared by:

AKRF, Inc.
116 East 27th Street, 7th Floor
New York, NY 10016
646-459-3500

APRIL 2004

EXECUTIVE SUMMARY

The Greenpoint Lumber Yard Site (Project Site or Site) is an approximately 20+-acre, mostly paved parcel of waterfront property in the Greenpoint neighborhood of Brooklyn, New York. The Project Site consists of Tax Block 2472, Lots 2, 32, and 100; Tax Block 2494, Lot 1; Tax Block 2502, Lot 1; Tax Block 2510, Lot 1; and Tax Block 2520, Lot 57.

AKRF, Inc. has performed three environmental studies on the Greenpoint Lumber Yard site since 2001, including a Phase I Environmental Site Assessment dated July 2001, a Phase II Subsurface Investigation dated October 2001 and a Supplemental Subsurface (Phase II) Investigation dated September 2003. The studies were conducted consistent with applicable requirements of the American Society for Testing and Materials (ASTM). The Phase I Environmental Site Assessment assessed the project site's 100-year industrial history, including use as a lumber yard and an on-site extract and chemical company. The Phase I noted that current site uses included auto parking and auto and machine repair and it identified several potential underground storage tanks on the property. To determine whether these environmental conditions had affected soil and groundwater conditions on the Greenpoint Lumber Yard site, two subsurface investigations were performed.

A total of 61 soil samples and 16 groundwater samples were collected and analyzed during the 2001 Phase II Site Investigation (19 soil and 5 groundwater) and the 2003 Supplemental Subsurface (Phase II) Investigation (42 soil and 11 groundwater samples). No widespread contamination from former site uses was detected during these studies. Site conditions were found to be generally consistent with background conditions on other urban waterfront sites containing historic urban fill.

There were only limited areas in which soil or groundwater exceeded applicable guidance or standards, all of which can be mitigated through well-established methods. Of the 61 soil samples collected, concentrations of polychlorinated biphenyls (PCBs), pesticides and/or total semivolatile organic compounds (SVOCs), particularly polynuclear aromatic hydrocarbons (PAHs), above the New York State Department of Environmental Conservation's (NYS DEC's) Technical and Administrative Guidance Manual (TAGM) 4046 Recommended Soil Cleanup Objectives (RSCOs) were detected in two soil sample locations located in the central portion of the site, between Freeman and Dupont Streets. No areas of concern were detected in the southern or northern portions of the site. At one of these locations, PCBs and pesticides were detected in a surface soil sample; however, PCBs and pesticides were not detected in soil samples collected from a deeper interval in this boring, indicating that contamination in this boring is vertically limited. At the second location, evidence of cresote, a product commonly used in wood preservation, was detected in a subsurface soil sample. Of the 61 soil samples analyzed on the Greenpoint Lumber Yard Site, this is the only location where contamination likely resulting from former site usage as a lumber yard was detected at concentrations exceeding the TAGM. Individual SVOCs and metals were detected in most soil samples at concentrations above TAGM RSCOs, but within ranges typical of urban fill material.

VOCs and SVOCs were detected in four groundwater monitoring wells at concentrations exceeding NYS DEC groundwater standards, which are intended to apply to potable water supplies only. One well, situated in the southeast portion of the site near a former gasoline pump and associated underground storage tank(s), is located in an upgradient location with respect to groundwater on the site; contamination detected in this well is likely related to a petroleum leak from the nearby former pump and tank(s). Two of the other three wells in which contamination was detected were also located in upgradient locations with respect to groundwater on the project site; it is likely that contamination in these two wells is from off-site sources. Contamination detected in the fourth well, located in the northwest portion of the site and downgradient with respect to groundwater, could be from on- or off-site sources. Based on this data, groundwater remediation is not anticipated. The types and concentrations of contaminants detected in

groundwater above NYS DEC's Class GA Standards are not indicative of contamination from former on-site uses and are not unusual for urban areas. Although remediation is not anticipated, groundwater monitoring may be required by the State in areas where spills have been reported to assure the removal of the source has led to stabilization or improvement of the limited groundwater contamination.

In accordance with NYS DEC reporting requirements, in 2001 a spill was reported to this agency for petroleum contamination in the vicinity of the boring and well located near a former gasoline pump and associated underground storage tank(s). Remediation of the spill must be coordinated with NYS DEC's spills group in accordance with petroleum-contaminated soil guidance policies provided in the agency's Division of Environmental Remediation's DRAFT DER-10, Technical Guidance for Site Investigation and Remediation (December 2002) and TAGM 4046. Following tank removal, spill remediation will likely include excavation and off-site disposal of petroleum-contaminated soil and the collection and analysis of endpoint samples and may include groundwater monitoring. The execution of an Administrative Order on Consent or Stipulation may be required by the State for the spill remediation. When NYS DEC is satisfied with the remediation, a No Further Action letter will be issued and the spill listing will be effectively closed. Based on the results of the two subsurface investigations, no other New York State regulatory agency involvement would be required.

New York City has proposed rezoning an area along the Brooklyn Waterfront that includes the Greenpoint Lumber Yard site. The rezoning action requires review under the City Environmental Quality Review (CEQR) process. It is anticipated that because of its industrial waterfront history, the individual lots that comprise the site will receive E-designations as part of the rezoning. E-designations require that, prior to redevelopment, further investigation and remediation, if required, be performed on the subject lot with approval from the New York City Department of Environmental Protection (NYC DEP). New York City Department of Buildings (NYC DOB) permits will be withheld until NYC DEP is satisfied with proposed remedial activities, if required, and certificates of occupancy will be withheld until NYC DEP is satisfied with the remediation.

On sites like the Greenpoint Lumber Yard site, where a Phase I and Phase II have already been performed, the final reports for these studies can be submitted to NYC DEP for review and approval. It is likely that NYC DEP will require further investigation to confirm the findings of the two subsurface investigations. It is anticipated that remediation, which would likely consist of tank and hot spot removal and capping, could take place during general excavation for the proposed project. NYC DEP will likely require the removal of the two hotspots identified by the subsurface investigations and the underground storage tanks (USTs) suspected in the Phase I ESA. Reports documenting these activities would be prepared and submitted to both the NYC DEP and the NYS DEC Spills Group. These remedial actions could satisfy DEP, but it is possible that capping of the entire Greenpoint Lumber Yard site with either paved surfaces and/or building foundations or two feet of imported clean fill material in landscaped areas would be required to eliminate the exposure pathways of ingestion and/or inhalation of contaminants in fill material that may remain in the ground after the project is complete.

Construction for the proposed project will be performed under the provisions of a Construction Health and Safety Plan, which will be required by NYC DEP. The Construction Health and Safety Plan (CHASP) will be tailored specifically to the proposed development on the Greenpoint Lumber Yard site and will establish practices and procedures to protect the health of construction personnel and others during implementation of work involving potential or known contamination on the site.

During general excavation for the site, it is anticipated that most soil on the site could be disposed of as construction and demolition debris. Areas of contamination may require disposal as petroleum-contaminated or non-hazardous contaminated material. Based on sampling results from the two subsurface investigations, none of the soil tested to date would require disposal as a hazardous waste.

TABLE OF CONTENTS

EXECUTIVE SUMMARY i
1.0 INTRODUCTION 1
2.0 PROJECT SITE DESCRIPTION 1
3.0 PREVIOUS STUDIES 1
3.1 PHASE I ENVIRONMENTAL SITE ASSESSMENT (JULY 2, 2001) 1
3.2 PHASE II SITE INVESTIGATION (OCTOBER 2, 2001) 2
4.0 SOIL BORINGS AND GROUNDWATER MONITORING WELLS 2
4.1 SAMPLE LOCATION RATIONALE 2
4.2 SOIL SAMPLING METHODOLOGY 3
4.3 GROUNDWATER SAMPLING METHODOLOGY 4
4.4 QA/QC 5
4.4.1 Decontamination 5
4.4.2 Chain of Custody 5
4.4.3 Laboratory Testing 6
5.0 SAMPLE ANALYSIS AND RESULTS 7
5.1 FIELD CONDITIONS 7
5.2 SOIL 8
5.2.1 Volatile Organic Compounds 8
5.2.2 Semivolatile Organic Compounds 8
5.2.3 Polychlorinated Biphenyls 9
5.2.4 Pesticides 9
5.2.5 Target Analyte List Metals 10
5.3 GROUNDWATER 10
5.3.1 Volatile Organic Compounds 10
5.3.2 Semivolatile Organic Compounds 11
5.3.3 Pesticides 11
5.3.4 Polychlorinated Biphenyls 11
5.3.5 Target Analyte List Metals 11
6.0 GROUNDWATER ELEVATIONS 12
7.0 CONCLUSIONS 12
7.1 SOIL 12
7.2 GROUNDWATER 13
7.3 SURVEY 13
7.4 SUMMARY 13
8.0 RECOMMENDATIONS 14
8.1 REGULATORY AGENCY INVOLVEMENT 14
8.1.1 State 14
8.1.2 City 15
8.2 REMEDIATION 15

FIGURES

Figure 1 Project Site Location
Figure 2 Boring and Well Locations and Elevations
Figure 3 Groundwater Table Elevations

TABLE OF CONTENTS CONTINUED

TABLES

2003 Supplemental Subsurface (Phase II) Investigation

Table 1 Laboratory Data: Volatile Organic Compounds in Soil Samples
Table 2 Laboratory Data: Semivolatile Organic Compounds in Soil Samples
Table 3 Laboratory Data: Polychlorinated Biphenyls in Soil Samples
Table 4 Laboratory Data: Pesticides in Soil Samples
Table 5 Laboratory Data: Target Analyte List Metals in Soil Samples
Table 6 Laboratory Data: Volatile Organic Compounds in Groundwater Samples
Table 7 Laboratory Data: Semivolatile Organic Compounds in Groundwater Samples
Table 8 Laboratory Data: Polychlorinated Biphenyls in Groundwater Samples
Table 9 Laboratory Data: Pesticides in Groundwater Samples
Table 10 Laboratory Data: Target Analyte List Metals in Groundwater Samples

2001 Phase II Site Investigation

Table 11 Laboratory Data: Volatile Organic Compounds in Soil Samples
Table 12 Laboratory Data: Semivolatile Organic Compounds in Soil Samples
Table 13 Laboratory Data: Polychlorinated Biphenyls in Soil Samples
Table 14 Laboratory Data: Pesticides in Soil Samples
Table 15 Laboratory Data: Target Analyte List Metals in Soil Samples
Table 16 Laboratory Data: Volatile Organic Compounds in Groundwater Samples
Table 17 Laboratory Data: Semivolatile Organic Compounds in Groundwater Samples
Table 18 Laboratory Data: Total Metals in Groundwater Samples
Table 19 Laboratory Data: Dissolved Metals in Groundwater Samples

APPENDICES

Appendix A Boring and Well Installation Logs
Appendix B Well Development and Sampling Logs
Appendix C 2003 Category A Laboratory Data Deliverables

1.0 INTRODUCTION

This report presents the findings of a Supplemental Subsurface (Phase II) Investigation performed on the Greenpoint Lumber Yard Site in Brooklyn, New York in July 2003. The investigation included the advancement and sampling of 21 soil borings to groundwater and the completion, development and sampling of 11 groundwater monitoring wells. Supplementing the findings of the Subsurface (Phase II) Investigation performed on the Site by AKRF, Inc. in October 2001, the purpose of this investigation was to further characterize soil and groundwater conditions on the Greenpoint Lumber Yard Site. The Sample Analysis and Results and Conclusions sections of this report summarize data from both investigations.

2.0 PROJECT SITE DESCRIPTION

The Greenpoint Lumber Yard Site (Project Site or Site) is an approximately 20+-acre, mostly paved parcel of waterfront property in the Greenpoint neighborhood of Brooklyn, New York. The Project Site consists of Tax Block 2472, Lots 2, 32, and 100; Tax Block 2494, Lot 1; Tax Block 2502, Lot 1; Tax Block 2510, Lot 1; and Tax Block 2520, Lot 57. The subject blocks are generally bounded to the north by Newtown Creek; to the east by portions of Commercial, Franklin and West Streets; to the south by Huron Street; and to the west by the East River. Please see Figure 1 for Project Site Location.

The Project Site currently contains the following structures: a two-story brick and concrete office, a small brick guard shed and a large corrugated metal garage near the intersection of Green and West Streets; and a second brick guard shack, which has been converted for auto repair, at the intersection of Dupont and Franklin Streets. The remainder of the property consists of open areas that are used primarily for contractors' materials storage.

The surface topography on the Project Site generally slopes downward to the north, toward Newtown Creek and to the west, toward the East River. Based on reports compiled by the U.S. Geological Survey, the surface elevation of the Site is approximately five to fifteen feet (National Geodetic Vertical Datum of 1929), depending on the area of the Site. Groundwater is located approximately six to fifteen feet below the surface of the Site. Groundwater predominantly flows in a westerly direction towards the East River and in a northerly direction towards Newtown Creek.

3.0 PREVIOUS STUDIES

A Phase I Environmental Site Assessment was performed on the Greenpoint Lumber Yard Site in July 10, 2001 and a Phase II Subsurface Investigation was performed in October 2001. Both studies were performed by AKRF, Inc. The findings of these investigations are summarized below.

3.1 PHASE I ENVIRONMENTAL SITE ASSESSMENT (JULY 2, 2001)

A Phase I Environmental Site Assessment was performed by AKRF, Inc. in July 2001 on the Project Site. An Addendum to the Phase I Environmental Site Assessment was issued by AKRF, Inc. on July 17, 2001. The Phase I Assessment met the requirements of the American Society for Testing and Materials (ASTM), as established by ASTM Standard E 1527-00, and included a site inspection, a review of historical fire insurance (Sanborn) maps and a review of federal, state and local regulatory databases. The Phase I identified the Site to have had over a 100-year history primarily as a lumber yard. Other historical non-lumber-related uses included:

- New York Dye - Wood Extract and Chemical Company ca. 1887 through ca. 1905 (Tax Block 2520, Lot 57 and Tax Block 2510);
- New York Quebracho Extract Company ca. 1916 (Tax Block 2520, Lot 57 and Tax Block 2510);

- A.K. Meserole & Company, a mason material and coal storage yard) ca. 1916 (Tax Block 2502);
- C. Winant's Spar Company ca. 1916 (Tax Block 2502);
- Export Auto Case Company ca. 1916 (Tax Block 2502);
- O'Rouke Engineering and Construction Company ca. 1905 (Tax Block 2472, Lot 100);
- New York State Barge Canal Terminal and Alberene Stone Company Tub Storage ca. 1916 (Tax Block 2472, Lot 100);
- Greenpoint Coal Docks, Inc. ca. 1942 through ca. 1951 (Tax Block 2472, Lot 100).

Potential environmental concerns identified for the property included potential former Site usage for pressure-treating lumber, an on-Site former extract and chemical company, current auto parking and auto and machine repair, and several potential underground storage tanks. Lumber yards often used creosote (a coal tar derivative, which contains elevated levels of polycyclic aromatic hydrocarbons [PAHs] and phenols) as a wood preservative. Substances used by the chemical and extract companies could have impacted subsurface soil and/or groundwater with any number of contaminants. Additionally, aboveground and potential underground storage tanks were noted in the Phase I report and portions of the property are currently used for auto repair. In the areas of known or potential tanks, subsurface petroleum and/or PCB contamination could be present. Solvent contamination could be present in areas used for auto repair. The Phase I Environmental Site Assessment Report recommended that a subsurface (Phase II) investigation be performed on the Site.

3.2 PHASE II SITE INVESTIGATION (OCTOBER 2, 2001)

A Subsurface (Phase II) Investigation, consisting of the advancement and sampling of ten soil borings and the sampling of groundwater at five of the locations, was performed in August 2001 and was summarized in a report dated October 2, 2001. The Phase II Report identified petroleum contamination in soil and groundwater in the vicinity of an active gasoline pump on Block 2520 and low levels of PAHs (a subset of semi-volatile organic compounds [SVOCs]) and heavy metals in soil and groundwater throughout the Site. The levels of PAHs and heavy metals that were detected are typical of those found in fill material in urban areas and appear likely to be related to coal ash. The results of this investigation are discussed in more detail in the Sample Analysis and Results and Conclusions sections of this report.

4.0 SOIL BORINGS AND GROUNDWATER MONITORING WELLS

As part of the Supplemental Subsurface (Phase II) Investigation, twenty-one soil boring were advanced to groundwater and sampled on the Greenpoint Lumber Yard Site on June 25 and 26, 2003. Eleven permanent groundwater monitoring wells were completed and developed on June 30 and July 1 and 2, 2003. The eleven groundwater monitoring wells and one additional well that was discovered on Block 2472 were sampled on July 14 and 15, 2003. AKRF's field crew consisted of Mimi Sotiriou and Julie Foley. Aquifer Drilling and Testing advanced the soil borings and installed the permanent groundwater monitoring wells.

4.1 SAMPLE LOCATION RATIONALE

The twenty-one boring and well locations, along with the ten boring and well locations from the October 2001 Phase II Site Investigation, were selected to evenly characterize soil and groundwater across the Site. Certain borings and wells, however, were biased towards the location of the former chemical and extract companies, known and potential storage tanks, and

areas where lumber storage and possible treatment occurred. Please see the chart below for Sample Location Rationale. Certain monitoring well locations were selected in both upgradient and downgradient locations to determine whether there was any impact on groundwater from on- or off-Site contaminants. Please see Figure 2 for the Boring and Monitoring Well locations.

SAMPLE LOCATION RATIONALE

BLOCK/LOT	HISTORICAL TENANT	CURRENT USE	POTENTIAL CURRENT OR FORMER TANKS	SAMPLE LOCATIONS
Block 2520, Lot 57	New York Dye – Wood Extract and Chemical Company, lumber yard	Auto parking, auto repair, contractors' materials storage	Gasoline, fuel oil, hydraulic oil and motor oil	B6, MW1 and MW6,
Block 2510	New York Dye – Wood Extract and Chemical Company, lumber yard	Contractors' materials storage, auto parking		B1, B2, B7, MW7 and MW8
Block 2502	A.K. Meserole & Company (a mason materials and coal storage yard), Export Auto Case Company, C. Winant's Spar Company, lumber yard	Contractors' materials storage, auto parking	Fuel oil	B3, B8, B9, B10, B11, MW2 and MW9
Block 2494	Lumber yard	Auto repair, auto parking, auto auction	Storage tank (unknown contents)	MW4 and MW11
Block 2472, Lot 32	Lumber Yard	Contractors' materials storage, auto parking		B4, B12, B13 MW3, MW10, MW12, MW12A
Block 2472, Lot 100	O'Rouke Engineering and Construction Company, NYS Barge Canal Terminal, Alberene Stone Company Tub Storage, Greenpoint Coal Docks, lumber yard	Contractors' materials storage, auto parking	Fuel oil	B5, B14, B15, MW5, MW11, MW13A, MW14, MW15, MW15A, MW16

4.2 SOIL SAMPLING METHODOLOGY

At each of the 21 sampling locations, a Geoprobe rig was used to drive a sampling probe into the soil. Soil samples were collected by driving the probe with a five-foot teflon liner into the soil at five-foot intervals until groundwater was reached. Soil was screened for organic vapors in the teflon liner at one foot intervals using a photoionization detector (PID). Soil samples were classified using a modified Burmister Classification System by AKRF field personnel. Please see Appendix A for Boring Logs.

Two soil samples were collected from each boring location based on field observations. If no field contamination (staining, odors or PID readings above background) was apparent, a sample from the two-foot interval immediately beneath the original ground surface (excluding any overlying asphalt or concrete) and a sample from the groundwater interface were collected. If evidence of contamination was noted in any interval, one or both of the samples were collected from the interval(s) exhibiting contamination. Soil samples were transferred from the Teflon liner to sample jars using dedicated and disposable sterile plastic sampling spoons.

The soil samples were containerized in accordance with EPA analytical protocols. Each sample was labeled, sealed, and placed in a chilled cooler for shipment to American Analytical Laboratories, Inc. in Farmingdale, New York, a NYSDOH-ELAP laboratory (No. 11418). Soil samples were analyzed for volatile organic compounds (VOCs) (EPA Method 8260), semivolatile

organic compounds (SVOCs) (EPA Methods 8270), polychlorinated biphenyls (PCBs) (EPA Method 8081), pesticides (EPA Method 8082) and target analyte list (TAL) metals (EPA Method 6010). If not enough sample material was available to analyze for all parameters, sample analysis was selected based on field observation. Category A Deliverables were requested for this data set.

Refusal was encountered at two locations (B7 R1 and B7 R2) near B7 and at one location (MW9 R1) near MW9. B7 was successfully completed to groundwater on the third attempt and MW9 was also successfully completed on the second attempt. One sample was collected from B7 R2 (5.5-6.0) and was analyzed for full span parameters. A second sample was collected from B7 (9.5-10.0). Only enough sample material was recovered from this interval to analyze this sample for volatile organic compounds.

After groundwater was encountered in the 21 boring locations, the borings were backfilled with soil cuttings and plugged with asphalt. Any cuttings that were not replaced into the borings were drummed for off-Site disposal.

4.3 GROUNDWATER SAMPLING METHODOLOGY

Groundwater monitoring wells were completed at 11 of the boring locations using the hollow-stem auger rig. The monitoring wells were advanced using a 4¼-inch hollow-stem augers and consisted of two-inch internal diameter PVC casing. A ten-foot slotted PVC screen was installed in the approximate top six feet of groundwater. A sand filter pack was placed in the annular space around the screen and extended to approximately two feet above the screen. The annular space around the well casing was sealed with bentonite for an interval of approximately two feet. A grout, consisting of a cement and bentonite mixture or an anti-shrink mixture, extended from the bentonite seal to a level of approximately two feet below ground level. The remaining annular space was sealed with a concrete cap and well apron (expanding cement). A locking well cap and a flush-mounted well cover was installed upon completion of the well. Drill cuttings were drummed for off-Site disposal. Please see Appendix A for Well Construction Logs.

Groundwater monitoring wells were successfully completed at 9 of the 11 boring locations. Refusal was encountered during well installation two times at approximately 4 and 10 feet below grade in the vicinity of boring MW12. Due to spatial confines (the adjacent park and the bulkhead), the location of the corresponding well (MW12A) was relocated approximately 100 feet south of the boring MW12. The well was successfully completed at this location. AKRF personnel could not install a monitoring well in the location of boring MW15 because the location was covered with unmovable objects. Therefore, the well location was moved approximately 10 feet south of the boring location and the well was labeled MW15A.

The wells were developed on the day they were drilled or on the day after they were drilled by pumping. The wells were pumped using a submersible whale pump and dedicated Teflon tubing for each well. Turbidity was measured using a nephelometer and temperature, conductivity, dissolved oxygen and oxygen/reduction potential were measured using the Quanta G water quality meter. The pH probe on the Quanta G was broken and no pH readings were collected during well development. Water quality parameter readings were recorded approximately every five minutes during development. The wells were developed until the water quality parameters stabilized within 10%, or until the turbidity reading was less than 50 Nephelometric Turbidity Units (NTU) or less. If the water quality parameters did not stabilize and the turbidity reading was not less than 50 NTU, but at least three well volumes were evacuated from the well and it ran dry four times, then the well was considered developed. Development water was drummed for off-Site disposal. Please see Appendix B for Well Development Logs.

All wells except for MW13 were developed successfully. The plug in the bottom of the PVC well screen in MW13 was not secured and fell out between well installation and development. Soil filled the interior of the well screen to a depth of approximately 7 feet below grade. MW13 well was over-drilled, reconstructed and developed successfully. The new well was called MW13A.

In accordance with EPA protocol, the wells were not sampled for at least seven days after development. Prior to sampling, an electronic interface meter was used to measure water levels. Well purging and sample collection was accomplished using low flow techniques. The wells were purged using a Geotech Geopump 2 at a purge rate no greater than 3.8 liters per minute. A Solinist groundwater level meter with an alarm was placed approximately 2 inches below the groundwater table to ensure no drawdown occurred during well purging. Turbidity was measured using a nephelometer and temperature, conductivity, dissolved oxygen and oxygen/reduction potential were measured using the Quanta G water quality meter. During this stage, pH readings were collected using an Oakton pHTestr sampling probe. Water quality parameter readings were recorded approximately every five minutes during well purging.

Wells were purged until sample parameters stabilized within 10%, until the turbidity reading was 10 NTU or less, or until at least five well volumes were purged. Purge water was drummed for disposal. All eleven wells, plus an additional well that was discovered on Block 2472, were successfully purged.

Groundwater samples were collected using the Geotech Geopump 2 at a sample rate no greater than 500 milliliters/minute. The Solinist groundwater level meter was used to ensure that drawdown did not occur during sampling. The groundwater samples were containerized in accordance with EPA analytical protocols. Each sample was labeled, sealed, and placed in a chilled cooler for shipment to the laboratory. Groundwater samples were analyzed for VOCs (EPA Method 8260), SVOCs (EPA Method 8270), PCBs (EPA Method 8081), pesticides (EPA Method 8082) and TAL metals (both filtered and unfiltered samples). Sufficient sample material was collected from all wells, including the found well, to analyze for all parameters. Please see Appendix B for Well Sampling Logs.

4.4 QA/QC

4.4.1 Decontamination

Sampling equipment was dedicated or disposed of after use to avoid contamination and cross-contamination of samples.

4.4.2 Chain of Custody

To ensure the integrity of samples taken, a strict chain-of-custody record was maintained on each sample. This began during sampling with the entry in the sampler's field log of the sampling details:

a) Date and time of sampling;

b) Sample location (as specific as possible);

c) The unique sample number;

d) Sample description;

e) Weather conditions (if applicable); and

f) Any additional comments.

The chain-of-custody form was kept as a record of the sample's progress from the field to the laboratory where it was analyzed. The form included:

a) The sample number;

b) The sampler's name;

c) Date of sampling;

d) Location where the sample was taken;

e) Signatures of people involved in the chain of possession; and

f) Inclusive dates of possession of each person in the chain.

The chain-of-custody form accompanied the samples throughout the trip to the laboratory.

Included in the chain-of-custody record was a request to the laboratory for sample receipt and analysis information, including:

a) Name of person receiving the sample;

b) Laboratory sample number;

c) Date of sample receipt;

d) Sample allocation; and

e) Analyses to be performed.

Upon arrival of samples at the laboratory, the sample custodian entered pertinent information for each sample in the laboratory's sample log book. The chain-of-custody is kept on file at the laboratory.

4.4.3 Laboratory Testing

American Analytical, Inc. performed all analytical work for the Supplemental Subsurface (Phase II) Investigation. American Analytical, Inc.'s office in Farmingdale, New York is ELAP-certified (NYS DOH Certificate No. 11418) by the New York State Department of Health (NYSDOH). The laboratory operates a Quality Assurance/Quality Control (QA/QC) program that consisted of proper laboratory practices (including the required chain-of-custody), an internal quality control program, and external quality control audits by New York State. Category A deliverables were produced for soil and groundwater sampling results for this project.

A trip blank and field blank were included in each batch of twenty samples collected. A total of three trip blanks and three field blanks were included with the soil samples. One trip blank and one field blank were included with the groundwater samples. Trip blanks were analyzed for TCL VOCs to check for contamination during transport and sampling procedures. The field blanks that accompanied soil and groundwater samples to the laboratory were analyzed for VOCs, SVOCs, PCBs, pesticides and TAL metals to check for contamination arising from sample collection. No duplicate or blind duplicate samples were collected.

Because it falls right on the border between volatile and semivolatile organic compounds, naphthalene was included in the parameter lists analyzed by EPA Methods 8260 and 8270, respectively.

5.0 SAMPLE ANALYSIS AND RESULTS

This Sample Analysis and Results section presents data collected during both the October 2001 Phase II Site Investigation and the 2003 Supplemental Subsurface (Phase II) Investigation. A total of 19 soil samples were collected from 10 borings (B1 through B5 and MW1 through MW5) and a total of 5 groundwater samples were collected from 5 temporary well points (MW1 through MW5) during the 2001 Phase II Site Investigation. A total of 42 soil samples were collected from 21 boring locations (B6 through B15 and MW6 through MW16) and a total of 11 groundwater samples were collected from 11 permanent groundwater monitoring wells (MW6 through MW16) during the 2003 Supplemental Subsurface (Phase II) Investigation.

The analytical data from the Supplemental Subsurface (Phase II) Investigation is summarized in Tables 1 through 10 in the Tables section of this report. The analytical data from the October 2001 Phase II Investigation in summarized in Tables 11 through 19 in the Tables Section of this report. Complete Category A deliverables for the Supplemental Subsurface (Phase II) Investigation are included in Appendix C. Laboratory deliverables for the October 2001 Investigation are included in Appendix B of the Phase II Site Investigation Report.

Soil samples are designated by the boring location and depth below grade. For example, MW13 (5'-7') is from boring location MW13 at a depth between 5 feet and 7 feet below grade. Soil analysis data was evaluated relative to the Recommended Soil Clean-up Objective (RSCO) values in the NYSDEC Division of Hazardous Waste Remediation document Technical Administrative Guidance Memorandum (TAGM) 4046, issued in 1994. Metals analysis in soil was additionally compared to the Eastern United States background range for metals listed in TAGM 4046 and to the U.S. EPA Soil Screen Levels (risk-based levels) for ingestion. Groundwater data was evaluated relative to the Class GA Standards and Guidelines Values contained in NYSDEC Technical and Operational Guidance Series (TOGS) 1.1.1 Ambient Water Quality Handling, Guidance Values and Groundwater Effluent Limitations. GA Standards are intended for potable water supplies, but are applied to all groundwater in the State. Groundwater is not used as a potable source in Brooklyn.

5.1 FIELD CONDITIONS

At each of the 31 total boring locations (10 borings during the 2001 Investigation and 21 borings during the 2003 Investigation), borings were advanced to between 3 feet and 20 feet below grade. Groundwater was encountered between approximately 5.25 feet and 15.0 feet below grade. The overburden was generally characterized by fill composed of brown to black coarse to fine sand with varying amounts of gravel and silt. Wood fragments, coal, ash, slag and brick were noted in many borings. Much of the overburden across the Site was dark gray to black in color. Sample analytical results did not indicate widespread chemical contamination across the Site; thus, the dark soil color is more likely attributable to high coal content than to chemical staining. Significant PID readings (above 10 parts per million [ppm]) were noted in B1 (1'-2') at 58.8 ppm; B13 (0.5'-1') at 47 ppm; MW1 at 1,888 ppm; MW2 (5'-7') at 14.7 ppm; and MW7 (10'-11') at 73.1 ppm. Organic-, petroleum- and solvent-like odors were noted in several borings. Please see boring logs for a complete delineation of PID readings and odors noted in borings. Logs from the October 2001 investigation are included in Appendix A of the Phase II Site Investigation Report. Logs from the Supplemental Subsurface (Phase II) Investigation are included in Appendix A of this report.

Borings and wells from the October 2001 Investigation were analyzed for VOCs, SVOCs and TAL Metals. Only 4 of the 19 soil samples [B2 (0'-1'), B5 (2'-4'), MW3 (0'-2') and MW5 (0'-2')] from that investigation were analyzed for PCBs and pesticides. During the Supplemental Subsurface (Phase II) Site Investigation, enough sample material was recovered from all boring

intervals to analyze for all parameters (VOCs, SVOCs, PCBs, pesticides, and TAL metals), except for B7 (9.5-10.0). Only enough sample material was recovered to analyze this sample for volatile organic compounds.

A slight sheen was noted in purge water from MW6 and MW7. An organic odor was noted in purge water from MW12 and MW14. A slight petroleum-like odor was noted in purge water from MW13. Red rust flakes were noted in purge water from the Found Well. During the Supplemental Subsurface (Phase II) Site Investigation, sufficient groundwater volume was recovered at each location to analyze for all parameters (VOCs, SVOCs, PCBs, pesticides, and TAL metals [filtered and unfiltered]).

5.2 SOIL

A total of 61 soil samples were collected during the October 2001 Phase II Site Investigation (19 samples) and the 2003 Supplemental Subsurface (Phase II) Investigation (42 samples). Two soil samples were collected from each boring location based on field observations, except for B2, where only one sample was collected. If no field contamination (staining, odors or PID readings above background) was observed, a sample from the two-foot interval immediately beneath the original ground surface (excluding any overlying asphalt or concrete) and a sample from the groundwater interface were collected. If evidence of contamination was noted in any interval, one or both of the samples was collected from the interval(s) exhibiting contamination. The following subsections discuss the results of both subsurface investigations.

5.2.1 Volatile Organic Compounds

A summary of laboratory analysis of VOCs in soil samples is included in Table 1 for the Supplemental Subsurface (Phase II) Investigation and Table 11 for the October 2001 Phase II Site Investigation. Benzene, chloroform, 1,2,4-trimethylbenzene, 1,3,5-trimethylbenzene, 4-isopropyltoluene, napthtalene, o-xylene, p-diethylbenzene, p-ethyltoluene, trichloroethene and acetone were detected in soil samples. None of the detected concentrations of volatile organic compounds were detected above the TAGM 4046 RSCO, except for acetone in two soil samples: B1(1'-2') [detected at a concentration of 290 ppb] and MW1 (5'-6') [detected at a concentration of 780 ppb]. The RSCO for acetone is 50 ppb. Acetone, which is a common field and laboratory artifact, was not detected in the field or method blanks.

5.2.2 Semivolatile Organic Compounds

A summary of laboratory analysis of SVOCs in soil samples is included in Table 2 for the Supplemental Subsurface (Phase II) Investigation and Table 12 for the October 2001 Phase II Site Investigation. Several polycyclic aromatic hydrocarbons (PAHs) were detected at concentrations above their respective TAGM 4046 RSCOs in most soil samples, including benzo(a)anthracene, benzo(a)pyrene, chrysene and dibenzo(a,h)anthracene. The detected PAHs listed above are considered carcinogenic and, therefore, have very low TAGM RSCOs, which are almost always exceeded in urban fill material containing coal, coal ash, asphalt and combustion byproducts deposited from the air.

Other carcinogenic PAHs with slightly higher TAGM RSCOs were detected above their respective RSCOs in some soil samples, including benzo(b)fluoranthene, benzo(k)fluoranthene, and ideno(1,2,3-c,d)pyrene. The detected levels of these PAHs are often associated with coal and coal ash.

The detected concentrations of total SVOCs were below 500 ppm, the TAGM RSCO, in all soil samples analyzed, except for B10 (5'-7'), where the total detected concentration was 4,691 ppm. Total detected concentrations of SVOCs were above 400 ppm in two other sample locations: B11 (1'-3') and MW4 (0'-2'). The total detected concentrations in these two samples were 419 ppm and 472 ppm, respectively. A total concentration of SVOCs above 200 ppm was detected in one soil sample: B8 (8'-10') with a total concentration of 235 ppm. A total concentration above 100 ppm was detected in three soil samples: MW7 (6.5-7.5) with a total concentration of 114 ppm; MW3 (5'-7') with a total concentration of 176 ppm; and MW5 (4'-6') with a total concentration of 111 ppm. Total concentrations of SVOCs were detected below 100 ppm in the remainder of other soil samples.

In the soil samples B10 (5'-7'), B11 (1'-3') and MW4 (0'-2'), in addition to the more prevalent TAGM SVOC exceedances discussed above, lighter PAHs, such as naphthalene and 2-methylnaphthalene were detected. Lighter PAHs are often found in used oil and/or coal tar and coal tar derivatives, such as creosote, which was historically and is currently used as a lumber preservative.

3+4-methylphenol, 2,4-dimethylphenol were also detected in B10 (5'-7'). These compounds, phenols, are commonly detected in coal tar and/or coal tar derivatives, but not in waste oil. Additionally, PID readings of up to 1.2 ppm above background and a slight petroleum-like odor were described in the soil boring log for the interval B10 (5'-7). No wood fragments were described in the logs for B10. Because of the very elevated concentrations of SVOCs and the presence of phenols and naphthalene, the SVOC detected in B10 (5'-7') are more likely attributable to coal tar derivatives than to petroleum.

PID readings of up to 3.5 ppm and a slight petroleum-like odor were noted in soil boring logs for B11 (1'-3'). PID readings of up to 3.0 ppm were noted in MW4 (0'-2'). Because no phenols were detected in these samples, the SVOCs detected in B11 (1'-3') and MW4 (0'-2') are more likely attributed to waste oil than to coal tar derivatives.

5.2.3 Polychlorinated Biphenyls

A summary of laboratory analysis of PCBs in soil samples is included in Table 3 for the Supplemental Subsurface (Phase II) Investigation and Table 13 for the October 2001 Phase II Site Investigation. PCBs were detected at total concentrations ranging from 40 ppb to 1,280 ppb in several soil samples. The detected total concentration of 1,280 ppb in B12 (0.5'-2') slightly exceeds the TAGM RSCO of 1,000 ppb total for surface samples. No other soil samples exceeded the TAGM RSCO for PCBs.

5.2.4 Pesticides

A summary of laboratory analysis of pesticides in soil samples is included in Table 4 for the Supplemental Subsurface (Phase II) Investigation and Table 14 for the October 2001 Phase II Site Investigation. 4,4'-DDD; 4,4'-DDE; 4,4'-DDT and endrin were detected above their respective TAGM RSCOs in soil sample B12 (0.5'-2'). No other pesticides were detected above their TAGM RSCOs in any other soil samples.

5.2.5 Target Analyte List Metals

A summary of laboratory analysis of target analyte list metals in soil samples is included in Table 5 for the Supplemental Subsurface (Phase II) Investigation and Table 15 for the October 2001 Phase II Site Investigation. Eleven metals (arsenic, barium, beryllium, cadmium, chromium, cobalt, copper, iron, mercury, nickel and zinc) were detected above TAGM 4046 RSCOs in soil samples. TAGM RSCOs for metals are based on background concentrations in naturally occurring, native soil. All of the detected metals that exceeded RSCOs also exceeded the upper limit of their respective Eastern U.S. and New York State Background ranges. Neither the TAGM RSCOs nor the Eastern U.S. or New York State Background ranges are risk-based cleanup levels. When compared with US EPA Generic Soil Screening Levels (SSLs, health-based levels), the detected levels of metals in soil, with the exception of arsenic, beryllium, cadmium and lead, are below levels that would be expected to pose a hazard to human health even if routine exposure were to occur.

The RSCOs also allow for the use of site background as alternative criteria. Although no site background concentrations were established for the Site, the similarity of metals concentrations among the soil samples suggests that the soils may represent Site background and do not suggest any contaminated area of the Site. Further, no single sample contained concentrations of metals orders of magnitude above RSCOs.

Although there is not an RSCO for lead, the average background levels in metropolitan and suburban areas or near highways typically range from 200 to 500 ppm. The detected concentration of lead in soil samples B8 (0.5'-2'), B11 (1'-3), B12 (0.5'-2'), B14(2'-3.5') and MW11 (0.5'-2') exceeded the upper limit of the average background level in metropolitan areas. The highest concentration of lead detected in these samples was 2,040 in sample B8 (0.5'-2').

5.3 GROUNDWATER

A total of 16 groundwater samples were collected during the 2001 Phase II Site Investigation (5 samples) and the 2003 Supplemental Subsurface (Phase II) Investigation (11 samples). During the Supplemental Subsurface (Phase II) Investigation, samples were collected from approximately the upper foot of the static water column in each well using low-flow sampling techniques. Well Development and Sampling Logs for the Supplemental Subsurface (Phase II) Investigation are included in Appendix C. The following subsections discuss the results of both subsurface investigations.

5.3.1 Volatile Organic Compounds

A summary of laboratory analysis of VOCs in groundwater samples is included in Table 6 for the Supplemental Subsurface (Phase II) Investigation and Table 16 for the October 2001 Phase II Site Investigation. In MW7, 4-Isopropyltoluene and benzene were detected at concentrations of 7.2 ppb and 2 ppb, respectively, above the Class GA Standards of 5 ppb and 0.7 ppb, respectively. In MW13A, 4-isopropyltoluene, benzene, 1,2,4-trimethylbenzene, ethylbenzene, M+P xylene, naphthalene, o-xylene, styrene, and toluene were detected at concentrations above their respective Class GA Standards. These detected compounds in MW7 and MW13A are common gasoline constituents.

In MW11, tetrachloroethylene was detected at a concentration of 5.6 ppb, above the Class GA Standard of 5.0 ppb. This compound is a common solvent used in dry cleaning.

Isopropylbenzene, m+p xylene, methyl tert-butyl ether (MTBE), n-propylbenzene, o-xylene, p-diethylbenzene and toluene were detected below Class GA Standards in various groundwater samples. No other volatile organic compounds were detected in any other groundwater samples, in the trip blank or in the field blank.

5.3.2 Semivolatile Organic Compounds

A summary of laboratory analysis of SVOCs in groundwater samples is included in Table 7 for the Supplemental Subsurface (Phase II) Investigation and Table 17 for the October 2001 Phase II Site Investigation. In MW7, Phenol was detected at a concentration of 7.4 ppb, above the Class GA Groundwater Standard of 1 ppb. In MW1 and MW13A, naphthalene was detected at concentration of 18 ppb and 630 ppb, respectively, above the Class GA Groundwater Guidance Value (no Standard exists) of 10 ppb.

Benzoic acid, carbazole, dibenzofuran, fluorine, naphthalene, phenanthrene, 2-methylnaphthalene, acenaphthene, acenaphthylene and anthracene were detected at concentrations ranging from 5.6 ppb to 68 ppb in various groundwater samples. None of the detected levels of these compounds exceeded the Class GA Groundwater Standard.

No other SVOCs were detected in any other groundwater sample, in the trip blank or in the field blank.

5.3.3 Pesticides

A summary of laboratory analysis of pesticides in soil samples is included in Table 8 for the Supplemental Subsurface (Phase II) Investigation. No groundwater samples from the October 2001 Phase II Site Investigation were analyzed for pesticides. No pesticides were detected in any groundwater samples.

5.3.4 Polychlorinated Biphenyls

A summary of laboratory analysis of PCBs in soil samples is included in Table 9 for the Supplemental Subsurface (Phase II) Investigation. No groundwater samples from the October 2001 Phase II Site Investigation were analyzed for PCBs. No PCBs were detected in any groundwater samples.

5.3.5 Target Analyte List Metals

A summary of laboratory analysis of target analyte list metals in groundwater samples (both filtered and unfiltered) is included in Table 10 for the Supplemental Subsurface (Phase II) Investigation and Tables 18 and 19 for the October 2001 Phase II Site Investigation. The temporary groundwater well points were not purged prior to sampling during the October 2001 Phase II Site Investigation. Therefore, laboratory filtered sample results are likely more characteristic of true groundwater conditions in these wells. Antimony, iron, manganese, magnesium and sodium were detected in concentrations above the Class GA Groundwater Standards in most filtered and unfiltered water samples. These five elements are earth minerals commonly found in groundwater.

Additionally, thallium was detected at a concentration of 0.0190 ppm in MW7, above the Class GA Guidance Value (no Standard exists) of 0.004 ppm. No other metals were detected above the Class GA Groundwater Standards in any of the groundwater samples.

6.0 GROUNDWATER ELEVATIONS

A survey was performed as part of the Supplemental Subsurface (Phase II) Investigation to determine the geographic locations and elevations of the 10 boring locations, the 3 refusal locations, the 11 groundwater monitoring wells, and the found well. The survey was conducted by Lockwood, Kessler & Bartlett, Inc., a licensed surveyor in the state of New York (License No. 049496), on July 12 and 28, 2003. The well locations and elevations were measured at the top of the well cover (top of manhole) and at the top of the well casing (top of casing). Figure 2 shows the surveyed locations and elevations of the wells.

The depth to water from the top of the manhole was measured and recorded to calculate the elevation of the groundwater table for each well. Figure 3 shows groundwater table elevations for each well (calculated from top of manhole). The elevations shown on the table and figure are relative to the Brooklyn Borough Datum (BBD), which is 1.177 feet above mean sea level (National Geodetic Vertical Datum 1929). The water table elevations varied from el. -0.18 BBD in MW6 to el. 2.6 BBD in MW11. An assessment was performed of the relative groundwater table elevations on the Greenpoint Lumber Yard Site to determine the groundwater flow direction. Groundwater predominantly flows in a westerly direction towards the East River and in a northerly direction towards Newtown Creek.

7.0 CONCLUSIONS

A total of 61 soil samples and 16 groundwater samples were collected during the 2001 Phase II Site Investigation (19 soil and 5 groundwater) and the 2003 Supplemental Subsurface (Phase II) Investigation (42 soil and 11 groundwater samples). The following conclusions can be made:

7.1 SOIL

No widespread contamination of soil was detected by these investigations on the Greenpoint Lumber Yard site. Other than exceedances of the TAGM RSCOs for individual SVOCs and metals with ranges typical of urban fill material, concentrations of contaminants were detected above their TAGM RSCOs in only two soil samples:

- B10 (5'-7') – A total SVOC concentration of 4,691 ppm was detected in B10 (5'-7'). Due to the presence of lighter PAHs and phenols in this sample, the detected concentrations and compounds are typical of contamination by coal tar derivatives.
- B12 (0.5'-2') - PCBs were detected in B12 (0.5'-2') at a concentration of 1,280 ppb, above the TAGM RSCO of 1,000 ppm for surface samples. Four pesticides (4,4'-DDD; 4,4'-DDE; 4,4'-DDT and endrin) were detected in the same sample above their respective TAGM RSCOs.

Concentrations of total SVOCs were detected at levels approaching the TAGM RSCO of 500 ppm in two other borings: 419 ppm in B11 (1'-3') and 472 ppm in MW4(0'-2'). Due to the presence of lighter PAHs in these samples, the detected concentrations and compounds are typical of waste oil contamination. Evidence of waste oil contamination was not detected in soil collected from deeper intervals in these samples or in groundwater collected from MW4, indicating that the petroleum contamination is likely vertically limited in both borings.

Metals were detected in concentrations typical of urban fill material in soil samples. Lead was detected above the upper limit of the average background level in metropolitan areas of 500 ppm in four soil samples: B8 (0.5'-2'), B11 (1'-3), B12 (0.5'-2'), B14 (2'-3.5') and MW11 (0.5'-2'). The highest concentration of lead detected in these samples was 2,040 in sample B8 (0.5'-2'). Because no identified current or historical source of lead was identified in the Phase I Environmental Site Assessment, it is possible that these elevated lead values are attributable to

normal distribution in fill material, rather than to lead contamination. No volatile organic compounds were detected above TAGM RSCOs in any soil samples.

7.2 GROUNDWATER

No widespread contamination of groundwater was detected by these investigations, however, four localized areas of concern were identified:

- MW1 – One SVOC, naphthalene, was detected at a concentration of 18 ppb in MW1, above the Class GA Standard of 10 ppb. MW1 is located near a former gasoline pump and in an upgradient location on the Site. It is likely that the presence of naphthalene in the groundwater is due to leaking gasoline tanks associated with the pump.
- MW7 – Two VOCs, 4-Isopropyltoluene and benzene, were detected at concentrations of 7.2 ppb and 2 ppb, respectively, above the Class GA Standards of 5 ppb and 0.7 ppb, respectively. These detected compounds are common gasoline constituents. Additionally, one SVOC, phenol, was detected at a concentration of 7.4 ppb, above the Class GA Groundwater Standard of 1 ppb. MW7 is located in an upgradient location on the Site. It is possible that the presence of gasoline and or phenols in MW7 is due to off-Site sources.
- MW11 – One VOC, tetrachloroethylene, was detected at a concentration of 5.6 ppb, slightly above the Class GA Standard of 5.0 ppb. This compound is a common solvent used as a degreaser in auto-related businesses. The small one-story brick structure located directly east of boring location MW11 was formerly used for auto repair. MW11 is located in an upgradient location. Because of the upgradient location of MW11 and because of its proximity to an auto repair facility, this solvent contamination could have originated on- or off-Site.
- MW13A – Nine VOCs, 4-isopropyltoluene, benzene, 1,2,4-trimethylbenzene, ethylbenzene, M+P xylene, naphthalene, o-xylene, styrene, and toluene, were detected at concentrations above their respective Class GA Standards in MW13. These detected compounds are common gasoline constituents. Naphthalene was detected by EPA Method 8260 at a concentration of 700 ppb and by EPA Method 8260 at a concentration of 630 ppb. Both detected concentrations exceed the Class GA Groundwater Guidance Value (no Standard exists) of 10 ppb. MW13 is located in a downgradient location on the Site. The presence of gasoline contamination in MW13 may have resulted from on- or off-Site sources.

The concentrations of metals detected in groundwater samples are typical of those found in groundwater in urban areas and are not of concern. No pesticides or PCBs were detected in any of the groundwater samples.

7.3 SURVEY

The water table elevations varied from el. -0.18 BBD in MW6 to el. 2.60 BBD in MW11. Groundwater predominantly flows in a westerly direction towards the East River and in a northerly direction towards Newtown Creek.

7.4 SUMMARY

There was no widespread soil or groundwater contamination detected on the Greenpoint Lumber Yard site, based on the collection and analysis of 61 soil samples and 16 groundwater samples. Site conditions were found to be generally consistent with background conditions in urban waterfront areas reflecting the use of historic urban fill, including Queens West in Long Island City, Route 9A in Manhattan and west of Kent Avenue in Brooklyn. Two geographically isolated

areas of concern for soil contamination and four geographically isolated areas of concern for groundwater contamination were identified by these investigations. Groundwater flows predominantly in a westerly direction towards the East River and in a northerly direction towards Newtown Creek.

8.0 RECOMMENDATIONS

The extensive investigation undertaken for the site was based on the 100-year industrial history on the Greenpoint Lumber Yard Site. The investigatory program revealed only limited soil and groundwater contamination during two rounds of soil and groundwater sampling, which included the collection and analysis of 61 soil samples and 16 groundwater samples. Well-established procedures exist to address the areas of concern that were detected during subsurface testing. These areas of concern can be addressed prior to and/or during construction activities.

8.1 REGULATORY AGENCY INVOLVEMENT

Due to an active spill listing and a proposed rezoning of the site, it is anticipated that both State and City agencies will be involved with future development of the Greenpoint Lumber Yard Site.

8.1.1 State

In accordance with legal reporting requirements, a spill was reported to the New York State Department of Environmental Conservation (NYSDEC) for petroleum contamination in the vicinity of sampling location MW-1 in 2001. MW-1 is located near a former gasoline pump and associated underground storage tank(s). Soil sampling analytical results from the October 2001 subsurface investigation indicated elevated levels of semivolatile organic compounds above TAGM RSCOs for several compounds often associated with petroleum.

New York State provides petroleum-contaminated soil guidance policies in the Division of Environmental Remediation's DRAFT DER-10, Technical Guidance for Site Investigation and Remediation (December 2002) and in the TAGM 4046. Upon completion of remedial activities, which will likely constitute the excavation and proper off-site disposal of petroleum-contaminated soil from the vicinity of MW-1 and the collection and analysis of endpoint samples, a Spill Closure Report should be prepared and submitted to the NYS DEC Spill Coordinator for the active listing. It is possible that NYS DEC could require groundwater monitoring in the vicinity of the spill. When the spill has been remediated to the satisfaction of the State, a No Further Action letter for the spill will be issued and the spill listing will be effectively closed. In accordance with DER-10, the execution of an Administrative Order on Consent or Stipulation may be required by the State for the spill remediation. If additional areas of contamination are encountered during tank removal and/or general excavation activities, additional spills would need to be reported to New York State. Individual spill listings would be linked together and one Spill Closure Report could be submitted to the NYS DEC for the spill listings. Based on the results of the two subsurface investigations, no other New York State regulatory agency involvement would be required.

In addition to the remediation action discussed in Section 8.2, additional remedial actions, such as groundwater monitoring in locations of USTs and/or spills, vapor barriers beneath buildings, deed restrictions, etc., may be required by New York State through the Oil Spill Program.

8.1.2 City

New York City has proposed rezoning an area along the Brooklyn Waterfront that includes the Greenpoint Lumber Yard site. The rezoning action requires review under the City Environmental Quality Review (CEQR) process. It is anticipated that potential contaminated materials issues will be recognized for the Greenpoint Lumber Yard site and the individual lots that comprise the site will receive E-designations as a result of the rezoning. In accordance with Chapter 24 of Title 15 of the Rules of the City of New York, an E-designation requires that, prior to redevelopment, the property owner perform a Phase I Environmental Site Assessment (ESA), and/or a subsurface (Phase II) investigation (if recommended by the conclusions of the Phase I ESA), and/or remediation (if recommended by the conclusions of the Phase II investigation) with approval from and to the satisfaction of New York City Department of Environmental Protection (NYC DEP) before Building Permits and/or Certificates of Occupancy can be obtained from the New York City Department of Buildings.

Both the Phase I and Phase II, if required, must be completed and the Remedial Action Work Plan, if required, must be approved by NYC DEP before the New York City Department of Buildings will issue a Building Permit. Remediation may occur prior to or during general excavation. A Construction Health and Safety Plan must be submitted to NYC DEP and approved for implementation during general excavation activities, whether or not remedial activities have been completed.

After completion of the requirements of the Remediation Action Work Plan, a Closure Report must be submitted to NYC DEP. This report would contain any characterization sampling results for soil disposed of off-site; acceptance letters from disposal facilities; manifests for disposal of contaminated soil, if any; as-built site drawings showing final depth of excavation and vapor barrier specifications, if any; and documentation that any remedial activities performed during general excavation were completed in accordance with the NYC DEP-approved Remedial Action Work Plan. The report must also be certified by a licensed Professional Engineer. Once NYC DEP is satisfied that the investigation and/or remediation are complete, a Notice of Satisfaction will be issued, allowing the property owner to obtain a Certificate of Occupancy. If remedial activities, such as ongoing monitoring of groundwater or capping of a site, continue beyond completion of the project, then NYC DEP may require a Restrictive Declaration.

It has been our experience on sites similar to the Greenpoint Lumber Yard site, where a Phase I and Phase II have already been performed, that the final reports for these studies can be submitted to NYC DEP for review and approval. It is likely that NYC DEP will require further investigation to confirm the findings of the two subsurface investigations. Based on the results of the Phase II investigations, it is anticipated that remediation, as described in Section 8.2, could take place during site preparation work for the proposed project.

8.2 REMEDIATION

Based on our experience with City-approved remediations, we anticipate the following measures would be required by NYC DEP for the Greenpoint Lumber Yard Site:

- **Soil Hotspots and Underground Storage Tank Removal.** NYC DEP will likely require the removal of the two hotspots identified in the two subsurface investigations and the underground storage tank (UST) located near MW-1 and other USTs noted in the Phase I

ESA. Tank contents and affected soil that is removed from the hotspot and UST locations would require appropriate off-site disposal and a licensed facility. Confirmatory endpoint samples would be collected from the sidewalls and base of the excavations. Disposal manifests and endpoint sampling results would be submitted to NYC DEP in a Remedial Action Report, if remedial activities occur prior to construction, or in a Closure Report, if remedial activities occur during general excavation. These reports would also be submitted to the State Spills Group.

- **Capping.** It is possible that NYC DEP would require capping of the entire Greenpoint Lumber Yard site with either paved surfaces and/or building foundations or two feet of imported clean fill material in landscaped areas to eliminate the exposure pathways of ingestion and/or inhalation of contaminants that may remain in the ground after the project is complete.

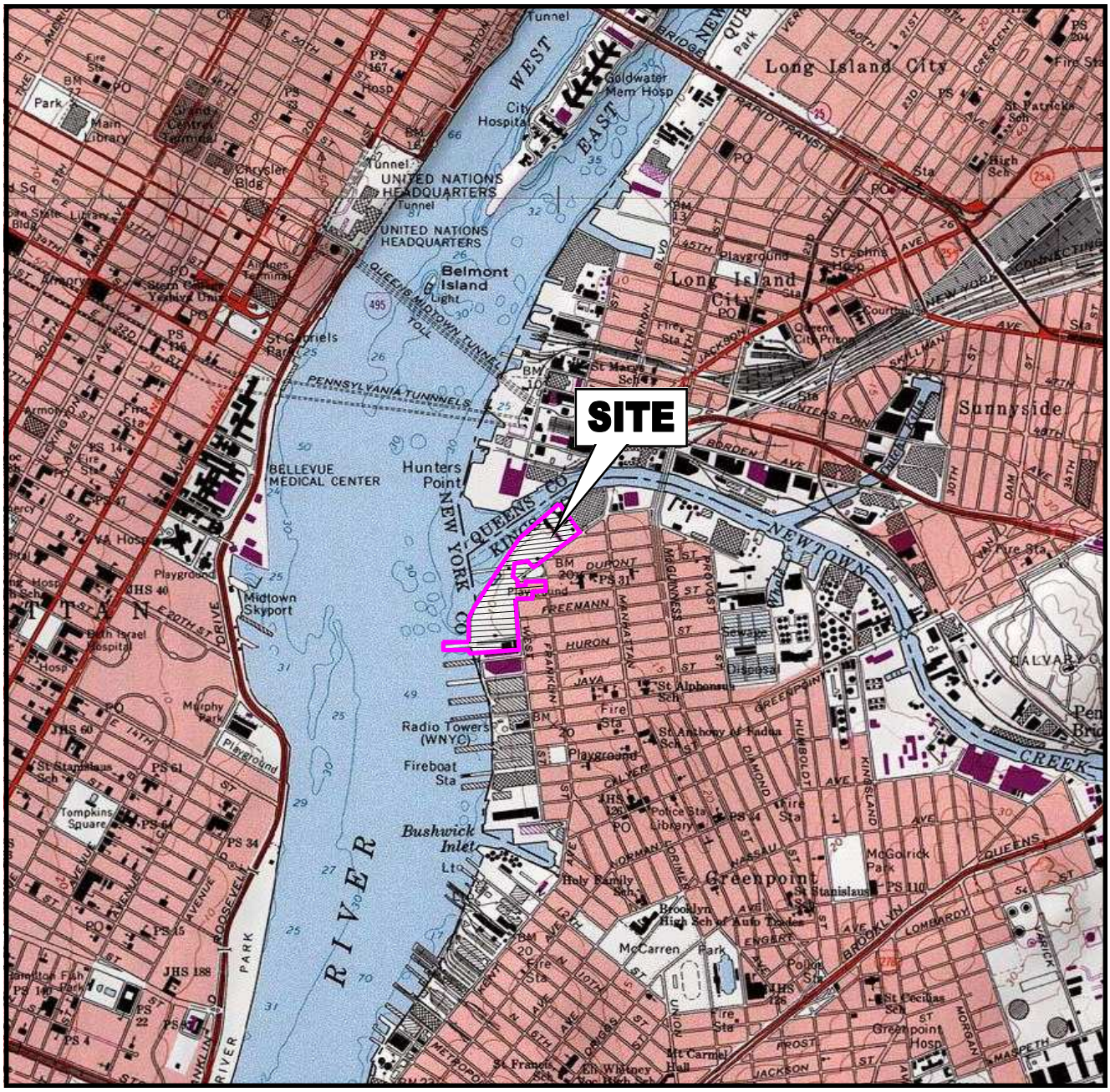
NYC DEP will also require a Construction Health and Safety Plan (see Section 8.1.2) prior to commencement of construction for the proposed project. The Construction Health and Safety Plan (CHASP) will be tailored specifically to the proposed development on the Greenpoint Lumber Yard site and will establish practices and procedures to protect the health of construction personnel and others during implementation of work involving potential or known contamination on the site. It will include contingencies for the identification and mitigation of USTs, drums or areas of contamination. The CHASP will be in conformance with the various Occupational Safety and Health Administration (OSHA) standards and NYC DEP requirements.

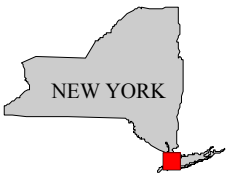
During general excavation, all soil removed from the site must be managed and disposed of in accordance with applicable federal, state and local regulations. Based on sampling results from the two subsurface investigations, none of the soil tested to date is a hazardous waste. Areas of contamination may require disposal as petroleum-contaminated or non-hazardous contaminated material. Most of the soil on the site, however, will likely be disposed of as construction and demolition debris.

Based on our experience, groundwater remediation is not anticipated. The Class GA exceedances that were detected in four of the groundwater sampling locations during the two subsurface investigations were very slight. The types and levels of detected contaminants are not indicative of contamination from former on-site uses as a chemical factory or lumber yard and are not unusual for urban areas. As such, contamination in three of the four wells (MW-7, MW-11 and MW-13) may result from off-site sources. The contamination in MW-1, located near a former gasoline pump and associated underground storage tank(s), is indicative of gasoline and it likely a result of leaks from the proximate pump and tank system. Although remediation is not anticipated, groundwater monitoring may be required by the State in areas where spills have been reported to assure that the removal of the source has led to the improvement or stabilization of the limited groundwater contamination.

Additional remedial actions, such as groundwater monitoring in locations of USTs and/or spills, vapor barriers beneath buildings, deed restrictions, etc., may be required by New York Site through the Oil Spill Program and/or the Brownfields Program.

FIGURES





QUADRANGLE

SCALE IN FEET

0’ 1000’ 2000’ 4000’

SCALE: 1”=2000’

N

SOURCE:

USGS TOPOGRAPHIC MAP - BROOKLYN, N.Y.
QUADRANGLE - DATED 1967, PHOTOREVISED 1979

GREENPOINT LUMBER YARD
Brooklyn, New York

PROJECT SITE LOCATION

AKRF, Inc.

Environmental Consultants
117 East 29 Street, New York, N.Y. 10016

DATE
9.15-03

PROJECT NO..
30260

FIGURE NO.
1

2001 AKRF, Inc. Environmental Consultants C:\MSPUB\30260-0001\F1.pub

Legend:

- PROJECT SITE BOUNDARY
- BUILDING LINE
- 2472 — LOT NUMBER
- 2003 MONITORING WELL
- 2003 BORING
- 2001 MONITORING WELL
- 2001 BORING
- T/O/M and T/O/C — TOP OF MANHOLE AND TOP OF CASING

SCALE IN FEET
0' 1000' 2000' 4000'
SCALE: 1"=2000'

N W E S

EAST RIVER
NEWTOWN CREEK

BULKHEAD END
BULKHEAD LINE
U.S. PIERHEAD LINE (1947)
U.S. PIERHEAD LINE (1957)
WATERFRONT YARD AND PROPOSED SETBACK LINE. (LIMIT OF PROPOSED STREETS)

EXISTING PIER

MW5
MW16 T/O/M EL.7.71 T/O/C EL.7.16
MW13A T/O/M EL.7.57 T/O/C EL.7.3
MW12 EL.5.92
MW12A T/O/M EL.6.55 T/O/C EL.5.68
FOUND WELL T/O/M EL.5.79 T/O/C EL.5.72
MW14 T/O/M EL.11.10 T/O/C EL.10.83
MW15A T/O/M EL.11.98 T/O/C EL.11.71
MW15 EL.12.40
MW10 T/O/M EL.7.52 T/O/C EL.7.10
MW11 T/O/M EL.15.10 T/O/C EL.14.92
MW4
MW3
MW2
MW1
MW6 T/O/M EL.5.92 T/O/C EL.5.48
MW8 T/O/M EL.7.27 T/O/C EL.6.55
MW9 T/O/M EL.10.39 T/O/C EL.10.02
MW9R1 T/O/M EL.10.47
MW7 T/O/M EL.10.49 T/O/C EL.10.19

B15 EL.11.11
B14 EL.9.14
B5
B4
B13 EL.5.80
B12 EL.8.76
B3
B10 EL.9.31
B9 EL.6.83
B8 EL.8.69
B11R1 EL.11.19
B11 EL.11.17
B2
B7 EL.10.79
B7R1 EL.10.53
B7R2 EL.10.50
B6 EL.8.25

2472
2494
2502
2510
2520

MTA SITE (±124,000 SF)
PARK
PARK (±22,200 SF)
TANK LAND
3-STORY BRICK
METAL FRAME BLDG
METAL FRAME BLDG
METAL BLDG.
BRICK BLDG.

CLAY STREET
COMMERCIAL STREET
DU PONT STREET
EAGLE STREET
WEST STREET
FRANKLIN STREET
FREEMAN STREET
GREEN STREET

© 2003 AKRF, Inc. Environmental Consultants C:\AKRF-DATA\30260-0006\F2_Boring and Monitoring Locations and Elevations.DWG

AKRF, Inc.
Environmental Consultants
440 Park Avenue South New York, N.Y. 10016

GREENPOINT LUMBER YARD
Brooklyn, New York

BORING AND MONITORING LOCATIONS AND ELEVATIONS

DATE 09.03.03
SCALE 1"=2000'
PROJECT No. 30260
FIGURE No. 2

Legend:

- PROJECT SITE BOUNDARY
- BUILDING LINE
- 2472 — LOT NUMBER
- 2003 MONITORING WELL
- T/O/M — TOP OF MANHOLE

SCALE IN FEET
0' 1000' 2000' 4000'
SCALE: 1"=2000'

N W E S

EAST RIVER
NEWTOWN CREEK

BULKHEAD END
BULKHEAD LINE
WATERFRONT YARD AND PROPOSED SETBACK LINE. (LIMIT OF PROPOSED STREETS)
U.S. PIERHEAD LINE (1947)
U.S. PIERHEAD LINE (1957)
EXISTING PIER

MW16 T/O/M GW EL.1.9
MW13A T/O/M GW EL.0.97
MW15A T/O/M GW EL.2.33
FOUND WELL T/O/M GW EL.0.54
MW12A T/O/M GW EL.0.95
MW14 T/O/M GW EL. 1.7
MW10 T/O/M GW EL.1.12
MW11 T/O/M GW EL.2.6
MW9 T/O/M GW EL.1.44
MW8 T/O/M GW EL. 0.42
MW7 T/O/M GW EL. 2.19
MW6 T/O/M GW EL.-0.18

2472
2494
2502
2510
2520

MTA SITE (±124,000 SF)
PARK
PARK (±22,200 SF)
TANK LAND
3-STORY BRICK
METAL FRAME BLDG
METAL FRAME BLDG
METAL BLDG.
BRICK BLDG.

CLAY STREET
COMMERCIAL STREET
DU PONT STREET
EAGLE STREET
WEST STREET
FRANKLIN STREET
FREEMAN STREET
GREEN STREET

© 2003 AKRF, Inc. Environmental Consultants Q:\AKRF-DATA\30260-0006\F2_Boring and Monitoring Locations and Elevations.DWG

AKRF, Inc.
Environmental Consultants
440 Park Avenue South New York, N.Y. 10016

GREENPOINT LUMBER YARD
Brooklyn, New York

GROUNDWATER TABLE ELEVATIONS

DATE 09.03.03
SCALE 1"=2000'
PROJECT No. 30260
FIGURE No. 3

TABLES

Table 17: Semivolatile Organic Compounds in Groundwater Samples
Laboratory Method: EPA Method 8270

PARAMETER	CAS No.	NYS DEC Class GA Ambient Water Qual. Standards ug/L	MW1 Groundwater ug/L Dilution 5		MW2 Groundwater ug/L Dilution 5		MW3 Groundwater ug/L Dilution 5		MW4 Groundwater ug/L Dilution 5		MW5 Groundwater ug/L Dilution 5	
			Concentration	Detection Limit	Concentration	Detection Limit	Concentration	Detection Limit	Concentration	Detection Limit	Concentration	Detection Limit
Pyridine	110-86-1	**50	U	5	U	5	U	5	U	5	U	5
N-Nitrosodimethylamine	62-75-9	*	U	5	U	5	U	5	U	5	U	5
Aniline	62-53-3	5	U	5	U	5	U	5	U	5	U	5
Bis(2-chloroethyl)ether	111-44-4	1	U	5	U	5	U	5	U	5	U	5
Phenol	108-95-1	1	U	5	U	5	U	5	U	5	U	5
2-Chlorophenol	95-57-8	*	U	5	U	5	U	5	U	5	U	5
1,3-Dichlorobenzene	541-73-1	5	U	5	U	5	U	5	U	5	U	5
1,4-Dichlorobenzene	106-46-7	5	U	5	U	5	U	5	U	5	U	5
1,2-Dichlorobenzene	95-50-1	4.7	U	5	U	5	U	5	U	5	U	5
Benzyl Alcohol	100-51-6	*	U	5	U	5	U	5	U	5	U	5
Bis(2-chloroisopropyl)ether	108-60-1	*	U	5	U	5	U	5	U	5	U	5
2-Methylphenol	95-48-7	*	U	5	U	5	U	5	U	5	U	5
Hexachloroethane	67-72-1	*	U	5	U	5	U	5	U	5	U	5
N-Nitrosodi-n-propylamine	621-64-7	*	U	5	U	5	U	5	U	5	U	5
3+4-Methylphenol	108-39-4 / 106-44-5	*	U	5	U	5	U	5	U	5	U	5
Nitrobenzene	98-95-3	5	U	5	U	5	U	5	U	5	U	5
Isophorone	78-59-1	50*	U	5	U	5	U	5	U	5	U	5
2- Nitrophenol	88-75-5	*	U	5	U	5	U	5	U	5	U	5
2,4-Dimethylphenol	105-67-9	*	U	5	U	5	U	5	U	5	U	5
Benzoic Acid	65-85-0	*	U	5	U	5	U	5	U	5	U	5
Bis(2-chloroethoxy)methane	111-91-1	*	U	5	U	5	U	5	U	5	U	5
2,4-Dichlorophenol	102-83-2	1	U	5	U	5	U	5	U	5	U	5
1,2,4-Trichlorobenzene	120-82-1	5	U	5	U	5	U	5	U	5	U	5
Naphthalene	91-20-3	**10	18	5	U	5	U	5	U	5	U	5
4-Chloroaniline	106-47-8	*	U	5	U	5	U	5	U	5	U	5
Hexachlorobutadiene	87-68-3	5	U	5	U	5	U	5	U	5	U	5
4-Chloro-3-methylphenol	59-50-7	*	U	5	U	5	U	5	U	5	U	5
2-Methylnaphthalene	91-57-6	*	U	5	U	5	U	5	U	5	U	5
Hexachlorocyclopentadiene	77-47-4	5	U	5	U	5	U	5	U	5	U	5
2,4,5-Trichlorophenol	95-95-4	*	U	5	U	5	U	5	U	5	U	5
2,4,6-Trichlorophenol	88-06-2	*	U	5	U	5	U	5	U	5	U	5
2-Chloronaphthalene	91-58-7	**10	U	5	U	5	U	5	U	5	U	5
2-Nitroaniline	88-74-4	*	U	5	U	5	U	5	U	5	U	5
Acenaphthylene	208-96-8	*	U	5	U	5	U	5	U	5	U	5
Dimethyl Phthalate	131-11-3	*50	U	5	U	5	U	5	U	5	U	5

Table 17: Semivolatile Organic Compounds in Groundwater Samples
Laboratory Method: EPA Method 8270

PARAMETER	CAS No.	NYS DEC Class GA Ambient Water Qual. Standards ug/L	MW1 Groundwater ug/L Dilution 5		MW2 Groundwater ug/L Dilution 5		MW3 Groundwater ug/L Dilution 5		MW4 Groundwater ug/L Dilution 5		MW5 Groundwater ug/L Dilution 5	
			Concentration	Detection Limit	Concentration	Detection Limit	Concentration	Detection Limit	Concentration	Detection Limit	Concentration	Detection Limit
2,6-Dinitrotoluene	606-20-2	5	U	5	U	5	U	5	U	5	U	5
Acenaphthene	83-32-9	**20	U	5	U	5	U	5	U	5	U	5
3-Nitroaniline	99-09-2	*	U	5	U	5	U	5	U	5	U	5
2,4-Dinitrophenol	51-28-5	*	U	5	U	5	U	5	U	5	U	5
Dibenzofuran	132-64-9	*	U	5	U	5	U	5	U	5	U	5
2,4-Dinitrotoluene	121-14-2	*	U	5	U	5	U	5	U	5	U	5
4-Nitrophenol	100-02-7	*	U	5	U	5	U	5	U	5	U	5
Fluorene	86-73-7	**50	U	5	U	5	U	5	U	5	U	5
4-Chlorophenyl phenyl ether	7005-72-3	*	U	5	U	5	U	5	U	5	U	5
Azobenzene	103-33-3	*	U	5	U	5	U	5	U	5	U	5
Diethyl Phthalate	84-66-2	**50	U	5	U	5	U	5	U	5	U	5
4-Nitroaniline	100-01-6	*	U	5	U	5	U	5	U	5	U	5
4,6-Dinitro-2-methylphenol	534-52-1	*	U	5	U	5	U	5	U	5	U	5
N-Nitrosodiphenylamine	86-30-6	**50	U	5	U	5	U	5	U	5	U	5
4-Bromophenyl phenyl ether	101-55-3	*	U	5	U	5	U	5	U	5	U	5
Hexachlorobenzene	118-74-1	0.35	U	5	U	5	U	5	U	5	U	5
Pentachlorophenol	87-86-5	1	U	5	U	5	U	5	U	5	U	5
Phenanthrene	85-01-8	**50	U	5	U	5	U	5	U	5	U	5
Anthracene	120-12-7	**50	U	5	U	5	U	5	U	5	U	5
Carbazole	86-74-8	*	U	5	U	5	U	5	U	5	U	5
Di-n-butyl Phthalate	84-74-2	50	U	5	U	5	U	5	U	5	U	5
Fluoranthene	206-44-0	**50	U	5	U	5	U	5	U	5	U	5
Benzidine	92-87-5	5	U	5	U	5	U	5	U	5	U	5
Pyrene	129-00-0	**50	U	5	U	5	U	5	U	5	U	5
Butyl benzyl Phthalate	85-68-7	**50	U	5	U	5	U	5	U	5	U	5
3,3´-Dichlorobenzidine	91-94-1	*	U	5	U	5	U	5	U	5	U	5
Benzo(a)anthracene	56-55-3	**0.002	U	5	U	5	U	5	U	5	U	5
Chrysene	218-01-9	**0.002	U	5	U	5	U	5	U	5	U	5
Bis(2-ethylhexyl)Phthalate	117-81-7	50	U	5	U	5	U	5	U	5	U	5
Di-n-octyl Phthalate	117-84-0	**50	U	5	U	5	U	5	U	5	U	5
Benzo(b)fluoranthene	205-99-2	**0.002	U	5	U	5	U	5	U	5	U	5
Benzo(k)fluoranthene	207-08-9	**0.002	U	5	U	5	U	5	U	5	U	5
Benzo(a)pyrene	50-32-8	*	U	5	U	5	U	5	U	5	U	5
Indeno(1,2,3-c,d)pyrene	193-39-5	**0.002	U	5	U	5	U	5	U	5	U	5
Dibenzo(a,h)anthracene	53-70-3	*	U	5	U	5	U	5	U	5	U	5
Benzo(g,h,i)perylene	191-24-2	*	U	5	U	5	U	5	U	5	U	5

*** Not Applicable.**
**** No Standard Exists. Value is a Guidance Value.**

Table 12: Semivolatile Organic Compounds in Soil Samples
Laboratory Method: EPA Method 8270

PARAMETER	CAS No.	TAGM 4046 Rec. Soil Cleanup Obj. ug/kg	B1 [1'-2'] Soil ug/kg Dilution 1		B1 [4'-5'] Soil ug/kg Dilution 1		B2 [0'-1'] Soil ug/kg Dilution 1		B3 [1'-3'] Soil ug/kg Dilution 2		B3 [8'-10'] Soil ug/kg Dilution 1	
			Concentration	Detection Limit	Concentration	Detection Limit	Concentration	Detection Limit	Concentration	Detection Limit	Concentration	Detection Limit
Pyridine	110-86-1	*	U	40	U	40	U	40	U	80	U	80
N-Nitrosodimethylamine	62-75-9	*	U	40	U	40	U	40	U	80	U	80
Aniline	62-53-3	1,000	U	40	U	40	U	40	U	80	U	80
Bis(2-chloroethyl)ether	111-44-4	*	U	40	U	40	U	40	U	80	U	80
Phenol	108-95-1	30 or MDL	U	40	U	40	U	40	U	80	U	80
2-Chlorophenol	95-57-8	800	U	40	U	40	U	40	U	80	U	80
1,3-Dichlorobenzene	541-73-1	1,600	U	40	U	40	U	40	U	80	U	80
1,4-Dichlorobenzene	106-46-7	8,500	U	40	U	40	U	40	U	80	U	80
1,2-Dichlorobenzene	95-50-1	7,900	U	40	U	40	U	40	U	80	U	80
Benzyl Alcohol	100-51-6	*	U	40	U	40	U	40	U	80	U	80
Bis(2-chloroisopropyl)ether	108-60-1	*	U	40	U	40	U	40	U	80	U	80
2-Methylphenol	95-48-7	100 or MDL	U	40	U	40	U	40	U	80	U	80
Hexachloroethane	67-72-1	*	U	40	U	40	U	40	U	80	U	80
N-Nitrosodi-n-propylamine	621-64-7	*	U	40	U	40	U	40	U	80	U	80
3+4-Methylphenol	108-39-4 / 106-44-5	*	U	40	U	40	U	40	U	80	U	80
Nitrobenzene	98-95-3	200 or MDL	U	40	U	40	U	40	U	80	U	80
Isophorone	78-59-1	4,400	U	40	U	40	U	40	U	80	U	80
2- Nitrophenol	88-75-5	330 or MDL	U	40	U	40	U	40	U	80	U	80
2,4-Dimethylphenol	105-67-9	*	U	40	U	40	U	40	U	80	U	80
Benzoic Acid	65-85-0	2,700	280	40	U	70	U	70	U	140	U	140
Bis(2-chloroethoxy)methane	111-91-1	*	U	40	U	40	U	40	U	80	U	80
2,4-Dichlorophenol	102-83-2	400	U	40	U	40	U	40	U	80	U	80
1,2,4-Trichlorobenzene	120-82-1	3,400	U	40	U	40	U	40	U	80	U	80
Naphthalene	91-20-3	13,000	110	40	U	40	U	40	460	--	87	--
4-Chloroaniline	106-47-8	220 or MDL	U	40	U	40	U	40	U	80	U	80
Hexachlorobutadiene	87-68-3	*	U	40	U	40	U	40	U	80	U	80
4-Chloro-3-methylphenol	59-50-7	240 or MDL	U	40	U	40	U	40	U	80	U	80
2-Methylnaphthalene	91-57-6	36,400	130	40	95	--	100	NA	1,200	--	U	80
Hexachlorocyclopentadiene	77-47-4	*	U	40	U	40	U	40	U	80	U	80
2,4,5-Trichlorophenol	95-95-4	*	U	40	U	40	U	40	U	80	U	80
2,4,6-Trichlorophenol	88-06-2	1,000	U	40	U	40	U	40	U	80	U	80
2-Chloronaphthalene	91-58-7	*	U	40	U	40	U	40	U	80	U	80
2-Nitroaniline	88-74-4	430 or MDL	U	40	U	40	U	40	U	80	U	80
Acenaphthylene	208-96-8	41,000	U	40	U	40	150	NA	120	--	U	80
Dimethyl Phthalate	131-11-3	2,000	U	40	U	40	U	40	U	80	U	80
2,6-Dinitrotoluene	606-20-2	1,000	U	40	U	40	U	40	U	80	U	80

Table 12: Semivolatile Organic Compounds in Soil Samples
Laboratory Method: EPA Method 8270

PARAMETER	CAS No.	TAGM 4046 Rec. Soil Cleanup Obj. ug/kg	B1 [1'-2'] Soil ug/kg Dilution 1		B1 [4'-5'] Soil ug/kg Dilution 1		B2 [0'-1'] Soil ug/kg Dilution 1		B3 [1'-3'] Soil ug/kg Dilution 2		B3 [8'-10'] Soil ug/kg Dilution 1	
			Concentration	Detection Limit	Concentration	Detection Limit	Concentration	Detection Limit	Concentration	Detection Limit	Concentration	Detection Limit
Acenaphthene	83-32-9	50,000	U	40	U	40	240	NA	80	--	170	--
3-Nitroaniline	99-09-2	0.5 or MDL	U	40	U	40	U	40	U	80	U	80
2,4-Dinitrophenol	51-28-5	200 or MDL	U	70	U	70	U	70	U	140	U	140
Dibenzofuran	132-64-9	6,200	U	40	U	40	U	40	170	--	95	--
2,4-Dinitrotoluene	121-14-2	1,000	U	40	U	40	U	40	U	80	U	80
4-Nitrophenol	100-02-7	100 or MDL	U	50	U	50	U	50	U	100	U	100
Fluorene	86-73-7	50,000	U	40	U	40	320	NA	280	--	140	--
4-Chlorophenyl phenyl ether	7005-72-3	*	U	40	U	40	U	40	U	80	U	80
Azobenzene	103-33-3	*	U	40	U	40	U	40	U	80	U	80
Diethyl Phthalate	84-66-2	7,100	U	40	U	40	U	40	U	80	U	80
4-Nitroaniline	100-01-6	*	U	50	U	50	U	50	U	100	U	100
4,6-Dinitro-2-methylphenol	534-52-1	*	U	40	U	40	U	40	U	80	U	80
N-Nitrosodiphenylamine	86-30-6	*	U	40	U	40	U	40	U	80	U	80
4-Bromophenyl phenyl ether	101-55-3	*	U	40	U	40	U	40	U	80	U	80
Hexachlorobenzene	118-74-1	410	U	40	U	40	U	40	U	80	U	80
Pentachlorophenol	87-86-5	1,000 or MDL	U	60	U	60	U	60	U	120	U	120
Phenanthrene	85-01-8	50,000	170	--	160	--	3,900	--	1,400	--	1,500	--
Anthracene	120-12-7	50,000	45	--	U	40	980	--	260	--	380	--
Carbazole	86-74-8	*	U	40	U	40	210	--	90	--	110	--
Di-n-butyl Phthalate	84-74-2	8,100	U	40	U	40	U	40	110	--	U	80
Fluoranthene	206-44-0	50,000	230	--	150	--	5,600	--	1,100	--	2,100	--
Benzidine	92-87-5	*	U	40	U	40	U	40	U	80	U	80
Pyrene	129-00-0	50,000	290	--	220	--	7,800	--	990	--	2,100	--
Butyl benzyl Phthalate	85-68-7	50,000	U	40	U	40	U	40	U	80	U	80
3,3´-Dichlorobenzidine	91-94-1	n/a	U	40	U	40	U	40	U	80	U	80
Benzo(a)anthracene	56-55-3	224 or MDL	140	--	110	--	4,000	--	570	--	970	--
Chrysene	218-01-9	400	160	--	140	--	4,400	--	740	--	1,000	--
Bis(2-ethylhexyl)Phthalate	117-81-7	50,000	730	--	840	--	440	--	110	--	460	--
Di-n-octyl Phthalate	117-84-0	50,000	U	40	U	40	U	40	U	80	U	80
Benzo(b)fluoranthene	205-99-2	1,100	270	--	260	--	6,000	--	520	--	940	--
Benzo(k)fluoranthene	207-08-9	1,100	280	--	270	--	6,400	--	360	--	670	--
Benzo(a)pyrene	50-32-8	61 or MDL	170	--	150	--	3,800	--	500	--	950	--
Indeno(1,2,3-c,d)pyrene	193-39-5	3,200	U	40	96	--	540	--	310	--	550	--
Dibenzo(a,h)anthracene	53-70-3	14 or MDL	U	40	U	40	1,100	--	110	--	150	--
Benzo(g,h,i)perylene	191-24-2	50,000	170	--	100	--	2,800	--	340	--	620	--
TOTAL SVOCs			3,175		2,591		48,780		9,820		12,992	

*** Not Applicable.**
**** No Standard Exists. Value is a Guidance Value.**
NA Not Analyzed

Table 12: Semivolatile Organic Compounds in Soil Samples
Laboratory Method: EPA Method 8270

PARAMETER	CAS No.	TAGM 4046 Rec. Soil Cleanup Obj. ug/kg	B4 [2'-4'] Soil ug/kg Dilution 1		B4 [6'-8'] Soil ug/kg Dilution 5		B5 [2'-4'] Soil ug/kg Dilution 2		B5 [5'-7'] Soil ug/kg Dilution 10, 500		MW1 [5'-6'] Soil ug/kg Dilution 1	
			Concentration	Detection Limit	Concentration	Detection Limit	Concentration	Detection Limit	Concentration	Detection Limit	Concentration	Detection Limit
Pyridine	110-86-1	*	U	40	U	40	U	40	U	40	U	40
N-Nitrosodimethylamine	62-75-9	*	U	40	U	40	U	40	U	40	U	40
Aniline	62-53-3	1,000	U	40	U	40	U	40	U	40	U	40
Bis(2-chloroethyl)ether	111-44-4	*	U	40	U	40	U	40	U	40	U	40
Phenol	108-95-1	30 or MDL	U	40	U	40	U	40	U	40	U	40
2-Chlorophenol	95-57-8	800	U	40	U	40	U	40	U	40	U	40
1,3-Dichlorobenzene	541-73-1	1,600	U	40	U	40	U	40	U	40	U	40
1,4-Dichlorobenzene	106-46-7	8,500	U	40	U	40	U	40	U	40	U	40
1,2-Dichlorobenzene	95-50-1	7,900	U	40	U	40	U	40	U	40	U	40
Benzyl Alcohol	100-51-6	*	U	40	U	40	U	40	U	40	U	40
Bis(2-chloroisopropyl)ether	108-60-1	*	U	40	U	40	U	40	U	40	U	40
2-Methylphenol	95-48-7	100 or MDL	U	40	U	40	U	40	U	40	U	40
Hexachloroethane	67-72-1	*	U	40	U	40	U	40	U	40	U	40
N-Nitrosodi-n-propylamine	621-64-7	*	U	40	U	40	U	40	U	40	U	40
3+4-Methylphenol	108-39-4 / 106-44-5	*	U	40	U	40	U	40	U	40	U	40
Nitrobenzene	98-95-3	200 or MDL	U	40	U	40	U	40	U	40	U	40
Isophorone	78-59-1	4,400	U	40	U	40	U	40	U	40	U	40
2- Nitrophenol	88-75-5	330 or MDL	U	40	U	40	U	40	U	40	U	40
2,4-Dimethylphenol	105-67-9	*	U	40	U	40	U	40	U	40	U	40
Benzoic Acid	65-85-0	2,700	U	70	U	70	U	70	200	70	230	70
Bis(2-chloroethoxy)methane	111-91-1	*	U	40	U	40	U	40	U	40	U	40
2,4-Dichlorophenol	102-83-2	400	U	40	U	40	U	40	U	40	U	40
1,2,4-Trichlorobenzene	120-82-1	3,400	U	40	U	40	U	40	U	40	U	40
Naphthalene	91-20-3	13,000	U	40	U	40	U	40	U	40	U	40
4-Chloroaniline	106-47-8	220 or MDL	U	40	U	40	U	40	U	40	U	40
Hexachlorobutadiene	87-68-3	*	U	40	U	40	U	40	U	40	U	40
4-Chloro-3-methylphenol	59-50-7	240 or MDL	U	40	U	40	U	40	U	40	U	40
2-Methylnaphthalene	91-57-6	36,400	U	40	U	40	U	40	28	40	U	40
Hexachlorocyclopentadiene	77-47-4	*	U	40	U	40	U	40	U	40	U	40
2,4,5-Trichlorophenol	95-95-4	*	U	40	U	40	U	40	U	40	U	40
2,4,6-Trichlorophenol	88-06-2	1,000	U	40	U	40	U	40	U	40	U	40
2-Chloronaphthalene	91-58-7	*	U	40	U	40	U	40	U	40	U	40
2-Nitroaniline	88-74-4	430 or MDL	U	40	U	40	U	40	U	40	U	40
Acenaphthylene	208-96-8	41,000	U	40	U	40	U	40	U	40	U	40
Dimethyl Phthalate	131-11-3	2,000	U	40	U	40	U	40	U	40	U	40
2,6-Dinitrotoluene	606-20-2	1,000	U	40	U	40	U	40	U	40	U	40

Table 12: Semivolatile Organic Compounds in Soil Samples
Laboratory Method: EPA Method 8270

PARAMETER	CAS No.	TAGM 4046 Rec. Soil Cleanup Obj. ug/kg	B4 [2'-4'] Soil ug/kg Dilution 1		B4 [6'-8'] Soil ug/kg Dilution 5		B5 [2'-4'] Soil ug/kg Dilution 2		B5 [5'-7'] Soil ug/kg Dilution 10, 500		MW1 [5'-6'] Soil ug/kg Dilution 1	
			Concentration	Detection Limit	Concentration	Detection Limit	Concentration	Detection Limit	Concentration	Detection Limit	Concentration	Detection Limit
Acenaphthene	83-32-9	50,000	U	40	U	40	U	40	53	40	U	40
3-Nitroaniline	99-09-2	0.5 or MDL	U	40	U	40	U	40	U	40	U	40
2,4-Dinitrophenol	51-28-5	200 or MDL	U	70	U	70	U	70	U	70	U	70
Dibenzofuran	132-64-9	6,200	U	40	U	40	U	40	47	40	U	40
2,4-Dinitrotoluene	121-14-2	1,000	U	40	U	40	U	40	U	40	U	40
4-Nitrophenol	100-02-7	100 or MDL	U	50	U	50	U	50	U	50	U	50
Fluorene	86-73-7	50,000	U	40	U	40	U	40	61	40	U	40
4-Chlorophenyl phenyl ether	7005-72-3	*	U	40	U	40	U	40	U	40	U	40
Azobenzene	103-33-3	*	U	40	U	40	U	40	U	40	U	40
Diethyl Phthalate	84-66-2	7,100	U	40	U	40	U	40	U	40	U	40
4-Nitroaniline	100-01-6	*	U	50	U	50	U	50	U	50	U	50
4,6-Dinitro-2-methylphenol	534-52-1	*	U	40	U	40	U	40	U	40	U	40
N-Nitrosodiphenylamine	86-30-6	*	U	40	U	40	U	40	U	40	U	40
4-Bromophenyl phenyl ether	101-55-3	*	U	40	U	40	U	40	U	40	U	40
Hexachlorobenzene	118-74-1	410	U	40	U	40	U	40	U	40	U	40
Pentachlorophenol	87-86-5	1,000 or MDL	U	60	U	60	U	60	U	60	U	60
Phenanthrene	85-01-8	50,000	640	--	U	40	120	40	570	40	U	40
Anthracene	120-12-7	50,000	130	40	U	40	U	40	130	40	U	40
Carbazole	86-74-8	*	U	40	U	40	U	40	60	40	U	40
Di-n-butyl Phthalate	84-74-2	8,100	U	40	U	40	U	40	U	40	U	40
Fluoranthene	206-44-0	50,000	1,500	--	U	40	150	40	490	40	U	40
Benzidine	92-87-5	*	U	40	U	40	U	40	U	40	U	40
Pyrene	129-00-0	50,000	2,700	--	U	40	200	40	460	40	U	40
Butyl benzyl Phthalate	85-68-7	50,000	U	40	U	40	U	40	U	40	U	40
3,3´-Dichlorobenzidine	91-94-1	n/a	U	40	U	40	U	40	U	40	U	40
Benzo(a)anthracene	56-55-3	224 or MDL	1,200	--	U	40	87	40	220	40	U	40
Chrysene	218-01-9	400	1,400	--	U	--	110	--	220	--	U	40
Bis(2-ethylhexyl)Phthalate	117-81-7	50,000	U	40	220	--	2,400	--	2,500	--	2,200	--
Di-n-octyl Phthalate	117-84-0	50,000	U	40	U	40	U	40	U	40	U	40
Benzo(b)fluoranthene	205-99-2	1,100	1,800	--	U	40	120	40	300	40	U	40
Benzo(k)fluoranthene	207-08-9	1,100	1,900	--	U	40	130	40	310	40	U	40
Benzo(a)pyrene	50-32-8	61 or MDL	1,300	--	U	40	92	40	220	40	U	40
Indeno(1,2,3-c,d)pyrene	193-39-5	3,200	1,100	--	U	40	69	40	150	40	U	40
Dibenzo(a,h)anthracene	53-70-3	14 or MDL	100	40	U	40	U	40	220	40	U	40
Benzo(g,h,i)perylene	191-24-2	50,000	1,200	--	U	40	94	40	170	40	U	40
TOTAL SVOCs			14,970		220		3,572		6,409		2,430	

*** Not Applicable.**
**** No Standard Exists. Value is a Guidance Value.**
NA Not Analyzed

Table 12: Semivolatile Organic Compounds in Soil Samples
Laboratory Method: EPA Method 8270

PARAMETER	CAS No.	TAGM 4046 Rec. Soil Cleanup Obj. ug/kg	MW1 [8'-9'] Soil ug/kg Dilution 8,80		MW2 [5'-7'] Soil ug/kg Dilution 1		MW2[9'-11'] Soil ug/kg Dilution 1		MW3 [0'-2'] Soil ug/kg Dilution 1		MW3 [5'-7'] Soil ug/kg Dilution 1	
			Concentration	Detection Limit	Concentration	Detection Limit	Concentration	Detection Limit	Concentration	Detection Limit	Concentration	Detection Limit
Pyridine	110-86-1	*	U	40	U	40	U	40	U	80	U	320
N-Nitrosodimethylamine	62-75-9	*	U	40	U	40	U	40	U	80	U	320
Aniline	62-53-3	1,000	U	40	U	40	U	40	U	80	U	320
Bis(2-chloroethyl)ether	111-44-4	*	U	40	U	40	U	40	U	80	U	320
Phenol	108-95-1	30 or MDL	U	40	U	40	U	40	U	80	U	320
2-Chlorophenol	95-57-8	800	U	40	U	40	U	40	U	80	U	320
1,3-Dichlorobenzene	541-73-1	1,600	U	40	U	40	U	40	U	80	U	320
1,4-Dichlorobenzene	106-46-7	8,500	U	40	U	40	U	40	U	80	U	320
1,2-Dichlorobenzene	95-50-1	7,900	U	40	U	40	U	40	U	80	U	320
Benzyl Alcohol	100-51-6	*	U	40	U	40	U	40	U	80	U	320
Bis(2-chloroisopropyl)ether	108-60-1	*	U	40	U	40	U	40	U	80	U	320
2-Methylphenol	95-48-7	100 or MDL	U	40	220	40	U	40	U	80	U	320
Hexachloroethane	67-72-1	*	U	40	U	40	U	40	U	80	U	320
N-Nitrosodi-n-propylamine	621-64-7	*	U	40	U	40	U	40	U	80	U	320
3+4-Methylphenol	108-39-4 / 106-44-5	*	U	40	U	40	U	40	U	80	U	320
Nitrobenzene	98-95-3	200 or MDL	U	40	U	40	U	40	U	80	U	320
Isophorone	78-59-1	4,400	U	40	U	40	U	40	U	80	U	320
2- Nitrophenol	88-75-5	330 or MDL	U	40	U	40	U	40	U	80	U	320
2,4-Dimethylphenol	105-67-9	*	U	40	U	40	U	40	U	80	U	320
Benzoic Acid	65-85-0	2,700	U	70	U	70	U	70	190	140	U	320
Bis(2-chloroethoxy)methane	111-91-1	*	U	40	U	40	U	40	U	80	U	320
2,4-Dichlorophenol	102-83-2	400	U	40	U	40	U	40	U	80	U	320
1,2,4-Trichlorobenzene	120-82-1	3,400	U	40	U	40	U	40	U	80	U	320
Naphthalene	91-20-3	13,000	110	40	U	40	74	40	U	80	3,800	--
4-Chloroaniline	106-47-8	220 or MDL	U	40	U	40	U	40	U	80	U	320
Hexachlorobutadiene	87-68-3	*	U	40	U	40	U	40	U	80	U	320
4-Chloro-3-methylphenol	59-50-7	240 or MDL	U	40	U	40	U	40	U	80	U	320
2-Methylnaphthalene	91-57-6	36,400	88	40	590	40	56	40	U	80	1,500	--
Hexachlorocyclopentadiene	77-47-4	*	U	40	U	40	U	40	U	80	U	320
2,4,5-Trichlorophenol	95-95-4	*	U	40	U	40	U	40	U	80	U	320
2,4,6-Trichlorophenol	88-06-2	1,000	U	40	U	40	U	40	U	80	U	320
2-Chloronaphthalene	91-58-7	*	U	40	U	40	U	40	U	80	U	320
2-Nitroaniline	88-74-4	430 or MDL	U	40	U	40	U	40	U	80	U	320
Acenaphthylene	208-96-8	41,000	U	40	170	40	68	40	170	80	620	--
Dimethyl Phthalate	131-11-3	2,000	U	40	U	40	U	40	U	80	U	320
2,6-Dinitrotoluene	606-20-2	1,000	U	40	U	40	U	40	U	80	U	320

Table 12: Semivolatile Organic Compounds in Soil Samples
Laboratory Method: EPA Method 8270

PARAMETER	CAS No.	TAGM 4046 Rec. Soil Cleanup Obj. ug/kg	MW1 [8'-9'] Soil ug/kg Dilution 8,80		MW2 [5'-7'] Soil ug/kg Dilution 1		MW2[9'-11'] Soil ug/kg Dilution 1		MW3 [0'-2'] Soil ug/kg Dilution 1		MW3 [5'-7'] Soil ug/kg Dilution 1	
			Concentration	Detection Limit	Concentration	Detection Limit	Concentration	Detection Limit	Concentration	Detection Limit	Concentration	Detection Limit
Acenaphthene	83-32-9	50,000	100	40	270	40	140	40	200	--	3,800	--
3-Nitroaniline	99-09-2	0.5 or MDL	U	40	U	40	U	40	U	80	U	320
2,4-Dinitrophenol	51-28-5	200 or MDL	U	70	U	70	U	70	U	140	U	560
Dibenzofuran	132-64-9	6,200	46	40	210	40	98	40	98	--	2,300	--
2,4-Dinitrotoluene	121-14-2	1,000	U	40	U	40	U	40	U	80	U	320
4-Nitrophenol	100-02-7	100 or MDL	U	50	U	50	U	50	U	100	U	400
Fluorene	86-73-7	50,000	100	40	500	40	190	40	250	--	4,500	--
4-Chlorophenyl phenyl ether	7005-72-3	*	U	40	U	40	U	40	U	80	U	320
Azobenzene	103-33-3	*	U	40	U	40	U	40	U	80	U	320
Diethyl Phthalate	84-66-2	7,100	U	40	U	40	U	40	U	80	U	320
4-Nitroaniline	100-01-6	*	U	50	U	50	U	50	U	100	U	400
4,6-Dinitro-2-methylphenol	534-52-1	*	U	40	U	40	U	40	U	80	U	320
N-Nitrosodiphenylamine	86-30-6	*	U	40	U	40	U	40	U	80	U	320
4-Bromophenyl phenyl ether	101-55-3	*	U	40	U	40	U	40	U	80	U	320
Hexachlorobenzene	118-74-1	410	U	40	U	40	U	40	U	80	U	320
Pentachlorophenol	87-86-5	1,000 or MDL	U	60	U	60	U	60	U	60	U	480
Phenanthrene	85-01-8	50,000	800	40	3,200	40	1,200	40	2,800	--	31,000	--
Anthracene	120-12-7	50,000	190	40	750	40	370	40	670	--	7,600	--
Carbazole	86-74-8	*	91	40	U	40	110	40	300	--	3,300	--
Di-n-butyl Phthalate	84-74-2	8,100	U	40	U	40	U	40	<80	80	U	320
Fluoranthene	206-44-0	50,000	690	40	4,900	40	1,300	40	4,400	--	30,000	--
Benzidine	92-87-5	*	U	40	U	40	U	40	U	80	U	320
Pyrene	129-00-0	50,000	780	40	4,500	40	1,200	40	3,900	--	24,000	--
Butyl benzyl Phthalate	85-68-7	50,000	U	40	U	40	U	40	U	80	U	320
3,3´-Dichlorobenzidine	91-94-1	n/a	U	40	U	40	U	40	U	80	U	320
Benzo(a)anthracene	56-55-3	224 or MDL	360	40	2,100	40	910	40	2,000	--	12,000	--
Chrysene	218-01-9	400	380	40	2,800	40	940	40	2,200	--	11,000	--
Bis(2-ethylhexyl)Phthalate	117-81-7	50,000	1,600	--	910	--	660	--	100	--	660	--
Di-n-octyl Phthalate	117-84-0	50,000	U	40	U	40	U	40	U	80	U	320
Benzo(b)fluoranthene	205-99-2	1,100	510	40	3,200	40	1,400	40	2,500	--	13,000	--
Benzo(k)fluoranthene	207-08-9	1,100	540	40	3,400	40	1,500	40	880	--	4,500	--
Benzo(a)pyrene	50-32-8	61 or MDL	310	40	1,800	40	840	40	2,000	--	10,000	--
Indeno(1,2,3-c,d)pyrene	193-39-5	3,200	240	40	1,100	40	83	40	1,200	--	5,600	--
Dibenzo(a,h)anthracene	53-70-3	14 or MDL	86	40	520	40	190	40	340	--	1,700	--
Benzo(g,h,i)perylene	191-24-2	50,000	230	40	1,300	40	440	40	1,300	--	5,200	--
TOTAL SVOCs			7,251		32,440		11,769		25,498		176,080	

*** Not Applicable.**
**** No Standard Exists. Value is a Guidance Value.**
NA Not Analyzed

Table 12: Semivolatile Organic Compounds in Soil Samples
Laboratory Method: EPA Method 8270

PARAMETER	CAS No.	TAGM 4046 Rec. Soil Cleanup Obj. ug/kg	MW4 [0'-2'] Soil ug/kg Dilution 1		MW4 [13'-15'] Soil ug/kg Dilution 1		MW5 [0'-2'] Soil ug/kg Dilution 1		MW5 [4'-6'] Soil ug/kg Dilution 1	
			Concentration	Detection Limit	Concentration	Detection Limit	Concentration	Detection Limit	Concentration	Detection Limit
Pyridine	110-86-1	*	U	1600	U	80	U	320	U	320
N-Nitrosodimethylamine	62-75-9	*	U	1600	U	80	U	320	U	320
Aniline	62-53-3	1,000	U	1600	U	80	U	320	U	320
Bis(2-chloroethyl)ether	111-44-4	*	U	1600	U	80	U	320	U	320
Phenol	108-95-1	30 or MDL	U	1600	U	80	U	320	U	320
2-Chlorophenol	95-57-8	800	U	1600	U	80	U	320	U	320
1,3-Dichlorobenzene	541-73-1	1,600	U	1600	U	80	U	320	U	320
1,4-Dichlorobenzene	106-46-7	8,500	U	1600	U	80	U	320	U	320
1,2-Dichlorobenzene	95-50-1	7,900	U	1600	U	80	U	320	U	320
Benzyl Alcohol	100-51-6	*	U	1600	U	80	U	320	U	320
Bis(2-chloroisopropyl)ether	108-60-1	*	U	1600	U	80	U	320	U	320
2-Methylphenol	95-48-7	100 or MDL	U	1600	U	80	U	320	U	320
Hexachloroethane	67-72-1	*	U	1600	U	80	U	320	U	320
N-Nitrosodi-n-propylamine	621-64-7	*	U	1600	U	80	U	320	U	320
3+4-Methylphenol	108-39-4 / 106-44-5	*	U	1600	U	80	U	320	U	320
Nitrobenzene	98-95-3	200 or MDL	U	1600	U	80	U	320	U	320
Isophorone	78-59-1	4,400	U	1600	U	80	U	320	U	320
2- Nitrophenol	88-75-5	330 or MDL	U	1600	U	80	U	320	U	320
2,4-Dimethylphenol	105-67-9	*	U	1600	U	80	U	320	U	320
Benzoic Acid	65-85-0	2,700	U	2800	170	140	U	560	U	560
Bis(2-chloroethoxy)methane	111-91-1	*	U	1600	U	80	U	320	U	320
2,4-Dichlorophenol	102-83-2	400	U	1600	U	80	U	320	U	320
1,2,4-Trichlorobenzene	120-82-1	3,400	U	1600	U	80	U	320	U	320
Naphthalene	91-20-3	13,000	2,000	--	150	80	U	320	U	320
4-Chloroaniline	106-47-8	220 or MDL	U	1600	U	80	U	320	U	320
Hexachlorobutadiene	87-68-3	*	U	1600	U	80	U	320	U	320
4-Chloro-3-methylphenol	59-50-7	240 or MDL	U	1600	U	80	U	320	U	320
2-Methylnaphthalene	91-57-6	36,400	1,600	--	120	80	U	320	U	320
Hexachlorocyclopentadiene	77-47-4	*	U	1600	U	80	U	320	U	320
2,4,5-Trichlorophenol	95-95-4	*	U	1600	U	80	U	320	U	320
2,4,6-Trichlorophenol	88-06-2	1,000	U	1600	U	80	U	320	U	320
2-Chloronaphthalene	91-58-7	*	U	1600	U	80	U	320	U	320
2-Nitroaniline	88-74-4	430 or MDL	U	1600	U	80	U	320	U	320
Acenaphthylene	208-96-8	41,000	U	1600	120	80	U	320	U	320
Dimethyl Phthalate	131-11-3	2,000	U	1600	U	80	U	320	U	320
2,6-Dinitrotoluene	606-20-2	1,000	U	1600	U	80	U	320	U	320

Table 12: Semivolatile Organic Compounds in Soil Samples
Laboratory Method: EPA Method 8270

PARAMETER	CAS No.	TAGM 4046 Rec. Soil Cleanup Obj. ug/kg	MW4 [0'-2'] Soil ug/kg Dilution 1		MW4 [13'-15'] Soil ug/kg Dilution 1		MW5 [0'-2'] Soil ug/kg Dilution 1		MW5 [4'-6'] Soil ug/kg Dilution 1	
			Concentration	Detection Limit	Concentration	Detection Limit	Concentration	Detection Limit	Concentration	Detection Limit
Acenaphthene	83-32-9	50,000	6,100	--	360	--	460	--	1,200	--
3-Nitroaniline	99-09-2	0.5 or MDL	U	1600	U	80	U	320	U	320
2,4-Dinitrophenol	51-28-5	200 or MDL	U	2800	U	140	U	560	U	560
Dibenzofuran	132-64-9	6,200	2,800	--	220	--	U	320	640	320
2,4-Dinitrotoluene	121-14-2	1,000	U	1600	U	80	U	320	U	320
4-Nitrophenol	100-02-7	100 or MDL	U	--	U	100	U	400	U	400
Fluorene	86-73-7	50,000	5,300	--	380	--	450	--	1,200	--
4-Chlorophenyl phenyl ether	7005-72-3	*	U	1600	U	80	U	320	U	320
Azobenzene	103-33-3	*	U	1600	U	80	U	320	U	320
Diethyl Phthalate	84-66-2	7,100	U	1600	U	80	U	320	U	320
4-Nitroaniline	100-01-6	*	U	2000	U	100	U	400	U	400
4,6-Dinitro-2-methylphenol	534-52-1	*	U	1600	U	80	U	320	U	320
N-Nitrosodiphenylamine	86-30-6	*	U	1600	U	80	U	320	U	320
4-Bromophenyl phenyl ether	101-55-3	*	U	1600	U	80	U	320	U	320
Hexachlorobenzene	118-74-1	410	U	1600	U	80	U	320	U	320
Pentachlorophenol	87-86-5	1,000 or MDL	U	2400	U	120	U	480	U	480
Phenanthrene	85-01-8	50,000	79,000	--	6,100	--	7,300	--	15,000	--
Anthracene	120-12-7	50,000	9,200	--	830	--	1,400	--	3,300	--
Carbazole	86-74-8	*	6,200	--	590	--	540	--	1000	--
Di-n-butyl Phthalate	84-74-2	8,100	U	1600	U	80	U	320	U	320
Fluoranthene	206-44-0	50,000	86,000	--	7,100	--	11,000	--	20,000	--
Benzidine	92-87-5	*	U	1600	U	80	U	320	U	320
Pyrene	129-00-0	50,000	76,000	--	5,900	--	10,000	--	18,000	--
Butyl benzyl Phthalate	85-68-7	50,000	U	1600	U	80	U	320	U	320
3,3´-Dichlorobenzidine	91-94-1	n/a	U	1600	U	80	U	320	U	320
Benzo(a)anthracene	56-55-3	224 or MDL	30,000	--	2,600	--	5,400	--	9,200	--
Chrysene	218-01-9	400	38,000	--	3,200	--	5,300	--	9,000	--
Bis(2-ethylhexyl)Phthalate	117-81-7	50,000	U	1600	U	80	350	--	430	--
Di-n-octyl Phthalate	117-84-0	50,000	U	1600	U	80	U	320	U	320
Benzo(b)fluoranthene	205-99-2	1,100	40,000	--	3,400	--	4,700	--	10,000	--
Benzo(k)fluoranthene	207-08-9	1,100	14,000	--	1,400	--	4,100	--	3,400	--
Benzo(a)pyrene	50-32-8	61 or MDL	31,000	--	2,600	--	5,000	--	8,200	--
Indeno(1,2,3-c,d)pyrene	193-39-5	3,200	20,000	--	1,900	--	3,200	--	4,900	--
Dibenzo(a,h)anthracene	53-70-3	14 or MDL	5,500	--	490	--	820	--	1,400	--
Benzo(g,h,i)perylene	191-24-2	50,000	22,000	--	2,000	--	3,400	--	5,000	--
TOTAL SVOCs			474,700		39,630		63,420		111,870	

*** Not Applicable.**
**** No Standard Exists. Value is a Guidance Value.**
NA Not Analyzed

Table 10: TAL Metals in Groundwater Samples
Laboratory Method: EPA Method 6010/7470

PARAMETER	CAS No.	Class GA Ambient Water Qual. Standards mg/L	MW6 Groundwater mg/L Dilution		MW6 (Dissolved) Groundwater mg/L Dilution		MW7 Groundwater mg/L Dilution		MW7 (Dissolved) Groundwater mg/L Dilution		MW8 Groundwater mg/L Dilution	
			Concentration	Detection Limit	Concentration	Detection Limit	Concentration	Detection Limit	Concentration	Detection Limit	Concentration	Detection Limit
Aluminum, Al	7429-90-5	*	0.104	0.0200	0.0562	0.0200	1.68	0.0200	1.69	0.0200	0.334	0.0200
Antimony, Sb	7440-36-0	**.003	0.0836	0.0250	U	0.0250	0.0548	0.0250	U	0.0250	0.0443	0.0250
Arsenic, As	7440-38-2	0.025	U	0.0250	U	0.0250	U	0.0250	U	0.0250	U	0.0250
Barium, Ba	7440-39-3	1	0.218	0.0200	0.146	0.0200	0.132	0.0200	0.14	0.0200	0.486	0.0200
Beryllium, Be	7440-41-7	**0.003	U	0.0200	U	0.0200	U	0.0200	U	0.0200	U	0.0200
Cadmium, Cd	7440-43-9	0.01	U	0.0100	U	0.0100	U	0.0100	U	0.0100	U	0.0100
Calcium, Ca	7440-70-2	*	146	0.0200	160	0.0200	39.2	0.0200	41.9	0.0200	168	0.0200
Chromium, Cr	7440-47-3	0.05	U	0.0200	U	0.0200	U	0.0200	U	0.0200	U	0.0200
Cobalt, Co	7440-48-4	*	0.013	0.0200	U	0.0200	U	0.0200	U	0.0200	U	0.0200
Copper, Cu	7440-50-8	0.2	0.015	0.0200	U	0.0200	0.019	0.0200	0.0052	0.0200	0.010	0.0200
Iron, Fe	7439-89-6	0.3	29.2	0.0200	0.843	0.0200	0.497	0.0200	0.157	0.0200	0.106	0.0200
Lead, Pb	7439-92-1	0.025	U	0.0150	U	0.0150	0.0197	0.0150	0.0091	0.0150	U	0.0150
Magnesium, Mg	7439-95-4	**35	7.07	0.0200	7.73	0.0200	0.166	0.0200	0.0633	0.0200	495	0.0200
Manganese, Mn	7439-96-5	0.3	0.558	0.0200	0.537	0.0200	0.0082	0.0200	U	0.0200	0.018	0.0200
Mercury, Hg	7439-97-6	0.002	U	0.200	U	0.200	U	0.200	U	0.200	U	0.200
Nickel, Ni	7440-02-0	*	0.0054	0.0200	U	0.0200	0.0058	0.0200	0.0048	0.0200	U	0.0200
Potassium, K	9/7/7440	*	15.5	0.0700	18.1	0.0700	100	0.0700	114	0.0700	349	0.0700
Selenium, Se	7782-49-2	0.01	U	0.0250	U	0.0250	U	0.0250	U	0.0250	U	0.0250
Silver, Ag	7440-22-4	0.05	U	0.0200	U	0.0200	U	0.0200	U	0.0200	U	0.0200
Sodium, Na	7440-23-5	20	21.7	0.0300	17.1	0.0300	110	0.0300	116	0.0300	509	0.0300
Thallium, Tl	7440-28-0	**.004	U	0.0150	U	0.0150	0.0190	0.0150	U	0.0150	U	0.0150
Vanadium, V	7440-62-2	*	U	0.0200	U	0.0200	0.0083	0.0200	0.0081	0.0200	U	0.0200
Zinc, Zn	7440-66-6	0.3	0.0516	0.020	0.0071	0.0200	0.0392	0.0200	0.0062	0.0200	0.0520	0.0200

SB Site Background.
*** Not Applicable**
**** No Standard Exists. Value is a Guidance Value.**

Table 10: TAL Metals in Groundwater Samples
Laboratory Method: EPA Method 6010/7470

PARAMETER	CAS No.	Class GA Ambient Water Qual. Standards mg/L	MW8 (Dissolved) Groundwater mg/L Dilution		MW9 Groundwater mg/L Dilution		MW9 (Dissolved) Groundwater mg/L Dilution		MW10 Groundwater mg/L Dilution		MW10 (Dissolved) Groundwater mg/L Dilution	
			Concentration	Detection Limit	Concentration	Detection Limit	Concentration	Detection Limit	Concentration	Detection Limit	Concentration	Detection Limit
Aluminum, Al	7429-90-5	*	0.0575	0.0200	0.582	0.0200	0.0727	0.0200	0.204	0.0200	0.0417	0.0200
Antimony, Sb	7440-36-0	**.003	U	0.0250	0.0272	0.0250	U	0.0250	0.018	0.0250	U	0.0250
Arsenic, As	7440-38-2	0.025	U	0.0250	U	0.0250	U	0.0250	U	0.0250	U	0.0250
Barium, Ba	7440-39-3	1	0.468	0.0200	0.23	0.0200	0.235	0.0200	0.13	0.0200	0.112	0.0200
Beryllium, Be	7440-41-7	**0.003	U	0.0200	U	0.0200	U	0.0200	U	0.0200	U	0.0200
Cadmium, Cd	7440-43-9	0.01	U	0.0100	U	0.0100	U	0.0100	U	0.0100	U	0.0100
Calcium, Ca	7440-70-2	*	167	0.0200	223	0.0200	252	0.0200	266	0.0200	304	0.0200
Chromium, Cr	7440-47-3	0.05	U	0.0200	U	0.0200	U	0.0200	U	0.0200	U	0.0200
Cobalt, Co	7440-48-4	*	U	0.0200	U	0.0200	U	0.0200	U	0.0200	U	0.0200
Copper, Cu	7440-50-8	0.2	U	0.0200	0.015	0.0200	U	0.0200	0.013	0.0200	U	0.0200
Iron, Fe	7439-89-6	0.3	0.0448	0.0200	3.83	0.0200	0.695	0.0200	6.98	0.0200	0.399	0.0200
Lead, Pb	7439-92-1	0.025	U	0.0150	0.0173	0.0150	U	0.0150	0.010	0.0150	U	0.0150
Magnesium, Mg	7439-95-4	**35	505	0.0200	38.7	0.0200	42.2	0.0200	52.2	0.0200	58.1	0.0200
Manganese, Mn	7439-96-5	0.3	0.018	0.0200	0.848	0.0200	0.939	0.0200	6.12	0.0200	6.80	0.0200
Mercury, Hg	7439-97-6	0.002	U	0.200	U	0.200	U	0.200	U	0.200	U	0.200
Nickel, Ni	7440-02-0	*	U	0.0200	0.0045	0.0200	U	0.0200	U	0.0200	U	0.0200
Potassium, K	9/7/7440	*	368	0.0700	38.8	0.0700	45.8	0.0700	42.1	0.0700	51.0	0.0700
Selenium, Se	7782-49-2	0.01	U	0.0250	U	0.0250	U	0.0250	U	0.0250	U	0.0250
Silver, Ag	7440-22-4	0.05	U	0.0200	U	0.0200	U	0.0200	U	0.0200	U	0.0200
Sodium, Na	7440-23-5	20	517	0.0300	101	0.0300	102	0.0300	109	0.0300	112	0.0300
Thallium, Tl	7440-28-0	**.004	U	0.0150	U	0.0150	U	0.0150	U	0.0150	U	0.0150
Vanadium, V	7440-62-2	*	U	0.0200	U	0.0200	U	0.0200	U	0.0200	U	0.0200
Zinc, Zn	7440-66-6	0.3	0.0270	0.0200	0.146	0.0200	0.101	0.0200	0.0829	0.0200	0.0051	0.0200

SB Site Background.
*** Not Applicable**
**** No Standard Exists. Value is a Guidance Value.**

Table 10: TAL Metals in Groundwater Samples
Laboratory Method: EPA Method 6010/7470

PARAMETER	CAS No.	Class GA Ambient Water Qual. Standards mg/L	MW11 Groundwater mg/L Dilution		MW11 (Dissolved) Groundwater mg/L Dilution		MW12 Groundwater mg/L Dilution		MW12 (Dissolved) Groundwater mg/L Dilution		MW13 Groundwater mg/L Dilution	
			Concentration	Detection Limit	Concentration	Detection Limit	Concentration	Detection Limit	Concentration	Detection Limit	Concentration	Detection Limit
Aluminum, Al	7429-90-5	*	0.110	0.0200	0.0665	0.0200	0.211	0.0200	0.0417	0.0200	0.164	0.0200
Antimony, Sb	7440-36-0	**.003	U	0.0250	U	0.0250	U	0.0250	U	0.0250	0.022	0.0250
Arsenic, As	7440-38-2	0.025	U	0.0250	U	0.0250	U	0.0250	U	0.0250	U	0.0250
Barium, Ba	7440-39-3	1	0.496	0.0200	0.0499	0.0200	0.277	0.0200	0.24	0.0200	0.0681	0.0200
Beryllium, Be	7440-41-7	**0.003	U	0.0200	U	0.0200	U	0.0200	U	0.0200	U	0.0200
Cadmium, Cd	7440-43-9	0.01	U	0.0100	U	0.0100	U	0.0100	U	0.0100	U	0.0100
Calcium, Ca	7440-70-2	*	113	0.0200	123	0.0200	113	0.0200	127	0.0200	345	0.0200
Chromium, Cr	7440-47-3	0.05	U	0.0200	U	0.0200	U	0.0200	U	0.0200	U	0.0200
Cobalt, Co	7440-48-4	*	U	0.0200	U	0.0200	U	0.0200	U	0.0200	U	0.0200
Copper, Cu	7440-50-8	0.2	0.0098	0.0200	U	0.0200	0.012	0.0200	U	0.0200	0.011	0.0200
Iron, Fe	7439-89-6	0.3	0.153	0.0200	0.0584	0.0200	9.42	0.0200	0.395	0.0200	3.05	0.0200
Lead, Pb	7439-92-1	0.025	U	0.0150	U	0.0150	0.0236	0.0150	U	0.0150	U	0.0150
Magnesium, Mg	7439-95-4	**35	33.8	0.0200	36.7	0.0200	27.8	0.0200	31.2	0.0200	27.0	0.0200
Manganese, Mn	7439-96-5	0.3	0.184	0.0200	0.194	0.0200	1.93	0.0200	2.10	0.0200	0.752	0.0200
Mercury, Hg	7439-97-6	0.002	U	0.200	U	0.200	U	0.200	U	0.200	U	0.200
Nickel, Ni	7440-02-0	*	0.0054	0.0200	0.0046	0.0200	U	0.0200	30.3	0.0200	0.0064	0.0200
Potassium, K	9/7/7440	*	7.10	0.0700	8.25	0.0700	24.3	0.0700	U	0.0700	22.1	0.0700
Selenium, Se	7782-49-2	0.01	U	0.0250	U	0.0250	U	0.0250	U	0.0250	U	0.0250
Silver, Ag	7440-22-4	0.05	U	0.0200	U	0.0200	U	0.0200	U	0.0200	U	0.0200
Sodium, Na	7440-23-5	20	34.0	0.0300	32.1	0.0300	83.4	0.0300	88.7	0.0300	57.1	0.0300
Thallium, Tl	7440-28-0	**.004	U	0.0150	U	0.0150	U	0.0150	U	0.0150	U	0.0150
Vanadium, V	7440-62-2	*	U	0.0200	U	0.0200	U	0.0200	U	0.0200	U	0.0200
Zinc, Zn	7440-66-6	0.3	0.0414	0.0200	0.018	0.0200	0.0538	0.0200	0.0056	0.0200	0.0292	0.0200

SB Site Background.
*** Not Applicable**
**** No Standard Exists. Value is a Guidance Value.**

Table 10: TAL Metals in Groundwater Samples
Laboratory Method: EPA Method 6010/7470

PARAMETER	CAS No.	Class GA Ambient Water Qual. Standards mg/L	MW13 (Dissolved) Groundwater mg/L Dilution		MW14 Groundwater mg/L Dilution		MW14 (Dissolved) Groundwater mg/L Dilution		MW15 Groundwater mg/L Dilution		MW15 (Dissolved) Groundwater mg/L Dilution	
			Concentration	Detection Limit	Concentration	Detection Limit	Concentration	Detection Limit	Concentration	Detection Limit	Concentration	Detection Limit
Aluminum, Al	7429-90-5	*	0.0573	0.0200	0.253	0.0200	0.0339	0.0200	0.253	0.0200	0.0403	0.0200
Antimony, Sb	7440-36-0	**.003	U	0.0250	0.024	0.0250	U	0.0250	U	0.0250	U	0.0250
Arsenic, As	7440-38-2	0.025	U	0.0250	U	0.0250	U	0.0250	U	0.0250	U	0.0250
Barium, Ba	7440-39-3	1	0.0656	0.0200	0.214	0.0200	0.171	0.0200	0.137	0.0200	0.142	0.0200
Beryllium, Be	7440-41-7	**0.003	U	0.0200	U	0.0200	U	0.0200	U	0.0200	U	0.0200
Cadmium, Cd	7440-43-9	0.01	U	0.0100	U	0.0100	U	0.0100	U	0.0100	U	0.0100
Calcium, Ca	7440-70-2	*	381	0.0200	92.8	0.0200	101	0.0200	115	0.0200	130	0.0200
Chromium, Cr	7440-47-3	0.05	U	0.0200	U	0.0200	U	0.0200	U	0.0200	U	0.0200
Cobalt, Co	7440-48-4	*	U	0.0200	U	0.0200	U	0.0200	U	0.0200	U	0.0200
Copper, Cu	7440-50-8	0.2	U	0.0200	0.0091	0.0200	U	0.0200	0.0064	0.0200	U	0.0200
Iron, Fe	7439-89-6	0.3	0.332	0.0200	19.3	0.0200	1.55	0.0200	3.6	0.0200	1.09	0.0200
Lead, Pb	7439-92-1	0.025	U	0.0150	0.010	0.0150	U	0.0150	0.0093	0.0150	U	0.0150
Magnesium, Mg	7439-95-4	**35	29.4	0.0200	14.3	0.0200	12.3	0.0200	25.3	0.0200	28.7	0.0200
Manganese, Mn	7439-96-5	0.3	0.814	0.0200	2.69	0.0200	2.76	0.0200	0.838	0.0200	0.924	0.0200
Mercury, Hg	7439-97-6	0.002	U	0.200	U	0.200	U	0.200	U	0.200	U	0.200
Nickel, Ni	7440-02-0	*	U	0.0200	0.0048	0.0200	U	0.0200	0.0091	0.0200	U	0.0200
Potassium, K	9/7/7440	*	24.9	0.0700	13.9	0.0700	14.1	0.0700	6.20	0.0700	7.43	0.0700
Selenium, Se	7782-49-2	0.01	U	0.0250	U	0.0250	U	0.0250	U	0.0250	U	0.0250
Silver, Ag	7440-22-4	0.05	U	0.0200	U	0.0200	U	0.0200	U	0.0200	U	0.0200
Sodium, Na	7440-23-5	20	55.4	0.0300	75.9	0.0300	56.1	0.0300	29.9	0.0300	28.7	0.0300
Thallium, Tl	7440-28-0	**.004	U	0.0150	U	0.0150	U	0.0150	U	0.0150	U	0.0150
Vanadium, V	7440-62-2	*	U	0.0200	U	0.0200	U	0.0200	U	0.0200	U	0.0200
Zinc, Zn	7440-66-6	0.3	0.014	0.0200	0.0422	0.0200	0.012	0.0200	0.0393	0.0200	0.014	0.0200

SB Site Background.
*** Not Applicable**
**** No Standard Exists. Value is a Guidance Value.**

Table 10: TAL Metals in Groundwater Samples
Laboratory Method: EPA Method 6010/7470

PARAMETER	CAS No.	Class GA Ambient Water Qual. Standards mg/L	MW16 Groundwater mg/L Dilution		MW16 (Dissolved) Groundwater mg/L Dilution		FOUND WELL Groundwater mg/L Dilution		FOUND WELL(Dissolved) Groundwater mg/L Dilution		TRIP BLANK Groundwater mg/L Dilution	
			Concentration	Detection Limit	Concentration	Detection Limit	Concentration	Detection Limit	Concentration	Detection Limit	Concentration	Detection Limit
Aluminum, Al	7429-90-5	*	0.139	0.0200	0.0377	0.0200	U	0.0200	0.0421	0.0200	NA	NA
Antimony, Sb	7440-36-0	**.003	U	0.0250	U	0.0250	0.0947	0.0250	U	0.0250	NA	NA
Arsenic, As	7440-38-2	0.025	U	0.0250	U	0.0250	U	0.0250	U	0.0250	NA	NA
Barium, Ba	7440-39-3	1	0.162	0.0200	0.143	0.0200	0.142	0.0200	0.141	0.0200	NA	NA
Beryllium, Be	7440-41-7	**0.003	U	0.0200	U	0.0200	U	0.0200	U	0.0200	NA	NA
Cadmium, Cd	7440-43-9	0.01	U	0.0100	U	0.0100	U	0.0100	U	0.0100	NA	NA
Calcium, Ca	7440-70-2	*	158	0.0200	176	0.0200	101	0.0200	110	0.0200	NA	NA
Chromium, Cr	7440-47-3	0.05	U	0.0200	U	0.0200	U	0.0200	U	0.0200	NA	NA
Cobalt, Co	7440-48-4	*	U	0.0200	U	0.0200	U	0.0200	U	0.0200	NA	NA
Copper, Cu	7440-50-8	0.2	U	0.0200	U	0.0200	0.0076	0.0200	U	0.0200	NA	NA
Iron, Fe	7439-89-6	0.3	12.2	0.0200	0.404	0.0200	3.15	0.0200	0.565	0.0200	NA	NA
Lead, Pb	7439-92-1	0.025	U	0.0150	U	0.0150	U	0.0150	U	0.0150	NA	NA
Magnesium, Mg	7439-95-4	**35	54.2	0.0200	60.7	0.0200	34.1	0.0200	37.5	0.0200	NA	NA
Manganese, Mn	7439-96-5	0.3	0.494	0.0200	0.476	0.0200	0.806	0.0200	0.851	0.0200	NA	NA
Mercury, Hg	7439-97-6	0.002	U	0.200	U	0.200	U	0.200	U	0.200	NA	NA
Nickel, Ni	7440-02-0	*	U	0.0200	U	0.0200	U	0.0200	U	0.0200	NA	NA
Potassium, K	9/7/7440	*	23.4	0.0700	28.2	0.0700	17	0.0700	20.5	0.0700	NA	NA
Selenium, Se	7782-49-2	0.01	U	0.0250	U	0.0250	U	0.0250	U	0.0250	NA	NA
Silver, Ag	7440-22-4	0.05	U	0.0200	U	0.0200	U	0.0200	U	0.0200	NA	NA
Sodium, Na	7440-23-5	20	77.9	0.0300	80.2	0.0300	89.3	0.0300	95.6	0.0300	NA	NA
Thallium, Tl	7440-28-0	**.004	U	0.0150	U	0.0150	U	0.0150	U	0.0150	NA	NA
Vanadium, V	7440-62-2	*	U	0.0200	U	0.0200	U	0.0200	U	0.0200	NA	NA
Zinc, Zn	7440-66-6	0.3	0.0336	0.0200	0.0049	0.0200	0.0339	0.0200	0.019	0.0200	NA	NA

SB Site Background.
*** Not Applicable**
**** No Standard Exists. Value is a Guidance Value.**

Table 10: TAL Metals in Groundwater Samples
Laboratory Method: EPA Method 6010/7470

PARAMETER	CAS No.	Class GA Ambient Water Qual. Standards mg/L	TRIP BLANK (Dissolved) Groundwater mg/L Dilution		FIELD BLANK Groundwater mg/L Dilution		FIELD BLANK (Dissolved) Groundwater mg/L Dilution	
			Concentration	Detection Limit	Concentration	Detection Limit	Concentration	Detection Limit
Aluminum, Al	7429-90-5	*	NA	NA	U	0.0200	NA	NA
Antimony, Sb	7440-36-0	**.003	NA	NA	0.018	0.0250	NA	NA
Arsenic, As	7440-38-2	0.025	NA	NA	U	0.0250	NA	NA
Barium, Ba	7440-39-3	1	NA	NA	U	0.0200	NA	NA
Beryllium, Be	7440-41-7	**0.003	NA	NA	U	0.0200	NA	NA
Cadmium, Cd	7440-43-9	0.01	NA	NA	U	0.0100	NA	NA
Calcium, Ca	7440-70-2	*	NA	NA	0.128	0.0200	NA	NA
Chromium, Cr	7440-47-3	0.05	NA	NA	U	0.0200	NA	NA
Cobalt, Co	7440-48-4	*	NA	NA	U	0.0200	NA	NA
Copper, Cu	7440-50-8	0.2	NA	NA	U	0.0200	NA	NA
Iron, Fe	7439-89-6	0.3	NA	NA	U	0.0200	NA	NA
Lead, Pb	7439-92-1	0.025	NA	NA	U	0.0150	NA	NA
Magnesium, Mg	7439-95-4	**35	NA	NA	U	0.0200	NA	NA
Manganese, Mn	7439-96-5	0.3	NA	NA	U	0.0200	NA	NA
Mercury, Hg	7439-97-6	0.002	NA	NA	U	0.200	NA	NA
Nickel, Ni	7440-02-0	*	NA	NA	U	0.0200	NA	NA
Potassium, K	9/7/7440	*	NA	NA	0.026	0.0700	NA	NA
Selenium, Se	7782-49-2	0.01	NA	NA	U	0.0250	NA	NA
Silver, Ag	7440-22-4	0.05	NA	NA	U	0.0200	NA	NA
Sodium, Na	7440-23-5	20	NA	NA	0.479	0.0300	NA	NA
Thallium, Tl	7440-28-0	**.004	NA	NA	U	0.0150	NA	NA
Vanadium, V	7440-62-2	*	NA	NA	U	0.0200	NA	NA
Zinc, Zn	7440-66-6	0.3	NA	NA	U	0.0200	NA	NA

SB Site Background.
*** Not Applicable**
**** No Standard Exists. Value is a Guidance Value.**

Table 1: Volatile Organic Compounds in Soil Samples
Laboratory Method: EPA Method 8260

PARAMETER	CAS No.	TAGM 4046 Rec. Soil Cleanup Obj. ug/kg	B6 [0.5'-2'] Soil ug/kg Dilution 1		B6 [6'-7'] Soil ug/kg Dilution 1		B7 [9.5'-10.0'] Soil ug/kg Dilution 1		B7R2 [5.5'-6.0'] Soil ug/kg Dilution 1		B8 [0.5-2'] Soil ug/kg Dilution 1	
			Concentration	Detection Limit	Concentration	Detection Limit	Concentration	Detection Limit	Concentration	Detection Limit	Concentration	Detection Limit
1,1,1,2-Tetrachloroethane	630-20-6	*	U	5	U	5	U	5	U	5	U	5
1,1,1-Trichloroethane	71-55-6	800	U	5	U	5	U	5	U	5	U	5
1,1,2,2-Tetrachloroethane	79-34-5	600	U	5	U	5	U	5	U	5	U	5
1,1,2-Trichloro-1,2,2-trifluoroethane	76-13-1	*	U	5	U	5	U	5	U	5	U	5
1,1,2-Trichloroethane	79-00-5	*	U	5	U	5	U	5	U	5	U	5
1,1-Dichloroethane	75-34-3	200	U	5	U	5	U	5	U	5	U	5
1,1-Dichloroethene	75-35-4	400	U	5	U	5	U	5	U	5	U	5
1,1-Dichloropropene	563-58-6	*	U	5	U	5	U	5	U	5	U	5
1,2,3-Trichlorobenzene	87-61-6	*	U	5	U	5	U	5	U	5	U	5
1,2,3-Trichloropropane	96-18-4	400	U	5	U	5	U	5	U	5	U	5
1,2,4,5-Tetramethylbenzene	95-93-2	*	U	5	U	5	U	5	U	5	U	5
1,2,4-Trichlorobenzene	120-82-1	3400	U	5	U	5	U	5	U	5	U	5
1,2,4-Trimethylbenzene	95-63-6	*	U	5	U	5	U	5	U	5	U	5
1,2-Dibromo-3-chloropropane	96-12-8	*	U	5	U	5	U	5	U	5	U	5
1,2-Dibromoethane	106-93-4	*	U	5	U	5	U	5	U	5	U	5
1,2-Dichlorobenzene	95-50-1	7900	U	5	U	5	U	5	U	5	U	5
1,2-Dichloroethane	107-06-2	100	U	5	U	5	U	5	U	5	U	5
1,2-Dichloropropane	78-87-5	*	U	5	U	5	U	5	U	5	U	5
1,3,5-Trimethylbenzene	108-67-8	*	U	5	U	5	U	5	U	5	U	5
1,3-Dichlorobenzene	541-73-1	1600	U	5	U	5	U	5	U	5	U	5
1,3-Dichloropropane	142-28-9	300	U	5	U	5	U	5	U	5	U	5
1,4-Dichlorobenzene	106-46-7	8500	U	5	U	5	U	5	U	5	U	5
2,2-Dichloropropane	594-20-7	*	U	5	U	5	U	5	U	5	U	5
2-Butanone	78-93-3	300	U	5	U	5	U	5	U	5	U	5
2-Chloroethyl vinyl ether	110-75-8	*	U	5	U	5	U	5	U	5	U	5
2-Chlorotoluene	95-49-8	*	U	5	U	5	U	5	U	5	U	5
2-Hexanone	591-78-6	*	U	5	U	5	U	5	U	5	U	5
4-Chlorotoluene	106-43-4	*	U	5	U	5	U	5	U	5	U	5
4-Isopropyltoluene	99-87-6	*	U	5	U	5	U	5	U	5	U	5
4-Methyl-2-Pentanone	108-10-1	1000	U	5	U	5	U	5	U	5	U	5
Acetone	67-64-1	200	U	5	U	5	U	5	U	5	U	5
Acrolein	107-02-8	*	U	25	U	25	U	25	U	25	U	25
Acrylonitrile	107-13-1	*	U	5	U	5	U	5	U	5	U	5
Benzene	71-43-2	60	U	5	U	5	U	5	U	5	U	5
Bromobenzene	108-86-1	*	U	5	U	5	U	5	U	5	U	5
Bromochloromethane	74-97-5	*	U	5	U	5	U	5	U	5	U	5
Bromodichloromethane	75-27-4	*	U	5	U	5	U	5	U	5	U	5
Bromoform	75-25-2	*	U	5	U	5	U	5	U	5	U	5
Bromomethane	74-83-9	*	U	5	U	5	U	5	U	5	U	5
Carbon Disulfide	75-15-0	2700	U	5	U	5	U	5	U	5	U	5

Table 1: Volatile Organic Compounds in Soil Samples
Laboratory Method: EPA Method 8260

PARAMETER	CAS No.	TAGM 4046 Rec. Soil Cleanup Obj. ug/kg	B6 [0.5'-2'] Soil ug/kg Dilution 1		B6 [6'-7'] Soil ug/kg Dilution 1		B7 [9.5'-10.0'] Soil ug/kg Dilution 1		B7R2 [5.5'-6.0'] Soil ug/kg Dilution 1		B8 [0.5-2'] Soil ug/kg Dilution 1	
			Concentration	Detection Limit	Concentration	Detection Limit	Concentration	Detection Limit	Concentration	Detection Limit	Concentration	Detection Limit
Carbon Tetrachloride	56-23-5	600	U	5	U	5	U	5	U	5	U	5
Chlorobenzene	108-90-7	1700	U	5	U	5	U	5	U	5	U	5
Chlorodifluoromethane	75-45-6	*	U	5	U	5	U	5	U	5	U	5
Chloroethane	75-00-3	1900	U	5	U	5	U	5	U	5	U	5
Chloroform	67-66-3	300	U	5	U	5	U	5	U	5	U	5
Chloromethane	74-87-3	*	U	5	U	5	U	5	U	5	U	5
cis-1,2-Dichloroethene	156-59-2	*	U	5	U	5	U	5	U	5	U	5
cis-1,3-Dichloropropene	10061-01-5	*	U	5	U	5	U	5	U	5	U	5
Dibromochloromethane	124-48-1	*	U	5	U	5	U	5	U	5	U	5
Dibromomethane	74-95-3	*	U	5	U	5	U	5	U	5	U	5
Dichlorodifluoromethane	75-71-8	*	U	5	U	5	U	5	U	5	U	5
Diisopropyl ehter	108-20-3	*	U	5	U	5	U	5	U	5	U	5
Ethanol	64-17-5	*	U	5	U	5	U	5	U	5	U	5
Ethyl acetate	141-78-6	*	U	5	U	5	U	5	U	5	U	5
Ethylbenzene	100-41-4	5500	U	5	U	5	U	5	U	5	U	5
Freon-114	76-14-2	*	U	5	U	5	U	5	U	5	U	5
Hexachlorobutadiene	87-68-3	*	U	5	U	5	U	5	U	5	U	5
Isopropyl acetate	108-21-4	*	U	5	U	5	U	5	U	5	U	5
Isopropylbenzene	98-82-8	*	U	5	U	5	U	5	U	5	U	5
m+p Xylene	108-38-3/106-42-3	1200	U	10	U	10	U	10	U	10	U	10
Methyl tert-butyl ether	1634-04-4	*	U	5	U	5	U	5	U	5	U	5
Methylene Chloride	75-09-2	100	U	5	U	5	U	5	U	5	U	5
Naphthalene	91-20-3	*	U	5	U	5	U	5	U	5	U	5
n-Butyl acetate	123-86-4	*	U	5	U	5	U	5	U	5	U	5
n-Butylbenzene	104-51-8	*	U	5	U	5	U	5	U	5	U	5
n-Propyl acetate	109-60-4	*	U	5	U	5	U	5	U	5	U	5
n-Propylbenzene	103-65-1	*	U	5	U	5	U	5	U	5	U	5
o-Xylene	95-47-6	1200	U	5	U	5	U	5	U	5	U	5
p-Diethylbenzene	105-05-5	*	U	5	U	5	U	5	U	5	U	5
p-Ethyltoluene	622-96-8	*	U	5	U	5	U	5	U	5	U	5
sec-Butylbenzene	135-98-8	*	U	5	U	5	U	5	U	5	U	5
Styrene	100-42-5	*	U	5	U	5	U	5	U	5	U	5
t-Butyl alcohol	75-65-0	*	U	5	U	5	U	5	U	5	U	5
tert-Butylbenzene	98-06-6	*	U	5	U	5	U	5	U	5	U	5
Tetrachloroethene	127-18-4	1400	U	5	U	5	U	5	U	5	U	5
Toluene	108-88-3	1500	U	5	U	5	U	5	U	5	U	5
trans-1,2-Dichloroethene	156-60-5	300	U	5	U	5	U	5	U	5	U	5
trans-1,3-Dichloropropene	10061-02-6	*	U	5	U	5	U	5	U	5	U	5
Trichloroethene	79-01-6	700	U	5	U	5	U	5	U	5	U	5
Trichlorofluoromethane	75-69-4	*	U	5	U	5	U	5	U	5	U	5
Vinyl Acetate	108-05-4	*	U	5	U	5	U	5	U	5	U	5
Vinyl Chloride	75-01-4	200	U	5	U	5	U	5	U	5	U	5
TOTAL VOCs			ND		ND		ND		ND		ND	

*** Not Applicable.**
ND Not Detected

Table 1: Volatile Organic Compounds in Soil Samples
Laboratory Method: EPA Method 8260

PARAMETER	CAS No.	TAGM 4046 Rec. Soil Cleanup Obj. ug/kg	B8 [8'-10'] Soil ug/kg Dilution 1		B9 [14"-25 "] Soil ug/kg Dilution 1		B9 [5'-6'] Soil ug/kg Dilution 1		B10 [5'-7'] Soil ug/kg Dilution 1		B10 [9'-10'] Soil ug/kg Dilution 1	
			Concentration	Detection Limit	Concentration	Detection Limit	Concentration	Detection Limit	Concentration	Detection Limit	Concentration	Detection Limit
1,1,1,2-Tetrachloroethane	630-20-6	*	U	5	U	5	U	5	U	5	U	5
1,1,1-Trichloroethane	71-55-6	800	U	5	U	5	U	5	U	5	U	5
1,1,2,2-Tetrachloroethane	79-34-5	600	U	5	U	5	U	5	U	5	U	5
1,1,2-Trichloro-1,2,2-trifluoroethane	76-13-1	*	U	5	U	5	U	5	U	5	U	5
1,1,2-Trichloroethane	79-00-5	*	U	5	U	5	U	5	U	5	U	5
1,1-Dichloroethane	75-34-3	200	U	5	U	5	U	5	U	5	U	5
1,1-Dichloroethene	75-35-4	400	U	5	U	5	U	5	U	5	U	5
1,1-Dichloropropene	563-58-6	*	U	5	U	5	U	5	U	5	U	5
1,2,3-Trichlorobenzene	87-61-6	*	U	5	U	5	U	5	U	5	U	5
1,2,3-Trichloropropane	96-18-4	400	U	5	U	5	U	5	U	5	U	5
1,2,4,5-Tetramethylbenzene	95-93-2	*	U	5	U	5	U	5	U	5	U	5
1,2,4-Trichlorobenzene	120-82-1	3400	U	5	U	5	U	5	U	5	U	5
1,2,4-Trimethylbenzene	95-63-6	*	U	5	U	5	U	5	U	5	U	5
1,2-Dibromo-3-chloropropane	96-12-8	*	U	5	U	5	U	5	U	5	U	5
1,2-Dibromoethane	106-93-4	*	U	5	U	5	U	5	U	5	U	5
1,2-Dichlorobenzene	95-50-1	7900	U	5	U	5	U	5	U	5	U	5
1,2-Dichloroethane	107-06-2	100	U	5	U	5	U	5	U	5	U	5
1,2-Dichloropropane	78-87-5	*	U	5	U	5	U	5	U	5	U	5
1,3,5-Trimethylbenzene	108-67-8	*	U	5	U	5	U	5	U	5	U	5
1,3-Dichlorobenzene	541-73-1	1600	U	5	U	5	U	5	U	5	U	5
1,3-Dichloropropane	142-28-9	300	U	5	U	5	U	5	U	5	U	5
1,4-Dichlorobenzene	106-46-7	8500	U	5	U	5	U	5	U	5	U	5
2,2-Dichloropropane	594-20-7	*	U	5	U	5	U	5	U	5	U	5
2-Butanone	78-93-3	300	U	5	U	5	U	5	U	5	U	5
2-Chloroethyl vinyl ether	110-75-8	*	U	5	U	5	U	5	U	5	U	5
2-Chlorotoluene	95-49-8	*	U	5	U	5	U	5	U	5	U	5
2-Hexanone	591-78-6	*	U	5	U	5	U	5	U	5	U	5
4-Chlorotoluene	106-43-4	*	U	5	U	5	U	5	U	5	U	5
4-Isopropyltoluene	99-87-6	*	U	5	U	5	U	5	U	5	U	5
4-Methyl-2-Pentanone	108-10-1	1000	U	5	U	5	U	5	U	5	U	5
Acetone	67-64-1	200	U	5	U	5	U	5	U	5	U	5
Acrolein	107-02-8	*	U	25	U	25	U	25	U	25	U	25
Acrylonitrile	107-13-1	*	U	5	U	5	U	5	U	5	U	5
Benzene	71-43-2	60	U	5	2	5	U	5	U	5	U	5
Bromobenzene	108-86-1	*	U	5	U	5	U	5	U	5	U	5
Bromochloromethane	74-97-5	*	U	5	U	5	U	5	U	5	U	5
Bromodichloromethane	75-27-4	*	U	5	U	5	U	5	U	5	U	5
Bromoform	75-25-2	*	U	5	U	5	U	5	U	5	U	5
Bromomethane	74-83-9	*	U	5	U	5	U	5	U	5	U	5
Carbon Disulfide	75-15-0	2700	U	5	U	5	U	5	U	5	U	5

Table 1: Volatile Organic Compounds in Soil Samples
Laboratory Method: EPA Method 8260

PARAMETER	CAS No.	TAGM 4046 Rec. Soil Cleanup Obj. ug/kg	B8 [8'-10'] Soil ug/kg Dilution 1		B9 [14"-25 "] Soil ug/kg Dilution 1		B9 [5'-6'] Soil ug/kg Dilution 1		B10 [5'-7'] Soil ug/kg Dilution 1		B10 [9'-10'] Soil ug/kg Dilution 1	
			Concentration	Detection Limit	Concentration	Detection Limit	Concentration	Detection Limit	Concentration	Detection Limit	Concentration	Detection Limit
Carbon Tetrachloride	56-23-5	600	U	5	U	5	U	5	U	5	U	5
Chlorobenzene	108-90-7	1700	U	5	U	5	U	5	U	5	U	5
Chlorodifluoromethane	75-45-6	*	U	5	U	5	U	5	U	5	U	5
Chloroethane	75-00-3	1900	U	5	U	5	U	5	U	5	U	5
Chloroform	67-66-3	300	6.2	5	U	5	U	5	U	5	U	5
Chloromethane	74-87-3	*	U	5	U	5	U	5	U	5	U	5
cis-1,2-Dichloroethene	156-59-2	*	U	5	U	5	U	5	U	5	U	5
cis-1,3-Dichloropropene	10061-01-5	*	U	5	U	5	U	5	U	5	U	5
Dibromochloromethane	124-48-1	*	U	5	U	5	U	5	U	5	U	5
Dibromomethane	74-95-3	*	U	5	U	5	U	5	U	5	U	5
Dichlorodifluoromethane	75-71-8	*	U	5	U	5	U	5	U	5	U	5
Diisopropyl ehter	108-20-3	*	U	5	U	5	U	5	U	5	U	5
Ethanol	64-17-5	*	U	5	U	5	U	5	U	5	U	5
Ethyl acetate	141-78-6	*	U	5	U	5	U	5	U	5	U	5
Ethylbenzene	100-41-4	5500	U	5	U	5	U	5	U	5	U	5
Freon-114	76-14-2	*	U	5	U	5	U	5	U	5	U	5
Hexachlorobutadiene	87-68-3	*	U	5	U	5	U	5	U	5	U	5
Isopropyl acetate	108-21-4	*	U	5	U	5	U	5	U	5	U	5
Isopropylbenzene	98-82-8	*	U	5	U	5	U	5	U	5	U	5
m+p Xylene	108-38-3/106-42-3	1200	U	10	U	10	U	10	U	10	U	10
Methyl tert-butyl ether	1634-04-4	*	U	5	U	5	U	5	U	5	U	5
Methylene Chloride	75-09-2	100	U	5	U	5	U	5	U	5	U	5
Naphthalene	91-20-3	*	U	5	U	5	U	5	U	5	U	5
n-Butyl acetate	123-86-4	*	U	5	U	5	U	5	U	5	U	5
n-Butylbenzene	104-51-8	*	U	5	U	5	U	5	U	5	U	5
n-Propyl acetate	109-60-4	*	U	5	U	5	U	5	U	5	U	5
n-Propylbenzene	103-65-1	*	U	5	U	5	U	5	U	5	U	5
o-Xylene	95-47-6	1200	U	5	U	5	U	5	U	5	U	5
p-Diethylbenzene	105-05-5	*	U	5	U	5	U	5	U	5	U	5
p-Ethyltoluene	622-96-8	*	U	5	U	5	U	5	U	5	U	5
sec-Butylbenzene	135-98-8	*	U	5	U	5	U	5	U	5	U	5
Styrene	100-42-5	*	U	5	U	5	U	5	U	5	U	5
t-Butyl alcohol	75-65-0	*	U	5	U	5	U	5	U	5	U	5
tert-Butylbenzene	98-06-6	*	U	5	U	5	U	5	U	5	U	5
Tetrachloroethene	127-18-4	1400	U	5	U	5	U	5	U	5	U	5
Toluene	108-88-3	1500	U	5	U	5	U	5	U	5	U	5
trans-1,2-Dichloroethene	156-60-5	300	U	5	U	5	U	5	U	5	U	5
trans-1,3-Dichloropropene	10061-02-6	*	U	5	U	5	U	5	U	5	U	5
Trichloroethene	79-01-6	700	U	5	U	5	U	5	U	5	U	5
Trichlorofluoromethane	75-69-4	*	U	5	U	5	U	5	U	5	U	5
Vinyl Acetate	108-05-4	*	U	5	U	5	U	5	U	5	U	5
Vinyl Chloride	75-01-4	200	U	5	U	5	U	5	U	5	U	5
TOTAL VOCs			6.2		2		ND		ND		ND	

*** Not Applicable.**
ND Not Detected

Table 1: Volatile Organic Compounds in Soil Samples
Laboratory Method: EPA Method 8260

PARAMETER	CAS No.	TAGM 4046 Rec. Soil Cleanup Obj. ug/kg	B11 [1'-3'] Soil ug/kg Dilution 1		B11 [7'-9'] Soil ug/kg Dilution 1		B12 [0.5-2'] Soil ug/kg Dilution 1		B12 [5'-7'] Soil ug/kg Dilution 1		B13 [0.5'-2'] Soil ug/kg Dilution 1	
			Concentration	Detection Limit	Concentration	Detection Limit	Concentration	Detection Limit	Concentration	Detection Limit	Concentration	Detection Limit
1,1,1,2-Tetrachloroethane	630-20-6	*	U	5	U	5	U	5	U	5	U	5
1,1,1-Trichloroethane	71-55-6	800	U	5	U	5	U	5	U	5	U	5
1,1,2,2-Tetrachloroethane	79-34-5	600	U	5	U	5	U	5	U	5	U	5
1,1,2-Trichloro-1,2,2-trifluoroethane	76-13-1	*	U	5	U	5	U	5	U	5	U	5
1,1,2-Trichloroethane	79-00-5	*	U	5	U	5	U	5	U	5	U	5
1,1-Dichloroethane	75-34-3	200	U	5	U	5	U	5	U	5	U	5
1,1-Dichloroethene	75-35-4	400	U	5	U	5	U	5	U	5	U	5
1,1-Dichloropropene	563-58-6	*	U	5	U	5	U	5	U	5	U	5
1,2,3-Trichlorobenzene	87-61-6	*	U	5	U	5	U	5	U	5	U	5
1,2,3-Trichloropropane	96-18-4	400	U	5	U	5	U	5	U	5	U	5
1,2,4,5-Tetramethylbenzene	95-93-2	*	U	5	U	5	U	5	U	5	U	5
1,2,4-Trichlorobenzene	120-82-1	3400	U	5	U	5	U	5	U	5	U	5
1,2,4-Trimethylbenzene	95-63-6	*	3	5	U	5	U	5	U	5	U	5
1,2-Dibromo-3-chloropropane	96-12-8	*	U	5	U	5	U		U	5	U	5
1,2-Dibromoethane	106-93-4	*	U	5	U	5	U	5	U	5	U	5
1,2-Dichlorobenzene	95-50-1	7900	U	5	U	5	U	5	U	5	U	5
1,2-Dichloroethane	107-06-2	100	U	5	U	5	U	5	U	5	U	5
1,2-Dichloropropane	78-87-5	*	U	5	U	5	U	5	U	5	U	5
1,3,5-Trimethylbenzene	108-67-8	*	4	5	U	5	U	5	U	5	U	5
1,3-Dichlorobenzene	541-73-1	1600	U	5	U	5	U	5	U	5	U	5
1,3-Dichloropropane	142-28-9	300	U	5	U	5	U	5	U	5	U	5
1,4-Dichlorobenzene	106-46-7	8500	U	5	U	5	U	5	U	5	U	5
2,2-Dichloropropane	594-20-7	*	U	5	U	5	U	5	U	5	U	5
2-Butanone	78-93-3	300	U	5	U	5	U	5	U	5	U	5
2-Chloroethyl vinyl ether	110-75-8	*	U	5	U	5	U	5	U	5	U	5
2-Chlorotoluene	95-49-8	*	U	5	U	5	U	5	U	5	U	5
2-Hexanone	591-78-6	*	U	5	U	5	U	5	U	5	U	5
4-Chlorotoluene	106-43-4	*	U	5	U	5	U	5	U	5	U	5
4-Isopropyltoluene	99-87-6	*	10	5	U	5	U	5	U	5	U	5
4-Methyl-2-Pentanone	108-10-1	1000	U	5	U	5	U	5	U	5	U	5
Acetone	67-64-1	200	U	5	U	5	U	5	U	5	U	5
Acrolein	107-02-8	*	U	25	U	25	U	25	U	25	U	25
Acrylonitrile	107-13-1	*	U	5	U	5	U	5	U	5	U	5
Benzene	71-43-2	60	U	5	U	5	U	5	U	5	U	5
Bromobenzene	108-86-1	*	U	5	U	5	U	5	U	5	U	5
Bromochloromethane	74-97-5	*	U	5	U	5	U	5	U	5	U	5
Bromodichloromethane	75-27-4	*	U	5	U	5	U	5	U	5	U	5
Bromoform	75-25-2	*	U	5	U	5	U	5	U	5	U	5
Bromomethane	74-83-9	*	U	5	U	5	U	5	U	5	U	5
Carbon Disulfide	75-15-0	2700	U	5	U	5	U	5	U	5	U	5

Table 1: Volatile Organic Compounds in Soil Samples
Laboratory Method: EPA Method 8260

PARAMETER	CAS No.	TAGM 4046 Rec. Soil Cleanup Obj. ug/kg	B11 [1'-3'] Soil ug/kg Dilution 1		B11 [7'-9'] Soil ug/kg Dilution 1		B12 [0.5-2'] Soil ug/kg Dilution 1		B12 [5'-7'] Soil ug/kg Dilution 1		B13 [0.5'-2'] Soil ug/kg Dilution 1	
			Concentration	Detection Limit	Concentration	Detection Limit	Concentration	Detection Limit	Concentration	Detection Limit	Concentration	Detection Limit
Carbon Tetrachloride	56-23-5	600	U	5	U	5	U	5	U	5	U	5
Chlorobenzene	108-90-7	1700	U	5	U	5	U	5	U	5	U	5
Chlorodifluoromethane	75-45-6	*	U	5	U	5	U	5	U	5	U	5
Chloroethane	75-00-3	1900	U	5	U	5	U	5	U	5	U	5
Chloroform	67-66-3	300	U	5	U	5	U	5	U	5	U	5
Chloromethane	74-87-3	*	U	5	U	5	U	5	U	5	U	5
cis-1,2-Dichloroethene	156-59-2	*	U	5	U	5	U	5	U	5	U	5
cis-1,3-Dichloropropene	10061-01-5	*	U	5	U	5	U	5	U	5	U	5
Dibromochloromethane	124-48-1	*	U	5	U	5	U	5	U	5	U	5
Dibromomethane	74-95-3	*	U	5	U	5	U	5	U	5	U	5
Dichlorodifluoromethane	75-71-8	*	U	5	U	5	U	5	U	5	U	5
Diisopropyl ehter	108-20-3	*	U	5	U	5	U	5	U	5	U	5
Ethanol	64-17-5	*	U	5	U	5	U	5	U	5	U	5
Ethyl acetate	141-78-6	*	U	5	U	5	U	5	U	5	U	5
Ethylbenzene	100-41-4	5500	U	5	U	5	U	5	U	5	U	5
Freon-114	76-14-2	*	U	5	U	5	U	5	U	5	U	5
Hexachlorobutadiene	87-68-3	*	U	5	U	5	U	5	U	5	U	5
Isopropyl acetate	108-21-4	*	U	5	U	5	U	5	U	5	U	5
Isopropylbenzene	98-82-8	*	U	5	U	5	U	5	U	5	U	5
m+p Xylene	108-38-3/106-42-3	1200	U	10	U	10	U	10	U	10	U	10
Methyl tert-butyl ether	1634-04-4	*	U	5	U	5	U	5	U	5	U	5
Methylene Chloride	75-09-2	100	U	5	U	5	U	5	U	5	U	5
Naphthalene	91-20-3	*	110	5	U	5	U	5	U	5	U	5
n-Butyl acetate	123-86-4	*	U	5	U	5	U	5	U	5	U	5
n-Butylbenzene	104-51-8	*	U	5	U	5	U	5	U	5	U	5
n-Propyl acetate	109-60-4	*	U	5	U	5	U	5	U	5	U	5
n-Propylbenzene	103-65-1	*	U	5	U	5	U	5	U	5	U	5
o-Xylene	95-47-6	1200	3	5	U	5	U	5	U	5	U	5
p-Diethylbenzene	105-05-5	*	11	5	U	5	U	5	U	5	U	5
p-Ethyltoluene	622-96-8	*	6.8	5	U	5	U	5	U	5	U	5
sec-Butylbenzene	135-98-8	*	U	5	U	5	U	5	U	5	U	5
Styrene	100-42-5	*	U	5	U	5	U	5	U	5	U	5
t-Butyl alcohol	75-65-0	*	U	5	U	5	U	5	U	5	U	5
tert-Butylbenzene	98-06-6	*	U	5	U	5	U	5	U	5	U	5
Tetrachloroethene	127-18-4	1400	U	5	U	5	U	5	U	5	U	5
Toluene	108-88-3	1500	U	5	U	5	U	5	U	5	U	5
trans-1,2-Dichloroethene	156-60-5	300	U	5	U	5	U	5	U	5	U	5
trans-1,3-Dichloropropene	10061-02-6	*	U	5	U	5	U	5	U	5	U	5
Trichloroethene	79-01-6	700	U	5	U	5	U	5	U	5	U	5
Trichlorofluoromethane	75-69-4	*	U	5	U	5	U	5	U	5	U	5
Vinyl Acetate	108-05-4	*	U	5	U	5	U	5	U	5	U	5
Vinyl Chloride	75-01-4	200	U	5	U	5	U	5	U	5	U	5
TOTAL VOCs			147.8		ND		ND		ND		ND	

*** Not Applicable.**
ND Not Detected

Table 1: Volatile Organic Compounds in Soil Samples
Laboratory Method: EPA Method 8260

PARAMETER	CAS No.	TAGM 4046 Rec. Soil Cleanup Obj. ug/kg	B13 [5'-7'] Soil ug/kg Dilution 1		B14 [2'-3.5'] Soil ug/kg Dilution 1		B14 [6'-8'] Soil ug/kg Dilution 1		B15 [8.0'-9.0'] Soil ug/kg Dilution 1		B15 [0.5'-2'] Soil ug/kg Dilution 1	
			Concentration	Detection Limit	Concentration	Detection Limit	Concentration	Detection Limit	Concentration	Detection Limit	Concentration	Detection Limit
1,1,1,2-Tetrachloroethane	630-20-6	*	U	5	U	5	U	5	U	5	U	5
1,1,1-Trichloroethane	71-55-6	800	U	5	U	5	U	5	U	5	U	5
1,1,2,2-Tetrachloroethane	79-34-5	600	U	5	U	5	U	5	U	5	U	5
1,1,2-Trichloro-1,2,2-trifluoroethane	76-13-1	*	U	5	U	5	U	5	U	5	U	5
1,1,2-Trichloroethane	79-00-5	*	U	5	U	5	U	5	U	5	U	5
1,1-Dichloroethane	75-34-3	200	U	5	U	5	U	5	U	5	U	5
1,1-Dichloroethene	75-35-4	400	U	5	U	5	U	5	U	5	U	5
1,1-Dichloropropene	563-58-6	*	U	5	U	5	U	5	U	5	U	5
1,2,3-Trichlorobenzene	87-61-6	*	U	5	U	5	U	5	U	5	U	5
1,2,3-Trichloropropane	96-18-4	400	U	5	U	5	U	5	U	5	U	5
1,2,4,5-Tetramethylbenzene	95-93-2	*	U	5	U	5	U	5	U	5	U	5
1,2,4-Trichlorobenzene	120-82-1	3400	U	5	U	5	U	5	U	5	U	5
1,2,4-Trimethylbenzene	95-63-6	*	U	5	U	5	U	5	U	5	U	5
1,2-Dibromo-3-chloropropane	96-12-8	*	U	5	U	5	U	5	U	5	U	5
1,2-Dibromoethane	106-93-4	*	U	5	U	5	U	5	U	5	U	5
1,2-Dichlorobenzene	95-50-1	7900	U	5	U	5	U	5	U	5	U	5
1,2-Dichloroethane	107-06-2	100	U	5	U	5	U	5	U	5	U	5
1,2-Dichloropropane	78-87-5	*	U	5	U	5	U	5	U	5	U	5
1,3,5-Trimethylbenzene	108-67-8	*	U	5	U	5	U	5	U	5	U	5
1,3-Dichlorobenzene	541-73-1	1600	U	5	U	5	U	5	U	5	U	5
1,3-Dichloropropane	142-28-9	300	U	5	U	5	U	5	U	5	U	5
1,4-Dichlorobenzene	106-46-7	8500	U	5	U	5	U	5	U	5	U	5
2,2-Dichloropropane	594-20-7	*	U	5	U	5	U	5	U	5	U	5
2-Butanone	78-93-3	300	U	5	U	5	U	5	U	5	U	5
2-Chloroethyl vinyl ether	110-75-8	*	U	5	U	5	U	5	U	5	U	5
2-Chlorotoluene	95-49-8	*	U	5	U	5	U	5	U	5	U	5
2-Hexanone	591-78-6	*	U	5	U	5	U	5	U	5	U	5
4-Chlorotoluene	106-43-4	*	U	5	U	5	U	5	U	5	U	5
4-Isopropyltoluene	99-87-6	*	U	5	U	5	U	5	U	5	U	5
4-Methyl-2-Pentanone	108-10-1	1000	U	5	U	5	U	5	U	5	U	5
Acetone	67-64-1	200	U	5	U	5	U	5	44	5	U	5
Acrolein	107-02-8	*	U	25	U	25	U	25	U	25	U	25
Acrylonitrile	107-13-1	*	U	5	U	5	U	5	U	5	U	5
Benzene	71-43-2	60	U	5	U	5	U	5	U	5	U	5
Bromobenzene	108-86-1	*	U	5	U	5	U	5	U	5	U	5
Bromochloromethane	74-97-5	*	U	5	U	5	U	5	U	5	U	5
Bromodichloromethane	75-27-4	*	U	5	U	5	U	5	U	5	U	5
Bromoform	75-25-2	*	U	5	U	5	U	5	U	5	U	5
Bromomethane	74-83-9	*	U	5	U	5	U	5	U	5	U	5
Carbon Disulfide	75-15-0	2700	U	5	U	5	U	5	U	5	U	5

Table 1: Volatile Organic Compounds in Soil Samples
Laboratory Method: EPA Method 8260

PARAMETER	CAS No.	TAGM 4046 Rec. Soil Cleanup Obj. ug/kg	B13 [5'-7'] Soil ug/kg Dilution 1		B14 [2'-3.5'] Soil ug/kg Dilution 1		B14 [6'-8'] Soil ug/kg Dilution 1		B15 [8.0'-9.0'] Soil ug/kg Dilution 1		B15 [0.5'-2'] Soil ug/kg Dilution 1	
			Concentration	Detection Limit	Concentration	Detection Limit	Concentration	Detection Limit	Concentration	Detection Limit	Concentration	Detection Limit
Carbon Tetrachloride	56-23-5	600	U	5	U	5	U	5	U	5	U	5
Chlorobenzene	108-90-7	1700	U	5	U	5	U	5	U	5	U	5
Chlorodifluoromethane	75-45-6	*	U	5	U	5	U	5	U	5	U	5
Chloroethane	75-00-3	1900	U	5	U	5	U	5	U	5	U	5
Chloroform	67-66-3	300	U	5	U	5	U	5	U	5	U	5
Chloromethane	74-87-3	*	U	5	U	5	U	5	U	5	U	5
cis-1,2-Dichloroethene	156-59-2	*	U	5	U	5	U	5	U	5	U	5
cis-1,3-Dichloropropene	10061-01-5	*	U	5	U	5	U	5	U	5	U	5
Dibromochloromethane	124-48-1	*	U	5	U	5	U	5	U	5	U	5
Dibromomethane	74-95-3	*	U	5	U	5	U	5	U	5	U	5
Dichlorodifluoromethane	75-71-8	*	U	5	U	5	U	5	U	5	U	5
Diisopropyl ehter	108-20-3	*	U	5	U	5	U	5	U	5	U	5
Ethanol	64-17-5	*	U	5	U	5	U	5	U	5	U	5
Ethyl acetate	141-78-6	*	U	5	U	5	U	5	U	5	U	5
Ethylbenzene	100-41-4	5500	U	5	U	5	U	5	U	5	U	5
Freon-114	76-14-2	*	U	5	U	5	U	5	U	5	U	5
Hexachlorobutadiene	87-68-3	*	U	5	U	5	U	5	U	5	U	5
Isopropyl acetate	108-21-4	*	U	5	U	5	U	5	U	5	U	5
Isopropylbenzene	98-82-8	*	U	5	U	5	U	5	U	5	U	5
m+p Xylene	108-38-3/106-42-3	1200	U	10	U	10	U	10	U	10	U	10
Methyl tert-butyl ether	1634-04-4	*	U	5	U	5	U	5	U	5	U	5
Methylene Chloride	75-09-2	100	U	5	U	5	U	5	U	5	U	5
Naphthalene	91-20-3	*	U	5	U	5	U	5	U	5	U	5
n-Butyl acetate	123-86-4	*	U	5	U	5	U	5	U	5	U	5
n-Butylbenzene	104-51-8	*	U	5	U	5	U	5	U	5	U	5
n-Propyl acetate	109-60-4	*	U	5	U	5	U	5	U	5	U	5
n-Propylbenzene	103-65-1	*	U	5	U	5	U	5	U	5	U	5
o-Xylene	95-47-6	1200	U	5	U	5	U	5	U	5	U	5
p-Diethylbenzene	105-05-5	*	U	5	U	5	U	5	U	5	U	5
p-Ethyltoluene	622-96-8	*	U	5	U	5	U	5	U	5	U	5
sec-Butylbenzene	135-98-8	*	U	5	U	5	U	5	U	5	U	5
Styrene	100-42-5	*	U	5	U	5	U	5	U	5	U	5
t-Butyl alcohol	75-65-0	*	U	5	U	5	U	5	U	5	U	5
tert-Butylbenzene	98-06-6	*	U	5	U	5	U	5	U	5	U	5
Tetrachloroethene	127-18-4	1400	U	5	U	5	U	5	U	5	U	5
Toluene	108-88-3	1500	U	5	U	5	U	5	U	5	U	5
trans-1,2-Dichloroethene	156-60-5	300	U	5	U	5	U	5	U	5	U	5
trans-1,3-Dichloropropene	10061-02-6	*	U	5	U	5	U	5	U	5	U	5
Trichloroethene	79-01-6	700	U	5	3	5	U	5	U	5	U	5
Trichlorofluoromethane	75-69-4	*	U	5	U	5	U	5	U	5	U	5
Vinyl Acetate	108-05-4	*	U	5	U	5	U	5	U	5	U	5
Vinyl Chloride	75-01-4	200	U	5	U	5	U	5	U	5	U	5
TOTAL VOCs			ND		3		ND		44		ND	

*** Not Applicable.**
ND Not Detected

Table 1: Volatile Organic Compounds in Soil Samples
Laboratory Method: EPA Method 8260

PARAMETER	CAS No.	TAGM 4046 Rec. Soil Cleanup Obj. ug/kg	MW6 [0.5'-2'] Soil ug/kg Dilution 1		MW6 [6'-7'] Soil ug/kg Dilution 1		MW7 [10'-11'] Soil ug/kg Dilution 1		MW7 [6.5-7.5'] Soil ug/kg Dilution 1		MW8 [2'-4'] Soil ug/kg Dilution 1	
			Concentration	Detection Limit	Concentration	Detection Limit	Concentration	Detection Limit	Concentration	Detection Limit	Concentration	Detection Limit
1,1,1,2-Tetrachloroethane	630-20-6	*	U	5	U	5	U	5	U	5	U	5
1,1,1-Trichloroethane	71-55-6	800	U	5	U	5	U	5	U	5	U	5
1,1,2,2-Tetrachloroethane	79-34-5	600	U	5	U	5	U	5	U	5	U	5
1,1,2-Trichloro-1,2,2-trifluoroethane	76-13-1	*	U	5	U	5	U	5	U	5	U	5
1,1,2-Trichloroethane	79-00-5	*	U	5	U	5	U	5	U	5	U	5
1,1-Dichloroethane	75-34-3	200	U	5	U	5	U	5	U	5	U	5
1,1-Dichloroethene	75-35-4	400	U	5	U	5	U	5	U	5	U	5
1,1-Dichloropropene	563-58-6	*	U	5	U	5	U	5	U	5	U	5
1,2,3-Trichlorobenzene	87-61-6	*	U	5	U	5	U	5	U	5	U	5
1,2,3-Trichloropropane	96-18-4	400	U	5	U	5	U	5	U	5	U	5
1,2,4,5-Tetramethylbenzene	95-93-2	*	U	5	U	5	U	5	U	5	U	5
1,2,4-Trichlorobenzene	120-82-1	3400	U	5	U	5	U	5	U	5	U	5
1,2,4-Trimethylbenzene	95-63-6	*	U	5	U	5	U	5	U	5	U	5
1,2-Dibromo-3-chloropropane	96-12-8	*	U	5	U	5	U	5	U	5	U	5
1,2-Dibromoethane	106-93-4	*	U	5	U	5	U	5	U	5	U	5
1,2-Dichlorobenzene	95-50-1	7900	U	5	U	5	U	5	U	5	U	5
1,2-Dichloroethane	107-06-2	100	U	5	U	5	U	5	U	5	U	5
1,2-Dichloropropane	78-87-5	*	U	5	U	5	U	5	U	5	U	5
1,3,5-Trimethylbenzene	108-67-8	*	U	5	U	5	U	5	U	5	U	5
1,3-Dichlorobenzene	541-73-1	1600	U	5	U	5	U	5	U	5	U	5
1,3-Dichloropropane	142-28-9	300	U	5	U	5	U	5	U	5	U	5
1,4-Dichlorobenzene	106-46-7	8500	U	5	U	5	U	5	U	5	U	5
2,2-Dichloropropane	594-20-7	*	U	5	U	5	U	5	U	5	U	5
2-Butanone	78-93-3	300	U	5	U	5	U	5	U	5	U	5
2-Chloroethyl vinyl ether	110-75-8	*	U	5	U	5	U	5	U	5	U	5
2-Chlorotoluene	95-49-8	*	U	5	U	5	U	5	U	5	U	5
2-Hexanone	591-78-6	*	U	5	U	5	U	5	U	5	U	5
4-Chlorotoluene	106-43-4	*	U	5	U	5	U	5	U	5	U	5
4-Isopropyltoluene	99-87-6	*	U	5	U	5	U	5	U	5	U	5
4-Methyl-2-Pentanone	108-10-1	1000	U	5	U	5	U	5	U	5	U	5
Acetone	67-64-1	200	U	5	U	5	64	5	U	5	U	5
Acrolein	107-02-8	*	U	25	U	25	U	25	U	25	U	25
Acrylonitrile	107-13-1	*	U	5	U	5	U	5	U	5	U	5
Benzene	71-43-2	60	U	5	U	5	U	5	U	5	U	5
Bromobenzene	108-86-1	*	U	5	U	5	U	5	U	5	U	5
Bromochloromethane	74-97-5	*	U	5	U	5	U	5	U	5	U	5
Bromodichloromethane	75-27-4	*	U	5	U	5	U	5	U	5	U	5
Bromoform	75-25-2	*	U	5	U	5	U	5	U	5	U	5
Bromomethane	74-83-9	*	U	5	U	5	U	5	U	5	U	5
Carbon Disulfide	75-15-0	2700	U	5	U	5	U	5	U	5	U	5

Table 1: Volatile Organic Compounds in Soil Samples
Laboratory Method: EPA Method 8260

PARAMETER	CAS No.	TAGM 4046 Rec. Soil Cleanup Obj. ug/kg	MW6 [0.5'-2'] Soil ug/kg Dilution 1		MW6 [6'-7'] Soil ug/kg Dilution 1		MW7 [10'-11'] Soil ug/kg Dilution 1		MW7 [6.5-7.5'] Soil ug/kg Dilution 1		MW8 [2'-4'] Soil ug/kg Dilution 1	
			Concentration	Detection Limit	Concentration	Detection Limit	Concentration	Detection Limit	Concentration	Detection Limit	Concentration	Detection Limit
Carbon Tetrachloride	56-23-5	600	U	5	U	5	U	5	U	5	U	5
Chlorobenzene	108-90-7	1700	U	5	U	5	U	5	U	5	U	5
Chlorodifluoromethane	75-45-6	*	U	5	U	5	U	5	U	5	U	5
Chloroethane	75-00-3	1900	U	5	U	5	U	5	U	5	U	5
Chloroform	67-66-3	300	U	5	U	5	U	5	U	5	U	5
Chloromethane	74-87-3	*	U	5	U	5	U	5	U	5	U	5
cis-1,2-Dichloroethene	156-59-2	*	U	5	U	5	U	5	U	5	U	5
cis-1,3-Dichloropropene	10061-01-5	*	U	5	U	5	U	5	U	5	U	5
Dibromochloromethane	124-48-1	*	U	5	U	5	U	5	U	5	U	5
Dibromomethane	74-95-3	*	U	5	U	5	U	5	U	5	U	5
Dichlorodifluoromethane	75-71-8	*	U	5	U	5	U	5	U	5	U	5
Diisopropyl ehter	108-20-3	*	U	5	U	5	U	5	U	5	U	5
Ethanol	64-17-5	*	U	5	U	5	U	5	U	5	U	5
Ethyl acetate	141-78-6	*	U	5	U	5	U	5	U	5	U	5
Ethylbenzene	100-41-4	5500	U	5	U	5	U	5	U	5	U	5
Freon-114	76-14-2	*	U	5	U	5	U	5	U	5	U	5
Hexachlorobutadiene	87-68-3	*	U	5	U	5	U	5	U	5	U	5
Isopropyl acetate	108-21-4	*	U	5	U	5	U	5	U	5	U	5
Isopropylbenzene	98-82-8	*	U	5	U	5	U	5	U	5	U	5
m+p Xylene	108-38-3/106-42-3	1200	U	10	U	10	U	10	U	10	U	10
Methyl tert-butyl ether	1634-04-4	*	U	5	U	5	U	5	U	5	U	5
Methylene Chloride	75-09-2	100	U	5	U	5	U	5	U	5	U	5
Naphthalene	91-20-3	*	U	5	U	5	U	5	U	5	U	5
n-Butyl acetate	123-86-4	*	U	5	U	5	U	5	U	5	U	5
n-Butylbenzene	104-51-8	*	U	5	U	5	U	5	U	5	U	5
n-Propyl acetate	109-60-4	*	U	5	U	5	U	5	U	5	U	5
n-Propylbenzene	103-65-1	*	U	5	U	5	U	5	U	5	U	5
o-Xylene	95-47-6	1200	U	5	U	5	U	5	U	5	U	5
p-Diethylbenzene	105-05-5	*	U	5	U	5	U	5	U	5	U	5
p-Ethyltoluene	622-96-8	*	U	5	U	5	U	5	U	5	U	5
sec-Butylbenzene	135-98-8	*	U	5	U	5	U	5	U	5	U	5
Styrene	100-42-5	*	U	5	U	5	U	5	U	5	U	5
t-Butyl alcohol	75-65-0	*	U	5	U	5	U	5	U	5	U	5
tert-Butylbenzene	98-06-6	*	U	5	U	5	U	5	U	5	U	5
Tetrachloroethene	127-18-4	1400	U	5	U	5	U	5	U	5	U	5
Toluene	108-88-3	1500	U	5	U	5	U	5	U	5	U	5
trans-1,2-Dichloroethene	156-60-5	300	U	5	U	5	U	5	U	5	U	5
trans-1,3-Dichloropropene	10061-02-6	*	U	5	U	5	U	5	U	5	U	5
Trichloroethene	79-01-6	700	U	5	U	5	U	5	U	5	U	5
Trichlorofluoromethane	75-69-4	*	U	5	U	5	U	5	U	5	U	5
Vinyl Acetate	108-05-4	*	U	5	U	5	U	5	U	5	U	5
Vinyl Chloride	75-01-4	200	U	5	U	5	U	5	U	5	U	5
TOTAL VOCs			ND		ND		64		ND		ND	

*** Not Applicable.**
ND Not Detected

Table 1: Volatile Organic Compounds in Soil Samples
Laboratory Method: EPA Method 8260

PARAMETER	CAS No.	TAGM 4046 Rec. Soil Cleanup Obj. ug/kg	MW8 [5'-6.5'] Soil ug/kg Dilution 1		MW9 [1.5'-3.5'] Soil ug/kg Dilution 1		MW9 [5'-6'] Soil ug/kg Dilution 1		MW10 [0.5'-2'] Soil ug/kg Dilution 1		MW10 [5'-7'] Soil ug/kg Dilution 1	
			Concentration	Detection Limit	Concentration	Detection Limit	Concentration	Detection Limit	Concentration	Detection Limit	Concentration	Detection Limit
1,1,1,2-Tetrachloroethane	630-20-6	*	U	5	U	5	U	5	U	5	U	5
1,1,1-Trichloroethane	71-55-6	800	U	5	U	5	U	5	U	5	U	5
1,1,2,2-Tetrachloroethane	79-34-5	600	U	5	U	5	U	5	U	5	U	5
1,1,2-Trichloro-1,2,2-trifluoroethane	76-13-1	*	U	5	U	5	U	5	U	5	U	5
1,1,2-Trichloroethane	79-00-5	*	U	5	U	5	U	5	U	5	U	5
1,1-Dichloroethane	75-34-3	200	U	5	U	5	U	5	U	5	U	5
1,1-Dichloroethene	75-35-4	400	U	5	U	5	U	5	U	5	U	5
1,1-Dichloropropene	563-58-6	*	U	5	U	5	U	5	U	5	U	5
1,2,3-Trichlorobenzene	87-61-6	*	U	5	U	5	U	5	U	5	U	5
1,2,3-Trichloropropane	96-18-4	400	U	5	U	5	U	5	U	5	U	5
1,2,4,5-Tetramethylbenzene	95-93-2	*	U	5	U	5	U	5	U	5	U	5
1,2,4-Trichlorobenzene	120-82-1	3400	U	5	U	5	U	5	U	5	U	5
1,2,4-Trimethylbenzene	95-63-6	*	U	5	U	5	U	5	U	5	U	5
1,2-Dibromo-3-chloropropane	96-12-8	*	U	5	U	5	U	5	U	5	U	5
1,2-Dibromoethane	106-93-4	*	U	5	U	5	U	5	U	5	U	5
1,2-Dichlorobenzene	95-50-1	7900	U	5	U	5	U	5	U	5	U	5
1,2-Dichloroethane	107-06-2	100	U	5	U	5	U	5	U	5	U	5
1,2-Dichloropropane	78-87-5	*	U	5	U	5	U	5	U	5	U	5
1,3,5-Trimethylbenzene	108-67-8	*	U	5	U	5	U	5	U	5	U	5
1,3-Dichlorobenzene	541-73-1	1600	U	5	U	5	U	5	U	5	U	5
1,3-Dichloropropane	142-28-9	300	U	5	U	5	U	5	U	5	U	5
1,4-Dichlorobenzene	106-46-7	8500	U	5	U	5	U	5	U	5	U	5
2,2-Dichloropropane	594-20-7	*	U	5	U	5	U	5	U	5	U	5
2-Butanone	78-93-3	300	U	5	U	5	U	5	U	5	U	5
2-Chloroethyl vinyl ether	110-75-8	*	U	5	U	5	U	5	U	5	U	5
2-Chlorotoluene	95-49-8	*	U	5	U	5	U	5	U	5	U	5
2-Hexanone	591-78-6	*	U	5	U	5	U	5	U	5	U	5
4-Chlorotoluene	106-43-4	*	U	5	U	5	U	5	U	5	U	5
4-Isopropyltoluene	99-87-6	*	U	5	U	5	U	5	U	5	U	5
4-Methyl-2-Pentanone	108-10-1	1000	U	5	U	5	U	5	U	5	U	5
Acetone	67-64-1	200	U	5	U	5	U	5	U	5	U	5
Acrolein	107-02-8	*	U	25	U	25	U	25	U	25	U	25
Acrylonitrile	107-13-1	*	U	5	U	5	U	5	U	5	U	5
Benzene	71-43-2	60	U	5	U	5	U	5	U	5	U	5
Bromobenzene	108-86-1	*	U	5	U	5	U	5	U	5	U	5
Bromochloromethane	74-97-5	*	U	5	U	5	U	5	U	5	U	5
Bromodichloromethane	75-27-4	*	U	5	U	5	U	5	U	5	U	5
Bromoform	75-25-2	*	U	5	U	5	U	5	U	5	U	5
Bromomethane	74-83-9	*	U	5	U	5	U	5	U	5	U	5
Carbon Disulfide	75-15-0	2700	U	5	U	5	U	5	U	5	U	5

Table 1: Volatile Organic Compounds in Soil Samples
Laboratory Method: EPA Method 8260

PARAMETER	CAS No.	TAGM 4046 Rec. Soil Cleanup Obj. ug/kg	MW8 [5'-6.5'] Soil ug/kg Dilution 1		MW9 [1.5'-3.5'] Soil ug/kg Dilution 1		MW9 [5'-6'] Soil ug/kg Dilution 1		MW10 [0.5'-2'] Soil ug/kg Dilution 1		MW10 [5'-7'] Soil ug/kg Dilution 1	
			Concentration	Detection Limit	Concentration	Detection Limit	Concentration	Detection Limit	Concentration	Detection Limit	Concentration	Detection Limit
Carbon Tetrachloride	56-23-5	600	U	5	U	5	U	5	U	5	U	5
Chlorobenzene	108-90-7	1700	U	5	U	5	U	5	U	5	U	5
Chlorodifluoromethane	75-45-6	*	U	5	U	5	U	5	U	5	U	5
Chloroethane	75-00-3	1900	U	5	U	5	U	5	U	5	U	5
Chloroform	67-66-3	300	U	5	U	5	U	5	U	5	U	5
Chloromethane	74-87-3	*	U	5	U	5	U	5	U	5	U	5
cis-1,2-Dichloroethene	156-59-2	*	U	5	U	5	U	5	U	5	U	5
cis-1,3-Dichloropropene	10061-01-5	*	U	5	U	5	U	5	U	5	U	5
Dibromochloromethane	124-48-1	*	U	5	U	5	U	5	U	5	U	5
Dibromomethane	74-95-3	*	U	5	U	5	U	5	U	5	U	5
Dichlorodifluoromethane	75-71-8	*	U	5	U	5	U	5	U	5	U	5
Diisopropyl ehter	108-20-3	*	U	5	U	5	U	5	U	5	U	5
Ethanol	64-17-5	*	U	5	U	5	U	5	U	5	U	5
Ethyl acetate	141-78-6	*	U	5	U	5	U	5	U	5	U	5
Ethylbenzene	100-41-4	5500	U	5	U	5	U	5	U	5	U	5
Freon-114	76-14-2	*	U	5	U	5	U	5	U	5	U	5
Hexachlorobutadiene	87-68-3	*	U	5	U	5	U	5	U	5	U	5
Isopropyl acetate	108-21-4	*	U	5	U	5	U	5	U	5	U	5
Isopropylbenzene	98-82-8	*	U	5	U	5	U	5	U	5	U	5
m+p Xylene	108-38-3/106-42-3	1200	U	10	U	10	U	10	U	10	U	10
Methyl tert-butyl ether	1634-04-4	*	U	5	U	5	U	5	U	5	U	5
Methylene Chloride	75-09-2	100	U	5	U	5	U	5	U	5	U	5
Naphthalene	91-20-3	*	U	5	U	5	U	5	U	5	U	5
n-Butyl acetate	123-86-4	*	U	5	U	5	U	5	U	5	U	5
n-Butylbenzene	104-51-8	*	U	5	U	5	U	5	U	5	U	5
n-Propyl acetate	109-60-4	*	U	5	U	5	U	5	U	5	U	5
n-Propylbenzene	103-65-1	*	U	5	U	5	U	5	U	5	U	5
o-Xylene	95-47-6	1200	U	5	U	5	U	5	U	5	U	5
p-Diethylbenzene	105-05-5	*	U	5	U	5	U	5	U	5	U	5
p-Ethyltoluene	622-96-8	*	U	5	U	5	U	5	U	5	U	5
sec-Butylbenzene	135-98-8	*	U	5	U	5	U	5	U	5	U	5
Styrene	100-42-5	*	U	5	U	5	U	5	U	5	U	5
t-Butyl alcohol	75-65-0	*	U	5	U	5	U	5	U	5	U	5
tert-Butylbenzene	98-06-6	*	U	5	U	5	U	5	U	5	U	5
Tetrachloroethene	127-18-4	1400	U	5	U	5	U	5	U	5	U	5
Toluene	108-88-3	1500	U	5	U	5	U	5	U	5	U	5
trans-1,2-Dichloroethene	156-60-5	300	U	5	U	5	U	5	U	5	U	5
trans-1,3-Dichloropropene	10061-02-6	*	U	5	U	5	U	5	U	5	U	5
Trichloroethene	79-01-6	700	U	5	U	5	U	5	U	5	U	5
Trichlorofluoromethane	75-69-4	*	U	5	U	5	U	5	U	5	U	5
Vinyl Acetate	108-05-4	*	U	5	U	5	U	5	U	5	U	5
Vinyl Chloride	75-01-4	200	U	5	U	5	U	5	U	5	U	5
TOTAL VOCs			ND		ND		ND		ND		ND	

*** Not Applicable.**
ND Not Detected

Table 1: Volatile Organic Compounds in Soil Samples
Laboratory Method: EPA Method 8260

PARAMETER	CAS No.	TAGM 4046 Rec. Soil Cleanup Obj. ug/kg	MW11 [0.5'-2'] Soil ug/kg Dilution 1		MW11 [7'-9'] Soil ug/kg Dilution 1		MW-12 [0.5'-2'] Soil ug/kg Dilution 1		MW12 [4.5'-5.5'] Soil ug/kg Dilution 1		MW13 [0.5'-2'] Soil ug/kg Dilution 1	
			Concentration	Detection Limit	Concentration	Detection Limit	Concentration	Detection Limit	Concentration	Detection Limit	Concentration	Detection Limit
1,1,1,2-Tetrachloroethane	630-20-6	*	U	5	U	5	U	5	U	5	U	5
1,1,1-Trichloroethane	71-55-6	800	U	5	U	5	U	5	U	5	U	5
1,1,2,2-Tetrachloroethane	79-34-5	600	U	5	U	5	U	5	U	5	U	5
1,1,2-Trichloro-1,2,2-trifluoroethane	76-13-1	*	U	5	U	5	U	5	U	5	U	5
1,1,2-Trichloroethane	79-00-5	*	U	5	U	5	U	5	U	5	U	5
1,1-Dichloroethane	75-34-3	200	U	5	U	5	U	5	U	5	U	5
1,1-Dichloroethene	75-35-4	400	U	5	U	5	U	5	U	5	U	5
1,1-Dichloropropene	563-58-6	*	U	5	U	5	U	5	U	5	U	5
1,2,3-Trichlorobenzene	87-61-6	*	U	5	U	5	U	5	U	5	U	5
1,2,3-Trichloropropane	96-18-4	400	U	5	U	5	U	5	U	5	U	5
1,2,4,5-Tetramethylbenzene	95-93-2	*	U	5	U	5	U	5	U	5	U	5
1,2,4-Trichlorobenzene	120-82-1	3400	U	5	U	5	U	5	U	5	U	5
1,2,4-Trimethylbenzene	95-63-6	*	U	5	U	5	U	5	U	5	U	5
1,2-Dibromo-3-chloropropane	96-12-8	*	U	5	U	5	U	5	U	5	U	5
1,2-Dibromoethane	106-93-4	*	U	5	U	5	U	5	U	5	U	5
1,2-Dichlorobenzene	95-50-1	7900	U	5	U	5	U	5	U	5	U	5
1,2-Dichloroethane	107-06-2	100	U	5	U	5	U	5	U	5	U	5
1,2-Dichloropropane	78-87-5	*	U	5	U	5	U	5	U	5	U	5
1,3,5-Trimethylbenzene	108-67-8	*	U	5	U	5	U	5	U	5	U	5
1,3-Dichlorobenzene	541-73-1	1600	U	5	U	5	U	5	U	5	U	5
1,3-Dichloropropane	142-28-9	300	U	5	U	5	U	5	U	5	U	5
1,4-Dichlorobenzene	106-46-7	8500	U	5	U	5	U	5	U	5	U	5
2,2-Dichloropropane	594-20-7	*	U	5	U	5	U	5	U	5	U	5
2-Butanone	78-93-3	300	U	5	U	5	U	5	U	5	U	5
2-Chloroethyl vinyl ether	110-75-8	*	U	5	U	5	U	5	U	5	U	5
2-Chlorotoluene	95-49-8	*	U	5	U	5	U	5	U	5	U	5
2-Hexanone	591-78-6	*	U	5	U	5	U	5	U	5	U	5
4-Chlorotoluene	106-43-4	*	U	5	U	5	U	5	U	5	U	5
4-Isopropyltoluene	99-87-6	*	U	5	U	5	U	5	U	5	U	5
4-Methyl-2-Pentanone	108-10-1	1000	U	5	U	5	U	5	U	5	U	5
Acetone	67-64-1	200	U	5	U	5	U	5	U	5	U	5
Acrolein	107-02-8	*	U	25	U	25	U	25	U	25	U	25
Acrylonitrile	107-13-1	*	U	5	U	5	U	5	U	5	U	5
Benzene	71-43-2	60	U	5	U	5	U	5	U	5	U	5
Bromobenzene	108-86-1	*	U	5	U	5	U	5	U	5	U	5
Bromochloromethane	74-97-5	*	U	5	U	5	U	5	U	5	U	5
Bromodichloromethane	75-27-4	*	U	5	U	5	U	5	U	5	U	5
Bromoform	75-25-2	*	U	5	U	5	U	5	U	5	U	5
Bromomethane	74-83-9	*	U	5	U	5	U	5	U	5	U	5
Carbon Disulfide	75-15-0	2700	U	5	U	5	U	5	U	5	U	5

Table 1: Volatile Organic Compounds in Soil Samples
Laboratory Method: EPA Method 8260

PARAMETER	CAS No.	TAGM 4046 Rec. Soil Cleanup Obj. ug/kg	MW11 [0.5'-2'] Soil ug/kg Dilution 1		MW11 [7'-9'] Soil ug/kg Dilution 1		MW-12 [0.5'-2'] Soil ug/kg Dilution 1		MW12 [4.5'-5.5'] Soil ug/kg Dilution 1		MW13 [0.5'-2'] Soil ug/kg Dilution 1	
			Concentration	Detection Limit	Concentration	Detection Limit	Concentration	Detection Limit	Concentration	Detection Limit	Concentration	Detection Limit
Carbon Tetrachloride	56-23-5	600	U	5	U	5	U	5	U	5	U	5
Chlorobenzene	108-90-7	1700	U	5	U	5	U	5	U	5	U	5
Chlorodifluoromethane	75-45-6	*	U	5	U	5	U	5	U	5	U	5
Chloroethane	75-00-3	1900	U	5	U	5	U	5	U	5	U	5
Chloroform	67-66-3	300	U	5	U	5	U	5	U	5	U	5
Chloromethane	74-87-3	*	U	5	U	5	U	5	U	5	U	5
cis-1,2-Dichloroethene	156-59-2	*	U	5	U	5	U	5	U	5	U	5
cis-1,3-Dichloropropene	10061-01-5	*	U	5	U	5	U	5	U	5	U	5
Dibromochloromethane	124-48-1	*	U	5	U	5	U	5	U	5	U	5
Dibromomethane	74-95-3	*	U	5	U	5	U	5	U	5	U	5
Dichlorodifluoromethane	75-71-8	*	U	5	U	5	U	5	U	5	U	5
Diisopropyl ehter	108-20-3	*	U	5	U	5	U	5	U	5	U	5
Ethanol	64-17-5	*	U	5	U	5	U	5	U	5	U	5
Ethyl acetate	141-78-6	*	U	5	U	5	U	5	U	5	U	5
Ethylbenzene	100-41-4	5500	U	5	U	5	U	5	U	5	U	5
Freon-114	76-14-2	*	U	5	U	5	U	5	U	5	U	5
Hexachlorobutadiene	87-68-3	*	U	5	U	5	U	5	U	5	U	5
Isopropyl acetate	108-21-4	*	U	5	U	5	U	5	U	5	U	5
Isopropylbenzene	98-82-8	*	U	5	U	5	U	5	U	5	U	5
m+p Xylene	108-38-3/106-42-3	1200	U	10	U	10	U	10	U	10	U	10
Methyl tert-butyl ether	1634-04-4	*	U	5	U	5	U	5	U	5	U	5
Methylene Chloride	75-09-2	100	U	5	U	5	U	5	U	5	U	5
Naphthalene	91-20-3	*	U	5	U	5	U	5	U	5	U	5
n-Butyl acetate	123-86-4	*	U	5	U	5	U	5	U	5	U	5
n-Butylbenzene	104-51-8	*	U	5	U	5	U	5	U	5	U	5
n-Propyl acetate	109-60-4	*	U	5	U	5	U	5	U	5	U	5
n-Propylbenzene	103-65-1	*	U	5	U	5	U	5	U	5	U	5
o-Xylene	95-47-6	1200	U	5	U	5	U	5	U	5	U	5
p-Diethylbenzene	105-05-5	*	U	5	U	5	U	5	U	5	U	5
p-Ethyltoluene	622-96-8	*	U	5	U	5	U	5	U	5	U	5
sec-Butylbenzene	135-98-8	*	U	5	U	5	U	5	U	5	U	5
Styrene	100-42-5	*	U	5	U	5	U	5	U	5	U	5
t-Butyl alcohol	75-65-0	*	U	5	U	5	U	5	U	5	U	5
tert-Butylbenzene	98-06-6	*	U	5	U	5	U	5	U	5	U	5
Tetrachloroethene	127-18-4	1400	U	5	U	5	U	5	U	5	U	5
Toluene	108-88-3	1500	U	5	U	5	U	5	U	5	U	5
trans-1,2-Dichloroethene	156-60-5	300	U	5	U	5	U	5	U	5	U	5
trans-1,3-Dichloropropene	10061-02-6	*	U	5	U	5	U	5	U	5	U	5
Trichloroethene	79-01-6	700	U	5	U	5	U	5	U	5	U	5
Trichlorofluoromethane	75-69-4	*	U	5	U	5	U	5	U	5	U	5
Vinyl Acetate	108-05-4	*	U	5	U	5	U	5	U	5	U	5
Vinyl Chloride	75-01-4	200	U	5	U	5	U	5	U	5	U	5
TOTAL VOCs			ND		ND		ND		ND		ND	

*** Not Applicable.**
ND Not Detected

Table 1: Volatile Organic Compounds in Soil Samples
Laboratory Method: EPA Method 8260

PARAMETER	CAS No.	TAGM 4046 Rec. Soil Cleanup Obj. ug/kg	MW13 [5'-7'] Soil ug/kg Dilution 1		MW14 [3'-4'] Soil ug/kg Dilution 1		MW14 [6'-8'] Soil ug/kg Dilution 1		MW15 [0.5'-2'] Soil ug/kg Dilution 1		MW15 [6'-8'] Soil ug/kg Dilution 1	
			Concentration	Detection Limit	Concentration	Detection Limit	Concentration	Detection Limit	Concentration	Detection Limit	Concentration	Detection Limit
1,1,1,2-Tetrachloroethane	630-20-6	*	U	5	U	5	U	5	U	5	U	5
1,1,1-Trichloroethane	71-55-6	800	U	5	U	5	U	5	U	5	U	5
1,1,2,2-Tetrachloroethane	79-34-5	600	U	5	U	5	U	5	U	5	U	5
1,1,2-Trichloro-1,2,2-trifluoroethane	76-13-1	*	U	5	U	5	U	5	U	5	U	5
1,1,2-Trichloroethane	79-00-5	*	U	5	U	5	U	5	U	5	U	5
1,1-Dichloroethane	75-34-3	200	U	5	U	5	U	5	U	5	U	5
1,1-Dichloroethene	75-35-4	400	U	5	U	5	U	5	U	5	U	5
1,1-Dichloropropene	563-58-6	*	U	5	U	5	U	5	U	5	U	5
1,2,3-Trichlorobenzene	87-61-6	*	U	5	U	5	U	5	U	5	U	5
1,2,3-Trichloropropane	96-18-4	400	U	5	U	5	U	5	U	5	U	5
1,2,4,5-Tetramethylbenzene	95-93-2	*	U	5	U	5	U	5	U	5	U	5
1,2,4-Trichlorobenzene	120-82-1	3400	U	5	U	5	U	5	U	5	U	5
1,2,4-Trimethylbenzene	95-63-6	*	U	5	U	5	U	5	U	5	U	5
1,2-Dibromo-3-chloropropane	96-12-8	*	U	5	U	5	U	5	U	5	U	5
1,2-Dibromoethane	106-93-4	*	U	5	U	5	U	5	U	5	U	5
1,2-Dichlorobenzene	95-50-1	7900	U	5	U	5	U	5	U	5	U	5
1,2-Dichloroethane	107-06-2	100	U	5	U	5	U	5	U	5	U	5
1,2-Dichloropropane	78-87-5	*	U	5	U	5	U	5	U	5	U	5
1,3,5-Trimethylbenzene	108-67-8	*	U	5	U	5	U	5	U	5	U	5
1,3-Dichlorobenzene	541-73-1	1600	U	5	U	5	U	5	U	5	U	5
1,3-Dichloropropane	142-28-9	300	U	5	U	5	U	5	U	5	U	5
1,4-Dichlorobenzene	106-46-7	8500	U	5	U	5	U	5	U	5	U	5
2,2-Dichloropropane	594-20-7	*	U	5	U	5	U	5	U	5	U	5
2-Butanone	78-93-3	300	U	5	U	5	U	5	U	5	U	5
2-Chloroethyl vinyl ether	110-75-8	*	U	5	U	5	U	5	U	5	U	5
2-Chlorotoluene	95-49-8	*	U	5	U	5	U	5	U	5	U	5
2-Hexanone	591-78-6	*	U	5	U	5	U	5	U	5	U	5
4-Chlorotoluene	106-43-4	*	U	5	U	5	U	5	U	5	U	5
4-Isopropyltoluene	99-87-6	*	U	5	U	5	U	5	U	5	U	5
4-Methyl-2-Pentanone	108-10-1	1000	U	5	U	5	U	5	U	5	U	5
Acetone	67-64-1	200	U	5	49	5	U	5	U	5	U	5
Acrolein	107-02-8	*	U	25	U	25	U	25	U	25	U	25
Acrylonitrile	107-13-1	*	U	5	U	5	U	5	U	5	U	5
Benzene	71-43-2	60	U	5	U	5	U	5	U	5	U	5
Bromobenzene	108-86-1	*	U	5	U	5	U	5	U	5	U	5
Bromochloromethane	74-97-5	*	U	5	U	5	U	5	U	5	U	5
Bromodichloromethane	75-27-4	*	U	5	U	5	U	5	U	5	U	5
Bromoform	75-25-2	*	U	5	U	5	U	5	U	5	U	5
Bromomethane	74-83-9	*	U	5	U	5	U	5	U	5	U	5
Carbon Disulfide	75-15-0	2700	U	5	U	5	U	5	U	5	U	5

Table 1: Volatile Organic Compounds in Soil Samples
Laboratory Method: EPA Method 8260

PARAMETER	CAS No.	TAGM 4046 Rec. Soil Cleanup Obj. ug/kg	MW13 [5'-7'] Soil ug/kg Dilution 1		MW14 [3'-4'] Soil ug/kg Dilution 1		MW14 [6'-8'] Soil ug/kg Dilution 1		MW15 [0.5'-2'] Soil ug/kg Dilution 1		MW15 [6'-8'] Soil ug/kg Dilution 1	
			Concentration	Detection Limit	Concentration	Detection Limit	Concentration	Detection Limit	Concentration	Detection Limit	Concentration	Detection Limit
Carbon Tetrachloride	56-23-5	600	U	5	U	5	U	5	U	5	U	5
Chlorobenzene	108-90-7	1700	U	5	U	5	U	5	U	5	U	5
Chlorodifluoromethane	75-45-6	*	U	5	U	5	U	5	U	5	U	5
Chloroethane	75-00-3	1900	U	5	U	5	U	5	U	5	U	5
Chloroform	67-66-3	300	U	5	U	5	U	5	U	5	U	5
Chloromethane	74-87-3	*	U	5	U	5	U	5	U	5	U	5
cis-1,2-Dichloroethene	156-59-2	*	U	5	U	5	U	5	U	5	U	5
cis-1,3-Dichloropropene	10061-01-5	*	U	5	U	5	U	5	U	5	U	5
Dibromochloromethane	124-48-1	*	U	5	U	5	U	5	U	5	U	5
Dibromomethane	74-95-3	*	U	5	U	5	U	5	U	5	U	5
Dichlorodifluoromethane	75-71-8	*	U	5	U	5	U	5	U	5	U	5
Diisopropyl ehter	108-20-3	*	U	5	U	5	U	5	U	5	U	5
Ethanol	64-17-5	*	U	5	U	5	U	5	U	5	U	5
Ethyl acetate	141-78-6	*	U	5	U	5	U	5	U	5	U	5
Ethylbenzene	100-41-4	5500	U	5	U	5	U	5	U	5	U	5
Freon-114	76-14-2	*	U	5	U	5	U	5	U	5	U	5
Hexachlorobutadiene	87-68-3	*	U	5	U	5	U	5	U	5	U	5
Isopropyl acetate	108-21-4	*	U	5	U	5	U	5	U	5	U	5
Isopropylbenzene	98-82-8	*	U	5	U	5	U	5	U	5	U	5
m+p Xylene	108-38-3/106-42-3	1200	U	10	U	10	U	10	U	10	U	10
Methyl tert-butyl ether	1634-04-4	*	U	5	U	5	U	5	U	5	U	5
Methylene Chloride	75-09-2	100	U	5	U	5	U	5	U	5	U	5
Naphthalene	91-20-3	*	U	5	U	5	U	5	U	5	U	5
n-Butyl acetate	123-86-4	*	U	5	U	5	U	5	U	5	U	5
n-Butylbenzene	104-51-8	*	U	5	U	5	U	5	U	5	U	5
n-Propyl acetate	109-60-4	*	U	5	U	5	U	5	U	5	U	5
n-Propylbenzene	103-65-1	*	U	5	U	5	U	5	U	5	U	5
o-Xylene	95-47-6	1200	U	5	U	5	U	5	U	5	U	5
p-Diethylbenzene	105-05-5	*	U	5	U	5	U	5	U	5	U	5
p-Ethyltoluene	622-96-8	*	U	5	U	5	U	5	U	5	U	5
sec-Butylbenzene	135-98-8	*	U	5	U	5	U	5	U	5	U	5
Styrene	100-42-5	*	U	5	U	5	U	5	U	5	U	5
t-Butyl alcohol	75-65-0	*	U	5	U	5	U	5	U	5	U	5
tert-Butylbenzene	98-06-6	*	U	5	U	5	U	5	U	5	U	5
Tetrachloroethene	127-18-4	1400	U	5	U	5	U	5	U	5	U	5
Toluene	108-88-3	1500	U	5	U	5	U	5	U	5	U	5
trans-1,2-Dichloroethene	156-60-5	300	U	5	U	5	U	5	U	5	U	5
trans-1,3-Dichloropropene	10061-02-6	*	U	5	U	5	U	5	U	5	U	5
Trichloroethene	79-01-6	700	U	5	U	5	U	5	U	5	U	5
Trichlorofluoromethane	75-69-4	*	U	5	U	5	U	5	U	5	U	5
Vinyl Acetate	108-05-4	*	U	5	U	5	U	5	U	5	U	5
Vinyl Chloride	75-01-4	200	U	5	U	5	U	5	U	5	U	5
TOTAL VOCs			ND		49		ND		ND		ND	

*** Not Applicable.**
ND Not Detected

Table 1: Volatile Organic Compounds in Soil Samples
Laboratory Method: EPA Method 8260

PARAMETER	CAS No.	TAGM 4046 Rec. Soil Cleanup Obj. ug/kg	MW16 [0.5'-2'] Soil ug/kg Dilution 1		MW16 [8.5'-9.5'] Soil ug/kg Dilution 1		Trip Blank #1 Groundwater ug/L Dilution 1		Field Blank #1 Groundwater ug/L Dilution 1		Field Blank #2 Groundwater ug/L Dilution 1	
			Concentration	Detection Limit	Concentration	Detection Limit	Concentration	Detection Limit	Concentration	Detection Limit	Concentration	Detection Limit
1,1,1,2-Tetrachloroethane	630-20-6	*	U	5	U	5	U	1	U	1	U	1
1,1,1-Trichloroethane	71-55-6	800	U	5	U	5	U	1	U	1	U	1
1,1,2,2-Tetrachloroethane	79-34-5	600	U	5	U	5	U	1	U	1	U	1
1,1,2-Trichloro-1,2,2-trifluoroethane	76-13-1	*	U	5	U	5	U	1	U	1	U	1
1,1,2-Trichloroethane	79-00-5	*	U	5	U	5	U	1	U	1	U	1
1,1-Dichloroethane	75-34-3	200	U	5	U	5	U	1	U	1	U	1
1,1-Dichloroethene	75-35-4	400	U	5	U	5	U	1	U	1	U	1
1,1-Dichloropropene	563-58-6	*	U	5	U	5	U	1	U	1	U	1
1,2,3-Trichlorobenzene	87-61-6	*	U	5	U	5	U	1	U	1	U	1
1,2,3-Trichloropropane	96-18-4	400	U	5	U	5	U	1	U	1	U	1
1,2,4,5-Tetramethylbenzene	95-93-2	*	U	5	U	5	U	1	U	1	U	1
1,2,4-Trichlorobenzene	120-82-1	3400	U	5	U	5	U	1	U	1	U	1
1,2,4-Trimethylbenzene	95-63-6	*	U	5	U	5	U	1	U	1	U	1
1,2-Dibromo-3-chloropropane	96-12-8	*	U	5	U	5	U	1	U	1	U	1
1,2-Dibromoethane	106-93-4	*	U	5	U	5	U	1	U	1	U	1
1,2-Dichlorobenzene	95-50-1	7900	U	5	U	5	U	1	U	1	U	1
1,2-Dichloroethane	107-06-2	100	U	5	U	5	U	1	U	1	U	1
1,2-Dichloropropane	78-87-5	*	U	5	U	5	U	1	U	1	U	1
1,3,5-Trimethylbenzene	108-67-8	*	U	5	U	5	U	1	U	1	U	1
1,3-Dichlorobenzene	541-73-1	1600	U	5	U	5	U	1	U	1	U	1
1,3-Dichloropropane	142-28-9	300	U	5	U	5	U	1	U	1	U	1
1,4-Dichlorobenzene	106-46-7	8500	U	5	U	5	U	1	U	1	U	1
2,2-Dichloropropane	594-20-7	*	U	5	U	5	U	1	U	1	U	1
2-Butanone	78-93-3	300	U	5	U	5	U	1	U	1	U	1
2-Chloroethyl vinyl ether	110-75-8	*	U	5	U	5	U	1	U	1	U	1
2-Chlorotoluene	95-49-8	*	U	5	U	5	U	1	U	1	U	1
2-Hexanone	591-78-6	*	U	5	U	5	U	1	U	1	U	1
4-Chlorotoluene	106-43-4	*	U	5	U	5	U	1	U	1	U	1
4-Isopropyltoluene	99-87-6	*	U	5	U	5	U	1	U	1	U	1
4-Methyl-2-Pentanone	108-10-1	1000	U	5	U	5	U	1	U	1	U	1
Acetone	67-64-1	200	U	5	55	5	U	1	U	1	U	1
Acrolein	107-02-8	*	U	25	U	25	U	1	U	1	U	1
Acrylonitrile	107-13-1	*	U	5	U	5	U	1	U	1	U	1
Benzene	71-43-2	60	U	5	U	5	U	1	U	1	U	1
Bromobenzene	108-86-1	*	U	5	U	5	U	1	U	1	U	1
Bromochloromethane	74-97-5	*	U	5	U	5	U	1	U	1	U	1
Bromodichloromethane	75-27-4	*	U	5	U	5	U	1	U	1	U	1
Bromoform	75-25-2	*	U	5	U	5	U	1	U	1	U	1
Bromomethane	74-83-9	*	U	5	U	5	U	1	U	1	U	1
Carbon Disulfide	75-15-0	2700	U	5	U	5	U	1	U	1	U	1

Table 1: Volatile Organic Compounds in Soil Samples
Laboratory Method: EPA Method 8260

PARAMETER	CAS No.	TAGM 4046 Rec. Soil Cleanup Obj. ug/kg	MW16 [0.5'-2'] Soil ug/kg Dilution 1		MW16 [8.5'-9.5'] Soil ug/kg Dilution 1		Trip Blank #1 Groundwater ug/L Dilution 1		Field Blank #1 Groundwater ug/L Dilution 1		Field Blank #2 Groundwater ug/L Dilution 1	
			Concentration	Detection Limit	Concentration	Detection Limit	Concentration	Detection Limit	Concentration	Detection Limit	Concentration	Detection Limit
Carbon Tetrachloride	56-23-5	600	U	5	U	5	U	1	U	1	U	1
Chlorobenzene	108-90-7	1700	U	5	U	5	U	1	U	1	U	1
Chlorodifluoromethane	75-45-6	*	U	5	U	5	U	1	U	1	U	1
Chloroethane	75-00-3	1900	U	5	U	5	U	1	U	1	U	1
Chloroform	67-66-3	300	U	5	U	5	U	1	U	1	U	1
Chloromethane	74-87-3	*	U	5	U	5	U	1	U	1	U	1
cis-1,2-Dichloroethene	156-59-2	*	U	5	U	5	U	1	U	1	U	1
cis-1,3-Dichloropropene	10061-01-5	*	U	5	U	5	U	1	U	1	U	1
Dibromochloromethane	124-48-1	*	U	5	U	5	U	1	U	1	U	1
Dibromomethane	74-95-3	*	U	5	U	5	U	1	U	1	U	1
Dichlorodifluoromethane	75-71-8	*	U	5	U	5	U	1	U	1	U	1
Diisopropyl ehter	108-20-3	*	U	5	U	5	U	1	U	1	U	1
Ethanol	64-17-5	*	U	5	U	5	U	1	U	1	U	1
Ethyl acetate	141-78-6	*	U	5	U	5	U	1	U	1	U	1
Ethylbenzene	100-41-4	5500	U	5	U	5	U	1	U	1	U	1
Freon-114	76-14-2	*	U	5	U	5	U	1	U	1	U	1
Hexachlorobutadiene	87-68-3	*	U	5	U	5	U	1	U	1	U	1
Isopropyl acetate	108-21-4	*	U	5	U	5	U	1	U	1	U	1
Isopropylbenzene	98-82-8	*	U	5	U	5	U	1	U	1	U	1
m+p Xylene	108-38-3/106-42-3	1200	U	10	U	10	U	2	U	2	U	2
Methyl tert-butyl ether	1634-04-4	*	U	5	U	5	U	1	U	1	U	1
Methylene Chloride	75-09-2	100	U	5	U	5	U	1	U	1	U	1
Naphthalene	91-20-3	*	U	5	U	5	U	1	U	1	U	1
n-Butyl acetate	123-86-4	*	U	5	U	5	U	1	U	1	U	1
n-Butylbenzene	104-51-8	*	U	5	U	5	U	1	U	1	U	1
n-Propyl acetate	109-60-4	*	U	5	U	5	U	1	U	1	U	1
n-Propylbenzene	103-65-1	*	U	5	U	5	U	1	U	1	U	1
o-Xylene	95-47-6	1200	U	5	U	5	U	1	U	1	U	1
p-Diethylbenzene	105-05-5	*	U	5	U	5	U	1	U	1	U	1
p-Ethyltoluene	622-96-8	*	U	5	U	5	U	1	U	1	U	1
sec-Butylbenzene	135-98-8	*	U	5	U	5	U	1	U	1	U	1
Styrene	100-42-5	*	U	5	U	5	U	1	U	1	U	1
t-Butyl alcohol	75-65-0	*	U	5	U	5	U	1	U	1	U	1
tert-Butylbenzene	98-06-6	*	U	5	U	5	U	1	U	1	U	1
Tetrachloroethene	127-18-4	1400	U	5	U	5	U	1	U	1	U	1
Toluene	108-88-3	1500	U	5	U	5	U	1	U	1	U	1
trans-1,2-Dichloroethene	156-60-5	300	U	5	U	5	U	1	U	1	U	1
trans-1,3-Dichloropropene	10061-02-6	*	U	5	U	5	U	1	U	1	U	1
Trichloroethene	79-01-6	700	U	5	U	5	U	1	U	1	U	1
Trichlorofluoromethane	75-69-4	*	U	5	U	5	U	1	U	1	U	1
Vinyl Acetate	108-05-4	*	U	5	U	5	U	1	U	1	U	1
Vinyl Chloride	75-01-4	200	U	5	U	5	U	1	U	1	U	1
TOTAL VOCs			ND		55		ND		ND		ND	

*** Not Applicable.**
ND Not Detected

Table 1: Volatile Organic Compounds in Soil Samples
Laboratory Method: EPA Method 8260

PARAMETER	CAS No.	TAGM 4046 Rec. Soil Cleanup Obj. ug/kg	Field Blank #3 Groundwater ug/L Dilution 1		Trip Blank #2 Groundwater ug/L Dilution 1		Trip Blank #3 Groundwater ug/L Dilution 1	
			Concentration	Detection Limit	Concentration	Detection Limit	Concentration	Detection Limit
1,1,1,2-Tetrachloroethane	630-20-6	*	U	1	U	1	U	1
1,1,1-Trichloroethane	71-55-6	800	U	1	U	1	U	1
1,1,2,2-Tetrachloroethane	79-34-5	600	U	1	U	1	U	1
1,1,2-Trichloro-1,2,2-trifluoroethane	76-13-1	*	U	1	U	1	U	1
1,1,2-Trichloroethane	79-00-5	*	U	1	U	1	U	1
1,1-Dichloroethane	75-34-3	200	U	1	U	1	U	1
1,1-Dichloroethene	75-35-4	400	U	1	U	1	U	1
1,1-Dichloropropene	563-58-6	*	U	1	U	1	U	1
1,2,3-Trichlorobenzene	87-61-6	*	U	1	U	1	U	1
1,2,3-Trichloropropane	96-18-4	400	U	1	U	1	U	1
1,2,4,5-Tetramethylbenzene	95-93-2	*	U	1	U	1	U	1
1,2,4-Trichlorobenzene	120-82-1	3400	U	1	U	1	U	1
1,2,4-Trimethylbenzene	95-63-6	*	U	1	U	1	U	1
1,2-Dibromo-3-chloropropane	96-12-8	*	U	1	U	1	U	1
1,2-Dibromoethane	106-93-4	*	U	1	U	1	U	1
1,2-Dichlorobenzene	95-50-1	7900	U	1	U	1	U	1
1,2-Dichloroethane	107-06-2	100	U	1	U	1	U	1
1,2-Dichloropropane	78-87-5	*	U	1	U	1	U	1
1,3,5-Trimethylbenzene	108-67-8	*	U	1	U	1	U	1
1,3-Dichlorobenzene	541-73-1	1600	U	1	U	1	U	1
1,3-Dichloropropane	142-28-9	300	U	1	U	1	U	1
1,4-Dichlorobenzene	106-46-7	8500	U	1	U	1	U	1
2,2-Dichloropropane	594-20-7	*	U	1	U	1	U	1
2-Butanone	78-93-3	300	U	1	U	1	U	1
2-Chloroethyl vinyl ether	110-75-8	*	U	1	U	1	U	1
2-Chlorotoluene	95-49-8	*	U	1	U	1	U	1
2-Hexanone	591-78-6	*	U	1	U	1	U	1
4-Chlorotoluene	106-43-4	*	U	1	U	1	U	1
4-Isopropyltoluene	99-87-6	*	U	1	U	1	U	1
4-Methyl-2-Pentanone	108-10-1	1000	U	1	U	1	U	1
Acetone	67-64-1	200	U	1	U	1	U	1
Acrolein	107-02-8	*	U	1	U	1	U	1
Acrylonitrile	107-13-1	*	U	1	U	1	U	1
Benzene	71-43-2	60	U	1	U	1	U	1
Bromobenzene	108-86-1	*	U	1	U	1	U	1
Bromochloromethane	74-97-5	*	U	1	U	1	U	1
Bromodichloromethane	75-27-4	*	U	1	U	1	U	1
Bromoform	75-25-2	*	U	1	U	1	U	1
Bromomethane	74-83-9	*	U	1	U	1	U	1
Carbon Disulfide	75-15-0	2700	U	1	U	1	U	1

Table 1: Volatile Organic Compounds in Soil Samples
Laboratory Method: EPA Method 8260

PARAMETER	CAS No.	TAGM 4046 Rec. Soil Cleanup Obj. ug/kg	Field Blank #3 Groundwater ug/L Dilution 1		Trip Blank #2 Groundwater ug/L Dilution 1		Trip Blank #3 Groundwater ug/L Dilution 1	
			Concentration	Detection Limit	Concentration	Detection Limit	Concentration	Detection Limit
Carbon Tetrachloride	56-23-5	600	U	1	U	1	U	1
Chlorobenzene	108-90-7	1700	U	1	U	1	U	1
Chlorodifluoromethane	75-45-6	*	U	1	U	1	U	1
Chloroethane	75-00-3	1900	U	1	U	1	U	1
Chloroform	67-66-3	300	U	1	U	1	U	1
Chloromethane	74-87-3	*	U	1	U	1	U	1
cis-1,2-Dichloroethene	156-59-2	*	U	1	U	1	U	1
cis-1,3-Dichloropropene	10061-01-5	*	U	1	U	1	U	1
Dibromochloromethane	124-48-1	*	U	1	U	1	U	1
Dibromomethane	74-95-3	*	U	1	U	1	U	1
Dichlorodifluoromethane	75-71-8	*	U	1	U	1	U	1
Diisopropyl ehter	108-20-3	*	U	1	U	1	U	1
Ethanol	64-17-5	*	U	1	U	1	U	1
Ethyl acetate	141-78-6	*	U	1	U	1	U	1
Ethylbenzene	100-41-4	5500	U	1	U	1	U	1
Freon-114	76-14-2	*	U	1	U	1	U	1
Hexachlorobutadiene	87-68-3	*	U	1	U	1	U	1
Isopropyl acetate	108-21-4	*	U	1	U	1	U	1
Isopropylbenzene	98-82-8	*	U	1	U	1	U	1
m+p Xylene	108-38-3/106-42-3	1200	U	2	U	2	U	2
Methyl tert-butyl ether	1634-04-4	*	U	1	U	1	U	1
Methylene Chloride	75-09-2	100	U	1	U	1	U	1
Naphthalene	91-20-3	*	U	1	U	1	U	1
n-Butyl acetate	123-86-4	*	U	1	U	1	U	1
n-Butylbenzene	104-51-8	*	U	1	U	1	U	1
n-Propyl acetate	109-60-4	*	U	1	U	1	U	1
n-Propylbenzene	103-65-1	*	U	1	U	1	U	1
o-Xylene	95-47-6	1200	U	1	U	1	U	1
p-Diethylbenzene	105-05-5	*	U	1	U	1	U	1
p-Ethyltoluene	622-96-8	*	U	1	U	1	U	1
sec-Butylbenzene	135-98-8	*	U	1	U	1	U	1
Styrene	100-42-5	*	U	1	U	1	U	1
t-Butyl alcohol	75-65-0	*	U	1	U	1	U	1
tert-Butylbenzene	98-06-6	*	U	1	U	1	U	1
Tetrachloroethene	127-18-4	1400	U	1	U	1	U	1
Toluene	108-88-3	1500	U	1	U	1	U	1
trans-1,2-Dichloroethene	156-60-5	300	U	1	U	1	U	1
trans-1,3-Dichloropropene	10061-02-6	*	U	1	U	1	U	1
Trichloroethene	79-01-6	700	U	1	U	1	U	1
Trichlorofluoromethane	75-69-4	*	U	1	U	1	U	1
Vinyl Acetate	108-05-4	*	U	1	U	1	U	1
Vinyl Chloride	75-01-4	200	U	1	U	1	U	1
TOTAL VOCs			ND		ND		ND	

*** Not Applicable.**
ND Not Detected

APPENDIX A
SOIL BORING AND WELL INSTALLATION LOGS

AKRF, Inc.

Environmental Consultants

116 East 27th Street, 7th Fl. New York, NY 10016

Greenpoint Lumber Yard, Brooklyn, NY

AKRF Project Number : 30260-0006

Boring No. B6

Drilling Method:	Geoprobe Rig
Sampling Method:	5-foot Teflon Sampling Sleaves
Driller :	Aquifer Drilling & Testing, Inc.
Weather:	90F, Sunny
Sampler:	AKRF/Mimi Sotiriou and Julie Foley

Drilling	
Start	**Finish**
Time: 08:45	**Time: 09:05**
Date: 06-25-03	**Date: 06-25-03**

Depth (feet)	Recovery (Inches)	Soil Type	Surface Condition: Asphalt	PID Reading (ppm)	Odor	Moisture	Samples Collected for Lab Analysis
1	32		0-6": ASPHALT.	ND	None	Dry	B6(0.5'-2')
			6"-20": Dark brown/black SAND, little Silt. [FILL]				
2			20"-26": Brown/black fine to medium SAND, some Silt. [FILL]	ND	None	Dry	
			26"-29": Grey/brown SILT, trace Sand, trace Gravel, trace Clay [FILL]				
3			29"-31": Grey/brown SAND and SILT, trace Clay, trace Wood [FILL]	ND	None	Dry	
			31"-32": Grey/green ROCK fragments [FILL]				
4				ND	None	Dry	
5				ND	None	Dry	
6	30		0-6": Grey/brown SAND and SILT, trace Clay, trace Wood. [FILL]	ND	None	Dry	B6(6'-7')
			6-7.5": Grey/green ROCK fragments.				
7			7.5-30": Grey/brown medium to fine SAND, trace Silt.	ND	None	Moist	
8				ND	None	Wet	
9				ND	None	Wet	
10			End of Boring at 10'.	ND	None	Wet	
11							
12							
13							
14							
15							

Notes: **ND - Not Detected**

Samples B6(0.5'-2') and B6(6'-7') were analyzed for TCL VOCs (Method 8260), TCL SVOCs (Method 8270), PCBs (Method 8081), Pesticides (Method 8082) and TAL Metals (6000/7000 Series Method).

End of Boring at 10'.

Groundwater apparent at 7'.

AKRF, Inc.

Environmental Consultants

116 East 27th Street, 7th Fl. New York, NY 10016

Greenpoint Lumber Yard, Brooklyn, NY

AKRF Project Number : 30260-0006

Boring No. B7-R1

Drilling Method:	Geoprobe Rig
Sampling Method:	5-foot Teflon Sampling Sleaves
Driller :	Aquifer Drilling & Testing, Inc.
Weather:	90F, Sunny
Sampler:	AKRF/Mimi Sotiriou and Julie Foley

Drilling	
Start	**Finish**
Time: 14:25	**Time: 14:40**
Date: 06-25-03	**Date: 06-25-03**

Depth (feet)	Recovery (Inches)	Soil Type	**Surface Condition:** Asphalt	PID Reading (ppm)	Odor	Moisture	Samples Collected for Lab Analysis
1	36"		0-6": ASPHALT.	ND	None	Dry	
			6"-30" Red BRICK [Fill]				
2				ND	None	Dry	
3				ND	None	Dry	
4				ND	None	Dry	
5				ND	None	Dry	
6	12"		0"-11" Red BRICK [Fill]	ND	Strong Solvent-like odor	Dry	
			11"-23" BRICK and CONCRETE with black Sand banding [Fill]				
7			23"-24" CONCRETE [Fill]				
			7' Refusal				
8							
9							
10							
11							
12							
13							
14							
15							

Notes: **ND - Not Detected**

No samples collected for laboratory analysis.

End of Boring at 7' due to Refusal.

Fill may be part of historic structure.

AKRF, Inc.

Environmental Consultants

116 East 27th Street, 7th Fl. New York, NY 10016

Greenpoint Lumber Yard, Brooklyn, NY

AKRF Project Number : 30260-0006

Boring No. B7-R2

Drilling Method:	Geoprobe Rig
Sampling Method:	5-foot Teflon Sampling Sleaves
Driller :	Aquifer Drilling & Testing, Inc.
Weather:	90F, Sunny
Sampler:	AKRF/Mimi Sotiriou and Julie Foley

Drilling

Start	**Finish**
Time: 14:40	**Time: 15:20**
Date: 06-25-03	**Date: 06-25-03**

Depth (feet)	Recovery (Inches)	Soil Type	Surface Condition: Asphalt	PID Reading (ppm)	Odor	Moisture	Samples Collected for Lab Analysis
1	36"		0-6": ASPHALT	ND	None	Dry	
			6"-30" Red BRICK [Fill]				
2				ND	None	Dry	
3				ND	None	Dry	
4				ND	None	Dry	
5				ND	None	Dry	
6	30"		0-3" BRICK [Fill]	ND	Mild Organic Odor	Dry	B7-R2(5.5'-6.0')
			6"-9" Black/red SAND, trace Silt, trace rock and brick Gravel, trace Wood fragments [Fill]	ND	None	Dry	
7			9"-30" White CONCRETE [Fill]	ND	None	Dry	
8				ND	None	Dry	
9				ND	None	Dry	
10							
11	12"		0-6" BRICK [Slough]			Wet*	
			6"-12 CONCRETE [Fill]				
12			End Boring at 10.5' [Refusal]				
13							
14							
15							

Notes: **ND - Not Detected**

Sample B7-R2(5.5'-6') was analyzed for TCL VOCs (Method 8260), TCL SVOCs (Method 8270), PCBs (Method 8081), Pesticides (Method 8082) and TAL Metals (6000/7000 Series Method).

Refusal at 10.5'

*Driller thinks moisture may not be groundwater, but may be liquified soil.

Fill may be part of historic structure.

AKRF, Inc.

Environmental Consultants

116 East 27th Street, 7th Fl. New York, NY 10016

Greenpoint Lumber Yard, Brooklyn, NY

AKRF Project Number : 30260-0006

Boring No. B-7

Drilling Method:	Geoprobe Rig
Sampling Method:	5-foot Teflon Sampling Sleaves
Driller :	Aquifer Drilling & Testing, Inc.
Weather:	90F, Sunny
Sampler:	AKRF/Mimi Sotiriou and Julie Foley

Drilling

Start	**Finish**
Time: 09:00	**Time: 09:20**
Date: 06-26-03	**Date: 06-26-03**

Depth (feet)	Recovery (Inches)	Soil Type	Surface Condition: Asphalt	PID Reading (ppm)	Odor	Moisture	Samples Collected for Lab Analysis
1	36"		0-18": ASPHALT and pulverized CONCRETE	ND	None	Dry	
			18"-36" BRICK [Fill]				
2				ND	None	Dry	
3				ND	None	Dry	
4				ND	None	Dry	
5				ND	None	Dry	
6	36"		0-12" BRICK [Fill]	3.4	Slight Creosote-like odor	Dry	B-7(9.5-10)
			12"-15" Brown and black WOOD [Fill]				
7			15"-24" BRICK [Fill]	2.4	None	Moist	
			24"-33" Weathered CONCRETE [Fill]			Dry	
8				0.1	None	Moist	
			33"-36" Dark grey SAND and GRAVEL [Fill]				
9				ND	None	Dry	
10				ND	None	Dry	
11	48"		0-6" Red BRICK (Slough) [Fill]	ND	None	Wet	
			6"-18 GRAVEL (Slag), some coarse Sand (Slag Fragments) [Fill]				
12			18"-24" Dark grey SAND and SILT [Fill]	ND	None	Wet	
			24"-25" BRICK [Fill]				
13			25"-48" Light brown and grey fine SAND and SILT				
14							
15			End of Boring at 15'				

Notes: **ND - Not Detected**

Sample B7(9.5'-10') was analyzed for TCL VOCs (Method 8260). Not enough sample material was available to sample for additional parameters.

End of boring at 15'
Groundwater apparent at 10'.

AKRF, Inc.

Environmental Consultants

116 East 27th Street, 7th Fl. New York, NY 10016

Greenpoint Lumber Yard, Brooklyn, NY

AKRF Project Number : 30260-0006

Boring No. B-8

Drilling Method:	Geoprobe Rig
Sampling Method:	5-foot Teflon Sampling Sleaves
Driller :	Aquifer Drilling & Testing, Inc.
Weather:	90F, Sunny
Sampler:	AKRF/Mimi Sotiriou and Julie Foley

Drilling

Start	**Finish**
Time: 10:33	**Time: 10:50**
Date: 06-25-03	**Date: 06-25-03**

Depth (feet)	Recovery (Inches)	Soil Type	Surface Condition: Asphalt and Concrete	PID Reading (ppm)	Odor	Moisture	Samples Collected for Lab Analysis
			0-3": ASPHALT.	ND	None	Dry	
1			3"-6" Pulverized CONCRETE				
			6"-9" Black coarse to medium SAND (Coal) [Fill]	ND	None	Dry	
2			9"-21" Brown/grey SAND and SILT , trace Gravel (Brick and Coal) [Fill]				
	48"		21"-32" Black SAND, trace Gravel (Rock), trace Silt [Fill]	ND	None	Dry	B-8(0.5-2)
3			32"-40" White ROCK (1/2 inch slices) [Fill]				
			40"-48" Black SAND, little Silt, little Gravel (Slag and Coal) [Fill]	ND	None	Dry	
4							
				ND	None	Dry	
5							
			0-6" Black SAND, little Gravel (Rock, Silt, Slag, Metal, Red Brick), trace Silt [Fill]	ND	None	Moist	
6			6"-9" White ROCK [Fill]				
			9"-13" Brown and black SAND and GRAVEL (Slag, Wood, Coal], trace Silt) [Fill]	ND	None	Wet	
7			13"-24" Brown medium to fine SAND, little Silt				
	24"			ND	None	Wet	B-8(8-10)
8							
				ND	None	Wet	
9							
				ND	None	Wet	
10			End of Boring at 10'.				
11							
12							
13							
14							
15							

Notes: **ND - Not Detected**

Samples B-8(0.5'-2') and B-8(8'-10') were analyzed for TCL VOCs (Method 8260), TCL SVOCs (Method 8270), PCBs (Method 8081), Pesticides (Method 8082) and TAL Metals (6000/7000 Series Method).

End of boring at 10'.

Groundwater apparent at 10'.

AKRF, Inc.

Environmental Consultants

116 East 27th Street, 7th Fl. New York, NY 10016

Greenpoint Lumber Yard, Brooklyn, NY

AKRF Project Number : 30260-0006

Boring No. B-9

Drilling Method:	Geoprobe Rig
Sampling Method:	5-foot Teflon Sampling Sleaves
Driller :	Aquifer Drilling & Testing, Inc.
Weather:	90F, Sunny
Sampler:	AKRF/Mimi Sotiriou and Julie Foley

Drilling

Start	**Finish**
Time: 10:05	**Time: 10:30**
Date: 06-25-03	**Date: 06-25-03**

Depth (feet)	Recovery (Inches)	Soil Type	Surface Condition: Asphalt	PID Reading (ppm)	Odor	Moisture	Samples Collected for Lab Analysis
1	60"		0-8": ASPHALT.	ND	None	Dry	B-9(14'-2.5')
			8"-14" Red BRICK				
			14"-48" Black SAND, some Gravel (Slag, Coal, Red Brick) little Silt [Fill]	1.4	None	Dry	
2			48"-54" Orange-brown fine SAND, trace Silt [Fill]				
			54"-60" Black SAND, some Gravel (Slag, Coal, Red Brick) little Silt [Fill]	0.2	None	Dry	
3							
				ND	None	Dry	
4							
				ND	None	Dry	
5							
6	42"		0-12" Black SAND, some Gravel (Slag, Red Brick, Coal-some Coal pieces white on outside, black on inside) little Silt [Fill]	ND	None	Dry	B-9(5'-6')
			12"-18" Orange/Grey SAND, trace Silt [Fill]	ND	None	Moist	
7			18"-30" Dark red and black fine to medium SAND, some Silt, little Coal and Wood fragments [Fill]	ND	None	Wet	
8			30"-42" Brown and black SAND and GRAVEL (Slag), trace Silt [Fill]				
				ND	None	Wet	
9							
				ND	None	Wet	
10			End of Boring at 10'.				
11							
12							
13							
14							
15							

Notes: **ND - Not Detected**

Samples B6(0.5'-2') and B6(6'-7') were analyzed for TCL VOCs (Method 8260), TCL SVOCs (Method 8270), PCBs (Method 8081), Pesticides (Method 8082) and TAL Metals (6000/7000 Series Method).

End of boring at 10'.

Groundwater apparent at 7'.

AKRF, Inc.

Environmental Consultants

116 East 27th Street, 7th Fl. New York, NY 10016

Greenpoint Lumber Yard, Brooklyn, NY

AKRF Project Number : 30260-0006

Boring No. B10

Drilling Method:	Geoprobe Rig
Sampling Method:	5-foot Teflon Sampling Sleaves
Driller :	Aquifer Drilling & Testing, Inc.
Weather:	90F, Sunny
Sampler:	AKRF/Mimi Sotiriou and Julie Foley

Drilling	
Start	**Finish**
Time: 07:20	**Time: 08:00**
Date: 06-26-03	**Date: 06-26-03**

Depth (feet)	Recovery (Inches)	Soil Type	Surface Condition: Asphalt	PID Reading (ppm)	Odor	Moisture	Samples Collected for Lab Analysis
1	60"		0-3" ASPHALT	0.6	None	Dry	B10(5-7)
			3"-6" Pulverized CONCRETE [Fill]				
2			6"-18" Black-brown SAND, some rock Gravel, trace Silt [Fill]	0.3	None	Dry	
			18"-42" Black SAND and SILT, little Gravel (Coal, Rock, Slag, Metal pieces, red Brick) [Fill]	ND	None	Dry	
3			42"-48" ASPHALT [Fill]				
			48"-60" Black SAND and SILT, little Gravel (Coal, Rock, Slag, Red Brick) [Fill]	0.2	None	Dry	
4							
				0.3	None	Dry	
5							
6	48"		0-6" Black SAND and SILT, little Gravel (Coal, Rock, Slag, red Brick) [Fill]	1.2	Slight petroleum-like odor	Dry	B10(9-10)
			6"-12" Brown SAND and GRAVEL (Coal and Slag) some Silt [Fill]				
7			12"-24" Light brown SILT, some fine Sand [Fill]	0.3	None	Dry	
			24"-48" GRAVEL (Slag and Coal), some coarse Sand (Slag) [Fill]	0.3	None	Dry	
8							
				ND	None	Dry	
9							
				ND	None	Moist	
10							
11	54"		0-18" GRAVEL (Coal, Slag) some coarse Sand, trace Silt [Fill]	ND	None	Wet	
				ND	Organic-like odor	Wet	
12			18-54" Grey-brown SILT and fine SAND, trace rock Gravel, trace Wood fragments [Fill]				
13							
14							
15			End of Boring at 15'				

Notes: **ND - Not Detected**

Samples B6(0.5'-2') and B6(6'-7') were analyzed for TCL VOCs (Method 8260), TCL SVOCs (Method 8270), PCBs (Method 8081), Pesticides (Method 8082) and TAL Metals (6000/7000 Series Method).

End of boring at 15'.

Groundwater apparent at 11'.

AKRF, Inc.

Environmental Consultants

116 East 27th Street, 7th Fl. New York, NY 10016

Greenpoint Lumber Yard, Brooklyn, NY

AKRF Project Number : 30260-0006

Boring No. B11

Drilling Method:	Geoprobe Rig
Sampling Method:	5-foot Teflon Sampling Sleaves
Driller :	Aquifer Drilling & Testing, Inc.
Weather:	90F, Sunny
Sampler:	AKRF/Mimi Sotiriou and Julie Foley

Drilling	
Start	**Finish**
Time: 10:55	**Time: 11:05**
Date: 06-26-03	**Date: 06-26-03**

Depth (feet)	Recovery (Inches)	Soil Type	Surface Condition: Asphalt	PID Reading (ppm)	Odor	Moisture	Samples Collected for Lab Analysis
1	60"		0-12" CONCRETE and ASPHALT	0.3	None	Dry	B11(1-3)
			12"-60" Black SAND, little Gravel (Rock, Slag, Concrete) [Fill]	0.4	Slight petroleum-like odor	Dry	
2							
3				3.5	None	Dry	
4				0.2	None	Dry	
5				0.3	None	Dry	
6	42"		0-12" Black/Grey SAND and GRAVEL (Slag), trace Silt [Fill]	0.5	None	Dry	B11(7-9)
			12"-24" Light brown medium to fine SAND and SILT, trace Clay, trace Gravel (Brick) [Fill]				
			23"-30" Black SILT, trace Clay, trace coarse SAND (Coal), trace Wood pieces [Fill]	ND	None	Dry	
7			30"-42" Brown fine SAND, trace Silt				
				ND	None	Dry	
8							
				ND	Slight Organic-like odor	Moist	
9							
				ND	None	Wet	
10			End of Boring at 10'				
11							
12							
13							
14							
15							

Notes: **ND - Not Detected**

Samples B11(1'-3') and B11(7'-9') were analyzed for TCL VOCs (Method 8260), TCL SVOCs (Method 8270), PCBs (Method 8081), Pesticides (Method 8082) and TAL Metals (6000/7000 Series Method).

Groundwater apparent at 9'

End of Boring at 10'.

AKRF, Inc.

Environmental Consultants

116 East 27th Street, 7th Fl. New York, NY 10016

Greenpoint Lumber Yard, Brooklyn, NY

AKRF Project Number : 30260-0006

Boring No. B11-R1

Drilling Method:	Geoprobe Rig
Sampling Method:	5-foot Teflon Sampling Sleaves
Driller :	Aquifer Drilling & Testing, Inc.
Weather:	90F, Sunny
Sampler:	AKRF/Mimi Sotiriou and Julie Foley

Drilling	
Start	**Finish**
Time: 10:40	**Time: 10:50**
Date: 06-26-03	**Date: 06-26-03**

Depth (feet)	Recovery (Inches)	Soil Type	Surface Condition: Asphalt	PID Reading (ppm)	Odor	Moisture	Samples Collected for Lab Analysis
1	60"		0-12" ASPHALT and CONCRETE	0.7	None	Dry	
			12"-30" Black SAND and GRAVEL (Slag, Coal, Wood), trace Silt [Fill]				
2			30"-36" Red BRICK [Fill]	0.5	None	Dry	
			36"-39" Grey SILT and fine SAND [Fill]				
3			39"-60" Black SAND, some Gravel (Slag, Rock), trace Silt [Fill]	0.5	None	Dry	
4				1	None	Dry	
5				0.3	None	Dry	
6	48"		0-12" Black SAND, some Gravel (Slag, Rock, Coal) [Fill]	ND	None	Dry	
			12"-18" Brown medium to fine SAND, little Silt, trace rock Gravel [Fill]				
7			18"-24" Grey SILT, trace fine Sand [Fill]	ND	None	Dry	
			24"-30" Black SAND and SILT, trace Gravel (Slag) [Fill]				
8			30"-42" Grey-brown fine Micaceous SAND	ND	None	Dry	
			42"-48" Pulverized pink and green quartz-rich ROCK				
9			Refusal at 9'	ND	None	Dry	
10				ND	None	Dry	
11							
12							
13							
14							
15							

Notes: **ND - Not Detected**

No samples collected for laboratory analysis.

End of Boring at 9' due to refusal.

AKRF, Inc.

Environmental Consultants

116 East 27th Street, 7th Fl. New York, NY 10016

Greenpoint Lumber Yard, Brooklyn, NY

AKRF Project Number : 30260-0006

Boring No. B12

Drilling Method:	Geoprobe Rig
Sampling Method:	5-foot Teflon Sampling Sleaves
Driller :	Aquifer Drilling & Testing, Inc.
Weather:	90F, Sunny
Sampler:	AKRF/Mimi Sotiriou and Julie Foley

Drilling	
Start	**Finish**
Time: 11:35	**Time: 11:50**
Date: 06-25-03	**Date: 06-25-03**

Depth (feet)	Recovery (Inches)	Soil Type	Surface Condition: Asphalt	PID Reading (ppm)	Odor	Moisture	Samples Collected for Lab Analysis
1	38"		0-2" ASPHALT	ND	None	Dry	B12(0.5-2)
			2"-20" Black SAND, some Gravel (red Brick, Rock, Slag) [Fill]				
2			20"-38" Medium to fine light brown micaceous SAND, trace Silt	ND	None	Dry	
3				ND	None	Moist	
4							
5							
6	36"		0-36" Light brown medium to fine SAND, trace Silt	ND	None	Moist	B12(5-7)
7				ND	None	Moist	
8				ND	None	Wet	
9							
10			End of Boring at 10'				
11							
12							
13							
14							
15							

Notes: **ND - Not Detected**

Samples B12(0.5'-2') and B12(5'-7') were analyzed for TCL VOCs (Method 8260), TCL SVOCs (Method 8270), PCBs (Method 8081), Pesticides (Method 8082) and TAL Metals (6000/7000 Series Method).

End of boring at 10'.
Groundwater apparent at 7'9".

AKRF, Inc.

Environmental Consultants

116 East 27th Street, 7th Fl. New York, NY 10016

Greenpoint Lumber Yard, Brooklyn, NY

AKRF Project Number : 30260-0006

Boring No. B13

Drilling Method:	Geoprobe Rig
Sampling Method:	5-foot Teflon Sampling Sleaves
Driller :	Aquifer Drilling & Testing, Inc.
Weather:	90F, Sunny
Sampler:	AKRF/Mimi Sotiriou and Julie Foley

Drilling	
Start	**Finish**
Time: 12:45	**Time: 13:05**
Date: 06-25-03	**Date: 06-25-03**

Depth (feet)	Recovery (Inches)	Soil Type	**Surface Condition:** Asphalt	PID Reading (ppm)	Odor	Moisture	Samples Collected for Lab Analysis
1	54"		0-2" ASPHALT	47	None	Dry	B13(0.5'-2')
			2"-24" Brown and black SAND and SILT, little Gravel (Rock, Red Brick, Coal, Wood) [Fill]	3.6	None	Dry	
2			24"-54" White ROCK fragments [Fill]	1	None	Dry	
3				0.5			
4							
5							
6	30"		0-2" Grey-brown SAND, trace Silt, trace Gravel (Rock, Brick) [Fill]	ND	None	Dry	B13(5'-7')
			2"-20" Dark grey SAND, little Silt, little Gravel (Slag, Rock, Wood) [Fill]				
7			20"-30" [Fill]	ND	None	Wet	
8				ND	None	Wet	
9							
10			End of Boring at 10'				
11							
12							
13							
14							
15							

Notes: **ND - Not Detected**

Samples B13(0.5'-2') and B13(5'-7') were analyzed for TCL VOCs (Method 8260), TCL SVOCs (Method 8270), PCBs (Method 8081), Pesticides (Method 8082) and TAL Metals (6000/7000 Series Method).

End of boring at 10'.
Groundwater apparent at 8.5'.

AKRF, Inc.

Environmental Consultants

116 East 27th Street, 7th Fl. New York, NY 10016

Greenpoint Lumber Yard, Brooklyn, NY

AKRF Project Number : 30260-0006

Boring No. B14

Drilling Method:	Geoprobe Rig
Sampling Method:	5-foot Teflon Sampling Sleaves
Driller :	Aquifer Drilling & Testing, Inc.
Weather:	90F, Sunny
Sampler:	AKRF/Mimi Sotiriou and Julie Foley

Drilling	
Start	**Finish**
Time: 13:25	**Time: 13:35**
Date: 06-26-03	**Date: 06-26-03**

Depth (feet)	Recovery (Inches)	Soil Type	Surface Condition: Asphalt	PID Reading (ppm)	Odor	Moisture	Samples Collected for Lab Analysis
1	48		0-6" ASPHALT and CONCRETE	ND	None	Dry	B14(2'-3.5')
			6"-24" CONCRETE, BRICK, and ASPHALT [Fill]				
2			24"-42" Grey-brown SAND, some Gravel, trace Silt (Slag, Coal) [Fill]	ND	None	Dry	
			42"-46" Orange/brown WOOD [Fill]				
3			46" -48" Black fine to medium SAND and GRAVEL (Woodchips and Slag) [Fill]	0.3	None	Dry	
4				0.3	None	Dry	
5							
6	60"		0-6" SLOUGH [Fill]	ND	None	Dry	B14(6'-8')
			6"-59" Brown grey fine SAND and SILT [Fill]				
7			59"-60" Black fine to medium SAND, some Gravel (Slag) [Fill]	ND	None	Moist	
8				ND	None	Moist	
						Wet	
9							
						Wet	
10			End of Boring at 10'				
11							
12							
13							
14							
15							

Notes: **ND - Not Detected**

Samples B14(2'-3.5') and B14(6'-8') were analyzed for TCL VOCs (Method 8260), TCL SVOCs (Method 8270), PCBs (Method 8081), Pesticides (Method 8082) and TAL Metals (6000/7000 Series Method).

End of boring at 10'.
Groundwater apparent at 8'.

AKRF, Inc.

Environmental Consultants

116 East 27th Street, 7th Fl. New York, NY 10016

Greenpoint Lumber Yard, Brooklyn, NY

AKRF Project Number : 30260-0006

Boring No. B15

Drilling Method:	Geoprobe Rig
Sampling Method:	5-foot Teflon Sampling Sleaves
Driller :	Aquifer Drilling & Testing, Inc.
Weather:	90F, Sunny
Sampler:	AKRF/Mimi Sotiriou and Julie Foley

Drilling	
Start	**Finish**
Time: 14:15	**Time: 14:35**
Date: 06-26-03	**Date: 06-26-03**

Depth (feet)	Recovery (Inches)	Soil Type	Surface Condition: Asphalt	PID Reading (ppm)	Odor	Moisture	Samples Collected for Lab Analysis
1	60"		0-2" ASPHALT	0.2	None	Dry	B15(0.5'-2')
			2"-14" Grey-brown SAND, some Gravel (Rock, Slag), trace Silt [Fill]				
			14"-26" Black SAND (Coal-like), little Silt, little Gravel [Coal] [Fill]	ND	None	Dry	
2			26"-38" BRICK [Fill]				
			38"-50" Black SAND and GRAVEL (Brick, Rock, Slag, Coal), trace Silt [Fill]	ND	None	Dry	
3			50"-60" Green-brown SAND, little Silt, trace Gravel (Rock) [Fill]				
				7	None	Dry	
4							
				1.3			
5							
6	60"		0-12" Grey-black fine to medium SAND and SILT, trace Gravel (Brick) [Fill]	ND	None	Dry	B15(8'-9')
			12"-15" BRICK [Fill]				
			15"-36" Black SAND and GRAVEL (Slag) [Fill]	ND	None	Moist	
7			36"-48" Grey brown fine SAND, trace Silt, trace rock Gravel [Fill]				
			48"-60" Dark grey medium to fine SAND and SILT, some Gravel (Coal and Slag) [Fill]	ND	None	Moist	
8							
						Wet	
9							
						Wet	
10			End of Boring at 10'				
11							
12							
13							
14							
15							

Notes: **ND - Not Detected**

Samples B15(0.5'-2') and B15(8'-9') were analyzed for TCL VOCs (Method 8260), TCL SVOCs (Method 8270), PCBs (Method 8081), Pesticides (Method 8082) and TAL Metals (6000/7000 Series Method).

End of boring at 10'.
Groundwater apparent at 8'.

AKRF, Inc.

Environmental Consultants

116 East 27th Street, 7th Fl. New York, NY 10016

Greenpoint Lumber Yard, Brooklyn, NY

AKRF Project Number : 30260-0006

Boring No. MW6

Drilling Method:	Geoprobe Rig
Sampling Method:	5-foot Teflon Sampling Sleaves
Driller :	Aquifer Drilling & Testing, Inc.
Weather:	90F, Sunny
Sampler:	AKRF/Mimi Sotiriou and Julie Foley

Drilling

Start	**Finish**
Time: 09:10	**Time: 09:25**
Date: 06-25-03	**Date: 06-25-03**

Depth (feet)	Recovery (Inches)	Soil Type	Surface Condition: 2" Asphalt, 4" Concrete	PID Reading (ppm)	Odor	Moisture	Samples Collected for Lab Analysis
1	30"		0-2" ASPHALT	ND	None	Dry	MW6(0.5'-2')
			2"-6" Weathered CONCRETE				
2			6"-30" Brown/black SAND, some Silt, trace Gravel (Coal fragments, Slag) [Fill]	ND	None	Dry	
3				ND	None	Moist	
4							
5							
6	42"		0-6" Dark brown SAND, some Silt, trace Gravel (Coal fragments, yellow Brick, Rock) [Fill]	ND	None	Moist	MW6(6'-7')
			6"-12" Black SAND, trace Silt, trace Gravel (Coal, red Brick, Rock) [Fill]	ND	None	Moist	
7			12"-18" Grey SAND, trace Silt, trace Gravel [Coal]				
			18"-21" White CONCRETE [Fill]	ND	None	Moist	
8			21"-42" Grey-brown SAND (mostly medium), trace Silt			Wet	
9							
10			End of Boring at 10'				
11							
12							
13							
14							
15							

Notes: **ND - Not Detected**

Samples MW6(0.5'-2') and MW6(6'-7') were analyzed for TCL VOCs (Method 8260), TCL SVOCs (Method 8270), PCBs (Method 8081), Pesticides (Method 8082) and TAL Metals (6000/7000 Series Method).

End of boring at 10'.
Groundwater apparent at 6.5'.

AKRF, Inc.

Environmental Consultants

116 East 27th Street, 7th Fl. New York, NY 10016

Greenpoint Lumber Yard, Brooklyn, NY

AKRF Project Number : 30260-0006

Boring No. MW7

Drilling Method:	Geoprobe Rig
Sampling Method:	5-foot Teflon Sampling Sleaves
Driller :	Aquifer Drilling & Testing, Inc.
Weather:	90F, Sunny
Sampler:	AKRF/Mimi Sotiriou and Julie Foley

Drilling

Start	**Finish**
Time: 09:45	**Time:10:10**
Date: 06-26-03	**Date: 06-26-03**

Depth (feet)	Recovery (Inches)	Soil Type	Surface Condition: 6" Asphalt and Concrete	PID Reading (ppm)	Odor	Moisture	Samples Collected for Lab Analysis
1	42"		0-6" ASPHALT and pulverized CONCRETE	ND	None	Dry	
			6"-42" BRICK and CONCRETE [Fill]	ND	None	Dry	
2				ND	None	Dry	
3							
4							
5							
6	42"		0-6" BRICK [Fill]	ND	None	Moist	MW7(6.5'-7.5')
			6"-12" Brown fine to medium SAND, trace Silt, trace Gravel (Rock) [Fill]				
7			12"-18" BRICK [Fill]	ND	None	Moist	
			18"-24" Light gray SAND, little Gravel [Fill]				
8			24"-26" GRAVEL (Slag and Rock), some fine to medium Sand, little Wood (wet) [Fill]	4.2	None	Moist	
			26"-30" Brown medium to coarse SAND and BRICK (wet)				
9			30"-40" Weathered CONCRETE (dry) [Fill]			Wet	
10			40"-42" Black fine to medium SAND, some Gravel (Wood, Rock) [Fill]				
11	48"		0-30" Grey brown medium to coarse SAND, some Gravel (Wood, Rock, Slag), little Silt [Fill]	73.1	None	Moist	MW7(10'-11')
				12.2			
12			30"-48" Light brown SAND and GRAVEL (Rock, red Brick) [Fill]		None	Moist	
				2.3			
13					None	Wet	
				1.8			
14					None	Wet	
				ND			
15			End of Boring at 15'	ND	None	Wet	

Notes: **ND - Not Detected**

Samples MW7(6.5'-7.5') and MW7(10'-11') were analyzed for TCL VOCs (Method 8260), TCL SVOCs (Method 8270), PCBs (Method 8081), Pesticides (Method 8082) and TAL Metals (6000/7000 Series Method).

End of boring at 15'.

12'-13.5'; very wet, slight sheen on water.

Groundwater apparent at 13'.

AKRF, Inc.

Environmental Consultants

116 East 27th Street, 7th Fl. New York, NY 10016

Greenpoint Lumber Yard, Brooklyn, NY

AKRF Project Number : 30260-0006

Boring No. MW8

Drilling Method:	Geoprobe Rig
Sampling Method:	5-foot Teflon Sampling Sleaves
Driller :	Aquifer Drilling & Testing, Inc.
Weather:	90F, Sunny
Sampler:	AKRF/Mimi Sotiriou and Julie Foley

Drilling

Start	**Finish**
Time: 09:35	**Time:10:00**
Date: 06-25-03	**Date: 06-25-03**

Depth (feet)	Recovery (Inches)	Soil Type	Surface Condition: Asphalt	PID Reading (ppm)	Odor	Moisture	Samples Collected for Lab Analysis
			0-3" ASPHALT	ND	None	Dry	
1			3"-6" Dark brown SAND (mostly coarse), trace Silt, trace Gravel, trace Wood fragments [Fill]	ND	None	Dry	
2			6"-12" Weathered CONCRETE [Fill]	ND	None	Dry	MW8(2'-4')
3	54"		12"-54" Black SAND and GRAVEL (Slag, Coal fragments, Wood), trace Silt [Fill]	ND	None	Dry	
4				ND	None	Dry	
5							
			0-18" Black/brown SAND, some Gravel (Slag, Coal fragments, Wood, red Brick), little Silt [Fill]	ND	None	Dry	
6			18"-24" Brown SILT, trace Sand, trace Gravel (Coal) [Fill]	ND	None	Moist	
7			24"-36" Orange-brown SAND, little Silt, little Gravel (Rock) [Fill]	ND	None	Wet	
8	36"			ND	None	Wet	MW8(5'-6.5')
9				ND	None	Wet	
10			End of Boring at 10'				
11							
12							
13							
14							
15							

Notes: **ND - Not Detected**

Samples MW8(2'-4') and MW8(5'-6.5') were analyzed for TCL VOCs (Method 8260), TCL SVOCs (Method 8270), PCBs (Method 8081), Pesticides (Method 8082) and TAL Metals (6000/7000 Series Method).

End of boring at 10'.
Groundwater apparent at 6.5'.

AKRF, Inc.

Environmental Consultants

116 East 27th Street, 7th Fl. New York, NY 10016

Greenpoint Lumber Yard, Brooklyn, NY

AKRF Project Number : 30260-0006

Boring No. MW9-R1

Drilling Method:	Geoprobe Rig
Sampling Method:	5-foot Teflon Sampling Sleaves
Driller :	Aquifer Drilling & Testing, Inc.
Weather:	90F, Sunny
Sampler:	AKRF/Mimi Sotiriou and Julie Foley

Drilling	
Start	**Finish**
Time: 08:15	**Time:08:25**
Date: 06-26-03	**Date: 06-26-03**

Depth (feet)	Recovery (Inches)	Soil Type	**Surface Condition:** Asphalt	PID Reading (ppm)	Odor	Moisture	Samples Collected for Lab Analysis
1	60"		0-6" ASPHALT and pulverized CONCRETE	0.3	None	Dry	
			6"-12" Red BRICK [Fill]				
			12"24" Black SAND, trace Silt, little Gravel (Slag), Metal piece [Fill]	ND	None	Dry	
2			24"-60" CONCRETE [Fill]				
				3.3	None	Dry	
3							
				ND	None	Dry	
4			End of boring at 4' due to Refusal*				
5							
6							
7							
8							
9							
10							
11							
12							
13							
14							
15							

Notes: **ND - Not Detected**

No samples collected for laboratory analysis.
End of boring at 4' due to refusal.
*5' Recovery for 4' Core.

AKRF, Inc.

Environmental Consultants

116 East 27th Street, 7th Fl. New York, NY 10016

Greenpoint Lumber Yard, Brooklyn, NY

AKRF Project Number : 30260-0006

Boring No. MW9

Drilling Method:	Geoprobe Rig
Sampling Method:	5-foot Teflon Sampling Sleaves
Driller :	Aquifer Drilling & Testing, Inc.
Weather:	90F, Sunny
Sampler:	AKRF/Mimi Sotiriou and Julie Foley

Drilling

Start	**Finish**
Time: 08:30	**Time:08:45**
Date: 06-26-03	**Date: 06-26-03**

Depth (feet)	Recovery (Inches)	Soil Type	Surface Condition: Asphalt and Dirt	PID Reading (ppm)	Odor	Moisture	Samples Collected for Lab Analysis
1	36"		0-18" ASPHALT and pulverized CONCRETE	ND	None	Dry	MW9(1.5'-3.5')
			18"-19" BRICK [Fill]				
2			19"-36" Black SAND and SILT, some Gravel (Slag, Coal, Brick, Rock) [Fill]	ND	None	Dry	
3				ND	None	Dry	
4				ND	None	Dry	
5				ND	None	Dry	
6	36"		0-6" Black SAND and SILT, some Gravel (Slag, Coal, Brick, Rock) [Fill]	ND	None	Moist	MW9(5'-6')
			6"-12" Light brown and black SILT and fine SAND [Fill]				
7			12"-24" GRAVEL and SAND (Slag) [Fill]	ND	None	Wet	
			24"-30" Light brown Fine to medium SAND, trace Gravel.				
8			30"-36" Grey SILT and fine to medium SAND, trace Clay, Wood fragments throughout	ND	None	Wet	
9				ND	None	Moist	
10				ND	None	Wet	
11	30"		0-6" WOOD fragments and SAND (Slough)	ND	None	Wet	
			6"-24" Brown SILT, trace Sand, trace rock Gravel				
12			24"-30" Grey-brown medium SAND	ND	None	Wet	
13				ND	None	Wet	
14				ND	None	Wet	
15			End of Boring at 15'				

Notes: **ND - Not Detected**

Samples MW9(1.5'-3.5') and MW9(5'-6') were analyzed for TCL VOCs (Method 8260), TCL SVOCs (Method 8270), PCBs (Method 8081), Pesticides (Method 8082) and TAL Metals (6000/7000 Series Method).

End of boring at 15'.

Groundwater apparent at 7'.

AKRF, Inc.

Environmental Consultants

116 East 27th Street, 7th Fl. New York, NY 10016

Greenpoint Lumber Yard, Brooklyn, NY

AKRF Project Number : 30260-0006

Boring No. MW10

Drilling Method:	Geoprobe Rig
Sampling Method:	5-foot Teflon Sampling Sleaves
Driller :	Aquifer Drilling & Testing, Inc.
Weather:	90F, Sunny
Sampler:	AKRF/Mimi Sotiriou and Julie Foley

Drilling

Start	**Finish**
Time: 11:15	**Time:11:25**
Date: 06-25-03	**Date: 06-25-03**

Depth (feet)	Recovery (Inches)	Soil Type	Surface Condition: 4" Asphalt	PID Reading (ppm)	Odor	Moisture	Samples Collected for Lab Analysis
1	48"		0-4" ASPHALT	ND	None	Dry	MW10(0.5'-2')
			4"-36" SAND and GRAVEL (Slag, Coal, Rock, red Brick), trace Wood fragments [Fill]				
2			36"-48" Light brown SAND and SILT, trace Gravel (Rock, Slag) [Fill]	ND	None	Dry	
3				ND	None	Moist	
4				ND	None	Moist	
5							
6	42"		0-21" Black and brown SAND, some Silt, trace Gravel (Slag, Rock, Wood) [Fill]	ND	None	Moist	MW10(5'-7')
			21"-42" Fine to medium grey brown SAND and SILT				
7				ND	None	Wet	
8				ND	None	Wet	
9						Wet	
10			End of Boring at 10'				
11							
12							
13							
14							
15							

Notes: **ND - Not Detected**

Samples MW10(0.5'-2') and MW10(5'-7') were analyzed for TCL VOCs (Method 8260), TCL SVOCs (Method 8270), PCBs (Method 8081), Pesticides (Method 8082) and TAL Metals (6000/7000 Series Method).

End of boring at 10'.
Groundwater apparent at 7'.

AKRF, Inc.

Environmental Consultants

116 East 27th Street, 7th Fl. New York, NY 10016

Greenpoint Lumber Yard, Brooklyn, NY

AKRF Project Number : 30260-0006

Boring No. MW11

Drilling Method:	Geoprobe Rig
Sampling Method:	5-foot Teflon Sampling Sleaves
Driller :	Aquifer Drilling & Testing, Inc.
Weather:	90F, Sunny
Sampler:	AKRF/Mimi Sotiriou and Julie Foley

Drilling

Start	**Finish**
Time: 12:25	**Time:12:45**
Date: 06-26-03	**Date: 06-26-03**

Page 1 of 2

Depth (feet)	Recovery (Inches)	Soil Type	Surface Condition: Asphalt	PID Reading (ppm)	Odor	Moisture	Samples Collected for Lab Analysis
1	42"		0-6" ASPHALT	ND	None	Dry	MW11(0.5'-2')
			6"-24" Black GRAVEL and SAND (red Brick, Slag), trace Silt [Fill]				
2			24"-30" CONCRETE [Fill]	ND	None	Dry	
			30"-42" Orange-brown fine SAND and SILT				
3				ND	None	Dry	
4				ND	None	Dry	
5				ND	None	Moist	
6	36"		0-6" Black GRAVEL and SAND (Slough)	ND	None	Moist	MW11(7'-9')
			6"-30" Orange-brown medium to fine SAND, trace Silt				
7			30"-36" Orange-brown SILT and CLAY, trace fine Sand	ND	None	Moist	
8				ND	None	Moist	
9				ND	None	Moist	
10							
11	60"		0-12" Black GRAVEL and SAND (Slough)	ND	None	Moist	
			12"-60" Light orange-brown CLAY, some Silt, trace fine Sand in lenses				
12				ND	None	Moist	
13				ND	None	Moist	
14				ND	None	Moist	
15				ND	None	Moist	

Notes: **ND - Not Detected**

Samples MW11(0.5'-2') and MW11(7'-9') were analyzed for TCL VOCs (Method 8260), TCL SVOCs (Method 8270), PCBs (Method 8081), Pesticides (Method 8082) and TAL Metals (6000/7000 Series Method).

End of boring at 20'.

Moist soil apparent at approximately 4'. Wet soil was not encountered possibly due to high clay content of soil.

AKRF, Inc.

Environmental Consultants

116 East 27th Street, 7th Fl. New York, NY 10016

Greenpoint Lumber Yard, Brooklyn, NY

AKRF Project Number : 30260-0006

Boring No. MW11

Drilling Method:	Geoprobe Rig
Sampling Method:	5-foot Teflon Sampling Sleaves
Driller :	Aquifer Drilling & Testing, Inc.
Weather:	90F, Sunny
Sampler:	AKRF/Mimi Sotiriou and Julie Foley

Drilling	
Start	**Finish**
Time: 12:25	**Time:12:45**
Date: 06-26-03	**Date: 06-26-03**
Page 2 of 2	

Depth (feet)	Recovery (Inches)	Soil Type	Surface Condition:	PID Reading (ppm)	Odor	Moisture	Samples Collected for Lab Analysis
16	60"		0-18" (Slough)	ND	None		
			18"-60" Orange-brown CLAY, some Silt				
17				ND	None		
18				ND	None		
19				ND	None		
20			End of Boring at 20'	ND	None		
21							
22							
23							
24							
25							
26							
27							
28							
29							
30							

Notes: **ND - Not Detected**

Samples MW11(0.5'-2') and MW11(7'-9') were analyzed for TCL VOCs (Method 8260), TCL SVOCs (Method 8270), PCBs (Method 8081), Pesticides (Method 8082) and TAL Metals (6000/7000 Series Method).

End of boring at 20'.

Moist soil apparent at approximately 4'. Wet soil was not encountered possibly due to high clay content of soil.

AKRF, Inc.

Environmental Consultants

116 East 27th Street, 7th Fl. New York, NY 10016

Greenpoint Lumber Yard, Brooklyn, NY

AKRF Project Number : 30260-0006

Boring No. MW12

Drilling Method:	Geoprobe Rig
Sampling Method:	5-foot Teflon Sampling Sleaves
Driller :	Aquifer Drilling & Testing, Inc.
Weather:	90F, Sunny
Sampler:	AKRF/Mimi Sotiriou and Julie Foley

Drilling	
Start	**Finish**
Time: 13:30	**Time:13:45**
Date: 06-25-03	**Date: 06-25-03**

Depth (feet)	Recovery (Inches)	Soil Type	**Surface Condition:** 2" Asphalt	PID Reading (ppm)	Odor	Moisture	Samples Collected for Lab Analysis
1	36"		0-2" ASPHALT	ND	None	Dry	MW12(0.5'-2')
			2"-36" Light brown medium to fine SAND, trace Silt, trace Gravel (Brick, Rock) [Fill]				
2				ND	None	Dry	
3				ND	None	Dry	
4				ND	None	Dry	
5				ND	None	Dry	
6	18"		0-12" Light brown SAND, trace Silt, trace rock Gravel [Fill]	ND	None	Moist	MW12(4.5'-5.5')
			12"-18" Black medium to fine SAND, trace Silt, trace rock Gravel			Wet	
7				ND	None	Wet	
8				ND	None	Wet	
9				ND	None	Wet	
10			End of Boring at 10'	ND	None	Wet	
11							
12							
13							
14							
15							

Notes: **ND - Not Detected**

Samples MW-12(0.5'-2') and MW-12(4.5'-5.5') were analyzed for TCL VOCs (Method 8260), TCL SVOCs (Method 8270), PCBs (Method 8081), Pesticides (Method 8082) and TAL Metals (6000/7000 Series Method).

End of boring at 10'.
Groundwater apparent at 6'.

AKRF, Inc.

Environmental Consultants

116 East 27th Street, 7th Fl. New York, NY 10016

Greenpoint Lumber Yard, Brooklyn, NY

AKRF Project Number : 30260-0006

Boring No. MW13

Drilling Method:	Geoprobe Rig
Sampling Method:	5-foot Teflon Sampling Sleaves
Driller :	Aquifer Drilling & Testing, Inc.
Weather:	90F, Sunny
Sampler:	AKRF/Mimi Sotiriou and Julie Foley

Drilling

Start	**Finish**
Time: 14:00	**Time:14:15**
Date: 06-25-03	**Date: 06-25-03**

Depth (feet)	Recovery (Inches)	Soil Type	Surface Condition: Asphalt	PID Reading (ppm)	Odor	Moisture	Samples Collected for Lab Analysis
1	36"		0-6" ASPHALT	ND			MW13(0.5'-2')
			6"-12" Medium to coarse black SAND, trace Silt, trace Gravel (Brick, Rock, Slag) [Fill]				
2			12"-18" BRICK [Fill]	ND			
			18"-24" Slag GRAVELand grey coarse SAND [Fill]				
3			24"-27" BRICK [Fill]	ND			
			27"-30" Grey Slag GRAVEL and coarse SAND [Fill]				
4			30"-36" Black SAND, little Silt, trace Gravel (Rock and Coal) [Fill]	ND			
5				ND			
6	36"		0-30" Orange-brown SAND, little Gravel (Rock fragments, Brick, Slag) [Fill]	ND			MW13(5'-7')
			30"-36" Dark grey SAND and GRAVEL (Slag, Rock, Wood, Coal), trace Silt [Fill]				
7				ND			
8				ND			
9				ND			
10			End of Boring at 10'	ND			
11							
12							
13							
14							
15							

Notes: **ND - Not Detected**

Samples MW13(0.5'-2') and MW13(5'-7') were analyzed for TCL VOCs (Method 8260), TCL SVOCs (Method 8270), PCBs (Method 8081), Pesticides (Method 8082) and TAL Metals (6000/7000 Series Method).

End of boting at 10'.

Odor and moisture were not recorded for MW13.

AKRF, Inc.

Environmental Consultants

116 East 27th Street, 7th Fl. New York, NY 10016

Greenpoint Lumber Yard, Brooklyn, NY

AKRF Project Number : 30260-0006

Boring No. MW14

Drilling Method:	Geoprobe Rig
Sampling Method:	5-foot Teflon Sampling Sleaves
Driller :	Aquifer Drilling & Testing, Inc.
Weather:	90F, Sunny
Sampler:	AKRF/Mimi Sotiriou and Julie Foley

Drilling	
Start	**Finish**
Time: 13:00	**Time:13:15**
Date: 06-26-03	**Date: 06-26-03**

Depth (feet)	Recovery (Inches)	Soil Type	Surface Condition: Asphalt	PID Reading (ppm)	Odor	Moisture	Samples Collected for Lab Analysis
1	60"		0-30" ASPHALT, BRICK, CONCRETE [Fill]	0.4	None	Dry	MW14(3'-4')
			30"-33" Dark grey SAND, trace Silt, trace Gravel [Fill]				
2			33"-60" Orange-brown fine SAND and SILT [Fill]	0.4	None	Dry	
3				0.4	None	Dry	
4				1.1	None	Dry	
5				0.9	None	Moist	
6	48"		0-24" Light brown fine SAND and SILT, trace Gravel (Brick fragments) [Fill]	ND	None	Moist	MW14(6'-8')
			24"-28" BRICK [Fill]				
7			24"-34" GRAVEL and black SAND (Slag fragments) [Fill]	0.8	None	Moist	
8			34"-48" Grey-brown medium to fine quartz SAND	0.6	None	Wet	
9				ND	None	Wet	
10			End of Boring at 10'	ND	None	Wet	
11							
12							
13							
14							
15							

Notes: **ND - Not Detected**

Samples MW14(3'-4') and MW14(6'-8') were analyzed for TCL VOCs (Method 8260), TCL SVOCs (Method 8270), PCBs (Method 8081), Pesticides (Method 8082) and TAL Metals (6000/7000 Series Method).

End of boring 10'.

Groundwater apparent at 7'.

AKRF, Inc.

Environmental Consultants

116 East 27th Street, 7th Fl. New York, NY 10016

Greenpoint Lumber Yard, Brooklyn, NY

AKRF Project Number : 30260-0006

Boring No. MW15

Drilling Method:	Geoprobe Rig
Sampling Method:	5-foot Teflon Sampling Sleaves
Driller :	Aquifer Drilling & Testing, Inc.
Weather:	90F, Sunny
Sampler:	AKRF/Mimi Sotiriou and Julie Foley

Drilling

Start	**Finish**
Time: 14:45	**Time:15:00**
Date: 06-26-03	**Date: 06-26-03**

Depth (feet)	Recovery (Inches)	Soil Type	Surface Condition: Asphalt	PID Reading (ppm)	Odor	Moisture	Samples Collected for Lab Analysis
1	60"		0-6" ASPHALT and CONCRETE	6.5	None	Dry	MW15(0.5'-2')
			6"-24" Gray-black SAND, some Gravel (red Brick, Slag, Rock, Concrete) [Fill]				
2			24"-32" Light brown fine to medium SAND, some Silt, some Gravel (red Brick, Wood, Coal, Slag) [Fill]	6.2	None	Dry	
3			32"-60" Grey-brown fine to medium SAND, trace Silt, some Gravel (red Brick, Wood, Coal, Slag) [Fill]	1.9	None	Dry	
4				0.7	None	Dry	
5				0.6	None	Dry	
6	36"		0-6" SLOUGH [Fill]	1.2	None	Dry	MW15(6'-8')
			6"-15" Red BRICK [Fill]				
7			15"-27" Grey-brown SAND, trace Silt, trace Gravel (Slag, Rock) [Fill]	0.3	None	Moist	
8			27"-36" Coarse to medium SAND and GRAVEL (Slag), trace Silt [Fill]	0.2	None	Wet	
9				ND	None	Wet	
10			End of Boring at 10'	ND	None	Wet	
11							
12							
13							
14							
15							

Notes: **ND - Not Detected**

Samples MW15(0.5'-2') and MW15(6'-8') were analyzed for TCL VOCs (Method 8260), TCL SVOCs (Method 8270), PCBs (Method 8081), Pesticides (Method 8082) and TAL Metals (6000/7000 Series Method).

End of boring at 10'.

Groundwater apparent at 7'.

AKRF, Inc.

Environmental Consultants

116 East 27th Street, 7th Fl. New York, NY 10016

Greenpoint Lumber Yard, Brooklyn, NY

AKRF Project Number : 30260-0006

Boring No. MW16

Drilling Method:	Geoprobe Rig
Sampling Method:	5-foot Teflon Sampling Sleaves
Driller :	Aquifer Drilling & Testing, Inc.
Weather:	90F, Sunny
Sampler:	AKRF/Mimi Sotiriou and Julie Foley

Drilling

Start	**Finish**
Time: 13:50	**Time:14:05**
Date: 06-26-03	**Date: 06-26-03**

Depth (feet)	Recovery (Inches)	Soil Type	Surface Condition: Asphalt	PID Reading (ppm)	Odor	Moisture	Samples Collected for Lab Analysis
			0-6" ASPHALT and CONCRETE	ND	None	Dry	
1			6"-24" Black SAND, some Silt, some Gravel (red Brick, Slag, Rock, Coal) [Fill]	ND	None	Dry	
2			24"-33" Grey-brown fine to medium SAND and GRAVEL (Slag, Rock, red Brick) [Fill]	ND	None	Dry	MW-16(0.5'-2')
3	42"		33"-37" Black COAL, coarse Sand, trace Silt [Fill]	ND	None	Dry	
4			37"-42" BRICK [Fill]	ND	None	Dry	
5							
			0-12" Grey-brown SAND and GRAVEL (red Brick, Rock, Slag) [Fill]	1.2	None	Dry	
6			12"-18" Red BRICK [Fill]				
7			18"-60" Fine to medium black SAND (Coal-like), some Silt [Fill]	0.3	None	Dry	
8	60"			0.2	None	Moist	MW-16(8.5'-9.5')
9				ND	None	Moist	
10			End of Boring at 10'	ND	None	Wet	
11							
12							
13							
14							
15							

Notes: **ND - Not Detected**

Samples MW16(0.5'-2') and MW16(8.5'-9.5') were analyzed for TCL VOCs (Method 8260), TCL SVOCs (Method 8270), PCBs (Method 8081), Pesticides (Method 8082) and TAL Metals (6000/7000 Series Method).

End of boring at 10'.

Groundwater at approximately 9.5'.

AKRF, Inc.

Environmental Consultants

116 East 27th Street, 7th Fl. New York, NY 10016

Greenpoint Lumber Yard, Greenpoint, Brooklyn

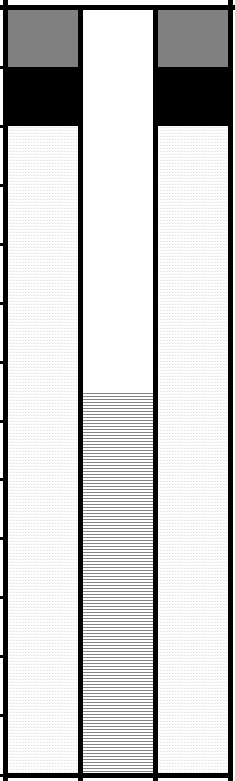
AKRF Project Number : 30260

Well No. MW-6

Sheet 1 of 1

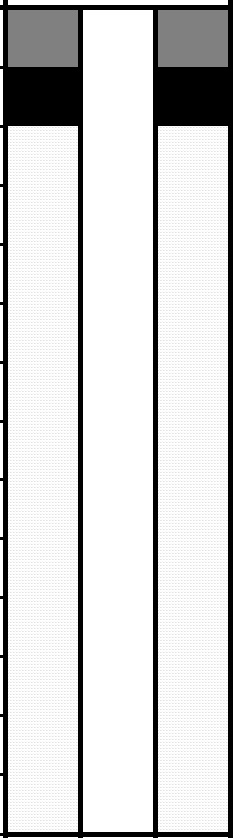
Drilling Method:	Truck-mounted, Hollow Stem Auger
Sampling Method:	No sampling conducted
Driller :	ADT
Weather:	85F, Clear
Logged by:	MSS

Drilling	
Start	**Finish**
Time: 08:05	**Time:** 09:15
Date: 06-30-03	**Date:** 06-30-03
TOC Elevation:	

Depth (feet)	Well Construction	Construction Description	Description of Cuttings
1		**Flush mounted curb box with locking well cap.**	**0-6" Asphalt Parking Lot**
2		**Cement-bentonite grout from 0' - 1'.**	**6"-13' Black/brown SAND, trace Silt, trace Gravel (rock, slag).**
3		**Bentonite seal 1' - 2'.**	
4		**Number 1 grade sand pack 2' - 13'.**	
5		**2" PVC well riser 0 - 3'.**	
6		**2" PVC 20-slot well screen 3' - 13'.**	
7			
8			
9			
10			
11			
12			
13		**Bottom of well 13'.**	
14			
15			
16			
17			
18			
19			
20			

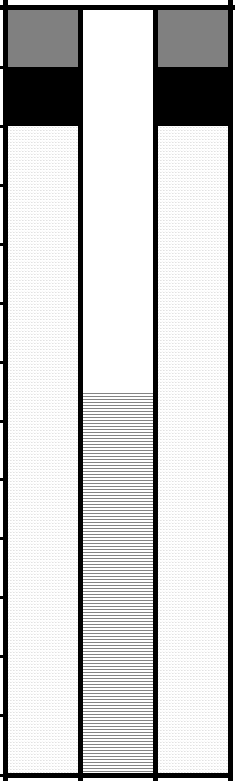
Notes:
Groundwater apparent at 6.8'.
Soil samples were not collected during well installation.

AKRF, Inc.	Greenpoint Lumber Yard, Greenpoint, Brooklyn AKRF Project Number : 30260		Well No. MW-7 Sheet 1 of 1	
Environmental Consultants 116 East 27th Street, 7th Fl. New York, NY 10016	**Drilling Method:**	Truck-mounted, Hollow Stem Auger	**Drilling**	
	Sampling Method:	No sampling conducted	**Start**	**Finish**
	Driller :	ADT	**Time:** 10:45	**Time:** 11:30
	Weather:	90F, Clear	**Date:** 07-2-03	**Date:** 07-2-03
	Logged by:	SDR	**TOC Elevation:**	

Depth (feet)	Well Construction	Construction Description	Description of Cuttings
1		Flush mounted curb box with locking well cap. Cement-bentonite grout from 0' - 1'. Bentonite seal 1' - 2'. Number 1 grade sand pack 2' - 14'. 2" PVC well riser 0 - 4'. 2" PVC 20-slot well screen 4' - 14'. Bottom of well 14'.	0-6" Asphalt Parking Lot 6"-14' Brown/Red SAND and BRICK, trace Silt, mild organic-like odor
2			
3			
4			
5			
6			
7			
8			
9			
10			
11			
12			
13			
14			
15			
16			
17			
18			
19			
20			

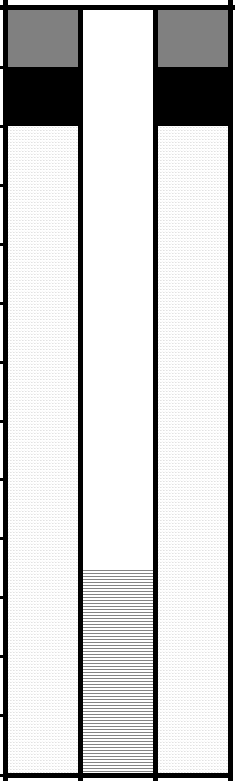
Notes:
No depth to groundwater readings were collected for MW-7.
Soil samples were not collected during well installation.

AKRF, Inc.	Greenpoint Lumber Yard, Greenpoint, Brooklyn AKRF Project Number : 30260		Well No. MW-8 Sheet 1 of 1	
Environmental Consultants 116 East 27th Street, 7th Fl. New York, NY 10016	**Drilling Method:**	Truck-mounted, Hollow Stem Auger	**Drilling**	
	Sampling Method:	No sampling conducted	**Start**	**Finish**
	Driller :	ADT	**Time:** 09:35	**Time:** 10:20
	Weather:	85F, Clear	**Date:** 06-30-03	**Date:** 06-30-03
	Logged by:	MSS	**TOC Elevation:**	

Depth (feet)	Well Construction	Construction Description	Description of Cuttings
1		**Flush mounted curb box with locking well cap.** **Cement-bentonite grout from 0' - 1'.** **Bentonite seal 1' - 2'.** **Number 1 grade sand pack 2' - 13'.** **2" PVC well riser 0 - 3'.** **2" PVC 20-slot well screen 3' - 13'.** **Bottom of well 13'.**	**0-6" Asphalt Parking Lot** **6"-13' Black SAND, trace Silt, trace Gravel**
2			
3			
4			
5			
6			
7			
8			
9			
10			
11			
12			
13			
14			
15			
16			
17			
18			
19			
20			

Notes:
Groundwater apparent at 6.5'.
Soil samples were not collected during well installation.

AKRF, Inc.	Greenpoint Lumber Yard, Greenpoint, Brooklyn AKRF Project Number : 30260		Well No. MW-9 Sheet 1 of 1	
Environmental Consultants 116 East 27th Street, 7th Fl. New York, NY 10016	**Drilling Method:**	Truck-mounted, Hollow Stem Auger	**Drilling**	
	Sampling Method:	No sampling conducted	**Start**	**Finish**
	Driller :	ADT	**Time:** 11:35	**Time:** 12:20
	Weather:	85F, Clear	**Date:** 07-1-03	**Date:** 07-1-03
	Logged by:	MSS	**TOC Elevation:**	

Depth (feet)	Well Construction	Construction Description	Description of Cuttings
1		**Flush mounted curb box with locking well cap.** **Cement-bentonite grout from 0' - 1'.** **Bentonite seal 1' - 2'.** **Number 1 grade sand pack 2' - 13'.** **2" PVC well riser 0 - 3'.** **2" PVC 20-slot well screen 3' - 13'.** **Bottom of well 13'.**	**0-6" Dirt and Asphalt Parking Lot** **6"-13' No description was recorded**
2			
3			
4			
5			
6			
7			
8			
9			
10			
11			
12			
13			
14			
15			
16			
17			
18			
19			
20			

Notes:
Groundwater apparent at 9.4'.
Soil samples were not collected during well installation.

AKRF, Inc.

Environmental Consultants

116 East 27th Street, 7th Fl. New York, NY 10016

Greenpoint Lumber Yard, Greenpoint, Brooklyn

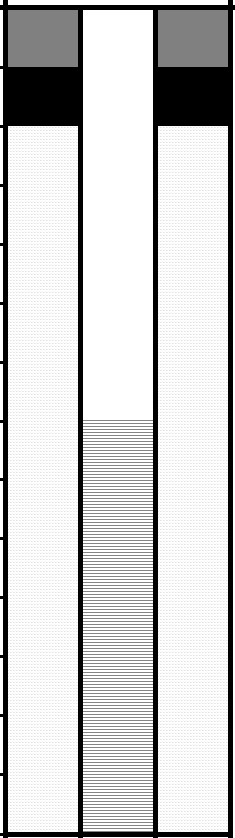
AKRF Project Number : 30260

Well No. MW-10

Sheet 1 of 1

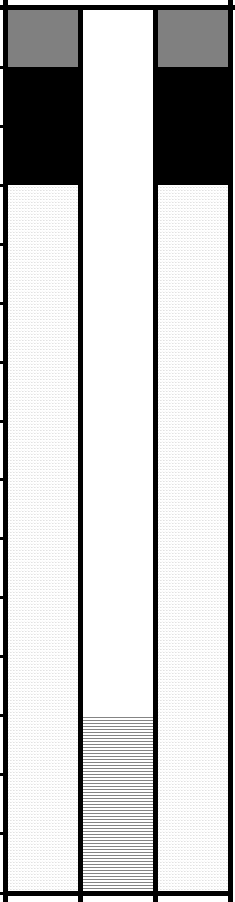
Drilling Method:	Truck-mounted, Hollow Stem Auger
Sampling Method:	No sampling conducted
Driller :	ADT
Weather:	85F, PC
Logged by:	MSS

Drilling	
Start	**Finish**
Time: 10:45	**Time:** 11:30
Date: 06-30-03	**Date:** 06-30-03
TOC Elevation:	

Depth (feet)	Well Construction	Construction Description	Description of Cuttings
1		**Flush mounted curb box with locking well cap.**	**0-6" Asphalt Parking Lot**
2		**Cement-bentonite grout from 0' - 1'.**	**6"-14' Black/Brown SAND, little Gravel, wet light brown SILT, some sand, trace Clay**
3		**Bentonite seal 1' - 2'.**	
4		**Number 1 grade sand pack 2' - 14'.**	
5		**2" PVC well riser 0 - 4'.**	
6		**2" PVC 20-slot well screen 4' - 14'.**	
7			
8			
9			
10			
11			
12			
13			
14		**Bottom of well 14'.**	
15			
16			
17			
18			
19			
20			

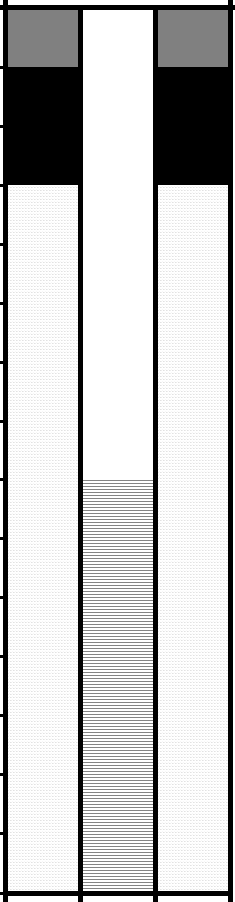
Notes:
Groundwater apparent at 7'.
Soil samples were not collected during well installation.

AKRF, Inc.	Greenpoint Lumber Yard, Greenpoint, Brooklyn AKRF Project Number : 30260		Well No. MW-11 Sheet 1 of 1	
Environmental Consultants 116 East 27th Street, 7th Fl. New York, NY 10016	**Drilling Method:**	Truck-mounted, Hollow Stem Auger	**Drilling**	
	Sampling Method:	No sampling conducted	**Start**	**Finish**
	Driller :	ADT	**Time:** 07:20	**Time:** 08:15
	Weather:	85F, Sunny	**Date:** 07-2-03	**Date:** 07-2-03
	Logged by:	MSS	**TOC Elevation:**	

Depth (feet)	Well Construction	Construction Description	Description of Cuttings
1		Flush mounted curb box with locking well cap. Cement-bentonite grout from 0' - 1'. Bentonite seal 1' - 3'. Number 1 grade sand pack 3' - 15'. 2" PVC well riser 0 - 4'. 2" PVC 20-slot well screen 5' - 15'. Bottom of well 15'.	0-6" Asphalt Parking Lot 6"-15' Black/Brown SAND, trace Gravel, trace Silt, trace Clay, light brown wet CLAY and SILT.
2			
3			
4			
5			
6			
7			
8			
9			
10			
11			
12			
13			
14			
15			
16			
17			
18			
19			
20			

Notes:
No depth to groundwater measurments were collected during well installation. The depth to groundwater reading of approximately 12' below grade was collected during well development.
Soil samples were not collected during well installation.

AKRF, Inc.	Greenpoint Lumber Yard, Greenpoint, Brooklyn AKRF Project Number : 30260		Well No. MW-12A Sheet 1 of 1	
Environmental Consultants 116 East 27th Street, 7th Fl. New York, NY 10016	**Drilling Method:**	Truck-mounted, Hollow Stem Auger	**Drilling**	
	Sampling Method:	No sampling conducted	**Start**	**Finish**
	Driller :	ADT	**Time:** 14:00	**Time:** 15:15
	Weather:	85F, Sunny	**Date:** 06-30-03	**Date:** 06-30-03
	Logged by:	MSS	**TOC Elevation:**	

Depth (feet)	Well Construction	Construction Description	Description of Cuttings
1		**Flush mounted curb box with locking well cap.** **Cement-bentonite grout from 0' - 1'.** **Bentonite seal 1' - 3'.** **Number 1 grade sand pack 3' - 15'.** **2" PVC well riser 0 - 4'.** **2" PVC 20-slot well screen 5' - 15'.** **Bottom of well 15'.**	**0-6" Asphalt Parking Lot** **6"-15' Dark brown SILT and SAND, trace Gravel, wet, no odor, no NAPL**
2			
3			
4			
5			
6			
7			
8			
9			
10			
11			
12			
13			
14			
15			
16			
17			
18			
19			
20			

Notes:
Groundwater apparent at 8'
Soil samples were not collected during well installation.
MW-12A is located approximately 100' south of boring B12. This relocation is due to the refusal we encountered when trying to install MW-12 near B12.

AKRF, Inc.

Environmental Consultants

116 East 27th Street, 7th Fl. New York, NY 10016

Greenpoint Lumber Yard, Greenpoint, Brooklyn

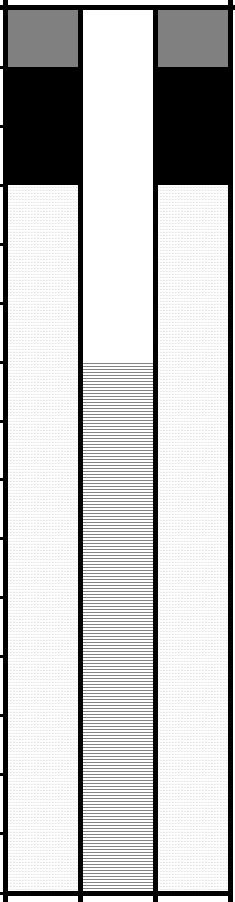
AKRF Project Number : 30260

Well No. MW-13

Sheet 1 of 1

Drilling Method:	Truck-mounted, Hollow Stem Auger
Sampling Method:	No sampling conducted
Driller :	ADT
Weather:	80F, Overcast
Logged by:	JEF

Drilling	
Start	**Finish**
Time: 13:30	**Time:** 14:00
Date: 06-30-03	**Date:** 06-30-03
TOC Elevation:	

Depth (feet)	Well Construction	Construction Description	Description of Cuttings
1		**Flush mounted curb box with locking well cap.**	**0-6" Asphalt Parking Lot**
2		**Cement-bentonite grout from 0' - 1'.**	**6"-15' Brown and dark grey stained SAND and SILT, trace rock Gravel, wet, moderate petroleum-like odor, sleight sheen on water.**
3		**Bentonite seal 1' - 3'.**	
4		**Number 1 grade sand pack 3' - 15'.**	
5		**2" PVC well riser 0 - 4'.**	
6		**2" PVC 20-slot well screen 5' - 15'.**	
7			
8			
9			
10			
11			
12			
13			
14			
15		**Bottom of well 15'.**	
16			
17			
18			
19			
20			

Notes:

Groundwater apparent at 6.2'

Sample of soil collected for waste characterization

The bottom plug of the 2" PVC well screen came out and MW13 filled with sand to -2' below grade. MW13 was overdrilled and MW13A was constructed in its place.

AKRF, Inc.

Environmental Consultants

116 East 27th Street, 7th Fl. New York, NY 10016

Greenpoint Lumber Yard, Greenpoint, Brooklyn

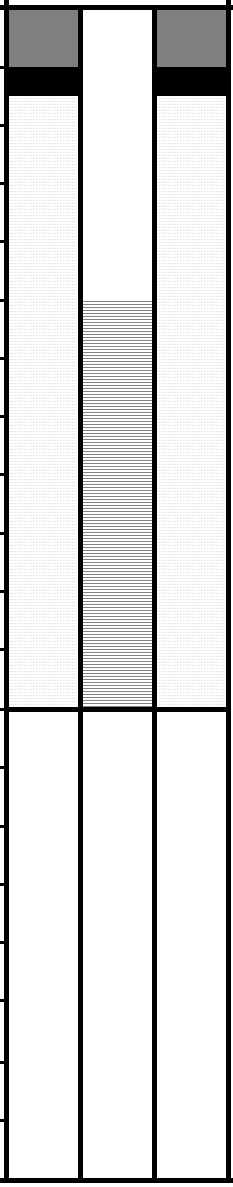
AKRF Project Number : 30260

Well No. MW-13A

Sheet 1 of 1

Drilling Method:	Truck-mounted, Hollow Stem Auger
Sampling Method:	No sampling conducted
Driller :	ADT
Weather:	85, Sunny
Logged by:	MSS

Drilling	
Start	**Finish**
Time: 09:55	**Time:** 11:12
Date: 07-1-03	**Date:** 07-1-03
TOC Elevation:	

Depth (feet)	Well Construction	Construction Description	Description of Cuttings
1		**Flush mounted curb box with locking well cap.** **Cement-bentonite grout from 0' - 1'.** **Bentonite seal to surface** **Number 1 grade sand pack 1' - 12'.** **2" PVC well riser 0 - 4'.** **2" PVC 20-slot well screen 2' - 12'.** **Bottom of well at 12'**	**0-6" Asphalt Parking Lot** **6"-12' No description was recorded**
2			
3			
4			
5			
6			
7			
8			
9			
10			
11			
12			
13			
14			
15			
16			
17			
18			
19			
20			

Notes:

Groundwater apparent at 5'.

Soil samples were not collected during well installation.

The bottom plug of the 2" PVC well screen came out and MW13 filled with sand to 2' below grade. MW13 was overdrilled and MW13A was constructed in its place.

AKRF, Inc.

Environmental Consultants

116 East 27th Street, 7th Fl. New York, NY 10016

Greenpoint Lumber Yard, Greenpoint, Brooklyn

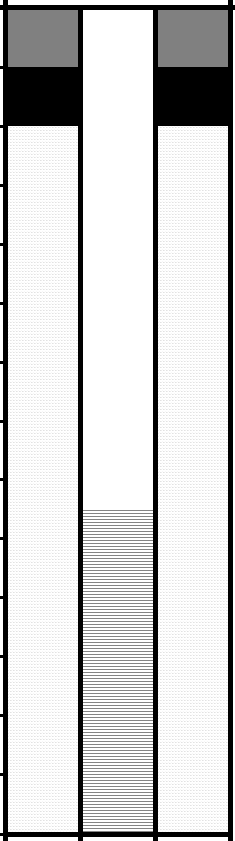
AKRF Project Number : 30260

Well No. MW-14

Sheet 1 of 1

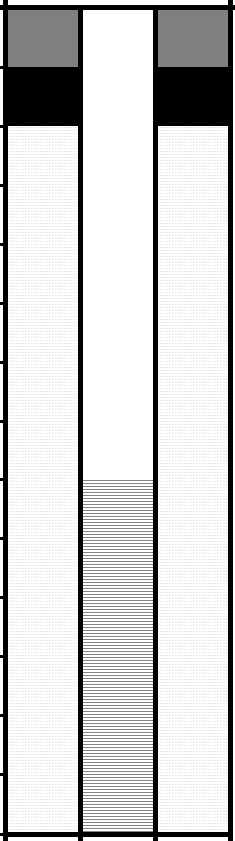
Drilling Method:	Truck-mounted, Hollow Stem Auger
Sampling Method:	No sampling conducted
Driller :	ADT
Weather:	85F, Sunny
Logged by:	MSS

Drilling	
Start	**Finish**
Time: 13:45	**Time:** 14:25
Date: 07-1-03	**Date:** 07-1-03
TOC Elevation:	

Depth (feet)	Well Construction	Construction Description	Description of Cuttings
1		**Flush mounted curb box with locking well cap.**	**0-6" Asphalt Parking Lot**
2		**Cement-bentonite grout from 0' - 1'.**	**6"-14' No description was recorded**
3		**Bentonite seal 1' - 2'.**	
4		**Number 1 grade sand pack 2' - 14'.**	
5		**2" PVC well riser 0 - 4'.**	
6		**2" PVC 20-slot well screen 4' - 14'.**	
7			
8			
9			
10			
11			
12			
13			
14		**Bottom of well 14'.**	
15			
16			
17			
18			
19			
20			

Notes:
Groundwater apparent at 8.5'
Soil samples were not collected during well installation.

AKRF, Inc.	Greenpoint Lumber Yard, Greenpoint, Brooklyn AKRF Project Number : 30260		Well No. MW-15 Sheet 1 of 1	
Environmental Consultants 116 East 27th Street, 7th Fl. New York, NY 10016	**Drilling Method:**	Truck-mounted, Hollow Stem Auger	**Drilling**	
	Sampling Method:	No sampling conducted	**Start**	**Finish**
	Driller :	ADT	**Time:** 09:45	**Time:** 10:25
	Weather:	90F, Sunny	**Date:** 07-2-03	**Date:** 07-2-03
	Logged by:	SDR	**TOC Elevation:**	

Depth (feet)	Well Construction	Construction Description	Description of Cuttings
1		**Flush mounted curb box with locking well cap.** **Cement-bentonite grout from 0' - 1'.** **Bentonite seal 1' - 2'.** **Number 1 grade sand pack 2' - 14'.** **2" PVC well riser 0 - 4'.** **2" PVC 20-slot well screen 4' - 14'.** **Bottom of well 14'.**	**0-6" Dirt, Gravel, and Asphalt Parking Lot** **6"-14' Brown SAND, some Rock, Gravel, trace Silt, moist.**
2			
3			
4			
5			
6			
7			
8			
9			
10			
11			
12			
13			
14			
15			
16			
17			
18			
19			
20			

Notes:
Groundwater apparent at 8'.
Soil samples were not collected during well installation.

AKRF, Inc.

Environmental Consultants

116 East 27th Street, 7th Fl. New York, NY 10016

Greenpoint Lumber Yard, Greenpoint, Brooklyn

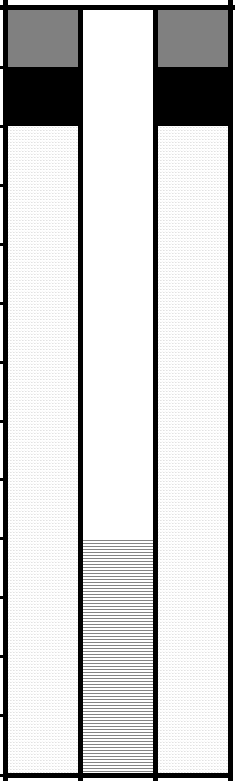
AKRF Project Number : 30260

Well No. MW-16

Sheet 1 of 1

Drilling Method:	Truck-mounted, Hollow Stem Auger
Sampling Method:	No sampling conducted
Driller :	ADT
Weather:	87F, Sunny
Logged by:	SDR

Drilling	
Start	**Finish**
Time: 08:34	**Time:** 09:33
Date: 07-2-03	**Date:** 07-2-03
TOC Elevation:	

Depth (feet)	Well Construction	Construction Description	Description of Cuttings
1		**Flush mounted curb box with locking well cap.**	**0-6" Dirt and Asphalt Parking Lot**
2		**Cement-bentonite grout from 0' - 1'.**	**6"-13' Black/brown SAND, some Gravel, trace Silt, wet towards bottom.**
3		**Bentonite seal 1' - 2'.**	
4		**Number 1 grade sand pack 2' - 13'.**	
5		**2" PVC well riser 0 - 3'.**	
6		**2" PVC 20-slot well screen 3' - 13'.**	
7			
8			
9			
10			
11			
12			
13		**Bottom of well 13'.**	
14			
15			
16			
17			
18			
19			
20			

Notes:
Groundwater apparent at 9'.
Soil samples were not collected during well installation.

APPENDIX B
WELL DEVELOPMENT AND SAMPLING LOGS

AKRF, Inc.

Environmental Consultants

Well Development Log

Job No:	30260	**Client:**	Park Tower Realty	**Well No:**	**MW-6**
Project Location:	Greenpoint Lumber Yard	**Sampled By:**	SDR		
Date:	07/01/03	**Time:**	07:27		
Total Depth:	13 ft.	**Well Diameter:**	2 in.		
Depth to Water:	6.6 ft.	**Well Volume*:**	1.0432 gal.		
Water Column (WC):	6.4 ft.	****PID at surface:**	1.5 ppm		

Time	Pump Rate	Turbidity (NTU)	Temperature (^{o}C)	Conductivity (mS/cm)	DO (mg/L)	pH	ORP (mV)	Comments
07:30 WELL RAN DRY								Well was purged for 3 minutes before it ran dry; not enough time to collect readings
07:35	1.5L/16s	>1000	15.35	0.959	1.03/9.7	***	73	
07:38 WELL RAN DRY								
07:45	1.5L/16s	900	16.34	0.968	1.07/10.1	***	68	
07:47 WELL RAN DRY								
07:55	1.5L/16s	450	16.01	0.967	1.37/12.1	***	62	
07:57 WELL RAN DRY								

07:57 MW-6 considered developed. Well ran dry 4 times and approximately 7 well volume purged.

Total Volume Purged:

Approximately 7 gallons

*= 0.163 * WC for 2" wells

**Photoionization Detector

***pH meter on Quanta G Water Quality Testing Instrument was broken

AKRF, Inc.

Environmental Consultants

Well Development Log

Job No:	30260		**Client:**	Park Tower Realty	**Well No:** MW-7
Project Location:	Greenpoint Lumber Yard		**Sampled By:**	MSS, SDR, JEF	
Date:	07-02-03		**Time:**	13:05:00 AM	
Total Depth:	13.9 ft.	(TOM)	**Well Diameter:**	2 in.	
Depth to Water:	8.1 ft.	(TOM)	**Well Volume*:**	0.945 gal.	
Water Column (WC):	5.8 ft.		****PID at surface:**	13.8 ppm	

Time	Pump Rate	Turbidity (NTU)	Temperature (^{o}C)	Conductivity (mS/cm)	DO (mg/L)	pH	ORP (mV)	Comments
13:10	6L/min	>1000	14.36	3.65	0.83	***		
13:15	**MW-7 RAN DRY**							Well was purged for 3 minutes - not enough time to collect readings
13:20	**MW-7 RAN DRY**							Well was purged for 30 seconds - not enough time to collect readings
13:25	**MW-7 RAN DRY**							Well was purged for 30 seconds - not enough time to collect readings
13:30	**MW-7 RAN DRY**							Well was purged for 7 seconds - not enough time to collect readings
13:35	**MW-7 RAN DRY**							Well was purged for 13 seconds - not enough time to collect readings

13:35 MW-7 considered developed.

Approximately 5 gallons (five well volumes) purged.

Well ran dry four times.

Turbidity at 290 NTU.

Water was clear by the end of development.

Total Volume Purged:

Approximately 5 gallons

Notes: *= 0.163 * WC for 2" wells **Photoionization Detector

***pH meter on Quanta G Water Quality Testing Instrument was broken

AKRF, Inc.

Environmental Consultants

Well Development Log

Job No:	30260	**Client:**	Park Tower Realty	**Well No:**	**MW-8**
Project Location:	Greenpoint Lumber Yard	**Sampled By:**	SDR		
Date:	07/01/03	**Time:**	07:27		
Total Depth:	13.45 ft.	**Well Diameter:**	2 in.		
Depth to Water:	8.4 ft.	**Well Volume*:**	0.82315 gal.		
Water Column (WC):	5.05 ft.	****PID at surface:**	ND		

Time	Pump Rate	Turbidity (NTU)	Temperature (^{o}C)	Conductivity (mS/cm)	DO (mg/L)	pH	ORP (mV)	Comments
08:27	1.5L/16s	>1000	16.99	32.2	3.14/34.2	***	106	
08:28 WELL RAN DRY								
08:34	1.5L/16s	>1000	21.98	30.3	3.90/42.8	***	107	
08:35 WELL RAN DRY								
08:40	1.5L/16s	>1000	27.60	31	4.48/49.5	***	98	
08:40 WELL RAN DRY								Well was purged for approximately 15 seconds before it ran dry; not enough time to collect readings.
08:47	1.5L/16s	>1000	26.70	31	4.71/53.2	7.33	92	
08:47 WELL RAN DRY								Well was purged for approximately 30 seconds before it ran dry; not enough time to collect readings.

08:47 MW-8 considered developed. Well ran dry 4 times. Approximately 4 well volumes purged.

Total Volume Purged:

Approximately 3.5 gallons

Notes:

*= 0.163 * WC for 2" wells

**Photoionization Detector

***pH meter on Quanta G Water Quality Testing Instrument was broken

AKRF, Inc.

Environmental Consultants

Well Development Log

Job No:	30260	**Client:**	Park Tower Realty	**Well No:**	**MW-9**
Project Location:	Greenpoint Lumber Yard	**Sampled By:**	JEF		
Date:	07/02/03	**Time:**	07:30		
Total Depth:	13.45 ft.	**Well Diameter:**	2 in.		
Depth to Water:	8.4 ft.	**Well Volume*:**	0.82315 gal.		
Water Column (WC):	5.05 ft.	**PID at surface:**	ND		

Time	Pump Rate	Turbidity (NTU)	Temperature (^oC)	Conductivity (mS/cm)	DO (mg/L)	pH	ORP (mV)	Comments
08:15	1.5L/15s	>1000	14.27	2.01	4.85/35.8	***	23	Well ran dry after 1 minute of pumping
08:16 WELL RAN DRY								
08:30	1.5L/16s	>1000	15.17	2.42	6.35/54.2	***	27	Well ran dry after 30 seconds of pumping
08:30 WELL RAN DRY								
08:40	1.5L/16s	>1000	15.36	2.51	3.75/33.1	***	27	
08:40 WELL RAN DRY								Well ran dry after 30 seconds of pumping
08:50	****	****	****	****	****	***	****	

WELL RAN DRY TOO QUICKLY TO GET ANY READINGS

8:50 MW-9 considered developed. Well ran dry 4 times.

Total Volume Purged:

Volume not recorded.

Notes:

*= 0.163 * WC for 2" wells

**Photoionization Detector

***pH meter on Quanta G Water Quality Testing Instrument was broken

****No data gathered

AKRF, Inc.

Environmental Consultants

Well Development Log

Job No:	30260		**Client:**	Park Tower Realty	**Well No:** MW-10
Project Location:	Greenpoint Lumber Yard		**Sampled By:**	JEF	
Date:	07/01/03		**Time:**	11:00	
Total Depth:	14.35 ft. (TOM)	13.8 ft. (TOC)	**Well Diameter:**	2 in.	
Depth to Water:	6.48 ft. (TOM)	6.0 ft. (TOC)	**Well Volume*:**	1.27 gal.	
Water Column (WC):	5.05 ft.		****PID at surface:**	ND	

Time	Pump Rate	Turbidity (NTU)	Temperature (^{o}C)	Conductivity (mS/cm)	DO (mg/L)	pH	ORP (mV)	Comments
11:05	1.5L/15s	50	16.96	2.54	5.11/41.8	***	18	
11:10	1.5L/15s	50	14.8	2.63	4.85/18.5	***	30	
11:11 WELL RAN DRY								
11:17	1.5L/15s	220	14.56	2.6	2.62/2.21	***	19	
11:17 WELL RAN DRY								Well ran dry in approximately 30 seconds
11:22	1.5L/15s	140	15.07	2.57	3.44/34.1	***	30	
11:22 WELL RAN DRY								Well ran dry in approximately 30 seconds
11:27	1.5L/16s	290	15.79	2.59	3.30/35.7	7.33	20	
11:27 WELL RAN DRY								Well ran dry in approximately 45 seconds

11:27 MW-10 considered developed. Well ran dry 4 times. Approximately 3 well volumes purged.

Total Volume Purged:

Approximately 4 gallons

Notes:

*= 0.163 * WC for 2" wells

**Photoionization Detector

***pH meter on Quanta G Water Quality Testing Instrument was broken

TOC=Top of Casing

AKRF, Inc.

Environmental Consultants

Well Development Log

Job No:	30260	**Client:**	Park Tower Realty	**Well No:**	**MW-11**
Project Location:	Greenpoint Lumber Yard	**Sampled By:**	MSS/JEF		
Date:	07/02/03	**Time:**	10:00		
Total Depth:	15 ft. (TOC)	**Well Diameter:**	2 in.		
Depth to Water:	12.5 ft. (TOC)	**Well Volume*:**	0.4075 gal.		
Water Column (WC):	2.5 ft.	****PID at surface:**	0.7 ppm		

Time	Pump Rate	Turbidity (NTU)	Temperature (^oC)	Conductivity (mS/cm)	DO (mg/L)	pH	ORP (mV)	Comments
10:00	1.5L/15s	>1000	17.29	1.01	4.26/****	***	****	
10:02 WELL RAN DRY								
10:07	1.5L/15s	>1000	17.17	1.02	2.93/****	***	****	
10:08 WELL RAN DRY								
10:13	1.5L/15s	>1000	17.06	1.025	3.15/****	***	****	
10:14 WELL RAN DRY								
10:19	1.5L/15s	>1000	17.2	1.023	3.05/****	***	****	
10:20 WELL RAN DRY								

10:20 MW-11 considered developed. Well ran dry 4 times. Approximately 4 well volumes purged.

Total Volume Purged:

Approximately 4 gallons

Notes: *= 0.163 * WC for 2" wells **Photoionization Detector

***pH meter on Quanta G Water Quality Testing Instrument was broken ****No data gathered

AKRF, Inc.

Environmental Consultants

Well Development Log

Job No:	30260		**Client:**	Park Tower Realty	**Well No:** MW-12A
Project Location:	Greenpoint Lumber Yard		**Sampled By:**	SDR	
Date:	07/01/03		**Time:**	09:38	
Total Depth:	13.5 ft. (TOC)	13.75 ft. (TOM)	**Well Diameter:**	2 in.	
Depth to Water:	5.1 ft. (TOC)	5.4 ft. (TOM)	**Well Volume*:**	1.3692 gal.	
Water Column (WC):	8.4 ft.		****PID at surface:**	1.4 ppm	

Time	Pump Rate	Turbidity (NTU)	Temperature (^oC)	Conductivity (mS/cm)	DO (mg/L)	pH	ORP (mV)	Comments
09:52	1.5L/15s	>1000	15.99	1.59	4.06/33.1	***	17	
09:57	1.5L/15s	>1000	16.02	1.59	1.90/19.3		9	
09:57 WELL RAN DRY								
10:08 WELL RAN DRY								
10:01	1.5L/25s	>1000	16.12	1.59	1.56/14.4	***	24	Black sediment
10:05	1.5L/25s	>1000	15.89	1.56	2.37/23.8	***	18	
10:10	1.5L/25s	950	15.83	1.57	2.54/25.9	***	18	Flow has decreased
10:14 WELL RAN DRY								
10:15	1.5L/25s	100	15.87	1.56	11.67/17.2	***	14	
10:21	1.5L/30s	160	15.78	1.57	2.62/26.7	***	15	
10:25	1.5L/30s	160	15.77	1.57	2.90/29.2	***	17	
10:29	1.5L/30s	150	15.79	1.58	2.89/28.8	***	16	

10:29 MW-12A considered developed. Well parameters stabilized. Approximately 14 well volumes purged.

Total Volume Purged:

Approximately 20 gallons

Notes:

*= 0.163 * WC for 2" wells

**Photoionization Detector

***pH meter on Quanta G Water Quality Testing Instrument was broken

TOM=Top of Manhole

AKRF, Inc.

Environmental Consultants

Well Development Log

Job No:	30260		**Client:**	Park Tower Realty	**Well No:** MW-13
Project Location:	Greenpoint Lumber Yard		**Sampled By:**	JEF	
Date:	07/01/03		**Time:**	11:45	
Total Depth:	12.45 ft. (TOC)	12.0 ft. (TOM)	**Well Diameter:**	2 in.	
Depth to Water:	6.08 ft. (TOC)	6.5 ft. (TOM)	**Well Volume*:**	.978 gal.	
Water Column (WC):	6 ft		****PID at surface:**	ND	

Time	Pump Rate	Turbidity (NTU)	Temperature (^oC)	Conductivity (mS/cm)	DO (mg/L)	pH	ORP (mV)	Comments
11:47	1.5L/15s	>1000	18.86	2.31	2.19/20.3	***	13	
11:53	1.5L/15s	210	16.8	2.16	3.53/36.1	***	-31	
11:56	1.5L/15s	110	16.72	2.14	3.69/38.2	***	-33	
12:00	1.5L/15s	80	16.69	2.13	3.47/36.0	***	-36	
12:05	1.5L/15s	45	16.55	2.12	3.32/34.4	***	-37	
12:10	1.5L/15s	50	16.54	2.11	3.60/*	***	****	

10:29 MW-13 considered developed. Well parameters stabilized. Approximately 20 well volumes purged.

Total Volume Purged:

Approximately 20 gallons

Notes:

*= 0.163 * WC for 2" wells

**Photoionization Detector

***pH meter on Quanta G Water Quality Testing Instrument was broken

****No data gathered

TOM= Top of Manhole

AKRF, Inc.

Environmental Consultants

Well Development Log

Job No:	30260	**Client:**	Park Tower Realty	**Well No:** MW-14
Project Location:	Greenpoint Lumber Yard	**Sampled By:**	MSS, JEF	
Date:	07/01/03	**Time:**	10:45	
Total Depth:	14.00 ft. (TOM)	**Well Diameter:**	2 in.	
Depth to Water:	8.80 ft. (TOM)	**Well Volume*:**	.685 gal.	
Water Column (WC):	4.2 ft.	**PID at surface:**	2.0 ppm	

Time	Pump Rate	Turbidity (NTU)	Temperature (^{o}C)	Conductivity (mS/cm)	DO (mg/L)	pH	ORP (mV)	Comments
10:48	6L/min	>1000	15.19	1.001	3.12/*	***	****	
10:51	6L/min	850	14.72	0.978	0.80/*	***	****	
10:53	6L/min	400	14.71	0.962	0.71/*	***	****	
10:55	6L/min	95	14.68	0.953	0.63/*	***	****	
10:57	6L/min	45	14.66	0.944	0.52/*	***	****	
10:59	6L/min	31	14.66	0.941	0.46/*	***	****	

10:59 MW-14 considered developed. Well parameters stabilized. Approximately 8 well volumes purged.

Total Volume Purged:

Approximately 6 gallons

Notes:

*= 0.163 * WC for 2" wells

**Photoionization Detector

***pH meter on Quanta G Water Quality Testing Instrument was broken ****No data gathered

TOM= Top of Manhole

AKRF, Inc.

Environmental Consultants

Well Development Log

Job No:	30260	**Client:**	Park Tower Realty	**Well No:**	**MW-15A**
Project Location:	Greenpoint Lumber Yard	**Sampled By:**	MSS, SDR		
Date:	07/02/03	**Time:**	12:20		
Total Depth:	14.3 ft.	**Well Diameter:**	2 in.		
Depth to Water:	9.5 ft. TOM	**Well Volume*:**	0.7824 gal.		
Water Column (WC):	4.8 ft.	****PID at surface:**	1.2 ppm		

Time	Pump Rate	Turbidity (NTU)	Temperature (^{o}C)	Conductivity (mS/cm)	DO (mg/L)	pH	ORP (mV)	Comments
12:28	6L/min	>1000	17.20	1.015	1.83/*	***	****	Cloudy
12:32	6L/min	350	15.25	0.971	0.30/*	***	****	Clear
12:37	6L/min	260	14.95	0.962	0.21/*	***	****	Clear
12:44	6L/min	60	14.45	0.952	0.12/1.2	***	30	
12:50	6L/min	15	14.51	0.949	0.12/1.1	***	30	
12:53	6L/min	45	14.47	0.947	.11/1.1	***	30	
12:58	6L/min	45	14.5	0.947	.11/1.1	***	30	

12:58 MW-15A considered developed. Well parameters stabilized. Approximately 17 well volumes purged.

Total Volume Purged:

Approximately 13.26 gallons

Notes: *= 0.163 * WC for 2" wells **Photoionization Detector

***pH meter on Quanta G Water Quality Testing Instrument was broken ****No data gathered TOM= Top of Manhole

AKRF, Inc.

Environmental Consultants

Well Development Log

Job No:	30260	**Client:**	Park Tower Realty	**Well No:**	**MW-16**
Project Location:	Greenpoint Lumber Yard	**Sampled By:**	MSS, JEF		
Date:	07/02/03	**Time:**	11:30		
Total Depth:	13.5 ft.	**Well Diameter:**	2 in.		
Depth to Water:	6.65 ft. TOM	**Well Volume*:**	1.133 gal.		
Water Column (WC):	6.95 ft.	****PID at surface:**	0.6 ppm		

Time	Pump Rate	Turbidity (NTU)	Temperature (^oC)	Conductivity (mS/cm)	DO (mg/L)	pH	ORP (mV)	Comments
11:45	6L/min	>1000	16.87	1.189	1.91/*	***	****	Cloudy
11:50	6L/min	160	16.39	1.52	0.43/*	***	****	Clear
11:55	6L/min	70	16.37	1.52	0.33/*	***	****	Clear
12:00	6L/min	75	16.35	1.52	0.25/*	***	****	
12:02	**WE SURGED THE WELL**							
12:10	6L/min	75	16.32	1.52	0.18/*	***	****	
12:12	6L/min	35	16.31	1.52	0.20/*	***	****	

12:15 MW-16 considered developed. Turbidity < 50ppm. Approximately 4.5 well volumes purged.

Total Volume Purged:

Approximately 5 gallons

Notes:

*= 0.163 * WC for 2" wells

**Photoionization Detector

***pH meter on Quanta G Water Quality Testing Instrument was broken ****No data gathered

TOM= Top of Manhole

AKRF, Inc.

Environmental Consultants

Well Sampling Log

Sheet: 1 of: 1

Job No:	**30260**		**Client:**	**Park Tower Realty**	**Well No:** **MW6**
Project Location:	**Greenpoint Lumber Yard, Brooklyn, NY**		**Sampled By:**	**MSS, JEF**	
Date:	**07-14-03**		**Time:**	**07:15**	
PID at surface:	**0.2 ppm**				
Total Depth:	**12.76' TOC**	**13.21' TOM**	**Well Diameter:**	**2"**	*= 0.163 * WC for 2" wells
Depth to Water:	**5.63' TOC**	**6.10' TOM**	**Well Volume*:**	**1.162 gal.**	
Water Column (WC):	**7.13'**			**x3=3.486 gal.**	
Depth to top of screen:	**3'**		**Purging Device (pump type):**		
Depth to bottom of screen:	**13'**		**Geotech Geopump 2**		
Pump intake:	**10'**				

Time	Depth to Water (Ft.)	Purge Rate	Temp (^oC)	Conductivity (mS/cm)	DO (mg/L)	pH	ORP (mV)	Tubidity (NTU)	Comments
07:43	5.83'	1L/3min	18.40	1	2.06	6.9	23	80	Clear
07:48	5.83'	1L/3min	17.56	0.994	0.73	6.9	19	50	Slight sheen
07:53	5.83'	1L/3min	17.19	0.999	0.59	6.8	23	50	
07:58	5.83'	1L/3min	17.34	0.995	0.5	6.9	17	39	
08:03	5.83'	1L/3min	17.32	1	0.45	7	15	31	No odor
08:08	5.83'	1L/3min	17.30	1.006	0.41	6.9	11	18	
08:13	5.83'	1L/3min	17.23	1.007	0.39	6.9	8	7.8	
08:18	5.83'	1L/3min	17.29	1.006	0.39	6.9	6	4.9	
08:23	5.83'	1L/3min	19.27	1.003	0.38	6.9	7	4.9	

Purging Criteria: **Parameters stabilized within 10% or Turbidity < 10 NTU or 3 well volumes purged.**

Comments: **Approximately 3.5 gallons purged over 40 minutes. All parameters stabilized except for turbidity and ORP.**

AKRF, Inc.

Environmental Consultants

Well Sampling Log

Sheet: 1 **of:** 1

Job No:	**30260**	**Client:** **Park Tower Realty**	**Well No:** **MW7**
Project Location:	**Greenpoint Lumber Yard, Brooklyn, NY**	**Sampled By:** **MSS, JEF**	
Date:	**07-14-03**	**Time:**	
PID at surface:	**0.8 ppm**		
Total Depth:	**13.7' TOC** **14.4' TOM**	**Well Diameter:** **2"**	*= 0.163 * WC for 2" wells
Depth to Water:	**8' TOC** **6.4' TOM**	**Well Volume*:** **0.9291 gal.**	
Water Column (WC):	**5.7'**	**x3=2.79 gal.**	
Depth to top of screen:	**4'**	**Purging Device (pump type):**	
Depth to bottom of screen:	**14'**	**Geotech Geopump 2**	
Pump intake:			

Time	Depth to Water (Ft.)	Purge Rate	Temp (^oC)	Conductivity (mS/cm)	DO (mg/L)	pH	ORP (mV)	Tubidity (NTU)	Comments
10:15	8.2'	500mL/min	17.07	4.13	2.64	12.2	-80	45	Clear
10:20	8.2'	500mL/min	17.04	3.61	0.31	12.1	-80	50	Slight sheen
10:25	8.2'	500mL/min	17.19	2.17	0.27	12	-89	34	
10:30	8.2'	500mL/min	17.15	2.02	0.22	11.9	-110	26	
10:35	8.2'	500mL/min	17.10	2.02	0.17	11.9	-118	19	
10:40	8.2'	500mL/min	17.09	1.99	0.17	11.9	-126	32	
10:45	8.2'	500mL/min	17.11	1.97	0.17	11.8	-130	26	

Purging Criteria: **Parameters stabilized within 10% <u>or</u> Turbidity < 10 NTU <u>or</u> 3 well volumes purged.**

Comments: **Approximately 3 gallons purged. All parameters stabilized within 10%. Turbidity = 26 NTU.**

AKRF, Inc.

Environmental Consultants

Well Sampling Log

Sheet: 1 of: 1

Job No:	**30260**		**Client:**	**Park Tower Realty**	**Well No:** **MW8**
Project Location:	**Greenpoint Lumber Yard, Brooklyn, NY**		**Sampled By:**	**MSS, JEF**	
Date:	**07-14-03**		**Time:**	**08:55**	
PID at surface:	**ND**				
Total Depth:	**12.60' TOC**	**13.35' TOM**	**Well Diameter:**	**2"**	*= 0.163 * WC for 2" wells
Depth to Water:	**6.1' TOC**	**6.85' TOM**	**Well Volume*:**	**1.06 gal**	
Water Column (WC):	**6.5'**			**x3=3.18gal.**	
Depth to top of screen:	**3'**		**Purging Device (pump type):**		
Depth to bottom of screen:	**13'**		**Geotech Geopump 2**		
Pump intake:	**10'**				

Time	Depth to Water (Ft.)	Purge Rate	Temp (^oC)	Conductivity (mS/cm)	DO (mg/L)	pH	ORP (mV)	Tubidity (NTU)	Comments
08:57	6.7'	500mL/min	20.15	35.5	5	7.2	104	38	Clear
09:02	6.7'	500mL/min	20.61	35.3	6.75	7.2	127	5.5	No sheen
09:07	6.7'	500mL/min	20.60	35.3	6.77	7.2	127	1.1	No odor
09:12	6.7'	500mL/min	20.59	35.3	6.59	7.2	127	0.85	
09:17	6.7'	500mL/min	20.61	35.3	6.4	7.2	126	0.8	
09:22	6.7'	500mL/min	20.60	35.3	6.42	7.2	126	0.55	
09:27	6.7'	500mL/min	20.60	35.3	6.23	7.2	125	0.6	

Purging Criteria: **Parameters stabilized within 10% <u>or</u> Turbidity < 10 NTU <u>or</u> 3 well volumes purged.**

Comments: **Approximately 3.5 gallons purged (30 minutes purging). All parameters stabilized within 10%. Turbidity < 1 NTU.**

AKRF, Inc.

Environmental Consultants

Well Sampling Log

Sheet: 1 of: 1

Job No:	**30260**		**Client:**	**Park Tower Realty**	**Well No:** **MW9**
Project Location:	**Greenpoint Lumber Yard, Brooklyn, NY**		**Sampled By:**	**SDR/MSS**	
Date:	**07-14-03**		**Time:**	**14:35**	
PID at surface:	**ND**				
Total Depth:	**12.85' TOC**	**13.15' TOM**	**Well Diameter:**	**2"**	*= 0.163 * WC for 2" wells
Depth to Water:	**8.65' TOC**	**8.95 TOM**	**Well Volume*:**	**.6846 gal**	
Water Column (WC):	**4.2'**			**x3=2.05gal.**	
Depth to top of screen:	**3'**		**Purging Device (pump type):**		
Depth to bottom of screen:	**13'**		**Geotech Geopump 2**		
Pump intake:					

Time	Depth to Water (Ft.)	Purge Rate	Temp (^{o}C)	Conductivity (mS/cm)	DO (mg/L)	pH	ORP (mV)	Tubidity (NTU)	Comments
14:40	8.85'	500mL/min	16.05	1.9	1.2	7	-13	40	
14:45	8.85'	500mL/min	17.37	1.84	1.09	6.9	-10	17	
14:50	8.85'	500mL/min	16.74	1.75	1.26	6.9	-4	5.4	
14:55	8.85'	500mL/min	18.05	1.8	1.18	6.9	-3	4.2	
15:00	8.85'	500mL/min	17.37	1.82	1.15	6.9	-4	6.2	
15:05	8.85'	500mL/min	17.33	1.93	0.88	6.9	-6	6	
15:10	8.85'	500mL/min	17.51	1.94	0.83	6.9	-6	5.5	
15:15	8.85'	500mL/min	17.88	1.92	0.85	6.9	-5	5.5	
15:20	8.85'	500mL/min	17.57	1.9	0.87	6.9	-6	5.3	

Purging Criteria: **Parameters stabilized within 10% <u>or</u> Turbidity < 10 NTU <u>or</u> 3 well volumes purged.**

Comments: **Approximately 2 gallons purged. All parameters stabilized within 10%. Turbidity = 5.3 NTU.**

AKRF, Inc.

Environmental Consultants

Well Sampling Log

Sheet: 1 of: 1

Job No:	**30260**		**Client:**	**Park Tower Realty**	**Well No: MW10**
Project Location:	**Greenpoint Lumber Yard, Brooklyn, NY**		**Sampled By:**	**MSS/JEF/SDR**	
Date:	**07-14-03**		**Time:**	**15:30**	
PID at surface:	**0.2 ppm**				
Total Depth:	**13.95' TOC**	**14.4' TOM**	**Well Diameter:**	**2"**	*= 0.163 * WC for 2" wells
Depth to Water:	**5.95' TOC**	**6.4' TOM**	**Well Volume*:**	**1.304 gal**	
Water Column (WC):	**8'**			**x3=3.914 gal.**	
Depth to top of screen:	**4'**		**Purging Device (pump type):**		
Depth to bottom of screen:	**14'**		**Geotech Geopump 2**		
Pump intake:	**6.2'**				

Time	Depth to Water (Ft.)	Purge Rate	Temp (^{o}C)	Conductivity (mS/cm)	DO (mg/L)	pH	ORP (mV)	Tubidity (NTU)	Comments
15:45	6.2'	500mL/min	20.80	2.53	1.79	7.4	-12	16	
15:50	6.2'	500mL/min	20.50	2.55	1.01	7.4	-14	21	
15:55	6.2'	500mL/min	20.49	2.55	0.41	7.4	-22	20	
16:00	6.2'	500mL/min	18.92	2.55	0.26	7.4	-27	30	
16:05	6.2'	500mL/min	19.54	2.53	0.21	7.4	-29	27	
16:10	6.2'	500mL/min	19.99	2.53	0.23	7.4	-32	23	
16:15	6.2'	500mL/min	20.50	2.56	0.21	7.4	-35	23	
16:20	6.2'	500mL/min	20.40	2.55	0.2	7.4	-37	20	
16:25	6.2'	500mL/min	20.00	2.57	0.19	7.4	-38	18	
16:30	6.2'	500mL/min	19.84	2.56	0.19	7.4	-39	18	
16:35	6.2'	500mL/min	19.87	2.56	0.19	7.4	-40	18	
16:40	6.2'	500mL/min	19.83	2.57	0.19	7.4	-40	18	
16:45	6.2'	500mL/min	19.84	2.56	0.19	7.4	-40	18	

Purging Criteria: **Parameters stabilized within 10% <u>or</u> Turbidity < 10 NTU <u>or</u> 3 well volumes purged.**

Comments: **Approximately 3 gallons purged (<3 well volumes). Pump rate was very low due to very low recharge. All parameters stabilized within 10% for last 4 readings over 20 minutes. Turbidity = 18 NTU.**

AKRF, Inc.

Environmental Consultants

Well Sampling Log

Sheet: 1 of: 1

Job No:	**30260**		**Client:**	**Park Tower Realty**	**Well No:** **MW11**
Project Location:	**Greenpoint Lumber Yard, Brooklyn, NY**		**Sampled By:**	**MSS/JEF/SDR**	
Date:	**07-14-03**		**Time:**	**10:00**	
PID at surface:	**NOT WORKING**				
Total Depth:	**14.85' TOC**	**15.05' TOM**	**Well Diameter:**	**2"**	*= 0.163 * WC for 2" wells
Depth to Water:	**12.2' TOC**	**12.5' TOM**	**Well Volume*:**	**0.432 gal**	
Water Column (WC):	**2.65'**			**x3=1.30 gal.**	
Depth to top of screen:	**5'**		**Purging Device (pump type):**		
Depth to bottom of screen:	**15'**		**Geotech Geopump 2**		
Pump intake:	**14"**				

Time	Depth to Water (Ft.)	Purge Rate	Temp (^oC)	Conductivity (mS/cm)	DO (mg/L)	pH	ORP (mV)	Tubidity (NTU)	Comments
10:03	12.4'	250mL/min	17.10	1.02	1.22	6.9	73	172	
10:08	12.4'	250mL/min	18.80	1.018	1.48	6.9	90	160	
10:13	12.4'	250mL/min	18.17	1.014	0.98	6.6	90	160	
10:18	12.4'	250mL/min	18.00	1.013	0.73	6.6	89	50	
10:23	12.4'	250mL/min	17.82	1.015	0.65	6.6	88	15	
10:28	12.4'	250mL/min	17.54	1.017	0.62	6.6	87	7.5	
10:33	12.4'	250mL/min	17.56	1.02	0.62	6.6	85	3.1	
10:38	12.4'	250mL/min	17.84	1.02	0.61	6.6	85	2.2	
10:43	12.4'	250mL/min	17.76	1.031	0.65	6.6	86	1.8	
10:48	12.4'	250mL/min	18.00	1.021	0.63	6.6	84	1.6	

Purging Criteria: **Parameters stabilized within 10% <u>or</u> Turbidity < 10 NTU <u>or</u> 3 well volumes purged.**

Comments: **Approximately 1.5 gallons purged. All parameters stabilized within 10%. Turbidity = 1.6 NTU.**

AKRF, Inc.

Environmental Consultants

Well Sampling Log

Sheet: 1 **of:** 1

Job No:	**30260**		**Client:**	**Park Tower Realty**	**Well No:** **MW12A**
Project Location:	**Greenpoint Lumber Yard, Brooklyn, NY**		**Sampled By:**	**MSS/JEF**	
Date:	**07-14-03**		**Time:**	**11:30**	
PID at surface:	**0.9 ppm**				
Total Depth:	**13.6' TOC**	**13.8' TOM**	**Well Diameter:**	**2"**	*= 0.163 * WC for 2" wells
Depth to Water:	**5.4' TOC**	**5.6' TOM**	**Well Volume*:**	**1.33 gal**	
Water Column (WC):	**8.20'**			**x3=4 gal.**	
Depth to top of screen:	**5'**		**Purging Device (pump type):**		
Depth to bottom of screen:	**15'**		**Geotech Geopump 2**		
Pump intake:					

Time	Depth to Water (Ft.)	Purge Rate	Temp (^oC)	Conductivity (mS/cm)	DO (mg/L)	pH	ORP (mV)	Tubidity (NTU)	Comments
11:35	5.6'	500mL/min	19.42	1.383	1.16	7.6	-55	160	Moderate organic-like odor
11:40	5.6'	500mL/min	19.19	1.381	0.42	7.3	-37	220	
11:45	5.6'	500mL/min	18.63	1.415	0.3	7.2	-28	80	
11:50	5.6'	500mL/min	18.49	1.419	0.25	7.2	-26	45	
11:55	5.6'	500mL/min	18.40	1.422	0.21	7.1	-27	25	
12:00	5.6'	500mL/min	18.46	1.427	0.19	7.1	-28	14	
12:05	5.6'	500mL/min	18.36	1.429	0.18	7.2	-29	9.7	
12:10	5.6'	500mL/min	18.41	1.429	0.19	7.1	-30	9	

Purging Criteria: **Parameters stabilized within 10% <u>or</u> Turbidity < 10 NTU <u>or</u> 3 well volumes purged.**

Comments: **Approximately 4 gallons purged. All parameters stabilized within 10%. Turbidity = 9 NTU.**

AKRF, Inc.

Environmental Consultants

Well Sampling Log

Sheet: 1 of: 1

Job No:	**30260**		**Client:**	**Park Tower Realty**	**Well No: MW13A**
Project Location:	**Greenpoint Lumber Yard, Brooklyn, NY**		**Sampled By:**	**MSS/JEF**	
Date:	**07-14-03**		**Time:**	**13:31**	
PID at surface:	**3.9 ppm**				
Total Depth:	**12.1' TOC**	**12.38' TOM**	**Well Diameter:**	**2"**	*= 0.163 * WC for 2" wells
Depth to Water:	**6.32' TOC**	**6.6' TOM**	**Well Volume*:**	**0.957 gal**	
Water Column (WC):	**5.78'**			**x3=2.87 gal.**	
Depth to top of screen:	**2'**		**Purging Device (pump type):**		
Depth to bottom of screen:	**12'**		**Geotech Geopump 2**		
Pump intake:	**9'**				

Time	Depth to Water (Ft.)	Purge Rate	Temp (^{o}C)	Conductivity (mS/cm)	DO (mg/L)	pH	ORP (mV)	Tubidity (NTU)	Comments
13:36	6.5'	500mL/min	18.47	2.85	2.39	7.3	-24	29	Slight petroleum-like odor
13:41	6.5'	500mL/min	18.17	2.7	0.8	7.1	-15	19	
13:46	6.5'	500mL/min	18.65	2.52	0.68	7.1	-1	7.7	Clear
13:51	6.5'	500mL/min	18.68	2.44	0.62	7.1	-7	2.3	
13:56	6.5'	500mL/min	18.77	2.34	0.55	7.1	-26	1.1	
14:01	6.5'	500mL/min	18.57	2.28	0.4	7.1	-39	0.45	
14:06	6.5'	500mL/min	18.53	2.24	0.98	7.1	-48	0.35	
14:11	6.5'	500mL/min	18.48	2.22	0.51	7.1	-48	0.9	

Purging Criteria: **Parameters stabilized within 10% <u>or</u> Turbidity < 10 NTU <u>or</u> 3 well volumes purged.**

Comments: **Approximately 3 gallons purged. All parameters stabilized within 10%. Turbidity <1 NTU.**

AKRF, Inc.

Environmental Consultants

Well Sampling Log

Sheet: 1 of: 1

Job No:	**30260**		**Client:**	**Park Tower Realty**	**Well No:** **MW14**
Project Location:	**Greenpoint Lumber Yard, Brooklyn, NY**		**Sampled By:**	**JEF/MSS**	
Date:	**07-15-03**		**Time:**	**13:30**	
PID at surface:	**4.1 ppm**				
Total Depth:	**13.84' TOC**	**14.47' TOM**	**Well Diameter:**	**2"**	*= 0.163 * WC for 2" wells
Depth to Water:	**8.77' TOC**	**9.4' TOM**	**Well Volume*:**	**0.826 gal**	
Water Column (WC):	**5.07**			**x3=2.48gal.**	
Depth to top of screen:	**4'**		**Purging Device (pump type):**		
Depth to bottom of screen:	**14'**		**Geotech Geopump 2**		
Pump intake:					

Time	Depth to Water (Ft.)	Purge Rate	Temp (^oC)	Conductivity (mS/cm)	DO (mg/L)	pH	ORP (mV)	Tubidity (NTU)	Comments
08:45	8.9'	500mL/min	17.51	0.983	1.95	6.6	-14	45	
08:50	8.9'	500mL/min	16.39	0.953	0.49	6.8	2	16	Moderate organic-like odor, clear
08:55	8.9'	500mL/min	16.48	0.957	0.41	6.8	5	11	
09:00	8.9'	500mL/min	16.58	0.96	0.36	6.8	5	10	
09:05	8.9'	500mL/min	16.57	0.956	0.34	6.8	6	7.2	
09:10	8.9'	500mL/min	16.82	0.96	0.32	6.8	6	6.2	
09:15	8.9'	500mL/min	16.75	0.955	0.35	6.8	6	6.3	
09:20	8.9'	500mL/min	15.90	0.948	0.24	6.8	7	4.4	
09:25	8.9'	500mL/min	15.90	0.95	0.3	6.8	7	3.2	

Purging Criteria: **Parameters stabilized within 10% <u>or</u> Turbidity < 10 NTU <u>or</u> 3 well volumes purged.**

Comments: **Approximately 3 gallons purged. All parameters stabilized within 10%. Turbidity = 3.2 NTU.**

AKRF, Inc.

Environmental Consultants

Well Sampling Log

Sheet: 1 of: 1

Job No:	**30260**		**Client:**	**Park Tower Realty**	**Well No:** **MW15A**
Project Location:	**Greenpoint Lumber Yard, Brooklyn, NY**		**Sampled By:**	**JEF/MSS**	
Date:	**07-15-03**		**Time:**	**13:30**	
PID at surface:	**ND**				
Total Depth:	**13.8' TOC**	**14.1' TOM**	**Well Diameter:**		*= 0.163 * WC for 2" wells
Depth to Water:	**9.38' TOC**	**9.65' TOM**	**Well Volume*:**		
Water Column (WC):	**4.42'**				
Depth to top of screen:	**4'**		**Purging Device (pump type):**		
Depth to bottom of screen:	**14'**		**Geotech Geopump 2**		
Pump intake:					

Time	Depth to Water (Ft.)	Purge Rate	Temp (^{o}C)	Conductivity (mS/cm)	DO (mg/L)	pH	ORP (mV)	Tubidity (NTU)	Comments
13:35	9.5'	500mL/min	16.01	0.89	1.48	6.9	11	>1000	
13:40	9.5'	500mL/min	16.02	0.953	0.58	6.9	16	280	
13:45	9.5'	500mL/min	15.99	0.958	0.39	6.9	20	29	
13:50	9.5'	500mL/min	16.02	0.962	0.35	6.9	22	10	
13:55	9.5'	500mL/min	16.00	0.963	0.33	6.9	24	4.8	
14:00	9.5'	500mL/min	15.98	0.967	0.3	6.9	25	3.4	
14:05	9.5'	500mL/min	15.93	0.965	0.29	6.9	25	2.7	
14:10	9.5'	500mL/min	15.89	0.964	0.29	6.2	24	3.4	

Purging Criteria: **Parameters stabilized within 10% <u>or</u> Turbidity < 10 NTU <u>or</u> 3 well volumes purged.**

Comments: **Approximately 3 gallons purged. All parameters stabilized within 10%. Turbidity = 3.4 NTU.**

AKRF, Inc.

Environmental Consultants

Well Sampling Log

Sheet: 1 of: 1

Job No:	**30260**		**Client:**	**Park Tower Realty**	**Well No:** **MW16**
Project Location:	**Greenpoint Lumber Yard, Brooklyn, NY**		**Sampled By:**	**MSS/SDR/JEF**	
Date:	**07-15-03**		**Time:**	**11:38**	
PID at surface:	**ND**				
Total Depth:	**13.00' TOC**	**13.54' TOM**	**Well Diameter:**	**2"**	*= 0.163 * WC for 2" wells
Depth to Water:	**5.28' TOC**	**5.81' TOM**	**Well Volume*:**	**1.26 gal**	
Water Column (WC):	**7.72'**			**x3=3.78 gal.**	
Depth to top of screen:	**3'**		**Purging Device (pump type):**		
Depth to bottom of screen:	**13'**		**Geotech Geopump 2**		
Pump intake:	**7"**				

Time	Depth to Water (Ft.)	Purge Rate	Temp (^oC)	Conductivity (mS/cm)	DO (mg/L)	pH	ORP (mV)	Tubidity (NTU)	Comments
11:46	5.4'	500mL/min	18.88	1.77	0.47	7.1	-1	17	
11:51	5.4'	500mL/min	18.69	1.79	0.29	7.1	-3	11	
11:56	5.4'	500mL/min	18.65	1.79	0.24	7.1	-4	5	
12:01	5.4'	500mL/min	18.69	1.78	0.2	7.1	-6	2.7	
12:06	5.4'	500mL/min	18.70	1.78	0.19	7.1	-7	1.7	
12:11	5.4'	500mL/min	18.69	1.78	0.19	7.1	-8	1.2	
12:16	5.4'	500mL/min	18.73	1.78	0.17	7.1	-9	1.1	
12:21	5.4'	500mL/min	18.72	1.78	0.17	7.1	-10	1.2	

Purging Criteria: **Parameters stabilized within 10% <u>or</u> Turbidity < 10 NTU <u>or</u> 3 well volumes purged.**

Comments: **Approximately 4 gallons purged. All parameters stabilized within 10%. Turbidity = 1.2 NTU.**

AKRF, Inc.

Environmental Consultants

Well Sampling Log

Sheet: 1 of: 1

Job No:	**30260**		**Client:**	**Park Tower Realty**	**Well No:** **FOUND WELL**
Project Location:	**Greenpoint Lumber Yard, Brooklyn, NY**		**Sampled By:**	**MSS/JEF**	
Date:	**07-14-03**		**Time:**	**14:35**	
PID at surface:	**ND**				
Total Depth:	**18.83' TOC**	**18.88' TOM**	**Well Diameter:**	**1"**	*= 0.041 * WC for 1" wells
Depth to Water:	**5.2' TOC**	**5.25' TOM**	**Well Volume*:**	**0.56 gal**	
Water Column (WC):	**13.63"**			**x3=1.68 gal.**	
Depth to top of screen:	**UNKNOWN**		**Purging Device (pump type):**		
Depth to bottom of screen:	**UNKNOWN**		**Geotech Geopump 2**		
Pump intake:	**10'**				

Time	Depth to Water (Ft.)	Purge Rate	Temp (^{o}C)	Conductivity (mS/cm)	DO (mg/L)	pH	ORP (mV)	Tubidity (NTU)	Comments
14:45	5.4'	500mL/min	17.15	1.41	0.38	7.4	-8	70	Red flakes - maybe rust floating in water column
14:50	5.4'	500mL/min	16.60	1.413	0.81	7.4	-8	7.5	
14:55	5.4'	500mL/min	16.62	1.403	0.32	7.4	-9	4.7	
15:00	5.4'	500mL/min	16.59	1.397	0.28	7.4	-9	4.3	
15:05	5.4'	500mL/min	16.53	1.398	0.24	7.4	-9	4.6	
15:10	5.4'	500mL/min	16.58	1.398	0.24	7.4	-11	4.4	

Purging Criteria: **Parameters stabilized within 10% <u>or</u> Turbidity < 10 NTU <u>or</u> 3 well volumes purged.**

Comments: **Approximately 2.5 gallons purged. All parameters stabilized within 10%. Turbidity = 4.4 NTU.**

APPENDIX C
CATEGORY A LABORATORY DELIVERABLES

AMERICAN
ANALYTICAL
LABORATORIES, INC.

NYSDOH	ELAP	11418
AIHA	PAT, LPAT	102391
CTDOH	PH-0205	

ASP CATEGORY A
WORKORDER 0306116
AKRF, INC.
GREENPOINT LUMBER YARD
BROOKLYN, N.Y.

56 TOLEDO STREET • FARMINGDALE, NEW YORK 11735
(631) 454-6100 • FAX: (631) 454-8027

COVER PAGE

July 28, 2003

Mimi Sotiriou
AKRF, Inc
116 East 27th Street
7th Floor
New York, NY 10016

TEL: (646) 459-3528
FAX (212) 726-0942

RE: Greenpoint Lumber Yard Brooklyn, NY

Order No.: 0306116

Dear Mimi Sotiriou:

American Analytical Laboratories, Inc. received 20 samples on 6/27/2003 for the analyses presented in the following report.

There were no problems with the analyses and all data for associated QC met EPA or laboratory specifications.

If you have any questions regarding these tests results, please feel free to call.

Sincerely,

Lori Beyer
Lab Director

American Analytical Laboratories, Inc.

Date: *28-Jul-03*

CLIENT: AKRF, Inc
Project: Greenpoint Lumber Yard Brooklyn, NY
Lab Order: 0306116

Work Order Sample Summary

Lab Sample ID	Client Sample ID	Tag Number	Collection Date	Date Received
0306116-01A	B12 (0.5-2')		6/25/2003	6/27/2003
0306116-01B	B12 (0.5-2')		6/25/2003	6/27/2003
0306116-02A	B12 (5'-7')		6/25/2003	6/27/2003
0306116-02B	B12 (5'-7')		6/25/2003	6/27/2003
0306116-03A	B13 (0.5'-2')		6/25/2003	6/27/2003
0306116-03B	B13 (0.5'-2')		6/25/2003	6/27/2003
0306116-04A	B13 (5'-7')		6/25/2003	6/27/2003
0306116-04B	B13 (5'-7')		6/25/2003	6/27/2003
0306116-05A	MW-12 (0.5'-2')		6/25/2003	6/27/2003
0306116-05B	MW-12 (0.5'-2')		6/25/2003	6/27/2003
0306116-06A	MW12 (4.5'-5.5')		6/25/2003	6/27/2003
0306116-06B	MW12 (4.5'-5.5')		6/25/2003	6/27/2003
0306116-07A	MW13 (0.5'-2')		6/25/2003	6/27/2003
0306116-07B	MW13 (0.5'-2')		6/25/2003	6/27/2003
0306116-08A	MW13 (5'-7')		6/25/2003	6/27/2003
0306116-08B	MW13 (5'-7')		6/25/2003	6/27/2003
0306116-09A	B7R2 (5.5'-6.0')		6/25/2003	6/27/2003
0306116-09B	B7R2 (5.5'-6.0')		6/25/2003	6/27/2003
0306116-10A	B6 (0.5'-2')		6/25/2003	6/27/2003
0306116-10B	B6 (0.5'-2')		6/25/2003	6/27/2003
0306116-11A	B6 (6'-7')		6/25/2003	6/27/2003
0306116-11B	B6 (6'-7')		6/25/2003	6/27/2003
0306116-12A	MW6 (0.5-2')		6/25/2003	6/27/2003
0306116-12B	MW6 (0.5-2')		6/25/2003	6/27/2003
0306116-13A	MW6 (6'-7')		6/25/2003	6/27/2003
0306116-13B	MW6 (6'-7')		6/25/2003	6/27/2003
0306116-14A	MW8 (2'-4')		6/25/2003	6/27/2003
0306116-14B	MW8 (2'-4')		6/25/2003	6/27/2003
0306116-15A	MW8 (5'-6.5')		6/25/2003	6/27/2003
0306116-15B	MW8 (5'-6.5')		6/25/2003	6/27/2003
0306116-16A	B9 (14"-2.5')		6/25/2003	6/27/2003
0306116-16B	B9 (14"-2.5')		6/25/2003	6/27/2003
0306116-17A	B9 (5'-6')		6/25/2003	6/27/2003
0306116-17B	B9 (5'-6')		6/25/2003	6/27/2003
0306116-18A	B8 (0.5-2")		6/25/2003	6/27/2003
0306116-18B	B8 (0.5-2")		6/25/2003	6/27/2003
0306116-19A	B8 (8-10')		6/25/2003	6/27/2003
0306116-19B	B8 (8-10')		6/25/2003	6/27/2003

CLIENT:	AKRF, Inc
Project:	Greenpoint Lumber Yard Brooklyn, NY
Lab Order:	0306116

Work Order Sample Summary

Lab Sample ID	Client Sample ID	Tag Number	Collection Date	Date Received
0306116-20A	MW10 (0.5-2')		6/25/2003	6/27/2003
0306116-20B	MW10 (0.5-2')		6/25/2003	6/27/2003

SDG NARRATIVE

SDG Narrative

AAL Work Order: : 0306116
Sample Matrix : Soil
Project : Greenpoint

INTRODUCTION
This narrative covers the analysis of twenty (20) soils in accordance with protocols based on SW846 Methods 8260, 8270, 8081, 8082, 6010 and 7470.

HOLDING TIMES
The analytical holding time for these analyses was met.

CALIBRATIONS
Initial Calibration: All required minimum RRFs and maximum %RSD requirements have been met in accordance with the method.

Continuing Calibration: All required minimum RRFs and maximum %D requirements have been met in accordance with the method.

TUNE PERFORMANCE
All Tune (BFB) specifications met QC requirements.

METHOD BLANKS
The method blanks associated with these samples did not contain any target compounds at or above QC.

MATRIX SPIKE/MATRIX SPIKE DUPLICATE/DUPLICATES
MS/MSD/Dup analysis was performed as required. Results are submitted as an appendix to this report. Spike recoveries and RPD fell within established ranges except where noted on the summary sheets. No laboratory action is required for MS/MSD outliers.

INTERNAL STANDARDS
All area responses and retention times fell within acceptable ranges.

SURROGATES (SYSTEM MONITORING COMPOUNDS)
Surrogate recoveries are summarized in the appendix to this report.

SAMPLE COMMENTS
Samples were analyzed as per the required protocols.

Semivolatile Analysis:
Semivolatile analysis of samples B12 (0.5-2'), MW-12 (0.5-2'), B9 (5'-6'), MW10 (0.5-2') were analyzed at 1:2 dilutions. Samples MW13 (0.5'-2'), MW6 (0.5'02'), B9 (14"-2.5'), B8 (8-10') were analyzed at 1:5 dilutions. B8 (8-10') was reanalyzed at a 1:50 dilution based upon target analyte concentrations.

MW13 (5'-7') was initially analyzed undiluted. Based upon target analyte concentrations the sample was reanalyzed at a 1:10 dilution

Sample B7R2 (5.5'-6.0') was analyzed at a 1:3 dilution.

Pesticide Analysis:
All samples were initially analyzed undiluted. Secondary dilutions were performed where the target concentrations exceeded the instruments linear calibration range.

I certify that this data package is in compliance with the terms and conditions of the contract, both technically and for completeness, for other than the conditions detailed above. Release of the data contained in this hardcopy data package and in the computer-readable data submitted on floppy diskette has been authorized by the Laboratory manager or his designee, as verified by the following signature." This statement shall be directly followed by signature of the Laboratory Manager or his designee with a typed line below it containing the signer's name and title, and the date of the signature.

Lori Beyer
LABORATORY DIRECTOR

AMERICAN ANALYTICAL LABORATORIES, INC.
56 TOLEDO STREET
FARMINGDALE, NEW YORK 11735
TELEPHONE: (631) 454-6100 FAX: (631) 454-8027

DATA REPORTING QUALIFERS

For reporting results, the following "Results Qualifers" are used:

Value	If the result is greater than or equal to the detection limit, report the value
U	Indicates the compound was analyzed for but was not detected. Report the minimum detection limit for the sample with the U, i.e. "10U". This is not necessarily the instrument detection limit attainable for this particular sample based on any concentration or dilution that may have been required.
J	Indicates an estimated value. The flag is used: (1) When estimating a concentration for a tentatively identified compound (library search hits, where a 1:1 response is assumed.) (2) When the mass spectral data indicated the identification, however the result was less than the specified detection limit greater than zero. If the detection limit was 10ug/L and a concentration of 3ug/L was calculated report as 3J. This flag is used when similar situations arise on any organic parameter i.e. Pesticide, PCBs and others.
B	Indicates the analyte was found in the blank as well as the sample report "10B".
E	Indicates the analytes concentration exceeds the calibrated range of the instrument for that specific analysis.
D	This flag identifies all compounds identified in an analysis at a secondary dilution factor.
P	This flag is used for Pesticide / PCB target analyte when there is >25% difference for detected concentrations between the two GC Columns. The higher of the two values is reported on Form I and flagged with a "P".
N	This flag indicates presumptive evidence of a compound. This is only used for tentatively identified compounds (TICs), where the identification is based on a mass spectral library search. It applies to all TIC results. For generic characterization of a TIC, such as chlorinated hydrocarbon, the flag is not used.

NYSDEC DATA PACKAGE SUMMARY FORMS

NEW YORK STATE DEPARTMENT OF ENVIRONMENTAL CONSERVATION

SAMPLE IDENTIFICATION AND ANALYTICAL REQUIREMENT SUMMARY

CUSTOMER SAMPLE CODE	LABORATORY SAMPLE CODE	ANALYTICAL REQUIREMENTS					
		*VOA GC/MS METHOD #	*BNA GC/MS METHOD #	*VOA GC METHOD #	*PEST PCBs METHOD #	*METALS	*OTHER
0306116-01	B12(0.5-2')	8260	8270		8081/8082	6010/7470	
0306116-02	B12(5'-7')						
0306116-03	B13(0.5'-2')						
0306116-04	B13(5'-7')						
0306116-05	MW12(0.5-2')						
0306116-06	MW12(4.5-5.5)						
0306116-07	MW13(0.5-2')						
0306116-08	MW13(5-7)						
0306116-09	B7R2(5.5-6.0)						
0306116-10	B6(0.5-2')						
0306116-11	B6(6'-7')						
0306116-12	MW6(0.5-2')						
0306116-13	MW6(6'-7')						
0306116-14	MW8(2'-4')						
0306116-15	MW8(5'-6.5')						
0306116-16	B9(14"-2.5')						
0306116-17	B9(5'-6')						
0306116-18	B8(0.5-2')						
0306116-19	B8(8'-10')						
0306116-20	MW10(0.5-2')						

NEW YORK STATE DEPARTMENT OF ENVIRONMENTAL CONSERVATION

SAMPLE PREPARATION AND ANALYSIS SUMMARY
SEMIVOLATILE (BNA)
ANALYSES

LABORATORY SAMPLE ID	MATRIX	DATE COLLECTED	DATE RECEIVED AT LAB	DATE EXTRACTED	DATE ANALYZED
0306116-01	SOIL	6/25/03	06/27/03	07/02/03	07/03/03
0306116-02					07/01/03
0306116-03					07/01/03
0306116-04					07/01/03
0306116-05					
0306116-06					
0306116-07					07/03/03
0306116-08					07/03/03, 07/07/03
0306116-09					07/02/03
0306116-10					07/01/03, 07/03/03
0306116-11					07/01/03
0306116-12					07/03/03
0306116-13					07/07/03
0306116-14					07/02/03
0306116-15					07/02/03
0306116-16					07/03/03
0306116-17					07/07/03
0306116-18					07/03/03
0306116-19					07/03/03, 07/07/03
0306116-20					07/03/03

NEW YORK STATE DEPARTMENT OF ENVIRONMENTAL CONSERVATION

SAMPLE PREPARATION AND ANALYSIS SUMMARY
VOLATILE (VOA)
ANALYSES

LABORATORY SAMPLE ID	MATRIX	DATE COLLECTED	DATE RECEIVED AT LAB	DATE EXTRACTED	DATE ANALYZED
0306116-01	SOIL	06/25/03	06/27/03	NA	06/30/03
0306116-02					
0306116-03					
0306116-04					
0306116-05					
0306116-06					
0306116-07					07/01/03
0306116-08					
0306116-09					
0306116-10					
0306116-11					
0306116-12					
0306116-13					
0306116-14					
0306116-15					

0306116-16
0306116-17
0306116-18
0306116-19
0306116-20

NEW YORK STATE DEPARTMENT OF ENVIRONMENTAL CONSERVATION

SAMPLE PREPARATION AND ANALYSIS SUMMARY
PESTICIDE / PCB
ANALYSES

LABORATORY SAMPLE ID	MATRIX	DATE COLLECTED	DATE RECEIVED AT LAB	DATE EXTRACTED	DATE ANALYZED
0306116-01	SOIL	06/25/03	06/27/03	07/01/03	07/03/03 07/08/03
0306116-02	↓	↓	↓	↓	↓
0306116-03					07/03/03
0306116-04					↓
0306116-05					07/04/03
0306116-06					↓
0306116-07					07/09/03
0306116-08					07/04/03
0306116-09					↓
0306116-10					
0306116-11					
0306116-12					
0306116-13					
0306116-14					07/08/03
0306116-15					07/04/03
0306116-16					07/04/03
0306116-17					07/09/03
0306116-18					07/08/03
0306116-19					07/04/03
0306116-20					07/08/03, 07/09/03

NEW YORK STATE DEPARTMENT OF ENVIRONMENTAL CONSERVATION

SAMPLE PREPARATION AND ANALYSIS SUMMARY
SEMIVOLATILE (BNA)
ANALYSES

LABORATORY SAMPLE ID	MATRIX	ANALYTICAL PROTOCOL	EXTRACTION METHOD	AUXILLARY CLEAN UP	DIL / CONC. FACTOR
0306116-01	SOIL	SW846 3580/8270	3550 (SONC)	NA	2
0306116-02					1
0306116-03					1
0306116-04					1
0306116-05					2
0306116-06					1
0306116-07					5
0306116-08					1,10
0306116-09					3
0306116-10					1,5
0306116-11					1
0306116-12					5
0306116-13					1
0306116-14					1
0306116-15					1
0306116-16					5
0306116-17					2
0306116-18					1
0306116-19					5,50
0306116-20					2

NEW YORK STATE DEPARTMENT OF ENVIRONMENTAL CONSERVATION

SAMPLE PREPARATION AND ANALYSIS SUMMARY
INORGANIC ANALYSES

LABORATORY SAMPLE ID	MATRIX	METALS REQUESTED	DATE RECEIVED AT LAB	DATE ANALYZED
0306116-01	SOIL	TAL (23)	6/27/03	07/02/03, 07/03/03
0306116-02				
0306116-03				
0306116-04				
0306116-05				
0306116-06				
0306116-07				
0306116-08				
0306116-09				
0306116-10				
0306116-11				
0306116-12				
0306116-13				
0306116-14				
0306116-15				

0306116-16
0306116-17
0306116-18
0306116-19
0306116-20

CHAIN OF CUSTODY FORMS

Sheet 1 of 2

AMERICAN ANALYTICAL LABORATORIES, INC.
56 TOLEDO STREET • FARMINGDALE, NEW YORK 11735
(631) 454-6100 • FAX (631) 454-8027 • email: lbeyer@american-analytical.com

NYSDOH ELAP 11418
CTDOH PH-0205
NJDEP NY050
PADEP 68-573

CHAIN OF CUSTODY / REQUEST FOR ANALYSIS DOCUMENT

CLIENT NAME/ADDRESS: AKRF, Inc. Mimi Sotiriou
CONTACT: 646-459-3528 917-612-7877
PROJECT LOCATION: 30260-0006 Greenpoint Lumber Yard, Brooklyn
SAMPLER (SIGNATURE): M Sotiriou DATE: 6/25/03 TIME:
SAMPLER NAME (PRINT): Mimi Sotiriou
SAMPLE(S) SEALED: YES / NO
CORRECT CONTAINER(S): YES / NO

LABORATORY ID #	MATRIX	TYPE	PRES.	SAMPLE # - LOCATION	ANALYSIS REQUIRED: VOC 8260	SVOC 8270	PCB 8082	Pest 8081	TAL Metal	FOR METHANOL PRESERVED SAMPLES [VOLATILE VIAL #]
0306116-01A,B	S			B12 [redacted] (0.5-2')	X	X	X	X	X	
0306116-02A,B				B12 (5'-7')						
0306116-03A,B				B13 [redacted] (0.5'-2')						
0306116-04A,B				B13 (5'-7')						
0306116-05A,B				MW-12 (0.5'-2')						
0306116-06A,B				MW12 (4.5-5.5')						
0306116-07A,B				MW13 (0.5-2')						
0306116-08A,B				MW13 (5-7')						
				[redacted]						
				[redacted]						
0306116-09A,B	✓			B7R2 (5.5-6.0)	✓	✓	✓	✓	✓	

COOLER TEMPERATURE:

MATRIX S=SOIL; L=LIQUID; SL=SLUDGE; A-AIR; W=WIPE; P=PAINT CHIPS; B=BULK MATERIAL
TYPE G=GRAB; C=COMPOSITE, SS=SPLIT SPOON

TURNAROUND REQUIRED: NORMAL ☒ STAT ☐ BY / /

COMMENTS / INSTRUCTIONS

RELINQUISHED BY (SIGNATURE)	DATE / TIME	PRINTED NAME	RECEIVED BY LAB (SIGNATURE)	DATE / TIME	PRINTED NAME
M Sotiriou	6/27/03 12:00			6/27-03 2:00 pm	Christy Dana
RELINQUISHED BY (SIGNATURE)	DATE / TIME	PRINTED NAME	RECEIVED BY LAB (SIGNATURE)	DATE / TIME	PRINTED NAME

WHITE-OFFICE / CANARY-LAB / PINK-SAMPLE CUSTODIAN / GOLDENROD-CLIENT

Sheet 2 of 5

AMERICAN ANALYTICAL LABORATORIES, INC.
56 TOLEDO STREET • FARMINGDALE, NEW YORK 11735
(631) 454-6100 • FAX (631) 454-8027 • email: lbeyer@american-analytical.com

NYSDOH	ELAP	11418
CTDOH	PH-0205	
NJDEP	NY050	
PADEP	68-573	

CHAIN OF CUSTODY / REQUEST FOR ANALYSIS DOCUMENT

CLIENT NAME/ADDRESS: AKRF, Inc. — CONTACT: 917-612-7877
Mimi Sotiriou — 646-459-3528

SAMPLER (SIGNATURE): M Sotiriou — DATE: 6/25/03 — TIME: 1600
SAMPLER NAME (PRINT): M. Sotiriou

SAMPLE(S) SEALED: YES / NO
CORRECT CONTAINER(S): YES / NO

PROJECT LOCATION: 30260-0006
Greenpoint Lumber Yard Brooklyn, NY

LABORATORY ID #	MATRIX	TYPE	PRES.	SAMPLE # - LOCATION	8260 VOC	SVOC 8270	PCB 8082	Pest 8081	TAL Metals	FOR METHANOL PRESERVED SAMPLES [VOLATILE VIAL #]
0306116-10A,B	S			B6 (0.5'-2')	X	X	X	X	X	
0306116-11A,11B				B6 (6'-7')						
0306116-12A,12B				MW6 (0.5'-2')						
0306116-13A,B				MW6 (6'-7')						
0306116-14A,B				MW8 (2'-4')						
0306116-15A,B				MW8 (5'-6.5')						
0306116-16A,B				B9 (14"-2.5')						
0306116-17A,B				B9 (5'-6')						
0306116-18A,18B				B8 ~~(5"-2')~~ (0.5-2')						
0306116-19A,19B				B8 (8'-10')						
0306116-20A,20B				MW10 (0.5-2')						
				MW10 (5'-7')						

COOLER TEMPERATURE:

MATRIX S=SOIL; L=LIQUID; SL=SLUDGE; A-AIR; W=WIPE; P=PAINT CHIPS; B=BU_K MATERIAL
TYPE G=GRAB; C=COMPOSITE, SS=SPLIT SPOON

TURNAROUND REQUIRED: NORMAL ☒ STAT ☐ -BY / /

COMMENTS / INSTRUCTIONS

RELINQUISHED BY (SIGNATURE)	DATE / TIME	PRINTED NAME	RECEIVED BY LAB (SIGNATURE)	DATE / TIME	PRINTED NAME
M Sotiriou	6/27/03 1200	M. Sotiriou	Chris Dunn	6-27-03 2:Pm	Christopher Dunn
RELINQUISHED BY (SIGNATURE)	DATE / TIME	PRINTED NAME	RECEIVED BY LAB (SIGNATURE)	DATE / TIME	PRINTED NAME

E-O E / C RY-L/ PINK- PLE ODI 3OLI :OD- NT

GC/MS VOLATILE DATA

RESULTS – ORGANIC ANALYSIS DATA SHEET

American Analytical Laboratories, Inc.

Date: *28-Jul-03*

CLIENT:	AKRF, Inc	**Client Sample ID:**	B12 (0.5-2')
Lab Order:	0306116	**Tag Number:**	
Project:	Greenpoint Lumber Yard Brooklyn, NY	**Collection Date:**	6/25/2003
Lab ID:	0306116-01A	**Matrix:**	SOIL

Analyses	Result	Limit	Qual	Units	DF	Date Analyzed
VOLATILES SW-846 METHOD 8260		**SW8260B**				Analyst: **LDS**
1,1,1,2-Tetrachloroethane	U	5.0		µg/Kg	1	6/30/2003 7:33:00 PM
1,1,1-Trichloroethane	U	5.0		µg/Kg	1	6/30/2003 7:33:00 PM
1,1,2,2-Tetrachloroethane	U	5.0		µg/Kg	1	6/30/2003 7:33:00 PM
1,1,2-Trichloro-1,2,2-trifluoroethane	U	5.0		µg/Kg	1	6/30/2003 7:33:00 PM
1,1,2-Trichloroethane	U	5.0		µg/Kg	1	6/30/2003 7:33:00 PM
1,1-Dichloroethane	U	5.0		µg/Kg	1	6/30/2003 7:33:00 PM
1,1-Dichloroethene	U	5.0		µg/Kg	1	6/30/2003 7:33:00 PM
1,1-Dichloropropene	U	5.0		µg/Kg	1	6/30/2003 7:33:00 PM
1,2,3-Trichlorobenzene	U	5.0		µg/Kg	1	6/30/2003 7:33:00 PM
1,2,3-Trichloropropane	U	5.0		µg/Kg	1	6/30/2003 7:33:00 PM
1,2,4,5-Tetramethylbenzene	U	5.0		µg/Kg	1	6/30/2003 7:33:00 PM
1,2,4-Trichlorobenzene	U	5.0		µg/Kg	1	6/30/2003 7:33:00 PM
1,2,4-Trimethylbenzene	U	5.0		µg/Kg	1	6/30/2003 7:33:00 PM
1,2-Dibromo-3-chloropropane	U	5.0		µg/Kg	1	6/30/2003 7:33:00 PM
1,2-Dibromoethane	U	5.0		µg/Kg	1	6/30/2003 7:33:00 PM
1,2-Dichlorobenzene	U	5.0		µg/Kg	1	6/30/2003 7:33:00 PM
1,2-Dichloroethane	U	5.0		µg/Kg	1	6/30/2003 7:33:00 PM
1,2-Dichloropropane	U	5.0		µg/Kg	1	6/30/2003 7:33:00 PM
1,3,5-Trimethylbenzene	U	5.0		µg/Kg	1	6/30/2003 7:33:00 PM
1,3-Dichlorobenzene	U	5.0		µg/Kg	1	6/30/2003 7:33:00 PM
1,3-dichloropropane	U	5.0		µg/Kg	1	6/30/2003 7:33:00 PM
1,4-Dichlorobenzene	U	5.0		µg/Kg	1	6/30/2003 7:33:00 PM
2,2-Dichloropropane	U	5.0		µg/Kg	1	6/30/2003 7:33:00 PM
2-Butanone	U	5.0		µg/Kg	1	6/30/2003 7:33:00 PM
2-Chloroethyl vinyl ether	U	5.0		µg/Kg	1	6/30/2003 7:33:00 PM
2-Chlorotoluene	U	5.0		µg/Kg	1	6/30/2003 7:33:00 PM
2-Hexanone	U	5.0		µg/Kg	1	6/30/2003 7:33:00 PM
4-Chlorotoluene	U	5.0		µg/Kg	1	6/30/2003 7:33:00 PM
4-Isopropyltoluene	U	5.0		µg/Kg	1	6/30/2003 7:33:00 PM
4-Methyl-2-pentanone	U	5.0		µg/Kg	1	6/30/2003 7:33:00 PM
Acetone	U	5.0		µg/Kg	1	6/30/2003 7:33:00 PM
Acrolein	U	25		µg/Kg	1	6/30/2003 7:33:00 PM
Acrylonitrile	U	5.0		µg/Kg	1	6/30/2003 7:33:00 PM
Benzene	U	5.0		µg/Kg	1	6/30/2003 7:33:00 PM
Bromobenzene	U	5.0		µg/Kg	1	6/30/2003 7:33:00 PM
Bromochloromethane	U	5.0		µg/Kg	1	6/30/2003 7:33:00 PM
Bromodichloromethane	U	5.0		µg/Kg	1	6/30/2003 7:33:00 PM
Bromoform	U	5.0		µg/Kg	1	6/30/2003 7:33:00 PM
Bromomethane	U	5.0		µg/Kg	1	6/30/2003 7:33:00 PM
Carbon disulfide	U	5.0		µg/Kg	1	6/30/2003 7:33:00 PM

Qualifiers:

ND - Not Detected at the Reporting Limit

J - Analyte detected below quantitation limits

B - Analyte detected in the associated Method Blank

* - Value exceeds Maximum Contaminant Level

S - Spike Recovery outside accepted recovery limits

R - RPD outside accepted recovery limits

E - Value above quantitation range

American Analytical Laboratories, Inc.

Date: *28-Jul-03*

CLIENT:	AKRF, Inc	**Client Sample ID:**	B12 (0.5-2')
Lab Order:	0306116	**Tag Number:**	
Project:	Greenpoint Lumber Yard Brooklyn, NY	**Collection Date:**	6/25/2003
Lab ID:	0306116-01A	**Matrix:**	SOIL

Analyses	Result	Limit	Qual	Units	DF	Date Analyzed
VOLATILES SW-846 METHOD 8260		**SW8260B**				Analyst: **LDS**
Carbon tetrachloride	U	5.0		µg/Kg	1	6/30/2003 7:33:00 PM
Chlorobenzene	U	5.0		µg/Kg	1	6/30/2003 7:33:00 PM
Chlorodifluoromethane	U	5.0		µg/Kg	1	6/30/2003 7:33:00 PM
Chloroethane	U	5.0		µg/Kg	1	6/30/2003 7:33:00 PM
Chloroform	U	5.0		µg/Kg	1	6/30/2003 7:33:00 PM
Chloromethane	U	5.0		µg/Kg	1	6/30/2003 7:33:00 PM
cis-1,2-Dichloroethene	U	5.0		µg/Kg	1	6/30/2003 7:33:00 PM
cis-1,3-Dichloropropene	U	5.0		µg/Kg	1	6/30/2003 7:33:00 PM
Dibromochloromethane	U	5.0		µg/Kg	1	6/30/2003 7:33:00 PM
Dibromomethane	U	5.0		µg/Kg	1	6/30/2003 7:33:00 PM
Dichlorodifluoromethane	U	5.0		µg/Kg	1	6/30/2003 7:33:00 PM
Diisopropyl ether	U	5.0		µg/Kg	1	6/30/2003 7:33:00 PM
Ethanol	U	25		µg/Kg	1	6/30/2003 7:33:00 PM
Ethyl acetate	U	5.0		µg/Kg	1	6/30/2003 7:33:00 PM
Ethylbenzene	U	5.0		µg/Kg	1	6/30/2003 7:33:00 PM
Freon-114	U	5.0		µg/Kg	1	6/30/2003 7:33:00 PM
Hexachlorobutadiene	U	5.0		µg/Kg	1	6/30/2003 7:33:00 PM
Isopropyl acetate	U	5.0		µg/Kg	1	6/30/2003 7:33:00 PM
Isopropylbenzene	U	5.0		µg/Kg	1	6/30/2003 7:33:00 PM
m,p-Xylene	U	10		µg/Kg	1	6/30/2003 7:33:00 PM
Methyl tert-butyl ether	U	5.0		µg/Kg	1	6/30/2003 7:33:00 PM
Methylene chloride	U	5.0		µg/Kg	1	6/30/2003 7:33:00 PM
Naphthalene	U	5.0		µg/Kg	1	6/30/2003 7:33:00 PM
n-Butyl acetate	U	5.0		µg/Kg	1	6/30/2003 7:33:00 PM
n-Butylbenzene	U	5.0		µg/Kg	1	6/30/2003 7:33:00 PM
n-Propyl acetate	U	5.0		µg/Kg	1	6/30/2003 7:33:00 PM
n-Propylbenzene	U	5.0		µg/Kg	1	6/30/2003 7:33:00 PM
o-Xylene	U	5.0		µg/Kg	1	6/30/2003 7:33:00 PM
p-Diethylbenzene	U	5.0		µg/Kg	1	6/30/2003 7:33:00 PM
p-Ethyltoluene	U	5.0		µg/Kg	1	6/30/2003 7:33:00 PM
sec-Butylbenzene	U	5.0		µg/Kg	1	6/30/2003 7:33:00 PM
Styrene	U	5.0		µg/Kg	1	6/30/2003 7:33:00 PM
t-Butyl alcohol	U	5.0		µg/Kg	1	6/30/2003 7:33:00 PM
tert-Butylbenzene	U	5.0		µg/Kg	1	6/30/2003 7:33:00 PM
Tetrachloroethene	U	5.0		µg/Kg	1	6/30/2003 7:33:00 PM
Toluene	U	5.0		µg/Kg	1	6/30/2003 7:33:00 PM
trans-1,2-Dichloroethene	U	5.0		µg/Kg	1	6/30/2003 7:33:00 PM
trans-1,3-Dichloropropene	U	5.0		µg/Kg	1	6/30/2003 7:33:00 PM
Trichloroethene	U	5.0		µg/Kg	1	6/30/2003 7:33:00 PM
Trichlorofluoromethane	U	5.0		µg/Kg	1	6/30/2003 7:33:00 PM

Qualifiers:

ND - Not Detected at the Reporting Limit

J - Analyte detected below quantitation limits

B - Analyte detected in the associated Method Blank

* - Value exceeds Maximum Contaminant Level

S - Spike Recovery outside accepted recovery limits

R - RPD outside accepted recovery limits

E - Value above quantitation range

American Analytical Laboratories, Inc.

Date: *28-Jul-03*

CLIENT:	AKRF, Inc	**Client Sample ID:**	B12 (0.5-2')
Lab Order:	0306116	**Tag Number:**	
Project:	Greenpoint Lumber Yard Brooklyn, NY	**Collection Date:**	6/25/2003
Lab ID:	0306116-01A	**Matrix:**	SOIL

Analyses	Result	Limit	Qual	Units	DF	Date Analyzed
VOLATILES SW-846 METHOD 8260		**SW8260B**				Analyst: **LDS**
Vinyl acetate	U	5.0		µg/Kg	1	6/30/2003 7:33:00 PM
Vinyl chloride	U	5.0		µg/Kg	1	6/30/2003 7:33:00 PM

Qualifiers:

- ND - Not Detected at the Reporting Limit
- J - Analyte detected below quantitation limits
- B - Analyte detected in the associated Method Blank
- * - Value exceeds Maximum Contaminant Level
- S - Spike Recovery outside accepted recovery limits
- R - RPD outside accepted recovery limits
- E - Value above quantitation range

American Analytical Laboratories, Inc.

Date: *28-Jul-03*

CLIENT:	AKRF, Inc	**Client Sample ID:**	B12 (5'-7')
Lab Order:	0306116	**Tag Number:**	
Project:	Greenpoint Lumber Yard Brooklyn, NY	**Collection Date:**	6/25/2003
Lab ID:	0306116-02A	**Matrix:**	SOIL

Analyses	Result	Limit	Qual	Units	DF	Date Analyzed
VOLATILES SW-846 METHOD 8260		**SW8260B**				Analyst: **LDS**
1,1,1,2-Tetrachloroethane	U	5.0		µg/Kg	1	6/30/2003 9:26:00 PM
1,1,1-Trichloroethane	U	5.0		µg/Kg	1	6/30/2003 9:26:00 PM
1,1,2,2-Tetrachloroethane	U	5.0		µg/Kg	1	6/30/2003 9:26:00 PM
1,1,2-Trichloro-1,2,2-trifluoroethane	U	5.0		µg/Kg	1	6/30/2003 9:26:00 PM
1,1,2-Trichloroethane	U	5.0		µg/Kg	1	6/30/2003 9:26:00 PM
1,1-Dichloroethane	U	5.0		µg/Kg	1	6/30/2003 9:26:00 PM
1,1-Dichloroethene	U	5.0		µg/Kg	1	6/30/2003 9:26:00 PM
1,1-Dichloropropene	U	5.0		µg/Kg	1	6/30/2003 9:26:00 PM
1,2,3-Trichlorobenzene	U	5.0		µg/Kg	1	6/30/2003 9:26:00 PM
1,2,3-Trichloropropane	U	5.0		µg/Kg	1	6/30/2003 9:26:00 PM
1,2,4,5-Tetramethylbenzene	U	5.0		µg/Kg	1	6/30/2003 9:26:00 PM
1,2,4-Trichlorobenzene	U	5.0		µg/Kg	1	6/30/2003 9:26:00 PM
1,2,4-Trimethylbenzene	U	5.0		µg/Kg	1	6/30/2003 9:26:00 PM
1,2-Dibromo-3-chloropropane	U	5.0		µg/Kg	1	6/30/2003 9:26:00 PM
1,2-Dibromoethane	U	5.0		µg/Kg	1	6/30/2003 9:26:00 PM
1,2-Dichlorobenzene	U	5.0		µg/Kg	1	6/30/2003 9:26:00 PM
1,2-Dichloroethane	U	5.0		µg/Kg	1	6/30/2003 9:26:00 PM
1,2-Dichloropropane	U	5.0		µg/Kg	1	6/30/2003 9:26:00 PM
1,3,5-Trimethylbenzene	U	5.0		µg/Kg	1	6/30/2003 9:26:00 PM
1,3-Dichlorobenzene	U	5.0		µg/Kg	1	6/30/2003 9:26:00 PM
1,3-dichloropropane	U	5.0		µg/Kg	1	6/30/2003 9:26:00 PM
1,4-Dichlorobenzene	U	5.0		µg/Kg	1	6/30/2003 9:26:00 PM
2,2-Dichloropropane	U	5.0		µg/Kg	1	6/30/2003 9:26:00 PM
2-Butanone	U	5.0		µg/Kg	1	6/30/2003 9:26:00 PM
2-Chloroethyl vinyl ether	U	5.0		µg/Kg	1	6/30/2003 9:26:00 PM
2-Chlorotoluene	U	5.0		µg/Kg	1	6/30/2003 9:26:00 PM
2-Hexanone	U	5.0		µg/Kg	1	6/30/2003 9:26:00 PM
4-Chlorotoluene	U	5.0		µg/Kg	1	6/30/2003 9:26:00 PM
4-Isopropyltoluene	U	5.0		µg/Kg	1	6/30/2003 9:26:00 PM
4-Methyl-2-pentanone	U	5.0		µg/Kg	1	6/30/2003 9:26:00 PM
Acetone	U	5.0		µg/Kg	1	6/30/2003 9:26:00 PM
Acrolein	U	25		µg/Kg	1	6/30/2003 9:26:00 PM
Acrylonitrile	U	5.0		µg/Kg	1	6/30/2003 9:26:00 PM
Benzene	U	5.0		µg/Kg	1	6/30/2003 9:26:00 PM
Bromobenzene	U	5.0		µg/Kg	1	6/30/2003 9:26:00 PM
Bromochloromethane	U	5.0		µg/Kg	1	6/30/2003 9:26:00 PM
Bromodichloromethane	U	5.0		µg/Kg	1	6/30/2003 9:26:00 PM
Bromoform	U	5.0		µg/Kg	1	6/30/2003 9:26:00 PM
Bromomethane	U	5.0		µg/Kg	1	6/30/2003 9:26:00 PM
Carbon disulfide	U	5.0		µg/Kg	1	6/30/2003 9:26:00 PM

Qualifiers:

ND - Not Detected at the Reporting Limit

J - Analyte detected below quantitation limits

B - Analyte detected in the associated Method Blank

* - Value exceeds Maximum Contaminant Level

S - Spike Recovery outside accepted recovery limits

R - RPD outside accepted recovery limits

E - Value above quantitation range

American Analytical Laboratories, Inc.

Date: *28-Jul-03*

CLIENT:	AKRF, Inc	**Client Sample ID:**	B12 (5'-7')
Lab Order:	0306116	**Tag Number:**	
Project:	Greenpoint Lumber Yard Brooklyn, NY	**Collection Date:**	6/25/2003
Lab ID:	0306116-02A	**Matrix:**	SOIL

Analyses	Result	Limit	Qual	Units	DF	Date Analyzed
VOLATILES SW-846 METHOD 8260		**SW8260B**				Analyst: **LDS**
Carbon tetrachloride	U	5.0		µg/Kg	1	6/30/2003 9:26:00 PM
Chlorobenzene	U	5.0		µg/Kg	1	6/30/2003 9:26:00 PM
Chlorodifluoromethane	U	5.0		µg/Kg	1	6/30/2003 9:26:00 PM
Chloroethane	U	5.0		µg/Kg	1	6/30/2003 9:26:00 PM
Chloroform	U	5.0		µg/Kg	1	6/30/2003 9:26:00 PM
Chloromethane	U	5.0		µg/Kg	1	6/30/2003 9:26:00 PM
cis-1,2-Dichloroethene	U	5.0		µg/Kg	1	6/30/2003 9:26:00 PM
cis-1,3-Dichloropropene	U	5.0		µg/Kg	1	6/30/2003 9:26:00 PM
Dibromochloromethane	U	5.0		µg/Kg	1	6/30/2003 9:26:00 PM
Dibromomethane	U	5.0		µg/Kg	1	6/30/2003 9:26:00 PM
Dichlorodifluoromethane	U	5.0		µg/Kg	1	6/30/2003 9:26:00 PM
Diisopropyl ether	U	5.0		µg/Kg	1	6/30/2003 9:26:00 PM
Ethanol	U	25		µg/Kg	1	6/30/2003 9:26:00 PM
Ethyl acetate	U	5.0		µg/Kg	1	6/30/2003 9:26:00 PM
Ethylbenzene	U	5.0		µg/Kg	1	6/30/2003 9:26:00 PM
Freon-114	U	5.0		µg/Kg	1	6/30/2003 9:26:00 PM
Hexachlorobutadiene	U	5.0		µg/Kg	1	6/30/2003 9:26:00 PM
Isopropyl acetate	U	5.0		µg/Kg	1	6/30/2003 9:26:00 PM
Isopropylbenzene	U	5.0		µg/Kg	1	6/30/2003 9:26:00 PM
m,p-Xylene	U	10		µg/Kg	1	6/30/2003 9:26:00 PM
Methyl tert-butyl ether	U	5.0		µg/Kg	1	6/30/2003 9:26:00 PM
Methylene chloride	U	5.0		µg/Kg	1	6/30/2003 9:26:00 PM
Naphthalene	U	5.0		µg/Kg	1	6/30/2003 9:26:00 PM
n-Butyl acetate	U	5.0		µg/Kg	1	6/30/2003 9:26:00 PM
n-Butylbenzene	U	5.0		µg/Kg	1	6/30/2003 9:26:00 PM
n-Propyl acetate	U	5.0		µg/Kg	1	6/30/2003 9:26:00 PM
n-Propylbenzene	U	5.0		µg/Kg	1	6/30/2003 9:26:00 PM
o-Xylene	U	5.0		µg/Kg	1	6/30/2003 9:26:00 PM
p-Diethylbenzene	U	5.0		µg/Kg	1	6/30/2003 9:26:00 PM
p-Ethyltoluene	U	5.0		µg/Kg	1	6/30/2003 9:26:00 PM
sec-Butylbenzene	U	5.0		µg/Kg	1	6/30/2003 9:26:00 PM
Styrene	U	5.0		µg/Kg	1	6/30/2003 9:26:00 PM
t-Butyl alcohol	U	5.0		µg/Kg	1	6/30/2003 9:26:00 PM
tert-Butylbenzene	U	5.0		µg/Kg	1	6/30/2003 9:26:00 PM
Tetrachloroethene	U	5.0		µg/Kg	1	6/30/2003 9:26:00 PM
Toluene	U	5.0		µg/Kg	1	6/30/2003 9:26:00 PM
trans-1,2-Dichloroethene	U	5.0		µg/Kg	1	6/30/2003 9:26:00 PM
trans-1,3-Dichloropropene	U	5.0		µg/Kg	1	6/30/2003 9:26:00 PM
Trichloroethene	U	5.0		µg/Kg	1	6/30/2003 9:26:00 PM
Trichlorofluoromethane	U	5.0		µg/Kg	1	6/30/2003 9:26:00 PM

Qualifiers:

ND - Not Detected at the Reporting Limit

J - Analyte detected below quantitation limits

B - Analyte detected in the associated Method Blank

* - Value exceeds Maximum Contaminant Level

S - Spike Recovery outside accepted recovery limits

R - RPD outside accepted recovery limits

E - Value above quantitation range

American Analytical Laboratories, Inc.

Date: *28-Jul-03*

CLIENT:	AKRF, Inc	**Client Sample ID:**	B12 (5'-7')
Lab Order:	0306116	**Tag Number:**	
Project:	Greenpoint Lumber Yard Brooklyn, NY	**Collection Date:**	6/25/2003
Lab ID:	0306116-02A	**Matrix:**	SOIL

Analyses	Result	Limit	Qual	Units	DF	Date Analyzed
VOLATILES SW-846 METHOD 8260		**SW8260B**				Analyst: **LDS**
Vinyl acetate	U	5.0		µg/Kg	1	6/30/2003 9:26:00 PM
Vinyl chloride	U	5.0		µg/Kg	1	6/30/2003 9:26:00 PM

Qualifiers:

ND - Not Detected at the Reporting Limit

J - Analyte detected below quantitation limits

B - Analyte detected in the associated Method Blank

* - Value exceeds Maximum Contaminant Level

S - Spike Recovery outside accepted recovery limits

R - RPD outside accepted recovery limits

E - Value above quantitation range

American Analytical Laboratories, Inc.

Date: *28-Jul-03*

CLIENT:	AKRF, Inc	**Client Sample ID:**	B13 (0.5'-2')
Lab Order:	0306116	**Tag Number:**	
Project:	Greenpoint Lumber Yard Brooklyn, NY	**Collection Date:**	6/25/2003
Lab ID:	0306116-03A	**Matrix:**	SOIL

Analyses	Result	Limit	Qual	Units	DF	Date Analyzed
VOLATILES SW-846 METHOD 8260		**SW8260B**				Analyst: **LDS**
1,1,1,2-Tetrachloroethane	U	5.0		µg/Kg	1	6/30/2003 10:04:00 PM
1,1,1-Trichloroethane	U	5.0		µg/Kg	1	6/30/2003 10:04:00 PM
1,1,2,2-Tetrachloroethane	U	5.0		µg/Kg	1	6/30/2003 10:04:00 PM
1,1,2-Trichloro-1,2,2-trifluoroethane	U	5.0		µg/Kg	1	6/30/2003 10:04:00 PM
1,1,2-Trichloroethane	U	5.0		µg/Kg	1	6/30/2003 10:04:00 PM
1,1-Dichloroethane	U	5.0		µg/Kg	1	6/30/2003 10:04:00 PM
1,1-Dichloroethene	U	5.0		µg/Kg	1	6/30/2003 10:04:00 PM
1,1-Dichloropropene	U	5.0		µg/Kg	1	6/30/2003 10:04:00 PM
1,2,3-Trichlorobenzene	U	5.0		µg/Kg	1	6/30/2003 10:04:00 PM
1,2,3-Trichloropropane	U	5.0		µg/Kg	1	6/30/2003 10:04:00 PM
1,2,4,5-Tetramethylbenzene	U	5.0		µg/Kg	1	6/30/2003 10:04:00 PM
1,2,4-Trichlorobenzene	U	5.0		µg/Kg	1	6/30/2003 10:04:00 PM
1,2,4-Trimethylbenzene	U	5.0		µg/Kg	1	6/30/2003 10:04:00 PM
1,2-Dibromo-3-chloropropane	U	5.0		µg/Kg	1	6/30/2003 10:04:00 PM
1,2-Dibromoethane	U	5.0		µg/Kg	1	6/30/2003 10:04:00 PM
1,2-Dichlorobenzene	U	5.0		µg/Kg	1	6/30/2003 10:04:00 PM
1,2-Dichloroethane	U	5.0		µg/Kg	1	6/30/2003 10:04:00 PM
1,2-Dichloropropane	U	5.0		µg/Kg	1	6/30/2003 10:04:00 PM
1,3,5-Trimethylbenzene	U	5.0		µg/Kg	1	6/30/2003 10:04:00 PM
1,3-Dichlorobenzene	U	5.0		µg/Kg	1	6/30/2003 10:04:00 PM
1,3-dichloropropane	U	5.0		µg/Kg	1	6/30/2003 10:04:00 PM
1,4-Dichlorobenzene	U	5.0		µg/Kg	1	6/30/2003 10:04:00 PM
2,2-Dichloropropane	U	5.0		µg/Kg	1	6/30/2003 10:04:00 PM
2-Butanone	U	5.0		µg/Kg	1	6/30/2003 10:04:00 PM
2-Chloroethyl vinyl ether	U	5.0		µg/Kg	1	6/30/2003 10:04:00 PM
2-Chlorotoluene	U	5.0		µg/Kg	1	6/30/2003 10:04:00 PM
2-Hexanone	U	5.0		µg/Kg	1	6/30/2003 10:04:00 PM
4-Chlorotoluene	U	5.0		µg/Kg	1	6/30/2003 10:04:00 PM
4-Isopropyltoluene	U	5.0		µg/Kg	1	6/30/2003 10:04:00 PM
4-Methyl-2-pentanone	U	5.0		µg/Kg	1	6/30/2003 10:04:00 PM
Acetone	U	5.0		µg/Kg	1	6/30/2003 10:04:00 PM
Acrolein	U	25		µg/Kg	1	6/30/2003 10:04:00 PM
Acrylonitrile	U	5.0		µg/Kg	1	6/30/2003 10:04:00 PM
Benzene	U	5.0		µg/Kg	1	6/30/2003 10:04:00 PM
Bromobenzene	U	5.0		µg/Kg	1	6/30/2003 10:04:00 PM
Bromochloromethane	U	5.0		µg/Kg	1	6/30/2003 10:04:00 PM
Bromodichloromethane	U	5.0		µg/Kg	1	6/30/2003 10:04:00 PM
Bromoform	U	5.0		µg/Kg	1	6/30/2003 10:04:00 PM
Bromomethane	U	5.0		µg/Kg	1	6/30/2003 10:04:00 PM
Carbon disulfide	U	5.0		µg/Kg	1	6/30/2003 10:04:00 PM

Qualifiers:

ND - Not Detected at the Reporting Limit

J - Analyte detected below quantitation limits

B - Analyte detected in the associated Method Blank

* - Value exceeds Maximum Contaminant Level

S - Spike Recovery outside accepted recovery limits

R - RPD outside accepted recovery limits

E - Value above quantitation range

American Analytical Laboratories, Inc.

Date: *28-Jul-03*

CLIENT:	AKRF, Inc	**Client Sample ID:**	B13 (0.5'-2')
Lab Order:	0306116	**Tag Number:**	
Project:	Greenpoint Lumber Yard Brooklyn, NY	**Collection Date:**	6/25/2003
Lab ID:	0306116-03A	**Matrix:**	SOIL

Analyses	Result	Limit	Qual	Units	DF	Date Analyzed
VOLATILES SW-846 METHOD 8260		**SW8260B**				Analyst: **LDS**
Carbon tetrachloride	U	5.0		µg/Kg	1	6/30/2003 10:04:00 PM
Chlorobenzene	U	5.0		µg/Kg	1	6/30/2003 10:04:00 PM
Chlorodifluoromethane	U	5.0		µg/Kg	1	6/30/2003 10:04:00 PM
Chloroethane	U	5.0		µg/Kg	1	6/30/2003 10:04:00 PM
Chloroform	U	5.0		µg/Kg	1	6/30/2003 10:04:00 PM
Chloromethane	U	5.0		µg/Kg	1	6/30/2003 10:04:00 PM
cis-1,2-Dichloroethene	U	5.0		µg/Kg	1	6/30/2003 10:04:00 PM
cis-1,3-Dichloropropene	U	5.0		µg/Kg	1	6/30/2003 10:04:00 PM
Dibromochloromethane	U	5.0		µg/Kg	1	6/30/2003 10:04:00 PM
Dibromomethane	U	5.0		µg/Kg	1	6/30/2003 10:04:00 PM
Dichlorodifluoromethane	U	5.0		µg/Kg	1	6/30/2003 10:04:00 PM
Diisopropyl ether	U	5.0		µg/Kg	1	6/30/2003 10:04:00 PM
Ethanol	U	25		µg/Kg	1	6/30/2003 10:04:00 PM
Ethyl acetate	U	5.0		µg/Kg	1	6/30/2003 10:04:00 PM
Ethylbenzene	U	5.0		µg/Kg	1	6/30/2003 10:04:00 PM
Freon-114	U	5.0		µg/Kg	1	6/30/2003 10:04:00 PM
Hexachlorobutadiene	U	5.0		µg/Kg	1	6/30/2003 10:04:00 PM
Isopropyl acetate	U	5.0		µg/Kg	1	6/30/2003 10:04:00 PM
Isopropylbenzene	U	5.0		µg/Kg	1	6/30/2003 10:04:00 PM
m,p-Xylene	U	10		µg/Kg	1	6/30/2003 10:04:00 PM
Methyl tert-butyl ether	U	5.0		µg/Kg	1	6/30/2003 10:04:00 PM
Methylene chloride	U	5.0		µg/Kg	1	6/30/2003 10:04:00 PM
Naphthalene	U	5.0		µg/Kg	1	6/30/2003 10:04:00 PM
n-Butyl acetate	U	5.0		µg/Kg	1	6/30/2003 10:04:00 PM
n-Butylbenzene	U	5.0		µg/Kg	1	6/30/2003 10:04:00 PM
n-Propyl acetate	U	5.0		µg/Kg	1	6/30/2003 10:04:00 PM
n-Propylbenzene	U	5.0		µg/Kg	1	6/30/2003 10:04:00 PM
o-Xylene	U	5.0		µg/Kg	1	6/30/2003 10:04:00 PM
p-Diethylbenzene	U	5.0		µg/Kg	1	6/30/2003 10:04:00 PM
p-Ethyltoluene	U	5.0		µg/Kg	1	6/30/2003 10:04:00 PM
sec-Butylbenzene	U	5.0		µg/Kg	1	6/30/2003 10:04:00 PM
Styrene	U	5.0		µg/Kg	1	6/30/2003 10:04:00 PM
t-Butyl alcohol	U	5.0		µg/Kg	1	6/30/2003 10:04:00 PM
tert-Butylbenzene	U	5.0		µg/Kg	1	6/30/2003 10:04:00 PM
Tetrachloroethene	U	5.0		µg/Kg	1	6/30/2003 10:04:00 PM
Toluene	U	5.0		µg/Kg	1	6/30/2003 10:04:00 PM
trans-1,2-Dichloroethene	U	5.0		µg/Kg	1	6/30/2003 10:04:00 PM
trans-1,3-Dichloropropene	U	5.0		µg/Kg	1	6/30/2003 10:04:00 PM
Trichloroethene	U	5.0		µg/Kg	1	6/30/2003 10:04:00 PM
Trichlorofluoromethane	U	5.0		µg/Kg	1	6/30/2003 10:04:00 PM

Qualifiers:

ND - Not Detected at the Reporting Limit

J - Analyte detected below quantitation limits

B - Analyte detected in the associated Method Blank

* - Value exceeds Maximum Contaminant Level

S - Spike Recovery outside accepted recovery limits

R - RPD outside accepted recovery limits

E - Value above quantitation range

American Analytical Laboratories, Inc.

Date: *28-Jul-03*

CLIENT:	AKRF, Inc	**Client Sample ID:**	B13 (0.5'-2')
Lab Order:	0306116	**Tag Number:**	
Project:	Greenpoint Lumber Yard Brooklyn, NY	**Collection Date:**	6/25/2003
Lab ID:	0306116-03A	**Matrix:**	SOIL

Analyses	Result	Limit	Qual	Units	DF	Date Analyzed
VOLATILES SW-846 METHOD 8260		**SW8260B**				Analyst: **LDS**
Vinyl acetate	U	5.0		µg/Kg	1	6/30/2003 10:04:00 PM
Vinyl chloride	U	5.0		µg/Kg	1	6/30/2003 10:04:00 PM

Qualifiers:

ND - Not Detected at the Reporting Limit

J - Analyte detected below quantitation limits

B - Analyte detected in the associated Method Blank

* - Value exceeds Maximum Contaminant Level

S - Spike Recovery outside accepted recovery limits

R - RPD outside accepted recovery limits

E - Value above quantitation range

American Analytical Laboratories, Inc.

Date: *28-Jul-03*

CLIENT:	AKRF, Inc	**Client Sample ID:**	B13 (5'-7')
Lab Order:	0306116	**Tag Number:**	
Project:	Greenpoint Lumber Yard Brooklyn, NY	**Collection Date:**	6/25/2003
Lab ID:	0306116-04A	**Matrix:**	SOIL

Analyses	Result	Limit	Qual	Units	DF	Date Analyzed
VOLATILES SW-846 METHOD 8260		**SW8260B**				Analyst: **LDS**
1,1,1,2-Tetrachloroethane	U	5.0		µg/Kg	1	6/30/2003 10:42:00 PM
1,1,1-Trichloroethane	U	5.0		µg/Kg	1	6/30/2003 10:42:00 PM
1,1,2,2-Tetrachloroethane	U	5.0		µg/Kg	1	6/30/2003 10:42:00 PM
1,1,2-Trichloro-1,2,2-trifluoroethane	U	5.0		µg/Kg	1	6/30/2003 10:42:00 PM
1,1,2-Trichloroethane	U	5.0		µg/Kg	1	6/30/2003 10:42:00 PM
1,1-Dichloroethane	U	5.0		µg/Kg	1	6/30/2003 10:42:00 PM
1,1-Dichloroethene	U	5.0		µg/Kg	1	6/30/2003 10:42:00 PM
1,1-Dichloropropene	U	5.0		µg/Kg	1	6/30/2003 10:42:00 PM
1,2,3-Trichlorobenzene	U	5.0		µg/Kg	1	6/30/2003 10:42:00 PM
1,2,3-Trichloropropane	U	5.0		µg/Kg	1	6/30/2003 10:42:00 PM
1,2,4,5-Tetramethylbenzene	U	5.0		µg/Kg	1	6/30/2003 10:42:00 PM
1,2,4-Trichlorobenzene	U	5.0		µg/Kg	1	6/30/2003 10:42:00 PM
1,2,4-Trimethylbenzene	U	5.0		µg/Kg	1	6/30/2003 10:42:00 PM
1,2-Dibromo-3-chloropropane	U	5.0		µg/Kg	1	6/30/2003 10:42:00 PM
1,2-Dibromoethane	U	5.0		µg/Kg	1	6/30/2003 10:42:00 PM
1,2-Dichlorobenzene	U	5.0		µg/Kg	1	6/30/2003 10:42:00 PM
1,2-Dichloroethane	U	5.0		µg/Kg	1	6/30/2003 10:42:00 PM
1,2-Dichloropropane	U	5.0		µg/Kg	1	6/30/2003 10:42:00 PM
1,3,5-Trimethylbenzene	U	5.0		µg/Kg	1	6/30/2003 10:42:00 PM
1,3-Dichlorobenzene	U	5.0		µg/Kg	1	6/30/2003 10:42:00 PM
1,3-dichloropropane	U	5.0		µg/Kg	1	6/30/2003 10:42:00 PM
1,4-Dichlorobenzene	U	5.0		µg/Kg	1	6/30/2003 10:42:00 PM
2,2-Dichloropropane	U	5.0		µg/Kg	1	6/30/2003 10:42:00 PM
2-Butanone	U	5.0		µg/Kg	1	6/30/2003 10:42:00 PM
2-Chloroethyl vinyl ether	U	5.0		µg/Kg	1	6/30/2003 10:42:00 PM
2-Chlorotoluene	U	5.0		µg/Kg	1	6/30/2003 10:42:00 PM
2-Hexanone	U	5.0		µg/Kg	1	6/30/2003 10:42:00 PM
4-Chlorotoluene	U	5.0		µg/Kg	1	6/30/2003 10:42:00 PM
4-Isopropyltoluene	U	5.0		µg/Kg	1	6/30/2003 10:42:00 PM
4-Methyl-2-pentanone	U	5.0		µg/Kg	1	6/30/2003 10:42:00 PM
Acetone	U	5.0		µg/Kg	1	6/30/2003 10:42:00 PM
Acrolein	U	25		µg/Kg	1	6/30/2003 10:42:00 PM
Acrylonitrile	U	5.0		µg/Kg	1	6/30/2003 10:42:00 PM
Benzene	U	5.0		µg/Kg	1	6/30/2003 10:42:00 PM
Bromobenzene	U	5.0		µg/Kg	1	6/30/2003 10:42:00 PM
Bromochloromethane	U	5.0		µg/Kg	1	6/30/2003 10:42:00 PM
Bromodichloromethane	U	5.0		µg/Kg	1	6/30/2003 10:42:00 PM
Bromoform	U	5.0		µg/Kg	1	6/30/2003 10:42:00 PM
Bromomethane	U	5.0		µg/Kg	1	6/30/2003 10:42:00 PM
Carbon disulfide	U	5.0		µg/Kg	1	6/30/2003 10:42:00 PM

Qualifiers:

ND - Not Detected at the Reporting Limit

J - Analyte detected below quantitation limits

B - Analyte detected in the associated Method Blank

* - Value exceeds Maximum Contaminant Level

S - Spike Recovery outside accepted recovery limits

R - RPD outside accepted recovery limits

E - Value above quantitation range

American Analytical Laboratories, Inc.

Date: *28-Jul-03*

CLIENT:	AKRF, Inc	**Client Sample ID:**	B13 (5'-7')
Lab Order:	0306116	**Tag Number:**	
Project:	Greenpoint Lumber Yard Brooklyn, NY	**Collection Date:**	6/25/2003
Lab ID:	0306116-04A	**Matrix:**	SOIL

Analyses	Result	Limit	Qual	Units	DF	Date Analyzed
VOLATILES SW-846 METHOD 8260		**SW8260B**				Analyst: **LDS**
Carbon tetrachloride	U	5.0		µg/Kg	1	6/30/2003 10:42:00 PM
Chlorobenzene	U	5.0		µg/Kg	1	6/30/2003 10:42:00 PM
Chlorodifluoromethane	U	5.0		µg/Kg	1	6/30/2003 10:42:00 PM
Chloroethane	U	5.0		µg/Kg	1	6/30/2003 10:42:00 PM
Chloroform	U	5.0		µg/Kg	1	6/30/2003 10:42:00 PM
Chloromethane	U	5.0		µg/Kg	1	6/30/2003 10:42:00 PM
cis-1,2-Dichloroethene	U	5.0		µg/Kg	1	6/30/2003 10:42:00 PM
cis-1,3-Dichloropropene	U	5.0		µg/Kg	1	6/30/2003 10:42:00 PM
Dibromochloromethane	U	5.0		µg/Kg	1	6/30/2003 10:42:00 PM
Dibromomethane	U	5.0		µg/Kg	1	6/30/2003 10:42:00 PM
Dichlorodifluoromethane	U	5.0		µg/Kg	1	6/30/2003 10:42:00 PM
Diisopropyl ether	U	5.0		µg/Kg	1	6/30/2003 10:42:00 PM
Ethanol	U	25		µg/Kg	1	6/30/2003 10:42:00 PM
Ethyl acetate	U	5.0		µg/Kg	1	6/30/2003 10:42:00 PM
Ethylbenzene	U	5.0		µg/Kg	1	6/30/2003 10:42:00 PM
Freon-114	U	5.0		µg/Kg	1	6/30/2003 10:42:00 PM
Hexachlorobutadiene	U	5.0		µg/Kg	1	6/30/2003 10:42:00 PM
Isopropyl acetate	U	5.0		µg/Kg	1	6/30/2003 10:42:00 PM
Isopropylbenzene	U	5.0		µg/Kg	1	6/30/2003 10:42:00 PM
m,p-Xylene	U	10		µg/Kg	1	6/30/2003 10:42:00 PM
Methyl tert-butyl ether	U	5.0		µg/Kg	1	6/30/2003 10:42:00 PM
Methylene chloride	U	5.0		µg/Kg	1	6/30/2003 10:42:00 PM
Naphthalene	U	5.0		µg/Kg	1	6/30/2003 10:42:00 PM
n-Butyl acetate	U	5.0		µg/Kg	1	6/30/2003 10:42:00 PM
n-Butylbenzene	U	5.0		µg/Kg	1	6/30/2003 10:42:00 PM
n-Propyl acetate	U	5.0		µg/Kg	1	6/30/2003 10:42:00 PM
n-Propylbenzene	U	5.0		µg/Kg	1	6/30/2003 10:42:00 PM
o-Xylene	U	5.0		µg/Kg	1	6/30/2003 10:42:00 PM
p-Diethylbenzene	U	5.0		µg/Kg	1	6/30/2003 10:42:00 PM
p-Ethyltoluene	U	5.0		µg/Kg	1	6/30/2003 10:42:00 PM
sec-Butylbenzene	U	5.0		µg/Kg	1	6/30/2003 10:42:00 PM
Styrene	U	5.0		µg/Kg	1	6/30/2003 10:42:00 PM
t-Butyl alcohol	U	5.0		µg/Kg	1	6/30/2003 10:42:00 PM
tert-Butylbenzene	U	5.0		µg/Kg	1	6/30/2003 10:42:00 PM
Tetrachloroethene	U	5.0		µg/Kg	1	6/30/2003 10:42:00 PM
Toluene	U	5.0		µg/Kg	1	6/30/2003 10:42:00 PM
trans-1,2-Dichloroethene	U	5.0		µg/Kg	1	6/30/2003 10:42:00 PM
trans-1,3-Dichloropropene	U	5.0		µg/Kg	1	6/30/2003 10:42:00 PM
Trichloroethene	U	5.0		µg/Kg	1	6/30/2003 10:42:00 PM
Trichlorofluoromethane	U	5.0		µg/Kg	1	6/30/2003 10:42:00 PM

Qualifiers:

ND - Not Detected at the Reporting Limit

J - Analyte detected below quantitation limits

B - Analyte detected in the associated Method Blank

* - Value exceeds Maximum Contaminant Level

S - Spike Recovery outside accepted recovery limits

R - RPD outside accepted recovery limits

E - Value above quantitation range

American Analytical Laboratories, Inc.

Date: *28-Jul-03*

CLIENT:	AKRF, Inc	**Client Sample ID:**	B13 (5'-7')
Lab Order:	0306116	**Tag Number:**	
Project:	Greenpoint Lumber Yard Brooklyn, NY	**Collection Date:**	6/25/2003
Lab ID:	0306116-04A	**Matrix:**	SOIL

Analyses	Result	Limit	Qual	Units	DF	Date Analyzed
VOLATILES SW-846 METHOD 8260		**SW8260B**				Analyst: **LDS**
Vinyl acetate	U	5.0		µg/Kg	1	6/30/2003 10:42:00 PM
Vinyl chloride	U	5.0		µg/Kg	1	6/30/2003 10:42:00 PM

Qualifiers:

ND - Not Detected at the Reporting Limit

J - Analyte detected below quantitation limits

B - Analyte detected in the associated Method Blank

* - Value exceeds Maximum Contaminant Level

S - Spike Recovery outside accepted recovery limits

R - RPD outside accepted recovery limits

E - Value above quantitation range

American Analytical Laboratories, Inc.

Date: *28-Jul-03*

CLIENT:	AKRF, Inc	**Client Sample ID:**	MW-12 (0.5'-2')
Lab Order:	0306116	**Tag Number:**	
Project:	Greenpoint Lumber Yard Brooklyn, NY	**Collection Date:**	6/25/2003
Lab ID:	0306116-05A	**Matrix:**	SOIL

Analyses	Result	Limit	Qual	Units	DF	Date Analyzed
VOLATILES SW-846 METHOD 8260		**SW8260B**				Analyst: **LDS**
1,1,1,2-Tetrachloroethane	U	5.0		µg/Kg	1	6/30/2003 11:20:00 PM
1,1,1-Trichloroethane	U	5.0		µg/Kg	1	6/30/2003 11:20:00 PM
1,1,2,2-Tetrachloroethane	U	5.0		µg/Kg	1	6/30/2003 11:20:00 PM
1,1,2-Trichloro-1,2,2-trifluoroethane	U	5.0		µg/Kg	1	6/30/2003 11:20:00 PM
1,1,2-Trichloroethane	U	5.0		µg/Kg	1	6/30/2003 11:20:00 PM
1,1-Dichloroethane	U	5.0		µg/Kg	1	6/30/2003 11:20:00 PM
1,1-Dichloroethene	U	5.0		µg/Kg	1	6/30/2003 11:20:00 PM
1,1-Dichloropropene	U	5.0		µg/Kg	1	6/30/2003 11:20:00 PM
1,2,3-Trichlorobenzene	U	5.0		µg/Kg	1	6/30/2003 11:20:00 PM
1,2,3-Trichloropropane	U	5.0		µg/Kg	1	6/30/2003 11:20:00 PM
1,2,4,5-Tetramethylbenzene	U	5.0		µg/Kg	1	6/30/2003 11:20:00 PM
1,2,4-Trichlorobenzene	U	5.0		µg/Kg	1	6/30/2003 11:20:00 PM
1,2,4-Trimethylbenzene	U	5.0		µg/Kg	1	6/30/2003 11:20:00 PM
1,2-Dibromo-3-chloropropane	U	5.0		µg/Kg	1	6/30/2003 11:20:00 PM
1,2-Dibromoethane	U	5.0		µg/Kg	1	6/30/2003 11:20:00 PM
1,2-Dichlorobenzene	U	5.0		µg/Kg	1	6/30/2003 11:20:00 PM
1,2-Dichloroethane	U	5.0		µg/Kg	1	6/30/2003 11:20:00 PM
1,2-Dichloropropane	U	5.0		µg/Kg	1	6/30/2003 11:20:00 PM
1,3,5-Trimethylbenzene	U	5.0		µg/Kg	1	6/30/2003 11:20:00 PM
1,3-Dichlorobenzene	U	5.0		µg/Kg	1	6/30/2003 11:20:00 PM
1,3-dichloropropane	U	5.0		µg/Kg	1	6/30/2003 11:20:00 PM
1,4-Dichlorobenzene	U	5.0		µg/Kg	1	6/30/2003 11:20:00 PM
2,2-Dichloropropane	U	5.0		µg/Kg	1	6/30/2003 11:20:00 PM
2-Butanone	U	5.0		µg/Kg	1	6/30/2003 11:20:00 PM
2-Chloroethyl vinyl ether	U	5.0		µg/Kg	1	6/30/2003 11:20:00 PM
2-Chlorotoluene	U	5.0		µg/Kg	1	6/30/2003 11:20:00 PM
2-Hexanone	U	5.0		µg/Kg	1	6/30/2003 11:20:00 PM
4-Chlorotoluene	U	5.0		µg/Kg	1	6/30/2003 11:20:00 PM
4-Isopropyltoluene	U	5.0		µg/Kg	1	6/30/2003 11:20:00 PM
4-Methyl-2-pentanone	U	5.0		µg/Kg	1	6/30/2003 11:20:00 PM
Acetone	U	5.0		µg/Kg	1	6/30/2003 11:20:00 PM
Acrolein	U	25		µg/Kg	1	6/30/2003 11:20:00 PM
Acrylonitrile	U	5.0		µg/Kg	1	6/30/2003 11:20:00 PM
Benzene	U	5.0		µg/Kg	1	6/30/2003 11:20:00 PM
Bromobenzene	U	5.0		µg/Kg	1	6/30/2003 11:20:00 PM
Bromochloromethane	U	5.0		µg/Kg	1	6/30/2003 11:20:00 PM
Bromodichloromethane	U	5.0		µg/Kg	1	6/30/2003 11:20:00 PM
Bromoform	U	5.0		µg/Kg	1	6/30/2003 11:20:00 PM
Bromomethane	U	5.0		µg/Kg	1	6/30/2003 11:20:00 PM
Carbon disulfide	U	5.0		µg/Kg	1	6/30/2003 11:20:00 PM

Qualifiers:

ND - Not Detected at the Reporting Limit

J - Analyte detected below quantitation limits

B - Analyte detected in the associated Method Blank

* - Value exceeds Maximum Contaminant Level

S - Spike Recovery outside accepted recovery limits

R - RPD outside accepted recovery limits

E - Value above quantitation range

American Analytical Laboratories, Inc.

Date: *28-Jul-03*

CLIENT:	AKRF, Inc	**Client Sample ID:**	MW-12 (0.5'-2')
Lab Order:	0306116	**Tag Number:**	
Project:	Greenpoint Lumber Yard Brooklyn, NY	**Collection Date:**	6/25/2003
Lab ID:	0306116-05A	**Matrix:**	SOIL

Analyses	Result	Limit	Qual	Units	DF	Date Analyzed
VOLATILES SW-846 METHOD 8260		**SW8260B**				Analyst: **LDS**
Carbon tetrachloride	U	5.0		µg/Kg	1	6/30/2003 11:20:00 PM
Chlorobenzene	U	5.0		µg/Kg	1	6/30/2003 11:20:00 PM
Chlorodifluoromethane	U	5.0		µg/Kg	1	6/30/2003 11:20:00 PM
Chloroethane	U	5.0		µg/Kg	1	6/30/2003 11:20:00 PM
Chloroform	U	5.0		µg/Kg	1	6/30/2003 11:20:00 PM
Chloromethane	U	5.0		µg/Kg	1	6/30/2003 11:20:00 PM
cis-1,2-Dichloroethene	U	5.0		µg/Kg	1	6/30/2003 11:20:00 PM
cis-1,3-Dichloropropene	U	5.0		µg/Kg	1	6/30/2003 11:20:00 PM
Dibromochloromethane	U	5.0		µg/Kg	1	6/30/2003 11:20:00 PM
Dibromomethane	U	5.0		µg/Kg	1	6/30/2003 11:20:00 PM
Dichlorodifluoromethane	U	5.0		µg/Kg	1	6/30/2003 11:20:00 PM
Diisopropyl ether	U	5.0		µg/Kg	1	6/30/2003 11:20:00 PM
Ethanol	U	25		µg/Kg	1	6/30/2003 11:20:00 PM
Ethyl acetate	U	5.0		µg/Kg	1	6/30/2003 11:20:00 PM
Ethylbenzene	U	5.0		µg/Kg	1	6/30/2003 11:20:00 PM
Freon-114	U	5.0		µg/Kg	1	6/30/2003 11:20:00 PM
Hexachlorobutadiene	U	5.0		µg/Kg	1	6/30/2003 11:20:00 PM
Isopropyl acetate	U	5.0		µg/Kg	1	6/30/2003 11:20:00 PM
Isopropylbenzene	U	5.0		µg/Kg	1	6/30/2003 11:20:00 PM
m,p-Xylene	U	10		µg/Kg	1	6/30/2003 11:20:00 PM
Methyl tert-butyl ether	U	5.0		µg/Kg	1	6/30/2003 11:20:00 PM
Methylene chloride	U	5.0		µg/Kg	1	6/30/2003 11:20:00 PM
Naphthalene	U	5.0		µg/Kg	1	6/30/2003 11:20:00 PM
n-Butyl acetate	U	5.0		µg/Kg	1	6/30/2003 11:20:00 PM
n-Butylbenzene	U	5.0		µg/Kg	1	6/30/2003 11:20:00 PM
n-Propyl acetate	U	5.0		µg/Kg	1	6/30/2003 11:20:00 PM
n-Propylbenzene	U	5.0		µg/Kg	1	6/30/2003 11:20:00 PM
o-Xylene	U	5.0		µg/Kg	1	6/30/2003 11:20:00 PM
p-Diethylbenzene	U	5.0		µg/Kg	1	6/30/2003 11:20:00 PM
p-Ethyltoluene	U	5.0		µg/Kg	1	6/30/2003 11:20:00 PM
sec-Butylbenzene	U	5.0		µg/Kg	1	6/30/2003 11:20:00 PM
Styrene	U	5.0		µg/Kg	1	6/30/2003 11:20:00 PM
t-Butyl alcohol	U	5.0		µg/Kg	1	6/30/2003 11:20:00 PM
tert-Butylbenzene	U	5.0		µg/Kg	1	6/30/2003 11:20:00 PM
Tetrachloroethene	U	5.0		µg/Kg	1	6/30/2003 11:20:00 PM
Toluene	U	5.0		µg/Kg	1	6/30/2003 11:20:00 PM
trans-1,2-Dichloroethene	U	5.0		µg/Kg	1	6/30/2003 11:20:00 PM
trans-1,3-Dichloropropene	U	5.0		µg/Kg	1	6/30/2003 11:20:00 PM
Trichloroethene	U	5.0		µg/Kg	1	6/30/2003 11:20:00 PM
Trichlorofluoromethane	U	5.0		µg/Kg	1	6/30/2003 11:20:00 PM

Qualifiers:

ND - Not Detected at the Reporting Limit

J - Analyte detected below quantitation limits

B - Analyte detected in the associated Method Blank

* - Value exceeds Maximum Contaminant Level

S - Spike Recovery outside accepted recovery limits

R - RPD outside accepted recovery limits

E - Value above quantitation range

American Analytical Laboratories, Inc.

Date: *28-Jul-03*

CLIENT:	AKRF, Inc	**Client Sample ID:**	MW-12 (0.5'-2')
Lab Order:	0306116	**Tag Number:**	
Project:	Greenpoint Lumber Yard Brooklyn, NY	**Collection Date:**	6/25/2003
Lab ID:	0306116-05A	**Matrix:**	SOIL

Analyses	Result	Limit	Qual	Units	DF	Date Analyzed
VOLATILES SW-846 METHOD 8260		**SW8260B**				Analyst: **LDS**
Vinyl acetate	U	5.0		µg/Kg	1	6/30/2003 11:20:00 PM
Vinyl chloride	U	5.0		µg/Kg	1	6/30/2003 11:20:00 PM

Qualifiers:

ND - Not Detected at the Reporting Limit

J - Analyte detected below quantitation limits

B - Analyte detected in the associated Method Blank

* - Value exceeds Maximum Contaminant Level

S - Spike Recovery outside accepted recovery limits

R - RPD outside accepted recovery limits

E - Value above quantitation range

American Analytical Laboratories, Inc.

Date: *28-Jul-03*

CLIENT:	AKRF, Inc	**Client Sample ID:**	MW12 (4.5'-5.5')
Lab Order:	0306116	**Tag Number:**	
Project:	Greenpoint Lumber Yard Brooklyn, NY	**Collection Date:**	6/25/2003
Lab ID:	0306116-06A	**Matrix:**	SOIL

Analyses	Result	Limit	Qual	Units	DF	Date Analyzed
VOLATILES SW-846 METHOD 8260		**SW8260B**				Analyst: **LDS**
1,1,1,2-Tetrachloroethane	U	5.0		µg/Kg	1	6/30/2003 11:58:00 PM
1,1,1-Trichloroethane	U	5.0		µg/Kg	1	6/30/2003 11:58:00 PM
1,1,2,2-Tetrachloroethane	U	5.0		µg/Kg	1	6/30/2003 11:58:00 PM
1,1,2-Trichloro-1,2,2-trifluoroethane	U	5.0		µg/Kg	1	6/30/2003 11:58:00 PM
1,1,2-Trichloroethane	U	5.0		µg/Kg	1	6/30/2003 11:58:00 PM
1,1-Dichloroethane	U	5.0		µg/Kg	1	6/30/2003 11:58:00 PM
1,1-Dichloroethene	U	5.0		µg/Kg	1	6/30/2003 11:58:00 PM
1,1-Dichloropropene	U	5.0		µg/Kg	1	6/30/2003 11:58:00 PM
1,2,3-Trichlorobenzene	U	5.0		µg/Kg	1	6/30/2003 11:58:00 PM
1,2,3-Trichloropropane	U	5.0		µg/Kg	1	6/30/2003 11:58:00 PM
1,2,4,5-Tetramethylbenzene	U	5.0		µg/Kg	1	6/30/2003 11:58:00 PM
1,2,4-Trichlorobenzene	U	5.0		µg/Kg	1	6/30/2003 11:58:00 PM
1,2,4-Trimethylbenzene	U	5.0		µg/Kg	1	6/30/2003 11:58:00 PM
1,2-Dibromo-3-chloropropane	U	5.0		µg/Kg	1	6/30/2003 11:58:00 PM
1,2-Dibromoethane	U	5.0		µg/Kg	1	6/30/2003 11:58:00 PM
1,2-Dichlorobenzene	U	5.0		µg/Kg	1	6/30/2003 11:58:00 PM
1,2-Dichloroethane	U	5.0		µg/Kg	1	6/30/2003 11:58:00 PM
1,2-Dichloropropane	U	5.0		µg/Kg	1	6/30/2003 11:58:00 PM
1,3,5-Trimethylbenzene	U	5.0		µg/Kg	1	6/30/2003 11:58:00 PM
1,3-Dichlorobenzene	U	5.0		µg/Kg	1	6/30/2003 11:58:00 PM
1,3-dichloropropane	U	5.0		µg/Kg	1	6/30/2003 11:58:00 PM
1,4-Dichlorobenzene	U	5.0		µg/Kg	1	6/30/2003 11:58:00 PM
2,2-Dichloropropane	U	5.0		µg/Kg	1	6/30/2003 11:58:00 PM
2-Butanone	U	5.0		µg/Kg	1	6/30/2003 11:58:00 PM
2-Chloroethyl vinyl ether	U	5.0		µg/Kg	1	6/30/2003 11:58:00 PM
2-Chlorotoluene	U	5.0		µg/Kg	1	6/30/2003 11:58:00 PM
2-Hexanone	U	5.0		µg/Kg	1	6/30/2003 11:58:00 PM
4-Chlorotoluene	U	5.0		µg/Kg	1	6/30/2003 11:58:00 PM
4-Isopropyltoluene	U	5.0		µg/Kg	1	6/30/2003 11:58:00 PM
4-Methyl-2-pentanone	U	5.0		µg/Kg	1	6/30/2003 11:58:00 PM
Acetone	U	5.0		µg/Kg	1	6/30/2003 11:58:00 PM
Acrolein	U	25		µg/Kg	1	6/30/2003 11:58:00 PM
Acrylonitrile	U	5.0		µg/Kg	1	6/30/2003 11:58:00 PM
Benzene	U	5.0		µg/Kg	1	6/30/2003 11:58:00 PM
Bromobenzene	U	5.0		µg/Kg	1	6/30/2003 11:58:00 PM
Bromochloromethane	U	5.0		µg/Kg	1	6/30/2003 11:58:00 PM
Bromodichloromethane	U	5.0		µg/Kg	1	6/30/2003 11:58:00 PM
Bromoform	U	5.0		µg/Kg	1	6/30/2003 11:58:00 PM
Bromomethane	U	5.0		µg/Kg	1	6/30/2003 11:58:00 PM
Carbon disulfide	U	5.0		µg/Kg	1	6/30/2003 11:58:00 PM

Qualifiers:

ND - Not Detected at the Reporting Limit

J - Analyte detected below quantitation limits

B - Analyte detected in the associated Method Blank

* - Value exceeds Maximum Contaminant Level

S - Spike Recovery outside accepted recovery limits

R - RPD outside accepted recovery limits

E - Value above quantitation range

American Analytical Laboratories, Inc.

Date: *28-Jul-03*

CLIENT:	AKRF, Inc	**Client Sample ID:**	MW12 (4.5'-5.5')
Lab Order:	0306116	**Tag Number:**	
Project:	Greenpoint Lumber Yard Brooklyn, NY	**Collection Date:**	6/25/2003
Lab ID:	0306116-06A	**Matrix:**	SOIL

Analyses	Result	Limit	Qual	Units	DF	Date Analyzed
VOLATILES SW-846 METHOD 8260		**SW8260B**				Analyst: **LDS**
Carbon tetrachloride	U	5.0		µg/Kg	1	6/30/2003 11:58:00 PM
Chlorobenzene	U	5.0		µg/Kg	1	6/30/2003 11:58:00 PM
Chlorodifluoromethane	U	5.0		µg/Kg	1	6/30/2003 11:58:00 PM
Chloroethane	U	5.0		µg/Kg	1	6/30/2003 11:58:00 PM
Chloroform	U	5.0		µg/Kg	1	6/30/2003 11:58:00 PM
Chloromethane	U	5.0		µg/Kg	1	6/30/2003 11:58:00 PM
cis-1,2-Dichloroethene	U	5.0		µg/Kg	1	6/30/2003 11:58:00 PM
cis-1,3-Dichloropropene	U	5.0		µg/Kg	1	6/30/2003 11:58:00 PM
Dibromochloromethane	U	5.0		µg/Kg	1	6/30/2003 11:58:00 PM
Dibromomethane	U	5.0		µg/Kg	1	6/30/2003 11:58:00 PM
Dichlorodifluoromethane	U	5.0		µg/Kg	1	6/30/2003 11:58:00 PM
Diisopropyl ether	U	5.0		µg/Kg	1	6/30/2003 11:58:00 PM
Ethanol	U	25		µg/Kg	1	6/30/2003 11:58:00 PM
Ethyl acetate	U	5.0		µg/Kg	1	6/30/2003 11:58:00 PM
Ethylbenzene	U	5.0		µg/Kg	1	6/30/2003 11:58:00 PM
Freon-114	U	5.0		µg/Kg	1	6/30/2003 11:58:00 PM
Hexachlorobutadiene	U	5.0		µg/Kg	1	6/30/2003 11:58:00 PM
Isopropyl acetate	U	5.0		µg/Kg	1	6/30/2003 11:58:00 PM
Isopropylbenzene	U	5.0		µg/Kg	1	6/30/2003 11:58:00 PM
m,p-Xylene	U	10		µg/Kg	1	6/30/2003 11:58:00 PM
Methyl tert-butyl ether	U	5.0		µg/Kg	1	6/30/2003 11:58:00 PM
Methylene chloride	U	5.0		µg/Kg	1	6/30/2003 11:58:00 PM
Naphthalene	U	5.0		µg/Kg	1	6/30/2003 11:58:00 PM
n-Butyl acetate	U	5.0		µg/Kg	1	6/30/2003 11:58:00 PM
n-Butylbenzene	U	5.0		µg/Kg	1	6/30/2003 11:58:00 PM
n-Propyl acetate	U	5.0		µg/Kg	1	6/30/2003 11:58:00 PM
n-Propylbenzene	U	5.0		µg/Kg	1	6/30/2003 11:58:00 PM
o-Xylene	U	5.0		µg/Kg	1	6/30/2003 11:58:00 PM
p-Diethylbenzene	U	5.0		µg/Kg	1	6/30/2003 11:58:00 PM
p-Ethyltoluene	U	5.0		µg/Kg	1	6/30/2003 11:58:00 PM
sec-Butylbenzene	U	5.0		µg/Kg	1	6/30/2003 11:58:00 PM
Styrene	U	5.0		µg/Kg	1	6/30/2003 11:58:00 PM
t-Butyl alcohol	U	5.0		µg/Kg	1	6/30/2003 11:58:00 PM
tert-Butylbenzene	U	5.0		µg/Kg	1	6/30/2003 11:58:00 PM
Tetrachloroethene	U	5.0		µg/Kg	1	6/30/2003 11:58:00 PM
Toluene	U	5.0		µg/Kg	1	6/30/2003 11:58:00 PM
trans-1,2-Dichloroethene	U	5.0		µg/Kg	1	6/30/2003 11:58:00 PM
trans-1,3-Dichloropropene	U	5.0		µg/Kg	1	6/30/2003 11:58:00 PM
Trichloroethene	U	5.0		µg/Kg	1	6/30/2003 11:58:00 PM
Trichlorofluoromethane	U	5.0		µg/Kg	1	6/30/2003 11:58:00 PM

Qualifiers:

ND - Not Detected at the Reporting Limit

J - Analyte detected below quantitation limits

B - Analyte detected in the associated Method Blank

* - Value exceeds Maximum Contaminant Level

S - Spike Recovery outside accepted recovery limits

R - RPD outside accepted recovery limits

E - Value above quantitation range

American Analytical Laboratories, Inc.

Date: *28-Jul-03*

CLIENT:	AKRF, Inc	**Client Sample ID:**	MW12 (4.5'-5.5')
Lab Order:	0306116	**Tag Number:**	
Project:	Greenpoint Lumber Yard Brooklyn, NY	**Collection Date:**	6/25/2003
Lab ID:	0306116-06A	**Matrix:**	SOIL

Analyses	Result	Limit	Qual	Units	DF	Date Analyzed
VOLATILES SW-846 METHOD 8260		**SW8260B**				Analyst: **LDS**
Vinyl acetate	U	5.0		µg/Kg	1	6/30/2003 11:58:00 PM
Vinyl chloride	U	5.0		µg/Kg	1	6/30/2003 11:58:00 PM

Qualifiers:

ND - Not Detected at the Reporting Limit

J - Analyte detected below quantitation limits

B - Analyte detected in the associated Method Blank

* - Value exceeds Maximum Contaminant Level

S - Spike Recovery outside accepted recovery limits

R - RPD outside accepted recovery limits

E - Value above quantitation range

American Analytical Laboratories, Inc.

Date: *28-Jul-03*

CLIENT:	AKRF, Inc	**Client Sample ID:**	MW13 (0.5'-2')
Lab Order:	0306116	**Tag Number:**	
Project:	Greenpoint Lumber Yard Brooklyn, NY	**Collection Date:**	6/25/2003
Lab ID:	0306116-07A	**Matrix:**	SOIL

Analyses	Result	Limit	Qual	Units	DF	Date Analyzed
VOLATILES SW-846 METHOD 8260		**SW8260B**				Analyst: **LDS**
1,1,1,2-Tetrachloroethane	U	5.0		µg/Kg	1	7/1/2003 12:36:00 AM
1,1,1-Trichloroethane	U	5.0		µg/Kg	1	7/1/2003 12:36:00 AM
1,1,2,2-Tetrachloroethane	U	5.0		µg/Kg	1	7/1/2003 12:36:00 AM
1,1,2-Trichloro-1,2,2-trifluoroethane	U	5.0		µg/Kg	1	7/1/2003 12:36:00 AM
1,1,2-Trichloroethane	U	5.0		µg/Kg	1	7/1/2003 12:36:00 AM
1,1-Dichloroethane	U	5.0		µg/Kg	1	7/1/2003 12:36:00 AM
1,1-Dichloroethene	U	5.0		µg/Kg	1	7/1/2003 12:36:00 AM
1,1-Dichloropropene	U	5.0		µg/Kg	1	7/1/2003 12:36:00 AM
1,2,3-Trichlorobenzene	U	5.0		µg/Kg	1	7/1/2003 12:36:00 AM
1,2,3-Trichloropropane	U	5.0		µg/Kg	1	7/1/2003 12:36:00 AM
1,2,4,5-Tetramethylbenzene	U	5.0		µg/Kg	1	7/1/2003 12:36:00 AM
1,2,4-Trichlorobenzene	U	5.0		µg/Kg	1	7/1/2003 12:36:00 AM
1,2,4-Trimethylbenzene	U	5.0		µg/Kg	1	7/1/2003 12:36:00 AM
1,2-Dibromo-3-chloropropane	U	5.0		µg/Kg	1	7/1/2003 12:36:00 AM
1,2-Dibromoethane	U	5.0		µg/Kg	1	7/1/2003 12:36:00 AM
1,2-Dichlorobenzene	U	5.0		µg/Kg	1	7/1/2003 12:36:00 AM
1,2-Dichloroethane	U	5.0		µg/Kg	1	7/1/2003 12:36:00 AM
1,2-Dichloropropane	U	5.0		µg/Kg	1	7/1/2003 12:36:00 AM
1,3,5-Trimethylbenzene	U	5.0		µg/Kg	1	7/1/2003 12:36:00 AM
1,3-Dichlorobenzene	U	5.0		µg/Kg	1	7/1/2003 12:36:00 AM
1,3-dichloropropane	U	5.0		µg/Kg	1	7/1/2003 12:36:00 AM
1,4-Dichlorobenzene	U	5.0		µg/Kg	1	7/1/2003 12:36:00 AM
2,2-Dichloropropane	U	5.0		µg/Kg	1	7/1/2003 12:36:00 AM
2-Butanone	U	5.0		µg/Kg	1	7/1/2003 12:36:00 AM
2-Chloroethyl vinyl ether	U	5.0		µg/Kg	1	7/1/2003 12:36:00 AM
2-Chlorotoluene	U	5.0		µg/Kg	1	7/1/2003 12:36:00 AM
2-Hexanone	U	5.0		µg/Kg	1	7/1/2003 12:36:00 AM
4-Chlorotoluene	U	5.0		µg/Kg	1	7/1/2003 12:36:00 AM
4-Isopropyltoluene	U	5.0		µg/Kg	1	7/1/2003 12:36:00 AM
4-Methyl-2-pentanone	U	5.0		µg/Kg	1	7/1/2003 12:36:00 AM
Acetone	U	5.0		µg/Kg	1	7/1/2003 12:36:00 AM
Acrolein	U	25		µg/Kg	1	7/1/2003 12:36:00 AM
Acrylonitrile	U	5.0		µg/Kg	1	7/1/2003 12:36:00 AM
Benzene	U	5.0		µg/Kg	1	7/1/2003 12:36:00 AM
Bromobenzene	U	5.0		µg/Kg	1	7/1/2003 12:36:00 AM
Bromochloromethane	U	5.0		µg/Kg	1	7/1/2003 12:36:00 AM
Bromodichloromethane	U	5.0		µg/Kg	1	7/1/2003 12:36:00 AM
Bromoform	U	5.0		µg/Kg	1	7/1/2003 12:36:00 AM
Bromomethane	U	5.0		µg/Kg	1	7/1/2003 12:36:00 AM
Carbon disulfide	U	5.0		µg/Kg	1	7/1/2003 12:36:00 AM

Qualifiers:

ND - Not Detected at the Reporting Limit

J - Analyte detected below quantitation limits

B - Analyte detected in the associated Method Blank

* - Value exceeds Maximum Contaminant Level

S - Spike Recovery outside accepted recovery limits

R - RPD outside accepted recovery limits

E - Value above quantitation range

American Analytical Laboratories, Inc.

Date: *28-Jul-03*

CLIENT:	AKRF, Inc	**Client Sample ID:**	MW13 (0.5'-2')
Lab Order:	0306116	**Tag Number:**	
Project:	Greenpoint Lumber Yard Brooklyn, NY	**Collection Date:**	6/25/2003
Lab ID:	0306116-07A	**Matrix:**	SOIL

Analyses	Result	Limit	Qual	Units	DF	Date Analyzed
VOLATILES SW-846 METHOD 8260		**SW8260B**				Analyst: **LDS**
Carbon tetrachloride	U	5.0		µg/Kg	1	7/1/2003 12:36:00 AM
Chlorobenzene	U	5.0		µg/Kg	1	7/1/2003 12:36:00 AM
Chlorodifluoromethane	U	5.0		µg/Kg	1	7/1/2003 12:36:00 AM
Chloroethane	U	5.0		µg/Kg	1	7/1/2003 12:36:00 AM
Chloroform	U	5.0		µg/Kg	1	7/1/2003 12:36:00 AM
Chloromethane	U	5.0		µg/Kg	1	7/1/2003 12:36:00 AM
cis-1,2-Dichloroethene	U	5.0		µg/Kg	1	7/1/2003 12:36:00 AM
cis-1,3-Dichloropropene	U	5.0		µg/Kg	1	7/1/2003 12:36:00 AM
Dibromochloromethane	U	5.0		µg/Kg	1	7/1/2003 12:36:00 AM
Dibromomethane	U	5.0		µg/Kg	1	7/1/2003 12:36:00 AM
Dichlorodifluoromethane	U	5.0		µg/Kg	1	7/1/2003 12:36:00 AM
Diisopropyl ether	U	5.0		µg/Kg	1	7/1/2003 12:36:00 AM
Ethanol	U	25		µg/Kg	1	7/1/2003 12:36:00 AM
Ethyl acetate	U	5.0		µg/Kg	1	7/1/2003 12:36:00 AM
Ethylbenzene	U	5.0		µg/Kg	1	7/1/2003 12:36:00 AM
Freon-114	U	5.0		µg/Kg	1	7/1/2003 12:36:00 AM
Hexachlorobutadiene	U	5.0		µg/Kg	1	7/1/2003 12:36:00 AM
Isopropyl acetate	U	5.0		µg/Kg	1	7/1/2003 12:36:00 AM
Isopropylbenzene	U	5.0		µg/Kg	1	7/1/2003 12:36:00 AM
m,p-Xylene	U	10		µg/Kg	1	7/1/2003 12:36:00 AM
Methyl tert-butyl ether	U	5.0		µg/Kg	1	7/1/2003 12:36:00 AM
Methylene chloride	U	5.0		µg/Kg	1	7/1/2003 12:36:00 AM
Naphthalene	U	5.0		µg/Kg	1	7/1/2003 12:36:00 AM
n-Butyl acetate	U	5.0		µg/Kg	1	7/1/2003 12:36:00 AM
n-Butylbenzene	U	5.0		µg/Kg	1	7/1/2003 12:36:00 AM
n-Propyl acetate	U	5.0		µg/Kg	1	7/1/2003 12:36:00 AM
n-Propylbenzene	U	5.0		µg/Kg	1	7/1/2003 12:36:00 AM
o-Xylene	U	5.0		µg/Kg	1	7/1/2003 12:36:00 AM
p-Diethylbenzene	U	5.0		µg/Kg	1	7/1/2003 12:36:00 AM
p-Ethyltoluene	U	5.0		µg/Kg	1	7/1/2003 12:36:00 AM
sec-Butylbenzene	U	5.0		µg/Kg	1	7/1/2003 12:36:00 AM
Styrene	U	5.0		µg/Kg	1	7/1/2003 12:36:00 AM
t-Butyl alcohol	U	5.0		µg/Kg	1	7/1/2003 12:36:00 AM
tert-Butylbenzene	U	5.0		µg/Kg	1	7/1/2003 12:36:00 AM
Tetrachloroethene	U	5.0		µg/Kg	1	7/1/2003 12:36:00 AM
Toluene	U	5.0		µg/Kg	1	7/1/2003 12:36:00 AM
trans-1,2-Dichloroethene	U	5.0		µg/Kg	1	7/1/2003 12:36:00 AM
trans-1,3-Dichloropropene	U	5.0		µg/Kg	1	7/1/2003 12:36:00 AM
Trichloroethene	U	5.0		µg/Kg	1	7/1/2003 12:36:00 AM
Trichlorofluoromethane	U	5.0		µg/Kg	1	7/1/2003 12:36:00 AM

Qualifiers:

ND - Not Detected at the Reporting Limit

J - Analyte detected below quantitation limits

B - Analyte detected in the associated Method Blank

* - Value exceeds Maximum Contaminant Level

S - Spike Recovery outside accepted recovery limits

R - RPD outside accepted recovery limits

E - Value above quantitation range

American Analytical Laboratories, Inc.

Date: *28-Jul-03*

CLIENT:	AKRF, Inc	**Client Sample ID:**	MW13 (0.5'-2')
Lab Order:	0306116	**Tag Number:**	
Project:	Greenpoint Lumber Yard Brooklyn, NY	**Collection Date:**	6/25/2003
Lab ID:	0306116-07A	**Matrix:**	SOIL

Analyses	Result	Limit	Qual	Units	DF	Date Analyzed
VOLATILES SW-846 METHOD 8260		**SW8260B**				Analyst: **LDS**
Vinyl acetate	U	5.0		µg/Kg	1	7/1/2003 12:36:00 AM
Vinyl chloride	U	5.0		µg/Kg	1	7/1/2003 12:36:00 AM

Qualifiers:

ND - Not Detected at the Reporting Limit

J - Analyte detected below quantitation limits

B - Analyte detected in the associated Method Blank

* - Value exceeds Maximum Contaminant Level

S - Spike Recovery outside accepted recovery limits

R - RPD outside accepted recovery limits

E - Value above quantitation range

American Analytical Laboratories, Inc.

Date: *28-Jul-03*

CLIENT:	AKRF, Inc	**Client Sample ID:**	MW13 (5'-7')
Lab Order:	0306116	**Tag Number:**	
Project:	Greenpoint Lumber Yard Brooklyn, NY	**Collection Date:**	6/25/2003
Lab ID:	0306116-08A	**Matrix:**	SOIL

Analyses	Result	Limit	Qual	Units	DF	Date Analyzed
VOLATILES SW-846 METHOD 8260		**SW8260B**				Analyst: **LDS**
1,1,1,2-Tetrachloroethane	U	5.0		µg/Kg	1	7/1/2003 1:14:00 AM
1,1,1-Trichloroethane	U	5.0		µg/Kg	1	7/1/2003 1:14:00 AM
1,1,2,2-Tetrachloroethane	U	5.0		µg/Kg	1	7/1/2003 1:14:00 AM
1,1,2-Trichloro-1,2,2-trifluoroethane	U	5.0		µg/Kg	1	7/1/2003 1:14:00 AM
1,1,2-Trichloroethane	U	5.0		µg/Kg	1	7/1/2003 1:14:00 AM
1,1-Dichloroethane	U	5.0		µg/Kg	1	7/1/2003 1:14:00 AM
1,1-Dichloroethene	U	5.0		µg/Kg	1	7/1/2003 1:14:00 AM
1,1-Dichloropropene	U	5.0		µg/Kg	1	7/1/2003 1:14:00 AM
1,2,3-Trichlorobenzene	U	5.0		µg/Kg	1	7/1/2003 1:14:00 AM
1,2,3-Trichloropropane	U	5.0		µg/Kg	1	7/1/2003 1:14:00 AM
1,2,4,5-Tetramethylbenzene	U	5.0		µg/Kg	1	7/1/2003 1:14:00 AM
1,2,4-Trichlorobenzene	U	5.0		µg/Kg	1	7/1/2003 1:14:00 AM
1,2,4-Trimethylbenzene	U	5.0		µg/Kg	1	7/1/2003 1:14:00 AM
1,2-Dibromo-3-chloropropane	U	5.0		µg/Kg	1	7/1/2003 1:14:00 AM
1,2-Dibromoethane	U	5.0		µg/Kg	1	7/1/2003 1:14:00 AM
1,2-Dichlorobenzene	U	5.0		µg/Kg	1	7/1/2003 1:14:00 AM
1,2-Dichloroethane	U	5.0		µg/Kg	1	7/1/2003 1:14:00 AM
1,2-Dichloropropane	U	5.0		µg/Kg	1	7/1/2003 1:14:00 AM
1,3,5-Trimethylbenzene	U	5.0		µg/Kg	1	7/1/2003 1:14:00 AM
1,3-Dichlorobenzene	U	5.0		µg/Kg	1	7/1/2003 1:14:00 AM
1,3-dichloropropane	U	5.0		µg/Kg	1	7/1/2003 1:14:00 AM
1,4-Dichlorobenzene	U	5.0		µg/Kg	1	7/1/2003 1:14:00 AM
2,2-Dichloropropane	U	5.0		µg/Kg	1	7/1/2003 1:14:00 AM
2-Butanone	U	5.0		µg/Kg	1	7/1/2003 1:14:00 AM
2-Chloroethyl vinyl ether	U	5.0		µg/Kg	1	7/1/2003 1:14:00 AM
2-Chlorotoluene	U	5.0		µg/Kg	1	7/1/2003 1:14:00 AM
2-Hexanone	U	5.0		µg/Kg	1	7/1/2003 1:14:00 AM
4-Chlorotoluene	U	5.0		µg/Kg	1	7/1/2003 1:14:00 AM
4-Isopropyltoluene	U	5.0		µg/Kg	1	7/1/2003 1:14:00 AM
4-Methyl-2-pentanone	U	5.0		µg/Kg	1	7/1/2003 1:14:00 AM
Acetone	U	5.0		µg/Kg	1	7/1/2003 1:14:00 AM
Acrolein	U	25		µg/Kg	1	7/1/2003 1:14:00 AM
Acrylonitrile	U	5.0		µg/Kg	1	7/1/2003 1:14:00 AM
Benzene	U	5.0		µg/Kg	1	7/1/2003 1:14:00 AM
Bromobenzene	U	5.0		µg/Kg	1	7/1/2003 1:14:00 AM
Bromochloromethane	U	5.0		µg/Kg	1	7/1/2003 1:14:00 AM
Bromodichloromethane	U	5.0		µg/Kg	1	7/1/2003 1:14:00 AM
Bromoform	U	5.0		µg/Kg	1	7/1/2003 1:14:00 AM
Bromomethane	U	5.0		µg/Kg	1	7/1/2003 1:14:00 AM
Carbon disulfide	U	5.0		µg/Kg	1	7/1/2003 1:14:00 AM

Qualifiers:

ND - Not Detected at the Reporting Limit

J - Analyte detected below quantitation limits

B - Analyte detected in the associated Method Blank

* - Value exceeds Maximum Contaminant Level

S - Spike Recovery outside accepted recovery limits

R - RPD outside accepted recovery limits

E - Value above quantitation range

American Analytical Laboratories, Inc.

Date: *28-Jul-03*

CLIENT:	AKRF, Inc	**Client Sample ID:**	MW13 (5'-7')
Lab Order:	0306116	**Tag Number:**	
Project:	Greenpoint Lumber Yard Brooklyn, NY	**Collection Date:**	6/25/2003
Lab ID:	0306116-08A	**Matrix:**	SOIL

Analyses	Result	Limit	Qual	Units	DF	Date Analyzed
VOLATILES SW-846 METHOD 8260		**SW8260B**				Analyst: **LDS**
Carbon tetrachloride	U	5.0		µg/Kg	1	7/1/2003 1:14:00 AM
Chlorobenzene	U	5.0		µg/Kg	1	7/1/2003 1:14:00 AM
Chlorodifluoromethane	U	5.0		µg/Kg	1	7/1/2003 1:14:00 AM
Chloroethane	U	5.0		µg/Kg	1	7/1/2003 1:14:00 AM
Chloroform	U	5.0		µg/Kg	1	7/1/2003 1:14:00 AM
Chloromethane	U	5.0		µg/Kg	1	7/1/2003 1:14:00 AM
cis-1,2-Dichloroethene	U	5.0		µg/Kg	1	7/1/2003 1:14:00 AM
cis-1,3-Dichloropropene	U	5.0		µg/Kg	1	7/1/2003 1:14:00 AM
Dibromochloromethane	U	5.0		µg/Kg	1	7/1/2003 1:14:00 AM
Dibromomethane	U	5.0		µg/Kg	1	7/1/2003 1:14:00 AM
Dichlorodifluoromethane	U	5.0		µg/Kg	1	7/1/2003 1:14:00 AM
Diisopropyl ether	U	5.0		µg/Kg	1	7/1/2003 1:14:00 AM
Ethanol	U	25		µg/Kg	1	7/1/2003 1:14:00 AM
Ethyl acetate	U	5.0		µg/Kg	1	7/1/2003 1:14:00 AM
Ethylbenzene	U	5.0		µg/Kg	1	7/1/2003 1:14:00 AM
Freon-114	U	5.0		µg/Kg	1	7/1/2003 1:14:00 AM
Hexachlorobutadiene	U	5.0		µg/Kg	1	7/1/2003 1:14:00 AM
Isopropyl acetate	U	5.0		µg/Kg	1	7/1/2003 1:14:00 AM
Isopropylbenzene	U	5.0		µg/Kg	1	7/1/2003 1:14:00 AM
m,p-Xylene	U	10		µg/Kg	1	7/1/2003 1:14:00 AM
Methyl tert-butyl ether	U	5.0		µg/Kg	1	7/1/2003 1:14:00 AM
Methylene chloride	U	5.0		µg/Kg	1	7/1/2003 1:14:00 AM
Naphthalene	U	5.0		µg/Kg	1	7/1/2003 1:14:00 AM
n-Butyl acetate	U	5.0		µg/Kg	1	7/1/2003 1:14:00 AM
n-Butylbenzene	U	5.0		µg/Kg	1	7/1/2003 1:14:00 AM
n-Propyl acetate	U	5.0		µg/Kg	1	7/1/2003 1:14:00 AM
n-Propylbenzene	U	5.0		µg/Kg	1	7/1/2003 1:14:00 AM
o-Xylene	U	5.0		µg/Kg	1	7/1/2003 1:14:00 AM
p-Diethylbenzene	U	5.0		µg/Kg	1	7/1/2003 1:14:00 AM
p-Ethyltoluene	U	5.0		µg/Kg	1	7/1/2003 1:14:00 AM
sec-Butylbenzene	U	5.0		µg/Kg	1	7/1/2003 1:14:00 AM
Styrene	U	5.0		µg/Kg	1	7/1/2003 1:14:00 AM
t-Butyl alcohol	U	5.0		µg/Kg	1	7/1/2003 1:14:00 AM
tert-Butylbenzene	U	5.0		µg/Kg	1	7/1/2003 1:14:00 AM
Tetrachloroethene	U	5.0		µg/Kg	1	7/1/2003 1:14:00 AM
Toluene	U	5.0		µg/Kg	1	7/1/2003 1:14:00 AM
trans-1,2-Dichloroethene	U	5.0		µg/Kg	1	7/1/2003 1:14:00 AM
trans-1,3-Dichloropropene	U	5.0		µg/Kg	1	7/1/2003 1:14:00 AM
Trichloroethene	U	5.0		µg/Kg	1	7/1/2003 1:14:00 AM
Trichlorofluoromethane	U	5.0		µg/Kg	1	7/1/2003 1:14:00 AM

Qualifiers:

ND - Not Detected at the Reporting Limit

J - Analyte detected below quantitation limits

B - Analyte detected in the associated Method Blank

* - Value exceeds Maximum Contaminant Level

S - Spike Recovery outside accepted recovery limits

R - RPD outside accepted recovery limits

E - Value above quantitation range

American Analytical Laboratories, Inc.

Date: *28-Jul-03*

CLIENT:	AKRF, Inc	**Client Sample ID:**	MW13 (5'-7')
Lab Order:	0306116	**Tag Number:**	
Project:	Greenpoint Lumber Yard Brooklyn, NY	**Collection Date:**	6/25/2003
Lab ID:	0306116-08A	**Matrix:**	SOIL

Analyses	Result	Limit	Qual	Units	DF	Date Analyzed
VOLATILES SW-846 METHOD 8260		**SW8260B**				Analyst: **LDS**
Vinyl acetate	U	5.0		µg/Kg	1	7/1/2003 1:14:00 AM
Vinyl chloride	U	5.0		µg/Kg	1	7/1/2003 1:14:00 AM

Qualifiers:

ND - Not Detected at the Reporting Limit

J - Analyte detected below quantitation limits

B - Analyte detected in the associated Method Blank

* - Value exceeds Maximum Contaminant Level

S - Spike Recovery outside accepted recovery limits

R - RPD outside accepted recovery limits

E - Value above quantitation range

American Analytical Laboratories, Inc.

Date: *28-Jul-03*

CLIENT:	AKRF, Inc	**Client Sample ID:**	B7R2 (5.5'-6.0')
Lab Order:	0306116	**Tag Number:**	
Project:	Greenpoint Lumber Yard Brooklyn, NY	**Collection Date:**	6/25/2003
Lab ID:	0306116-09A	**Matrix:**	SOIL

Analyses	Result	Limit	Qual	Units	DF	Date Analyzed
VOLATILES SW-846 METHOD 8260		**SW8260B**				Analyst: **LDS**
1,1,1,2-Tetrachloroethane	U	5.0		µg/Kg	1	7/1/2003 1:52:00 AM
1,1,1-Trichloroethane	U	5.0		µg/Kg	1	7/1/2003 1:52:00 AM
1,1,2,2-Tetrachloroethane	U	5.0		µg/Kg	1	7/1/2003 1:52:00 AM
1,1,2-Trichloro-1,2,2-trifluoroethane	U	5.0		µg/Kg	1	7/1/2003 1:52:00 AM
1,1,2-Trichloroethane	U	5.0		µg/Kg	1	7/1/2003 1:52:00 AM
1,1-Dichloroethane	U	5.0		µg/Kg	1	7/1/2003 1:52:00 AM
1,1-Dichloroethene	U	5.0		µg/Kg	1	7/1/2003 1:52:00 AM
1,1-Dichloropropene	U	5.0		µg/Kg	1	7/1/2003 1:52:00 AM
1,2,3-Trichlorobenzene	U	5.0		µg/Kg	1	7/1/2003 1:52:00 AM
1,2,3-Trichloropropane	U	5.0		µg/Kg	1	7/1/2003 1:52:00 AM
1,2,4,5-Tetramethylbenzene	U	5.0		µg/Kg	1	7/1/2003 1:52:00 AM
1,2,4-Trichlorobenzene	U	5.0		µg/Kg	1	7/1/2003 1:52:00 AM
1,2,4-Trimethylbenzene	U	5.0		µg/Kg	1	7/1/2003 1:52:00 AM
1,2-Dibromo-3-chloropropane	U	5.0		µg/Kg	1	7/1/2003 1:52:00 AM
1,2-Dibromoethane	U	5.0		µg/Kg	1	7/1/2003 1:52:00 AM
1,2-Dichlorobenzene	U	5.0		µg/Kg	1	7/1/2003 1:52:00 AM
1,2-Dichloroethane	U	5.0		µg/Kg	1	7/1/2003 1:52:00 AM
1,2-Dichloropropane	U	5.0		µg/Kg	1	7/1/2003 1:52:00 AM
1,3,5-Trimethylbenzene	U	5.0		µg/Kg	1	7/1/2003 1:52:00 AM
1,3-Dichlorobenzene	U	5.0		µg/Kg	1	7/1/2003 1:52:00 AM
1,3-dichloropropane	U	5.0		µg/Kg	1	7/1/2003 1:52:00 AM
1,4-Dichlorobenzene	U	5.0		µg/Kg	1	7/1/2003 1:52:00 AM
2,2-Dichloropropane	U	5.0		µg/Kg	1	7/1/2003 1:52:00 AM
2-Butanone	U	5.0		µg/Kg	1	7/1/2003 1:52:00 AM
2-Chloroethyl vinyl ether	U	5.0		µg/Kg	1	7/1/2003 1:52:00 AM
2-Chlorotoluene	U	5.0		µg/Kg	1	7/1/2003 1:52:00 AM
2-Hexanone	U	5.0		µg/Kg	1	7/1/2003 1:52:00 AM
4-Chlorotoluene	U	5.0		µg/Kg	1	7/1/2003 1:52:00 AM
4-Isopropyltoluene	U	5.0		µg/Kg	1	7/1/2003 1:52:00 AM
4-Methyl-2-pentanone	U	5.0		µg/Kg	1	7/1/2003 1:52:00 AM
Acetone	U	5.0		µg/Kg	1	7/1/2003 1:52:00 AM
Acrolein	U	25		µg/Kg	1	7/1/2003 1:52:00 AM
Acrylonitrile	U	5.0		µg/Kg	1	7/1/2003 1:52:00 AM
Benzene	U	5.0		µg/Kg	1	7/1/2003 1:52:00 AM
Bromobenzene	U	5.0		µg/Kg	1	7/1/2003 1:52:00 AM
Bromochloromethane	U	5.0		µg/Kg	1	7/1/2003 1:52:00 AM
Bromodichloromethane	U	5.0		µg/Kg	1	7/1/2003 1:52:00 AM
Bromoform	U	5.0		µg/Kg	1	7/1/2003 1:52:00 AM
Bromomethane	U	5.0		µg/Kg	1	7/1/2003 1:52:00 AM
Carbon disulfide	U	5.0		µg/Kg	1	7/1/2003 1:52:00 AM

Qualifiers:

ND - Not Detected at the Reporting Limit

J - Analyte detected below quantitation limits

B - Analyte detected in the associated Method Blank

* - Value exceeds Maximum Contaminant Level

S - Spike Recovery outside accepted recovery limits

R - RPD outside accepted recovery limits

E - Value above quantitation range

American Analytical Laboratories, Inc.

Date: *28-Jul-03*

CLIENT:	AKRF, Inc	**Client Sample ID:**	B7R2 (5.5'-6.0')
Lab Order:	0306116	**Tag Number:**	
Project:	Greenpoint Lumber Yard Brooklyn, NY	**Collection Date:**	6/25/2003
Lab ID:	0306116-09A	**Matrix:**	SOIL

Analyses	Result	Limit	Qual	Units	DF	Date Analyzed
VOLATILES SW-846 METHOD 8260		**SW8260B**				Analyst: **LDS**
Carbon tetrachloride	U	5.0		µg/Kg	1	7/1/2003 1:52:00 AM
Chlorobenzene	U	5.0		µg/Kg	1	7/1/2003 1:52:00 AM
Chlorodifluoromethane	U	5.0		µg/Kg	1	7/1/2003 1:52:00 AM
Chloroethane	U	5.0		µg/Kg	1	7/1/2003 1:52:00 AM
Chloroform	U	5.0		µg/Kg	1	7/1/2003 1:52:00 AM
Chloromethane	U	5.0		µg/Kg	1	7/1/2003 1:52:00 AM
cis-1,2-Dichloroethene	U	5.0		µg/Kg	1	7/1/2003 1:52:00 AM
cis-1,3-Dichloropropene	U	5.0		µg/Kg	1	7/1/2003 1:52:00 AM
Dibromochloromethane	U	5.0		µg/Kg	1	7/1/2003 1:52:00 AM
Dibromomethane	U	5.0		µg/Kg	1	7/1/2003 1:52:00 AM
Dichlorodifluoromethane	U	5.0		µg/Kg	1	7/1/2003 1:52:00 AM
Diisopropyl ether	U	5.0		µg/Kg	1	7/1/2003 1:52:00 AM
Ethanol	U	25		µg/Kg	1	7/1/2003 1:52:00 AM
Ethyl acetate	U	5.0		µg/Kg	1	7/1/2003 1:52:00 AM
Ethylbenzene	U	5.0		µg/Kg	1	7/1/2003 1:52:00 AM
Freon-114	U	5.0		µg/Kg	1	7/1/2003 1:52:00 AM
Hexachlorobutadiene	U	5.0		µg/Kg	1	7/1/2003 1:52:00 AM
Isopropyl acetate	U	5.0		µg/Kg	1	7/1/2003 1:52:00 AM
Isopropylbenzene	U	5.0		µg/Kg	1	7/1/2003 1:52:00 AM
m,p-Xylene	U	10		µg/Kg	1	7/1/2003 1:52:00 AM
Methyl tert-butyl ether	U	5.0		µg/Kg	1	7/1/2003 1:52:00 AM
Methylene chloride	U	5.0		µg/Kg	1	7/1/2003 1:52:00 AM
Naphthalene	U	5.0		µg/Kg	1	7/1/2003 1:52:00 AM
n-Butyl acetate	U	5.0		µg/Kg	1	7/1/2003 1:52:00 AM
n-Butylbenzene	U	5.0		µg/Kg	1	7/1/2003 1:52:00 AM
n-Propyl acetate	U	5.0		µg/Kg	1	7/1/2003 1:52:00 AM
n-Propylbenzene	U	5.0		µg/Kg	1	7/1/2003 1:52:00 AM
o-Xylene	U	5.0		µg/Kg	1	7/1/2003 1:52:00 AM
p-Diethylbenzene	U	5.0		µg/Kg	1	7/1/2003 1:52:00 AM
p-Ethyltoluene	U	5.0		µg/Kg	1	7/1/2003 1:52:00 AM
sec-Butylbenzene	U	5.0		µg/Kg	1	7/1/2003 1:52:00 AM
Styrene	U	5.0		µg/Kg	1	7/1/2003 1:52:00 AM
t-Butyl alcohol	U	5.0		µg/Kg	1	7/1/2003 1:52:00 AM
tert-Butylbenzene	U	5.0		µg/Kg	1	7/1/2003 1:52:00 AM
Tetrachloroethene	U	5.0		µg/Kg	1	7/1/2003 1:52:00 AM
Toluene	U	5.0		µg/Kg	1	7/1/2003 1:52:00 AM
trans-1,2-Dichloroethene	U	5.0		µg/Kg	1	7/1/2003 1:52:00 AM
trans-1,3-Dichloropropene	U	5.0		µg/Kg	1	7/1/2003 1:52:00 AM
Trichloroethene	U	5.0		µg/Kg	1	7/1/2003 1:52:00 AM
Trichlorofluoromethane	U	5.0		µg/Kg	1	7/1/2003 1:52:00 AM

Qualifiers:

ND - Not Detected at the Reporting Limit

J - Analyte detected below quantitation limits

B - Analyte detected in the associated Method Blank

* - Value exceeds Maximum Contaminant Level

S - Spike Recovery outside accepted recovery limits

R - RPD outside accepted recovery limits

E - Value above quantitation range

American Analytical Laboratories, Inc.

Date: *28-Jul-03*

CLIENT:	AKRF, Inc	**Client Sample ID:**	B7R2 (5.5'-6.0')
Lab Order:	0306116	**Tag Number:**	
Project:	Greenpoint Lumber Yard Brooklyn, NY	**Collection Date:**	6/25/2003
Lab ID:	0306116-09A	**Matrix:**	SOIL

Analyses	Result	Limit	Qual	Units	DF	Date Analyzed
VOLATILES SW-846 METHOD 8260		**SW8260B**				Analyst: **LDS**
Vinyl acetate	U	5.0		µg/Kg	1	7/1/2003 1:52:00 AM
Vinyl chloride	U	5.0		µg/Kg	1	7/1/2003 1:52:00 AM

Qualifiers:

ND - Not Detected at the Reporting Limit

J - Analyte detected below quantitation limits

B - Analyte detected in the associated Method Blank

* - Value exceeds Maximum Contaminant Level

S - Spike Recovery outside accepted recovery limits

R - RPD outside accepted recovery limits

E - Value above quantitation range

American Analytical Laboratories, Inc.

Date: *28-Jul-03*

CLIENT:	AKRF, Inc	**Client Sample ID:**	B6 (0.5'-2')
Lab Order:	0306116	**Tag Number:**	
Project:	Greenpoint Lumber Yard Brooklyn, NY	**Collection Date:**	6/25/2003
Lab ID:	0306116-10A	**Matrix:**	SOIL

Analyses	Result	Limit	Qual	Units	DF	Date Analyzed
VOLATILES SW-846 METHOD 8260		**SW8260B**				Analyst: **LDS**
1,1,1,2-Tetrachloroethane	U	5.0		µg/Kg	1	7/1/2003 2:30:00 AM
1,1,1-Trichloroethane	U	5.0		µg/Kg	1	7/1/2003 2:30:00 AM
1,1,2,2-Tetrachloroethane	U	5.0		µg/Kg	1	7/1/2003 2:30:00 AM
1,1,2-Trichloro-1,2,2-trifluoroethane	U	5.0		µg/Kg	1	7/1/2003 2:30:00 AM
1,1,2-Trichloroethane	U	5.0		µg/Kg	1	7/1/2003 2:30:00 AM
1,1-Dichloroethane	U	5.0		µg/Kg	1	7/1/2003 2:30:00 AM
1,1-Dichloroethene	U	5.0		µg/Kg	1	7/1/2003 2:30:00 AM
1,1-Dichloropropene	U	5.0		µg/Kg	1	7/1/2003 2:30:00 AM
1,2,3-Trichlorobenzene	U	5.0		µg/Kg	1	7/1/2003 2:30:00 AM
1,2,3-Trichloropropane	U	5.0		µg/Kg	1	7/1/2003 2:30:00 AM
1,2,4,5-Tetramethylbenzene	U	5.0		µg/Kg	1	7/1/2003 2:30:00 AM
1,2,4-Trichlorobenzene	U	5.0		µg/Kg	1	7/1/2003 2:30:00 AM
1,2,4-Trimethylbenzene	U	5.0		µg/Kg	1	7/1/2003 2:30:00 AM
1,2-Dibromo-3-chloropropane	U	5.0		µg/Kg	1	7/1/2003 2:30:00 AM
1,2-Dibromoethane	U	5.0		µg/Kg	1	7/1/2003 2:30:00 AM
1,2-Dichlorobenzene	U	5.0		µg/Kg	1	7/1/2003 2:30:00 AM
1,2-Dichloroethane	U	5.0		µg/Kg	1	7/1/2003 2:30:00 AM
1,2-Dichloropropane	U	5.0		µg/Kg	1	7/1/2003 2:30:00 AM
1,3,5-Trimethylbenzene	U	5.0		µg/Kg	1	7/1/2003 2:30:00 AM
1,3-Dichlorobenzene	U	5.0		µg/Kg	1	7/1/2003 2:30:00 AM
1,3-dichloropropane	U	5.0		µg/Kg	1	7/1/2003 2:30:00 AM
1,4-Dichlorobenzene	U	5.0		µg/Kg	1	7/1/2003 2:30:00 AM
2,2-Dichloropropane	U	5.0		µg/Kg	1	7/1/2003 2:30:00 AM
2-Butanone	U	5.0		µg/Kg	1	7/1/2003 2:30:00 AM
2-Chloroethyl vinyl ether	U	5.0		µg/Kg	1	7/1/2003 2:30:00 AM
2-Chlorotoluene	U	5.0		µg/Kg	1	7/1/2003 2:30:00 AM
2-Hexanone	U	5.0		µg/Kg	1	7/1/2003 2:30:00 AM
4-Chlorotoluene	U	5.0		µg/Kg	1	7/1/2003 2:30:00 AM
4-Isopropyltoluene	U	5.0		µg/Kg	1	7/1/2003 2:30:00 AM
4-Methyl-2-pentanone	U	5.0		µg/Kg	1	7/1/2003 2:30:00 AM
Acetone	U	5.0		µg/Kg	1	7/1/2003 2:30:00 AM
Acrolein	U	25		µg/Kg	1	7/1/2003 2:30:00 AM
Acrylonitrile	U	5.0		µg/Kg	1	7/1/2003 2:30:00 AM
Benzene	U	5.0		µg/Kg	1	7/1/2003 2:30:00 AM
Bromobenzene	U	5.0		µg/Kg	1	7/1/2003 2:30:00 AM
Bromochloromethane	U	5.0		µg/Kg	1	7/1/2003 2:30:00 AM
Bromodichloromethane	U	5.0		µg/Kg	1	7/1/2003 2:30:00 AM
Bromoform	U	5.0		µg/Kg	1	7/1/2003 2:30:00 AM
Bromomethane	U	5.0		µg/Kg	1	7/1/2003 2:30:00 AM
Carbon disulfide	U	5.0		µg/Kg	1	7/1/2003 2:30:00 AM

Qualifiers:

ND - Not Detected at the Reporting Limit

J - Analyte detected below quantitation limits

B - Analyte detected in the associated Method Blank

* - Value exceeds Maximum Contaminant Level

S - Spike Recovery outside accepted recovery limits

R - RPD outside accepted recovery limits

E - Value above quantitation range

American Analytical Laboratories, Inc.

Date: *28-Jul-03*

CLIENT:	AKRF, Inc	**Client Sample ID:**	B6 (0.5'-2')
Lab Order:	0306116	**Tag Number:**	
Project:	Greenpoint Lumber Yard Brooklyn, NY	**Collection Date:**	6/25/2003
Lab ID:	0306116-10A	**Matrix:**	SOIL

Analyses	Result	Limit	Qual	Units	DF	Date Analyzed
VOLATILES SW-846 METHOD 8260		**SW8260B**				Analyst: **LDS**
Carbon tetrachloride	U	5.0		µg/Kg	1	7/1/2003 2:30:00 AM
Chlorobenzene	U	5.0		µg/Kg	1	7/1/2003 2:30:00 AM
Chlorodifluoromethane	U	5.0		µg/Kg	1	7/1/2003 2:30:00 AM
Chloroethane	U	5.0		µg/Kg	1	7/1/2003 2:30:00 AM
Chloroform	U	5.0		µg/Kg	1	7/1/2003 2:30:00 AM
Chloromethane	U	5.0		µg/Kg	1	7/1/2003 2:30:00 AM
cis-1,2-Dichloroethene	U	5.0		µg/Kg	1	7/1/2003 2:30:00 AM
cis-1,3-Dichloropropene	U	5.0		µg/Kg	1	7/1/2003 2:30:00 AM
Dibromochloromethane	U	5.0		µg/Kg	1	7/1/2003 2:30:00 AM
Dibromomethane	U	5.0		µg/Kg	1	7/1/2003 2:30:00 AM
Dichlorodifluoromethane	U	5.0		µg/Kg	1	7/1/2003 2:30:00 AM
Diisopropyl ether	U	5.0		µg/Kg	1	7/1/2003 2:30:00 AM
Ethanol	U	25		µg/Kg	1	7/1/2003 2:30:00 AM
Ethyl acetate	U	5.0		µg/Kg	1	7/1/2003 2:30:00 AM
Ethylbenzene	U	5.0		µg/Kg	1	7/1/2003 2:30:00 AM
Freon-114	U	5.0		µg/Kg	1	7/1/2003 2:30:00 AM
Hexachlorobutadiene	U	5.0		µg/Kg	1	7/1/2003 2:30:00 AM
Isopropyl acetate	U	5.0		µg/Kg	1	7/1/2003 2:30:00 AM
Isopropylbenzene	U	5.0		µg/Kg	1	7/1/2003 2:30:00 AM
m,p-Xylene	U	10		µg/Kg	1	7/1/2003 2:30:00 AM
Methyl tert-butyl ether	U	5.0		µg/Kg	1	7/1/2003 2:30:00 AM
Methylene chloride	U	5.0		µg/Kg	1	7/1/2003 2:30:00 AM
Naphthalene	U	5.0		µg/Kg	1	7/1/2003 2:30:00 AM
n-Butyl acetate	U	5.0		µg/Kg	1	7/1/2003 2:30:00 AM
n-Butylbenzene	U	5.0		µg/Kg	1	7/1/2003 2:30:00 AM
n-Propyl acetate	U	5.0		µg/Kg	1	7/1/2003 2:30:00 AM
n-Propylbenzene	U	5.0		µg/Kg	1	7/1/2003 2:30:00 AM
o-Xylene	U	5.0		µg/Kg	1	7/1/2003 2:30:00 AM
p-Diethylbenzene	U	5.0		µg/Kg	1	7/1/2003 2:30:00 AM
p-Ethyltoluene	U	5.0		µg/Kg	1	7/1/2003 2:30:00 AM
sec-Butylbenzene	U	5.0		µg/Kg	1	7/1/2003 2:30:00 AM
Styrene	U	5.0		µg/Kg	1	7/1/2003 2:30:00 AM
t-Butyl alcohol	U	5.0		µg/Kg	1	7/1/2003 2:30:00 AM
tert-Butylbenzene	U	5.0		µg/Kg	1	7/1/2003 2:30:00 AM
Tetrachloroethene	U	5.0		µg/Kg	1	7/1/2003 2:30:00 AM
Toluene	U	5.0		µg/Kg	1	7/1/2003 2:30:00 AM
trans-1,2-Dichloroethene	U	5.0		µg/Kg	1	7/1/2003 2:30:00 AM
trans-1,3-Dichloropropene	U	5.0		µg/Kg	1	7/1/2003 2:30:00 AM
Trichloroethene	U	5.0		µg/Kg	1	7/1/2003 2:30:00 AM
Trichlorofluoromethane	U	5.0		µg/Kg	1	7/1/2003 2:30:00 AM

Qualifiers:

ND - Not Detected at the Reporting Limit

J - Analyte detected below quantitation limits

B - Analyte detected in the associated Method Blank

* - Value exceeds Maximum Contaminant Level

S - Spike Recovery outside accepted recovery limits

R - RPD outside accepted recovery limits

E - Value above quantitation range

American Analytical Laboratories, Inc.

Date: *28-Jul-03*

CLIENT:	AKRF, Inc	**Client Sample ID:**	B6 (0.5'-2')
Lab Order:	0306116	**Tag Number:**	
Project:	Greenpoint Lumber Yard Brooklyn, NY	**Collection Date:**	6/25/2003
Lab ID:	0306116-10A	**Matrix:**	SOIL

Analyses	Result	Limit	Qual	Units	DF	Date Analyzed
VOLATILES SW-846 METHOD 8260		**SW8260B**				Analyst: **LDS**
Vinyl acetate	U	5.0		µg/Kg	1	7/1/2003 2:30:00 AM
Vinyl chloride	U	5.0		µg/Kg	1	7/1/2003 2:30:00 AM

Qualifiers:

ND - Not Detected at the Reporting Limit

J - Analyte detected below quantitation limits

B - Analyte detected in the associated Method Blank

* - Value exceeds Maximum Contaminant Level

S - Spike Recovery outside accepted recovery limits

R - RPD outside accepted recovery limits

E - Value above quantitation range

American Analytical Laboratories, Inc.

Date: *28-Jul-03*

CLIENT:	AKRF, Inc	**Client Sample ID:**	B6 (6'-7')
Lab Order:	0306116	**Tag Number:**	
Project:	Greenpoint Lumber Yard Brooklyn, NY	**Collection Date:**	6/25/2003
Lab ID:	0306116-11A	**Matrix:**	SOIL

Analyses	Result	Limit	Qual	Units	DF	Date Analyzed
VOLATILES SW-846 METHOD 8260		**SW8260B**				Analyst: **LDS**
1,1,1,2-Tetrachloroethane	U	5.0		µg/Kg	1	7/1/2003 3:08:00 AM
1,1,1-Trichloroethane	U	5.0		µg/Kg	1	7/1/2003 3:08:00 AM
1,1,2,2-Tetrachloroethane	U	5.0		µg/Kg	1	7/1/2003 3:08:00 AM
1,1,2-Trichloro-1,2,2-trifluoroethane	U	5.0		µg/Kg	1	7/1/2003 3:08:00 AM
1,1,2-Trichloroethane	U	5.0		µg/Kg	1	7/1/2003 3:08:00 AM
1,1-Dichloroethane	U	5.0		µg/Kg	1	7/1/2003 3:08:00 AM
1,1-Dichloroethene	U	5.0		µg/Kg	1	7/1/2003 3:08:00 AM
1,1-Dichloropropene	U	5.0		µg/Kg	1	7/1/2003 3:08:00 AM
1,2,3-Trichlorobenzene	U	5.0		µg/Kg	1	7/1/2003 3:08:00 AM
1,2,3-Trichloropropane	U	5.0		µg/Kg	1	7/1/2003 3:08:00 AM
1,2,4,5-Tetramethylbenzene	U	5.0		µg/Kg	1	7/1/2003 3:08:00 AM
1,2,4-Trichlorobenzene	U	5.0		µg/Kg	1	7/1/2003 3:08:00 AM
1,2,4-Trimethylbenzene	U	5.0		µg/Kg	1	7/1/2003 3:08:00 AM
1,2-Dibromo-3-chloropropane	U	5.0		µg/Kg	1	7/1/2003 3:08:00 AM
1,2-Dibromoethane	U	5.0		µg/Kg	1	7/1/2003 3:08:00 AM
1,2-Dichlorobenzene	U	5.0		µg/Kg	1	7/1/2003 3:08:00 AM
1,2-Dichloroethane	U	5.0		µg/Kg	1	7/1/2003 3:08:00 AM
1,2-Dichloropropane	U	5.0		µg/Kg	1	7/1/2003 3:08:00 AM
1,3,5-Trimethylbenzene	U	5.0		µg/Kg	1	7/1/2003 3:08:00 AM
1,3-Dichlorobenzene	U	5.0		µg/Kg	1	7/1/2003 3:08:00 AM
1,3-dichloropropane	U	5.0		µg/Kg	1	7/1/2003 3:08:00 AM
1,4-Dichlorobenzene	U	5.0		µg/Kg	1	7/1/2003 3:08:00 AM
2,2-Dichloropropane	U	5.0		µg/Kg	1	7/1/2003 3:08:00 AM
2-Butanone	U	5.0		µg/Kg	1	7/1/2003 3:08:00 AM
2-Chloroethyl vinyl ether	U	5.0		µg/Kg	1	7/1/2003 3:08:00 AM
2-Chlorotoluene	U	5.0		µg/Kg	1	7/1/2003 3:08:00 AM
2-Hexanone	U	5.0		µg/Kg	1	7/1/2003 3:08:00 AM
4-Chlorotoluene	U	5.0		µg/Kg	1	7/1/2003 3:08:00 AM
4-Isopropyltoluene	U	5.0		µg/Kg	1	7/1/2003 3:08:00 AM
4-Methyl-2-pentanone	U	5.0		µg/Kg	1	7/1/2003 3:08:00 AM
Acetone	U	5.0		µg/Kg	1	7/1/2003 3:08:00 AM
Acrolein	U	25		µg/Kg	1	7/1/2003 3:08:00 AM
Acrylonitrile	U	5.0		µg/Kg	1	7/1/2003 3:08:00 AM
Benzene	U	5.0		µg/Kg	1	7/1/2003 3:08:00 AM
Bromobenzene	U	5.0		µg/Kg	1	7/1/2003 3:08:00 AM
Bromochloromethane	U	5.0		µg/Kg	1	7/1/2003 3:08:00 AM
Bromodichloromethane	U	5.0		µg/Kg	1	7/1/2003 3:08:00 AM
Bromoform	U	5.0		µg/Kg	1	7/1/2003 3:08:00 AM
Bromomethane	U	5.0		µg/Kg	1	7/1/2003 3:08:00 AM
Carbon disulfide	U	5.0		µg/Kg	1	7/1/2003 3:08:00 AM

Qualifiers:

ND - Not Detected at the Reporting Limit

J - Analyte detected below quantitation limits

B - Analyte detected in the associated Method Blank

* - Value exceeds Maximum Contaminant Level

S - Spike Recovery outside accepted recovery limits

R - RPD outside accepted recovery limits

E - Value above quantitation range

American Analytical Laboratories, Inc.

Date: *28-Jul-03*

CLIENT:	AKRF, Inc	**Client Sample ID:**	B6 (6'-7')
Lab Order:	0306116	**Tag Number:**	
Project:	Greenpoint Lumber Yard Brooklyn, NY	**Collection Date:**	6/25/2003
Lab ID:	0306116-11A	**Matrix:**	SOIL

Analyses	Result	Limit	Qual	Units	DF	Date Analyzed
VOLATILES SW-846 METHOD 8260		**SW8260B**				Analyst: **LDS**
Carbon tetrachloride	U	5.0		µg/Kg	1	7/1/2003 3:08:00 AM
Chlorobenzene	U	5.0		µg/Kg	1	7/1/2003 3:08:00 AM
Chlorodifluoromethane	U	5.0		µg/Kg	1	7/1/2003 3:08:00 AM
Chloroethane	U	5.0		µg/Kg	1	7/1/2003 3:08:00 AM
Chloroform	U	5.0		µg/Kg	1	7/1/2003 3:08:00 AM
Chloromethane	U	5.0		µg/Kg	1	7/1/2003 3:08:00 AM
cis-1,2-Dichloroethene	U	5.0		µg/Kg	1	7/1/2003 3:08:00 AM
cis-1,3-Dichloropropene	U	5.0		µg/Kg	1	7/1/2003 3:08:00 AM
Dibromochloromethane	U	5.0		µg/Kg	1	7/1/2003 3:08:00 AM
Dibromomethane	U	5.0		µg/Kg	1	7/1/2003 3:08:00 AM
Dichlorodifluoromethane	U	5.0		µg/Kg	1	7/1/2003 3:08:00 AM
Diisopropyl ether	U	5.0		µg/Kg	1	7/1/2003 3:08:00 AM
Ethanol	U	25		µg/Kg	1	7/1/2003 3:08:00 AM
Ethyl acetate	U	5.0		µg/Kg	1	7/1/2003 3:08:00 AM
Ethylbenzene	U	5.0		µg/Kg	1	7/1/2003 3:08:00 AM
Freon-114	U	5.0		µg/Kg	1	7/1/2003 3:08:00 AM
Hexachlorobutadiene	U	5.0		µg/Kg	1	7/1/2003 3:08:00 AM
Isopropyl acetate	U	5.0		µg/Kg	1	7/1/2003 3:08:00 AM
Isopropylbenzene	U	5.0		µg/Kg	1	7/1/2003 3:08:00 AM
m,p-Xylene	U	10		µg/Kg	1	7/1/2003 3:08:00 AM
Methyl tert-butyl ether	U	5.0		µg/Kg	1	7/1/2003 3:08:00 AM
Methylene chloride	U	5.0		µg/Kg	1	7/1/2003 3:08:00 AM
Naphthalene	U	5.0		µg/Kg	1	7/1/2003 3:08:00 AM
n-Butyl acetate	U	5.0		µg/Kg	1	7/1/2003 3:08:00 AM
n-Butylbenzene	U	5.0		µg/Kg	1	7/1/2003 3:08:00 AM
n-Propyl acetate	U	5.0		µg/Kg	1	7/1/2003 3:08:00 AM
n-Propylbenzene	U	5.0		µg/Kg	1	7/1/2003 3:08:00 AM
o-Xylene	U	5.0		µg/Kg	1	7/1/2003 3:08:00 AM
p-Diethylbenzene	U	5.0		µg/Kg	1	7/1/2003 3:08:00 AM
p-Ethyltoluene	U	5.0		µg/Kg	1	7/1/2003 3:08:00 AM
sec-Butylbenzene	U	5.0		µg/Kg	1	7/1/2003 3:08:00 AM
Styrene	U	5.0		µg/Kg	1	7/1/2003 3:08:00 AM
t-Butyl alcohol	U	5.0		µg/Kg	1	7/1/2003 3:08:00 AM
tert-Butylbenzene	U	5.0		µg/Kg	1	7/1/2003 3:08:00 AM
Tetrachloroethene	U	5.0		µg/Kg	1	7/1/2003 3:08:00 AM
Toluene	U	5.0		µg/Kg	1	7/1/2003 3:08:00 AM
trans-1,2-Dichloroethene	U	5.0		µg/Kg	1	7/1/2003 3:08:00 AM
trans-1,3-Dichloropropene	U	5.0		µg/Kg	1	7/1/2003 3:08:00 AM
Trichloroethene	U	5.0		µg/Kg	1	7/1/2003 3:08:00 AM
Trichlorofluoromethane	U	5.0		µg/Kg	1	7/1/2003 3:08:00 AM

Qualifiers:

ND - Not Detected at the Reporting Limit

J - Analyte detected below quantitation limits

B - Analyte detected in the associated Method Blank

* - Value exceeds Maximum Contaminant Level

S - Spike Recovery outside accepted recovery limits

R - RPD outside accepted recovery limits

E - Value above quantitation range

American Analytical Laboratories, Inc.

Date: *28-Jul-03*

CLIENT:	AKRF, Inc	**Client Sample ID:**	B6 (6'-7')
Lab Order:	0306116	**Tag Number:**	
Project:	Greenpoint Lumber Yard Brooklyn, NY	**Collection Date:**	6/25/2003
Lab ID:	0306116-11A	**Matrix:**	SOIL

Analyses	Result	Limit	Qual	Units	DF	Date Analyzed
VOLATILES SW-846 METHOD 8260		**SW8260B**				Analyst: **LDS**
Vinyl acetate	U	5.0		µg/Kg	1	7/1/2003 3:08:00 AM
Vinyl chloride	U	5.0		µg/Kg	1	7/1/2003 3:08:00 AM

Qualifiers:

ND - Not Detected at the Reporting Limit

J - Analyte detected below quantitation limits

B - Analyte detected in the associated Method Blank

* - Value exceeds Maximum Contaminant Level

S - Spike Recovery outside accepted recovery limits

R - RPD outside accepted recovery limits

E - Value above quantitation range

American Analytical Laboratories, Inc.

Date: *28-Jul-03*

CLIENT:	AKRF, Inc	**Client Sample ID:**	MW6 (0.5-2')
Lab Order:	0306116	**Tag Number:**	
Project:	Greenpoint Lumber Yard Brooklyn, NY	**Collection Date:**	6/25/2003
Lab ID:	0306116-12A	**Matrix:**	SOIL

Analyses	Result	Limit	Qual	Units	DF	Date Analyzed
VOLATILES SW-846 METHOD 8260		**SW8260B**				Analyst: **LDS**
1,1,1,2-Tetrachloroethane	U	5.0		µg/Kg	1	7/1/2003 3:46:00 AM
1,1,1-Trichloroethane	U	5.0		µg/Kg	1	7/1/2003 3:46:00 AM
1,1,2,2-Tetrachloroethane	U	5.0		µg/Kg	1	7/1/2003 3:46:00 AM
1,1,2-Trichloro-1,2,2-trifluoroethane	U	5.0		µg/Kg	1	7/1/2003 3:46:00 AM
1,1,2-Trichloroethane	U	5.0		µg/Kg	1	7/1/2003 3:46:00 AM
1,1-Dichloroethane	U	5.0		µg/Kg	1	7/1/2003 3:46:00 AM
1,1-Dichloroethene	U	5.0		µg/Kg	1	7/1/2003 3:46:00 AM
1,1-Dichloropropene	U	5.0		µg/Kg	1	7/1/2003 3:46:00 AM
1,2,3-Trichlorobenzene	U	5.0		µg/Kg	1	7/1/2003 3:46:00 AM
1,2,3-Trichloropropane	U	5.0		µg/Kg	1	7/1/2003 3:46:00 AM
1,2,4,5-Tetramethylbenzene	U	5.0		µg/Kg	1	7/1/2003 3:46:00 AM
1,2,4-Trichlorobenzene	U	5.0		µg/Kg	1	7/1/2003 3:46:00 AM
1,2,4-Trimethylbenzene	U	5.0		µg/Kg	1	7/1/2003 3:46:00 AM
1,2-Dibromo-3-chloropropane	U	5.0		µg/Kg	1	7/1/2003 3:46:00 AM
1,2-Dibromoethane	U	5.0		µg/Kg	1	7/1/2003 3:46:00 AM
1,2-Dichlorobenzene	U	5.0		µg/Kg	1	7/1/2003 3:46:00 AM
1,2-Dichloroethane	U	5.0		µg/Kg	1	7/1/2003 3:46:00 AM
1,2-Dichloropropane	U	5.0		µg/Kg	1	7/1/2003 3:46:00 AM
1,3,5-Trimethylbenzene	U	5.0		µg/Kg	1	7/1/2003 3:46:00 AM
1,3-Dichlorobenzene	U	5.0		µg/Kg	1	7/1/2003 3:46:00 AM
1,3-dichloropropane	U	5.0		µg/Kg	1	7/1/2003 3:46:00 AM
1,4-Dichlorobenzene	U	5.0		µg/Kg	1	7/1/2003 3:46:00 AM
2,2-Dichloropropane	U	5.0		µg/Kg	1	7/1/2003 3:46:00 AM
2-Butanone	U	5.0		µg/Kg	1	7/1/2003 3:46:00 AM
2-Chloroethyl vinyl ether	U	5.0		µg/Kg	1	7/1/2003 3:46:00 AM
2-Chlorotoluene	U	5.0		µg/Kg	1	7/1/2003 3:46:00 AM
2-Hexanone	U	5.0		µg/Kg	1	7/1/2003 3:46:00 AM
4-Chlorotoluene	U	5.0		µg/Kg	1	7/1/2003 3:46:00 AM
4-Isopropyltoluene	U	5.0		µg/Kg	1	7/1/2003 3:46:00 AM
4-Methyl-2-pentanone	U	5.0		µg/Kg	1	7/1/2003 3:46:00 AM
Acetone	U	5.0		µg/Kg	1	7/1/2003 3:46:00 AM
Acrolein	U	25		µg/Kg	1	7/1/2003 3:46:00 AM
Acrylonitrile	U	5.0		µg/Kg	1	7/1/2003 3:46:00 AM
Benzene	U	5.0		µg/Kg	1	7/1/2003 3:46:00 AM
Bromobenzene	U	5.0		µg/Kg	1	7/1/2003 3:46:00 AM
Bromochloromethane	U	5.0		µg/Kg	1	7/1/2003 3:46:00 AM
Bromodichloromethane	U	5.0		µg/Kg	1	7/1/2003 3:46:00 AM
Bromoform	U	5.0		µg/Kg	1	7/1/2003 3:46:00 AM
Bromomethane	U	5.0		µg/Kg	1	7/1/2003 3:46:00 AM
Carbon disulfide	U	5.0		µg/Kg	1	7/1/2003 3:46:00 AM

Qualifiers:

ND - Not Detected at the Reporting Limit

J - Analyte detected below quantitation limits

B - Analyte detected in the associated Method Blank

* - Value exceeds Maximum Contaminant Level

S - Spike Recovery outside accepted recovery limits

R - RPD outside accepted recovery limits

E - Value above quantitation range

American Analytical Laboratories, Inc.

Date: *28-Jul-03*

CLIENT:	AKRF, Inc	**Client Sample ID:**	MW6 (0.5-2')
Lab Order:	0306116	**Tag Number:**	
Project:	Greenpoint Lumber Yard Brooklyn, NY	**Collection Date:**	6/25/2003
Lab ID:	0306116-12A	**Matrix:**	SOIL

Analyses	Result	Limit	Qual	Units	DF	Date Analyzed
VOLATILES SW-846 METHOD 8260		**SW8260B**				Analyst: **LDS**
Carbon tetrachloride	U	5.0		µg/Kg	1	7/1/2003 3:46:00 AM
Chlorobenzene	U	5.0		µg/Kg	1	7/1/2003 3:46:00 AM
Chlorodifluoromethane	U	5.0		µg/Kg	1	7/1/2003 3:46:00 AM
Chloroethane	U	5.0		µg/Kg	1	7/1/2003 3:46:00 AM
Chloroform	U	5.0		µg/Kg	1	7/1/2003 3:46:00 AM
Chloromethane	U	5.0		µg/Kg	1	7/1/2003 3:46:00 AM
cis-1,2-Dichloroethene	U	5.0		µg/Kg	1	7/1/2003 3:46:00 AM
cis-1,3-Dichloropropene	U	5.0		µg/Kg	1	7/1/2003 3:46:00 AM
Dibromochloromethane	U	5.0		µg/Kg	1	7/1/2003 3:46:00 AM
Dibromomethane	U	5.0		µg/Kg	1	7/1/2003 3:46:00 AM
Dichlorodifluoromethane	U	5.0		µg/Kg	1	7/1/2003 3:46:00 AM
Diisopropyl ether	U	5.0		µg/Kg	1	7/1/2003 3:46:00 AM
Ethanol	U	25		µg/Kg	1	7/1/2003 3:46:00 AM
Ethyl acetate	U	5.0		µg/Kg	1	7/1/2003 3:46:00 AM
Ethylbenzene	U	5.0		µg/Kg	1	7/1/2003 3:46:00 AM
Freon-114	U	5.0		µg/Kg	1	7/1/2003 3:46:00 AM
Hexachlorobutadiene	U	5.0		µg/Kg	1	7/1/2003 3:46:00 AM
Isopropyl acetate	U	5.0		µg/Kg	1	7/1/2003 3:46:00 AM
Isopropylbenzene	U	5.0		µg/Kg	1	7/1/2003 3:46:00 AM
m,p-Xylene	U	10		µg/Kg	1	7/1/2003 3:46:00 AM
Methyl tert-butyl ether	U	5.0		µg/Kg	1	7/1/2003 3:46:00 AM
Methylene chloride	U	5.0		µg/Kg	1	7/1/2003 3:46:00 AM
Naphthalene	U	5.0		µg/Kg	1	7/1/2003 3:46:00 AM
n-Butyl acetate	U	5.0		µg/Kg	1	7/1/2003 3:46:00 AM
n-Butylbenzene	U	5.0		µg/Kg	1	7/1/2003 3:46:00 AM
n-Propyl acetate	U	5.0		µg/Kg	1	7/1/2003 3:46:00 AM
n-Propylbenzene	U	5.0		µg/Kg	1	7/1/2003 3:46:00 AM
o-Xylene	U	5.0		µg/Kg	1	7/1/2003 3:46:00 AM
p-Diethylbenzene	U	5.0		µg/Kg	1	7/1/2003 3:46:00 AM
p-Ethyltoluene	U	5.0		µg/Kg	1	7/1/2003 3:46:00 AM
sec-Butylbenzene	U	5.0		µg/Kg	1	7/1/2003 3:46:00 AM
Styrene	U	5.0		µg/Kg	1	7/1/2003 3:46:00 AM
t-Butyl alcohol	U	5.0		µg/Kg	1	7/1/2003 3:46:00 AM
tert-Butylbenzene	U	5.0		µg/Kg	1	7/1/2003 3:46:00 AM
Tetrachloroethene	U	5.0		µg/Kg	1	7/1/2003 3:46:00 AM
Toluene	U	5.0		µg/Kg	1	7/1/2003 3:46:00 AM
trans-1,2-Dichloroethene	U	5.0		µg/Kg	1	7/1/2003 3:46:00 AM
trans-1,3-Dichloropropene	U	5.0		µg/Kg	1	7/1/2003 3:46:00 AM
Trichloroethene	U	5.0		µg/Kg	1	7/1/2003 3:46:00 AM
Trichlorofluoromethane	U	5.0		µg/Kg	1	7/1/2003 3:46:00 AM

Qualifiers:

ND - Not Detected at the Reporting Limit

J - Analyte detected below quantitation limits

B - Analyte detected in the associated Method Blank

* - Value exceeds Maximum Contaminant Level

S - Spike Recovery outside accepted recovery limits

R - RPD outside accepted recovery limits

E - Value above quantitation range

American Analytical Laboratories, Inc.

Date: *28-Jul-03*

CLIENT:	AKRF, Inc	**Client Sample ID:**	MW6 (0.5-2')
Lab Order:	0306116	**Tag Number:**	
Project:	Greenpoint Lumber Yard Brooklyn, NY	**Collection Date:**	6/25/2003
Lab ID:	0306116-12A	**Matrix:**	SOIL

Analyses	Result	Limit	Qual	Units	DF	Date Analyzed
VOLATILES SW-846 METHOD 8260		**SW8260B**				Analyst: **LDS**
Vinyl acetate	U	5.0		µg/Kg	1	7/1/2003 3:46:00 AM
Vinyl chloride	U	5.0		µg/Kg	1	7/1/2003 3:46:00 AM

Qualifiers:

ND - Not Detected at the Reporting Limit

J - Analyte detected below quantitation limits

B - Analyte detected in the associated Method Blank

* - Value exceeds Maximum Contaminant Level

S - Spike Recovery outside accepted recovery limits

R - RPD outside accepted recovery limits

E - Value above quantitation range

American Analytical Laboratories, Inc.

Date: *28-Jul-03*

CLIENT:	AKRF, Inc	**Client Sample ID:**	MW6 (6'-7')
Lab Order:	0306116	**Tag Number:**	
Project:	Greenpoint Lumber Yard Brooklyn, NY	**Collection Date:**	6/25/2003
Lab ID:	0306116-13A	**Matrix:**	SOIL

Analyses	Result	Limit	Qual	Units	DF	Date Analyzed
VOLATILES SW-846 METHOD 8260		**SW8260B**				Analyst: **LDS**
1,1,1,2-Tetrachloroethane	U	5.0		µg/Kg	1	7/1/2003 6:55:00 AM
1,1,1-Trichloroethane	U	5.0		µg/Kg	1	7/1/2003 6:55:00 AM
1,1,2,2-Tetrachloroethane	U	5.0		µg/Kg	1	7/1/2003 6:55:00 AM
1,1,2-Trichloro-1,2,2-trifluoroethane	U	5.0		µg/Kg	1	7/1/2003 6:55:00 AM
1,1,2-Trichloroethane	U	5.0		µg/Kg	1	7/1/2003 6:55:00 AM
1,1-Dichloroethane	U	5.0		µg/Kg	1	7/1/2003 6:55:00 AM
1,1-Dichloroethene	U	5.0		µg/Kg	1	7/1/2003 6:55:00 AM
1,1-Dichloropropene	U	5.0		µg/Kg	1	7/1/2003 6:55:00 AM
1,2,3-Trichlorobenzene	U	5.0		µg/Kg	1	7/1/2003 6:55:00 AM
1,2,3-Trichloropropane	U	5.0		µg/Kg	1	7/1/2003 6:55:00 AM
1,2,4,5-Tetramethylbenzene	U	5.0		µg/Kg	1	7/1/2003 6:55:00 AM
1,2,4-Trichlorobenzene	U	5.0		µg/Kg	1	7/1/2003 6:55:00 AM
1,2,4-Trimethylbenzene	U	5.0		µg/Kg	1	7/1/2003 6:55:00 AM
1,2-Dibromo-3-chloropropane	U	5.0		µg/Kg	1	7/1/2003 6:55:00 AM
1,2-Dibromoethane	U	5.0		µg/Kg	1	7/1/2003 6:55:00 AM
1,2-Dichlorobenzene	U	5.0		µg/Kg	1	7/1/2003 6:55:00 AM
1,2-Dichloroethane	U	5.0		µg/Kg	1	7/1/2003 6:55:00 AM
1,2-Dichloropropane	U	5.0		µg/Kg	1	7/1/2003 6:55:00 AM
1,3,5-Trimethylbenzene	U	5.0		µg/Kg	1	7/1/2003 6:55:00 AM
1,3-Dichlorobenzene	U	5.0		µg/Kg	1	7/1/2003 6:55:00 AM
1,3-dichloropropane	U	5.0		µg/Kg	1	7/1/2003 6:55:00 AM
1,4-Dichlorobenzene	U	5.0		µg/Kg	1	7/1/2003 6:55:00 AM
2,2-Dichloropropane	U	5.0		µg/Kg	1	7/1/2003 6:55:00 AM
2-Butanone	U	5.0		µg/Kg	1	7/1/2003 6:55:00 AM
2-Chloroethyl vinyl ether	U	5.0		µg/Kg	1	7/1/2003 6:55:00 AM
2-Chlorotoluene	U	5.0		µg/Kg	1	7/1/2003 6:55:00 AM
2-Hexanone	U	5.0		µg/Kg	1	7/1/2003 6:55:00 AM
4-Chlorotoluene	U	5.0		µg/Kg	1	7/1/2003 6:55:00 AM
4-Isopropyltoluene	U	5.0		µg/Kg	1	7/1/2003 6:55:00 AM
4-Methyl-2-pentanone	U	5.0		µg/Kg	1	7/1/2003 6:55:00 AM
Acetone	U	5.0		µg/Kg	1	7/1/2003 6:55:00 AM
Acrolein	U	25		µg/Kg	1	7/1/2003 6:55:00 AM
Acrylonitrile	U	5.0		µg/Kg	1	7/1/2003 6:55:00 AM
Benzene	U	5.0		µg/Kg	1	7/1/2003 6:55:00 AM
Bromobenzene	U	5.0		µg/Kg	1	7/1/2003 6:55:00 AM
Bromochloromethane	U	5.0		µg/Kg	1	7/1/2003 6:55:00 AM
Bromodichloromethane	U	5.0		µg/Kg	1	7/1/2003 6:55:00 AM
Bromoform	U	5.0		µg/Kg	1	7/1/2003 6:55:00 AM
Bromomethane	U	5.0		µg/Kg	1	7/1/2003 6:55:00 AM
Carbon disulfide	U	5.0		µg/Kg	1	7/1/2003 6:55:00 AM

Qualifiers:

ND - Not Detected at the Reporting Limit

J - Analyte detected below quantitation limits

B - Analyte detected in the associated Method Blank

* - Value exceeds Maximum Contaminant Level

S - Spike Recovery outside accepted recovery limits

R - RPD outside accepted recovery limits

E - Value above quantitation range

American Analytical Laboratories, Inc.

Date: *28-Jul-03*

CLIENT:	AKRF, Inc	**Client Sample ID:**	MW6 (6'-7')
Lab Order:	0306116	**Tag Number:**	
Project:	Greenpoint Lumber Yard Brooklyn, NY	**Collection Date:**	6/25/2003
Lab ID:	0306116-13A	**Matrix:**	SOIL

Analyses	Result	Limit	Qual	Units	DF	Date Analyzed
VOLATILES SW-846 METHOD 8260		**SW8260B**				Analyst: **LDS**
Carbon tetrachloride	U	5.0		µg/Kg	1	7/1/2003 6:55:00 AM
Chlorobenzene	U	5.0		µg/Kg	1	7/1/2003 6:55:00 AM
Chlorodifluoromethane	U	5.0		µg/Kg	1	7/1/2003 6:55:00 AM
Chloroethane	U	5.0		µg/Kg	1	7/1/2003 6:55:00 AM
Chloroform	U	5.0		µg/Kg	1	7/1/2003 6:55:00 AM
Chloromethane	U	5.0		µg/Kg	1	7/1/2003 6:55:00 AM
cis-1,2-Dichloroethene	U	5.0		µg/Kg	1	7/1/2003 6:55:00 AM
cis-1,3-Dichloropropene	U	5.0		µg/Kg	1	7/1/2003 6:55:00 AM
Dibromochloromethane	U	5.0		µg/Kg	1	7/1/2003 6:55:00 AM
Dibromomethane	U	5.0		µg/Kg	1	7/1/2003 6:55:00 AM
Dichlorodifluoromethane	U	5.0		µg/Kg	1	7/1/2003 6:55:00 AM
Diisopropyl ether	U	5.0		µg/Kg	1	7/1/2003 6:55:00 AM
Ethanol	U	25		µg/Kg	1	7/1/2003 6:55:00 AM
Ethyl acetate	U	5.0		µg/Kg	1	7/1/2003 6:55:00 AM
Ethylbenzene	U	5.0		µg/Kg	1	7/1/2003 6:55:00 AM
Freon-114	U	5.0		µg/Kg	1	7/1/2003 6:55:00 AM
Hexachlorobutadiene	U	5.0		µg/Kg	1	7/1/2003 6:55:00 AM
Isopropyl acetate	U	5.0		µg/Kg	1	7/1/2003 6:55:00 AM
Isopropylbenzene	U	5.0		µg/Kg	1	7/1/2003 6:55:00 AM
m,p-Xylene	U	10		µg/Kg	1	7/1/2003 6:55:00 AM
Methyl tert-butyl ether	U	5.0		µg/Kg	1	7/1/2003 6:55:00 AM
Methylene chloride	U	5.0		µg/Kg	1	7/1/2003 6:55:00 AM
Naphthalene	U	5.0		µg/Kg	1	7/1/2003 6:55:00 AM
n-Butyl acetate	U	5.0		µg/Kg	1	7/1/2003 6:55:00 AM
n-Butylbenzene	U	5.0		µg/Kg	1	7/1/2003 6:55:00 AM
n-Propyl acetate	U	5.0		µg/Kg	1	7/1/2003 6:55:00 AM
n-Propylbenzene	U	5.0		µg/Kg	1	7/1/2003 6:55:00 AM
o-Xylene	U	5.0		µg/Kg	1	7/1/2003 6:55:00 AM
p-Diethylbenzene	U	5.0		µg/Kg	1	7/1/2003 6:55:00 AM
p-Ethyltoluene	U	5.0		µg/Kg	1	7/1/2003 6:55:00 AM
sec-Butylbenzene	U	5.0		µg/Kg	1	7/1/2003 6:55:00 AM
Styrene	U	5.0		µg/Kg	1	7/1/2003 6:55:00 AM
t-Butyl alcohol	U	5.0		µg/Kg	1	7/1/2003 6:55:00 AM
tert-Butylbenzene	U	5.0		µg/Kg	1	7/1/2003 6:55:00 AM
Tetrachloroethene	U	5.0		µg/Kg	1	7/1/2003 6:55:00 AM
Toluene	U	5.0		µg/Kg	1	7/1/2003 6:55:00 AM
trans-1,2-Dichloroethene	U	5.0		µg/Kg	1	7/1/2003 6:55:00 AM
trans-1,3-Dichloropropene	U	5.0		µg/Kg	1	7/1/2003 6:55:00 AM
Trichloroethene	U	5.0		µg/Kg	1	7/1/2003 6:55:00 AM
Trichlorofluoromethane	U	5.0		µg/Kg	1	7/1/2003 6:55:00 AM

Qualifiers:

ND - Not Detected at the Reporting Limit

J - Analyte detected below quantitation limits

B - Analyte detected in the associated Method Blank

* - Value exceeds Maximum Contaminant Level

S - Spike Recovery outside accepted recovery limits

R - RPD outside accepted recovery limits

E - Value above quantitation range

American Analytical Laboratories, Inc.

Date: *28-Jul-03*

CLIENT:	AKRF, Inc	**Client Sample ID:**	MW6 (6'-7')
Lab Order:	0306116	**Tag Number:**	
Project:	Greenpoint Lumber Yard Brooklyn, NY	**Collection Date:**	6/25/2003
Lab ID:	0306116-13A	**Matrix:**	SOIL

Analyses	Result	Limit	Qual	Units	DF	Date Analyzed
VOLATILES SW-846 METHOD 8260		**SW8260B**				Analyst: **LDS**
Vinyl acetate	U	5.0		µg/Kg	1	7/1/2003 6:55:00 AM
Vinyl chloride	U	5.0		µg/Kg	1	7/1/2003 6:55:00 AM

Qualifiers:

ND - Not Detected at the Reporting Limit

J - Analyte detected below quantitation limits

B - Analyte detected in the associated Method Blank

* - Value exceeds Maximum Contaminant Level

S - Spike Recovery outside accepted recovery limits

R - RPD outside accepted recovery limits

E - Value above quantitation range

American Analytical Laboratories, Inc.

Date: *28-Jul-03*

CLIENT:	AKRF, Inc	**Client Sample ID:**	MW8 (2'-4')
Lab Order:	0306116	**Tag Number:**	
Project:	Greenpoint Lumber Yard Brooklyn, NY	**Collection Date:**	6/25/2003
Lab ID:	0306116-14A	**Matrix:**	SOIL

Analyses	Result	Limit	Qual	Units	DF	Date Analyzed
VOLATILES SW-846 METHOD 8260		**SW8260B**				Analyst: **LDS**
1,1,1,2-Tetrachloroethane	U	5.0		µg/Kg	1	7/1/2003 7:33:00 AM
1,1,1-Trichloroethane	U	5.0		µg/Kg	1	7/1/2003 7:33:00 AM
1,1,2,2-Tetrachloroethane	U	5.0		µg/Kg	1	7/1/2003 7:33:00 AM
1,1,2-Trichloro-1,2,2-trifluoroethane	U	5.0		µg/Kg	1	7/1/2003 7:33:00 AM
1,1,2-Trichloroethane	U	5.0		µg/Kg	1	7/1/2003 7:33:00 AM
1,1-Dichloroethane	U	5.0		µg/Kg	1	7/1/2003 7:33:00 AM
1,1-Dichloroethene	U	5.0		µg/Kg	1	7/1/2003 7:33:00 AM
1,1-Dichloropropene	U	5.0		µg/Kg	1	7/1/2003 7:33:00 AM
1,2,3-Trichlorobenzene	U	5.0		µg/Kg	1	7/1/2003 7:33:00 AM
1,2,3-Trichloropropane	U	5.0		µg/Kg	1	7/1/2003 7:33:00 AM
1,2,4,5-Tetramethylbenzene	U	5.0		µg/Kg	1	7/1/2003 7:33:00 AM
1,2,4-Trichlorobenzene	U	5.0		µg/Kg	1	7/1/2003 7:33:00 AM
1,2,4-Trimethylbenzene	U	5.0		µg/Kg	1	7/1/2003 7:33:00 AM
1,2-Dibromo-3-chloropropane	U	5.0		µg/Kg	1	7/1/2003 7:33:00 AM
1,2-Dibromoethane	U	5.0		µg/Kg	1	7/1/2003 7:33:00 AM
1,2-Dichlorobenzene	U	5.0		µg/Kg	1	7/1/2003 7:33:00 AM
1,2-Dichloroethane	U	5.0		µg/Kg	1	7/1/2003 7:33:00 AM
1,2-Dichloropropane	U	5.0		µg/Kg	1	7/1/2003 7:33:00 AM
1,3,5-Trimethylbenzene	U	5.0		µg/Kg	1	7/1/2003 7:33:00 AM
1,3-Dichlorobenzene	U	5.0		µg/Kg	1	7/1/2003 7:33:00 AM
1,3-dichloropropane	U	5.0		µg/Kg	1	7/1/2003 7:33:00 AM
1,4-Dichlorobenzene	U	5.0		µg/Kg	1	7/1/2003 7:33:00 AM
2,2-Dichloropropane	U	5.0		µg/Kg	1	7/1/2003 7:33:00 AM
2-Butanone	U	5.0		µg/Kg	1	7/1/2003 7:33:00 AM
2-Chloroethyl vinyl ether	U	5.0		µg/Kg	1	7/1/2003 7:33:00 AM
2-Chlorotoluene	U	5.0		µg/Kg	1	7/1/2003 7:33:00 AM
2-Hexanone	U	5.0		µg/Kg	1	7/1/2003 7:33:00 AM
4-Chlorotoluene	U	5.0		µg/Kg	1	7/1/2003 7:33:00 AM
4-Isopropyltoluene	U	5.0		µg/Kg	1	7/1/2003 7:33:00 AM
4-Methyl-2-pentanone	U	5.0		µg/Kg	1	7/1/2003 7:33:00 AM
Acetone	U	5.0		µg/Kg	1	7/1/2003 7:33:00 AM
Acrolein	U	25		µg/Kg	1	7/1/2003 7:33:00 AM
Acrylonitrile	U	5.0		µg/Kg	1	7/1/2003 7:33:00 AM
Benzene	U	5.0		µg/Kg	1	7/1/2003 7:33:00 AM
Bromobenzene	U	5.0		µg/Kg	1	7/1/2003 7:33:00 AM
Bromochloromethane	U	5.0		µg/Kg	1	7/1/2003 7:33:00 AM
Bromodichloromethane	U	5.0		µg/Kg	1	7/1/2003 7:33:00 AM
Bromoform	U	5.0		µg/Kg	1	7/1/2003 7:33:00 AM
Bromomethane	U	5.0		µg/Kg	1	7/1/2003 7:33:00 AM
Carbon disulfide	U	5.0		µg/Kg	1	7/1/2003 7:33:00 AM

Qualifiers:

ND - Not Detected at the Reporting Limit

J - Analyte detected below quantitation limits

B - Analyte detected in the associated Method Blank

* - Value exceeds Maximum Contaminant Level

S - Spike Recovery outside accepted recovery limits

R - RPD outside accepted recovery limits

E - Value above quantitation range

American Analytical Laboratories, Inc.

Date: *28-Jul-03*

CLIENT:	AKRF, Inc	**Client Sample ID:**	MW8 (2'-4')
Lab Order:	0306116	**Tag Number:**	
Project:	Greenpoint Lumber Yard Brooklyn, NY	**Collection Date:**	6/25/2003
Lab ID:	0306116-14A	**Matrix:**	SOIL

Analyses	Result	Limit	Qual	Units	DF	Date Analyzed
VOLATILES SW-846 METHOD 8260		**SW8260B**				Analyst: **LDS**
Carbon tetrachloride	U	5.0		µg/Kg	1	7/1/2003 7:33:00 AM
Chlorobenzene	U	5.0		µg/Kg	1	7/1/2003 7:33:00 AM
Chlorodifluoromethane	U	5.0		µg/Kg	1	7/1/2003 7:33:00 AM
Chloroethane	U	5.0		µg/Kg	1	7/1/2003 7:33:00 AM
Chloroform	U	5.0		µg/Kg	1	7/1/2003 7:33:00 AM
Chloromethane	U	5.0		µg/Kg	1	7/1/2003 7:33:00 AM
cis-1,2-Dichloroethene	U	5.0		µg/Kg	1	7/1/2003 7:33:00 AM
cis-1,3-Dichloropropene	U	5.0		µg/Kg	1	7/1/2003 7:33:00 AM
Dibromochloromethane	U	5.0		µg/Kg	1	7/1/2003 7:33:00 AM
Dibromomethane	U	5.0		µg/Kg	1	7/1/2003 7:33:00 AM
Dichlorodifluoromethane	U	5.0		µg/Kg	1	7/1/2003 7:33:00 AM
Diisopropyl ether	U	5.0		µg/Kg	1	7/1/2003 7:33:00 AM
Ethanol	U	25		µg/Kg	1	7/1/2003 7:33:00 AM
Ethyl acetate	U	5.0		µg/Kg	1	7/1/2003 7:33:00 AM
Ethylbenzene	U	5.0		µg/Kg	1	7/1/2003 7:33:00 AM
Freon-114	U	5.0		µg/Kg	1	7/1/2003 7:33:00 AM
Hexachlorobutadiene	U	5.0		µg/Kg	1	7/1/2003 7:33:00 AM
Isopropyl acetate	U	5.0		µg/Kg	1	7/1/2003 7:33:00 AM
Isopropylbenzene	U	5.0		µg/Kg	1	7/1/2003 7:33:00 AM
m,p-Xylene	U	10		µg/Kg	1	7/1/2003 7:33:00 AM
Methyl tert-butyl ether	U	5.0		µg/Kg	1	7/1/2003 7:33:00 AM
Methylene chloride	U	5.0		µg/Kg	1	7/1/2003 7:33:00 AM
Naphthalene	U	5.0		µg/Kg	1	7/1/2003 7:33:00 AM
n-Butyl acetate	U	5.0		µg/Kg	1	7/1/2003 7:33:00 AM
n-Butylbenzene	U	5.0		µg/Kg	1	7/1/2003 7:33:00 AM
n-Propyl acetate	U	5.0		µg/Kg	1	7/1/2003 7:33:00 AM
n-Propylbenzene	U	5.0		µg/Kg	1	7/1/2003 7:33:00 AM
o-Xylene	U	5.0		µg/Kg	1	7/1/2003 7:33:00 AM
p-Diethylbenzene	U	5.0		µg/Kg	1	7/1/2003 7:33:00 AM
p-Ethyltoluene	U	5.0		µg/Kg	1	7/1/2003 7:33:00 AM
sec-Butylbenzene	U	5.0		µg/Kg	1	7/1/2003 7:33:00 AM
Styrene	U	5.0		µg/Kg	1	7/1/2003 7:33:00 AM
t-Butyl alcohol	U	5.0		µg/Kg	1	7/1/2003 7:33:00 AM
tert-Butylbenzene	U	5.0		µg/Kg	1	7/1/2003 7:33:00 AM
Tetrachloroethene	U	5.0		µg/Kg	1	7/1/2003 7:33:00 AM
Toluene	U	5.0		µg/Kg	1	7/1/2003 7:33:00 AM
trans-1,2-Dichloroethene	U	5.0		µg/Kg	1	7/1/2003 7:33:00 AM
trans-1,3-Dichloropropene	U	5.0		µg/Kg	1	7/1/2003 7:33:00 AM
Trichloroethene	U	5.0		µg/Kg	1	7/1/2003 7:33:00 AM
Trichlorofluoromethane	U	5.0		µg/Kg	1	7/1/2003 7:33:00 AM

Qualifiers:

ND - Not Detected at the Reporting Limit

J - Analyte detected below quantitation limits

B - Analyte detected in the associated Method Blank

* - Value exceeds Maximum Contaminant Level

S - Spike Recovery outside accepted recovery limits

R - RPD outside accepted recovery limits

E - Value above quantitation range

American Analytical Laboratories, Inc.

Date: *28-Jul-03*

CLIENT:	AKRF, Inc	**Client Sample ID:**	MW8 (2'-4')
Lab Order:	0306116	**Tag Number:**	
Project:	Greenpoint Lumber Yard Brooklyn, NY	**Collection Date:**	6/25/2003
Lab ID:	0306116-14A	**Matrix:**	SOIL

Analyses	Result	Limit	Qual	Units	DF	Date Analyzed
VOLATILES SW-846 METHOD 8260		**SW8260B**				Analyst: **LDS**
Vinyl acetate	U	5.0		µg/Kg	1	7/1/2003 7:33:00 AM
Vinyl chloride	U	5.0		µg/Kg	1	7/1/2003 7:33:00 AM

Qualifiers:

ND - Not Detected at the Reporting Limit

J - Analyte detected below quantitation limits

B - Analyte detected in the associated Method Blank

* - Value exceeds Maximum Contaminant Level

S - Spike Recovery outside accepted recovery limits

R - RPD outside accepted recovery limits

E - Value above quantitation range

American Analytical Laboratories, Inc.

Date: *28-Jul-03*

CLIENT:	AKRF, Inc	**Client Sample ID:**	MW8 (5'-6.5')
Lab Order:	0306116	**Tag Number:**	
Project:	Greenpoint Lumber Yard Brooklyn, NY	**Collection Date:**	6/25/2003
Lab ID:	0306116-15A	**Matrix:**	SOIL

Analyses	Result	Limit	Qual	Units	DF	Date Analyzed
VOLATILES SW-846 METHOD 8260		**SW8260B**				Analyst: **LDS**
1,1,1,2-Tetrachloroethane	U	5.0		µg/Kg	1	7/1/2003 8:11:00 AM
1,1,1-Trichloroethane	U	5.0		µg/Kg	1	7/1/2003 8:11:00 AM
1,1,2,2-Tetrachloroethane	U	5.0		µg/Kg	1	7/1/2003 8:11:00 AM
1,1,2-Trichloro-1,2,2-trifluoroethane	U	5.0		µg/Kg	1	7/1/2003 8:11:00 AM
1,1,2-Trichloroethane	U	5.0		µg/Kg	1	7/1/2003 8:11:00 AM
1,1-Dichloroethane	U	5.0		µg/Kg	1	7/1/2003 8:11:00 AM
1,1-Dichloroethene	U	5.0		µg/Kg	1	7/1/2003 8:11:00 AM
1,1-Dichloropropene	U	5.0		µg/Kg	1	7/1/2003 8:11:00 AM
1,2,3-Trichlorobenzene	U	5.0		µg/Kg	1	7/1/2003 8:11:00 AM
1,2,3-Trichloropropane	U	5.0		µg/Kg	1	7/1/2003 8:11:00 AM
1,2,4,5-Tetramethylbenzene	U	5.0		µg/Kg	1	7/1/2003 8:11:00 AM
1,2,4-Trichlorobenzene	U	5.0		µg/Kg	1	7/1/2003 8:11:00 AM
1,2,4-Trimethylbenzene	U	5.0		µg/Kg	1	7/1/2003 8:11:00 AM
1,2-Dibromo-3-chloropropane	U	5.0		µg/Kg	1	7/1/2003 8:11:00 AM
1,2-Dibromoethane	U	5.0		µg/Kg	1	7/1/2003 8:11:00 AM
1,2-Dichlorobenzene	U	5.0		µg/Kg	1	7/1/2003 8:11:00 AM
1,2-Dichloroethane	U	5.0		µg/Kg	1	7/1/2003 8:11:00 AM
1,2-Dichloropropane	U	5.0		µg/Kg	1	7/1/2003 8:11:00 AM
1,3,5-Trimethylbenzene	U	5.0		µg/Kg	1	7/1/2003 8:11:00 AM
1,3-Dichlorobenzene	U	5.0		µg/Kg	1	7/1/2003 8:11:00 AM
1,3-dichloropropane	U	5.0		µg/Kg	1	7/1/2003 8:11:00 AM
1,4-Dichlorobenzene	U	5.0		µg/Kg	1	7/1/2003 8:11:00 AM
2,2-Dichloropropane	U	5.0		µg/Kg	1	7/1/2003 8:11:00 AM
2-Butanone	U	5.0		µg/Kg	1	7/1/2003 8:11:00 AM
2-Chloroethyl vinyl ether	U	5.0		µg/Kg	1	7/1/2003 8:11:00 AM
2-Chlorotoluene	U	5.0		µg/Kg	1	7/1/2003 8:11:00 AM
2-Hexanone	U	5.0		µg/Kg	1	7/1/2003 8:11:00 AM
4-Chlorotoluene	U	5.0		µg/Kg	1	7/1/2003 8:11:00 AM
4-Isopropyltoluene	U	5.0		µg/Kg	1	7/1/2003 8:11:00 AM
4-Methyl-2-pentanone	U	5.0		µg/Kg	1	7/1/2003 8:11:00 AM
Acetone	U	5.0		µg/Kg	1	7/1/2003 8:11:00 AM
Acrolein	U	25		µg/Kg	1	7/1/2003 8:11:00 AM
Acrylonitrile	U	5.0		µg/Kg	1	7/1/2003 8:11:00 AM
Benzene	U	5.0		µg/Kg	1	7/1/2003 8:11:00 AM
Bromobenzene	U	5.0		µg/Kg	1	7/1/2003 8:11:00 AM
Bromochloromethane	U	5.0		µg/Kg	1	7/1/2003 8:11:00 AM
Bromodichloromethane	U	5.0		µg/Kg	1	7/1/2003 8:11:00 AM
Bromoform	U	5.0		µg/Kg	1	7/1/2003 8:11:00 AM
Bromomethane	U	5.0		µg/Kg	1	7/1/2003 8:11:00 AM
Carbon disulfide	U	5.0		µg/Kg	1	7/1/2003 8:11:00 AM

Qualifiers:

ND - Not Detected at the Reporting Limit

J - Analyte detected below quantitation limits

B - Analyte detected in the associated Method Blank

* - Value exceeds Maximum Contaminant Level

S - Spike Recovery outside accepted recovery limits

R - RPD outside accepted recovery limits

E - Value above quantitation range

American Analytical Laboratories, Inc.

Date: *28-Jul-03*

CLIENT:	AKRF, Inc	**Client Sample ID:**	MW8 (5'-6.5')
Lab Order:	0306116	**Tag Number:**	
Project:	Greenpoint Lumber Yard Brooklyn, NY	**Collection Date:**	6/25/2003
Lab ID:	0306116-15A	**Matrix:**	SOIL

Analyses	Result	Limit	Qual	Units	DF	Date Analyzed
VOLATILES SW-846 METHOD 8260		**SW8260B**				Analyst: **LDS**
Carbon tetrachloride	U	5.0		µg/Kg	1	7/1/2003 8:11:00 AM
Chlorobenzene	U	5.0		µg/Kg	1	7/1/2003 8:11:00 AM
Chlorodifluoromethane	U	5.0		µg/Kg	1	7/1/2003 8:11:00 AM
Chloroethane	U	5.0		µg/Kg	1	7/1/2003 8:11:00 AM
Chloroform	U	5.0		µg/Kg	1	7/1/2003 8:11:00 AM
Chloromethane	U	5.0		µg/Kg	1	7/1/2003 8:11:00 AM
cis-1,2-Dichloroethene	U	5.0		µg/Kg	1	7/1/2003 8:11:00 AM
cis-1,3-Dichloropropene	U	5.0		µg/Kg	1	7/1/2003 8:11:00 AM
Dibromochloromethane	U	5.0		µg/Kg	1	7/1/2003 8:11:00 AM
Dibromomethane	U	5.0		µg/Kg	1	7/1/2003 8:11:00 AM
Dichlorodifluoromethane	U	5.0		µg/Kg	1	7/1/2003 8:11:00 AM
Diisopropyl ether	U	5.0		µg/Kg	1	7/1/2003 8:11:00 AM
Ethanol	U	25		µg/Kg	1	7/1/2003 8:11:00 AM
Ethyl acetate	U	5.0		µg/Kg	1	7/1/2003 8:11:00 AM
Ethylbenzene	U	5.0		µg/Kg	1	7/1/2003 8:11:00 AM
Freon-114	U	5.0		µg/Kg	1	7/1/2003 8:11:00 AM
Hexachlorobutadiene	U	5.0		µg/Kg	1	7/1/2003 8:11:00 AM
Isopropyl acetate	U	5.0		µg/Kg	1	7/1/2003 8:11:00 AM
Isopropylbenzene	U	5.0		µg/Kg	1	7/1/2003 8:11:00 AM
m,p-Xylene	U	10		µg/Kg	1	7/1/2003 8:11:00 AM
Methyl tert-butyl ether	U	5.0		µg/Kg	1	7/1/2003 8:11:00 AM
Methylene chloride	U	5.0		µg/Kg	1	7/1/2003 8:11:00 AM
Naphthalene	U	5.0		µg/Kg	1	7/1/2003 8:11:00 AM
n-Butyl acetate	U	5.0		µg/Kg	1	7/1/2003 8:11:00 AM
n-Butylbenzene	U	5.0		µg/Kg	1	7/1/2003 8:11:00 AM
n-Propyl acetate	U	5.0		µg/Kg	1	7/1/2003 8:11:00 AM
n-Propylbenzene	U	5.0		µg/Kg	1	7/1/2003 8:11:00 AM
o-Xylene	U	5.0		µg/Kg	1	7/1/2003 8:11:00 AM
p-Diethylbenzene	U	5.0		µg/Kg	1	7/1/2003 8:11:00 AM
p-Ethyltoluene	U	5.0		µg/Kg	1	7/1/2003 8:11:00 AM
sec-Butylbenzene	U	5.0		µg/Kg	1	7/1/2003 8:11:00 AM
Styrene	U	5.0		µg/Kg	1	7/1/2003 8:11:00 AM
t-Butyl alcohol	U	5.0		µg/Kg	1	7/1/2003 8:11:00 AM
tert-Butylbenzene	U	5.0		µg/Kg	1	7/1/2003 8:11:00 AM
Tetrachloroethene	U	5.0		µg/Kg	1	7/1/2003 8:11:00 AM
Toluene	U	5.0		µg/Kg	1	7/1/2003 8:11:00 AM
trans-1,2-Dichloroethene	U	5.0		µg/Kg	1	7/1/2003 8:11:00 AM
trans-1,3-Dichloropropene	U	5.0		µg/Kg	1	7/1/2003 8:11:00 AM
Trichloroethene	U	5.0		µg/Kg	1	7/1/2003 8:11:00 AM
Trichlorofluoromethane	U	5.0		µg/Kg	1	7/1/2003 8:11:00 AM

Qualifiers:

ND - Not Detected at the Reporting Limit

J - Analyte detected below quantitation limits

B - Analyte detected in the associated Method Blank

* - Value exceeds Maximum Contaminant Level

S - Spike Recovery outside accepted recovery limits

R - RPD outside accepted recovery limits

E - Value above quantitation range

American Analytical Laboratories, Inc.

Date: *28-Jul-03*

CLIENT:	AKRF, Inc	**Client Sample ID:**	MW8 (5'-6.5')
Lab Order:	0306116	**Tag Number:**	
Project:	Greenpoint Lumber Yard Brooklyn, NY	**Collection Date:**	6/25/2003
Lab ID:	0306116-15A	**Matrix:**	SOIL

Analyses	Result	Limit	Qual	Units	DF	Date Analyzed
VOLATILES SW-846 METHOD 8260		**SW8260B**				Analyst: **LDS**
Vinyl acetate	U	5.0		µg/Kg	1	7/1/2003 8:11:00 AM
Vinyl chloride	U	5.0		µg/Kg	1	7/1/2003 8:11:00 AM

Qualifiers:

ND - Not Detected at the Reporting Limit

J - Analyte detected below quantitation limits

B - Analyte detected in the associated Method Blank

* - Value exceeds Maximum Contaminant Level

S - Spike Recovery outside accepted recovery limits

R - RPD outside accepted recovery limits

E - Value above quantitation range

American Analytical Laboratories, Inc.

Date: *28-Jul-03*

CLIENT:	AKRF, Inc	**Client Sample ID:**	B9 (14"-2.5')
Lab Order:	0306116	**Tag Number:**	
Project:	Greenpoint Lumber Yard Brooklyn, NY	**Collection Date:**	6/25/2003
Lab ID:	0306116-16A	**Matrix:**	SOIL

Analyses	Result	Limit	Qual	Units	DF	Date Analyzed
VOLATILES SW-846 METHOD 8260		**SW8260B**				Analyst: **LDS**
1,1,1,2-Tetrachloroethane	U	5.0		µg/Kg	1	7/1/2003 8:49:00 AM
1,1,1-Trichloroethane	U	5.0		µg/Kg	1	7/1/2003 8:49:00 AM
1,1,2,2-Tetrachloroethane	U	5.0		µg/Kg	1	7/1/2003 8:49:00 AM
1,1,2-Trichloro-1,2,2-trifluoroethane	U	5.0		µg/Kg	1	7/1/2003 8:49:00 AM
1,1,2-Trichloroethane	U	5.0		µg/Kg	1	7/1/2003 8:49:00 AM
1,1-Dichloroethane	U	5.0		µg/Kg	1	7/1/2003 8:49:00 AM
1,1-Dichloroethene	U	5.0		µg/Kg	1	7/1/2003 8:49:00 AM
1,1-Dichloropropene	U	5.0		µg/Kg	1	7/1/2003 8:49:00 AM
1,2,3-Trichlorobenzene	U	5.0		µg/Kg	1	7/1/2003 8:49:00 AM
1,2,3-Trichloropropane	U	5.0		µg/Kg	1	7/1/2003 8:49:00 AM
1,2,4,5-Tetramethylbenzene	U	5.0		µg/Kg	1	7/1/2003 8:49:00 AM
1,2,4-Trichlorobenzene	U	5.0		µg/Kg	1	7/1/2003 8:49:00 AM
1,2,4-Trimethylbenzene	U	5.0		µg/Kg	1	7/1/2003 8:49:00 AM
1,2-Dibromo-3-chloropropane	U	5.0		µg/Kg	1	7/1/2003 8:49:00 AM
1,2-Dibromoethane	U	5.0		µg/Kg	1	7/1/2003 8:49:00 AM
1,2-Dichlorobenzene	U	5.0		µg/Kg	1	7/1/2003 8:49:00 AM
1,2-Dichloroethane	U	5.0		µg/Kg	1	7/1/2003 8:49:00 AM
1,2-Dichloropropane	U	5.0		µg/Kg	1	7/1/2003 8:49:00 AM
1,3,5-Trimethylbenzene	U	5.0		µg/Kg	1	7/1/2003 8:49:00 AM
1,3-Dichlorobenzene	U	5.0		µg/Kg	1	7/1/2003 8:49:00 AM
1,3-dichloropropane	U	5.0		µg/Kg	1	7/1/2003 8:49:00 AM
1,4-Dichlorobenzene	U	5.0		µg/Kg	1	7/1/2003 8:49:00 AM
2,2-Dichloropropane	U	5.0		µg/Kg	1	7/1/2003 8:49:00 AM
2-Butanone	U	5.0		µg/Kg	1	7/1/2003 8:49:00 AM
2-Chloroethyl vinyl ether	U	5.0		µg/Kg	1	7/1/2003 8:49:00 AM
2-Chlorotoluene	U	5.0		µg/Kg	1	7/1/2003 8:49:00 AM
2-Hexanone	U	5.0		µg/Kg	1	7/1/2003 8:49:00 AM
4-Chlorotoluene	U	5.0		µg/Kg	1	7/1/2003 8:49:00 AM
4-Isopropyltoluene	U	5.0		µg/Kg	1	7/1/2003 8:49:00 AM
4-Methyl-2-pentanone	U	5.0		µg/Kg	1	7/1/2003 8:49:00 AM
Acetone	U	5.0		µg/Kg	1	7/1/2003 8:49:00 AM
Acrolein	U	25		µg/Kg	1	7/1/2003 8:49:00 AM
Acrylonitrile	U	5.0		µg/Kg	1	7/1/2003 8:49:00 AM
Benzene	2	5.0	J	µg/Kg	1	7/1/2003 8:49:00 AM
Bromobenzene	U	5.0		µg/Kg	1	7/1/2003 8:49:00 AM
Bromochloromethane	U	5.0		µg/Kg	1	7/1/2003 8:49:00 AM
Bromodichloromethane	U	5.0		µg/Kg	1	7/1/2003 8:49:00 AM
Bromoform	U	5.0		µg/Kg	1	7/1/2003 8:49:00 AM
Bromomethane	U	5.0		µg/Kg	1	7/1/2003 8:49:00 AM
Carbon disulfide	U	5.0		µg/Kg	1	7/1/2003 8:49:00 AM

Qualifiers:

ND - Not Detected at the Reporting Limit

J - Analyte detected below quantitation limits

B - Analyte detected in the associated Method Blank

* - Value exceeds Maximum Contaminant Level

S - Spike Recovery outside accepted recovery limits

R - RPD outside accepted recovery limits

E - Value above quantitation range

American Analytical Laboratories, Inc.

Date: *28-Jul-03*

CLIENT:	AKRF, Inc	**Client Sample ID:**	B9 (14"-2.5')
Lab Order:	0306116	**Tag Number:**	
Project:	Greenpoint Lumber Yard Brooklyn, NY	**Collection Date:**	6/25/2003
Lab ID:	0306116-16A	**Matrix:**	SOIL

Analyses	Result	Limit	Qual	Units	DF	Date Analyzed
VOLATILES SW-846 METHOD 8260		**SW8260B**				Analyst: **LDS**
Carbon tetrachloride	U	5.0		µg/Kg	1	7/1/2003 8:49:00 AM
Chlorobenzene	U	5.0		µg/Kg	1	7/1/2003 8:49:00 AM
Chlorodifluoromethane	U	5.0		µg/Kg	1	7/1/2003 8:49:00 AM
Chloroethane	U	5.0		µg/Kg	1	7/1/2003 8:49:00 AM
Chloroform	U	5.0		µg/Kg	1	7/1/2003 8:49:00 AM
Chloromethane	U	5.0		µg/Kg	1	7/1/2003 8:49:00 AM
cis-1,2-Dichloroethene	U	5.0		µg/Kg	1	7/1/2003 8:49:00 AM
cis-1,3-Dichloropropene	U	5.0		µg/Kg	1	7/1/2003 8:49:00 AM
Dibromochloromethane	U	5.0		µg/Kg	1	7/1/2003 8:49:00 AM
Dibromomethane	U	5.0		µg/Kg	1	7/1/2003 8:49:00 AM
Dichlorodifluoromethane	U	5.0		µg/Kg	1	7/1/2003 8:49:00 AM
Diisopropyl ether	U	5.0		µg/Kg	1	7/1/2003 8:49:00 AM
Ethanol	U	25		µg/Kg	1	7/1/2003 8:49:00 AM
Ethyl acetate	U	5.0		µg/Kg	1	7/1/2003 8:49:00 AM
Ethylbenzene	U	5.0		µg/Kg	1	7/1/2003 8:49:00 AM
Freon-114	U	5.0		µg/Kg	1	7/1/2003 8:49:00 AM
Hexachlorobutadiene	U	5.0		µg/Kg	1	7/1/2003 8:49:00 AM
Isopropyl acetate	U	5.0		µg/Kg	1	7/1/2003 8:49:00 AM
Isopropylbenzene	U	5.0		µg/Kg	1	7/1/2003 8:49:00 AM
m,p-Xylene	U	10		µg/Kg	1	7/1/2003 8:49:00 AM
Methyl tert-butyl ether	U	5.0		µg/Kg	1	7/1/2003 8:49:00 AM
Methylene chloride	U	5.0		µg/Kg	1	7/1/2003 8:49:00 AM
Naphthalene	U	5.0		µg/Kg	1	7/1/2003 8:49:00 AM
n-Butyl acetate	U	5.0		µg/Kg	1	7/1/2003 8:49:00 AM
n-Butylbenzene	U	5.0		µg/Kg	1	7/1/2003 8:49:00 AM
n-Propyl acetate	U	5.0		µg/Kg	1	7/1/2003 8:49:00 AM
n-Propylbenzene	U	5.0		µg/Kg	1	7/1/2003 8:49:00 AM
o-Xylene	U	5.0		µg/Kg	1	7/1/2003 8:49:00 AM
p-Diethylbenzene	U	5.0		µg/Kg	1	7/1/2003 8:49:00 AM
p-Ethyltoluene	U	5.0		µg/Kg	1	7/1/2003 8:49:00 AM
sec-Butylbenzene	U	5.0		µg/Kg	1	7/1/2003 8:49:00 AM
Styrene	U	5.0		µg/Kg	1	7/1/2003 8:49:00 AM
t-Butyl alcohol	U	5.0		µg/Kg	1	7/1/2003 8:49:00 AM
tert-Butylbenzene	U	5.0		µg/Kg	1	7/1/2003 8:49:00 AM
Tetrachloroethene	U	5.0		µg/Kg	1	7/1/2003 8:49:00 AM
Toluene	U	5.0		µg/Kg	1	7/1/2003 8:49:00 AM
trans-1,2-Dichloroethene	U	5.0		µg/Kg	1	7/1/2003 8:49:00 AM
trans-1,3-Dichloropropene	U	5.0		µg/Kg	1	7/1/2003 8:49:00 AM
Trichloroethene	U	5.0		µg/Kg	1	7/1/2003 8:49:00 AM
Trichlorofluoromethane	U	5.0		µg/Kg	1	7/1/2003 8:49:00 AM

Qualifiers:

ND - Not Detected at the Reporting Limit

J - Analyte detected below quantitation limits

B - Analyte detected in the associated Method Blank

* - Value exceeds Maximum Contaminant Level

S - Spike Recovery outside accepted recovery limits

R - RPD outside accepted recovery limits

E - Value above quantitation range

American Analytical Laboratories, Inc.

Date: *28-Jul-03*

CLIENT:	AKRF, Inc	**Client Sample ID:**	B9 (14"-2.5')
Lab Order:	0306116	**Tag Number:**	
Project:	Greenpoint Lumber Yard Brooklyn, NY	**Collection Date:**	6/25/2003
Lab ID:	0306116-16A	**Matrix:**	SOIL

Analyses	Result	Limit	Qual	Units	DF	Date Analyzed
VOLATILES SW-846 METHOD 8260		**SW8260B**				Analyst: **LDS**
Vinyl acetate	U	5.0		µg/Kg	1	7/1/2003 8:49:00 AM
Vinyl chloride	U	5.0		µg/Kg	1	7/1/2003 8:49:00 AM

Qualifiers:

ND - Not Detected at the Reporting Limit

J - Analyte detected below quantitation limits

B - Analyte detected in the associated Method Blank

* - Value exceeds Maximum Contaminant Level

S - Spike Recovery outside accepted recovery limits

R - RPD outside accepted recovery limits

E - Value above quantitation range

American Analytical Laboratories, Inc.

Date: *28-Jul-03*

CLIENT:	AKRF, Inc	**Client Sample ID:**	B9 (5'-6')
Lab Order:	0306116	**Tag Number:**	
Project:	Greenpoint Lumber Yard Brooklyn, NY	**Collection Date:**	6/25/2003
Lab ID:	0306116-17A	**Matrix:**	SOIL

Analyses	Result	Limit	Qual	Units	DF	Date Analyzed
VOLATILES SW-846 METHOD 8260		**SW8260B**				Analyst: **LDS**
1,1,1,2-Tetrachloroethane	U	5.0		µg/Kg	1	7/1/2003 9:27:00 AM
1,1,1-Trichloroethane	U	5.0		µg/Kg	1	7/1/2003 9:27:00 AM
1,1,2,2-Tetrachloroethane	U	5.0		µg/Kg	1	7/1/2003 9:27:00 AM
1,1,2-Trichloro-1,2,2-trifluoroethane	U	5.0		µg/Kg	1	7/1/2003 9:27:00 AM
1,1,2-Trichloroethane	U	5.0		µg/Kg	1	7/1/2003 9:27:00 AM
1,1-Dichloroethane	U	5.0		µg/Kg	1	7/1/2003 9:27:00 AM
1,1-Dichloroethene	U	5.0		µg/Kg	1	7/1/2003 9:27:00 AM
1,1-Dichloropropene	U	5.0		µg/Kg	1	7/1/2003 9:27:00 AM
1,2,3-Trichlorobenzene	U	5.0		µg/Kg	1	7/1/2003 9:27:00 AM
1,2,3-Trichloropropane	U	5.0		µg/Kg	1	7/1/2003 9:27:00 AM
1,2,4,5-Tetramethylbenzene	U	5.0		µg/Kg	1	7/1/2003 9:27:00 AM
1,2,4-Trichlorobenzene	U	5.0		µg/Kg	1	7/1/2003 9:27:00 AM
1,2,4-Trimethylbenzene	U	5.0		µg/Kg	1	7/1/2003 9:27:00 AM
1,2-Dibromo-3-chloropropane	U	5.0		µg/Kg	1	7/1/2003 9:27:00 AM
1,2-Dibromoethane	U	5.0		µg/Kg	1	7/1/2003 9:27:00 AM
1,2-Dichlorobenzene	U	5.0		µg/Kg	1	7/1/2003 9:27:00 AM
1,2-Dichloroethane	U	5.0		µg/Kg	1	7/1/2003 9:27:00 AM
1,2-Dichloropropane	U	5.0		µg/Kg	1	7/1/2003 9:27:00 AM
1,3,5-Trimethylbenzene	U	5.0		µg/Kg	1	7/1/2003 9:27:00 AM
1,3-Dichlorobenzene	U	5.0		µg/Kg	1	7/1/2003 9:27:00 AM
1,3-dichloropropane	U	5.0		µg/Kg	1	7/1/2003 9:27:00 AM
1,4-Dichlorobenzene	U	5.0		µg/Kg	1	7/1/2003 9:27:00 AM
2,2-Dichloropropane	U	5.0		µg/Kg	1	7/1/2003 9:27:00 AM
2-Butanone	U	5.0		µg/Kg	1	7/1/2003 9:27:00 AM
2-Chloroethyl vinyl ether	U	5.0		µg/Kg	1	7/1/2003 9:27:00 AM
2-Chlorotoluene	U	5.0		µg/Kg	1	7/1/2003 9:27:00 AM
2-Hexanone	U	5.0		µg/Kg	1	7/1/2003 9:27:00 AM
4-Chlorotoluene	U	5.0		µg/Kg	1	7/1/2003 9:27:00 AM
4-Isopropyltoluene	U	5.0		µg/Kg	1	7/1/2003 9:27:00 AM
4-Methyl-2-pentanone	U	5.0		µg/Kg	1	7/1/2003 9:27:00 AM
Acetone	U	5.0		µg/Kg	1	7/1/2003 9:27:00 AM
Acrolein	U	25		µg/Kg	1	7/1/2003 9:27:00 AM
Acrylonitrile	U	5.0		µg/Kg	1	7/1/2003 9:27:00 AM
Benzene	U	5.0		µg/Kg	1	7/1/2003 9:27:00 AM
Bromobenzene	U	5.0		µg/Kg	1	7/1/2003 9:27:00 AM
Bromochloromethane	U	5.0		µg/Kg	1	7/1/2003 9:27:00 AM
Bromodichloromethane	U	5.0		µg/Kg	1	7/1/2003 9:27:00 AM
Bromoform	U	5.0		µg/Kg	1	7/1/2003 9:27:00 AM
Bromomethane	U	5.0		µg/Kg	1	7/1/2003 9:27:00 AM
Carbon disulfide	U	5.0		µg/Kg	1	7/1/2003 9:27:00 AM

Qualifiers:

ND - Not Detected at the Reporting Limit

J - Analyte detected below quantitation limits

B - Analyte detected in the associated Method Blank

* - Value exceeds Maximum Contaminant Level

S - Spike Recovery outside accepted recovery limits

R - RPD outside accepted recovery limits

E - Value above quantitation range

American Analytical Laboratories, Inc.

Date: *28-Jul-03*

CLIENT:	AKRF, Inc	**Client Sample ID:**	B9 (5'-6')
Lab Order:	0306116	**Tag Number:**	
Project:	Greenpoint Lumber Yard Brooklyn, NY	**Collection Date:**	6/25/2003
Lab ID:	0306116-17A	**Matrix:**	SOIL

Analyses	Result	Limit	Qual	Units	DF	Date Analyzed
VOLATILES SW-846 METHOD 8260		**SW8260B**				Analyst: **LDS**
Carbon tetrachloride	U	5.0		µg/Kg	1	7/1/2003 9:27:00 AM
Chlorobenzene	U	5.0		µg/Kg	1	7/1/2003 9:27:00 AM
Chlorodifluoromethane	U	5.0		µg/Kg	1	7/1/2003 9:27:00 AM
Chloroethane	U	5.0		µg/Kg	1	7/1/2003 9:27:00 AM
Chloroform	U	5.0		µg/Kg	1	7/1/2003 9:27:00 AM
Chloromethane	U	5.0		µg/Kg	1	7/1/2003 9:27:00 AM
cis-1,2-Dichloroethene	U	5.0		µg/Kg	1	7/1/2003 9:27:00 AM
cis-1,3-Dichloropropene	U	5.0		µg/Kg	1	7/1/2003 9:27:00 AM
Dibromochloromethane	U	5.0		µg/Kg	1	7/1/2003 9:27:00 AM
Dibromomethane	U	5.0		µg/Kg	1	7/1/2003 9:27:00 AM
Dichlorodifluoromethane	U	5.0		µg/Kg	1	7/1/2003 9:27:00 AM
Diisopropyl ether	U	5.0		µg/Kg	1	7/1/2003 9:27:00 AM
Ethanol	U	25		µg/Kg	1	7/1/2003 9:27:00 AM
Ethyl acetate	U	5.0		µg/Kg	1	7/1/2003 9:27:00 AM
Ethylbenzene	U	5.0		µg/Kg	1	7/1/2003 9:27:00 AM
Freon-114	U	5.0		µg/Kg	1	7/1/2003 9:27:00 AM
Hexachlorobutadiene	U	5.0		µg/Kg	1	7/1/2003 9:27:00 AM
Isopropyl acetate	U	5.0		µg/Kg	1	7/1/2003 9:27:00 AM
Isopropylbenzene	U	5.0		µg/Kg	1	7/1/2003 9:27:00 AM
m,p-Xylene	U	10		µg/Kg	1	7/1/2003 9:27:00 AM
Methyl tert-butyl ether	U	5.0		µg/Kg	1	7/1/2003 9:27:00 AM
Methylene chloride	U	5.0		µg/Kg	1	7/1/2003 9:27:00 AM
Naphthalene	U	5.0		µg/Kg	1	7/1/2003 9:27:00 AM
n-Butyl acetate	U	5.0		µg/Kg	1	7/1/2003 9:27:00 AM
n-Butylbenzene	U	5.0		µg/Kg	1	7/1/2003 9:27:00 AM
n-Propyl acetate	U	5.0		µg/Kg	1	7/1/2003 9:27:00 AM
n-Propylbenzene	U	5.0		µg/Kg	1	7/1/2003 9:27:00 AM
o-Xylene	U	5.0		µg/Kg	1	7/1/2003 9:27:00 AM
p-Diethylbenzene	U	5.0		µg/Kg	1	7/1/2003 9:27:00 AM
p-Ethyltoluene	U	5.0		µg/Kg	1	7/1/2003 9:27:00 AM
sec-Butylbenzene	U	5.0		µg/Kg	1	7/1/2003 9:27:00 AM
Styrene	U	5.0		µg/Kg	1	7/1/2003 9:27:00 AM
t-Butyl alcohol	U	5.0		µg/Kg	1	7/1/2003 9:27:00 AM
tert-Butylbenzene	U	5.0		µg/Kg	1	7/1/2003 9:27:00 AM
Tetrachloroethene	U	5.0		µg/Kg	1	7/1/2003 9:27:00 AM
Toluene	U	5.0		µg/Kg	1	7/1/2003 9:27:00 AM
trans-1,2-Dichloroethene	U	5.0		µg/Kg	1	7/1/2003 9:27:00 AM
trans-1,3-Dichloropropene	U	5.0		µg/Kg	1	7/1/2003 9:27:00 AM
Trichloroethene	U	5.0		µg/Kg	1	7/1/2003 9:27:00 AM
Trichlorofluoromethane	U	5.0		µg/Kg	1	7/1/2003 9:27:00 AM

Qualifiers:

ND - Not Detected at the Reporting Limit

J - Analyte detected below quantitation limits

B - Analyte detected in the associated Method Blank

* - Value exceeds Maximum Contaminant Level

S - Spike Recovery outside accepted recovery limits

R - RPD outside accepted recovery limits

E - Value above quantitation range

American Analytical Laboratories, Inc.

Date: *28-Jul-03*

CLIENT:	AKRF, Inc	**Client Sample ID:**	B9 (5'-6')
Lab Order:	0306116	**Tag Number:**	
Project:	Greenpoint Lumber Yard Brooklyn, NY	**Collection Date:**	6/25/2003
Lab ID:	0306116-17A	**Matrix:**	SOIL

Analyses	Result	Limit	Qual	Units	DF	Date Analyzed
VOLATILES SW-846 METHOD 8260		**SW8260B**				Analyst: **LDS**
Vinyl acetate	U	5.0		µg/Kg	1	7/1/2003 9:27:00 AM
Vinyl chloride	U	5.0		µg/Kg	1	7/1/2003 9:27:00 AM

Qualifiers:

ND - Not Detected at the Reporting Limit

J - Analyte detected below quantitation limits

B - Analyte detected in the associated Method Blank

* - Value exceeds Maximum Contaminant Level

S - Spike Recovery outside accepted recovery limits

R - RPD outside accepted recovery limits

E - Value above quantitation range

American Analytical Laboratories, Inc.

Date: *28-Jul-03*

CLIENT:	AKRF, Inc	**Client Sample ID:**	B8 (0.5-2")
Lab Order:	0306116	**Tag Number:**	
Project:	Greenpoint Lumber Yard Brooklyn, NY	**Collection Date:**	6/25/2003
Lab ID:	0306116-18A	**Matrix:**	SOIL

Analyses	Result	Limit	Qual	Units	DF	Date Analyzed
VOLATILES SW-846 METHOD 8260		**SW8260B**				Analyst: **LDS**
1,1,1,2-Tetrachloroethane	U	5.0		µg/Kg	1	7/1/2003 10:05:00 AM
1,1,1-Trichloroethane	U	5.0		µg/Kg	1	7/1/2003 10:05:00 AM
1,1,2,2-Tetrachloroethane	U	5.0		µg/Kg	1	7/1/2003 10:05:00 AM
1,1,2-Trichloro-1,2,2-trifluoroethane	U	5.0		µg/Kg	1	7/1/2003 10:05:00 AM
1,1,2-Trichloroethane	U	5.0		µg/Kg	1	7/1/2003 10:05:00 AM
1,1-Dichloroethane	U	5.0		µg/Kg	1	7/1/2003 10:05:00 AM
1,1-Dichloroethene	U	5.0		µg/Kg	1	7/1/2003 10:05:00 AM
1,1-Dichloropropene	U	5.0		µg/Kg	1	7/1/2003 10:05:00 AM
1,2,3-Trichlorobenzene	U	5.0		µg/Kg	1	7/1/2003 10:05:00 AM
1,2,3-Trichloropropane	U	5.0		µg/Kg	1	7/1/2003 10:05:00 AM
1,2,4,5-Tetramethylbenzene	U	5.0		µg/Kg	1	7/1/2003 10:05:00 AM
1,2,4-Trichlorobenzene	U	5.0		µg/Kg	1	7/1/2003 10:05:00 AM
1,2,4-Trimethylbenzene	U	5.0		µg/Kg	1	7/1/2003 10:05:00 AM
1,2-Dibromo-3-chloropropane	U	5.0		µg/Kg	1	7/1/2003 10:05:00 AM
1,2-Dibromoethane	U	5.0		µg/Kg	1	7/1/2003 10:05:00 AM
1,2-Dichlorobenzene	U	5.0		µg/Kg	1	7/1/2003 10:05:00 AM
1,2-Dichloroethane	U	5.0		µg/Kg	1	7/1/2003 10:05:00 AM
1,2-Dichloropropane	U	5.0		µg/Kg	1	7/1/2003 10:05:00 AM
1,3,5-Trimethylbenzene	U	5.0		µg/Kg	1	7/1/2003 10:05:00 AM
1,3-Dichlorobenzene	U	5.0		µg/Kg	1	7/1/2003 10:05:00 AM
1,3-dichloropropane	U	5.0		µg/Kg	1	7/1/2003 10:05:00 AM
1,4-Dichlorobenzene	U	5.0		µg/Kg	1	7/1/2003 10:05:00 AM
2,2-Dichloropropane	U	5.0		µg/Kg	1	7/1/2003 10.05:00 AM
2-Butanone	U	5.0		µg/Kg	1	7/1/2003 10:05:00 AM
2-Chloroethyl vinyl ether	U	5.0		µg/Kg	1	7/1/2003 10:05:00 AM
2-Chlorotoluene	U	5.0		µg/Kg	1	7/1/2003 10:05:00 AM
2-Hexanone	U	5.0		µg/Kg	1	7/1/2003 10:05:00 AM
4-Chlorotoluene	U	5.0		µg/Kg	1	7/1/2003 10:05:00 AM
4-Isopropyltoluene	U	5.0		µg/Kg	1	7/1/2003 10:05:00 AM
4-Methyl-2-pentanone	U	5.0		µg/Kg	1	7/1/2003 10:05:00 AM
Acetone	U	5.0		µg/Kg	1	7/1/2003 10:05:00 AM
Acrolein	U	25		µg/Kg	1	7/1/2003 10:05:00 AM
Acrylonitrile	U	5.0		µg/Kg	1	7/1/2003 10:05:00 AM
Benzene	U	5.0		µg/Kg	1	7/1/2003 10:05:00 AM
Bromobenzene	U	5.0		µg/Kg	1	7/1/2003 10:05:00 AM
Bromochloromethane	U	5.0		µg/Kg	1	7/1/2003 10:05:00 AM
Bromodichloromethane	U	5.0		µg/Kg	1	7/1/2003 10:05:00 AM
Bromoform	U	5.0		µg/Kg	1	7/1/2003 10:05:00 AM
Bromomethane	U	5.0		µg/Kg	1	7/1/2003 10:05:00 AM
Carbon disulfide	U	5.0		µg/Kg	1	7/1/2003 10:05:00 AM

Qualifiers:

ND - Not Detected at the Reporting Limit

J - Analyte detected below quantitation limits

B - Analyte detected in the associated Method Blank

* - Value exceeds Maximum Contaminant Level

S - Spike Recovery outside accepted recovery limits

R - RPD outside accepted recovery limits

E - Value above quantitation range

American Analytical Laboratories, Inc.

Date: *28-Jul-03*

CLIENT:	AKRF, Inc	**Client Sample ID:**	B8 (0.5-2")
Lab Order:	0306116	**Tag Number:**	
Project:	Greenpoint Lumber Yard Brooklyn, NY	**Collection Date:**	6/25/2003
Lab ID:	0306116-18A	**Matrix:**	SOIL

Analyses	Result	Limit	Qual	Units	DF	Date Analyzed
VOLATILES SW-846 METHOD 8260		**SW8260B**				Analyst: **LDS**
Carbon tetrachloride	U	5.0		µg/Kg	1	7/1/2003 10:05:00 AM
Chlorobenzene	U	5.0		µg/Kg	1	7/1/2003 10:05:00 AM
Chlorodifluoromethane	U	5.0		µg/Kg	1	7/1/2003 10:05:00 AM
Chloroethane	U	5.0		µg/Kg	1	7/1/2003 10:05:00 AM
Chloroform	U	5.0		µg/Kg	1	7/1/2003 10:05:00 AM
Chloromethane	U	5.0		µg/Kg	1	7/1/2003 10:05:00 AM
cis-1,2-Dichloroethene	U	5.0		µg/Kg	1	7/1/2003 10:05:00 AM
cis-1,3-Dichloropropene	U	5.0		µg/Kg	1	7/1/2003 10:05:00 AM
Dibromochloromethane	U	5.0		µg/Kg	1	7/1/2003 10:05:00 AM
Dibromomethane	U	5.0		µg/Kg	1	7/1/2003 10:05:00 AM
Dichlorodifluoromethane	U	5.0		µg/Kg	1	7/1/2003 10:05:00 AM
Diisopropyl ether	U	5.0		µg/Kg	1	7/1/2003 10:05:00 AM
Ethanol	U	25		µg/Kg	1	7/1/2003 10:05:00 AM
Ethyl acetate	U	5.0		µg/Kg	1	7/1/2003 10:05:00 AM
Ethylbenzene	U	5.0		µg/Kg	1	7/1/2003 10:05:00 AM
Freon-114	U	5.0		µg/Kg	1	7/1/2003 10:05:00 AM
Hexachlorobutadiene	U	5.0		µg/Kg	1	7/1/2003 10:05:00 AM
Isopropyl acetate	U	5.0		µg/Kg	1	7/1/2003 10:05:00 AM
Isopropylbenzene	U	5.0		µg/Kg	1	7/1/2003 10:05:00 AM
m,p-Xylene	U	10		µg/Kg	1	7/1/2003 10:05:00 AM
Methyl tert-butyl ether	U	5.0		µg/Kg	1	7/1/2003 10:05:00 AM
Methylene chloride	U	5.0		µg/Kg	1	7/1/2003 10:05:00 AM
Naphthalene	U	5.0		µg/Kg	1	7/1/2003 10:05:00 AM
n-Butyl acetate	U	5.0		µg/Kg	1	7/1/2003 10:05:00 AM
n-Butylbenzene	U	5.0		µg/Kg	1	7/1/2003 10:05:00 AM
n-Propyl acetate	U	5.0		µg/Kg	1	7/1/2003 10:05:00 AM
n-Propylbenzene	U	5.0		µg/Kg	1	7/1/2003 10:05:00 AM
o-Xylene	U	5.0		µg/Kg	1	7/1/2003 10:05:00 AM
p-Diethylbenzene	U	5.0		µg/Kg	1	7/1/2003 10:05:00 AM
p-Ethyltoluene	U	5.0		µg/Kg	1	7/1/2003 10:05:00 AM
sec-Butylbenzene	U	5.0		µg/Kg	1	7/1/2003 10:05:00 AM
Styrene	U	5.0		µg/Kg	1	7/1/2003 10:05:00 AM
t-Butyl alcohol	U	5.0		µg/Kg	1	7/1/2003 10:05:00 AM
tert-Butylbenzene	U	5.0		µg/Kg	1	7/1/2003 10:05:00 AM
Tetrachloroethene	U	5.0		µg/Kg	1	7/1/2003 10:05:00 AM
Toluene	U	5.0		µg/Kg	1	7/1/2003 10:05:00 AM
trans-1,2-Dichloroethene	U	5.0		µg/Kg	1	7/1/2003 10:05:00 AM
trans-1,3-Dichloropropene	U	5.0		µg/Kg	1	7/1/2003 10:05:00 AM
Trichloroethene	U	5.0		µg/Kg	1	7/1/2003 10:05:00 AM
Trichlorofluoromethane	U	5.0		µg/Kg	1	7/1/2003 10:05:00 AM

Qualifiers:

ND - Not Detected at the Reporting Limit

J - Analyte detected below quantitation limits

B - Analyte detected in the associated Method Blank

* - Value exceeds Maximum Contaminant Level

S - Spike Recovery outside accepted recovery limits

R - RPD outside accepted recovery limits

E - Value above quantitation range

American Analytical Laboratories, Inc.

Date: *28-Jul-03*

CLIENT:	AKRF, Inc	**Client Sample ID:**	B8 (0.5-2")
Lab Order:	0306116	**Tag Number:**	
Project:	Greenpoint Lumber Yard Brooklyn, NY	**Collection Date:**	6/25/2003
Lab ID:	0306116-18A	**Matrix:**	SOIL

Analyses	Result	Limit	Qual	Units	DF	Date Analyzed
VOLATILES SW-846 METHOD 8260		**SW8260B**				Analyst: **LDS**
Vinyl acetate	U	5.0		µg/Kg	1	7/1/2003 10:05:00 AM
Vinyl chloride	U	5.0		µg/Kg	1	7/1/2003 10:05:00 AM

Qualifiers:

ND - Not Detected at the Reporting Limit

J - Analyte detected below quantitation limits

B - Analyte detected in the associated Method Blank

* - Value exceeds Maximum Contaminant Level

S - Spike Recovery outside accepted recovery limits

R - RPD outside accepted recovery limits

E - Value above quantitation range

American Analytical Laboratories, Inc.

Date: *28-Jul-03*

CLIENT:	AKRF, Inc	**Client Sample ID:**	B8 (8-10')
Lab Order:	0306116	**Tag Number:**	
Project:	Greenpoint Lumber Yard Brooklyn, NY	**Collection Date:**	6/25/2003
Lab ID:	0306116-19A	**Matrix:**	SOIL

Analyses	Result	Limit	Qual	Units	DF	Date Analyzed
VOLATILES SW-846 METHOD 8260		**SW8260B**				Analyst: **LDS**
1,1,1,2-Tetrachloroethane	U	5.0		µg/Kg	1	7/1/2003 10:43:00 AM
1,1,1-Trichloroethane	U	5.0		µg/Kg	1	7/1/2003 10:43:00 AM
1,1,2,2-Tetrachloroethane	U	5.0		µg/Kg	1	7/1/2003 10:43:00 AM
1,1,2-Trichloro-1,2,2-trifluoroethane	U	5.0		µg/Kg	1	7/1/2003 10:43:00 AM
1,1,2-Trichloroethane	U	5.0		µg/Kg	1	7/1/2003 10:43:00 AM
1,1-Dichloroethane	U	5.0		µg/Kg	1	7/1/2003 10:43:00 AM
1,1-Dichloroethene	U	5.0		µg/Kg	1	7/1/2003 10:43:00 AM
1,1-Dichloropropene	U	5.0		µg/Kg	1	7/1/2003 10:43:00 AM
1,2,3-Trichlorobenzene	U	5.0		µg/Kg	1	7/1/2003 10:43:00 AM
1,2,3-Trichloropropane	U	5.0		µg/Kg	1	7/1/2003 10:43:00 AM
1,2,4,5-Tetramethylbenzene	U	5.0		µg/Kg	1	7/1/2003 10:43:00 AM
1,2,4-Trichlorobenzene	U	5.0		µg/Kg	1	7/1/2003 10:43:00 AM
1,2,4-Trimethylbenzene	U	5.0		µg/Kg	1	7/1/2003 10:43:00 AM
1,2-Dibromo-3-chloropropane	U	5.0		µg/Kg	1	7/1/2003 10:43:00 AM
1,2-Dibromoethane	U	5.0		µg/Kg	1	7/1/2003 10:43:00 AM
1,2-Dichlorobenzene	U	5.0		µg/Kg	1	7/1/2003 10:43:00 AM
1,2-Dichloroethane	U	5.0		µg/Kg	1	7/1/2003 10:43:00 AM
1,2-Dichloropropane	U	5.0		µg/Kg	1	7/1/2003 10:43:00 AM
1,3,5-Trimethylbenzene	U	5.0		µg/Kg	1	7/1/2003 10:43:00 AM
1,3-Dichlorobenzene	U	5.0		µg/Kg	1	7/1/2003 10:43:00 AM
1,3-dichloropropane	U	5.0		µg/Kg	1	7/1/2003 10:43:00 AM
1,4-Dichlorobenzene	U	5.0		µg/Kg	1	7/1/2003 10:43:00 AM
2,2-Dichloropropane	U	5.0		µg/Kg	1	7/1/2003 10:43:00 AM
2-Butanone	U	5.0		µg/Kg	1	7/1/2003 10:43:00 AM
2-Chloroethyl vinyl ether	U	5.0		µg/Kg	1	7/1/2003 10:43:00 AM
2-Chlorotoluene	U	5.0		µg/Kg	1	7/1/2003 10:43:00 AM
2-Hexanone	U	5.0		µg/Kg	1	7/1/2003 10:43:00 AM
4-Chlorotoluene	U	5.0		µg/Kg	1	7/1/2003 10:43:00 AM
4-Isopropyltoluene	U	5.0		µg/Kg	1	7/1/2003 10:43:00 AM
4-Methyl-2-pentanone	U	5.0		µg/Kg	1	7/1/2003 10:43:00 AM
Acetone	U	5.0		µg/Kg	1	7/1/2003 10:43:00 AM
Acrolein	U	25		µg/Kg	1	7/1/2003 10:43:00 AM
Acrylonitrile	U	5.0		µg/Kg	1	7/1/2003 10:43:00 AM
Benzene	U	5.0		µg/Kg	1	7/1/2003 10:43:00 AM
Bromobenzene	U	5.0		µg/Kg	1	7/1/2003 10:43:00 AM
Bromochloromethane	U	5.0		µg/Kg	1	7/1/2003 10:43:00 AM
Bromodichloromethane	U	5.0		µg/Kg	1	7/1/2003 10:43:00 AM
Bromoform	U	5.0		µg/Kg	1	7/1/2003 10:43:00 AM
Bromomethane	U	5.0		µg/Kg	1	7/1/2003 10:43:00 AM
Carbon disulfide	U	5.0		µg/Kg	1	7/1/2003 10:43:00 AM

Qualifiers:

ND - Not Detected at the Reporting Limit

J - Analyte detected below quantitation limits

B - Analyte detected in the associated Method Blank

* - Value exceeds Maximum Contaminant Level

S - Spike Recovery outside accepted recovery limits

R - RPD outside accepted recovery limits

E - Value above quantitation range

American Analytical Laboratories, Inc.

Date: *28-Jul-03*

CLIENT:	AKRF, Inc	**Client Sample ID:**	B8 (8-10')
Lab Order:	0306116	**Tag Number:**	
Project:	Greenpoint Lumber Yard Brooklyn, NY	**Collection Date:**	6/25/2003
Lab ID:	0306116-19A	**Matrix:**	SOIL

Analyses	Result	Limit	Qual	Units	DF	Date Analyzed
VOLATILES SW-846 METHOD 8260		**SW8260B**				Analyst: **LDS**
Carbon tetrachloride	U	5.0		µg/Kg	1	7/1/2003 10:43:00 AM
Chlorobenzene	U	5.0		µg/Kg	1	7/1/2003 10:43:00 AM
Chlorodifluoromethane	U	5.0		µg/Kg	1	7/1/2003 10:43:00 AM
Chloroethane	U	5.0		µg/Kg	1	7/1/2003 10:43:00 AM
Chloroform	6.2	5.0		µg/Kg	1	7/1/2003 10:43:00 AM
Chloromethane	U	5.0		µg/Kg	1	7/1/2003 10:43:00 AM
cis-1,2-Dichloroethene	U	5.0		µg/Kg	1	7/1/2003 10:43:00 AM
cis-1,3-Dichloropropene	U	5.0		µg/Kg	1	7/1/2003 10:43:00 AM
Dibromochloromethane	U	5.0		µg/Kg	1	7/1/2003 10:43:00 AM
Dibromomethane	U	5.0		µg/Kg	1	7/1/2003 10:43:00 AM
Dichlorodifluoromethane	U	5.0		µg/Kg	1	7/1/2003 10:43:00 AM
Diisopropyl ether	U	5.0		µg/Kg	1	7/1/2003 10:43:00 AM
Ethanol	U	25		µg/Kg	1	7/1/2003 10:43:00 AM
Ethyl acetate	U	5.0		µg/Kg	1	7/1/2003 10:43:00 AM
Ethylbenzene	U	5.0		µg/Kg	1	7/1/2003 10:43:00 AM
Freon-114	U	5.0		µg/Kg	1	7/1/2003 10:43:00 AM
Hexachlorobutadiene	U	5.0		µg/Kg	1	7/1/2003 10:43:00 AM
Isopropyl acetate	U	5.0		µg/Kg	1	7/1/2003 10:43:00 AM
Isopropylbenzene	U	5.0		µg/Kg	1	7/1/2003 10:43:00 AM
m,p-Xylene	U	10		µg/Kg	1	7/1/2003 10:43:00 AM
Methyl tert-butyl ether	U	5.0		µg/Kg	1	7/1/2003 10:43:00 AM
Methylene chloride	U	5.0		µg/Kg	1	7/1/2003 10:43:00 AM
Naphthalene	U	5.0		µg/Kg	1	7/1/2003 10:43:00 AM
n-Butyl acetate	U	5.0		µg/Kg	1	7/1/2003 10:43:00 AM
n-Butylbenzene	U	5.0		µg/Kg	1	7/1/2003 10:43:00 AM
n-Propyl acetate	U	5.0		µg/Kg	1	7/1/2003 10:43:00 AM
n-Propylbenzene	U	5.0		µg/Kg	1	7/1/2003 10:43:00 AM
o-Xylene	U	5.0		µg/Kg	1	7/1/2003 10:43:00 AM
p-Diethylbenzene	U	5.0		µg/Kg	1	7/1/2003 10:43:00 AM
p-Ethyltoluene	U	5.0		µg/Kg	1	7/1/2003 10:43:00 AM
sec-Butylbenzene	U	5.0		µg/Kg	1	7/1/2003 10:43:00 AM
Styrene	U	5.0		µg/Kg	1	7/1/2003 10:43:00 AM
t-Butyl alcohol	U	5.0		µg/Kg	1	7/1/2003 10:43:00 AM
tert-Butylbenzene	U	5.0		µg/Kg	1	7/1/2003 10:43:00 AM
Tetrachloroethene	U	5.0		µg/Kg	1	7/1/2003 10:43:00 AM
Toluene	U	5.0		µg/Kg	1	7/1/2003 10:43:00 AM
trans-1,2-Dichloroethene	U	5.0		µg/Kg	1	7/1/2003 10:43:00 AM
trans-1,3-Dichloropropene	U	5.0		µg/Kg	1	7/1/2003 10:43:00 AM
Trichloroethene	U	5.0		µg/Kg	1	7/1/2003 10:43:00 AM
Trichlorofluoromethane	U	5.0		µg/Kg	1	7/1/2003 10:43:00 AM

Qualifiers:

ND - Not Detected at the Reporting Limit

J - Analyte detected below quantitation limits

B - Analyte detected in the associated Method Blank

* - Value exceeds Maximum Contaminant Level

S - Spike Recovery outside accepted recovery limits

R - RPD outside accepted recovery limits

E - Value above quantitation range

American Analytical Laboratories, Inc.

Date: *28-Jul-03*

CLIENT:	AKRF, Inc	**Client Sample ID:**	B8 (8-10')
Lab Order:	0306116	**Tag Number:**	
Project:	Greenpoint Lumber Yard Brooklyn, NY	**Collection Date:**	6/25/2003
Lab ID:	0306116-19A	**Matrix:**	SOIL

Analyses	Result	Limit	Qual	Units	DF	Date Analyzed
VOLATILES SW-846 METHOD 8260		**SW8260B**				Analyst: **LDS**
Vinyl acetate	U	5.0		µg/Kg	1	7/1/2003 10:43:00 AM
Vinyl chloride	U	5.0		µg/Kg	1	7/1/2003 10:43:00 AM

Qualifiers:

ND - Not Detected at the Reporting Limit

J - Analyte detected below quantitation limits

B - Analyte detected in the associated Method Blank

* - Value exceeds Maximum Contaminant Level

S - Spike Recovery outside accepted recovery limits

R - RPD outside accepted recovery limits

E - Value above quantitation range

American Analytical Laboratories, Inc.

Date: *28-Jul-03*

CLIENT:	AKRF, Inc	**Client Sample ID:**	MW10 (0.5-2')
Lab Order:	0306116	**Tag Number:**	
Project:	Greenpoint Lumber Yard Brooklyn, NY	**Collection Date:**	6/25/2003
Lab ID:	0306116-20A	**Matrix:**	SOIL

Analyses	Result	Limit	Qual	Units	DF	Date Analyzed
VOLATILES SW-846 METHOD 8260		**SW8260B**				Analyst: **LDS**
1,1,1,2-Tetrachloroethane	U	5.0		µg/Kg	1	7/1/2003 11:21:00 AM
1,1,1-Trichloroethane	U	5.0		µg/Kg	1	7/1/2003 11:21:00 AM
1,1,2,2-Tetrachloroethane	U	5.0		µg/Kg	1	7/1/2003 11:21:00 AM
1,1,2-Trichloro-1,2,2-trifluoroethane	U	5.0		µg/Kg	1	7/1/2003 11:21:00 AM
1,1,2-Trichloroethane	U	5.0		µg/Kg	1	7/1/2003 11:21:00 AM
1,1-Dichloroethane	U	5.0		µg/Kg	1	7/1/2003 11:21:00 AM
1,1-Dichloroethene	U	5.0		µg/Kg	1	7/1/2003 11:21:00 AM
1,1-Dichloropropene	U	5.0		µg/Kg	1	7/1/2003 11:21:00 AM
1,2,3-Trichlorobenzene	U	5.0		µg/Kg	1	7/1/2003 11:21:00 AM
1,2,3-Trichloropropane	U	5.0		µg/Kg	1	7/1/2003 11:21:00 AM
1,2,4,5-Tetramethylbenzene	U	5.0		µg/Kg	1	7/1/2003 11:21:00 AM
1,2,4-Trichlorobenzene	U	5.0		µg/Kg	1	7/1/2003 11:21:00 AM
1,2,4-Trimethylbenzene	U	5.0		µg/Kg	1	7/1/2003 11:21:00 AM
1,2-Dibromo-3-chloropropane	U	5.0		µg/Kg	1	7/1/2003 11:21:00 AM
1,2-Dibromoethane	U	5.0		µg/Kg	1	7/1/2003 11:21:00 AM
1,2-Dichlorobenzene	U	5.0		µg/Kg	1	7/1/2003 11:21:00 AM
1,2-Dichloroethane	U	5.0		µg/Kg	1	7/1/2003 11:21:00 AM
1,2-Dichloropropane	U	5.0		µg/Kg	1	7/1/2003 11:21:00 AM
1,3,5-Trimethylbenzene	U	5.0		µg/Kg	1	7/1/2003 11:21:00 AM
1,3-Dichlorobenzene	U	5.0		µg/Kg	1	7/1/2003 11:21:00 AM
1,3-dichloropropane	U	5.0		µg/Kg	1	7/1/2003 11:21:00 AM
1,4-Dichlorobenzene	U	5.0		µg/Kg	1	7/1/2003 11:21:00 AM
2,2-Dichloropropane	U	5.0		µg/Kg	1	7/1/2003 11:21:00 AM
2-Butanone	U	5.0		µg/Kg	1	7/1/2003 11:21:00 AM
2-Chloroethyl vinyl ether	U	5.0		µg/Kg	1	7/1/2003 11:21:00 AM
2-Chlorotoluene	U	5.0		µg/Kg	1	7/1/2003 11:21:00 AM
2-Hexanone	U	5.0		µg/Kg	1	7/1/2003 11:21:00 AM
4-Chlorotoluene	U	5.0		µg/Kg	1	7/1/2003 11:21:00 AM
4-Isopropyltoluene	U	5.0		µg/Kg	1	7/1/2003 11:21:00 AM
4-Methyl-2-pentanone	U	5.0		µg/Kg	1	7/1/2003 11:21:00 AM
Acetone	U	5.0		µg/Kg	1	7/1/2003 11:21:00 AM
Acrolein	U	25		µg/Kg	1	7/1/2003 11:21:00 AM
Acrylonitrile	U	5.0		µg/Kg	1	7/1/2003 11:21:00 AM
Benzene	U	5.0		µg/Kg	1	7/1/2003 11:21:00 AM
Bromobenzene	U	5.0		µg/Kg	1	7/1/2003 11:21:00 AM
Bromochloromethane	U	5.0		µg/Kg	1	7/1/2003 11:21:00 AM
Bromodichloromethane	U	5.0		µg/Kg	1	7/1/2003 11:21:00 AM
Bromoform	U	5.0		µg/Kg	1	7/1/2003 11:21:00 AM
Bromomethane	U	5.0		µg/Kg	1	7/1/2003 11:21:00 AM
Carbon disulfide	U	5.0		µg/Kg	1	7/1/2003 11:21:00 AM

Qualifiers:

ND - Not Detected at the Reporting Limit

J - Analyte detected below quantitation limits

B - Analyte detected in the associated Method Blank

* - Value exceeds Maximum Contaminant Level

S - Spike Recovery outside accepted recovery limits

R - RPD outside accepted recovery limits

E - Value above quantitation range

American Analytical Laboratories, Inc.

Date: *28-Jul-03*

CLIENT:	AKRF, Inc	**Client Sample ID:**	MW10 (0.5-2')
Lab Order:	0306116	**Tag Number:**	
Project:	Greenpoint Lumber Yard Brooklyn, NY	**Collection Date:**	6/25/2003
Lab ID:	0306116-20A	**Matrix:**	SOIL

Analyses	Result	Limit	Qual	Units	DF	Date Analyzed
VOLATILES SW-846 METHOD 8260		**SW8260B**				Analyst: **LDS**
Carbon tetrachloride	U	5.0		µg/Kg	1	7/1/2003 11:21:00 AM
Chlorobenzene	U	5.0		µg/Kg	1	7/1/2003 11:21:00 AM
Chlorodifluoromethane	U	5.0		µg/Kg	1	7/1/2003 11:21:00 AM
Chloroethane	U	5.0		µg/Kg	1	7/1/2003 11:21:00 AM
Chloroform	U	5.0		µg/Kg	1	7/1/2003 11:21:00 AM
Chloromethane	U	5.0		µg/Kg	1	7/1/2003 11:21:00 AM
cis-1,2-Dichloroethene	U	5.0		µg/Kg	1	7/1/2003 11:21:00 AM
cis-1,3-Dichloropropene	U	5.0		µg/Kg	1	7/1/2003 11:21:00 AM
Dibromochloromethane	U	5.0		µg/Kg	1	7/1/2003 11:21:00 AM
Dibromomethane	U	5.0		µg/Kg	1	7/1/2003 11:21:00 AM
Dichlorodifluoromethane	U	5.0		µg/Kg	1	7/1/2003 11:21:00 AM
Diisopropyl ether	U	5.0		µg/Kg	1	7/1/2003 11:21:00 AM
Ethanol	U	25		µg/Kg	1	7/1/2003 11:21:00 AM
Ethyl acetate	U	5.0		µg/Kg	1	7/1/2003 11:21:00 AM
Ethylbenzene	U	5.0		µg/Kg	1	7/1/2003 11:21:00 AM
Freon-114	U	5.0		µg/Kg	1	7/1/2003 11:21:00 AM
Hexachlorobutadiene	U	5.0		µg/Kg	1	7/1/2003 11:21:00 AM
Isopropyl acetate	U	5.0		µg/Kg	1	7/1/2003 11:21:00 AM
Isopropylbenzene	U	5.0		µg/Kg	1	7/1/2003 11:21:00 AM
m,p-Xylene	U	10		µg/Kg	1	7/1/2003 11:21:00 AM
Methyl tert-butyl ether	U	5.0		µg/Kg	1	7/1/2003 11:21:00 AM
Methylene chloride	U	5.0		µg/Kg	1	7/1/2003 11:21:00 AM
Naphthalene	U	5.0		µg/Kg	1	7/1/2003 11:21:00 AM
n-Butyl acetate	U	5.0		µg/Kg	1	7/1/2003 11:21:00 AM
n-Butylbenzene	U	5.0		µg/Kg	1	7/1/2003 11:21:00 AM
n-Propyl acetate	U	5.0		µg/Kg	1	7/1/2003 11:21:00 AM
n-Propylbenzene	U	5.0		µg/Kg	1	7/1/2003 11:21:00 AM
o-Xylene	U	5.0		µg/Kg	1	7/1/2003 11:21:00 AM
p-Diethylbenzene	U	5.0		µg/Kg	1	7/1/2003 11:21:00 AM
p-Ethyltoluene	U	5.0		µg/Kg	1	7/1/2003 11:21:00 AM
sec-Butylbenzene	U	5.0		µg/Kg	1	7/1/2003 11:21:00 AM
Styrene	U	5.0		µg/Kg	1	7/1/2003 11:21:00 AM
t-Butyl alcohol	U	5.0		µg/Kg	1	7/1/2003 11:21:00 AM
tert-Butylbenzene	U	5.0		µg/Kg	1	7/1/2003 11:21:00 AM
Tetrachloroethene	U	5.0		µg/Kg	1	7/1/2003 11:21:00 AM
Toluene	U	5.0		µg/Kg	1	7/1/2003 11:21:00 AM
trans-1,2-Dichloroethene	U	5.0		µg/Kg	1	7/1/2003 11:21:00 AM
trans-1,3-Dichloropropene	U	5.0		µg/Kg	1	7/1/2003 11:21:00 AM
Trichloroethene	U	5.0		µg/Kg	1	7/1/2003 11:21:00 AM
Trichlorofluoromethane	U	5.0		µg/Kg	1	7/1/2003 11:21:00 AM

Qualifiers:

ND - Not Detected at the Reporting Limit

J - Analyte detected below quantitation limits

B - Analyte detected in the associated Method Blank

* - Value exceeds Maximum Contaminant Level

S - Spike Recovery outside accepted recovery limits

R - RPD outside accepted recovery limits

E - Value above quantitation range

American Analytical Laboratories, Inc.

Date: *28-Jul-03*

CLIENT:	AKRF, Inc	**Client Sample ID:**	MW10 (0.5-2')
Lab Order:	0306116	**Tag Number:**	
Project:	Greenpoint Lumber Yard Brooklyn, NY	**Collection Date:**	6/25/2003
Lab ID:	0306116-20A	**Matrix:**	SOIL

Analyses	Result	Limit	Qual	Units	DF	Date Analyzed
VOLATILES SW-846 METHOD 8260		**SW8260B**				Analyst: **LDS**
Vinyl acetate	U	5.0		µg/Kg	1	7/1/2003 11:21:00 AM
Vinyl chloride	U	5.0		µg/Kg	1	7/1/2003 11:21:00 AM

Qualifiers:

ND - Not Detected at the Reporting Limit

J - Analyte detected below quantitation limits

B - Analyte detected in the associated Method Blank

* - Value exceeds Maximum Contaminant Level

S - Spike Recovery outside accepted recovery limits

R - RPD outside accepted recovery limits

E - Value above quantitation range

GC/MS SEMIVOLATILE DATA

RESULTS – ORGANIC ANALYSIS DATA SHEET

American Analytical Laboratories, Inc.

Date: *28-Jul-03*

CLIENT:	AKRF, Inc	**Client Sample ID:**	B12 (0.5-2')
Lab Order:	0306116	**Tag Number:**	
Project:	Greenpoint Lumber Yard Brooklyn, NY	**Collection Date:**	6/25/2003
Lab ID:	0306116-01B	**Matrix:**	SOIL

Analyses	Result	Limit	Qual	Units	DF	Date Analyzed
SEMIVOLATILES SW-846 8270		**SW8270D**		**(SW3550A)**		Analyst: **RN**
1,2,4-Trichlorobenzene	U	80		µg/Kg	2	7/3/2003 4:01:00 PM
1,2-Dichlorobenzene	U	80		µg/Kg	2	7/3/2003 4:01:00 PM
1,3-Dichlorobenzene	U	80		µg/Kg	2	7/3/2003 4:01:00 PM
1,4-Dichlorobenzene	U	80		µg/Kg	2	7/3/2003 4:01:00 PM
2,4,5-Trichlorophenol	U	80		µg/Kg	2	7/3/2003 4:01:00 PM
2,4,6-Trichlorophenol	U	80		µg/Kg	2	7/3/2003 4:01:00 PM
2,4-Dichlorophenol	U	80		µg/Kg	2	7/3/2003 4:01:00 PM
2,4-Dimethylphenol	U	80		µg/Kg	2	7/3/2003 4:01:00 PM
2,4-Dinitrophenol	U	80		µg/Kg	2	7/3/2003 4:01:00 PM
2,4-Dinitrotoluene	U	80		µg/Kg	2	7/3/2003 4:01:00 PM
2,6-Dinitrotoluene	U	80		µg/Kg	2	7/3/2003 4:01:00 PM
2-Chloronaphthalene	U	80		µg/Kg	2	7/3/2003 4:01:00 PM
2-Chlorophenol	U	80		µg/Kg	2	7/3/2003 4:01:00 PM
2-Methylnaphthalene	290	80		µg/Kg	2	7/3/2003 4:01:00 PM
2-Methylphenol	U	80		µg/Kg	2	7/3/2003 4:01:00 PM
2-Nitroaniline	U	80		µg/Kg	2	7/3/2003 4:01:00 PM
2-Nitrophenol	U	80		µg/Kg	2	7/3/2003 4:01:00 PM
3,3´-Dichlorobenzidine	U	80		µg/Kg	2	7/3/2003 4:01:00 PM
3+4-Methylphenol	U	80		µg/Kg	2	7/3/2003 4:01:00 PM
3-Nitroaniline	U	80		µg/Kg	2	7/3/2003 4:01:00 PM
4,6-Dinitro-2-methylphenol	U	80		µg/Kg	2	7/3/2003 4:01:00 PM
4-Bromophenyl phenyl ether	U	80		µg/Kg	2	7/3/2003 4:01:00 PM
4-Chloro-3-methylphenol	U	80		µg/Kg	2	7/3/2003 4:01:00 PM
4-Chloroaniline	U	80		µg/Kg	2	7/3/2003 4:01:00 PM
4-Chlorophenyl phenyl ether	U	80		µg/Kg	2	7/3/2003 4:01:00 PM
4-Nitroaniline	U	80		µg/Kg	2	7/3/2003 4:01:00 PM
4-Nitrophenol	U	80		µg/Kg	2	7/3/2003 4:01:00 PM
Acenaphthene	U	80		µg/Kg	2	7/3/2003 4:01:00 PM
Acenaphthylene	130	80		µg/Kg	2	7/3/2003 4:01:00 PM
Aniline	U	80		µg/Kg	2	7/3/2003 4:01:00 PM
Anthracene	230	80		µg/Kg	2	7/3/2003 4:01:00 PM
Azobenzene	U	80		µg/Kg	2	7/3/2003 4:01:00 PM
Benzidine	U	80		µg/Kg	2	7/3/2003 4:01:00 PM
Benzo(a)anthracene	1000	80		µg/Kg	2	7/3/2003 4:01:00 PM
Benzo(a)pyrene	1000	80		µg/Kg	2	7/3/2003 4:01:00 PM
Benzo(b)fluoranthene	1300	80		µg/Kg	2	7/3/2003 4:01:00 PM
Benzo(g,h,i)perylene	860	80		µg/Kg	2	7/3/2003 4:01:00 PM
Benzo(k)fluoranthene	520	80		µg/Kg	2	7/3/2003 4:01:00 PM
Benzoic acid	U	80		µg/Kg	2	7/3/2003 4:01:00 PM
Benzyl alcohol	U	80		µg/Kg	2	7/3/2003 4:01:00 PM

Qualifiers:

ND - Not Detected at the Reporting Limit

J - Analyte detected below quantitation limits

B - Analyte detected in the associated Method Blank

* - Value exceeds Maximum Contaminant Level

S - Spike Recovery outside accepted recovery limits

R - RPD outside accepted recovery limits

E - Value above quantitation range

American Analytical Laboratories, Inc.

Date: *28-Jul-03*

CLIENT:	AKRF, Inc	**Client Sample ID:**	B12 (0.5-2')
Lab Order:	0306116	**Tag Number:**	
Project:	Greenpoint Lumber Yard Brooklyn, NY	**Collection Date:**	6/25/2003
Lab ID:	0306116-01B	**Matrix:**	SOIL

Analyses	Result	Limit	Qual	Units	DF	Date Analyzed
SEMIVOLATILES SW-846 8270		**SW8270D**		**(SW3550A)**		Analyst: **RN**
Bis(2-chloroethoxy)methane	U	80		µg/Kg	2	7/3/2003 4:01:00 PM
Bis(2-chloroethyl)ether	U	80		µg/Kg	2	7/3/2003 4:01:00 PM
Bis(2-chloroisopropyl)ether	U	80		µg/Kg	2	7/3/2003 4:01:00 PM
Bis(2-ethylhexyl)phthalate	370	80		µg/Kg	2	7/3/2003 4:01:00 PM
Butyl benzyl phthalate	U	80		µg/Kg	2	7/3/2003 4:01:00 PM
Carbazole	U	80		µg/Kg	2	7/3/2003 4:01:00 PM
Chrysene	1200	80		µg/Kg	2	7/3/2003 4:01:00 PM
Dibenzo(a,h)anthracene	210	80		µg/Kg	2	7/3/2003 4:01:00 PM
Dibenzofuran	U	80		µg/Kg	2	7/3/2003 4:01:00 PM
Diethyl phthalate	U	80		µg/Kg	2	7/3/2003 4:01:00 PM
Dimethyl phthalate	U	80		µg/Kg	2	7/3/2003 4:01:00 PM
Di-n-butyl phthalate	U	80		µg/Kg	2	7/3/2003 4:01:00 PM
Di-n-octyl phthalate	U	80		µg/Kg	2	7/3/2003 4:01:00 PM
Fluoranthene	1700	80		µg/Kg	2	7/3/2003 4:01:00 PM
Fluorene	110	80		µg/Kg	2	7/3/2003 4:01:00 PM
Hexachlorobenzene	U	80		µg/Kg	2	7/3/2003 4:01:00 PM
Hexachlorobutadiene	U	80		µg/Kg	2	7/3/2003 4:01:00 PM
Hexachlorocyclopentadiene	U	80		µg/Kg	2	7/3/2003 4:01:00 PM
Hexachloroethane	U	80		µg/Kg	2	7/3/2003 4:01:00 PM
Indeno(1,2,3-c,d)pyrene	800	80		µg/Kg	2	7/3/2003 4:01:00 PM
Isophorone	U	80		µg/Kg	2	7/3/2003 4:01:00 PM
Naphthalene	170	80		µg/Kg	2	7/3/2003 4:01:00 PM
Nitrobenzene	U	80		µg/Kg	2	7/3/2003 4:01:00 PM
N-Nitrosodimethylamine	U	80		µg/Kg	2	7/3/2003 4:01:00 PM
N-Nitrosodi-n-propylamine	U	80		µg/Kg	2	7/3/2003 4:01:00 PM
N-Nitrosodiphenylamine	U	80		µg/Kg	2	7/3/2003 4:01:00 PM
Pentachlorophenol	U	80		µg/Kg	2	7/3/2003 4:01:00 PM
Phenanthrene	1000	80		µg/Kg	2	7/3/2003 4:01:00 PM
Phenol	U	80		µg/Kg	2	7/3/2003 4:01:00 PM
Pyrene	1800	80		µg/Kg	2	7/3/2003 4:01:00 PM
Pyridine	U	80		µg/Kg	2	7/3/2003 4:01:00 PM

Qualifiers:

ND - Not Detected at the Reporting Limit

J - Analyte detected below quantitation limits

B - Analyte detected in the associated Method Blank

* - Value exceeds Maximum Contaminant Level

S - Spike Recovery outside accepted recovery limits

R - RPD outside accepted recovery limits

E - Value above quantitation range

American Analytical Laboratories, Inc.

Date: *28-Jul-03*

CLIENT:	AKRF, Inc	**Client Sample ID:**	B12 (5'-7')
Lab Order:	0306116	**Tag Number:**	
Project:	Greenpoint Lumber Yard Brooklyn, NY	**Collection Date:**	6/25/2003
Lab ID:	0306116-02B	**Matrix:**	SOIL

Analyses	Result	Limit	Qual	Units	DF	Date Analyzed
SEMIVOLATILES SW-846 8270		**SW8270D**		**(SW3550A)**		Analyst: **RN**
1,2,4-Trichlorobenzene	U	40		µg/Kg	1	7/1/2003 5:52:00 PM
1,2-Dichlorobenzene	U	40		µg/Kg	1	7/1/2003 5:52:00 PM
1,3-Dichlorobenzene	U	40		µg/Kg	1	7/1/2003 5:52:00 PM
1,4-Dichlorobenzene	U	40		µg/Kg	1	7/1/2003 5:52:00 PM
2,4,5-Trichlorophenol	U	40		µg/Kg	1	7/1/2003 5:52:00 PM
2,4,6-Trichlorophenol	U	40		µg/Kg	1	7/1/2003 5:52:00 PM
2,4-Dichlorophenol	U	40		µg/Kg	1	7/1/2003 5:52:00 PM
2,4-Dimethylphenol	U	40		µg/Kg	1	7/1/2003 5:52:00 PM
2,4-Dinitrophenol	U	40		µg/Kg	1	7/1/2003 5:52:00 PM
2,4-Dinitrotoluene	U	40		µg/Kg	1	7/1/2003 5:52:00 PM
2,6-Dinitrotoluene	U	40		µg/Kg	1	7/1/2003 5:52:00 PM
2-Chloronaphthalene	U	40		µg/Kg	1	7/1/2003 5:52:00 PM
2-Chlorophenol	U	40		µg/Kg	1	7/1/2003 5:52:00 PM
2-Methylnaphthalene	U	40		µg/Kg	1	7/1/2003 5:52:00 PM
2-Methylphenol	U	40		µg/Kg	1	7/1/2003 5:52:00 PM
2-Nitroaniline	U	40		µg/Kg	1	7/1/2003 5:52:00 PM
2-Nitrophenol	U	40		µg/Kg	1	7/1/2003 5:52:00 PM
3,3'-Dichlorobenzidine	U	40		µg/Kg	1	7/1/2003 5:52:00 PM
3+4-Methylphenol	U	40		µg/Kg	1	7/1/2003 5:52:00 PM
3-Nitroaniline	U	40		µg/Kg	1	7/1/2003 5:52:00 PM
4,6-Dinitro-2-methylphenol	U	40		µg/Kg	1	7/1/2003 5:52:00 PM
4-Bromophenyl phenyl ether	U	40		µg/Kg	1	7/1/2003 5:52:00 PM
4-Chloro-3-methylphenol	U	40		µg/Kg	1	7/1/2003 5:52:00 PM
4-Chloroaniline	U	40		µg/Kg	1	7/1/2003 5:52:00 PM
4-Chlorophenyl phenyl ether	U	40		µg/Kg	1	7/1/2003 5:52:00 PM
4-Nitroaniline	U	40		µg/Kg	1	7/1/2003 5:52:00 PM
4-Nitrophenol	U	40		µg/Kg	1	7/1/2003 5:52:00 PM
Acenaphthene	U	40		µg/Kg	1	7/1/2003 5:52:00 PM
Acenaphthylene	U	40		µg/Kg	1	7/1/2003 5:52:00 PM
Aniline	U	40		µg/Kg	1	7/1/2003 5:52:00 PM
Anthracene	63	40		µg/Kg	1	7/1/2003 5:52:00 PM
Azobenzene	U	40		µg/Kg	1	7/1/2003 5:52:00 PM
Benzidine	U	40		µg/Kg	1	7/1/2003 5:52:00 PM
Benzo(a)anthracene	150	40		µg/Kg	1	7/1/2003 5:52:00 PM
Benzo(a)pyrene	110	40		µg/Kg	1	7/1/2003 5:52:00 PM
Benzo(b)fluoranthene	130	40		µg/Kg	1	7/1/2003 5:52:00 PM
Benzo(g,h,i)perylene	70	40		µg/Kg	1	7/1/2003 5:52:00 PM
Benzo(k)fluoranthene	57	40		µg/Kg	1	7/1/2003 5:52:00 PM
Benzoic acid	150	40		µg/Kg	1	7/1/2003 5:52:00 PM
Benzyl alcohol	U	40		µg/Kg	1	7/1/2003 5:52:00 PM

Qualifiers:

ND - Not Detected at the Reporting Limit

J - Analyte detected below quantitation limits

B - Analyte detected in the associated Method Blank

* - Value exceeds Maximum Contaminant Level

S - Spike Recovery outside accepted recovery limits

R - RPD outside accepted recovery limits

E - Value above quantitation range

American Analytical Laboratories, Inc.

Date: *28-Jul-03*

CLIENT:	AKRF, Inc	**Client Sample ID:**	B12 (5'-7')
Lab Order:	0306116	**Tag Number:**	
Project:	Greenpoint Lumber Yard Brooklyn, NY	**Collection Date:**	6/25/2003
Lab ID:	0306116-02B	**Matrix:**	SOIL

Analyses	Result	Limit	Qual	Units	DF	Date Analyzed
SEMIVOLATILES SW-846 8270		**SW8270D**		**(SW3550A)**		Analyst: **RN**
Bis(2-chloroethoxy)methane	U	40		µg/Kg	1	7/1/2003 5:52:00 PM
Bis(2-chloroethyl)ether	U	40		µg/Kg	1	7/1/2003 5:52:00 PM
Bis(2-chloroisopropyl)ether	U	40		µg/Kg	1	7/1/2003 5:52:00 PM
Bis(2-ethylhexyl)phthalate	U	40		µg/Kg	1	7/1/2003 5:52:00 PM
Butyl benzyl phthalate	U	40		µg/Kg	1	7/1/2003 5:52:00 PM
Carbazole	U	40		µg/Kg	1	7/1/2003 5:52:00 PM
Chrysene	160	40		µg/Kg	1	7/1/2003 5:52:00 PM
Dibenzo(a,h)anthracene	U	40		µg/Kg	1	7/1/2003 5:52:00 PM
Dibenzofuran	U	40		µg/Kg	1	7/1/2003 5:52:00 PM
Diethyl phthalate	U	40		µg/Kg	1	7/1/2003 5:52:00 PM
Dimethyl phthalate	U	40		µg/Kg	1	7/1/2003 5:52:00 PM
Di-n-butyl phthalate	U	40		µg/Kg	1	7/1/2003 5:52:00 PM
Di-n-octyl phthalate	U	40		µg/Kg	1	7/1/2003 5:52:00 PM
Fluoranthene	330	40		µg/Kg	1	7/1/2003 5:52:00 PM
Fluorene	U	40		µg/Kg	1	7/1/2003 5:52:00 PM
Hexachlorobenzene	U	40		µg/Kg	1	7/1/2003 5:52:00 PM
Hexachlorobutadiene	U	40		µg/Kg	1	7/1/2003 5:52:00 PM
Hexachlorocyclopentadiene	U	40		µg/Kg	1	7/1/2003 5:52:00 PM
Hexachloroethane	U	40		µg/Kg	1	7/1/2003 5:52:00 PM
Indeno(1,2,3-c,d)pyrene	71	40		µg/Kg	1	7/1/2003 5:52:00 PM
Isophorone	55	40		µg/Kg	1	7/1/2003 5:52:00 PM
Naphthalene	U	40		µg/Kg	1	7/1/2003 5:52:00 PM
Nitrobenzene	U	40		µg/Kg	1	7/1/2003 5:52:00 PM
N-Nitrosodimethylamine	U	40		µg/Kg	1	7/1/2003 5:52:00 PM
N-Nitrosodi-n-propylamine	U	40		µg/Kg	1	7/1/2003 5:52:00 PM
N-Nitrosodiphenylamine	U	40		µg/Kg	1	7/1/2003 5:52:00 PM
Pentachlorophenol	U	40		µg/Kg	1	7/1/2003 5:52:00 PM
Phenanthrene	250	40		µg/Kg	1	7/1/2003 5:52:00 PM
Phenol	U	40		µg/Kg	1	7/1/2003 5:52:00 PM
Pyrene	320	40		µg/Kg	1	7/1/2003 5:52:00 PM
Pyridine	U	40		µg/Kg	1	7/1/2003 5:52:00 PM

Qualifiers:

ND - Not Detected at the Reporting Limit

J - Analyte detected below quantitation limits

B - Analyte detected in the associated Method Blank

* - Value exceeds Maximum Contaminant Level

S - Spike Recovery outside accepted recovery limits

R - RPD outside accepted recovery limits

E - Value above quantitation range

American Analytical Laboratories, Inc.

Date: *28-Jul-03*

CLIENT:	AKRF, Inc	**Client Sample ID:**	B13 (0.5'-2')
Lab Order:	0306116	**Tag Number:**	
Project:	Greenpoint Lumber Yard Brooklyn, NY	**Collection Date:**	6/25/2003
Lab ID:	0306116-03B	**Matrix:**	SOIL

Analyses	Result	Limit	Qual	Units	DF	Date Analyzed
SEMIVOLATILES SW-846 8270		**SW8270D**		**(SW3550A)**		Analyst: **RN**
1,2,4-Trichlorobenzene	U	40		µg/Kg	1	7/1/2003 7:33:00 PM
1,2-Dichlorobenzene	U	40		µg/Kg	1	7/1/2003 7:33:00 PM
1,3-Dichlorobenzene	U	40		µg/Kg	1	7/1/2003 7:33:00 PM
1,4-Dichlorobenzene	U	40		µg/Kg	1	7/1/2003 7:33:00 PM
2,4,5-Trichlorophenol	U	40		µg/Kg	1	7/1/2003 7:33:00 PM
2,4,6-Trichlorophenol	U	40		µg/Kg	1	7/1/2003 7:33:00 PM
2,4-Dichlorophenol	U	40		µg/Kg	1	7/1/2003 7:33:00 PM
2,4-Dimethylphenol	U	40		µg/Kg	1	7/1/2003 7:33:00 PM
2,4-Dinitrophenol	U	40		µg/Kg	1	7/1/2003 7:33:00 PM
2,4-Dinitrotoluene	U	40		µg/Kg	1	7/1/2003 7:33:00 PM
2,6-Dinitrotoluene	U	40		µg/Kg	1	7/1/2003 7:33:00 PM
2-Chloronaphthalene	U	40		µg/Kg	1	7/1/2003 7:33:00 PM
2-Chlorophenol	U	40		µg/Kg	1	7/1/2003 7:33:00 PM
2-Methylnaphthalene	U	40		µg/Kg	1	7/1/2003 7:33:00 PM
2-Methylphenol	U	40		µg/Kg	1	7/1/2003 7:33:00 PM
2-Nitroaniline	U	40		µg/Kg	1	7/1/2003 7:33:00 PM
2-Nitrophenol	U	40		µg/Kg	1	7/1/2003 7:33:00 PM
3,3'-Dichlorobenzidine	U	40		µg/Kg	1	7/1/2003 7:33:00 PM
3+4-Methylphenol	U	40		µg/Kg	1	7/1/2003 7:33:00 PM
3-Nitroaniline	U	40		µg/Kg	1	7/1/2003 7:33:00 PM
4,6-Dinitro-2-methylphenol	U	40		µg/Kg	1	7/1/2003 7:33:00 PM
4-Bromophenyl phenyl ether	U	40		µg/Kg	1	7/1/2003 7:33:00 PM
4-Chloro-3-methylphenol	U	40		µg/Kg	1	7/1/2003 7:33:00 PM
4-Chloroaniline	U	40		µg/Kg	1	7/1/2003 7:33:00 PM
4-Chlorophenyl phenyl ether	U	40		µg/Kg	1	7/1/2003 7:33:00 PM
4-Nitroaniline	U	40		µg/Kg	1	7/1/2003 7:33:00 PM
4-Nitrophenol	U	40		µg/Kg	1	7/1/2003 7:33:00 PM
Acenaphthene	U	40		µg/Kg	1	7/1/2003 7:33:00 PM
Acenaphthylene	U	40		µg/Kg	1	7/1/2003 7:33:00 PM
Aniline	U	40		µg/Kg	1	7/1/2003 7:33:00 PM
Anthracene	46	40		µg/Kg	1	7/1/2003 7:33:00 PM
Azobenzene	U	40		µg/Kg	1	7/1/2003 7:33:00 PM
Benzidine	U	40		µg/Kg	1	7/1/2003 7:33:00 PM
Benzo(a)anthracene	540	40		µg/Kg	1	7/1/2003 7:33:00 PM
Benzo(a)pyrene	890	40		µg/Kg	1	7/1/2003 7:33:00 PM
Benzo(b)fluoranthene	1500	40		µg/Kg	1	7/1/2003 7:33:00 PM
Benzo(g,h,i)perylene	1000	40		µg/Kg	1	7/1/2003 7:33:00 PM
Benzo(k)fluoranthene	410	40		µg/Kg	1	7/1/2003 7:33:00 PM
Benzoic acid	U	40		µg/Kg	1	7/1/2003 7:33:00 PM
Benzyl alcohol	U	40		µg/Kg	1	7/1/2003 7:33:00 PM

Qualifiers:

ND - Not Detected at the Reporting Limit

J - Analyte detected below quantitation limits

B - Analyte detected in the associated Method Blank

* - Value exceeds Maximum Contaminant Level

S - Spike Recovery outside accepted recovery limits

R - RPD outside accepted recovery limits

E - Value above quantitation range

American Analytical Laboratories, Inc.

Date: *28-Jul-03*

CLIENT:	AKRF, Inc	**Client Sample ID:**	B13 (0.5'-2')
Lab Order:	0306116	**Tag Number:**	
Project:	Greenpoint Lumber Yard Brooklyn, NY	**Collection Date:**	6/25/2003
Lab ID:	0306116-03B	**Matrix:**	SOIL

Analyses	Result	Limit	Qual	Units	DF	Date Analyzed
SEMIVOLATILES SW-846 8270		**SW8270D**		**(SW3550A)**		Analyst: **RN**
Bis(2-chloroethoxy)methane	U	40		µg/Kg	1	7/1/2003 7:33:00 PM
Bis(2-chloroethyl)ether	U	40		µg/Kg	1	7/1/2003 7:33:00 PM
Bis(2-chloroisopropyl)ether	U	40		µg/Kg	1	7/1/2003 7:33:00 PM
Bis(2-ethylhexyl)phthalate	72	40		µg/Kg	1	7/1/2003 7:33:00 PM
Butyl benzyl phthalate	U	40		µg/Kg	1	7/1/2003 7:33:00 PM
Carbazole	U	40		µg/Kg	1	7/1/2003 7:33:00 PM
Chrysene	760	40		µg/Kg	1	7/1/2003 7:33:00 PM
Dibenzo(a,h)anthracene	240	40		µg/Kg	1	7/1/2003 7:33:00 PM
Dibenzofuran	U	40		µg/Kg	1	7/1/2003 7:33:00 PM
Diethyl phthalate	U	40		µg/Kg	1	7/1/2003 7:33:00 PM
Dimethyl phthalate	U	40		µg/Kg	1	7/1/2003 7:33:00 PM
Di-n-butyl phthalate	U	40		µg/Kg	1	7/1/2003 7:33:00 PM
Di-n-octyl phthalate	U	40		µg/Kg	1	7/1/2003 7:33:00 PM
Fluoranthene	540	40		µg/Kg	1	7/1/2003 7:33:00 PM
Fluorene	U	40		µg/Kg	1	7/1/2003 7:33:00 PM
Hexachlorobenzene	U	40		µg/Kg	1	7/1/2003 7:33:00 PM
Hexachlorobutadiene	U	40		µg/Kg	1	7/1/2003 7:33:00 PM
Hexachlorocyclopentadiene	U	40		µg/Kg	1	7/1/2003 7:33:00 PM
Hexachloroethane	U	40		µg/Kg	1	7/1/2003 7:33:00 PM
Indeno(1,2,3-c,d)pyrene	920	40		µg/Kg	1	7/1/2003 7:33:00 PM
Isophorone	U	40		µg/Kg	1	7/1/2003 7:33:00 PM
Naphthalene	U	40		µg/Kg	1	7/1/2003 7:33:00 PM
Nitrobenzene	U	40		µg/Kg	1	7/1/2003 7:33:00 PM
N-Nitrosodimethylamine	U	40		µg/Kg	1	7/1/2003 7:33:00 PM
N-Nitrosodi-n-propylamine	U	40		µg/Kg	1	7/1/2003 7:33:00 PM
N-Nitrosodiphenylamine	U	40		µg/Kg	1	7/1/2003 7:33:00 PM
Pentachlorophenol	U	40		µg/Kg	1	7/1/2003 7:33:00 PM
Phenanthrene	250	40		µg/Kg	1	7/1/2003 7:33:00 PM
Phenol	U	40		µg/Kg	1	7/1/2003 7:33:00 PM
Pyrene	580	40		µg/Kg	1	7/1/2003 7:33:00 PM
Pyridine	U	40		µg/Kg	1	7/1/2003 7:33:00 PM

Qualifiers:

ND - Not Detected at the Reporting Limit

J - Analyte detected below quantitation limits

B - Analyte detected in the associated Method Blank

* - Value exceeds Maximum Contaminant Level

S - Spike Recovery outside accepted recovery limits

R - RPD outside accepted recovery limits

E - Value above quantitation range

American Analytical Laboratories, Inc.

Date: *28-Jul-03*

CLIENT:	AKRF, Inc	**Client Sample ID:**	B13 (5'-7')
Lab Order:	0306116	**Tag Number:**	
Project:	Greenpoint Lumber Yard Brooklyn, NY	**Collection Date:**	6/25/2003
Lab ID:	0306116-04B	**Matrix:**	SOIL

Analyses	Result	Limit	Qual	Units	DF	Date Analyzed
SEMIVOLATILES SW-846 8270		**SW8270D**		**(SW3550A)**		Analyst: **RN**
1,2,4-Trichlorobenzene	U	40		µg/Kg	1	7/1/2003 6:42:00 PM
1,2-Dichlorobenzene	U	40		µg/Kg	1	7/1/2003 6:42:00 PM
1,3-Dichlorobenzene	U	40		µg/Kg	1	7/1/2003 6:42:00 PM
1,4-Dichlorobenzene	U	40		µg/Kg	1	7/1/2003 6:42:00 PM
2,4,5-Trichlorophenol	U	40		µg/Kg	1	7/1/2003 6:42:00 PM
2,4,6-Trichlorophenol	U	40		µg/Kg	1	7/1/2003 6:42:00 PM
2,4-Dichlorophenol	U	40		µg/Kg	1	7/1/2003 6:42:00 PM
2,4-Dimethylphenol	U	40		µg/Kg	1	7/1/2003 6:42:00 PM
2,4-Dinitrophenol	U	40		µg/Kg	1	7/1/2003 6:42:00 PM
2,4-Dinitrotoluene	U	40		µg/Kg	1	7/1/2003 6:42:00 PM
2,6-Dinitrotoluene	U	40		µg/Kg	1	7/1/2003 6:42:00 PM
2-Chloronaphthalene	U	40		µg/Kg	1	7/1/2003 6:42:00 PM
2-Chlorophenol	U	40		µg/Kg	1	7/1/2003 6:42:00 PM
2-Methylnaphthalene	U	40		µg/Kg	1	7/1/2003 6:42:00 PM
2-Methylphenol	U	40		µg/Kg	1	7/1/2003 6:42:00 PM
2-Nitroaniline	U	40		µg/Kg	1	7/1/2003 6:42:00 PM
2-Nitrophenol	U	40		µg/Kg	1	7/1/2003 6:42:00 PM
3,3'-Dichlorobenzidine	U	40		µg/Kg	1	7/1/2003 6:42:00 PM
3+4-Methylphenol	U	40		µg/Kg	1	7/1/2003 6:42:00 PM
3-Nitroaniline	U	40		µg/Kg	1	7/1/2003 6:42:00 PM
4,6-Dinitro-2-methylphenol	U	40		µg/Kg	1	7/1/2003 6:42:00 PM
4-Bromophenyl phenyl ether	U	40		µg/Kg	1	7/1/2003 6:42:00 PM
4-Chloro-3-methylphenol	U	40		µg/Kg	1	7/1/2003 6:42:00 PM
4-Chloroaniline	U	40		µg/Kg	1	7/1/2003 6:42:00 PM
4-Chlorophenyl phenyl ether	U	40		µg/Kg	1	7/1/2003 6:42:00 PM
4-Nitroaniline	U	40		µg/Kg	1	7/1/2003 6:42:00 PM
4-Nitrophenol	U	40		µg/Kg	1	7/1/2003 6:42:00 PM
Acenaphthene	U	40		µg/Kg	1	7/1/2003 6:42:00 PM
Acenaphthylene	U	40		µg/Kg	1	7/1/2003 6:42:00 PM
Aniline	U	40		µg/Kg	1	7/1/2003 6:42:00 PM
Anthracene	67	40		µg/Kg	1	7/1/2003 6:42:00 PM
Azobenzene	U	40		µg/Kg	1	7/1/2003 6:42:00 PM
Benzidine	U	40		µg/Kg	1	7/1/2003 6:42:00 PM
Benzo(a)anthracene	230	40		µg/Kg	1	7/1/2003 6:42:00 PM
Benzo(a)pyrene	220	40		µg/Kg	1	7/1/2003 6:42:00 PM
Benzo(b)fluoranthene	240	40		µg/Kg	1	7/1/2003 6:42:00 PM
Benzo(g,h,i)perylene	130	40		µg/Kg	1	7/1/2003 6:42:00 PM
Benzo(k)fluoranthene	100	40		µg/Kg	1	7/1/2003 6:42:00 PM
Benzoic acid	99	40		µg/Kg	1	7/1/2003 6:42:00 PM
Benzyl alcohol	U	40		µg/Kg	1	7/1/2003 6:42:00 PM

Qualifiers:

ND - Not Detected at the Reporting Limit

J - Analyte detected below quantitation limits

B - Analyte detected in the associated Method Blank

* - Value exceeds Maximum Contaminant Level

S - Spike Recovery outside accepted recovery limits

R - RPD outside accepted recovery limits

E - Value above quantitation range

American Analytical Laboratories, Inc.

Date: *28-Jul-03*

CLIENT:	AKRF, Inc	**Client Sample ID:**	B13 (5'-7')
Lab Order:	0306116	**Tag Number:**	
Project:	Greenpoint Lumber Yard Brooklyn, NY	**Collection Date:**	6/25/2003
Lab ID:	0306116-04B	**Matrix:**	SOIL

Analyses	Result	Limit	Qual	Units	DF	Date Analyzed
SEMIVOLATILES SW-846 8270		**SW8270D**		**(SW3550A)**		Analyst: **RN**
Bis(2-chloroethoxy)methane	U	40		µg/Kg	1	7/1/2003 6:42:00 PM
Bis(2-chloroethyl)ether	U	40		µg/Kg	1	7/1/2003 6:42:00 PM
Bis(2-chloroisopropyl)ether	U	40		µg/Kg	1	7/1/2003 6:42:00 PM
Bis(2-ethylhexyl)phthalate	U	40		µg/Kg	1	7/1/2003 6:42:00 PM
Butyl benzyl phthalate	U	40		µg/Kg	1	7/1/2003 6:42:00 PM
Carbazole	U	40		µg/Kg	1	7/1/2003 6:42:00 PM
Chrysene	240	40		µg/Kg	1	7/1/2003 6:42:00 PM
Dibenzo(a,h)anthracene	U	40		µg/Kg	1	7/1/2003 6:42:00 PM
Dibenzofuran	U	40		µg/Kg	1	7/1/2003 6:42:00 PM
Diethyl phthalate	U	40		µg/Kg	1	7/1/2003 6:42:00 PM
Dimethyl phthalate	U	40		µg/Kg	1	7/1/2003 6:42:00 PM
Di-n-butyl phthalate	U	40		µg/Kg	1	7/1/2003 6:42:00 PM
Di-n-octyl phthalate	U	40		µg/Kg	1	7/1/2003 6:42:00 PM
Fluoranthene	440	40		µg/Kg	1	7/1/2003 6:42:00 PM
Fluorene	U	40		µg/Kg	1	7/1/2003 6:42:00 PM
Hexachlorobenzene	U	40		µg/Kg	1	7/1/2003 6:42:00 PM
Hexachlorobutadiene	U	40		µg/Kg	1	7/1/2003 6:42:00 PM
Hexachlorocyclopentadiene	U	40		µg/Kg	1	7/1/2003 6:42:00 PM
Hexachloroethane	U	40		µg/Kg	1	7/1/2003 6:42:00 PM
Indeno(1,2,3-c,d)pyrene	140	40		µg/Kg	1	7/1/2003 6:42:00 PM
Isophorone	U	40		µg/Kg	1	7/1/2003 6:42:00 PM
Naphthalene	U	40		µg/Kg	1	7/1/2003 6:42:00 PM
Nitrobenzene	U	40		µg/Kg	1	7/1/2003 6:42:00 PM
N-Nitrosodimethylamine	U	40		µg/Kg	1	7/1/2003 6:42:00 PM
N-Nitrosodi-n-propylamine	U	40		µg/Kg	1	7/1/2003 6:42:00 PM
N-Nitrosodiphenylamine	U	40		µg/Kg	1	7/1/2003 6:42:00 PM
Pentachlorophenol	U	40		µg/Kg	1	7/1/2003 6:42:00 PM
Phenanthrene	330	40		µg/Kg	1	7/1/2003 6:42:00 PM
Phenol	U	40		µg/Kg	1	7/1/2003 6:42:00 PM
Pyrene	410	40		µg/Kg	1	7/1/2003 6:42:00 PM
Pyridine	U	40		µg/Kg	1	7/1/2003 6:42:00 PM

Qualifiers:

ND - Not Detected at the Reporting Limit

J - Analyte detected below quantitation limits

B - Analyte detected in the associated Method Blank

* - Value exceeds Maximum Contaminant Level

S - Spike Recovery outside accepted recovery limits

R - RPD outside accepted recovery limits

E - Value above quantitation range

American Analytical Laboratories, Inc.

Date: *28-Jul-03*

CLIENT:	AKRF, Inc	**Client Sample ID:**	MW-12 (0.5'-2')
Lab Order:	0306116	**Tag Number:**	
Project:	Greenpoint Lumber Yard Brooklyn, NY	**Collection Date:**	6/25/2003
Lab ID:	0306116-05B	**Matrix:**	SOIL

Analyses	Result	Limit	Qual	Units	DF	Date Analyzed
SEMIVOLATILES SW-846 8270		**SW8270D**		**(SW3550A)**		Analyst: **RN**
1,2,4-Trichlorobenzene	U	80		µg/Kg	2	7/1/2003 9:16:00 PM
1,2-Dichlorobenzene	U	80		µg/Kg	2	7/1/2003 9:16:00 PM
1,3-Dichlorobenzene	U	80		µg/Kg	2	7/1/2003 9:16:00 PM
1,4-Dichlorobenzene	U	80		µg/Kg	2	7/1/2003 9:16:00 PM
2,4,5-Trichlorophenol	U	80		µg/Kg	2	7/1/2003 9:16:00 PM
2,4,6-Trichlorophenol	U	80		µg/Kg	2	7/1/2003 9:16:00 PM
2,4-Dichlorophenol	U	80		µg/Kg	2	7/1/2003 9:16:00 PM
2,4-Dimethylphenol	U	80		µg/Kg	2	7/1/2003 9:16:00 PM
2,4-Dinitrophenol	U	80		µg/Kg	2	7/1/2003 9:16:00 PM
2,4-Dinitrotoluene	U	80		µg/Kg	2	7/1/2003 9:16:00 PM
2,6-Dinitrotoluene	U	80		µg/Kg	2	7/1/2003 9:16:00 PM
2-Chloronaphthalene	U	80		µg/Kg	2	7/1/2003 9:16:00 PM
2-Chlorophenol	U	80		µg/Kg	2	7/1/2003 9:16:00 PM
2-Methylnaphthalene	U	80		µg/Kg	2	7/1/2003 9:16:00 PM
2-Methylphenol	U	80		µg/Kg	2	7/1/2003 9:16:00 PM
2-Nitroaniline	U	80		µg/Kg	2	7/1/2003 9:16:00 PM
2-Nitrophenol	U	80		µg/Kg	2	7/1/2003 9:16:00 PM
3,3'-Dichlorobenzidine	U	80		µg/Kg	2	7/1/2003 9:16:00 PM
3+4-Methylphenol	U	80		µg/Kg	2	7/1/2003 9:16:00 PM
3-Nitroaniline	U	80		µg/Kg	2	7/1/2003 9:16:00 PM
4,6-Dinitro-2-methylphenol	U	80		µg/Kg	2	7/1/2003 9:16:00 PM
4-Bromophenyl phenyl ether	U	80		µg/Kg	2	7/1/2003 9:16:00 PM
4-Chloro-3-methylphenol	U	80		µg/Kg	2	7/1/2003 9:16:00 PM
4-Chloroaniline	U	80		µg/Kg	2	7/1/2003 9:16:00 PM
4-Chlorophenyl phenyl ether	U	80		µg/Kg	2	7/1/2003 9:16:00 PM
4-Nitroaniline	U	80		µg/Kg	2	7/1/2003 9:16:00 PM
4-Nitrophenol	U	80		µg/Kg	2	7/1/2003 9:16:00 PM
Acenaphthene	70	80	J	µg/Kg	2	7/1/2003 9:16:00 PM
Acenaphthylene	60	80	J	µg/Kg	2	7/1/2003 9:16:00 PM
Aniline	U	80		µg/Kg	2	7/1/2003 9:16:00 PM
Anthracene	300	80		µg/Kg	2	7/1/2003 9:16:00 PM
Azobenzene	U	80		µg/Kg	2	7/1/2003 9:16:00 PM
Benzidine	U	80		µg/Kg	2	7/1/2003 9:16:00 PM
Benzo(a)anthracene	570	80		µg/Kg	2	7/1/2003 9:16:00 PM
Benzo(a)pyrene	520	80		µg/Kg	2	7/1/2003 9:16:00 PM
Benzo(b)fluoranthene	570	80		µg/Kg	2	7/1/2003 9:16:00 PM
Benzo(g,h,i)perylene	330	80		µg/Kg	2	7/1/2003 9:16:00 PM
Benzo(k)fluoranthene	230	80		µg/Kg	2	7/1/2003 9:16:00 PM
Benzoic acid	U	80		µg/Kg	2	7/1/2003 9:16:00 PM
Benzyl alcohol	U	80		µg/Kg	2	7/1/2003 9:16:00 PM

Qualifiers:

ND - Not Detected at the Reporting Limit

J - Analyte detected below quantitation limits

B - Analyte detected in the associated Method Blank

* - Value exceeds Maximum Contaminant Level

S - Spike Recovery outside accepted recovery limits

R - RPD outside accepted recovery limits

E - Value above quantitation range

American Analytical Laboratories, Inc.

Date: *28-Jul-03*

CLIENT:	AKRF, Inc	**Client Sample ID:**	MW-12 (0.5'-2')
Lab Order:	0306116	**Tag Number:**	
Project:	Greenpoint Lumber Yard Brooklyn, NY	**Collection Date:**	6/25/2003
Lab ID:	0306116-05B	**Matrix:**	SOIL

Analyses	Result	Limit	Qual	Units	DF	Date Analyzed
SEMIVOLATILES SW-846 8270		**SW8270D**		**(SW3550A)**		Analyst: **RN**
Bis(2-chloroethoxy)methane	U	80		µg/Kg	2	7/1/2003 9:16:00 PM
Bis(2-chloroethyl)ether	U	80		µg/Kg	2	7/1/2003 9:16:00 PM
Bis(2-chloroisopropyl)ether	U	80		µg/Kg	2	7/1/2003 9:16:00 PM
Bis(2-ethylhexyl)phthalate	U	80		µg/Kg	2	7/1/2003 9:16:00 PM
Butyl benzyl phthalate	U	80		µg/Kg	2	7/1/2003 9:16:00 PM
Carbazole	U	80		µg/Kg	2	7/1/2003 9:16:00 PM
Chrysene	540	80		µg/Kg	2	7/1/2003 9:16:00 PM
Dibenzo(a,h)anthracene	80	80	J	µg/Kg	2	7/1/2003 9:16:00 PM
Dibenzofuran	60	80	J	µg/Kg	2	7/1/2003 9:16:00 PM
Diethyl phthalate	U	80		µg/Kg	2	7/1/2003 9:16:00 PM
Dimethyl phthalate	U	80		µg/Kg	2	7/1/2003 9:16:00 PM
Di-n-butyl phthalate	U	80		µg/Kg	2	7/1/2003 9:16:00 PM
Di-n-octyl phthalate	U	80		µg/Kg	2	7/1/2003 9:16:00 PM
Fluoranthene	1400	80		µg/Kg	2	7/1/2003 9:16:00 PM
Fluorene	110	80		µg/Kg	2	7/1/2003 9:16:00 PM
Hexachlorobenzene	U	80		µg/Kg	2	7/1/2003 9:16:00 PM
Hexachlorobutadiene	U	80		µg/Kg	2	7/1/2003 9:16:00 PM
Hexachlorocyclopentadiene	U	80		µg/Kg	2	7/1/2003 9:16:00 PM
Hexachloroethane	U	80		µg/Kg	2	7/1/2003 9:16:00 PM
Indeno(1,2,3-c,d)pyrene	350	80		µg/Kg	2	7/1/2003 9:16:00 PM
Isophorone	U	80		µg/Kg	2	7/1/2003 9:16:00 PM
Naphthalene	U	80		µg/Kg	2	7/1/2003 9:16:00 PM
Nitrobenzene	U	80		µg/Kg	2	7/1/2003 9:16:00 PM
N-Nitrosodimethylamine	U	80		µg/Kg	2	7/1/2003 9:16:00 PM
N-Nitrosodi-n-propylamine	U	80		µg/Kg	2	7/1/2003 9:16:00 PM
N-Nitrosodiphenylamine	U	80		µg/Kg	2	7/1/2003 9:16:00 PM
Pentachlorophenol	U	80		µg/Kg	2	7/1/2003 9:16:00 PM
Phenanthrene	1100	80		µg/Kg	2	7/1/2003 9:16:00 PM
Phenol	U	80		µg/Kg	2	7/1/2003 9:16:00 PM
Pyrene	1100	80		µg/Kg	2	7/1/2003 9:16:00 PM
Pyridine	U	80		µg/Kg	2	7/1/2003 9:16:00 PM

Qualifiers:

ND - Not Detected at the Reporting Limit

J - Analyte detected below quantitation limits

B - Analyte detected in the associated Method Blank

* - Value exceeds Maximum Contaminant Level

S - Spike Recovery outside accepted recovery limits

R - RPD outside accepted recovery limits

E - Value above quantitation range

American Analytical Laboratories, Inc.

Date: *28-Jul-03*

CLIENT:	AKRF, Inc	**Client Sample ID:**	MW12 (4.5'-5.5')
Lab Order:	0306116	**Tag Number:**	
Project:	Greenpoint Lumber Yard Brooklyn, NY	**Collection Date:**	6/25/2003
Lab ID:	0306116-06B	**Matrix:**	SOIL

Analyses	Result	Limit	Qual	Units	DF	Date Analyzed
SEMIVOLATILES SW-846 8270		**SW8270D**		**(SW3550A)**		Analyst: **RN**
1,2,4-Trichlorobenzene	U	40		µg/Kg	1	7/1/2003 10:03:00 PM
1,2-Dichlorobenzene	U	40		µg/Kg	1	7/1/2003 10:03:00 PM
1,3-Dichlorobenzene	U	40		µg/Kg	1	7/1/2003 10:03:00 PM
1,4-Dichlorobenzene	U	40		µg/Kg	1	7/1/2003 10:03:00 PM
2,4,5-Trichlorophenol	U	40		µg/Kg	1	7/1/2003 10:03:00 PM
2,4,6-Trichlorophenol	U	40		µg/Kg	1	7/1/2003 10:03:00 PM
2,4-Dichlorophenol	U	40		µg/Kg	1	7/1/2003 10:03:00 PM
2,4-Dimethylphenol	U	40		µg/Kg	1	7/1/2003 10:03:00 PM
2,4-Dinitrophenol	U	40		µg/Kg	1	7/1/2003 10:03:00 PM
2,4-Dinitrotoluene	U	40		µg/Kg	1	7/1/2003 10:03:00 PM
2,6-Dinitrotoluene	U	40		µg/Kg	1	7/1/2003 10:03:00 PM
2-Chloronaphthalene	U	40		µg/Kg	1	7/1/2003 10:03:00 PM
2-Chlorophenol	U	40		µg/Kg	1	7/1/2003 10:03:00 PM
2-Methylnaphthalene	U	40		µg/Kg	1	7/1/2003 10:03:00 PM
2-Methylphenol	U	40		µg/Kg	1	7/1/2003 10:03:00 PM
2-Nitroaniline	U	40		µg/Kg	1	7/1/2003 10:03:00 PM
2-Nitrophenol	U	40		µg/Kg	1	7/1/2003 10:03:00 PM
3,3'-Dichlorobenzidine	U	40		µg/Kg	1	7/1/2003 10:03:00 PM
3+4-Methylphenol	U	40		µg/Kg	1	7/1/2003 10:03:00 PM
3-Nitroaniline	U	40		µg/Kg	1	7/1/2003 10:03:00 PM
4,6-Dinitro-2-methylphenol	U	40		µg/Kg	1	7/1/2003 10:03:00 PM
4-Bromophenyl phenyl ether	U	40		µg/Kg	1	7/1/2003 10:03:00 PM
4-Chloro-3-methylphenol	U	40		µg/Kg	1	7/1/2003 10:03:00 PM
4-Chloroaniline	U	40		µg/Kg	1	7/1/2003 10:03:00 PM
4-Chlorophenyl phenyl ether	U	40		µg/Kg	1	7/1/2003 10:03:00 PM
4-Nitroaniline	U	40		µg/Kg	1	7/1/2003 10:03:00 PM
4-Nitrophenol	U	40		µg/Kg	1	7/1/2003 10:03:00 PM
Acenaphthene	U	40		µg/Kg	1	7/1/2003 10:03:00 PM
Acenaphthylene	U	40		µg/Kg	1	7/1/2003 10:03:00 PM
Aniline	U	40		µg/Kg	1	7/1/2003 10:03:00 PM
Anthracene	55	40		µg/Kg	1	7/1/2003 10:03:00 PM
Azobenzene	U	40		µg/Kg	1	7/1/2003 10:03:00 PM
Benzidine	U	40		µg/Kg	1	7/1/2003 10:03:00 PM
Benzo(a)anthracene	150	40		µg/Kg	1	7/1/2003 10:03:00 PM
Benzo(a)pyrene	170	40		µg/Kg	1	7/1/2003 10:03:00 PM
Benzo(b)fluoranthene	210	40		µg/Kg	1	7/1/2003 10:03:00 PM
Benzo(g,h,i)perylene	110	40		µg/Kg	1	7/1/2003 10:03:00 PM
Benzo(k)fluoranthene	62	40		µg/Kg	1	7/1/2003 10:03:00 PM
Benzoic acid	U	40		µg/Kg	1	7/1/2003 10:03:00 PM
Benzyl alcohol	U	40		µg/Kg	1	7/1/2003 10:03:00 PM

Qualifiers:

ND - Not Detected at the Reporting Limit

J - Analyte detected below quantitation limits

B - Analyte detected in the associated Method Blank

* - Value exceeds Maximum Contaminant Level

S - Spike Recovery outside accepted recovery limits

R - RPD outside accepted recovery limits

E - Value above quantitation range

American Analytical Laboratories, Inc.

Date: *28-Jul-03*

CLIENT:	AKRF, Inc	**Client Sample ID:**	MW12 (4.5'-5.5')
Lab Order:	0306116	**Tag Number:**	
Project:	Greenpoint Lumber Yard Brooklyn, NY	**Collection Date:**	6/25/2003
Lab ID:	0306116-06B	**Matrix:**	SOIL

Analyses	Result	Limit	Qual	Units	DF	Date Analyzed
SEMIVOLATILES SW-846 8270		**SW8270D**		**(SW3550A)**		Analyst: **RN**
Bis(2-chloroethoxy)methane	U	40		µg/Kg	1	7/1/2003 10:03:00 PM
Bis(2-chloroethyl)ether	U	40		µg/Kg	1	7/1/2003 10:03:00 PM
Bis(2-chloroisopropyl)ether	U	40		µg/Kg	1	7/1/2003 10:03:00 PM
Bis(2-ethylhexyl)phthalate	U	40		µg/Kg	1	7/1/2003 10:03:00 PM
Butyl benzyl phthalate	U	40		µg/Kg	1	7/1/2003 10:03:00 PM
Carbazole	U	40		µg/Kg	1	7/1/2003 10:03:00 PM
Chrysene	160	40		µg/Kg	1	7/1/2003 10:03:00 PM
Dibenzo(a,h)anthracene	U	40		µg/Kg	1	7/1/2003 10:03:00 PM
Dibenzofuran	U	40		µg/Kg	1	7/1/2003 10:03:00 PM
Diethyl phthalate	U	40		µg/Kg	1	7/1/2003 10:03:00 PM
Dimethyl phthalate	U	40		µg/Kg	1	7/1/2003 10:03:00 PM
Di-n-butyl phthalate	U	40		µg/Kg	1	7/1/2003 10:03:00 PM
Di-n-octyl phthalate	U	40		µg/Kg	1	7/1/2003 10:03:00 PM
Fluoranthene	310	40		µg/Kg	1	7/1/2003 10:03:00 PM
Fluorene	U	40		µg/Kg	1	7/1/2003 10:03:00 PM
Hexachlorobenzene	U	40		µg/Kg	1	7/1/2003 10:03:00 PM
Hexachlorobutadiene	U	40		µg/Kg	1	7/1/2003 10:03:00 PM
Hexachlorocyclopentadiene	U	40		µg/Kg	1	7/1/2003 10:03:00 PM
Hexachloroethane	U	40		µg/Kg	1	7/1/2003 10:03:00 PM
Indeno(1,2,3-c,d)pyrene	120	40		µg/Kg	1	7/1/2003 10:03:00 PM
Isophorone	U	40		µg/Kg	1	7/1/2003 10:03:00 PM
Naphthalene	U	40		µg/Kg	1	7/1/2003 10:03:00 PM
Nitrobenzene	U	40		µg/Kg	1	7/1/2003 10:03:00 PM
N-Nitrosodimethylamine	U	40		µg/Kg	1	7/1/2003 10:03:00 PM
N-Nitrosodi-n-propylamine	U	40		µg/Kg	1	7/1/2003 10:03:00 PM
N-Nitrosodiphenylamine	U	40		µg/Kg	1	7/1/2003 10:03:00 PM
Pentachlorophenol	U	40		µg/Kg	1	7/1/2003 10:03:00 PM
Phenanthrene	220	40		µg/Kg	1	7/1/2003 10:03:00 PM
Phenol	U	40		µg/Kg	1	7/1/2003 10:03:00 PM
Pyrene	310	40		µg/Kg	1	7/1/2003 10:03:00 PM
Pyridine	U	40		µg/Kg	1	7/1/2003 10:03:00 PM

Qualifiers:

ND - Not Detected at the Reporting Limit

J - Analyte detected below quantitation limits

B - Analyte detected in the associated Method Blank

* - Value exceeds Maximum Contaminant Level

S - Spike Recovery outside accepted recovery limits

R - RPD outside accepted recovery limits

E - Value above quantitation range

American Analytical Laboratories, Inc.

Date: *28-Jul-03*

CLIENT:	AKRF, Inc	**Client Sample ID:**	MW13 (0.5'-2')
Lab Order:	0306116	**Tag Number:**	
Project:	Greenpoint Lumber Yard Brooklyn, NY	**Collection Date:**	6/25/2003
Lab ID:	0306116-07B	**Matrix:**	SOIL

Analyses	Result	Limit	Qual	Units	DF	Date Analyzed
SEMIVOLATILES SW-846 8270		**SW8270D**		**(SW3550A)**		Analyst: **RN**
1,2,4-Trichlorobenzene	U	200		µg/Kg	5	7/3/2003 4:39:00 PM
1,2-Dichlorobenzene	U	200		µg/Kg	5	7/3/2003 4:39:00 PM
1,3-Dichlorobenzene	U	200		µg/Kg	5	7/3/2003 4:39:00 PM
1,4-Dichlorobenzene	U	200		µg/Kg	5	7/3/2003 4:39:00 PM
2,4,5-Trichlorophenol	U	200		µg/Kg	5	7/3/2003 4:39:00 PM
2,4,6-Trichlorophenol	U	200		µg/Kg	5	7/3/2003 4:39:00 PM
2,4-Dichlorophenol	U	200		µg/Kg	5	7/3/2003 4:39:00 PM
2,4-Dimethylphenol	U	200		µg/Kg	5	7/3/2003 4:39:00 PM
2,4-Dinitrophenol	U	200		µg/Kg	5	7/3/2003 4:39:00 PM
2,4-Dinitrotoluene	U	200		µg/Kg	5	7/3/2003 4:39:00 PM
2,6-Dinitrotoluene	U	200		µg/Kg	5	7/3/2003 4:39:00 PM
2-Chloronaphthalene	U	200		µg/Kg	5	7/3/2003 4:39:00 PM
2-Chlorophenol	U	200		µg/Kg	5	7/3/2003 4:39:00 PM
2-Methylnaphthalene	U	200		µg/Kg	5	7/3/2003 4:39:00 PM
2-Methylphenol	U	200		µg/Kg	5	7/3/2003 4:39:00 PM
2-Nitroaniline	U	200		µg/Kg	5	7/3/2003 4:39:00 PM
2-Nitrophenol	U	200		µg/Kg	5	7/3/2003 4:39:00 PM
3,3'-Dichlorobenzidine	U	200		µg/Kg	5	7/3/2003 4:39:00 PM
3+4-Methylphenol	U	200		µg/Kg	5	7/3/2003 4:39:00 PM
3-Nitroaniline	U	200		µg/Kg	5	7/3/2003 4:39:00 PM
4,6-Dinitro-2-methylphenol	U	200		µg/Kg	5	7/3/2003 4:39:00 PM
4-Bromophenyl phenyl ether	U	200		µg/Kg	5	7/3/2003 4:39:00 PM
4-Chloro-3-methylphenol	U	200		µg/Kg	5	7/3/2003 4:39:00 PM
4-Chloroaniline	U	200		µg/Kg	5	7/3/2003 4:39:00 PM
4-Chlorophenyl phenyl ether	U	200		µg/Kg	5	7/3/2003 4:39:00 PM
4-Nitroaniline	U	200		µg/Kg	5	7/3/2003 4:39:00 PM
4-Nitrophenol	U	200		µg/Kg	5	7/3/2003 4:39:00 PM
Acenaphthene	220	200		µg/Kg	5	7/3/2003 4:39:00 PM
Acenaphthylene	U	200		µg/Kg	5	7/3/2003 4:39:00 PM
Aniline	U	200		µg/Kg	5	7/3/2003 4:39:00 PM
Anthracene	350	200		µg/Kg	5	7/3/2003 4:39:00 PM
Azobenzene	U	200		µg/Kg	5	7/3/2003 4:39:00 PM
Benzidine	U	200		µg/Kg	5	7/3/2003 4:39:00 PM
Benzo(a)anthracene	810	200		µg/Kg	5	7/3/2003 4:39:00 PM
Benzo(a)pyrene	820	200		µg/Kg	5	7/3/2003 4:39:00 PM
Benzo(b)fluoranthene	1100	200		µg/Kg	5	7/3/2003 4:39:00 PM
Benzo(g,h,i)perylene	570	200		µg/Kg	5	7/3/2003 4:39:00 PM
Benzo(k)fluoranthene	250	200		µg/Kg	5	7/3/2003 4:39:00 PM
Benzoic acid	U	200		µg/Kg	5	7/3/2003 4:39:00 PM
Benzyl alcohol	U	200		µg/Kg	5	7/3/2003 4:39:00 PM

Qualifiers:

ND - Not Detected at the Reporting Limit

J - Analyte detected below quantitation limits

B - Analyte detected in the associated Method Blank

* - Value exceeds Maximum Contaminant Level

S - Spike Recovery outside accepted recovery limits

R - RPD outside accepted recovery limits

E - Value above quantitation range

American Analytical Laboratories, Inc.

Date: *28-Jul-03*

CLIENT:	AKRF, Inc	**Client Sample ID:**	MW13 (0.5'-2')
Lab Order:	0306116	**Tag Number:**	
Project:	Greenpoint Lumber Yard Brooklyn, NY	**Collection Date:**	6/25/2003
Lab ID:	0306116-07B	**Matrix:**	SOIL

Analyses	Result	Limit	Qual	Units	DF	Date Analyzed
SEMIVOLATILES SW-846 8270		**SW8270D**		**(SW3550A)**		Analyst: **RN**
Bis(2-chloroethoxy)methane	U	200		µg/Kg	5	7/3/2003 4:39:00 PM
Bis(2-chloroethyl)ether	U	200		µg/Kg	5	7/3/2003 4:39:00 PM
Bis(2-chloroisopropyl)ether	U	200		µg/Kg	5	7/3/2003 4:39:00 PM
Bis(2-ethylhexyl)phthalate	U	200		µg/Kg	5	7/3/2003 4:39:00 PM
Butyl benzyl phthalate	U	200		µg/Kg	5	7/3/2003 4:39:00 PM
Carbazole	U	200		µg/Kg	5	7/3/2003 4:39:00 PM
Chrysene	920	200		µg/Kg	5	7/3/2003 4:39:00 PM
Dibenzo(a,h)anthracene	U	200		µg/Kg	5	7/3/2003 4:39:00 PM
Dibenzofuran	U	200		µg/Kg	5	7/3/2003 4:39:00 PM
Diethyl phthalate	U	200		µg/Kg	5	7/3/2003 4:39:00 PM
Dimethyl phthalate	U	200		µg/Kg	5	7/3/2003 4:39:00 PM
Di-n-butyl phthalate	U	200		µg/Kg	5	7/3/2003 4:39:00 PM
Di-n-octyl phthalate	U	200		µg/Kg	5	7/3/2003 4:39:00 PM
Fluoranthene	1800	200		µg/Kg	5	7/3/2003 4:39:00 PM
Fluorene	280	200		µg/Kg	5	7/3/2003 4:39:00 PM
Hexachlorobenzene	U	200		µg/Kg	5	7/3/2003 4:39:00 PM
Hexachlorobutadiene	U	200		µg/Kg	5	7/3/2003 4:39:00 PM
Hexachlorocyclopentadiene	U	200		µg/Kg	5	7/3/2003 4:39:00 PM
Hexachloroethane	U	200		µg/Kg	5	7/3/2003 4:39:00 PM
Indeno(1,2,3-c,d)pyrene	590	200		µg/Kg	5	7/3/2003 4:39:00 PM
Isophorone	U	200		µg/Kg	5	7/3/2003 4:39:00 PM
Naphthalene	U	200		µg/Kg	5	7/3/2003 4:39:00 PM
Nitrobenzene	U	200		µg/Kg	5	7/3/2003 4:39:00 PM
N-Nitrosodimethylamine	U	200		µg/Kg	5	7/3/2003 4:39:00 PM
N-Nitrosodi-n-propylamine	U	200		µg/Kg	5	7/3/2003 4:39:00 PM
N-Nitrosodiphenylamine	U	200		µg/Kg	5	7/3/2003 4:39:00 PM
Pentachlorophenol	U	200		µg/Kg	5	7/3/2003 4:39:00 PM
Phenanthrene	1800	200		µg/Kg	5	7/3/2003 4:39:00 PM
Phenol	U	200		µg/Kg	5	7/3/2003 4:39:00 PM
Pyrene	1700	200		µg/Kg	5	7/3/2003 4:39:00 PM
Pyridine	U	200		µg/Kg	5	7/3/2003 4:39:00 PM

Qualifiers:

ND - Not Detected at the Reporting Limit

J - Analyte detected below quantitation limits

B - Analyte detected in the associated Method Blank

* - Value exceeds Maximum Contaminant Level

S - Spike Recovery outside accepted recovery limits

R - RPD outside accepted recovery limits

E - Value above quantitation range

American Analytical Laboratories, Inc.

Date: *28-Jul-03*

CLIENT:	AKRF, Inc	**Client Sample ID:**	MW13 (5'-7')
Lab Order:	0306116	**Tag Number:**	
Project:	Greenpoint Lumber Yard Brooklyn, NY	**Collection Date:**	6/25/2003
Lab ID:	0306116-08B	**Matrix:**	SOIL

Analyses	Result	Limit	Qual	Units	DF	Date Analyzed
SEMIVOLATILES SW-846 8270		**SW8270D**		**(SW3550A)**		Analyst: **RN**
1,2,4-Trichlorobenzene	U	40		µg/Kg	1	7/3/2003 3:23:00 PM
1,2-Dichlorobenzene	U	40		µg/Kg	1	7/3/2003 3:23:00 PM
1,3-Dichlorobenzene	U	40		µg/Kg	1	7/3/2003 3:23:00 PM
1,4-Dichlorobenzene	U	40		µg/Kg	1	7/3/2003 3:23:00 PM
2,4,5-Trichlorophenol	U	40		µg/Kg	1	7/3/2003 3:23:00 PM
2,4,6-Trichlorophenol	U	40		µg/Kg	1	7/3/2003 3:23:00 PM
2,4-Dichlorophenol	U	40		µg/Kg	1	7/3/2003 3:23:00 PM
2,4-Dimethylphenol	U	40		µg/Kg	1	7/3/2003 3:23:00 PM
2,4-Dinitrophenol	U	40		µg/Kg	1	7/3/2003 3:23:00 PM
2,4-Dinitrotoluene	U	40		µg/Kg	1	7/3/2003 3:23:00 PM
2,6-Dinitrotoluene	U	40		µg/Kg	1	7/3/2003 3:23:00 PM
2-Chloronaphthalene	U	40		µg/Kg	1	7/3/2003 3:23:00 PM
2-Chlorophenol	U	40		µg/Kg	1	7/3/2003 3:23:00 PM
2-Methylnaphthalene	64	40		µg/Kg	1	7/3/2003 3:23:00 PM
2-Methylphenol	U	40		µg/Kg	1	7/3/2003 3:23:00 PM
2-Nitroaniline	U	40		µg/Kg	1	7/3/2003 3:23:00 PM
2-Nitrophenol	U	40		µg/Kg	1	7/3/2003 3:23:00 PM
3,3'-Dichlorobenzidine	U	40		µg/Kg	1	7/3/2003 3:23:00 PM
3+4-Methylphenol	U	40		µg/Kg	1	7/3/2003 3:23:00 PM
3-Nitroaniline	U	40		µg/Kg	1	7/3/2003 3:23:00 PM
4,6-Dinitro-2-methylphenol	U	40		µg/Kg	1	7/3/2003 3:23:00 PM
4-Bromophenyl phenyl ether	U	40		µg/Kg	1	7/3/2003 3:23:00 PM
4-Chloro-3-methylphenol	U	40		µg/Kg	1	7/3/2003 3:23:00 PM
4-Chloroaniline	U	40		µg/Kg	1	7/3/2003 3:23:00 PM
4-Chlorophenyl phenyl ether	U	40		µg/Kg	1	7/3/2003 3:23:00 PM
4-Nitroaniline	U	40		µg/Kg	1	7/3/2003 3:23:00 PM
4-Nitrophenol	U	40		µg/Kg	1	7/3/2003 3:23:00 PM
Acenaphthene	530	40		µg/Kg	1	7/3/2003 3:23:00 PM
Acenaphthylene	120	40		µg/Kg	1	7/3/2003 3:23:00 PM
Aniline	U	40		µg/Kg	1	7/3/2003 3:23:00 PM
Anthracene	1600	40		µg/Kg	1	7/3/2003 3:23:00 PM
Azobenzene	U	40		µg/Kg	1	7/3/2003 3:23:00 PM
Benzidine	U	40		µg/Kg	1	7/3/2003 3:23:00 PM
Benzo(a)anthracene	4100	400		µg/Kg	10	7/7/2003 12:57:00 PM
Benzo(a)pyrene	3600	400		µg/Kg	10	7/7/2003 12:57:00 PM
Benzo(b)fluoranthene	4300	400		µg/Kg	10	7/7/2003 12:57:00 PM
Benzo(g,h,i)perylene	2000	40		µg/Kg	1	7/3/2003 3:23:00 PM
Benzo(k)fluoranthene	1700	40		µg/Kg	1	7/3/2003 3:23:00 PM
Benzoic acid	120	40		µg/Kg	1	7/3/2003 3:23:00 PM
Benzyl alcohol	U	40		µg/Kg	1	7/3/2003 3:23:00 PM

Qualifiers:

ND - Not Detected at the Reporting Limit

J - Analyte detected below quantitation limits

B - Analyte detected in the associated Method Blank

* - Value exceeds Maximum Contaminant Level

S - Spike Recovery outside accepted recovery limits

R - RPD outside accepted recovery limits

E - Value above quantitation range

American Analytical Laboratories, Inc.

Date: *28-Jul-03*

CLIENT:	AKRF, Inc	**Client Sample ID:**	MW13 (5'-7')
Lab Order:	0306116	**Tag Number:**	
Project:	Greenpoint Lumber Yard Brooklyn, NY	**Collection Date:**	6/25/2003
Lab ID:	0306116-08B	**Matrix:**	SOIL

Analyses	Result	Limit	Qual	Units	DF	Date Analyzed
SEMIVOLATILES SW-846 8270		**SW8270D**		**(SW3550A)**		Analyst: **RN**
Bis(2-chloroethoxy)methane	U	40		µg/Kg	1	7/3/2003 3:23:00 PM
Bis(2-chloroethyl)ether	U	40		µg/Kg	1	7/3/2003 3:23:00 PM
Bis(2-chloroisopropyl)ether	U	40		µg/Kg	1	7/3/2003 3:23:00 PM
Bis(2-ethylhexyl)phthalate	43	40		µg/Kg	1	7/3/2003 3:23:00 PM
Butyl benzyl phthalate	U	40		µg/Kg	1	7/3/2003 3:23:00 PM
Carbazole	480	40		µg/Kg	1	7/3/2003 3:23:00 PM
Chrysene	4000	400		µg/Kg	10	7/7/2003 12:57:00 PM
Dibenzo(a,h)anthracene	580	40		µg/Kg	1	7/3/2003 3:23:00 PM
Dibenzofuran	400	40		µg/Kg	1	7/3/2003 3:23:00 PM
Diethyl phthalate	U	40		µg/Kg	1	7/3/2003 3:23:00 PM
Dimethyl phthalate	U	40		µg/Kg	1	7/3/2003 3:23:00 PM
Di-n-butyl phthalate	U	40		µg/Kg	1	7/3/2003 3:23:00 PM
Di-n-octyl phthalate	U	40		µg/Kg	1	7/3/2003 3:23:00 PM
Fluoranthene	8400	400		µg/Kg	10	7/7/2003 12:57:00 PM
Fluorene	630	40		µg/Kg	1	7/3/2003 3:23:00 PM
Hexachlorobenzene	U	40		µg/Kg	1	7/3/2003 3:23:00 PM
Hexachlorobutadiene	U	40		µg/Kg	1	7/3/2003 3:23:00 PM
Hexachlorocyclopentadiene	U	40		µg/Kg	1	7/3/2003 3:23:00 PM
Hexachloroethane	U	40		µg/Kg	1	7/3/2003 3:23:00 PM
Indeno(1,2,3-c,d)pyrene	2200	40		µg/Kg	1	7/3/2003 3:23:00 PM
Isophorone	U	40		µg/Kg	1	7/3/2003 3:23:00 PM
Naphthalene	110	40		µg/Kg	1	7/3/2003 3:23:00 PM
Nitrobenzene	U	40		µg/Kg	1	7/3/2003 3:23:00 PM
N-Nitrosodimethylamine	U	40		µg/Kg	1	7/3/2003 3:23:00 PM
N-Nitrosodi-n-propylamine	U	40		µg/Kg	1	7/3/2003 3:23:00 PM
N-Nitrosodiphenylamine	U	40		µg/Kg	1	7/3/2003 3:23:00 PM
Pentachlorophenol	U	40		µg/Kg	1	7/3/2003 3:23:00 PM
Phenanthrene	4800	400		µg/Kg	10	7/7/2003 12:57:00 PM
Phenol	U	40		µg/Kg	1	7/3/2003 3:23:00 PM
Pyrene	7100	400		µg/Kg	10	7/7/2003 12:57:00 PM
Pyridine	U	40		µg/Kg	1	7/3/2003 3:23:00 PM

Qualifiers:

ND - Not Detected at the Reporting Limit

J - Analyte detected below quantitation limits

B - Analyte detected in the associated Method Blank

* - Value exceeds Maximum Contaminant Level

S - Spike Recovery outside accepted recovery limits

R - RPD outside accepted recovery limits

E - Value above quantitation range

American Analytical Laboratories, Inc.

Date: *28-Jul-03*

CLIENT:	AKRF, Inc	**Client Sample ID:**	B7R2 (5.5'-6.0')
Lab Order:	0306116	**Tag Number:**	
Project:	Greenpoint Lumber Yard Brooklyn, NY	**Collection Date:**	6/25/2003
Lab ID:	0306116-09B	**Matrix:**	SOIL

Analyses	Result	Limit	Qual	Units	DF	Date Analyzed
SEMIVOLATILES SW-846 8270		**SW8270D**		**(SW3550A)**		Analyst: **RN**
1,2,4-Trichlorobenzene	U	120		µg/Kg	3	7/2/2003 4:21:00 PM
1,2-Dichlorobenzene	U	120		µg/Kg	3	7/2/2003 4:21:00 PM
1,3-Dichlorobenzene	U	120		µg/Kg	3	7/2/2003 4:21:00 PM
1,4-Dichlorobenzene	U	120		µg/Kg	3	7/2/2003 4:21:00 PM
2,4,5-Trichlorophenol	U	120		µg/Kg	3	7/2/2003 4:21:00 PM
2,4,6-Trichlorophenol	U	120		µg/Kg	3	7/2/2003 4:21:00 PM
2,4-Dichlorophenol	U	120		µg/Kg	3	7/2/2003 4:21:00 PM
2,4-Dimethylphenol	U	120		µg/Kg	3	7/2/2003 4:21:00 PM
2,4-Dinitrophenol	U	120		µg/Kg	3	7/2/2003 4:21:00 PM
2,4-Dinitrotoluene	U	120		µg/Kg	3	7/2/2003 4:21:00 PM
2,6-Dinitrotoluene	U	120		µg/Kg	3	7/2/2003 4:21:00 PM
2-Chloronaphthalene	U	120		µg/Kg	3	7/2/2003 4:21:00 PM
2-Chlorophenol	U	120		µg/Kg	3	7/2/2003 4:21:00 PM
2-Methylnaphthalene	230	120		µg/Kg	3	7/2/2003 4:21:00 PM
2-Methylphenol	U	120		µg/Kg	3	7/2/2003 4:21:00 PM
2-Nitroaniline	U	120		µg/Kg	3	7/2/2003 4:21:00 PM
2-Nitrophenol	U	120		µg/Kg	3	7/2/2003 4:21:00 PM
3,3´-Dichlorobenzidine	U	120		µg/Kg	3	7/2/2003 4:21:00 PM
3+4-Methylphenol	U	120		µg/Kg	3	7/2/2003 4:21:00 PM
3-Nitroaniline	U	120		µg/Kg	3	7/2/2003 4:21:00 PM
4,6-Dinitro-2-methylphenol	U	120		µg/Kg	3	7/2/2003 4:21:00 PM
4-Bromophenyl phenyl ether	U	120		µg/Kg	3	7/2/2003 4:21:00 PM
4-Chloro-3-methylphenol	U	120		µg/Kg	3	7/2/2003 4:21:00 PM
4-Chloroaniline	U	120		µg/Kg	3	7/2/2003 4:21:00 PM
4-Chlorophenyl phenyl ether	U	120		µg/Kg	3	7/2/2003 4:21:00 PM
4-Nitroaniline	U	120		µg/Kg	3	7/2/2003 4:21:00 PM
4-Nitrophenol	U	120		µg/Kg	3	7/2/2003 4:21:00 PM
Acenaphthene	330	120		µg/Kg	3	7/2/2003 4:21:00 PM
Acenaphthylene	U	120		µg/Kg	3	7/2/2003 4:21:00 PM
Aniline	U	120		µg/Kg	3	7/2/2003 4:21:00 PM
Anthracene	870	120		µg/Kg	3	7/2/2003 4:21:00 PM
Azobenzene	U	120		µg/Kg	3	7/2/2003 4:21:00 PM
Benzidine	U	120		µg/Kg	3	7/2/2003 4:21:00 PM
Benzo(a)anthracene	1500	120		µg/Kg	3	7/2/2003 4:21:00 PM
Benzo(a)pyrene	1300	120		µg/Kg	3	7/2/2003 4:21:00 PM
Benzo(b)fluoranthene	1500	120		µg/Kg	3	7/2/2003 4:21:00 PM
Benzo(g,h,i)perylene	660	120		µg/Kg	3	7/2/2003 4:21:00 PM
Benzo(k)fluoranthene	540	120		µg/Kg	3	7/2/2003 4:21:00 PM
Benzoic acid	U	120		µg/Kg	3	7/2/2003 4:21:00 PM
Benzyl alcohol	U	120		µg/Kg	3	7/2/2003 4:21:00 PM

Qualifiers:

ND - Not Detected at the Reporting Limit

J - Analyte detected below quantitation limits

B - Analyte detected in the associated Method Blank

* - Value exceeds Maximum Contaminant Level

S - Spike Recovery outside accepted recovery limits

R - RPD outside accepted recovery limits

E - Value above quantitation range

American Analytical Laboratories, Inc.

Date: *28-Jul-03*

CLIENT:	AKRF, Inc	**Client Sample ID:**	B7R2 (5.5'-6.0')
Lab Order:	0306116	**Tag Number:**	
Project:	Greenpoint Lumber Yard Brooklyn, NY	**Collection Date:**	6/25/2003
Lab ID:	0306116-09B	**Matrix:**	SOIL

Analyses	Result	Limit	Qual	Units	DF	Date Analyzed
SEMIVOLATILES SW-846 8270		**SW8270D**		**(SW3550A)**		Analyst: **RN**
Bis(2-chloroethoxy)methane	U	120		µg/Kg	3	7/2/2003 4:21:00 PM
Bis(2-chloroethyl)ether	U	120		µg/Kg	3	7/2/2003 4:21:00 PM
Bis(2-chloroisopropyl)ether	U	120		µg/Kg	3	7/2/2003 4:21:00 PM
Bis(2-ethylhexyl)phthalate	260	120		µg/Kg	3	7/2/2003 4:21:00 PM
Butyl benzyl phthalate	U	120		µg/Kg	3	7/2/2003 4:21:00 PM
Carbazole	400	120		µg/Kg	3	7/2/2003 4:21:00 PM
Chrysene	1500	120		µg/Kg	3	7/2/2003 4:21:00 PM
Dibenzo(a,h)anthracene	260	120		µg/Kg	3	7/2/2003 4:21:00 PM
Dibenzofuran	410	120		µg/Kg	3	7/2/2003 4:21:00 PM
Diethyl phthalate	U	120		µg/Kg	3	7/2/2003 4:21:00 PM
Dimethyl phthalate	U	120		µg/Kg	3	7/2/2003 4:21:00 PM
Di-n-butyl phthalate	U	120		µg/Kg	3	7/2/2003 4:21:00 PM
Di-n-octyl phthalate	U	120		µg/Kg	3	7/2/2003 4:21:00 PM
Fluoranthene	3200	120		µg/Kg	3	7/2/2003 4:21:00 PM
Fluorene	630	120		µg/Kg	3	7/2/2003 4:21:00 PM
Hexachlorobenzene	U	120		µg/Kg	3	7/2/2003 4:21:00 PM
Hexachlorobutadiene	U	120		µg/Kg	3	7/2/2003 4:21:00 PM
Hexachlorocyclopentadiene	U	120		µg/Kg	3	7/2/2003 4:21:00 PM
Hexachloroethane	U	120		µg/Kg	3	7/2/2003 4:21:00 PM
Indeno(1,2,3-c,d)pyrene	710	120		µg/Kg	3	7/2/2003 4:21:00 PM
Isophorone	U	120		µg/Kg	3	7/2/2003 4:21:00 PM
Naphthalene	570	120		µg/Kg	3	7/2/2003 4:21:00 PM
Nitrobenzene	U	120		µg/Kg	3	7/2/2003 4:21:00 PM
N-Nitrosodimethylamine	U	120		µg/Kg	3	7/2/2003 4:21:00 PM
N-Nitrosodi-n-propylamine	U	120		µg/Kg	3	7/2/2003 4:21:00 PM
N-Nitrosodiphenylamine	U	120		µg/Kg	3	7/2/2003 4:21:00 PM
Pentachlorophenol	U	120		µg/Kg	3	7/2/2003 4:21:00 PM
Phenanthrene	4000	120		µg/Kg	3	7/2/2003 4:21:00 PM
Phenol	U	120		µg/Kg	3	7/2/2003 4:21:00 PM
Pyrene	2900	120		µg/Kg	3	7/2/2003 4:21:00 PM
Pyridine	U	120		µg/Kg	3	7/2/2003 4:21:00 PM

Qualifiers:

ND - Not Detected at the Reporting Limit

J - Analyte detected below quantitation limits

B - Analyte detected in the associated Method Blank

* - Value exceeds Maximum Contaminant Level

S - Spike Recovery outside accepted recovery limits

R - RPD outside accepted recovery limits

E - Value above quantitation range

American Analytical Laboratories, Inc.

Date: *28-Jul-03*

CLIENT:	AKRF, Inc	**Client Sample ID:**	B6 (0.5'-2')
Lab Order:	0306116	**Tag Number:**	
Project:	Greenpoint Lumber Yard Brooklyn, NY	**Collection Date:**	6/25/2003
Lab ID:	0306116-10B	**Matrix:**	SOIL

Analyses	Result	Limit	Qual	Units	DF	Date Analyzed
SEMIVOLATILES SW-846 8270		**SW8270D**		**(SW3550A)**		Analyst: **RN**
1,2,4-Trichlorobenzene	U	40		µg/Kg	1	7/1/2003 10:50:00 PM
1,2-Dichlorobenzene	U	40		µg/Kg	1	7/1/2003 10:50:00 PM
1,3-Dichlorobenzene	U	40		µg/Kg	1	7/1/2003 10:50:00 PM
1,4-Dichlorobenzene	U	40		µg/Kg	1	7/1/2003 10:50:00 PM
2,4,5-Trichlorophenol	U	40		µg/Kg	1	7/1/2003 10:50:00 PM
2,4,6-Trichlorophenol	U	40		µg/Kg	1	7/1/2003 10:50:00 PM
2,4-Dichlorophenol	U	40		µg/Kg	1	7/1/2003 10:50:00 PM
2,4-Dimethylphenol	U	40		µg/Kg	1	7/1/2003 10:50:00 PM
2,4-Dinitrophenol	U	40		µg/Kg	1	7/1/2003 10:50:00 PM
2,4-Dinitrotoluene	U	40		µg/Kg	1	7/1/2003 10:50:00 PM
2,6-Dinitrotoluene	U	40		µg/Kg	1	7/1/2003 10:50:00 PM
2-Chloronaphthalene	U	40		µg/Kg	1	7/1/2003 10:50:00 PM
2-Chlorophenol	U	40		µg/Kg	1	7/1/2003 10:50:00 PM
2-Methylnaphthalene	170	40		µg/Kg	1	7/1/2003 10:50:00 PM
2-Methylphenol	U	40		µg/Kg	1	7/1/2003 10:50:00 PM
2-Nitroaniline	U	40		µg/Kg	1	7/1/2003 10:50:00 PM
2-Nitrophenol	U	40		µg/Kg	1	7/1/2003 10:50:00 PM
3,3´-Dichlorobenzidine	U	40		µg/Kg	1	7/1/2003 10:50:00 PM
3+4-Methylphenol	55	40		µg/Kg	1	7/1/2003 10:50:00 PM
3-Nitroaniline	U	40		µg/Kg	1	7/1/2003 10:50:00 PM
4,6-Dinitro-2-methylphenol	U	40		µg/Kg	1	7/1/2003 10:50:00 PM
4-Bromophenyl phenyl ether	U	40		µg/Kg	1	7/1/2003 10:50:00 PM
4-Chloro-3-methylphenol	U	40		µg/Kg	1	7/1/2003 10:50:00 PM
4-Chloroaniline	U	40		µg/Kg	1	7/1/2003 10:50:00 PM
4-Chlorophenyl phenyl ether	U	40		µg/Kg	1	7/1/2003 10:50:00 PM
4-Nitroaniline	U	40		µg/Kg	1	7/1/2003 10:50:00 PM
4-Nitrophenol	U	40		µg/Kg	1	7/1/2003 10:50:00 PM
Acenaphthene	320	40		µg/Kg	1	7/1/2003 10:50:00 PM
Acenaphthylene	110	40		µg/Kg	1	7/1/2003 10:50:00 PM
Aniline	U	40		µg/Kg	1	7/1/2003 10:50:00 PM
Anthracene	670	40		µg/Kg	1	7/1/2003 10:50:00 PM
Azobenzene	U	40		µg/Kg	1	7/1/2003 10:50:00 PM
Benzidine	U	40		µg/Kg	1	7/1/2003 10:50:00 PM
Benzo(a)anthracene	1300	40		µg/Kg	1	7/1/2003 10:50:00 PM
Benzo(a)pyrene	1000	40		µg/Kg	1	7/1/2003 10:50:00 PM
Benzo(b)fluoranthene	1300	40		µg/Kg	1	7/1/2003 10:50:00 PM
Benzo(g,h,i)perylene	550	40		µg/Kg	1	7/1/2003 10:50:00 PM
Benzo(k)fluoranthene	410	40		µg/Kg	1	7/1/2003 10:50:00 PM
Benzoic acid	U	40		µg/Kg	1	7/1/2003 10:50:00 PM
Benzyl alcohol	U	40		µg/Kg	1	7/1/2003 10:50:00 PM

Qualifiers:

ND - Not Detected at the Reporting Limit

J - Analyte detected below quantitation limits

B - Analyte detected in the associated Method Blank

* - Value exceeds Maximum Contaminant Level

S - Spike Recovery outside accepted recovery limits

R - RPD outside accepted recovery limits

E - Value above quantitation range

American Analytical Laboratories, Inc.

Date: *28-Jul-03*

CLIENT:	AKRF, Inc	**Client Sample ID:**	B6 (0.5'-2')
Lab Order:	0306116	**Tag Number:**	
Project:	Greenpoint Lumber Yard Brooklyn, NY	**Collection Date:**	6/25/2003
Lab ID:	0306116-10B	**Matrix:**	SOIL

Analyses	Result	Limit	Qual	Units	DF	Date Analyzed
SEMIVOLATILES SW-846 8270		**SW8270D**		**(SW3550A)**		Analyst: **RN**
Bis(2-chloroethoxy)methane	U	40		µg/Kg	1	7/1/2003 10:50:00 PM
Bis(2-chloroethyl)ether	U	40		µg/Kg	1	7/1/2003 10:50:00 PM
Bis(2-chloroisopropyl)ether	U	40		µg/Kg	1	7/1/2003 10:50:00 PM
Bis(2-ethylhexyl)phthalate	81	40		µg/Kg	1	7/1/2003 10:50:00 PM
Butyl benzyl phthalate	U	40		µg/Kg	1	7/1/2003 10:50:00 PM
Carbazole	290	40		µg/Kg	1	7/1/2003 10:50:00 PM
Chrysene	1300	40		µg/Kg	1	7/1/2003 10:50:00 PM
Dibenzo(a,h)anthracene	180	40		µg/Kg	1	7/1/2003 10:50:00 PM
Dibenzofuran	270	40		µg/Kg	1	7/1/2003 10:50:00 PM
Diethyl phthalate	U	40		µg/Kg	1	7/1/2003 10:50:00 PM
Dimethyl phthalate	U	40		µg/Kg	1	7/1/2003 10:50:00 PM
Di-n-butyl phthalate	U	40		µg/Kg	1	7/1/2003 10:50:00 PM
Di-n-octyl phthalate	U	40		µg/Kg	1	7/1/2003 10:50:00 PM
Fluoranthene	3100	200		µg/Kg	5	7/3/2003 2:44:00 PM
Fluorene	350	40		µg/Kg	1	7/1/2003 10:50:00 PM
Hexachlorobenzene	U	40		µg/Kg	1	7/1/2003 10:50:00 PM
Hexachlorobutadiene	U	40		µg/Kg	1	7/1/2003 10:50:00 PM
Hexachlorocyclopentadiene	U	40		µg/Kg	1	7/1/2003 10:50:00 PM
Hexachloroethane	U	40		µg/Kg	1	7/1/2003 10:50:00 PM
Indeno(1,2,3-c,d)pyrene	610	40		µg/Kg	1	7/1/2003 10:50:00 PM
Isophorone	U	40		µg/Kg	1	7/1/2003 10:50:00 PM
Naphthalene	300	40		µg/Kg	1	7/1/2003 10:50:00 PM
Nitrobenzene	U	40		µg/Kg	1	7/1/2003 10:50:00 PM
N-Nitrosodimethylamine	U	40		µg/Kg	1	7/1/2003 10:50:00 PM
N-Nitrosodi-n-propylamine	U	40		µg/Kg	1	7/1/2003 10:50:00 PM
N-Nitrosodiphenylamine	U	40		µg/Kg	1	7/1/2003 10:50:00 PM
Pentachlorophenol	U	40		µg/Kg	1	7/1/2003 10:50:00 PM
Phenanthrene	3200	200		µg/Kg	5	7/3/2003 2:44:00 PM
Phenol	U	40		µg/Kg	1	7/1/2003 10:50:00 PM
Pyrene	2400	40		µg/Kg	1	7/1/2003 10:50:00 PM
Pyridine	U	40		µg/Kg	1	7/1/2003 10:50:00 PM

Qualifiers:

ND - Not Detected at the Reporting Limit

J - Analyte detected below quantitation limits

B - Analyte detected in the associated Method Blank

* - Value exceeds Maximum Contaminant Level

S - Spike Recovery outside accepted recovery limits

R - RPD outside accepted recovery limits

E - Value above quantitation range

American Analytical Laboratories, Inc.

Date: *28-Jul-03*

CLIENT:	AKRF, Inc	**Client Sample ID:**	B6 (6'-7')
Lab Order:	0306116	**Tag Number:**	
Project:	Greenpoint Lumber Yard Brooklyn, NY	**Collection Date:**	6/25/2003
Lab ID:	0306116-11B	**Matrix:**	SOIL

Analyses	Result	Limit	Qual	Units	DF	Date Analyzed
SEMIVOLATILES SW-846 8270		**SW8270D**		**(SW3550A)**		Analyst: **RN**
1,2,4-Trichlorobenzene	U	40		µg/Kg	1	7/1/2003 11:35:00 PM
1,2-Dichlorobenzene	U	40		µg/Kg	1	7/1/2003 11:35:00 PM
1,3-Dichlorobenzene	U	40		µg/Kg	1	7/1/2003 11:35:00 PM
1,4-Dichlorobenzene	U	40		µg/Kg	1	7/1/2003 11:35:00 PM
2,4,5-Trichlorophenol	U	40		µg/Kg	1	7/1/2003 11:35:00 PM
2,4,6-Trichlorophenol	U	40		µg/Kg	1	7/1/2003 11:35:00 PM
2,4-Dichlorophenol	U	40		µg/Kg	1	7/1/2003 11:35:00 PM
2,4-Dimethylphenol	U	40		µg/Kg	1	7/1/2003 11:35:00 PM
2,4-Dinitrophenol	U	40		µg/Kg	1	7/1/2003 11:35:00 PM
2,4-Dinitrotoluene	U	40		µg/Kg	1	7/1/2003 11:35:00 PM
2,6-Dinitrotoluene	U	40		µg/Kg	1	7/1/2003 11:35:00 PM
2-Chloronaphthalene	U	40		µg/Kg	1	7/1/2003 11:35:00 PM
2-Chlorophenol	U	40		µg/Kg	1	7/1/2003 11:35:00 PM
2-Methylnaphthalene	U	40		µg/Kg	1	7/1/2003 11:35:00 PM
2-Methylphenol	U	40		µg/Kg	1	7/1/2003 11:35:00 PM
2-Nitroaniline	U	40		µg/Kg	1	7/1/2003 11:35:00 PM
2-Nitrophenol	U	40		µg/Kg	1	7/1/2003 11:35:00 PM
3,3'-Dichlorobenzidine	U	40		µg/Kg	1	7/1/2003 11:35:00 PM
3+4-Methylphenol	U	40		µg/Kg	1	7/1/2003 11:35:00 PM
3-Nitroaniline	U	40		µg/Kg	1	7/1/2003 11:35:00 PM
4,6-Dinitro-2-methylphenol	U	40		µg/Kg	1	7/1/2003 11:35:00 PM
4-Bromophenyl phenyl ether	U	40		µg/Kg	1	7/1/2003 11:35:00 PM
4-Chloro-3-methylphenol	U	40		µg/Kg	1	7/1/2003 11:35:00 PM
4-Chloroaniline	U	40		µg/Kg	1	7/1/2003 11:35:00 PM
4-Chlorophenyl phenyl ether	U	40		µg/Kg	1	7/1/2003 11:35:00 PM
4-Nitroaniline	U	40		µg/Kg	1	7/1/2003 11:35:00 PM
4-Nitrophenol	U	40		µg/Kg	1	7/1/2003 11:35:00 PM
Acenaphthene	200	40		µg/Kg	1	7/1/2003 11:35:00 PM
Acenaphthylene	U	40		µg/Kg	1	7/1/2003 11:35:00 PM
Aniline	U	40		µg/Kg	1	7/1/2003 11:35:00 PM
Anthracene	380	40		µg/Kg	1	7/1/2003 11:35:00 PM
Azobenzene	U	40		µg/Kg	1	7/1/2003 11:35:00 PM
Benzidine	U	40		µg/Kg	1	7/1/2003 11:35:00 PM
Benzo(a)anthracene	730	40		µg/Kg	1	7/1/2003 11:35:00 PM
Benzo(a)pyrene	610	40		µg/Kg	1	7/1/2003 11:35:00 PM
Benzo(b)fluoranthene	720	40		µg/Kg	1	7/1/2003 11:35:00 PM
Benzo(g,h,i)perylene	290	40		µg/Kg	1	7/1/2003 11:35:00 PM
Benzo(k)fluoranthene	210	40		µg/Kg	1	7/1/2003 11:35:00 PM
Benzoic acid	140	40		µg/Kg	1	7/1/2003 11:35:00 PM
Benzyl alcohol	U	40		µg/Kg	1	7/1/2003 11:35:00 PM

Qualifiers:

ND - Not Detected at the Reporting Limit

J - Analyte detected below quantitation limits

B - Analyte detected in the associated Method Blank

* - Value exceeds Maximum Contaminant Level

S - Spike Recovery outside accepted recovery limits

R - RPD outside accepted recovery limits

E - Value above quantitation range

American Analytical Laboratories, Inc.

Date: *28-Jul-03*

CLIENT:	AKRF, Inc	**Client Sample ID:**	B6 (6'-7')
Lab Order:	0306116	**Tag Number:**	
Project:	Greenpoint Lumber Yard Brooklyn, NY	**Collection Date:**	6/25/2003
Lab ID:	0306116-11B	**Matrix:**	SOIL

Analyses	Result	Limit	Qual	Units	DF	Date Analyzed
SEMIVOLATILES SW-846 8270		**SW8270D**		**(SW3550A)**		Analyst: **RN**
Bis(2-chloroethoxy)methane	U	40		µg/Kg	1	7/1/2003 11:35:00 PM
Bis(2-chloroethyl)ether	U	40		µg/Kg	1	7/1/2003 11:35:00 PM
Bis(2-chloroisopropyl)ether	U	40		µg/Kg	1	7/1/2003 11:35:00 PM
Bis(2-ethylhexyl)phthalate	U	40		µg/Kg	1	7/1/2003 11:35:00 PM
Butyl benzyl phthalate	U	40		µg/Kg	1	7/1/2003 11:35:00 PM
Carbazole	130	40		µg/Kg	1	7/1/2003 11:35:00 PM
Chrysene	720	40		µg/Kg	1	7/1/2003 11:35:00 PM
Dibenzo(a,h)anthracene	99	40		µg/Kg	1	7/1/2003 11:35:00 PM
Dibenzofuran	84	40		µg/Kg	1	7/1/2003 11:35:00 PM
Diethyl phthalate	U	40		µg/Kg	1	7/1/2003 11:35:00 PM
Dimethyl phthalate	U	40		µg/Kg	1	7/1/2003 11:35:00 PM
Di-n-butyl phthalate	U	40		µg/Kg	1	7/1/2003 11:35:00 PM
Di-n-octyl phthalate	U	40		µg/Kg	1	7/1/2003 11:35:00 PM
Fluoranthene	1500	40		µg/Kg	1	7/1/2003 11:35:00 PM
Fluorene	180	40		µg/Kg	1	7/1/2003 11:35:00 PM
Hexachlorobenzene	U	40		µg/Kg	1	7/1/2003 11:35:00 PM
Hexachlorobutadiene	U	40		µg/Kg	1	7/1/2003 11:35:00 PM
Hexachlorocyclopentadiene	U	40		µg/Kg	1	7/1/2003 11:35:00 PM
Hexachloroethane	U	40		µg/Kg	1	7/1/2003 11:35:00 PM
Indeno(1,2,3-c,d)pyrene	340	40		µg/Kg	1	7/1/2003 11:35:00 PM
Isophorone	U	40		µg/Kg	1	7/1/2003 11:35:00 PM
Naphthalene	U	40		µg/Kg	1	7/1/2003 11:35:00 PM
Nitrobenzene	U	40		µg/Kg	1	7/1/2003 11:35:00 PM
N-Nitrosodimethylamine	U	40		µg/Kg	1	7/1/2003 11:35:00 PM
N-Nitrosodi-n-propylamine	U	40		µg/Kg	1	7/1/2003 11:35:00 PM
N-Nitrosodiphenylamine	U	40		µg/Kg	1	7/1/2003 11:35:00 PM
Pentachlorophenol	U	40		µg/Kg	1	7/1/2003 11:35:00 PM
Phenanthrene	1400	40		µg/Kg	1	7/1/2003 11:35:00 PM
Phenol	U	40		µg/Kg	1	7/1/2003 11:35:00 PM
Pyrene	1300	40		µg/Kg	1	7/1/2003 11:35:00 PM
Pyridine	U	40		µg/Kg	1	7/1/2003 11:35:00 PM

Qualifiers:

ND - Not Detected at the Reporting Limit

J - Analyte detected below quantitation limits

B - Analyte detected in the associated Method Blank

* - Value exceeds Maximum Contaminant Level

S - Spike Recovery outside accepted recovery limits

R - RPD outside accepted recovery limits

E - Value above quantitation range

American Analytical Laboratories, Inc.

Date: *28-Jul-03*

CLIENT:	AKRF, Inc	**Client Sample ID:**	MW6 (0.5-2')
Lab Order:	0306116	**Tag Number:**	
Project:	Greenpoint Lumber Yard Brooklyn, NY	**Collection Date:**	6/25/2003
Lab ID:	0306116-12B	**Matrix:**	SOIL

Analyses	Result	Limit	Qual	Units	DF	Date Analyzed
SEMIVOLATILES SW-846 8270		**SW8270D**		**(SW3550A)**		Analyst: **RN**
1,2,4-Trichlorobenzene	U	200		µg/Kg	5	7/3/2003 6:55:00 PM
1,2-Dichlorobenzene	U	200		µg/Kg	5	7/3/2003 6:55:00 PM
1,3-Dichlorobenzene	U	200		µg/Kg	5	7/3/2003 6:55:00 PM
1,4-Dichlorobenzene	U	200		µg/Kg	5	7/3/2003 6:55:00 PM
2,4,5-Trichlorophenol	U	200		µg/Kg	5	7/3/2003 6:55:00 PM
2,4,6-Trichlorophenol	U	200		µg/Kg	5	7/3/2003 6:55:00 PM
2,4-Dichlorophenol	U	200		µg/Kg	5	7/3/2003 6:55:00 PM
2,4-Dimethylphenol	U	200		µg/Kg	5	7/3/2003 6:55:00 PM
2,4-Dinitrophenol	U	200		µg/Kg	5	7/3/2003 6:55:00 PM
2,4-Dinitrotoluene	U	200		µg/Kg	5	7/3/2003 6:55:00 PM
2,6-Dinitrotoluene	U	200		µg/Kg	5	7/3/2003 6:55:00 PM
2-Chloronaphthalene	U	200		µg/Kg	5	7/3/2003 6:55:00 PM
2-Chlorophenol	U	200		µg/Kg	5	7/3/2003 6:55:00 PM
2-Methylnaphthalene	240	200		µg/Kg	5	7/3/2003 6:55:00 PM
2-Methylphenol	U	200		µg/Kg	5	7/3/2003 6:55:00 PM
2-Nitroaniline	U	200		µg/Kg	5	7/3/2003 6:55:00 PM
2-Nitrophenol	U	200		µg/Kg	5	7/3/2003 6:55:00 PM
3,3'-Dichlorobenzidine	U	200		µg/Kg	5	7/3/2003 6:55:00 PM
3+4-Methylphenol	U	200		µg/Kg	5	7/3/2003 6:55:00 PM
3-Nitroaniline	U	200		µg/Kg	5	7/3/2003 6:55:00 PM
4,6-Dinitro-2-methylphenol	U	200		µg/Kg	5	7/3/2003 6:55:00 PM
4-Bromophenyl phenyl ether	U	200		µg/Kg	5	7/3/2003 6:55:00 PM
4-Chloro-3-methylphenol	U	200		µg/Kg	5	7/3/2003 6:55:00 PM
4-Chloroaniline	U	200		µg/Kg	5	7/3/2003 6:55:00 PM
4-Chlorophenyl phenyl ether	U	200		µg/Kg	5	7/3/2003 6:55:00 PM
4-Nitroaniline	U	200		µg/Kg	5	7/3/2003 6:55:00 PM
4-Nitrophenol	U	200		µg/Kg	5	7/3/2003 6:55:00 PM
Acenaphthene	1400	200		µg/Kg	5	7/3/2003 6:55:00 PM
Acenaphthylene	U	200		µg/Kg	5	7/3/2003 6:55:00 PM
Aniline	U	200		µg/Kg	5	7/3/2003 6:55:00 PM
Anthracene	1600	200		µg/Kg	5	7/3/2003 6:55:00 PM
Azobenzene	U	200		µg/Kg	5	7/3/2003 6:55:00 PM
Benzidine	U	200		µg/Kg	5	7/3/2003 6:55:00 PM
Benzo(a)anthracene	4900	200		µg/Kg	5	7/3/2003 6:55:00 PM
Benzo(a)pyrene	4000	200		µg/Kg	5	7/3/2003 6:55:00 PM
Benzo(b)fluoranthene	4800	200		µg/Kg	5	7/3/2003 6:55:00 PM
Benzo(g,h,i)perylene	2500	200		µg/Kg	5	7/3/2003 6:55:00 PM
Benzo(k)fluoranthene	1800	200		µg/Kg	5	7/3/2003 6:55:00 PM
Benzoic acid	U	200		µg/Kg	5	7/3/2003 6:55:00 PM
Benzyl alcohol	U	200		µg/Kg	5	7/3/2003 6:55:00 PM

Qualifiers:

ND - Not Detected at the Reporting Limit

J - Analyte detected below quantitation limits

B - Analyte detected in the associated Method Blank

* - Value exceeds Maximum Contaminant Level

S - Spike Recovery outside accepted recovery limits

R - RPD outside accepted recovery limits

E - Value above quantitation range

American Analytical Laboratories, Inc.

Date: *28-Jul-03*

CLIENT:	AKRF, Inc	**Client Sample ID:**	MW6 (0.5-2')
Lab Order:	0306116	**Tag Number:**	
Project:	Greenpoint Lumber Yard Brooklyn, NY	**Collection Date:**	6/25/2003
Lab ID:	0306116-12B	**Matrix:**	SOIL

Analyses	Result	Limit	Qual	Units	DF	Date Analyzed
SEMIVOLATILES SW-846 8270		**SW8270D**		**(SW3550A)**		Analyst: **RN**
Bis(2-chloroethoxy)methane	U	200		µg/Kg	5	7/3/2003 6:55:00 PM
Bis(2-chloroethyl)ether	U	200		µg/Kg	5	7/3/2003 6:55:00 PM
Bis(2-chloroisopropyl)ether	U	200		µg/Kg	5	7/3/2003 6:55:00 PM
Bis(2-ethylhexyl)phthalate	U	200		µg/Kg	5	7/3/2003 6:55:00 PM
Butyl benzyl phthalate	U	200		µg/Kg	5	7/3/2003 6:55:00 PM
Carbazole	620	200		µg/Kg	5	7/3/2003 6:55:00 PM
Chrysene	4800	200		µg/Kg	5	7/3/2003 6:55:00 PM
Dibenzo(a,h)anthracene	600	200		µg/Kg	5	7/3/2003 6:55:00 PM
Dibenzofuran	530	200		µg/Kg	5	7/3/2003 6:55:00 PM
Diethyl phthalate	U	200		µg/Kg	5	7/3/2003 6:55:00 PM
Dimethyl phthalate	U	200		µg/Kg	5	7/3/2003 6:55:00 PM
Di-n-butyl phthalate	U	200		µg/Kg	5	7/3/2003 6:55:00 PM
Di-n-octyl phthalate	U	200		µg/Kg	5	7/3/2003 6:55:00 PM
Fluoranthene	11000	200		µg/Kg	5	7/3/2003 6:55:00 PM
Fluorene	910	200		µg/Kg	5	7/3/2003 6:55:00 PM
Hexachlorobenzene	U	200		µg/Kg	5	7/3/2003 6:55:00 PM
Hexachlorobutadiene	U	200		µg/Kg	5	7/3/2003 6:55:00 PM
Hexachlorocyclopentadiene	U	200		µg/Kg	5	7/3/2003 6:55:00 PM
Hexachloroethane	U	200		µg/Kg	5	7/3/2003 6:55:00 PM
Indeno(1,2,3-c,d)pyrene	2500	200		µg/Kg	5	7/3/2003 6:55:00 PM
Isophorone	U	200		µg/Kg	5	7/3/2003 6:55:00 PM
Naphthalene	320	200		µg/Kg	5	7/3/2003 6:55:00 PM
Nitrobenzene	U	200		µg/Kg	5	7/3/2003 6:55:00 PM
N-Nitrosodimethylamine	U	200		µg/Kg	5	7/3/2003 6:55:00 PM
N-Nitrosodi-n-propylamine	U	200		µg/Kg	5	7/3/2003 6:55:00 PM
N-Nitrosodiphenylamine	U	200		µg/Kg	5	7/3/2003 6:55:00 PM
Pentachlorophenol	U	200		µg/Kg	5	7/3/2003 6:55:00 PM
Phenanthrene	11000	200		µg/Kg	5	7/3/2003 6:55:00 PM
Phenol	U	200		µg/Kg	5	7/3/2003 6:55:00 PM
Pyrene	10000	200		µg/Kg	5	7/3/2003 6:55:00 PM
Pyridine	U	200		µg/Kg	5	7/3/2003 6:55:00 PM

Qualifiers:

ND - Not Detected at the Reporting Limit

J - Analyte detected below quantitation limits

B - Analyte detected in the associated Method Blank

* - Value exceeds Maximum Contaminant Level

S - Spike Recovery outside accepted recovery limits

R - RPD outside accepted recovery limits

E - Value above quantitation range

American Analytical Laboratories, Inc.

Date: *28-Jul-03*

CLIENT:	AKRF, Inc	**Client Sample ID:**	MW6 (6'-7')
Lab Order:	0306116	**Tag Number:**	
Project:	Greenpoint Lumber Yard Brooklyn, NY	**Collection Date:**	6/25/2003
Lab ID:	0306116-13B	**Matrix:**	SOIL

Analyses	Result	Limit	Qual	Units	DF	Date Analyzed
SEMIVOLATILES SW-846 8270		**SW8270D**		**(SW3550A)**		Analyst: **RN**
1,2,4-Trichlorobenzene	U	40		µg/Kg	1	7/7/2003 1:38:00 PM
1,2-Dichlorobenzene	U	40		µg/Kg	1	7/7/2003 1:38:00 PM
1,3-Dichlorobenzene	U	40		µg/Kg	1	7/7/2003 1:38:00 PM
1,4-Dichlorobenzene	U	40		µg/Kg	1	7/7/2003 1:38:00 PM
2,4,5-Trichlorophenol	U	40		µg/Kg	1	7/7/2003 1:38:00 PM
2,4,6-Trichlorophenol	U	40		µg/Kg	1	7/7/2003 1:38:00 PM
2,4-Dichlorophenol	U	40		µg/Kg	1	7/7/2003 1:38:00 PM
2,4-Dimethylphenol	U	40		µg/Kg	1	7/7/2003 1:38:00 PM
2,4-Dinitrophenol	U	40		µg/Kg	1	7/7/2003 1:38:00 PM
2,4-Dinitrotoluene	U	40		µg/Kg	1	7/7/2003 1:38:00 PM
2,6-Dinitrotoluene	U	40		µg/Kg	1	7/7/2003 1:38:00 PM
2-Chloronaphthalene	U	40		µg/Kg	1	7/7/2003 1:38:00 PM
2-Chlorophenol	U	40		µg/Kg	1	7/7/2003 1:38:00 PM
2-Methylnaphthalene	82	40		µg/Kg	1	7/7/2003 1:38:00 PM
2-Methylphenol	U	40		µg/Kg	1	7/7/2003 1:38:00 PM
2-Nitroaniline	U	40		µg/Kg	1	7/7/2003 1:38:00 PM
2-Nitrophenol	U	40		µg/Kg	1	7/7/2003 1:38:00 PM
3,3´-Dichlorobenzidine	U	40		µg/Kg	1	7/7/2003 1:38:00 PM
3+4-Methylphenol	U	40		µg/Kg	1	7/7/2003 1:38:00 PM
3-Nitroaniline	U	40		µg/Kg	1	7/7/2003 1:38:00 PM
4,6-Dinitro-2-methylphenol	U	40		µg/Kg	1	7/7/2003 1:38:00 PM
4-Bromophenyl phenyl ether	U	40		µg/Kg	1	7/7/2003 1:38:00 PM
4-Chloro-3-methylphenol	U	40		µg/Kg	1	7/7/2003 1:38:00 PM
4-Chloroaniline	U	40		µg/Kg	1	7/7/2003 1:38:00 PM
4-Chlorophenyl phenyl ether	U	40		µg/Kg	1	7/7/2003 1:38:00 PM
4-Nitroaniline	U	40		µg/Kg	1	7/7/2003 1:38:00 PM
4-Nitrophenol	U	40		µg/Kg	1	7/7/2003 1:38:00 PM
Acenaphthene	420	40		µg/Kg	1	7/7/2003 1:38:00 PM
Acenaphthylene	U	40		µg/Kg	1	7/7/2003 1:38:00 PM
Aniline	U	40		µg/Kg	1	7/7/2003 1:38:00 PM
Anthracene	790	40		µg/Kg	1	7/7/2003 1:38:00 PM
Azobenzene	U	40		µg/Kg	1	7/7/2003 1:38:00 PM
Benzidine	U	40		µg/Kg	1	7/7/2003 1:38:00 PM
Benzo(a)anthracene	970	40		µg/Kg	1	7/7/2003 1:38:00 PM
Benzo(a)pyrene	730	40		µg/Kg	1	7/7/2003 1:38:00 PM
Benzo(b)fluoranthene	860	40		µg/Kg	1	7/7/2003 1:38:00 PM
Benzo(g,h,i)perylene	360	40		µg/Kg	1	7/7/2003 1:38:00 PM
Benzo(k)fluoranthene	260	40		µg/Kg	1	7/7/2003 1:38:00 PM
Benzoic acid	150	40		µg/Kg	1	7/7/2003 1:38:00 PM
Benzyl alcohol	U	40		µg/Kg	1	7/7/2003 1:38:00 PM

Qualifiers:

ND - Not Detected at the Reporting Limit

J - Analyte detected below quantitation limits

B - Analyte detected in the associated Method Blank

* - Value exceeds Maximum Contaminant Level

S - Spike Recovery outside accepted recovery limits

R - RPD outside accepted recovery limits

E - Value above quantitation range

American Analytical Laboratories, Inc.

Date: *28-Jul-03*

CLIENT:	AKRF, Inc	**Client Sample ID:**	MW6 (6'-7')
Lab Order:	0306116	**Tag Number:**	
Project:	Greenpoint Lumber Yard Brooklyn, NY	**Collection Date:**	6/25/2003
Lab ID:	0306116-13B	**Matrix:**	SOIL

Analyses	Result	Limit	Qual	Units	DF	Date Analyzed
SEMIVOLATILES SW-846 8270		**SW8270D**		**(SW3550A)**		Analyst: **RN**
Bis(2-chloroethoxy)methane	U	40		µg/Kg	1	7/7/2003 1:38:00 PM
Bis(2-chloroethyl)ether	U	40		µg/Kg	1	7/7/2003 1:38:00 PM
Bis(2-chloroisopropyl)ether	U	40		µg/Kg	1	7/7/2003 1:38:00 PM
Bis(2-ethylhexyl)phthalate	U	40		µg/Kg	1	7/7/2003 1:38:00 PM
Butyl benzyl phthalate	U	40		µg/Kg	1	7/7/2003 1:38:00 PM
Carbazole	310	40		µg/Kg	1	7/7/2003 1:38:00 PM
Chrysene	870	40		µg/Kg	1	7/7/2003 1:38:00 PM
Dibenzo(a,h)anthracene	110	40		µg/Kg	1	7/7/2003 1:38:00 PM
Dibenzofuran	220	40		µg/Kg	1	7/7/2003 1:38:00 PM
Diethyl phthalate	U	40		µg/Kg	1	7/7/2003 1:38:00 PM
Dimethyl phthalate	U	40		µg/Kg	1	7/7/2003 1:38:00 PM
Di-n-butyl phthalate	U	40		µg/Kg	1	7/7/2003 1:38:00 PM
Di-n-octyl phthalate	U	40		µg/Kg	1	7/7/2003 1:38:00 PM
Fluoranthene	2100	40		µg/Kg	1	7/7/2003 1:38:00 PM
Fluorene	420	40		µg/Kg	1	7/7/2003 1:38:00 PM
Hexachlorobenzene	U	40		µg/Kg	1	7/7/2003 1:38:00 PM
Hexachlorobutadiene	U	40		µg/Kg	1	7/7/2003 1:38:00 PM
Hexachlorocyclopentadiene	U	40		µg/Kg	1	7/7/2003 1:38:00 PM
Hexachloroethane	U	40		µg/Kg	1	7/7/2003 1:38:00 PM
Indeno(1,2,3-c,d)pyrene	380	40		µg/Kg	1	7/7/2003 1:38:00 PM
Isophorone	U	40		µg/Kg	1	7/7/2003 1:38:00 PM
Naphthalene	73	40		µg/Kg	1	7/7/2003 1:38:00 PM
Nitrobenzene	U	40		µg/Kg	1	7/7/2003 1:38:00 PM
N-Nitrosodimethylamine	U	40		µg/Kg	1	7/7/2003 1:38:00 PM
N-Nitrosodi-n-propylamine	U	40		µg/Kg	1	7/7/2003 1:38:00 PM
N-Nitrosodiphenylamine	U	40		µg/Kg	1	7/7/2003 1:38:00 PM
Pentachlorophenol	U	40		µg/Kg	1	7/7/2003 1:38:00 PM
Phenanthrene	2600	40		µg/Kg	1	7/7/2003 1:38:00 PM
Phenol	U	40		µg/Kg	1	7/7/2003 1:38:00 PM
Pyrene	1900	40		µg/Kg	1	7/7/2003 1:38:00 PM
Pyridine	U	40		µg/Kg	1	7/7/2003 1:38:00 PM

Qualifiers:

ND - Not Detected at the Reporting Limit

J - Analyte detected below quantitation limits

B - Analyte detected in the associated Method Blank

* - Value exceeds Maximum Contaminant Level

S - Spike Recovery outside accepted recovery limits

R - RPD outside accepted recovery limits

E - Value above quantitation range

American Analytical Laboratories, Inc.

Date: *28-Jul-03*

CLIENT:	AKRF, Inc	**Client Sample ID:**	MW8 (2'-4')
Lab Order:	0306116	**Tag Number:**	
Project:	Greenpoint Lumber Yard Brooklyn, NY	**Collection Date:**	6/25/2003
Lab ID:	0306116-14B	**Matrix:**	SOIL

Analyses	Result	Limit	Qual	Units	DF	Date Analyzed
SEMIVOLATILES SW-846 8270		**SW8270D**		**(SW3550A)**		Analyst: **RN**
1,2,4-Trichlorobenzene	U	40		µg/Kg	1	7/2/2003 12:21:00 AM
1,2-Dichlorobenzene	U	40		µg/Kg	1	7/2/2003 12:21:00 AM
1,3-Dichlorobenzene	U	40		µg/Kg	1	7/2/2003 12:21:00 AM
1,4-Dichlorobenzene	U	40		µg/Kg	1	7/2/2003 12:21:00 AM
2,4,5-Trichlorophenol	U	40		µg/Kg	1	7/2/2003 12:21:00 AM
2,4,6-Trichlorophenol	U	40		µg/Kg	1	7/2/2003 12:21:00 AM
2,4-Dichlorophenol	U	40		µg/Kg	1	7/2/2003 12:21:00 AM
2,4-Dimethylphenol	U	40		µg/Kg	1	7/2/2003 12:21:00 AM
2,4-Dinitrophenol	U	40		µg/Kg	1	7/2/2003 12:21:00 AM
2,4-Dinitrotoluene	U	40		µg/Kg	1	7/2/2003 12:21:00 AM
2,6-Dinitrotoluene	U	40		µg/Kg	1	7/2/2003 12:21:00 AM
2-Chloronaphthalene	U	40		µg/Kg	1	7/2/2003 12:21:00 AM
2-Chlorophenol	U	40		µg/Kg	1	7/2/2003 12:21:00 AM
2-Methylnaphthalene	340	40		µg/Kg	1	7/2/2003 12:21:00 AM
2-Methylphenol	U	40		µg/Kg	1	7/2/2003 12:21:00 AM
2-Nitroaniline	U	40		µg/Kg	1	7/2/2003 12:21:00 AM
2-Nitrophenol	U	40		µg/Kg	1	7/2/2003 12:21:00 AM
3,3'-Dichlorobenzidine	U	40		µg/Kg	1	7/2/2003 12:21:00 AM
3+4-Methylphenol	U	40		µg/Kg	1	7/2/2003 12:21:00 AM
3-Nitroaniline	U	40		µg/Kg	1	7/2/2003 12:21:00 AM
4,6-Dinitro-2-methylphenol	U	40		µg/Kg	1	7/2/2003 12:21:00 AM
4-Bromophenyl phenyl ether	U	40		µg/Kg	1	7/2/2003 12:21:00 AM
4-Chloro-3-methylphenol	U	40		µg/Kg	1	7/2/2003 12:21:00 AM
4-Chloroaniline	U	40		µg/Kg	1	7/2/2003 12:21:00 AM
4-Chlorophenyl phenyl ether	U	40		µg/Kg	1	7/2/2003 12:21:00 AM
4-Nitroaniline	U	40		µg/Kg	1	7/2/2003 12:21:00 AM
4-Nitrophenol	U	40		µg/Kg	1	7/2/2003 12:21:00 AM
Acenaphthene	58	40		µg/Kg	1	7/2/2003 12:21:00 AM
Acenaphthylene	U	40		µg/Kg	1	7/2/2003 12:21:00 AM
Aniline	U	40		µg/Kg	1	7/2/2003 12:21:00 AM
Anthracene	110	40		µg/Kg	1	7/2/2003 12:21:00 AM
Azobenzene	U	40		µg/Kg	1	7/2/2003 12:21:00 AM
Benzidine	U	40		µg/Kg	1	7/2/2003 12:21:00 AM
Benzo(a)anthracene	340	40		µg/Kg	1	7/2/2003 12:21:00 AM
Benzo(a)pyrene	280	40		µg/Kg	1	7/2/2003 12:21:00 AM
Benzo(b)fluoranthene	400	40		µg/Kg	1	7/2/2003 12:21:00 AM
Benzo(g,h,i)perylene	240	40		µg/Kg	1	7/2/2003 12:21:00 AM
Benzo(k)fluoranthene	130	40		µg/Kg	1	7/2/2003 12:21:00 AM
Benzoic acid	U	40		µg/Kg	1	7/2/2003 12:21:00 AM
Benzyl alcohol	U	40		µg/Kg	1	7/2/2003 12:21:00 AM

Qualifiers:

ND - Not Detected at the Reporting Limit

J - Analyte detected below quantitation limits

B - Analyte detected in the associated Method Blank

* - Value exceeds Maximum Contaminant Level

S - Spike Recovery outside accepted recovery limits

R - RPD outside accepted recovery limits

E - Value above quantitation range

American Analytical Laboratories, Inc.

Date: *28-Jul-03*

CLIENT:	AKRF, Inc	**Client Sample ID:**	MW8 (2'-4')
Lab Order:	0306116	**Tag Number:**	
Project:	Greenpoint Lumber Yard Brooklyn, NY	**Collection Date:**	6/25/2003
Lab ID:	0306116-14B	**Matrix:**	SOIL

Analyses	Result	Limit	Qual	Units	DF	Date Analyzed
SEMIVOLATILES SW-846 8270		**SW8270D**		**(SW3550A)**		Analyst: **RN**
Bis(2-chloroethoxy)methane	U	40		µg/Kg	1	7/2/2003 12:21:00 AM
Bis(2-chloroethyl)ether	U	40		µg/Kg	1	7/2/2003 12:21:00 AM
Bis(2-chloroisopropyl)ether	U	40		µg/Kg	1	7/2/2003 12:21:00 AM
Bis(2-ethylhexyl)phthalate	90	40		µg/Kg	1	7/2/2003 12:21:00 AM
Butyl benzyl phthalate	U	40		µg/Kg	1	7/2/2003 12:21:00 AM
Carbazole	67	40		µg/Kg	1	7/2/2003 12:21:00 AM
Chrysene	430	40		µg/Kg	1	7/2/2003 12:21:00 AM
Dibenzo(a,h)anthracene	67	40		µg/Kg	1	7/2/2003 12:21:00 AM
Dibenzofuran	65	40		µg/Kg	1	7/2/2003 12:21:00 AM
Diethyl phthalate	U	40		µg/Kg	1	7/2/2003 12:21:00 AM
Dimethyl phthalate	U	40		µg/Kg	1	7/2/2003 12:21:00 AM
Di-n-butyl phthalate	U	40		µg/Kg	1	7/2/2003 12:21:00 AM
Di-n-octyl phthalate	U	40		µg/Kg	1	7/2/2003 12:21:00 AM
Fluoranthene	720	40		µg/Kg	1	7/2/2003 12:21:00 AM
Fluorene	130	40		µg/Kg	1	7/2/2003 12:21:00 AM
Hexachlorobenzene	U	40		µg/Kg	1	7/2/2003 12:21:00 AM
Hexachlorobutadiene	U	40		µg/Kg	1	7/2/2003 12:21:00 AM
Hexachlorocyclopentadiene	U	40		µg/Kg	1	7/2/2003 12:21:00 AM
Hexachloroethane	U	40		µg/Kg	1	7/2/2003 12:21:00 AM
Indeno(1,2,3-c,d)pyrene	220	40		µg/Kg	1	7/2/2003 12:21:00 AM
Isophorone	U	40		µg/Kg	1	7/2/2003 12:21:00 AM
Naphthalene	230	40		µg/Kg	1	7/2/2003 12:21:00 AM
Nitrobenzene	U	40		µg/Kg	1	7/2/2003 12:21:00 AM
N-Nitrosodimethylamine	U	40		µg/Kg	1	7/2/2003 12:21:00 AM
N-Nitrosodi-n-propylamine	U	40		µg/Kg	1	7/2/2003 12:21:00 AM
N-Nitrosodiphenylamine	U	40		µg/Kg	1	7/2/2003 12:21:00 AM
Pentachlorophenol	U	40		µg/Kg	1	7/2/2003 12:21:00 AM
Phenanthrene	810	40		µg/Kg	1	7/2/2003 12:21:00 AM
Phenol	U	40		µg/Kg	1	7/2/2003 12:21:00 AM
Pyrene	630	40		µg/Kg	1	7/2/2003 12:21:00 AM
Pyridine	U	40		µg/Kg	1	7/2/2003 12:21:00 AM

Qualifiers:

ND - Not Detected at the Reporting Limit

J - Analyte detected below quantitation limits

B - Analyte detected in the associated Method Blank

* - Value exceeds Maximum Contaminant Level

S - Spike Recovery outside accepted recovery limits

R - RPD outside accepted recovery limits

E - Value above quantitation range

American Analytical Laboratories, Inc.

Date: *28-Jul-03*

CLIENT:	AKRF, Inc	**Client Sample ID:**	MW8 (5'-6.5')
Lab Order:	0306116	**Tag Number:**	
Project:	Greenpoint Lumber Yard Brooklyn, NY	**Collection Date:**	6/25/2003
Lab ID:	0306116-15B	**Matrix:**	SOIL

Analyses	Result	Limit	Qual	Units	DF	Date Analyzed
SEMIVOLATILES SW-846 8270		**SW8270D**		**(SW3550A)**		Analyst: **RN**
1,2,4-Trichlorobenzene	U	40		µg/Kg	1	7/2/2003 8:14:00 PM
1,2-Dichlorobenzene	U	40		µg/Kg	1	7/2/2003 8:14:00 PM
1,3-Dichlorobenzene	U	40		µg/Kg	1	7/2/2003 8:14:00 PM
1,4-Dichlorobenzene	U	40		µg/Kg	1	7/2/2003 8:14:00 PM
2,4,5-Trichlorophenol	U	40		µg/Kg	1	7/2/2003 8:14:00 PM
2,4,6-Trichlorophenol	U	40		µg/Kg	1	7/2/2003 8:14:00 PM
2,4-Dichlorophenol	U	40		µg/Kg	1	7/2/2003 8:14:00 PM
2,4-Dimethylphenol	U	40		µg/Kg	1	7/2/2003 8:14:00 PM
2,4-Dinitrophenol	U	40		µg/Kg	1	7/2/2003 8:14:00 PM
2,4-Dinitrotoluene	U	40		µg/Kg	1	7/2/2003 8:14:00 PM
2,6-Dinitrotoluene	U	40		µg/Kg	1	7/2/2003 8:14:00 PM
2-Chloronaphthalene	U	40		µg/Kg	1	7/2/2003 8:14:00 PM
2-Chlorophenol	U	40		µg/Kg	1	7/2/2003 8:14:00 PM
2-Methylnaphthalene	U	40		µg/Kg	1	7/2/2003 8:14:00 PM
2-Methylphenol	U	40		µg/Kg	1	7/2/2003 8:14:00 PM
2-Nitroaniline	U	40		µg/Kg	1	7/2/2003 8:14:00 PM
2-Nitrophenol	U	40		µg/Kg	1	7/2/2003 8:14:00 PM
3,3'-Dichlorobenzidine	U	40		µg/Kg	1	7/2/2003 8:14:00 PM
3+4-Methylphenol	U	40		µg/Kg	1	7/2/2003 8:14:00 PM
3-Nitroaniline	U	40		µg/Kg	1	7/2/2003 8:14:00 PM
4,6-Dinitro-2-methylphenol	U	40		µg/Kg	1	7/2/2003 8:14:00 PM
4-Bromophenyl phenyl ether	U	40		µg/Kg	1	7/2/2003 8:14:00 PM
4-Chloro-3-methylphenol	U	40		µg/Kg	1	7/2/2003 8:14:00 PM
4-Chloroaniline	U	40		µg/Kg	1	7/2/2003 8:14:00 PM
4-Chlorophenyl phenyl ether	U	40		µg/Kg	1	7/2/2003 8:14:00 PM
4-Nitroaniline	U	40		µg/Kg	1	7/2/2003 8:14:00 PM
4-Nitrophenol	U	40		µg/Kg	1	7/2/2003 8:14:00 PM
Acenaphthene	U	40		µg/Kg	1	7/2/2003 8:14:00 PM
Acenaphthylene	U	40		µg/Kg	1	7/2/2003 8:14:00 PM
Aniline	U	40		µg/Kg	1	7/2/2003 8:14:00 PM
Anthracene	U	40		µg/Kg	1	7/2/2003 8:14:00 PM
Azobenzene	U	40		µg/Kg	1	7/2/2003 8:14:00 PM
Benzidine	U	40		µg/Kg	1	7/2/2003 8:14:00 PM
Benzo(a)anthracene	94	40		µg/Kg	1	7/2/2003 8:14:00 PM
Benzo(a)pyrene	88	40		µg/Kg	1	7/2/2003 8:14:00 PM
Benzo(b)fluoranthene	110	40		µg/Kg	1	7/2/2003 8:14:00 PM
Benzo(g,h,i)perylene	50	40		µg/Kg	1	7/2/2003 8:14:00 PM
Benzo(k)fluoranthene	U	40		µg/Kg	1	7/2/2003 8:14:00 PM
Benzoic acid	U	40		µg/Kg	1	7/2/2003 8:14:00 PM
Benzyl alcohol	U	40		µg/Kg	1	7/2/2003 8:14:00 PM

Qualifiers:

ND - Not Detected at the Reporting Limit

J - Analyte detected below quantitation limits

B - Analyte detected in the associated Method Blank

* - Value exceeds Maximum Contaminant Level

S - Spike Recovery outside accepted recovery limits

R - RPD outside accepted recovery limits

E - Value above quantitation range

American Analytical Laboratories, Inc.

Date: *28-Jul-03*

CLIENT:	AKRF, Inc	**Client Sample ID:**	MW8 (5'-6.5')
Lab Order:	0306116	**Tag Number:**	
Project:	Greenpoint Lumber Yard Brooklyn, NY	**Collection Date:**	6/25/2003
Lab ID:	0306116-15B	**Matrix:**	SOIL

Analyses	Result	Limit	Qual	Units	DF	Date Analyzed
SEMIVOLATILES SW-846 8270		**SW8270D**		**(SW3550A)**		Analyst: **RN**
Bis(2-chloroethoxy)methane	U	40		µg/Kg	1	7/2/2003 8:14:00 PM
Bis(2-chloroethyl)ether	U	40		µg/Kg	1	7/2/2003 8:14:00 PM
Bis(2-chloroisopropyl)ether	U	40		µg/Kg	1	7/2/2003 8:14:00 PM
Bis(2-ethylhexyl)phthalate	U	40		µg/Kg	1	7/2/2003 8:14:00 PM
Butyl benzyl phthalate	U	40		µg/Kg	1	7/2/2003 8:14:00 PM
Carbazole	U	40		µg/Kg	1	7/2/2003 8:14:00 PM
Chrysene	97	40		µg/Kg	1	7/2/2003 8:14:00 PM
Dibenzo(a,h)anthracene	U	40		µg/Kg	1	7/2/2003 8:14:00 PM
Dibenzofuran	U	40		µg/Kg	1	7/2/2003 8:14:00 PM
Diethyl phthalate	U	40		µg/Kg	1	7/2/2003 8:14:00 PM
Dimethyl phthalate	U	40		µg/Kg	1	7/2/2003 8:14:00 PM
Di-n-butyl phthalate	U	40		µg/Kg	1	7/2/2003 8:14:00 PM
Di-n-octyl phthalate	U	40		µg/Kg	1	7/2/2003 8:14:00 PM
Fluoranthene	170	40		µg/Kg	1	7/2/2003 8:14:00 PM
Fluorene	U	40		µg/Kg	1	7/2/2003 8:14:00 PM
Hexachlorobenzene	U	40		µg/Kg	1	7/2/2003 8:14:00 PM
Hexachlorobutadiene	U	40		µg/Kg	1	7/2/2003 8:14:00 PM
Hexachlorocyclopentadiene	U	40		µg/Kg	1	7/2/2003 8:14:00 PM
Hexachloroethane	U	40		µg/Kg	1	7/2/2003 8:14:00 PM
Indeno(1,2,3-c,d)pyrene	55	40		µg/Kg	1	7/2/2003 8:14:00 PM
Isophorone	U	40		µg/Kg	1	7/2/2003 8:14:00 PM
Naphthalene	U	40		µg/Kg	1	7/2/2003 8:14:00 PM
Nitrobenzene	U	40		µg/Kg	1	7/2/2003 8:14:00 PM
N-Nitrosodimethylamine	U	40		µg/Kg	1	7/2/2003 8:14:00 PM
N-Nitrosodi-n-propylamine	U	40		µg/Kg	1	7/2/2003 8:14:00 PM
N-Nitrosodiphenylamine	U	40		µg/Kg	1	7/2/2003 8:14:00 PM
Pentachlorophenol	U	40		µg/Kg	1	7/2/2003 8:14:00 PM
Phenanthrene	110	40		µg/Kg	1	7/2/2003 8:14:00 PM
Phenol	U	40		µg/Kg	1	7/2/2003 8:14:00 PM
Pyrene	150	40		µg/Kg	1	7/2/2003 8:14:00 PM
Pyridine	U	40		µg/Kg	1	7/2/2003 8:14:00 PM

Qualifiers:

ND - Not Detected at the Reporting Limit

J - Analyte detected below quantitation limits

B - Analyte detected in the associated Method Blank

* - Value exceeds Maximum Contaminant Level

S - Spike Recovery outside accepted recovery limits

R - RPD outside accepted recovery limits

E - Value above quantitation range

American Analytical Laboratories, Inc.

Date: *28-Jul-03*

CLIENT:	AKRF, Inc	**Client Sample ID:**	B9 (14"-2.5')
Lab Order:	0306116	**Tag Number:**	
Project:	Greenpoint Lumber Yard Brooklyn, NY	**Collection Date:**	6/25/2003
Lab ID:	0306116-16B	**Matrix:**	SOIL

Analyses	Result	Limit	Qual	Units	DF	Date Analyzed
SEMIVOLATILES SW-846 8270		**SW8270D**		**(SW3550A)**		Analyst: **RN**
1,2,4-Trichlorobenzene	U	200		µg/Kg	5	7/3/2003 7:39:00 PM
1,2-Dichlorobenzene	U	200		µg/Kg	5	7/3/2003 7:39:00 PM
1,3-Dichlorobenzene	U	200		µg/Kg	5	7/3/2003 7:39:00 PM
1,4-Dichlorobenzene	U	200		µg/Kg	5	7/3/2003 7:39:00 PM
2,4,5-Trichlorophenol	U	200		µg/Kg	5	7/3/2003 7:39:00 PM
2,4,6-Trichlorophenol	U	200		µg/Kg	5	7/3/2003 7:39:00 PM
2,4-Dichlorophenol	U	200		µg/Kg	5	7/3/2003 7:39:00 PM
2,4-Dimethylphenol	U	200		µg/Kg	5	7/3/2003 7:39:00 PM
2,4-Dinitrophenol	U	200		µg/Kg	5	7/3/2003 7:39:00 PM
2,4-Dinitrotoluene	U	200		µg/Kg	5	7/3/2003 7:39:00 PM
2,6-Dinitrotoluene	U	200		µg/Kg	5	7/3/2003 7:39:00 PM
2-Chloronaphthalene	U	200		µg/Kg	5	7/3/2003 7:39:00 PM
2-Chlorophenol	U	200		µg/Kg	5	7/3/2003 7:39:00 PM
2-Methylnaphthalene	300	200		µg/Kg	5	7/3/2003 7:39:00 PM
2-Methylphenol	U	200		µg/Kg	5	7/3/2003 7:39:00 PM
2-Nitroaniline	U	200		µg/Kg	5	7/3/2003 7:39:00 PM
2-Nitrophenol	U	200		µg/Kg	5	7/3/2003 7:39:00 PM
3,3'-Dichlorobenzidine	U	200		µg/Kg	5	7/3/2003 7:39:00 PM
3+4-Methylphenol	U	200		µg/Kg	5	7/3/2003 7:39:00 PM
3-Nitroaniline	U	200		µg/Kg	5	7/3/2003 7:39:00 PM
4,6-Dinitro-2-methylphenol	U	200		µg/Kg	5	7/3/2003 7:39:00 PM
4-Bromophenyl phenyl ether	U	200		µg/Kg	5	7/3/2003 7:39:00 PM
4-Chloro-3-methylphenol	U	200		µg/Kg	5	7/3/2003 7:39:00 PM
4-Chloroaniline	U	200		µg/Kg	5	7/3/2003 7:39:00 PM
4-Chlorophenyl phenyl ether	U	200		µg/Kg	5	7/3/2003 7:39:00 PM
4-Nitroaniline	U	200		µg/Kg	5	7/3/2003 7:39:00 PM
4-Nitrophenol	U	200		µg/Kg	5	7/3/2003 7:39:00 PM
Acenaphthene	U	200		µg/Kg	5	7/3/2003 7:39:00 PM
Acenaphthylene	U	200		µg/Kg	5	7/3/2003 7:39:00 PM
Aniline	U	200		µg/Kg	5	7/3/2003 7:39:00 PM
Anthracene	330	200		µg/Kg	5	7/3/2003 7:39:00 PM
Azobenzene	U	200		µg/Kg	5	7/3/2003 7:39:00 PM
Benzidine	U	200		µg/Kg	5	7/3/2003 7:39:00 PM
Benzo(a)anthracene	920	200		µg/Kg	5	7/3/2003 7:39:00 PM
Benzo(a)pyrene	980	200		µg/Kg	5	7/3/2003 7:39:00 PM
Benzo(b)fluoranthene	1300	200		µg/Kg	5	7/3/2003 7:39:00 PM
Benzo(g,h,i)perylene	1300	200		µg/Kg	5	7/3/2003 7:39:00 PM
Benzo(k)fluoranthene	370	200		µg/Kg	5	7/3/2003 7:39:00 PM
Benzoic acid	U	200		µg/Kg	5	7/3/2003 7:39:00 PM
Benzyl alcohol	U	200		µg/Kg	5	7/3/2003 7:39:00 PM

Qualifiers:

ND - Not Detected at the Reporting Limit

J - Analyte detected below quantitation limits

B - Analyte detected in the associated Method Blank

* - Value exceeds Maximum Contaminant Level

S - Spike Recovery outside accepted recovery limits

R - RPD outside accepted recovery limits

E - Value above quantitation range

American Analytical Laboratories, Inc.

Date: *28-Jul-03*

CLIENT:	AKRF, Inc	**Client Sample ID:**	B9 (14"-2.5')
Lab Order:	0306116	**Tag Number:**	
Project:	Greenpoint Lumber Yard Brooklyn, NY	**Collection Date:**	6/25/2003
Lab ID:	0306116-16B	**Matrix:**	SOIL

Analyses	Result	Limit	Qual	Units	DF	Date Analyzed
SEMIVOLATILES SW-846 8270		**SW8270D**		**(SW3550A)**		Analyst: **RN**
Bis(2-chloroethoxy)methane	U	200		µg/Kg	5	7/3/2003 7:39:00 PM
Bis(2-chloroethyl)ether	U	200		µg/Kg	5	7/3/2003 7:39:00 PM
Bis(2-chloroisopropyl)ether	U	200		µg/Kg	5	7/3/2003 7:39:00 PM
Bis(2-ethylhexyl)phthalate	U	200		µg/Kg	5	7/3/2003 7:39:00 PM
Butyl benzyl phthalate	U	200		µg/Kg	5	7/3/2003 7:39:00 PM
Carbazole	U	200		µg/Kg	5	7/3/2003 7:39:00 PM
Chrysene	1200	200		µg/Kg	5	7/3/2003 7:39:00 PM
Dibenzo(a,h)anthracene	250	200		µg/Kg	5	7/3/2003 7:39:00 PM
Dibenzofuran	U	200		µg/Kg	5	7/3/2003 7:39:00 PM
Diethyl phthalate	U	200		µg/Kg	5	7/3/2003 7:39:00 PM
Dimethyl phthalate	U	200		µg/Kg	5	7/3/2003 7:39:00 PM
Di-n-butyl phthalate	U	200		µg/Kg	5	7/3/2003 7:39:00 PM
Di-n-octyl phthalate	U	200		µg/Kg	5	7/3/2003 7:39:00 PM
Fluoranthene	1800	200		µg/Kg	5	7/3/2003 7:39:00 PM
Fluorene	U	200		µg/Kg	5	7/3/2003 7:39:00 PM
Hexachlorobenzene	U	200		µg/Kg	5	7/3/2003 7:39:00 PM
Hexachlorobutadiene	U	200		µg/Kg	5	7/3/2003 7:39:00 PM
Hexachlorocyclopentadiene	U	200		µg/Kg	5	7/3/2003 7:39:00 PM
Hexachloroethane	U	200		µg/Kg	5	7/3/2003 7:39:00 PM
Indeno(1,2,3-c,d)pyrene	810	200		µg/Kg	5	7/3/2003 7:39:00 PM
Isophorone	U	200		µg/Kg	5	7/3/2003 7:39:00 PM
Naphthalene	U	200		µg/Kg	5	7/3/2003 7:39:00 PM
Nitrobenzene	U	200		µg/Kg	5	7/3/2003 7:39:00 PM
N-Nitrosodimethylamine	U	200		µg/Kg	5	7/3/2003 7:39:00 PM
N-Nitrosodi-n-propylamine	U	200		µg/Kg	5	7/3/2003 7:39:00 PM
N-Nitrosodiphenylamine	U	200		µg/Kg	5	7/3/2003 7:39:00 PM
Pentachlorophenol	U	200		µg/Kg	5	7/3/2003 7:39:00 PM
Phenanthrene	1600	200		µg/Kg	5	7/3/2003 7:39:00 PM
Phenol	U	200		µg/Kg	5	7/3/2003 7:39:00 PM
Pyrene	2000	200		µg/Kg	5	7/3/2003 7:39:00 PM
Pyridine	U	200		µg/Kg	5	7/3/2003 7:39:00 PM

Qualifiers:

ND - Not Detected at the Reporting Limit

J - Analyte detected below quantitation limits

B - Analyte detected in the associated Method Blank

* - Value exceeds Maximum Contaminant Level

S - Spike Recovery outside accepted recovery limits

R - RPD outside accepted recovery limits

E - Value above quantitation range

American Analytical Laboratories, Inc.

Date: *28-Jul-03*

CLIENT:	AKRF, Inc	**Client Sample ID:**	B9 (5'-6')
Lab Order:	0306116	**Tag Number:**	
Project:	Greenpoint Lumber Yard Brooklyn, NY	**Collection Date:**	6/25/2003
Lab ID:	0306116-17B	**Matrix:**	SOIL

Analyses	Result	Limit	Qual	Units	DF	Date Analyzed
SEMIVOLATILES SW-846 8270		**SW8270D**		**(SW3550A)**		Analyst: **RN**
1,2,4-Trichlorobenzene	U	80		µg/Kg	2	7/7/2003 2:19:00 PM
1,2-Dichlorobenzene	U	80		µg/Kg	2	7/7/2003 2:19:00 PM
1,3-Dichlorobenzene	U	80		µg/Kg	2	7/7/2003 2:19:00 PM
1,4-Dichlorobenzene	U	80		µg/Kg	2	7/7/2003 2:19:00 PM
2,4,5-Trichlorophenol	U	80		µg/Kg	2	7/7/2003 2:19:00 PM
2,4,6-Trichlorophenol	U	80		µg/Kg	2	7/7/2003 2:19:00 PM
2,4-Dichlorophenol	U	80		µg/Kg	2	7/7/2003 2:19:00 PM
2,4-Dimethylphenol	U	80		µg/Kg	2	7/7/2003 2:19:00 PM
2,4-Dinitrophenol	U	80		µg/Kg	2	7/7/2003 2:19:00 PM
2,4-Dinitrotoluene	U	80		µg/Kg	2	7/7/2003 2:19:00 PM
2,6-Dinitrotoluene	U	80		µg/Kg	2	7/7/2003 2:19:00 PM
2-Chloronaphthalene	U	80		µg/Kg	2	7/7/2003 2:19:00 PM
2-Chlorophenol	U	80		µg/Kg	2	7/7/2003 2:19:00 PM
2-Methylnaphthalene	440	80		µg/Kg	2	7/7/2003 2:19:00 PM
2-Methylphenol	U	80		µg/Kg	2	7/7/2003 2:19:00 PM
2-Nitroaniline	U	80		µg/Kg	2	7/7/2003 2:19:00 PM
2-Nitrophenol	U	80		µg/Kg	2	7/7/2003 2:19:00 PM
3,3'-Dichlorobenzidine	U	80		µg/Kg	2	7/7/2003 2:19:00 PM
3+4-Methylphenol	U	80		µg/Kg	2	7/7/2003 2:19:00 PM
3-Nitroaniline	U	80		µg/Kg	2	7/7/2003 2:19:00 PM
4,6-Dinitro-2-methylphenol	U	80		µg/Kg	2	7/7/2003 2:19:00 PM
4-Bromophenyl phenyl ether	U	80		µg/Kg	2	7/7/2003 2:19:00 PM
4-Chloro-3-methylphenol	U	80		µg/Kg	2	7/7/2003 2:19:00 PM
4-Chloroaniline	U	80		µg/Kg	2	7/7/2003 2:19:00 PM
4-Chlorophenyl phenyl ether	U	80		µg/Kg	2	7/7/2003 2:19:00 PM
4-Nitroaniline	U	80		µg/Kg	2	7/7/2003 2:19:00 PM
4-Nitrophenol	U	80		µg/Kg	2	7/7/2003 2:19:00 PM
Acenaphthene	U	80		µg/Kg	2	7/7/2003 2:19:00 PM
Acenaphthylene	180	80		µg/Kg	2	7/7/2003 2:19:00 PM
Aniline	U	80		µg/Kg	2	7/7/2003 2:19:00 PM
Anthracene	360	80		µg/Kg	2	7/7/2003 2:19:00 PM
Azobenzene	U	80		µg/Kg	2	7/7/2003 2:19:00 PM
Benzidine	U	80		µg/Kg	2	7/7/2003 2:19:00 PM
Benzo(a)anthracene	1700	80		µg/Kg	2	7/7/2003 2:19:00 PM
Benzo(a)pyrene	1700	80		µg/Kg	2	7/7/2003 2:19:00 PM
Benzo(b)fluoranthene	2300	80		µg/Kg	2	7/7/2003 2:19:00 PM
Benzo(g,h,i)perylene	1300	80		µg/Kg	2	7/7/2003 2:19:00 PM
Benzo(k)fluoranthene	640	80		µg/Kg	2	7/7/2003 2:19:00 PM
Benzoic acid	330	80		µg/Kg	2	7/7/2003 2:19:00 PM
Benzyl alcohol	U	80		µg/Kg	2	7/7/2003 2:19:00 PM

Qualifiers:

ND - Not Detected at the Reporting Limit

J - Analyte detected below quantitation limits

B - Analyte detected in the associated Method Blank

* - Value exceeds Maximum Contaminant Level

S - Spike Recovery outside accepted recovery limits

R - RPD outside accepted recovery limits

E - Value above quantitation range

American Analytical Laboratories, Inc.

Date: *28-Jul-03*

CLIENT:	AKRF, Inc	**Client Sample ID:**	B9 (5'-6')
Lab Order:	0306116	**Tag Number:**	
Project:	Greenpoint Lumber Yard Brooklyn, NY	**Collection Date:**	6/25/2003
Lab ID:	0306116-17B	**Matrix:**	SOIL

Analyses	Result	Limit	Qual	Units	DF	Date Analyzed
SEMIVOLATILES SW-846 8270		**SW8270D**		**(SW3550A)**		Analyst: **RN**
Bis(2-chloroethoxy)methane	U	80		µg/Kg	2	7/7/2003 2:19:00 PM
Bis(2-chloroethyl)ether	U	80		µg/Kg	2	7/7/2003 2:19:00 PM
Bis(2-chloroisopropyl)ether	U	80		µg/Kg	2	7/7/2003 2:19:00 PM
Bis(2-ethylhexyl)phthalate	U	80		µg/Kg	2	7/7/2003 2:19:00 PM
Butyl benzyl phthalate	U	80		µg/Kg	2	7/7/2003 2:19:00 PM
Carbazole	U	80		µg/Kg	2	7/7/2003 2:19:00 PM
Chrysene	1900	80		µg/Kg	2	7/7/2003 2:19:00 PM
Dibenzo(a,h)anthracene	360	80		µg/Kg	2	7/7/2003 2:19:00 PM
Dibenzofuran	U	80		µg/Kg	2	7/7/2003 2:19:00 PM
Diethyl phthalate	U	80		µg/Kg	2	7/7/2003 2:19:00 PM
Dimethyl phthalate	U	80		µg/Kg	2	7/7/2003 2:19:00 PM
Di-n-butyl phthalate	U	80		µg/Kg	2	7/7/2003 2:19:00 PM
Di-n-octyl phthalate	U	80		µg/Kg	2	7/7/2003 2:19:00 PM
Fluoranthene	2900	80		µg/Kg	2	7/7/2003 2:19:00 PM
Fluorene	U	80		µg/Kg	2	7/7/2003 2:19:00 PM
Hexachlorobenzene	U	80		µg/Kg	2	7/7/2003 2:19:00 PM
Hexachlorobutadiene	U	80		µg/Kg	2	7/7/2003 2:19:00 PM
Hexachlorocyclopentadiene	U	80		µg/Kg	2	7/7/2003 2:19:00 PM
Hexachloroethane	U	80		µg/Kg	2	7/7/2003 2:19:00 PM
Indeno(1,2,3-c,d)pyrene	1300	80		µg/Kg	2	7/7/2003 2:19:00 PM
Isophorone	U	80		µg/Kg	2	7/7/2003 2:19:00 PM
Naphthalene	220	80		µg/Kg	2	7/7/2003 2:19:00 PM
Nitrobenzene	U	80		µg/Kg	2	7/7/2003 2:19:00 PM
N-Nitrosodimethylamine	U	80		µg/Kg	2	7/7/2003 2:19:00 PM
N-Nitrosodi-n-propylamine	U	80		µg/Kg	2	7/7/2003 2:19:00 PM
N-Nitrosodiphenylamine	U	80		µg/Kg	2	7/7/2003 2:19:00 PM
Pentachlorophenol	U	80		µg/Kg	2	7/7/2003 2:19:00 PM
Phenanthrene	1700	80		µg/Kg	2	7/7/2003 2:19:00 PM
Phenol	U	80		µg/Kg	2	7/7/2003 2:19:00 PM
Pyrene	2800	80		µg/Kg	2	7/7/2003 2:19:00 PM
Pyridine	U	80		µg/Kg	2	7/7/2003 2:19:00 PM

Qualifiers:

ND - Not Detected at the Reporting Limit

J - Analyte detected below quantitation limits

B - Analyte detected in the associated Method Blank

* - Value exceeds Maximum Contaminant Level

S - Spike Recovery outside accepted recovery limits

R - RPD outside accepted recovery limits

E - Value above quantitation range

American Analytical Laboratories, Inc.

Date: *28-Jul-03*

CLIENT:	AKRF, Inc	**Client Sample ID:**	B8 (0.5-2")
Lab Order:	0306116	**Tag Number:**	
Project:	Greenpoint Lumber Yard Brooklyn, NY	**Collection Date:**	6/25/2003
Lab ID:	0306116-18B	**Matrix:**	SOIL

Analyses	Result	Limit	Qual	Units	DF	Date Analyzed
SEMIVOLATILES SW-846 8270		**SW8270D**		**(SW3550A)**		Analyst: **RN**
1,2,4-Trichlorobenzene	U	40		µg/Kg	1	7/3/2003 5:29:00 PM
1,2-Dichlorobenzene	U	40		µg/Kg	1	7/3/2003 5:29:00 PM
1,3-Dichlorobenzene	U	40		µg/Kg	1	7/3/2003 5:29:00 PM
1,4-Dichlorobenzene	U	40		µg/Kg	1	7/3/2003 5:29:00 PM
2,4,5-Trichlorophenol	U	40		µg/Kg	1	7/3/2003 5:29:00 PM
2,4,6-Trichlorophenol	U	40		µg/Kg	1	7/3/2003 5:29:00 PM
2,4-Dichlorophenol	U	40		µg/Kg	1	7/3/2003 5:29:00 PM
2,4-Dimethylphenol	U	40		µg/Kg	1	7/3/2003 5:29:00 PM
2,4-Dinitrophenol	U	40		µg/Kg	1	7/3/2003 5:29:00 PM
2,4-Dinitrotoluene	U	40		µg/Kg	1	7/3/2003 5:29:00 PM
2,6-Dinitrotoluene	U	40		µg/Kg	1	7/3/2003 5:29:00 PM
2-Chloronaphthalene	U	40		µg/Kg	1	7/3/2003 5:29:00 PM
2-Chlorophenol	U	40		µg/Kg	1	7/3/2003 5:29:00 PM
2-Methylnaphthalene	100	40		µg/Kg	1	7/3/2003 5:29:00 PM
2-Methylphenol	U	40		µg/Kg	1	7/3/2003 5:29:00 PM
2-Nitroaniline	U	40		µg/Kg	1	7/3/2003 5:29:00 PM
2-Nitrophenol	U	40		µg/Kg	1	7/3/2003 5:29:00 PM
3,3´-Dichlorobenzidine	U	40		µg/Kg	1	7/3/2003 5:29:00 PM
3+4-Methylphenol	U	40		µg/Kg	1	7/3/2003 5:29:00 PM
3-Nitroaniline	U	40		µg/Kg	1	7/3/2003 5:29:00 PM
4,6-Dinitro-2-methylphenol	U	40		µg/Kg	1	7/3/2003 5:29:00 PM
4-Bromophenyl phenyl ether	U	40		µg/Kg	1	7/3/2003 5:29:00 PM
4-Chloro-3-methylphenol	U	40		µg/Kg	1	7/3/2003 5:29:00 PM
4-Chloroaniline	U	40		µg/Kg	1	7/3/2003 5:29:00 PM
4-Chlorophenyl phenyl ether	U	40		µg/Kg	1	7/3/2003 5:29:00 PM
4-Nitroaniline	U	40		µg/Kg	1	7/3/2003 5:29:00 PM
4-Nitrophenol	U	40		µg/Kg	1	7/3/2003 5:29:00 PM
Acenaphthene	U	40		µg/Kg	1	7/3/2003 5:29:00 PM
Acenaphthylene	53	40		µg/Kg	1	7/3/2003 5:29:00 PM
Aniline	U	40		µg/Kg	1	7/3/2003 5:29:00 PM
Anthracene	91	40		µg/Kg	1	7/3/2003 5:29:00 PM
Azobenzene	U	40		µg/Kg	1	7/3/2003 5:29:00 PM
Benzidine	U	40		µg/Kg	1	7/3/2003 5:29:00 PM
Benzo(a)anthracene	470	40		µg/Kg	1	7/3/2003 5:29:00 PM
Benzo(a)pyrene	480	40		µg/Kg	1	7/3/2003 5:29:00 PM
Benzo(b)fluoranthene	660	40		µg/Kg	1	7/3/2003 5:29:00 PM
Benzo(g,h,i)perylene	540	40		µg/Kg	1	7/3/2003 5:29:00 PM
Benzo(k)fluoranthene	200	40		µg/Kg	1	7/3/2003 5:29:00 PM
Benzoic acid	U	40		µg/Kg	1	7/3/2003 5:29:00 PM
Benzyl alcohol	U	40		µg/Kg	1	7/3/2003 5:29:00 PM

Qualifiers:

ND - Not Detected at the Reporting Limit

J - Analyte detected below quantitation limits

B - Analyte detected in the associated Method Blank

* - Value exceeds Maximum Contaminant Level

S - Spike Recovery outside accepted recovery limits

R - RPD outside accepted recovery limits

E - Value above quantitation range

American Analytical Laboratories, Inc.

Date: *28-Jul-03*

CLIENT:	AKRF, Inc	**Client Sample ID:**	B8 (0.5-2")
Lab Order:	0306116	**Tag Number:**	
Project:	Greenpoint Lumber Yard Brooklyn, NY	**Collection Date:**	6/25/2003
Lab ID:	0306116-18B	**Matrix:**	SOIL

Analyses	Result	Limit	Qual	Units	DF	Date Analyzed
SEMIVOLATILES SW-846 8270		**SW8270D**		**(SW3550A)**		Analyst: **RN**
Bis(2-chloroethoxy)methane	U	40		µg/Kg	1	7/3/2003 5:29:00 PM
Bis(2-chloroethyl)ether	U	40		µg/Kg	1	7/3/2003 5:29:00 PM
Bis(2-chloroisopropyl)ether	U	40		µg/Kg	1	7/3/2003 5:29:00 PM
Bis(2-ethylhexyl)phthalate	130	40		µg/Kg	1	7/3/2003 5:29:00 PM
Butyl benzyl phthalate	U	40		µg/Kg	1	7/3/2003 5:29:00 PM
Carbazole	U	40		µg/Kg	1	7/3/2003 5:29:00 PM
Chrysene	570	40		µg/Kg	1	7/3/2003 5:29:00 PM
Dibenzo(a,h)anthracene	110	40		µg/Kg	1	7/3/2003 5:29:00 PM
Dibenzofuran	U	40		µg/Kg	1	7/3/2003 5:29:00 PM
Diethyl phthalate	U	40		µg/Kg	1	7/3/2003 5:29:00 PM
Dimethyl phthalate	U	40		µg/Kg	1	7/3/2003 5:29:00 PM
Di-n-butyl phthalate	54	40		µg/Kg	1	7/3/2003 5:29:00 PM
Di-n-octyl phthalate	U	40		µg/Kg	1	7/3/2003 5:29:00 PM
Fluoranthene	710	40		µg/Kg	1	7/3/2003 5:29:00 PM
Fluorene	U	40		µg/Kg	1	7/3/2003 5:29:00 PM
Hexachlorobenzene	U	40		µg/Kg	1	7/3/2003 5:29:00 PM
Hexachlorobutadiene	U	40		µg/Kg	1	7/3/2003 5:29:00 PM
Hexachlorocyclopentadiene	U	40		µg/Kg	1	7/3/2003 5:29:00 PM
Hexachloroethane	U	40		µg/Kg	1	7/3/2003 5:29:00 PM
Indeno(1,2,3-c,d)pyrene	450	40		µg/Kg	1	7/3/2003 5:29:00 PM
Isophorone	U	40		µg/Kg	1	7/3/2003 5:29:00 PM
Naphthalene	56	40		µg/Kg	1	7/3/2003 5:29:00 PM
Nitrobenzene	U	40		µg/Kg	1	7/3/2003 5:29:00 PM
N-Nitrosodimethylamine	U	40		µg/Kg	1	7/3/2003 5:29:00 PM
N-Nitrosodi-n-propylamine	U	40		µg/Kg	1	7/3/2003 5:29:00 PM
N-Nitrosodiphenylamine	U	40		µg/Kg	1	7/3/2003 5:29:00 PM
Pentachlorophenol	U	40		µg/Kg	1	7/3/2003 5:29:00 PM
Phenanthrene	440	40		µg/Kg	1	7/3/2003 5:29:00 PM
Phenol	U	40		µg/Kg	1	7/3/2003 5:29:00 PM
Pyrene	800	40		µg/Kg	1	7/3/2003 5:29:00 PM
Pyridine	U	40		µg/Kg	1	7/3/2003 5:29:00 PM

Qualifiers:

ND - Not Detected at the Reporting Limit

J - Analyte detected below quantitation limits

B - Analyte detected in the associated Method Blank

* - Value exceeds Maximum Contaminant Level

S - Spike Recovery outside accepted recovery limits

R - RPD outside accepted recovery limits

E - Value above quantitation range

American Analytical Laboratories, Inc.

Date: *28-Jul-03*

CLIENT:	AKRF, Inc	**Client Sample ID:**	B8 (8-10')
Lab Order:	0306116	**Tag Number:**	
Project:	Greenpoint Lumber Yard Brooklyn, NY	**Collection Date:**	6/25/2003
Lab ID:	0306116-19B	**Matrix:**	SOIL

Analyses	Result	Limit	Qual	Units	DF	Date Analyzed
SEMIVOLATILES SW-846 8270		**SW8270D**		**(SW3550A)**		Analyst: **RN**
1,2,4-Trichlorobenzene	U	200		µg/Kg	5	7/3/2003 8:25:00 PM
1,2-Dichlorobenzene	U	200		µg/Kg	5	7/3/2003 8:25:00 PM
1,3-Dichlorobenzene	U	200		µg/Kg	5	7/3/2003 8:25:00 PM
1,4-Dichlorobenzene	U	200		µg/Kg	5	7/3/2003 8:25:00 PM
2,4,5-Trichlorophenol	U	200		µg/Kg	5	7/3/2003 8:25:00 PM
2,4,6-Trichlorophenol	U	200		µg/Kg	5	7/3/2003 8:25:00 PM
2,4-Dichlorophenol	U	200		µg/Kg	5	7/3/2003 8:25:00 PM
2,4-Dimethylphenol	U	200		µg/Kg	5	7/3/2003 8:25:00 PM
2,4-Dinitrophenol	U	200		µg/Kg	5	7/3/2003 8:25:00 PM
2,4-Dinitrotoluene	U	200		µg/Kg	5	7/3/2003 8:25:00 PM
2,6-Dinitrotoluene	U	200		µg/Kg	5	7/3/2003 8:25:00 PM
2-Chloronaphthalene	U	200		µg/Kg	5	7/3/2003 8:25:00 PM
2-Chlorophenol	U	200		µg/Kg	5	7/3/2003 8:25:00 PM
2-Methylnaphthalene	470	200		µg/Kg	5	7/3/2003 8:25:00 PM
2-Methylphenol	U	200		µg/Kg	5	7/3/2003 8:25:00 PM
2-Nitroaniline	U	200		µg/Kg	5	7/3/2003 8:25:00 PM
2-Nitrophenol	U	200		µg/Kg	5	7/3/2003 8:25:00 PM
3,3'-Dichlorobenzidine	U	200		µg/Kg	5	7/3/2003 8:25:00 PM
3+4-Methylphenol	U	200		µg/Kg	5	7/3/2003 8:25:00 PM
3-Nitroaniline	U	200		µg/Kg	5	7/3/2003 8:25:00 PM
4,6-Dinitro-2-methylphenol	U	200		µg/Kg	5	7/3/2003 8:25:00 PM
4-Bromophenyl phenyl ether	U	200		µg/Kg	5	7/3/2003 8:25:00 PM
4-Chloro-3-methylphenol	U	200		µg/Kg	5	7/3/2003 8:25:00 PM
4-Chloroaniline	U	200		µg/Kg	5	7/3/2003 8:25:00 PM
4-Chlorophenyl phenyl ether	U	200		µg/Kg	5	7/3/2003 8:25:00 PM
4-Nitroaniline	U	200		µg/Kg	5	7/3/2003 8:25:00 PM
4-Nitrophenol	U	200		µg/Kg	5	7/3/2003 8:25:00 PM
Acenaphthene	3600	200		µg/Kg	5	7/3/2003 8:25:00 PM
Acenaphthylene	870	200		µg/Kg	5	7/3/2003 8:25:00 PM
Aniline	U	200		µg/Kg	5	7/3/2003 8:25:00 PM
Anthracene	7500	200		µg/Kg	5	7/3/2003 8:25:00 PM
Azobenzene	U	200		µg/Kg	5	7/3/2003 8:25:00 PM
Benzidine	U	200		µg/Kg	5	7/3/2003 8:25:00 PM
Benzo(a)anthracene	18000	2000		µg/Kg	50	7/7/2003 4:31:00 PM
Benzo(a)pyrene	12000	200		µg/Kg	5	7/3/2003 8:25:00 PM
Benzo(b)fluoranthene	18000	2000		µg/Kg	50	7/7/2003 4:31:00 PM
Benzo(g,h,i)perylene	6700	200		µg/Kg	5	7/3/2003 8:25:00 PM
Benzo(k)fluoranthene	4400	200		µg/Kg	5	7/3/2003 8:25:00 PM
Benzoic acid	U	200		µg/Kg	5	7/3/2003 8:25:00 PM
Benzyl alcohol	U	200		µg/Kg	5	7/3/2003 8:25:00 PM

Qualifiers:

ND - Not Detected at the Reporting Limit

J - Analyte detected below quantitation limits

B - Analyte detected in the associated Method Blank

* - Value exceeds Maximum Contaminant Level

S - Spike Recovery outside accepted recovery limits

R - RPD outside accepted recovery limits

E - Value above quantitation range

American Analytical Laboratories, Inc.

Date: *28-Jul-03*

CLIENT:	AKRF, Inc	**Client Sample ID:**	B8 (8-10')
Lab Order:	0306116	**Tag Number:**	
Project:	Greenpoint Lumber Yard Brooklyn, NY	**Collection Date:**	6/25/2003
Lab ID:	0306116-19B	**Matrix:**	SOIL

Analyses	Result	Limit	Qual	Units	DF	Date Analyzed
SEMIVOLATILES SW-846 8270		**SW8270D**		**(SW3550A)**		Analyst: **RN**
Bis(2-chloroethoxy)methane	U	200		µg/Kg	5	7/3/2003 8:25:00 PM
Bis(2-chloroethyl)ether	U	200		µg/Kg	5	7/3/2003 8:25:00 PM
Bis(2-chloroisopropyl)ether	U	200		µg/Kg	5	7/3/2003 8:25:00 PM
Bis(2-ethylhexyl)phthalate	U	200		µg/Kg	5	7/3/2003 8:25:00 PM
Butyl benzyl phthalate	U	200		µg/Kg	5	7/3/2003 8:25:00 PM
Carbazole	2200	200		µg/Kg	5	7/3/2003 8:25:00 PM
Chrysene	19000	2000		µg/Kg	50	7/7/2003 4:31:00 PM
Dibenzo(a,h)anthracene	2000	200		µg/Kg	5	7/3/2003 8:25:00 PM
Dibenzofuran	1900	200		µg/Kg	5	7/3/2003 8:25:00 PM
Diethyl phthalate	U	200		µg/Kg	5	7/3/2003 8:25:00 PM
Dimethyl phthalate	U	200		µg/Kg	5	7/3/2003 8:25:00 PM
Di-n-butyl phthalate	U	200		µg/Kg	5	7/3/2003 8:25:00 PM
Di-n-octyl phthalate	U	200		µg/Kg	5	7/3/2003 8:25:00 PM
Fluoranthene	49000	2000		µg/Kg	50	7/7/2003 4:31:00 PM
Fluorene	3500	200		µg/Kg	5	7/3/2003 8:25:00 PM
Hexachlorobenzene	U	200		µg/Kg	5	7/3/2003 8:25:00 PM
Hexachlorobutadiene	U	200		µg/Kg	5	7/3/2003 8:25:00 PM
Hexachlorocyclopentadiene	U	200		µg/Kg	5	7/3/2003 8:25:00 PM
Hexachloroethane	U	200		µg/Kg	5	7/3/2003 8:25:00 PM
Indeno(1,2,3-c,d)pyrene	7300	200		µg/Kg	5	7/3/2003 8:25:00 PM
Isophorone	U	200		µg/Kg	5	7/3/2003 8:25:00 PM
Naphthalene	590	200		µg/Kg	5	7/3/2003 8:25:00 PM
Nitrobenzene	U	200		µg/Kg	5	7/3/2003 8:25:00 PM
N-Nitrosodimethylamine	U	200		µg/Kg	5	7/3/2003 8:25:00 PM
N-Nitrosodi-n-propylamine	U	200		µg/Kg	5	7/3/2003 8:25:00 PM
N-Nitrosodiphenylamine	U	200		µg/Kg	5	7/3/2003 8:25:00 PM
Pentachlorophenol	U	200		µg/Kg	5	7/3/2003 8:25:00 PM
Phenanthrene	49000	2000		µg/Kg	50	7/7/2003 4:31:00 PM
Phenol	U	200		µg/Kg	5	7/3/2003 8:25:00 PM
Pyrene	40000	2000		µg/Kg	50	7/7/2003 4:31:00 PM
Pyridine	U	200		µg/Kg	5	7/3/2003 8:25:00 PM

Qualifiers:

ND - Not Detected at the Reporting Limit

J - Analyte detected below quantitation limits

B - Analyte detected in the associated Method Blank

* - Value exceeds Maximum Contaminant Level

S - Spike Recovery outside accepted recovery limits

R - RPD outside accepted recovery limits

E - Value above quantitation range

American Analytical Laboratories, Inc.

Date: *28-Jul-03*

CLIENT:	AKRF, Inc	**Client Sample ID:**	MW10 (0.5-2')
Lab Order:	0306116	**Tag Number:**	
Project:	Greenpoint Lumber Yard Brooklyn, NY	**Collection Date:**	6/25/2003
Lab ID:	0306116-20B	**Matrix:**	SOIL

Analyses	Result	Limit	Qual	Units	DF	Date Analyzed
SEMIVOLATILES SW-846 8270		**SW8270D**		**(SW3550A)**		Analyst: **RN**
1,2,4-Trichlorobenzene	U	80		µg/Kg	2	7/3/2003 6:11:00 PM
1,2-Dichlorobenzene	U	80		µg/Kg	2	7/3/2003 6:11:00 PM
1,3-Dichlorobenzene	U	80		µg/Kg	2	7/3/2003 6:11:00 PM
1,4-Dichlorobenzene	170	80		µg/Kg	2	7/3/2003 6:11:00 PM
2,4,5-Trichlorophenol	U	80		µg/Kg	2	7/3/2003 6:11:00 PM
2,4,6-Trichlorophenol	U	80		µg/Kg	2	7/3/2003 6:11:00 PM
2,4-Dichlorophenol	U	80		µg/Kg	2	7/3/2003 6:11:00 PM
2,4-Dimethylphenol	U	80		µg/Kg	2	7/3/2003 6:11:00 PM
2,4-Dinitrophenol	U	80		µg/Kg	2	7/3/2003 6:11:00 PM
2,4-Dinitrotoluene	U	80		µg/Kg	2	7/3/2003 6:11:00 PM
2,6-Dinitrotoluene	U	80		µg/Kg	2	7/3/2003 6:11:00 PM
2-Chloronaphthalene	U	80		µg/Kg	2	7/3/2003 6:11:00 PM
2-Chlorophenol	U	80		µg/Kg	2	7/3/2003 6:11:00 PM
2-Methylnaphthalene	220	80		µg/Kg	2	7/3/2003 6:11:00 PM
2-Methylphenol	U	80		µg/Kg	2	7/3/2003 6:11:00 PM
2-Nitroaniline	U	80		µg/Kg	2	7/3/2003 6:11:00 PM
2-Nitrophenol	U	80		µg/Kg	2	7/3/2003 6:11:00 PM
3,3'-Dichlorobenzidine	U	80		µg/Kg	2	7/3/2003 6:11:00 PM
3+4-Methylphenol	U	80		µg/Kg	2	7/3/2003 6:11:00 PM
3-Nitroaniline	U	80		µg/Kg	2	7/3/2003 6:11:00 PM
4,6-Dinitro-2-methylphenol	U	80		µg/Kg	2	7/3/2003 6:11:00 PM
4-Bromophenyl phenyl ether	U	80		µg/Kg	2	7/3/2003 6:11:00 PM
4-Chloro-3-methylphenol	U	80		µg/Kg	2	7/3/2003 6:11:00 PM
4-Chloroaniline	U	80		µg/Kg	2	7/3/2003 6:11:00 PM
4-Chlorophenyl phenyl ether	U	80		µg/Kg	2	7/3/2003 6:11:00 PM
4-Nitroaniline	U	80		µg/Kg	2	7/3/2003 6:11:00 PM
4-Nitrophenol	U	80		µg/Kg	2	7/3/2003 6:11:00 PM
Acenaphthene	310	80		µg/Kg	2	7/3/2003 6:11:00 PM
Acenaphthylene	110	80		µg/Kg	2	7/3/2003 6:11:00 PM
Aniline	U	80		µg/Kg	2	7/3/2003 6:11:00 PM
Anthracene	740	80		µg/Kg	2	7/3/2003 6:11:00 PM
Azobenzene	U	80		µg/Kg	2	7/3/2003 6:11:00 PM
Benzidine	U	80		µg/Kg	2	7/3/2003 6:11:00 PM
Benzo(a)anthracene	1400	80		µg/Kg	2	7/3/2003 6:11:00 PM
Benzo(a)pyrene	1300	80		µg/Kg	2	7/3/2003 6:11:00 PM
Benzo(b)fluoranthene	1500	80		µg/Kg	2	7/3/2003 6:11:00 PM
Benzo(g,h,i)perylene	980	80		µg/Kg	2	7/3/2003 6:11:00 PM
Benzo(k)fluoranthene	610	80		µg/Kg	2	7/3/2003 6:11:00 PM
Benzoic acid	U	80		µg/Kg	2	7/3/2003 6:11:00 PM
Benzyl alcohol	U	80		µg/Kg	2	7/3/2003 6:11:00 PM

Qualifiers:

ND - Not Detected at the Reporting Limit

J - Analyte detected below quantitation limits

B - Analyte detected in the associated Method Blank

* - Value exceeds Maximum Contaminant Level

S - Spike Recovery outside accepted recovery limits

R - RPD outside accepted recovery limits

E - Value above quantitation range

American Analytical Laboratories, Inc.

Date: *28-Jul-03*

CLIENT:	AKRF, Inc	**Client Sample ID:**	MW10 (0.5-2')
Lab Order:	0306116	**Tag Number:**	
Project:	Greenpoint Lumber Yard Brooklyn, NY	**Collection Date:**	6/25/2003
Lab ID:	0306116-20B	**Matrix:**	SOIL

Analyses	Result	Limit	Qual	Units	DF	Date Analyzed
SEMIVOLATILES SW-846 8270		**SW8270D**		**(SW3550A)**		Analyst: **RN**
Bis(2-chloroethoxy)methane	U	80		µg/Kg	2	7/3/2003 6:11:00 PM
Bis(2-chloroethyl)ether	U	80		µg/Kg	2	7/3/2003 6:11:00 PM
Bis(2-chloroisopropyl)ether	U	80		µg/Kg	2	7/3/2003 6:11:00 PM
Bis(2-ethylhexyl)phthalate	460	80		µg/Kg	2	7/3/2003 6:11:00 PM
Butyl benzyl phthalate	U	80		µg/Kg	2	7/3/2003 6:11:00 PM
Carbazole	240	80		µg/Kg	2	7/3/2003 6:11:00 PM
Chrysene	1400	80		µg/Kg	2	7/3/2003 6:11:00 PM
Dibenzo(a,h)anthracene	230	80		µg/Kg	2	7/3/2003 6:11:00 PM
Dibenzofuran	240	80		µg/Kg	2	7/3/2003 6:11:00 PM
Diethyl phthalate	U	80		µg/Kg	2	7/3/2003 6:11:00 PM
Dimethyl phthalate	U	80		µg/Kg	2	7/3/2003 6:11:00 PM
Di-n-butyl phthalate	80	80		µg/Kg	2	7/3/2003 6:11:00 PM
Di-n-octyl phthalate	U	80		µg/Kg	2	7/3/2003 6:11:00 PM
Fluoranthene	3500	80		µg/Kg	2	7/3/2003 6:11:00 PM
Fluorene	300	80		µg/Kg	2	7/3/2003 6:11:00 PM
Hexachlorobenzene	U	80		µg/Kg	2	7/3/2003 6:11:00 PM
Hexachlorobutadiene	U	80		µg/Kg	2	7/3/2003 6:11:00 PM
Hexachlorocyclopentadiene	U	80		µg/Kg	2	7/3/2003 6:11:00 PM
Hexachloroethane	U	80		µg/Kg	2	7/3/2003 6:11:00 PM
Indeno(1,2,3-c,d)pyrene	900	80		µg/Kg	2	7/3/2003 6:11:00 PM
Isophorone	U	80		µg/Kg	2	7/3/2003 6:11:00 PM
Naphthalene	270	80		µg/Kg	2	7/3/2003 6:11:00 PM
Nitrobenzene	U	80		µg/Kg	2	7/3/2003 6:11:00 PM
N-Nitrosodimethylamine	U	80		µg/Kg	2	7/3/2003 6:11:00 PM
N-Nitrosodi-n-propylamine	U	80		µg/Kg	2	7/3/2003 6:11:00 PM
N-Nitrosodiphenylamine	U	80		µg/Kg	2	7/3/2003 6:11:00 PM
Pentachlorophenol	U	80		µg/Kg	2	7/3/2003 6:11:00 PM
Phenanthrene	2600	80		µg/Kg	2	7/3/2003 6:11:00 PM
Phenol	U	80		µg/Kg	2	7/3/2003 6:11:00 PM
Pyrene	2900	80		µg/Kg	2	7/3/2003 6:11:00 PM
Pyridine	U	80		µg/Kg	2	7/3/2003 6:11:00 PM

Qualifiers:

ND - Not Detected at the Reporting Limit

J - Analyte detected below quantitation limits

B - Analyte detected in the associated Method Blank

* - Value exceeds Maximum Contaminant Level

S - Spike Recovery outside accepted recovery limits

R - RPD outside accepted recovery limits

E - Value above quantitation range

GC PESTICIDE/PCB DATA

RESULTS – ORGANIC ANALYSIS DATA SHEET

American Analytical Laboratories, Inc.

Date: *28-Jul-03*

CLIENT:	AKRF, Inc	**Client Sample ID:**	B12 (0.5-2')
Lab Order:	0306116	**Tag Number:**	
Project:	Greenpoint Lumber Yard Brooklyn, NY	**Collection Date:**	6/25/2003
Lab ID:	0306116-01B	**Matrix:**	SOIL

Analyses	Result	Limit	Qual	Units	DF	Date Analyzed
PESTICIDES SW-846 8081		**SW8081B**		**(SW3550)**		Analyst: **KB**
4,4'-DDD	18000	50		µg/Kg	10	7/8/2003 5:39:00 PM
4,4'-DDE	2600	50		µg/Kg	10	7/8/2003 5:39:00 PM
4,4'-DDT	2500	50		µg/Kg	10	7/8/2003 5:39:00 PM
Aldrin	U	5.0		µg/Kg	1	7/3/2003 9:10:00 PM
alpha-BHC	U	5.0		µg/Kg	1	7/3/2003 9:10:00 PM
beta-BHC	U	5.0		µg/Kg	1	7/3/2003 9:10:00 PM
Chlordane	U	5.0		µg/Kg	1	7/3/2003 9:10:00 PM
Chlorobenzilate	U	5.0		µg/Kg	1	7/3/2003 9:10:00 PM
DBCP	U	5.0		µg/Kg	1	7/3/2003 9:10:00 PM
delta-BHC	U	5.0		µg/Kg	1	7/3/2003 9:10:00 PM
Dieldrin	U	5.0		µg/Kg	1	7/3/2003 9:10:00 PM
Endosulfan I	U	5.0		µg/Kg	1	7/3/2003 9:10:00 PM
Endosulfan II	U	5.0		µg/Kg	1	7/3/2003 9:10:00 PM
Endosulfan sulfate	U	5.0		µg/Kg	1	7/3/2003 9:10:00 PM
Endrin	270	50		µg/Kg	10	7/8/2003 5:39:00 PM
Endrin aldehyde	21	5.0		µg/Kg	1	7/3/2003 9:10:00 PM
Endrin ketone	U	5.0		µg/Kg	1	7/3/2003 9:10:00 PM
gamma-BHC	U	5.0		µg/Kg	1	7/3/2003 9:10:00 PM
Heptachlor	U	5.0		µg/Kg	1	7/3/2003 9:10:00 PM
Heptachlor epoxide	U	5.0		µg/Kg	1	7/3/2003 9:10:00 PM
Hexachlorobenzene	U	5.0		µg/Kg	1	7/3/2003 9:10:00 PM
Hexachlorocyclopentadiene	U	5.0		µg/Kg	1	7/3/2003 9:10:00 PM
Isodrin	U	5.0		µg/Kg	1	7/3/2003 9:10:00 PM
Methoxychlor	U	5.0		µg/Kg	1	7/3/2003 9:10:00 PM
Toxaphene	U	300		µg/Kg	1	7/3/2003 9:10:00 PM

Qualifiers:

ND - Not Detected at the Reporting Limit

J - Analyte detected below quantitation limits

B - Analyte detected in the associated Method Blank

* - Value exceeds Maximum Contaminant Level

S - Spike Recovery outside accepted recovery limits

R - RPD outside accepted recovery limits

E - Value above quantitation range

American Analytical Laboratories, Inc.

Date: *28-Jul-03*

CLIENT:	AKRF, Inc	**Client Sample ID:**	B12 (5'-7')
Lab Order:	0306116	**Tag Number:**	
Project:	Greenpoint Lumber Yard Brooklyn, NY	**Collection Date:**	6/25/2003
Lab ID:	0306116-02B	**Matrix:**	SOIL

Analyses	Result	Limit	Qual	Units	DF	Date Analyzed
PESTICIDES SW-846 8081		**SW8081B**		**(SW3550)**		Analyst: **KB**
4,4'-DDD	1100	50		µg/Kg	10	7/8/2003 6:22:00 PM
4,4'-DDE	130	50		µg/Kg	10	7/8/2003 6:22:00 PM
4,4'-DDT	150	50		µg/Kg	10	7/8/2003 6:22:00 PM
Aldrin	U	5.0		µg/Kg	1	7/3/2003 9:53:00 PM
alpha-BHC	U	5.0		µg/Kg	1	7/3/2003 9:53:00 PM
beta-BHC	U	5.0		µg/Kg	1	7/3/2003 9:53:00 PM
Chlordane	33	5.0		µg/Kg	1	7/3/2003 9:53:00 PM
Chlorobenzilate	U	5.0		µg/Kg	1	7/3/2003 9:53:00 PM
DBCP	U	5.0		µg/Kg	1	7/3/2003 9:53:00 PM
delta-BHC	U	5.0		µg/Kg	1	7/3/2003 9:53:00 PM
Dieldrin	U	5.0		µg/Kg	1	7/3/2003 9:53:00 PM
Endosulfan I	U	5.0		µg/Kg	1	7/3/2003 9:53:00 PM
Endosulfan II	U	5.0		µg/Kg	1	7/3/2003 9:53:00 PM
Endosulfan sulfate	U	5.0		µg/Kg	1	7/3/2003 9:53:00 PM
Endrin	24	5.0		µg/Kg	1	7/3/2003 9:53:00 PM
Endrin aldehyde	8.6	5.0		µg/Kg	1	7/3/2003 9:53:00 PM
Endrin ketone	U	5.0		µg/Kg	1	7/3/2003 9:53:00 PM
gamma-BHC	U	5.0		µg/Kg	1	7/3/2003 9:53:00 PM
Heptachlor	U	5.0		µg/Kg	1	7/3/2003 9:53:00 PM
Heptachlor epoxide	U	5.0		µg/Kg	1	7/3/2003 9:53:00 PM
Hexachlorobenzene	U	5.0		µg/Kg	1	7/3/2003 9:53:00 PM
Hexachlorocyclopentadiene	U	5.0		µg/Kg	1	7/3/2003 9:53:00 PM
Isodrin	U	5.0		µg/Kg	1	7/3/2003 9:53:00 PM
Methoxychlor	U	5.0		µg/Kg	1	7/3/2003 9:53:00 PM
Toxaphene	U	300		µg/Kg	1	7/3/2003 9:53:00 PM

Qualifiers:

ND - Not Detected at the Reporting Limit

J - Analyte detected below quantitation limits

B - Analyte detected in the associated Method Blank

* - Value exceeds Maximum Contaminant Level

S - Spike Recovery outside accepted recovery limits

R - RPD outside accepted recovery limits

E - Value above quantitation range

American Analytical Laboratories, Inc.

Date: *28-Jul-03*

CLIENT:	AKRF, Inc	**Client Sample ID:**	B13 (0.5'-2')
Lab Order:	0306116	**Tag Number:**	
Project:	Greenpoint Lumber Yard Brooklyn, NY	**Collection Date:**	6/25/2003
Lab ID:	0306116-03B	**Matrix:**	SOIL

Analyses	Result	Limit	Qual	Units	DF	Date Analyzed
PESTICIDES SW-846 8081		**SW8081B**		**(SW3550)**		Analyst: **KB**
4,4'-DDD	U	5.0		µg/Kg	1	7/3/2003 10:36:00 PM
4,4'-DDE	U	5.0		µg/Kg	1	7/3/2003 10:36:00 PM
4,4'-DDT	4	5.0	J	µg/Kg	1	7/3/2003 10:36:00 PM
Aldrin	U	5.0		µg/Kg	1	7/3/2003 10:36:00 PM
alpha-BHC	U	5.0		µg/Kg	1	7/3/2003 10:36:00 PM
beta-BHC	U	5.0		µg/Kg	1	7/3/2003 10:36:00 PM
Chlordane	11	5.0		µg/Kg	1	7/3/2003 10:36:00 PM
Chlorobenzilate	U	5.0		µg/Kg	1	7/3/2003 10:36:00 PM
DBCP	U	5.0		µg/Kg	1	7/3/2003 10:36:00 PM
delta-BHC	U	5.0		µg/Kg	1	7/3/2003 10:36:00 PM
Dieldrin	U	5.0		µg/Kg	1	7/3/2003 10:36:00 PM
Endosulfan I	U	5.0		µg/Kg	1	7/3/2003 10:36:00 PM
Endosulfan II	U	5.0		µg/Kg	1	7/3/2003 10:36:00 PM
Endosulfan sulfate	U	5.0		µg/Kg	1	7/3/2003 10:36:00 PM
Endrin	U	5.0		µg/Kg	1	7/3/2003 10:36:00 PM
Endrin aldehyde	U	5.0		µg/Kg	1	7/3/2003 10:36:00 PM
Endrin ketone	U	5.0		µg/Kg	1	7/3/2003 10:36:00 PM
gamma-BHC	U	5.0		µg/Kg	1	7/3/2003 10:36:00 PM
Heptachlor	U	5.0		µg/Kg	1	7/3/2003 10:36:00 PM
Heptachlor epoxide	U	5.0		µg/Kg	1	7/3/2003 10:36:00 PM
Hexachlorobenzene	U	5.0		µg/Kg	1	7/3/2003 10:36:00 PM
Hexachlorocyclopentadiene	U	5.0		µg/Kg	1	7/3/2003 10:36:00 PM
Isodrin	U	5.0		µg/Kg	1	7/3/2003 10:36:00 PM
Methoxychlor	U	5.0		µg/Kg	1	7/3/2003 10:36:00 PM
Toxaphene	U	300		µg/Kg	1	7/3/2003 10:36:00 PM

Qualifiers:

ND - Not Detected at the Reporting Limit

J - Analyte detected below quantitation limits

B - Analyte detected in the associated Method Blank

* - Value exceeds Maximum Contaminant Level

S - Spike Recovery outside accepted recovery limits

R - RPD outside accepted recovery limits

E - Value above quantitation range

American Analytical Laboratories, Inc.

Date: *28-Jul-03*

CLIENT:	AKRF, Inc	**Client Sample ID:**	B13 (5'-7')
Lab Order:	0306116	**Tag Number:**	
Project:	Greenpoint Lumber Yard Brooklyn, NY	**Collection Date:**	6/25/2003
Lab ID:	0306116-04B	**Matrix:**	SOIL

Analyses	Result	Limit	Qual	Units	DF	Date Analyzed
PESTICIDES SW-846 8081		**SW8081B**		**(SW3550)**		Analyst: **KB**
4,4'-DDD	U	5.0		µg/Kg	1	7/3/2003 11:41:00 PM
4,4'-DDE	U	5.0		µg/Kg	1	7/3/2003 11:41:00 PM
4,4'-DDT	U	5.0		µg/Kg	1	7/3/2003 11:41:00 PM
Aldrin	U	5.0		µg/Kg	1	7/3/2003 11:41:00 PM
alpha-BHC	U	5.0		µg/Kg	1	7/3/2003 11:41:00 PM
beta-BHC	U	5.0		µg/Kg	1	7/3/2003 11:41:00 PM
Chlordane	7.5	5.0		µg/Kg	1	7/3/2003 11:41:00 PM
Chlorobenzilate	U	5.0		µg/Kg	1	7/3/2003 11:41:00 PM
DBCP	U	5.0		µg/Kg	1	7/3/2003 11:41:00 PM
delta-BHC	U	5.0		µg/Kg	1	7/3/2003 11:41:00 PM
Dieldrin	U	5.0		µg/Kg	1	7/3/2003 11:41:00 PM
Endosulfan I	U	5.0		µg/Kg	1	7/3/2003 11:41:00 PM
Endosulfan II	U	5.0		µg/Kg	1	7/3/2003 11:41:00 PM
Endosulfan sulfate	U	5.0		µg/Kg	1	7/3/2003 11:41:00 PM
Endrin	U	5.0		µg/Kg	1	7/3/2003 11:41:00 PM
Endrin aldehyde	U	5.0		µg/Kg	1	7/3/2003 11:41:00 PM
Endrin ketone	U	5.0		µg/Kg	1	7/3/2003 11:41:00 PM
gamma-BHC	U	5.0		µg/Kg	1	7/3/2003 11:41:00 PM
Heptachlor	U	5.0		µg/Kg	1	7/3/2003 11:41:00 PM
Heptachlor epoxide	U	5.0		µg/Kg	1	7/3/2003 11:41:00 PM
Hexachlorobenzene	U	5.0		µg/Kg	1	7/3/2003 11:41:00 PM
Hexachlorocyclopentadiene	U	5.0		µg/Kg	1	7/3/2003 11:41:00 PM
Isodrin	U	5.0		µg/Kg	1	7/3/2003 11:41:00 PM
Methoxychlor	U	5.0		µg/Kg	1	7/3/2003 11:41:00 PM
Toxaphene	U	300		µg/Kg	1	7/3/2003 11:41:00 PM

Qualifiers:

ND - Not Detected at the Reporting Limit

J - Analyte detected below quantitation limits

B - Analyte detected in the associated Method Blank

* - Value exceeds Maximum Contaminant Level

S - Spike Recovery outside accepted recovery limits

R - RPD outside accepted recovery limits

E - Value above quantitation range

American Analytical Laboratories, Inc.

Date: *28-Jul-03*

CLIENT:	AKRF, Inc	**Client Sample ID:**	MW-12 (0.5'-2')
Lab Order:	0306116	**Tag Number:**	
Project:	Greenpoint Lumber Yard Brooklyn, NY	**Collection Date:**	6/25/2003
Lab ID:	0306116-05B	**Matrix:**	SOIL

Analyses	Result	Limit	Qual	Units	DF	Date Analyzed
PESTICIDES SW-846 8081		**SW8081B**		**(SW3550)**		Analyst: **KB**
4,4'-DDD	U	5.0		µg/Kg	1	7/4/2003 12:24:00 AM
4,4'-DDE	U	5.0		µg/Kg	1	7/4/2003 12:24:00 AM
4,4'-DDT	U	5.0		µg/Kg	1	7/4/2003 12:24:00 AM
Aldrin	U	5.0		µg/Kg	1	7/4/2003 12:24:00 AM
alpha-BHC	U	5.0		µg/Kg	1	7/4/2003 12:24:00 AM
beta-BHC	U	5.0		µg/Kg	1	7/4/2003 12:24:00 AM
Chlordane	U	5.0		µg/Kg	1	7/4/2003 12:24:00 AM
Chlorobenzilate	U	5.0		µg/Kg	1	7/4/2003 12:24:00 AM
DBCP	U	5.0		µg/Kg	1	7/4/2003 12:24:00 AM
delta-BHC	U	5.0		µg/Kg	1	7/4/2003 12:24:00 AM
Dieldrin	U	5.0		µg/Kg	1	7/4/2003 12:24:00 AM
Endosulfan I	U	5.0		µg/Kg	1	7/4/2003 12:24:00 AM
Endosulfan II	U	5.0		µg/Kg	1	7/4/2003 12:24:00 AM
Endosulfan sulfate	U	5.0		µg/Kg	1	7/4/2003 12:24:00 AM
Endrin	U	5.0		µg/Kg	1	7/4/2003 12:24:00 AM
Endrin aldehyde	U	5.0		µg/Kg	1	7/4/2003 12:24:00 AM
Endrin ketone	U	5.0		µg/Kg	1	7/4/2003 12:24:00 AM
gamma-BHC	U	5.0		µg/Kg	1	7/4/2003 12:24:00 AM
Heptachlor	U	5.0		µg/Kg	1	7/4/2003 12:24:00 AM
Heptachlor epoxide	U	5.0		µg/Kg	1	7/4/2003 12:24:00 AM
Hexachlorobenzene	U	5.0		µg/Kg	1	7/4/2003 12:24:00 AM
Hexachlorocyclopentadiene	U	5.0		µg/Kg	1	7/4/2003 12:24:00 AM
Isodrin	U	5.0		µg/Kg	1	7/4/2003 12:24:00 AM
Methoxychlor	U	5.0		µg/Kg	1	7/4/2003 12:24:00 AM
Toxaphene	U	300		µg/Kg	1	7/4/2003 12:24:00 AM

Qualifiers:

ND - Not Detected at the Reporting Limit

J - Analyte detected below quantitation limits

B - Analyte detected in the associated Method Blank

* - Value exceeds Maximum Contaminant Level

S - Spike Recovery outside accepted recovery limits

R - RPD outside accepted recovery limits

E - Value above quantitation range

American Analytical Laboratories, Inc.

Date: *28-Jul-03*

CLIENT:	AKRF, Inc	**Client Sample ID:**	MW12 (4.5'-5.5')
Lab Order:	0306116	**Tag Number:**	
Project:	Greenpoint Lumber Yard Brooklyn, NY	**Collection Date:**	6/25/2003
Lab ID:	0306116-06B	**Matrix:**	SOIL

Analyses	Result	Limit	Qual	Units	DF	Date Analyzed
PESTICIDES SW-846 8081		**SW8081B**		**(SW3550)**		Analyst: **KB**
4,4´-DDD	U	5.0		µg/Kg	1	7/4/2003 1:07:00 AM
4,4´-DDE	U	5.0		µg/Kg	1	7/4/2003 1:07:00 AM
4,4´-DDT	4	5.0	J	µg/Kg	1	7/4/2003 1:07:00 AM
Aldrin	U	5.0		µg/Kg	1	7/4/2003 1:07:00 AM
alpha-BHC	U	5.0		µg/Kg	1	7/4/2003 1:07:00 AM
beta-BHC	U	5.0		µg/Kg	1	7/4/2003 1:07:00 AM
Chlordane	U	5.0		µg/Kg	1	7/4/2003 1:07:00 AM
Chlorobenzilate	U	5.0		µg/Kg	1	7/4/2003 1:07:00 AM
DBCP	U	5.0		µg/Kg	1	7/4/2003 1:07:00 AM
delta-BHC	U	5.0		µg/Kg	1	7/4/2003 1:07:00 AM
Dieldrin	U	5.0		µg/Kg	1	7/4/2003 1:07:00 AM
Endosulfan I	U	5.0		µg/Kg	1	7/4/2003 1:07:00 AM
Endosulfan II	U	5.0		µg/Kg	1	7/4/2003 1:07:00 AM
Endosulfan sulfate	U	5.0		µg/Kg	1	7/4/2003 1:07:00 AM
Endrin	U	5.0		µg/Kg	1	7/4/2003 1:07:00 AM
Endrin aldehyde	U	5.0		µg/Kg	1	7/4/2003 1:07:00 AM
Endrin ketone	U	5.0		µg/Kg	1	7/4/2003 1:07:00 AM
gamma-BHC	U	5.0		µg/Kg	1	7/4/2003 1:07:00 AM
Heptachlor	U	5.0		µg/Kg	1	7/4/2003 1:07:00 AM
Heptachlor epoxide	U	5.0		µg/Kg	1	7/4/2003 1:07:00 AM
Hexachlorobenzene	U	5.0		µg/Kg	1	7/4/2003 1:07:00 AM
Hexachlorocyclopentadiene	U	5.0		µg/Kg	1	7/4/2003 1:07:00 AM
Isodrin	U	5.0		µg/Kg	1	7/4/2003 1:07:00 AM
Methoxychlor	U	5.0		µg/Kg	1	7/4/2003 1:07:00 AM
Toxaphene	U	300		µg/Kg	1	7/4/2003 1:07:00 AM

Qualifiers:

ND - Not Detected at the Reporting Limit

J - Analyte detected below quantitation limits

B - Analyte detected in the associated Method Blank

* - Value exceeds Maximum Contaminant Level

S - Spike Recovery outside accepted recovery limits

R - RPD outside accepted recovery limits

E - Value above quantitation range

American Analytical Laboratories, Inc.

Date: *28-Jul-03*

CLIENT:	AKRF, Inc	**Client Sample ID:**	MW13 (0.5'-2')
Lab Order:	0306116	**Tag Number:**	
Project:	Greenpoint Lumber Yard Brooklyn, NY	**Collection Date:**	6/25/2003
Lab ID:	0306116-07B	**Matrix:**	SOIL

Analyses	Result	Limit	Qual	Units	DF	Date Analyzed
PESTICIDES SW-846 8081		**SW8081B**		**(SW3550)**		Analyst: **KB**
4,4'-DDD	U	5.0		µg/Kg	1	7/9/2003 4:17:00 PM
4,4'-DDE	U	5.0		µg/Kg	1	7/9/2003 4:17:00 PM
4,4'-DDT	U	5.0		µg/Kg	1	7/9/2003 4:17:00 PM
Aldrin	U	5.0		µg/Kg	1	7/9/2003 4:17:00 PM
alpha-BHC	U	5.0		µg/Kg	1	7/9/2003 4:17:00 PM
beta-BHC	U	5.0		µg/Kg	1	7/9/2003 4:17:00 PM
Chlordane	U	5.0		µg/Kg	1	7/9/2003 4:17:00 PM
Chlorobenzilate	U	5.0		µg/Kg	1	7/9/2003 4:17:00 PM
DBCP	U	5.0		µg/Kg	1	7/9/2003 4:17:00 PM
delta-BHC	U	5.0		µg/Kg	1	7/9/2003 4:17:00 PM
Dieldrin	U	5.0		µg/Kg	1	7/9/2003 4:17:00 PM
Endosulfan I	U	5.0		µg/Kg	1	7/9/2003 4:17:00 PM
Endosulfan II	U	5.0		µg/Kg	1	7/9/2003 4:17:00 PM
Endosulfan sulfate	U	5.0		µg/Kg	1	7/9/2003 4:17:00 PM
Endrin	U	5.0		µg/Kg	1	7/9/2003 4:17:00 PM
Endrin aldehyde	U	5.0		µg/Kg	1	7/9/2003 4:17:00 PM
Endrin ketone	U	5.0		µg/Kg	1	7/9/2003 4:17:00 PM
gamma-BHC	U	5.0		µg/Kg	1	7/9/2003 4:17:00 PM
Heptachlor	U	5.0		µg/Kg	1	7/9/2003 4:17:00 PM
Heptachlor epoxide	U	5.0		µg/Kg	1	7/9/2003 4:17:00 PM
Hexachlorobenzene	U	5.0		µg/Kg	1	7/9/2003 4:17:00 PM
Hexachlorocyclopentadiene	U	5.0		µg/Kg	1	7/9/2003 4:17:00 PM
Isodrin	U	5.0		µg/Kg	1	7/9/2003 4:17:00 PM
Methoxychlor	U	5.0		µg/Kg	1	7/9/2003 4:17:00 PM
Toxaphene	U	300		µg/Kg	1	7/9/2003 4:17:00 PM

Qualifiers:

ND - Not Detected at the Reporting Limit

J - Analyte detected below quantitation limits

B - Analyte detected in the associated Method Blank

* - Value exceeds Maximum Contaminant Level

S - Spike Recovery outside accepted recovery limits

R - RPD outside accepted recovery limits

E - Value above quantitation range

American Analytical Laboratories, Inc.

Date: *28-Jul-03*

CLIENT:	AKRF, Inc	**Client Sample ID:**	MW13 (5'-7')
Lab Order:	0306116	**Tag Number:**	
Project:	Greenpoint Lumber Yard Brooklyn, NY	**Collection Date:**	6/25/2003
Lab ID:	0306116-08B	**Matrix:**	SOIL

Analyses	Result	Limit	Qual	Units	DF	Date Analyzed
PESTICIDES SW-846 8081		**SW8081B**		**(SW3550)**		Analyst: **KB**
4,4'-DDD	10	5.0		µg/Kg	1	7/4/2003 2:12:00 AM
4,4'-DDE	U	5.0		µg/Kg	1	7/4/2003 2:12:00 AM
4,4'-DDT	U	5.0		µg/Kg	1	7/4/2003 2:12:00 AM
Aldrin	U	5.0		µg/Kg	1	7/4/2003 2:12:00 AM
alpha-BHC	U	5.0		µg/Kg	1	7/4/2003 2:12:00 AM
beta-BHC	U	5.0		µg/Kg	1	7/4/2003 2:12:00 AM
Chlordane	U	5.0		µg/Kg	1	7/4/2003 2:12:00 AM
Chlorobenzilate	U	5.0		µg/Kg	1	7/4/2003 2:12:00 AM
DBCP	U	5.0		µg/Kg	1	7/4/2003 2:12:00 AM
delta-BHC	U	5.0		µg/Kg	1	7/4/2003 2:12:00 AM
Dieldrin	U	5.0		µg/Kg	1	7/4/2003 2:12:00 AM
Endosulfan I	U	5.0		µg/Kg	1	7/4/2003 2:12:00 AM
Endosulfan II	U	5.0		µg/Kg	1	7/4/2003 2:12:00 AM
Endosulfan sulfate	U	5.0		µg/Kg	1	7/4/2003 2:12:00 AM
Endrin	U	5.0		µg/Kg	1	7/4/2003 2:12:00 AM
Endrin aldehyde	U	5.0		µg/Kg	1	7/4/2003 2:12:00 AM
Endrin ketone	U	5.0		µg/Kg	1	7/4/2003 2:12:00 AM
gamma-BHC	U	5.0		µg/Kg	1	7/4/2003 2:12:00 AM
Heptachlor	4	5.0	J	µg/Kg	1	7/4/2003 2:12:00 AM
Heptachlor epoxide	U	5.0		µg/Kg	1	7/4/2003 2:12:00 AM
Hexachlorobenzene	U	5.0		µg/Kg	1	7/4/2003 2:12:00 AM
Hexachlorocyclopentadiene	U	5.0		µg/Kg	1	7/4/2003 2:12:00 AM
Isodrin	U	5.0		µg/Kg	1	7/4/2003 2:12:00 AM
Methoxychlor	U	5.0		µg/Kg	1	7/4/2003 2:12:00 AM
Toxaphene	U	300		µg/Kg	1	7/4/2003 2:12:00 AM

Qualifiers:

ND - Not Detected at the Reporting Limit

J - Analyte detected below quantitation limits

B - Analyte detected in the associated Method Blank

* - Value exceeds Maximum Contaminant Level

S - Spike Recovery outside accepted recovery limits

R - RPD outside accepted recovery limits

E - Value above quantitation range

American Analytical Laboratories, Inc.

Date: *28-Jul-03*

CLIENT:	AKRF, Inc	**Client Sample ID:**	B7R2 (5.5'-6.0')
Lab Order:	0306116	**Tag Number:**	
Project:	Greenpoint Lumber Yard Brooklyn, NY	**Collection Date:**	6/25/2003
Lab ID:	0306116-09B	**Matrix:**	SOIL

Analyses	Result	Limit	Qual	Units	DF	Date Analyzed
PESTICIDES SW-846 8081		**SW8081B**		**(SW3550)**		Analyst: **KB**
4,4'-DDD	U	5.0		µg/Kg	1	7/4/2003 2:55:00 AM
4,4'-DDE	U	5.0		µg/Kg	1	7/4/2003 2:55:00 AM
4,4'-DDT	U	5.0		µg/Kg	1	7/4/2003 2:55:00 AM
Aldrin	U	5.0		µg/Kg	1	7/4/2003 2:55:00 AM
alpha-BHC	U	5.0		µg/Kg	1	7/4/2003 2:55:00 AM
beta-BHC	U	5.0		µg/Kg	1	7/4/2003 2:55:00 AM
Chlordane	U	5.0		µg/Kg	1	7/4/2003 2:55:00 AM
Chlorobenzilate	U	5.0		µg/Kg	1	7/4/2003 2:55:00 AM
DBCP	U	5.0		µg/Kg	1	7/4/2003 2:55:00 AM
delta-BHC	U	5.0		µg/Kg	1	7/4/2003 2:55:00 AM
Dieldrin	U	5.0		µg/Kg	1	7/4/2003 2:55:00 AM
Endosulfan I	U	5.0		µg/Kg	1	7/4/2003 2:55:00 AM
Endosulfan II	U	5.0		µg/Kg	1	7/4/2003 2:55:00 AM
Endosulfan sulfate	U	5.0		µg/Kg	1	7/4/2003 2:55:00 AM
Endrin	U	5.0		µg/Kg	1	7/4/2003 2:55:00 AM
Endrin aldehyde	U	5.0		µg/Kg	1	7/4/2003 2:55:00 AM
Endrin ketone	U	5.0		µg/Kg	1	7/4/2003 2:55:00 AM
gamma-BHC	U	5.0		µg/Kg	1	7/4/2003 2:55:00 AM
Heptachlor	U	5.0		µg/Kg	1	7/4/2003 2:55:00 AM
Heptachlor epoxide	U	5.0		µg/Kg	1	7/4/2003 2:55:00 AM
Hexachlorobenzene	U	5.0		µg/Kg	1	7/4/2003 2:55:00 AM
Hexachlorocyclopentadiene	U	5.0		µg/Kg	1	7/4/2003 2:55:00 AM
Isodrin	U	5.0		µg/Kg	1	7/4/2003 2:55:00 AM
Methoxychlor	U	5.0		µg/Kg	1	7/4/2003 2:55:00 AM
Toxaphene	U	300		µg/Kg	1	7/4/2003 2:55:00 AM

Qualifiers:

ND - Not Detected at the Reporting Limit

J - Analyte detected below quantitation limits

B - Analyte detected in the associated Method Blank

* - Value exceeds Maximum Contaminant Level

S - Spike Recovery outside accepted recovery limits

R - RPD outside accepted recovery limits

E - Value above quantitation range

American Analytical Laboratories, Inc.

Date: *28-Jul-03*

CLIENT:	AKRF, Inc	**Client Sample ID:**	B6 (0.5'-2')
Lab Order:	0306116	**Tag Number:**	
Project:	Greenpoint Lumber Yard Brooklyn, NY	**Collection Date:**	6/25/2003
Lab ID:	0306116-10B	**Matrix:**	SOIL

Analyses	Result	Limit	Qual	Units	DF	Date Analyzed
PESTICIDES SW-846 8081		**SW8081B**		**(SW3550)**		Analyst: **KB**
4,4'-DDD	U	5.0		µg/Kg	1	7/4/2003 3:38:00 AM
4,4'-DDE	U	5.0		µg/Kg	1	7/4/2003 3:38:00 AM
4,4'-DDT	U	5.0		µg/Kg	1	7/4/2003 3:38:00 AM
Aldrin	U	5.0		µg/Kg	1	7/4/2003 3:38:00 AM
alpha-BHC	U	5.0		µg/Kg	1	7/4/2003 3:38:00 AM
beta-BHC	U	5.0		µg/Kg	1	7/4/2003 3:38:00 AM
Chlordane	U	5.0		µg/Kg	1	7/4/2003 3:38:00 AM
Chlorobenzilate	U	5.0		µg/Kg	1	7/4/2003 3:38:00 AM
DBCP	U	5.0		µg/Kg	1	7/4/2003 3:38:00 AM
delta-BHC	U	5.0		µg/Kg	1	7/4/2003 3:38:00 AM
Dieldrin	U	5.0		µg/Kg	1	7/4/2003 3:38:00 AM
Endosulfan I	U	5.0		µg/Kg	1	7/4/2003 3:38:00 AM
Endosulfan II	U	5.0		µg/Kg	1	7/4/2003 3:38:00 AM
Endosulfan sulfate	U	5.0		µg/Kg	1	7/4/2003 3:38:00 AM
Endrin	U	5.0		µg/Kg	1	7/4/2003 3:38:00 AM
Endrin aldehyde	U	5.0		µg/Kg	1	7/4/2003 3:38:00 AM
Endrin ketone	U	5.0		µg/Kg	1	7/4/2003 3:38:00 AM
gamma-BHC	U	5.0		µg/Kg	1	7/4/2003 3:38:00 AM
Heptachlor	U	5.0		µg/Kg	1	7/4/2003 3:38:00 AM
Heptachlor epoxide	U	5.0		µg/Kg	1	7/4/2003 3:38:00 AM
Hexachlorobenzene	U	5.0		µg/Kg	1	7/4/2003 3:38:00 AM
Hexachlorocyclopentadiene	U	5.0		µg/Kg	1	7/4/2003 3:38:00 AM
Isodrin	U	5.0		µg/Kg	1	7/4/2003 3:38:00 AM
Methoxychlor	U	5.0		µg/Kg	1	7/4/2003 3:38:00 AM
Toxaphene	U	300		µg/Kg	1	7/4/2003 3:38:00 AM

Qualifiers:

ND - Not Detected at the Reporting Limit

J - Analyte detected below quantitation limits

B - Analyte detected in the associated Method Blank

* - Value exceeds Maximum Contaminant Level

S - Spike Recovery outside accepted recovery limits

R - RPD outside accepted recovery limits

E - Value above quantitation range

American Analytical Laboratories, Inc.

Date: *28-Jul-03*

CLIENT:	AKRF, Inc	**Client Sample ID:**	B6 (6'-7')
Lab Order:	0306116	**Tag Number:**	
Project:	Greenpoint Lumber Yard Brooklyn, NY	**Collection Date:**	6/25/2003
Lab ID:	0306116-11B	**Matrix:**	SOIL

Analyses	Result	Limit	Qual	Units	DF	Date Analyzed
PESTICIDES SW-846 8081		**SW8081B**		**(SW3550)**		Analyst: **KB**
4,4'-DDD	U	5.0		µg/Kg	1	7/4/2003 4:43:00 AM
4,4'-DDE	U	5.0		µg/Kg	1	7/4/2003 4:43:00 AM
4,4'-DDT	U	5.0		µg/Kg	1	7/4/2003 4:43:00 AM
Aldrin	U	5.0		µg/Kg	1	7/4/2003 4:43:00 AM
alpha-BHC	U	5.0		µg/Kg	1	7/4/2003 4:43:00 AM
beta-BHC	U	5.0		µg/Kg	1	7/4/2003 4:43:00 AM
Chlordane	U	5.0		µg/Kg	1	7/4/2003 4:43:00 AM
Chlorobenzilate	U	5.0		µg/Kg	1	7/4/2003 4:43:00 AM
DBCP	U	5.0		µg/Kg	1	7/4/2003 4:43:00 AM
delta-BHC	U	5.0		µg/Kg	1	7/4/2003 4:43:00 AM
Dieldrin	U	5.0		µg/Kg	1	7/4/2003 4:43:00 AM
Endosulfan I	U	5.0		µg/Kg	1	7/4/2003 4:43:00 AM
Endosulfan II	U	5.0		µg/Kg	1	7/4/2003 4:43:00 AM
Endosulfan sulfate	U	5.0		µg/Kg	1	7/4/2003 4:43:00 AM
Endrin	U	5.0		µg/Kg	1	7/4/2003 4:43:00 AM
Endrin aldehyde	U	5.0		µg/Kg	1	7/4/2003 4:43:00 AM
Endrin ketone	U	5.0		µg/Kg	1	7/4/2003 4:43:00 AM
gamma-BHC	U	5.0		µg/Kg	1	7/4/2003 4:43:00 AM
Heptachlor	U	5.0		µg/Kg	1	7/4/2003 4:43:00 AM
Heptachlor epoxide	U	5.0		µg/Kg	1	7/4/2003 4:43:00 AM
Hexachlorobenzene	U	5.0		µg/Kg	1	7/4/2003 4:43:00 AM
Hexachlorocyclopentadiene	U	5.0		µg/Kg	1	7/4/2003 4:43:00 AM
Isodrin	U	5.0		µg/Kg	1	7/4/2003 4:43:00 AM
Methoxychlor	U	5.0		µg/Kg	1	7/4/2003 4:43:00 AM
Toxaphene	U	300		µg/Kg	1	7/4/2003 4:43:00 AM

Qualifiers:

ND - Not Detected at the Reporting Limit

J - Analyte detected below quantitation limits

B - Analyte detected in the associated Method Blank

* - Value exceeds Maximum Contaminant Level

S - Spike Recovery outside accepted recovery limits

R - RPD outside accepted recovery limits

E - Value above quantitation range

American Analytical Laboratories, Inc.

Date: *28-Jul-03*

CLIENT:	AKRF, Inc	**Client Sample ID:**	MW6 (0.5-2')
Lab Order:	0306116	**Tag Number:**	
Project:	Greenpoint Lumber Yard Brooklyn, NY	**Collection Date:**	6/25/2003
Lab ID:	0306116-12B	**Matrix:**	SOIL

Analyses	Result	Limit	Qual	Units	DF	Date Analyzed
PESTICIDES SW-846 8081		**SW8081B**		**(SW3550)**		Analyst: **KB**
4,4'-DDD	U	5.0		µg/Kg	1	7/4/2003 5:26:00 AM
4,4'-DDE	U	5.0		µg/Kg	1	7/4/2003 5:26:00 AM
4,4'-DDT	U	5.0		µg/Kg	1	7/4/2003 5:26:00 AM
Aldrin	U	5.0		µg/Kg	1	7/4/2003 5:26:00 AM
alpha-BHC	U	5.0		µg/Kg	1	7/4/2003 5:26:00 AM
beta-BHC	U	5.0		µg/Kg	1	7/4/2003 5:26:00 AM
Chlordane	42	5.0		µg/Kg	1	7/4/2003 5:26:00 AM
Chlorobenzilate	U	5.0		µg/Kg	1	7/4/2003 5:26:00 AM
DBCP	U	5.0		µg/Kg	1	7/4/2003 5:26:00 AM
delta-BHC	U	5.0		µg/Kg	1	7/4/2003 5:26:00 AM
Dieldrin	U	5.0		µg/Kg	1	7/4/2003 5:26:00 AM
Endosulfan I	U	5.0		µg/Kg	1	7/4/2003 5:26:00 AM
Endosulfan II	U	5.0		µg/Kg	1	7/4/2003 5:26:00 AM
Endosulfan sulfate	U	5.0		µg/Kg	1	7/4/2003 5:26:00 AM
Endrin	U	5.0		µg/Kg	1	7/4/2003 5:26:00 AM
Endrin aldehyde	U	5.0		µg/Kg	1	7/4/2003 5:26:00 AM
Endrin ketone	U	5.0		µg/Kg	1	7/4/2003 5:26:00 AM
gamma-BHC	U	5.0		µg/Kg	1	7/4/2003 5:26:00 AM
Heptachlor	U	5.0		µg/Kg	1	7/4/2003 5:26:00 AM
Heptachlor epoxide	U	5.0		µg/Kg	1	7/4/2003 5:26:00 AM
Hexachlorobenzene	U	5.0		µg/Kg	1	7/4/2003 5:26:00 AM
Hexachlorocyclopentadiene	U	5.0		µg/Kg	1	7/4/2003 5:26:00 AM
Isodrin	U	5.0		µg/Kg	1	7/4/2003 5:26:00 AM
Methoxychlor	U	5.0		µg/Kg	1	7/4/2003 5:26:00 AM
Toxaphene	U	300		µg/Kg	1	7/4/2003 5:26:00 AM

Qualifiers:

ND - Not Detected at the Reporting Limit

J - Analyte detected below quantitation limits

B - Analyte detected in the associated Method Blank

* - Value exceeds Maximum Contaminant Level

S - Spike Recovery outside accepted recovery limits

R - RPD outside accepted recovery limits

E - Value above quantitation range

American Analytical Laboratories, Inc.

Date: *28-Jul-03*

CLIENT:	AKRF, Inc	**Client Sample ID:**	MW6 (6'-7')
Lab Order:	0306116	**Tag Number:**	
Project:	Greenpoint Lumber Yard Brooklyn, NY	**Collection Date:**	6/25/2003
Lab ID:	0306116-13B	**Matrix:**	SOIL

Analyses	Result	Limit	Qual	Units	DF	Date Analyzed
PESTICIDES SW-846 8081		**SW8081B**		**(SW3550)**		Analyst: **KB**
4,4'-DDD	U	5.0		µg/Kg	1	7/4/2003 7:57:00 AM
4,4'-DDE	U	5.0		µg/Kg	1	7/4/2003 7:57:00 AM
4,4'-DDT	U	5.0		µg/Kg	1	7/4/2003 7:57:00 AM
Aldrin	U	5.0		µg/Kg	1	7/4/2003 7:57:00 AM
alpha-BHC	U	5.0		µg/Kg	1	7/4/2003 7:57:00 AM
beta-BHC	U	5.0		µg/Kg	1	7/4/2003 7:57:00 AM
Chlordane	U	5.0		µg/Kg	1	7/4/2003 7:57:00 AM
Chlorobenzilate	U	5.0		µg/Kg	1	7/4/2003 7:57:00 AM
DBCP	U	5.0		µg/Kg	1	7/4/2003 7:57:00 AM
delta-BHC	U	5.0		µg/Kg	1	7/4/2003 7:57:00 AM
Dieldrin	U	5.0		µg/Kg	1	7/4/2003 7:57:00 AM
Endosulfan I	U	5.0		µg/Kg	1	7/4/2003 7:57:00 AM
Endosulfan II	U	5.0		µg/Kg	1	7/4/2003 7:57:00 AM
Endosulfan sulfate	U	5.0		µg/Kg	1	7/4/2003 7:57:00 AM
Endrin	U	5.0		µg/Kg	1	7/4/2003 7:57:00 AM
Endrin aldehyde	U	5.0		µg/Kg	1	7/4/2003 7:57:00 AM
Endrin ketone	U	5.0		µg/Kg	1	7/4/2003 7:57:00 AM
gamma-BHC	U	5.0		µg/Kg	1	7/4/2003 7:57:00 AM
Heptachlor	U	5.0		µg/Kg	1	7/4/2003 7:57:00 AM
Heptachlor epoxide	U	5.0		µg/Kg	1	7/4/2003 7:57:00 AM
Hexachlorobenzene	U	5.0		µg/Kg	1	7/4/2003 7:57:00 AM
Hexachlorocyclopentadiene	U	5.0		µg/Kg	1	7/4/2003 7:57:00 AM
Isodrin	U	5.0		µg/Kg	1	7/4/2003 7:57:00 AM
Methoxychlor	U	5.0		µg/Kg	1	7/4/2003 7:57:00 AM
Toxaphene	U	300		µg/Kg	1	7/4/2003 7:57:00 AM

Qualifiers:

ND - Not Detected at the Reporting Limit

J - Analyte detected below quantitation limits

B - Analyte detected in the associated Method Blank

* - Value exceeds Maximum Contaminant Level

S - Spike Recovery outside accepted recovery limits

R - RPD outside accepted recovery limits

E - Value above quantitation range

American Analytical Laboratories, Inc.

Date: *28-Jul-03*

CLIENT:	AKRF, Inc	**Client Sample ID:**	MW8 (2'-4')
Lab Order:	0306116	**Tag Number:**	
Project:	Greenpoint Lumber Yard Brooklyn, NY	**Collection Date:**	6/25/2003
Lab ID:	0306116-14B	**Matrix:**	SOIL

Analyses	Result	Limit	Qual	Units	DF	Date Analyzed
PESTICIDES SW-846 8081		**SW8081B**		**(SW3550)**		Analyst: **KB**
4,4'-DDD	6.2	5.0		µg/Kg	1	7/8/2003 5:34:00 AM
4,4'-DDE	U	5.0		µg/Kg	1	7/8/2003 5:34:00 AM
4,4'-DDT	3	5.0	J	µg/Kg	1	7/8/2003 5:34:00 AM
Aldrin	U	5.0		µg/Kg	1	7/8/2003 5:34:00 AM
alpha-BHC	U	5.0		µg/Kg	1	7/8/2003 5:34:00 AM
beta-BHC	U	5.0		µg/Kg	1	7/8/2003 5:34:00 AM
Chlordane	U	5.0		µg/Kg	1	7/8/2003 5:34:00 AM
Chlorobenzilate	U	5.0		µg/Kg	1	7/8/2003 5:34:00 AM
DBCP	U	5.0		µg/Kg	1	7/8/2003 5:34:00 AM
delta-BHC	U	5.0		µg/Kg	1	7/8/2003 5:34:00 AM
Dieldrin	U	5.0		µg/Kg	1	7/8/2003 5:34:00 AM
Endosulfan I	U	5.0		µg/Kg	1	7/8/2003 5:34:00 AM
Endosulfan II	U	5.0		µg/Kg	1	7/8/2003 5:34:00 AM
Endosulfan sulfate	U	5.0		µg/Kg	1	7/8/2003 5:34:00 AM
Endrin	U	5.0		µg/Kg	1	7/8/2003 5:34:00 AM
Endrin aldehyde	U	5.0		µg/Kg	1	7/8/2003 5:34:00 AM
Endrin ketone	U	5.0		µg/Kg	1	7/8/2003 5:34:00 AM
gamma-BHC	U	5.0		µg/Kg	1	7/8/2003 5:34:00 AM
Heptachlor	U	5.0		µg/Kg	1	7/8/2003 5:34:00 AM
Heptachlor epoxide	U	5.0		µg/Kg	1	7/8/2003 5:34:00 AM
Hexachlorobenzene	U	5.0		µg/Kg	1	7/8/2003 5:34:00 AM
Hexachlorocyclopentadiene	U	5.0		µg/Kg	1	7/8/2003 5:34:00 AM
Isodrin	U	5.0		µg/Kg	1	7/8/2003 5:34:00 AM
Methoxychlor	U	5.0		µg/Kg	1	7/8/2003 5:34:00 AM
Toxaphene	U	300		µg/Kg	1	7/8/2003 5:34:00 AM

Qualifiers:

ND - Not Detected at the Reporting Limit

J - Analyte detected below quantitation limits

B - Analyte detected in the associated Method Blank

* - Value exceeds Maximum Contaminant Level

S - Spike Recovery outside accepted recovery limits

R - RPD outside accepted recovery limits

E - Value above quantitation range

American Analytical Laboratories, Inc.

Date: *28-Jul-03*

CLIENT:	AKRF, Inc	**Client Sample ID:**	MW8 (5'-6.5')
Lab Order:	0306116	**Tag Number:**	
Project:	Greenpoint Lumber Yard Brooklyn, NY	**Collection Date:**	6/25/2003
Lab ID:	0306116-15B	**Matrix:**	SOIL

Analyses	Result	Limit	Qual	Units	DF	Date Analyzed
PESTICIDES SW-846 8081		**SW8081B**		**(SW3550)**		Analyst: **KB**
4,4'-DDD	U	5.0		µg/Kg	1	7/4/2003 8:40:00 AM
4,4'-DDE	U	5.0		µg/Kg	1	7/4/2003 8:40:00 AM
4,4'-DDT	U	5.0		µg/Kg	1	7/4/2003 8:40:00 AM
Aldrin	U	5.0		µg/Kg	1	7/4/2003 8:40:00 AM
alpha-BHC	U	5.0		µg/Kg	1	7/4/2003 8:40:00 AM
beta-BHC	U	5.0		µg/Kg	1	7/4/2003 8:40:00 AM
Chlordane	U	5.0		µg/Kg	1	7/4/2003 8:40:00 AM
Chlorobenzilate	U	5.0		µg/Kg	1	7/4/2003 8:40:00 AM
DBCP	U	5.0		µg/Kg	1	7/4/2003 8:40:00 AM
delta-BHC	U	5.0		µg/Kg	1	7/4/2003 8:40:00 AM
Dieldrin	U	5.0		µg/Kg	1	7/4/2003 8:40:00 AM
Endosulfan I	U	5.0		µg/Kg	1	7/4/2003 8:40:00 AM
Endosulfan II	U	5.0		µg/Kg	1	7/4/2003 8:40:00 AM
Endosulfan sulfate	U	5.0		µg/Kg	1	7/4/2003 8:40:00 AM
Endrin	U	5.0		µg/Kg	1	7/4/2003 8:40:00 AM
Endrin aldehyde	U	5.0		µg/Kg	1	7/4/2003 8:40:00 AM
Endrin ketone	U	5.0		µg/Kg	1	7/4/2003 8:40:00 AM
gamma-BHC	U	5.0		µg/Kg	1	7/4/2003 8:40:00 AM
Heptachlor	12	5.0		µg/Kg	1	7/4/2003 8:40:00 AM
Heptachlor epoxide	U	5.0		µg/Kg	1	7/4/2003 8:40:00 AM
Hexachlorobenzene	U	5.0		µg/Kg	1	7/4/2003 8:40:00 AM
Hexachlorocyclopentadiene	U	5.0		µg/Kg	1	7/4/2003 8:40:00 AM
Isodrin	U	5.0		µg/Kg	1	7/4/2003 8:40:00 AM
Methoxychlor	U	5.0		µg/Kg	1	7/4/2003 8:40:00 AM
Toxaphene	U	300		µg/Kg	1	7/4/2003 8:40:00 AM

Qualifiers:

ND - Not Detected at the Reporting Limit

J - Analyte detected below quantitation limits

B - Analyte detected in the associated Method Blank

* - Value exceeds Maximum Contaminant Level

S - Spike Recovery outside accepted recovery limits

R - RPD outside accepted recovery limits

E - Value above quantitation range

American Analytical Laboratories, Inc.

Date: *28-Jul-03*

CLIENT:	AKRF, Inc	**Client Sample ID:**	B9 (14"-2.5')
Lab Order:	0306116	**Tag Number:**	
Project:	Greenpoint Lumber Yard Brooklyn, NY	**Collection Date:**	6/25/2003
Lab ID:	0306116-16B	**Matrix:**	SOIL

Analyses	Result	Limit	Qual	Units	DF	Date Analyzed
PESTICIDES SW-846 8081		**SW8081B**		**(SW3550)**		Analyst: **KB**
4,4´-DDD	10	5.0		µg/Kg	1	7/4/2003 9:22:00 AM
4,4´-DDE	U	5.0		µg/Kg	1	7/4/2003 9:22:00 AM
4,4´-DDT	U	5.0		µg/Kg	1	7/4/2003 9:22:00 AM
Aldrin	U	5.0		µg/Kg	1	7/4/2003 9:22:00 AM
alpha-BHC	U	5.0		µg/Kg	1	7/4/2003 9:22:00 AM
beta-BHC	U	5.0		µg/Kg	1	7/4/2003 9:22:00 AM
Chlordane	U	5.0		µg/Kg	1	7/4/2003 9:22:00 AM
Chlorobenzilate	U	5.0		µg/Kg	1	7/4/2003 9:22:00 AM
DBCP	U	5.0		µg/Kg	1	7/4/2003 9:22:00 AM
delta-BHC	U	5.0		µg/Kg	1	7/4/2003 9:22:00 AM
Dieldrin	U	5.0		µg/Kg	1	7/4/2003 9:22:00 AM
Endosulfan I	U	5.0		µg/Kg	1	7/4/2003 9:22:00 AM
Endosulfan II	U	5.0		µg/Kg	1	7/4/2003 9:22:00 AM
Endosulfan sulfate	U	5.0		µg/Kg	1	7/4/2003 9:22:00 AM
Endrin	U	5.0		µg/Kg	1	7/4/2003 9:22:00 AM
Endrin aldehyde	U	5.0		µg/Kg	1	7/4/2003 9:22:00 AM
Endrin ketone	U	5.0		µg/Kg	1	7/4/2003 9:22:00 AM
gamma-BHC	U	5.0		µg/Kg	1	7/4/2003 9:22:00 AM
Heptachlor	U	5.0		µg/Kg	1	7/4/2003 9:22:00 AM
Heptachlor epoxide	U	5.0		µg/Kg	1	7/4/2003 9:22:00 AM
Hexachlorobenzene	U	5.0		µg/Kg	1	7/4/2003 9:22:00 AM
Hexachlorocyclopentadiene	U	5.0		µg/Kg	1	7/4/2003 9:22:00 AM
Isodrin	U	5.0		µg/Kg	1	7/4/2003 9:22:00 AM
Methoxychlor	U	5.0		µg/Kg	1	7/4/2003 9:22:00 AM
Toxaphene	U	300		µg/Kg	1	7/4/2003 9:22:00 AM

Qualifiers:

ND - Not Detected at the Reporting Limit

J - Analyte detected below quantitation limits

B - Analyte detected in the associated Method Blank

* - Value exceeds Maximum Contaminant Level

S - Spike Recovery outside accepted recovery limits

R - RPD outside accepted recovery limits

E - Value above quantitation range

American Analytical Laboratories, Inc.

Date: *28-Jul-03*

CLIENT:	AKRF, Inc	**Client Sample ID:**	B9 (5'-6')
Lab Order:	0306116	**Tag Number:**	
Project:	Greenpoint Lumber Yard Brooklyn, NY	**Collection Date:**	6/25/2003
Lab ID:	0306116-17B	**Matrix:**	SOIL

Analyses	Result	Limit	Qual	Units	DF	Date Analyzed
PESTICIDES SW-846 8081		**SW8081B**		**(SW3550)**		Analyst: **KB**
4,4'-DDD	7.7	5.0		µg/Kg	1	7/9/2003 5:00:00 PM
4,4'-DDE	U	5.0		µg/Kg	1	7/9/2003 5:00:00 PM
4,4'-DDT	9.3	5.0		µg/Kg	1	7/9/2003 5:00:00 PM
Aldrin	U	5.0		µg/Kg	1	7/9/2003 5:00:00 PM
alpha-BHC	U	5.0		µg/Kg	1	7/9/2003 5:00:00 PM
beta-BHC	U	5.0		µg/Kg	1	7/9/2003 5:00:00 PM
Chlordane	9.6	5.0		µg/Kg	1	7/9/2003 5:00:00 PM
Chlorobenzilate	U	5.0		µg/Kg	1	7/9/2003 5:00:00 PM
DBCP	U	5.0		µg/Kg	1	7/9/2003 5:00:00 PM
delta-BHC	U	5.0		µg/Kg	1	7/9/2003 5:00:00 PM
Dieldrin	U	5.0		µg/Kg	1	7/9/2003 5:00:00 PM
Endosulfan I	U	5.0		µg/Kg	1	7/9/2003 5:00:00 PM
Endosulfan II	U	5.0		µg/Kg	1	7/9/2003 5:00:00 PM
Endosulfan sulfate	U	5.0		µg/Kg	1	7/9/2003 5:00:00 PM
Endrin	U	5.0		µg/Kg	1	7/9/2003 5:00:00 PM
Endrin aldehyde	U	5.0		µg/Kg	1	7/9/2003 5:00:00 PM
Endrin ketone	U	5.0		µg/Kg	1	7/9/2003 5:00:00 PM
gamma-BHC	U	5.0		µg/Kg	1	7/9/2003 5:00:00 PM
Heptachlor	U	5.0		µg/Kg	1	7/9/2003 5:00:00 PM
Heptachlor epoxide	U	5.0		µg/Kg	1	7/9/2003 5:00:00 PM
Hexachlorobenzene	U	5.0		µg/Kg	1	7/9/2003 5:00:00 PM
Hexachlorocyclopentadiene	U	5.0		µg/Kg	1	7/9/2003 5:00:00 PM
Isodrin	U	5.0		µg/Kg	1	7/9/2003 5:00:00 PM
Methoxychlor	U	5.0		µg/Kg	1	7/9/2003 5:00:00 PM
Toxaphene	U	300		µg/Kg	1	7/9/2003 5:00:00 PM

Qualifiers:

ND - Not Detected at the Reporting Limit

J - Analyte detected below quantitation limits

B - Analyte detected in the associated Method Blank

* - Value exceeds Maximum Contaminant Level

S - Spike Recovery outside accepted recovery limits

R - RPD outside accepted recovery limits

E - Value above quantitation range

American Analytical Laboratories, Inc.

Date: *28-Jul-03*

CLIENT:	AKRF, Inc	**Client Sample ID:**	B8 (0.5-2")
Lab Order:	0306116	**Tag Number:**	
Project:	Greenpoint Lumber Yard Brooklyn, NY	**Collection Date:**	6/25/2003
Lab ID:	0306116-18B	**Matrix:**	SOIL

Analyses	Result	Limit	Qual	Units	DF	Date Analyzed
PESTICIDES SW-846 8081		**SW8081B**		**(SW3550)**		Analyst: **KB**
4,4´-DDD	U	5.0		µg/Kg	1	7/8/2003 7:00:00 AM
4,4´-DDE	U	5.0		µg/Kg	1	7/8/2003 7:00:00 AM
4,4´-DDT	U	5.0		µg/Kg	1	7/8/2003 7:00:00 AM
Aldrin	U	5.0		µg/Kg	1	7/8/2003 7:00:00 AM
alpha-BHC	U	5.0		µg/Kg	1	7/8/2003 7:00:00 AM
beta-BHC	U	5.0		µg/Kg	1	7/8/2003 7:00:00 AM
Chlordane	U	5.0		µg/Kg	1	7/8/2003 7:00:00 AM
Chlorobenzilate	U	5.0		µg/Kg	1	7/8/2003 7:00:00 AM
DBCP	U	5.0		µg/Kg	1	7/8/2003 7:00:00 AM
delta-BHC	U	5.0		µg/Kg	1	7/8/2003 7:00:00 AM
Dieldrin	U	5.0		µg/Kg	1	7/8/2003 7:00:00 AM
Endosulfan I	U	5.0		µg/Kg	1	7/8/2003 7:00:00 AM
Endosulfan II	U	5.0		µg/Kg	1	7/8/2003 7:00:00 AM
Endosulfan sulfate	U	5.0		µg/Kg	1	7/8/2003 7:00:00 AM
Endrin	U	5.0		µg/Kg	1	7/8/2003 7:00:00 AM
Endrin aldehyde	U	5.0		µg/Kg	1	7/8/2003 7:00:00 AM
Endrin ketone	U	5.0		µg/Kg	1	7/8/2003 7:00:00 AM
gamma-BHC	U	5.0		µg/Kg	1	7/8/2003 7:00:00 AM
Heptachlor	U	5.0		µg/Kg	1	7/8/2003 7:00:00 AM
Heptachlor epoxide	U	5.0		µg/Kg	1	7/8/2003 7:00:00 AM
Hexachlorobenzene	U	5.0		µg/Kg	1	7/8/2003 7:00:00 AM
Hexachlorocyclopentadiene	U	5.0		µg/Kg	1	7/8/2003 7:00:00 AM
Isodrin	U	5.0		µg/Kg	1	7/8/2003 7:00:00 AM
Methoxychlor	U	5.0		µg/Kg	1	7/8/2003 7:00:00 AM
Toxaphene	U	300		µg/Kg	1	7/8/2003 7:00:00 AM

Qualifiers:

ND - Not Detected at the Reporting Limit

J - Analyte detected below quantitation limits

B - Analyte detected in the associated Method Blank

* - Value exceeds Maximum Contaminant Level

S - Spike Recovery outside accepted recovery limits

R - RPD outside accepted recovery limits

E - Value above quantitation range

American Analytical Laboratories, Inc.

Date: *28-Jul-03*

CLIENT:	AKRF, Inc	**Client Sample ID:**	B8 (8-10')
Lab Order:	0306116	**Tag Number:**	
Project:	Greenpoint Lumber Yard Brooklyn, NY	**Collection Date:**	6/25/2003
Lab ID:	0306116-19B	**Matrix:**	SOIL

Analyses	Result	Limit	Qual	Units	DF	Date Analyzed
PESTICIDES SW-846 8081		**SW8081B**		**(SW3550)**		Analyst: **KB**
4,4'-DDD	27	5.0		µg/Kg	1	7/4/2003 10:28:00 AM
4,4'-DDE	11	5.0		µg/Kg	1	7/4/2003 10:28:00 AM
4,4'-DDT	17	5.0		µg/Kg	1	7/4/2003 10:28:00 AM
Aldrin	U	5.0		µg/Kg	1	7/4/2003 10:28:00 AM
alpha-BHC	U	5.0		µg/Kg	1	7/4/2003 10:28:00 AM
beta-BHC	U	5.0		µg/Kg	1	7/4/2003 10:28:00 AM
Chlordane	23	5.0		µg/Kg	1	7/4/2003 10:28:00 AM
Chlorobenzilate	U	5.0		µg/Kg	1	7/4/2003 10:28:00 AM
DBCP	U	5.0		µg/Kg	1	7/4/2003 10:28:00 AM
delta-BHC	U	5.0		µg/Kg	1	7/4/2003 10:28:00 AM
Dieldrin	U	5.0		µg/Kg	1	7/4/2003 10:28:00 AM
Endosulfan I	U	5.0		µg/Kg	1	7/4/2003 10:28:00 AM
Endosulfan II	U	5.0		µg/Kg	1	7/4/2003 10:28:00 AM
Endosulfan sulfate	U	5.0		µg/Kg	1	7/4/2003 10:28:00 AM
Endrin	U	5.0		µg/Kg	1	7/4/2003 10:28:00 AM
Endrin aldehyde	U	5.0		µg/Kg	1	7/4/2003 10:28:00 AM
Endrin ketone	U	5.0		µg/Kg	1	7/4/2003 10:28:00 AM
gamma-BHC	U	5.0		µg/Kg	1	7/4/2003 10:28:00 AM
Heptachlor	U	5.0		µg/Kg	1	7/4/2003 10:28:00 AM
Heptachlor epoxide	U	5.0		µg/Kg	1	7/4/2003 10:28:00 AM
Hexachlorobenzene	U	5.0		µg/Kg	1	7/4/2003 10:28:00 AM
Hexachlorocyclopentadiene	U	5.0		µg/Kg	1	7/4/2003 10:28:00 AM
Isodrin	U	5.0		µg/Kg	1	7/4/2003 10:28:00 AM
Methoxychlor	U	5.0		µg/Kg	1	7/4/2003 10:28:00 AM
Toxaphene	U	300		µg/Kg	1	7/4/2003 10:28:00 AM

Qualifiers:

ND - Not Detected at the Reporting Limit

J - Analyte detected below quantitation limits

B - Analyte detected in the associated Method Blank

* - Value exceeds Maximum Contaminant Level

S - Spike Recovery outside accepted recovery limits

R - RPD outside accepted recovery limits

E - Value above quantitation range

American Analytical Laboratories, Inc.

Date: *28-Jul-03*

CLIENT:	AKRF, Inc	**Client Sample ID:**	MW10 (0.5-2')
Lab Order:	0306116	**Tag Number:**	
Project:	Greenpoint Lumber Yard Brooklyn, NY	**Collection Date:**	6/25/2003
Lab ID:	0306116-20B	**Matrix:**	SOIL

Analyses	Result	Limit	Qual	Units	DF	Date Analyzed
PESTICIDES SW-846 8081		**SW8081B**		**(SW3550)**		Analyst: **KB**
4,4'-DDD	900	50		µg/Kg	10	7/9/2003 7:31:00 PM
4,4'-DDE	240	50		µg/Kg	10	7/9/2003 7:31:00 PM
4,4'-DDT	98	5.0		µg/Kg	1	7/8/2003 7:43:00 AM
Aldrin	U	5.0		µg/Kg	1	7/8/2003 7:43:00 AM
alpha-BHC	U	5.0		µg/Kg	1	7/8/2003 7:43:00 AM
beta-BHC	U	5.0		µg/Kg	1	7/8/2003 7:43:00 AM
Chlordane	U	5.0		µg/Kg	1	7/8/2003 7:43:00 AM
Chlorobenzilate	U	5.0		µg/Kg	1	7/8/2003 7:43:00 AM
DBCP	U	5.0		µg/Kg	1	7/8/2003 7:43:00 AM
delta-BHC	U	5.0		µg/Kg	1	7/8/2003 7:43:00 AM
Dieldrin	U	5.0		µg/Kg	1	7/8/2003 7:43:00 AM
Endosulfan I	U	5.0		µg/Kg	1	7/8/2003 7:43:00 AM
Endosulfan II	U	5.0		µg/Kg	1	7/8/2003 7:43:00 AM
Endosulfan sulfate	U	5.0		µg/Kg	1	7/8/2003 7:43:00 AM
Endrin	10	5.0		µg/Kg	1	7/8/2003 7:43:00 AM
Endrin aldehyde	U	5.0		µg/Kg	1	7/8/2003 7:43:00 AM
Endrin ketone	U	5.0		µg/Kg	1	7/8/2003 7:43:00 AM
gamma-BHC	U	5.0		µg/Kg	1	7/8/2003 7:43:00 AM
Heptachlor	U	5.0		µg/Kg	1	7/8/2003 7:43:00 AM
Heptachlor epoxide	U	5.0		µg/Kg	1	7/8/2003 7:43:00 AM
Hexachlorobenzene	U	5.0		µg/Kg	1	7/8/2003 7:43:00 AM
Hexachlorocyclopentadiene	U	5.0		µg/Kg	1	7/8/2003 7:43:00 AM
Isodrin	U	5.0		µg/Kg	1	7/8/2003 7:43:00 AM
Methoxychlor	U	5.0		µg/Kg	1	7/8/2003 7:43:00 AM
Toxaphene	U	300		µg/Kg	1	7/8/2003 7:43:00 AM

Qualifiers:

ND - Not Detected at the Reporting Limit

J - Analyte detected below quantitation limits

B - Analyte detected in the associated Method Blank

* - Value exceeds Maximum Contaminant Level

S - Spike Recovery outside accepted recovery limits

R - RPD outside accepted recovery limits

E - Value above quantitation range

American Analytical Laboratories, Inc.

Date: *28-Jul-03*

CLIENT:	AKRF, Inc	**Client Sample ID:**	B12 (0.5-2')
Lab Order:	0306116	**Tag Number:**	
Project:	Greenpoint Lumber Yard Brooklyn, NY	**Collection Date:**	6/25/2003
Lab ID:	0306116-01B	**Matrix:**	SOIL

Analyses	Result	Limit	Qual	Units	DF	Date Analyzed
PCB'S AS AROCLORS SW-846 8082		**SW8082A**		**(SW3550)**		Analyst: **KB**
Aroclor 1016	U	80		µg/Kg	1	7/8/2003 9:37:00 PM
Aroclor 1221	U	80		µg/Kg	1	7/8/2003 9:37:00 PM
Aroclor 1232	U	80		µg/Kg	1	7/8/2003 9:37:00 PM
Aroclor 1242	U	80		µg/Kg	1	7/8/2003 9:37:00 PM
Aroclor 1248	U	80		µg/Kg	1	7/8/2003 9:37:00 PM
Aroclor 1254	430	80		µg/Kg	1	7/8/2003 9:37:00 PM
Aroclor 1260	850	80		µg/Kg	1	7/8/2003 9:37:00 PM

Qualifiers:

ND - Not Detected at the Reporting Limit

J - Analyte detected below quantitation limits

B - Analyte detected in the associated Method Blank

* - Value exceeds Maximum Contaminant Level

S - Spike Recovery outside accepted recovery limits

R - RPD outside accepted recovery limits

E - Value above quantitation range

American Analytical Laboratories, Inc.

Date: *28-Jul-03*

CLIENT:	AKRF, Inc	**Client Sample ID:**	B12 (5'-7')
Lab Order:	0306116	**Tag Number:**	
Project:	Greenpoint Lumber Yard Brooklyn, NY	**Collection Date:**	6/25/2003
Lab ID:	0306116-02B	**Matrix:**	SOIL

Analyses	Result	Limit	Qual	Units	DF	Date Analyzed
PCB'S AS AROCLORS SW-846 8082		**SW8082A**		**(SW3550)**		Analyst: **KB**
Aroclor 1016	U	80		µg/Kg	1	7/7/2003 5:14:00 PM
Aroclor 1221	U	80		µg/Kg	1	7/7/2003 5:14:00 PM
Aroclor 1232	U	80		µg/Kg	1	7/7/2003 5:14:00 PM
Aroclor 1242	U	80		µg/Kg	1	7/7/2003 5:14:00 PM
Aroclor 1248	U	80		µg/Kg	1	7/7/2003 5:14:00 PM
Aroclor 1254	160	80		µg/Kg	1	7/7/2003 5:14:00 PM
Aroclor 1260	300	80		µg/Kg	1	7/7/2003 5:14:00 PM

Qualifiers:

ND - Not Detected at the Reporting Limit

J - Analyte detected below quantitation limits

B - Analyte detected in the associated Method Blank

* - Value exceeds Maximum Contaminant Level

S - Spike Recovery outside accepted recovery limits

R - RPD outside accepted recovery limits

E - Value above quantitation range

American Analytical Laboratories, Inc.

Date: *28-Jul-03*

CLIENT:	AKRF, Inc	**Client Sample ID:**	B13 (0.5'-2')
Lab Order:	0306116	**Tag Number:**	
Project:	Greenpoint Lumber Yard Brooklyn, NY	**Collection Date:**	6/25/2003
Lab ID:	0306116-03B	**Matrix:**	SOIL

Analyses	Result	Limit	Qual	Units	DF	Date Analyzed
PCB'S AS AROCLORS SW-846 8082		**SW8082A**		**(SW3550)**		Analyst: **KB**
Aroclor 1016	U	80		µg/Kg	1	7/8/2003 10:20:00 PM
Aroclor 1221	U	80		µg/Kg	1	7/8/2003 10:20:00 PM
Aroclor 1232	U	80		µg/Kg	1	7/8/2003 10:20:00 PM
Aroclor 1242	U	80		µg/Kg	1	7/8/2003 10:20:00 PM
Aroclor 1248	U	80		µg/Kg	1	7/8/2003 10:20:00 PM
Aroclor 1254	110	80		µg/Kg	1	7/8/2003 10:20:00 PM
Aroclor 1260	120	80		µg/Kg	1	7/8/2003 10:20:00 PM

Qualifiers:

ND - Not Detected at the Reporting Limit

J - Analyte detected below quantitation limits

B - Analyte detected in the associated Method Blank

* - Value exceeds Maximum Contaminant Level

S - Spike Recovery outside accepted recovery limits

R - RPD outside accepted recovery limits

E - Value above quantitation range

American Analytical Laboratories, Inc.

Date: *28-Jul-03*

CLIENT:	AKRF, Inc	**Client Sample ID:**	B13 (5'-7')
Lab Order:	0306116	**Tag Number:**	
Project:	Greenpoint Lumber Yard Brooklyn, NY	**Collection Date:**	6/25/2003
Lab ID:	0306116-04B	**Matrix:**	SOIL

Analyses	Result	Limit	Qual	Units	DF	Date Analyzed
PCB'S AS AROCLORS SW-846 8082		**SW8082A**		**(SW3550)**		Analyst: **KB**
Aroclor 1016	U	80		µg/Kg	1	7/7/2003 5:57:00 PM
Aroclor 1221	U	80		µg/Kg	1	7/7/2003 5:57:00 PM
Aroclor 1232	U	80		µg/Kg	1	7/7/2003 5:57:00 PM
Aroclor 1242	U	80		µg/Kg	1	7/7/2003 5:57:00 PM
Aroclor 1248	U	80		µg/Kg	1	7/7/2003 5:57:00 PM
Aroclor 1254	U	80		µg/Kg	1	7/7/2003 5:57:00 PM
Aroclor 1260	U	80		µg/Kg	1	7/7/2003 5:57:00 PM

Qualifiers:

ND - Not Detected at the Reporting Limit

J - Analyte detected below quantitation limits

B - Analyte detected in the associated Method Blank

* - Value exceeds Maximum Contaminant Level

S - Spike Recovery outside accepted recovery limits

R - RPD outside accepted recovery limits

E - Value above quantitation range

American Analytical Laboratories, Inc.

Date: *28-Jul-03*

CLIENT:	AKRF, Inc	**Client Sample ID:**	MW-12 (0.5'-2')
Lab Order:	0306116	**Tag Number:**	
Project:	Greenpoint Lumber Yard Brooklyn, NY	**Collection Date:**	6/25/2003
Lab ID:	0306116-05B	**Matrix:**	SOIL

Analyses	Result	Limit	Qual	Units	DF	Date Analyzed
PCB'S AS AROCLORS SW-846 8082		**SW8082A**		**(SW3550)**		Analyst: **KB**
Aroclor 1016	U	80		µg/Kg	1	7/7/2003 6:40:00 PM
Aroclor 1221	U	80		µg/Kg	1	7/7/2003 6:40:00 PM
Aroclor 1232	U	80		µg/Kg	1	7/7/2003 6:40:00 PM
Aroclor 1242	U	80		µg/Kg	1	7/7/2003 6:40:00 PM
Aroclor 1248	U	80		µg/Kg	1	7/7/2003 6:40:00 PM
Aroclor 1254	110	80		µg/Kg	1	7/7/2003 6:40:00 PM
Aroclor 1260	40	80	J	µg/Kg	1	7/7/2003 6:40:00 PM

Qualifiers:

ND - Not Detected at the Reporting Limit

J - Analyte detected below quantitation limits

B - Analyte detected in the associated Method Blank

* - Value exceeds Maximum Contaminant Level

S - Spike Recovery outside accepted recovery limits

R - RPD outside accepted recovery limits

E - Value above quantitation range

American Analytical Laboratories, Inc.

Date: *28-Jul-03*

CLIENT:	AKRF, Inc	**Client Sample ID:**	MW12 (4.5'-5.5')
Lab Order:	0306116	**Tag Number:**	
Project:	Greenpoint Lumber Yard Brooklyn, NY	**Collection Date:**	6/25/2003
Lab ID:	0306116-06B	**Matrix:**	SOIL

Analyses	Result	Limit	Qual	Units	DF	Date Analyzed
PCB'S AS AROCLORS SW-846 8082		**SW8082A**		**(SW3550)**		Analyst: **KB**
Aroclor 1016	U	80		µg/Kg	1	7/7/2003 7:45:00 PM
Aroclor 1221	U	80		µg/Kg	1	7/7/2003 7:45:00 PM
Aroclor 1232	U	80		µg/Kg	1	7/7/2003 7:45:00 PM
Aroclor 1242	U	80		µg/Kg	1	7/7/2003 7:45:00 PM
Aroclor 1248	U	80		µg/Kg	1	7/7/2003 7:45:00 PM
Aroclor 1254	U	80		µg/Kg	1	7/7/2003 7:45:00 PM
Aroclor 1260	U	80		µg/Kg	1	7/7/2003 7:45:00 PM

Qualifiers:

ND - Not Detected at the Reporting Limit

J - Analyte detected below quantitation limits

B - Analyte detected in the associated Method Blank

* - Value exceeds Maximum Contaminant Level

S - Spike Recovery outside accepted recovery limits

R - RPD outside accepted recovery limits

E - Value above quantitation range

American Analytical Laboratories, Inc.

Date: *28-Jul-03*

CLIENT:	AKRF, Inc	**Client Sample ID:**	MW13 (0.5'-2')
Lab Order:	0306116	**Tag Number:**	
Project:	Greenpoint Lumber Yard Brooklyn, NY	**Collection Date:**	6/25/2003
Lab ID:	0306116-07B	**Matrix:**	SOIL

Analyses	Result	Limit	Qual	Units	DF	Date Analyzed
PCB'S AS AROCLORS SW-846 8082		**SW8082A**		**(SW3550)**		Analyst: **KB**
Aroclor 1016	U	80		µg/Kg	1	7/8/2003 11:03:00 PM
Aroclor 1221	U	80		µg/Kg	1	7/8/2003 11:03:00 PM
Aroclor 1232	U	80		µg/Kg	1	7/8/2003 11:03:00 PM
Aroclor 1242	U	80		µg/Kg	1	7/8/2003 11:03:00 PM
Aroclor 1248	U	80		µg/Kg	1	7/8/2003 11:03:00 PM
Aroclor 1254	80	80	J	µg/Kg	1	7/8/2003 11:03:00 PM
Aroclor 1260	60	80	J	µg/Kg	1	7/8/2003 11:03:00 PM

Qualifiers:

ND - Not Detected at the Reporting Limit

J - Analyte detected below quantitation limits

B - Analyte detected in the associated Method Blank

* - Value exceeds Maximum Contaminant Level

S - Spike Recovery outside accepted recovery limits

R - RPD outside accepted recovery limits

E - Value above quantitation range

American Analytical Laboratories, Inc.

Date: *28-Jul-03*

CLIENT:	AKRF, Inc	**Client Sample ID:**	MW13 (5'-7')
Lab Order:	0306116	**Tag Number:**	
Project:	Greenpoint Lumber Yard Brooklyn, NY	**Collection Date:**	6/25/2003
Lab ID:	0306116-08B	**Matrix:**	SOIL

Analyses	Result	Limit	Qual	Units	DF	Date Analyzed
PCB'S AS AROCLORS SW-846 8082		**SW8082A**		**(SW3550)**		Analyst: **KB**
Aroclor 1016	U	80		µg/Kg	1	7/7/2003 8:28:00 PM
Aroclor 1221	U	80		µg/Kg	1	7/7/2003 8:28:00 PM
Aroclor 1232	U	80		µg/Kg	1	7/7/2003 8:28:00 PM
Aroclor 1242	U	80		µg/Kg	1	7/7/2003 8:28:00 PM
Aroclor 1248	U	80		µg/Kg	1	7/7/2003 8:28:00 PM
Aroclor 1254	U	80		µg/Kg	1	7/7/2003 8:28:00 PM
Aroclor 1260	U	80		µg/Kg	1	7/7/2003 8:28:00 PM

Qualifiers:

ND - Not Detected at the Reporting Limit

J - Analyte detected below quantitation limits

B - Analyte detected in the associated Method Blank

* - Value exceeds Maximum Contaminant Level

S - Spike Recovery outside accepted recovery limits

R - RPD outside accepted recovery limits

E - Value above quantitation range

American Analytical Laboratories, Inc.

Date: *28-Jul-03*

CLIENT:	AKRF, Inc	**Client Sample ID:**	B7R2 (5.5'-6.0')
Lab Order:	0306116	**Tag Number:**	
Project:	Greenpoint Lumber Yard Brooklyn, NY	**Collection Date:**	6/25/2003
Lab ID:	0306116-09B	**Matrix:**	SOIL

Analyses	Result	Limit	Qual	Units	DF	Date Analyzed
PCB'S AS AROCLORS SW-846 8082		**SW8082A**		**(SW3550)**		Analyst: **KB**
Aroclor 1016	U	80		µg/Kg	1	7/9/2003 12:08:00 AM
Aroclor 1221	U	80		µg/Kg	1	7/9/2003 12:08:00 AM
Aroclor 1232	U	80		µg/Kg	1	7/9/2003 12:08:00 AM
Aroclor 1242	U	80		µg/Kg	1	7/9/2003 12:08:00 AM
Aroclor 1248	U	80		µg/Kg	1	7/9/2003 12:08:00 AM
Aroclor 1254	U	80		µg/Kg	1	7/9/2003 12:08:00 AM
Aroclor 1260	U	80		µg/Kg	1	7/9/2003 12:08:00 AM

Qualifiers:

ND - Not Detected at the Reporting Limit

J - Analyte detected below quantitation limits

B - Analyte detected in the associated Method Blank

* - Value exceeds Maximum Contaminant Level

S - Spike Recovery outside accepted recovery limits

R - RPD outside accepted recovery limits

E - Value above quantitation range

American Analytical Laboratories, Inc.

Date: *28-Jul-03*

CLIENT:	AKRF, Inc	**Client Sample ID:**	B6 (0.5'-2')
Lab Order:	0306116	**Tag Number:**	
Project:	Greenpoint Lumber Yard Brooklyn, NY	**Collection Date:**	6/25/2003
Lab ID:	0306116-10B	**Matrix:**	SOIL

Analyses	Result	Limit	Qual	Units	DF	Date Analyzed
PCB'S AS AROCLORS SW-846 8082		**SW8082A**		**(SW3550)**		Analyst: **KB**
Aroclor 1016	U	80		µg/Kg	1	7/7/2003 9:11:00 PM
Aroclor 1221	U	80		µg/Kg	1	7/7/2003 9:11:00 PM
Aroclor 1232	U	80		µg/Kg	1	7/7/2003 9:11:00 PM
Aroclor 1242	U	80		µg/Kg	1	7/7/2003 9:11:00 PM
Aroclor 1248	U	80		µg/Kg	1	7/7/2003 9:11:00 PM
Aroclor 1254	U	80		µg/Kg	1	7/7/2003 9:11:00 PM
Aroclor 1260	60	80	J	µg/Kg	1	7/7/2003 9:11:00 PM

Qualifiers:

ND - Not Detected at the Reporting Limit

J - Analyte detected below quantitation limits

B - Analyte detected in the associated Method Blank

* - Value exceeds Maximum Contaminant Level

S - Spike Recovery outside accepted recovery limits

R - RPD outside accepted recovery limits

E - Value above quantitation range

American Analytical Laboratories, Inc.

Date: *28-Jul-03*

CLIENT:	AKRF, Inc	**Client Sample ID:**	B6 (6'-7')
Lab Order:	0306116	**Tag Number:**	
Project:	Greenpoint Lumber Yard Brooklyn, NY	**Collection Date:**	6/25/2003
Lab ID:	0306116-11B	**Matrix:**	SOIL

Analyses	Result	Limit	Qual	Units	DF	Date Analyzed
PCB'S AS AROCLORS SW-846 8082		**SW8082A**		**(SW3550)**		Analyst: **KB**
Aroclor 1016	U	80		µg/Kg	1	7/7/2003 10:17:00 PM
Aroclor 1221	U	80		µg/Kg	1	7/7/2003 10:17:00 PM
Aroclor 1232	U	80		µg/Kg	1	7/7/2003 10:17:00 PM
Aroclor 1242	U	80		µg/Kg	1	7/7/2003 10:17:00 PM
Aroclor 1248	U	80		µg/Kg	1	7/7/2003 10:17:00 PM
Aroclor 1254	U	80		µg/Kg	1	7/7/2003 10:17:00 PM
Aroclor 1260	U	80		µg/Kg	1	7/7/2003 10:17:00 PM

Qualifiers:

ND - Not Detected at the Reporting Limit

J - Analyte detected below quantitation limits

B - Analyte detected in the associated Method Blank

* - Value exceeds Maximum Contaminant Level

S - Spike Recovery outside accepted recovery limits

R - RPD outside accepted recovery limits

E - Value above quantitation range

American Analytical Laboratories, Inc.

Date: *28-Jul-03*

CLIENT:	AKRF, Inc	**Client Sample ID:**	MW6 (0.5-2')
Lab Order:	0306116	**Tag Number:**	
Project:	Greenpoint Lumber Yard Brooklyn, NY	**Collection Date:**	6/25/2003
Lab ID:	0306116-12B	**Matrix:**	SOIL

Analyses	Result	Limit	Qual	Units	DF	Date Analyzed
PCB'S AS AROCLORS SW-846 8082		**SW8082A**		**(SW3550)**		Analyst: **KB**
Aroclor 1016	U	80		µg/Kg	1	7/9/2003 12:51:00 AM
Aroclor 1221	U	80		µg/Kg	1	7/9/2003 12:51:00 AM
Aroclor 1232	U	80		µg/Kg	1	7/9/2003 12:51:00 AM
Aroclor 1242	U	80		µg/Kg	1	7/9/2003 12:51:00 AM
Aroclor 1248	U	80		µg/Kg	1	7/9/2003 12:51:00 AM
Aroclor 1254	U	80		µg/Kg	1	7/9/2003 12:51:00 AM
Aroclor 1260	U	80		µg/Kg	1	7/9/2003 12:51:00 AM

Qualifiers:

ND - Not Detected at the Reporting Limit

J - Analyte detected below quantitation limits

B - Analyte detected in the associated Method Blank

* - Value exceeds Maximum Contaminant Level

S - Spike Recovery outside accepted recovery limits

R - RPD outside accepted recovery limits

E - Value above quantitation range

American Analytical Laboratories, Inc.

Date: *28-Jul-03*

CLIENT:	AKRF, Inc	**Client Sample ID:**	MW6 (6'-7')
Lab Order:	0306116	**Tag Number:**	
Project:	Greenpoint Lumber Yard Brooklyn, NY	**Collection Date:**	6/25/2003
Lab ID:	0306116-13B	**Matrix:**	SOIL

Analyses	Result	Limit	Qual	Units	DF	Date Analyzed
PCB'S AS AROCLORS SW-846 8082		**SW8082A**		**(SW3550)**		Analyst: **KB**
Aroclor 1016	U	80		µg/Kg	1	7/7/2003 11:00:00 PM
Aroclor 1221	U	80		µg/Kg	1	7/7/2003 11:00:00 PM
Aroclor 1232	U	80		µg/Kg	1	7/7/2003 11:00:00 PM
Aroclor 1242	U	80		µg/Kg	1	7/7/2003 11:00:00 PM
Aroclor 1248	U	80		µg/Kg	1	7/7/2003 11:00:00 PM
Aroclor 1254	U	80		µg/Kg	1	7/7/2003 11:00:00 PM
Aroclor 1260	U	80		µg/Kg	1	7/7/2003 11:00:00 PM

Qualifiers:

ND - Not Detected at the Reporting Limit

J - Analyte detected below quantitation limits

B - Analyte detected in the associated Method Blank

* - Value exceeds Maximum Contaminant Level

S - Spike Recovery outside accepted recovery limits

R - RPD outside accepted recovery limits

E - Value above quantitation range

American Analytical Laboratories, Inc.

Date: *28-Jul-03*

CLIENT:	AKRF, Inc	**Client Sample ID:**	MW8 (2'-4')
Lab Order:	0306116	**Tag Number:**	
Project:	Greenpoint Lumber Yard Brooklyn, NY	**Collection Date:**	6/25/2003
Lab ID:	0306116-14B	**Matrix:**	SOIL

Analyses	Result	Limit	Qual	Units	DF	Date Analyzed
PCB'S AS AROCLORS SW-846 8082		**SW8082A**		**(SW3550)**		Analyst: **KB**
Aroclor 1016	U	80		µg/Kg	1	7/7/2003 11:43:00 PM
Aroclor 1221	U	80		µg/Kg	1	7/7/2003 11:43:00 PM
Aroclor 1232	U	80		µg/Kg	1	7/7/2003 11:43:00 PM
Aroclor 1242	U	80		µg/Kg	1	7/7/2003 11:43:00 PM
Aroclor 1248	U	80		µg/Kg	1	7/7/2003 11:43:00 PM
Aroclor 1254	U	80		µg/Kg	1	7/7/2003 11:43:00 PM
Aroclor 1260	40	80	J	µg/Kg	1	7/7/2003 11:43:00 PM

Qualifiers:

ND - Not Detected at the Reporting Limit

J - Analyte detected below quantitation limits

B - Analyte detected in the associated Method Blank

* - Value exceeds Maximum Contaminant Level

S - Spike Recovery outside accepted recovery limits

R - RPD outside accepted recovery limits

E - Value above quantitation range

American Analytical Laboratories, Inc.

Date: *28-Jul-03*

CLIENT:	AKRF, Inc	**Client Sample ID:**	MW8 (5'-6.5')
Lab Order:	0306116	**Tag Number:**	
Project:	Greenpoint Lumber Yard Brooklyn, NY	**Collection Date:**	6/25/2003
Lab ID:	0306116-15B	**Matrix:**	SOIL

Analyses	Result	Limit	Qual	Units	DF	Date Analyzed
PCB'S AS AROCLORS SW-846 8082		**SW8082A**		**(SW3550)**		Analyst: **KB**
Aroclor 1016	U	80		µg/Kg	1	7/9/2003 1:34:00 AM
Aroclor 1221	U	80		µg/Kg	1	7/9/2003 1:34:00 AM
Aroclor 1232	U	80		µg/Kg	1	7/9/2003 1:34:00 AM
Aroclor 1242	U	80		µg/Kg	1	7/9/2003 1:34:00 AM
Aroclor 1248	U	80		µg/Kg	1	7/9/2003 1:34:00 AM
Aroclor 1254	U	80		µg/Kg	1	7/9/2003 1:34:00 AM
Aroclor 1260	U	80		µg/Kg	1	7/9/2003 1:34:00 AM

Qualifiers:

ND - Not Detected at the Reporting Limit

J - Analyte detected below quantitation limits

B - Analyte detected in the associated Method Blank

* - Value exceeds Maximum Contaminant Level

S - Spike Recovery outside accepted recovery limits

R - RPD outside accepted recovery limits

E - Value above quantitation range

American Analytical Laboratories, Inc.

Date: *28-Jul-03*

CLIENT:	AKRF, Inc	**Client Sample ID:**	B9 (14"-2.5')
Lab Order:	0306116	**Tag Number:**	
Project:	Greenpoint Lumber Yard Brooklyn, NY	**Collection Date:**	6/25/2003
Lab ID:	0306116-16B	**Matrix:**	SOIL

Analyses	Result	Limit	Qual	Units	DF	Date Analyzed
PCB'S AS AROCLORS SW-846 8082		**SW8082A**		**(SW3550)**		Analyst: **KB**
Aroclor 1016	U	80		µg/Kg	1	7/9/2003 2:40:00 AM
Aroclor 1221	U	80		µg/Kg	1	7/9/2003 2:40:00 AM
Aroclor 1232	U	80		µg/Kg	1	7/9/2003 2:40:00 AM
Aroclor 1242	U	80		µg/Kg	1	7/9/2003 2:40:00 AM
Aroclor 1248	U	80		µg/Kg	1	7/9/2003 2:40:00 AM
Aroclor 1254	130	80		µg/Kg	1	7/9/2003 2:40:00 AM
Aroclor 1260	100	80		µg/Kg	1	7/9/2003 2:40:00 AM

Qualifiers:

ND - Not Detected at the Reporting Limit

J - Analyte detected below quantitation limits

B - Analyte detected in the associated Method Blank

* - Value exceeds Maximum Contaminant Level

S - Spike Recovery outside accepted recovery limits

R - RPD outside accepted recovery limits

E - Value above quantitation range

American Analytical Laboratories, Inc.

Date: *28-Jul-03*

CLIENT:	AKRF, Inc	**Client Sample ID:**	B9 (5'-6')
Lab Order:	0306116	**Tag Number:**	
Project:	Greenpoint Lumber Yard Brooklyn, NY	**Collection Date:**	6/25/2003
Lab ID:	0306116-17B	**Matrix:**	SOIL

Analyses	Result	Limit	Qual	Units	DF	Date Analyzed
PCB'S AS AROCLORS SW-846 8082		**SW8082A**		**(SW3550)**		Analyst: **KB**
Aroclor 1016	U	80		µg/Kg	1	7/9/2003 4:06:00 AM
Aroclor 1221	U	80		µg/Kg	1	7/9/2003 4:06:00 AM
Aroclor 1232	U	80		µg/Kg	1	7/9/2003 4:06:00 AM
Aroclor 1242	U	80		µg/Kg	1	7/9/2003 4:06:00 AM
Aroclor 1248	U	80		µg/Kg	1	7/9/2003 4:06:00 AM
Aroclor 1254	120	80		µg/Kg	1	7/9/2003 4:06:00 AM
Aroclor 1260	80	80	J	µg/Kg	1	7/9/2003 4:06:00 AM

Qualifiers:

ND - Not Detected at the Reporting Limit

J - Analyte detected below quantitation limits

B - Analyte detected in the associated Method Blank

* - Value exceeds Maximum Contaminant Level

S - Spike Recovery outside accepted recovery limits

R - RPD outside accepted recovery limits

E - Value above quantitation range

American Analytical Laboratories, Inc.

Date: *28-Jul-03*

CLIENT:	AKRF, Inc	**Client Sample ID:**	B8 (0.5-2")
Lab Order:	0306116	**Tag Number:**	
Project:	Greenpoint Lumber Yard Brooklyn, NY	**Collection Date:**	6/25/2003
Lab ID:	0306116-18B	**Matrix:**	SOIL

Analyses	Result	Limit	Qual	Units	DF	Date Analyzed
PCB'S AS AROCLORS SW-846 8082		**SW8082A**		**(SW3550)**		Analyst: **KB**
Aroclor 1016	U	80		µg/Kg	1	7/9/2003 4:49:00 AM
Aroclor 1221	U	80		µg/Kg	1	7/9/2003 4:49:00 AM
Aroclor 1232	U	80		µg/Kg	1	7/9/2003 4:49:00 AM
Aroclor 1242	U	80		µg/Kg	1	7/9/2003 4:49:00 AM
Aroclor 1248	U	80		µg/Kg	1	7/9/2003 4:49:00 AM
Aroclor 1254	U	80		µg/Kg	1	7/9/2003 4:49:00 AM
Aroclor 1260	U	80		µg/Kg	1	7/9/2003 4:49:00 AM

Qualifiers:

ND - Not Detected at the Reporting Limit

J - Analyte detected below quantitation limits

B - Analyte detected in the associated Method Blank

* - Value exceeds Maximum Contaminant Level

S - Spike Recovery outside accepted recovery limits

R - RPD outside accepted recovery limits

E - Value above quantitation range

American Analytical Laboratories, Inc.

Date: *28-Jul-03*

CLIENT:	AKRF, Inc	**Client Sample ID:**	B8 (8-10')
Lab Order:	0306116	**Tag Number:**	
Project:	Greenpoint Lumber Yard Brooklyn, NY	**Collection Date:**	6/25/2003
Lab ID:	0306116-19B	**Matrix:**	SOIL

Analyses	Result	Limit	Qual	Units	DF	Date Analyzed
PCB'S AS AROCLORS SW-846 8082		**SW8082A**		**(SW3550)**		Analyst: **KB**
Aroclor 1016	U	80		µg/Kg	1	7/9/2003 5:54:00 AM
Aroclor 1221	U	80		µg/Kg	1	7/9/2003 5:54:00 AM
Aroclor 1232	U	80		µg/Kg	1	7/9/2003 5:54:00 AM
Aroclor 1242	U	80		µg/Kg	1	7/9/2003 5:54:00 AM
Aroclor 1248	U	80		µg/Kg	1	7/9/2003 5:54:00 AM
Aroclor 1254	U	80		µg/Kg	1	7/9/2003 5:54:00 AM
Aroclor 1260	60	80	J	µg/Kg	1	7/9/2003 5:54:00 AM

Qualifiers:

ND - Not Detected at the Reporting Limit

J - Analyte detected below quantitation limits

B - Analyte detected in the associated Method Blank

* - Value exceeds Maximum Contaminant Level

S - Spike Recovery outside accepted recovery limits

R - RPD outside accepted recovery limits

E - Value above quantitation range

American Analytical Laboratories, Inc.

Date: *28-Jul-03*

CLIENT:	AKRF, Inc	**Client Sample ID:**	MW10 (0.5-2')
Lab Order:	0306116	**Tag Number:**	
Project:	Greenpoint Lumber Yard Brooklyn, NY	**Collection Date:**	6/25/2003
Lab ID:	0306116-20B	**Matrix:**	SOIL

Analyses	Result	Limit	Qual	Units	DF	Date Analyzed
PCB'S AS AROCLORS SW-846 8082		**SW8082A**		**(SW3550)**		Analyst: **KB**
Aroclor 1016	U	80		µg/Kg	1	7/9/2003 6:38:00 AM
Aroclor 1221	U	80		µg/Kg	1	7/9/2003 6:38:00 AM
Aroclor 1232	U	80		µg/Kg	1	7/9/2003 6:38:00 AM
Aroclor 1242	U	80		µg/Kg	1	7/9/2003 6:38:00 AM
Aroclor 1248	U	80		µg/Kg	1	7/9/2003 6:38:00 AM
Aroclor 1254	U	80		µg/Kg	1	7/9/2003 6:38:00 AM
Aroclor 1260	40	80	J	µg/Kg	1	7/9/2003 6:38:00 AM

Qualifiers:

ND - Not Detected at the Reporting Limit

J - Analyte detected below quantitation limits

B - Analyte detected in the associated Method Blank

* - Value exceeds Maximum Contaminant Level

S - Spike Recovery outside accepted recovery limits

R - RPD outside accepted recovery limits

E - Value above quantitation range

INORGANIC DATA

RESULTS - INORGANIC ANALYSIS DATA SHEET

American Analytical Laboratories, Inc.

Date: *28-Jul-03*

CLIENT:	AKRF, Inc	**Client Sample ID:**	B12 (0.5-2')
Lab Order:	0306116	**Tag Number:**	
Project:	Greenpoint Lumber Yard Brooklyn, NY	**Collection Date:**	6/25/2003
Lab ID:	0306116-01B	**Matrix:**	SOIL

Analyses	Result	Limit	Qual	Units	DF	Date Analyzed
MERCURY SW-846 7471		**SW7471B**				Analyst: **JP**
Mercury	0.090	0.0500		mg/Kg	1	7/2/2003
TARGET ANALYTE LIST		**SW6010B**		**(SW3050A)**		Analyst: **JP**
Aluminum	2700	0.382		mg/Kg	1	7/3/2003 10:04:21 AM
Antimony	1.60	0.477		mg/Kg	1	7/3/2003 10:04:21 AM
Arsenic	9.29	0.477		mg/Kg	1	7/3/2003 10:04:21 AM
Barium	125	0.382		mg/Kg	1	7/3/2003 10:04:21 AM
Beryllium	U	0.382		mg/Kg	1	7/3/2003 10:04:21 AM
Cadmium	1.56	0.191		mg/Kg	1	7/3/2003 10:04:21 AM
Calcium	14500	0.382		mg/Kg	1	7/3/2003 10:04:21 AM
Chromium	12.1	0.382		mg/Kg	1	7/3/2003 10:04:21 AM
Cobalt	6.95	0.382		mg/Kg	1	7/3/2003 10:04:21 AM
Copper	100	0.382		mg/Kg	1	7/3/2003 10:04:21 AM
Iron	5800	0.382		mg/Kg	1	7/3/2003 10:04:21 AM
Lead	635	0.286		mg/Kg	1	7/3/2003 10:04:21 AM
Magnesium	451	0.382		mg/Kg	1	7/3/2003 10:04:21 AM
Manganese	198	0.382		mg/Kg	1	7/3/2003 10:04:21 AM
Nickel	12.7	0.382		mg/Kg	1	7/3/2003 10:04:21 AM
Potassium	686	1.34		mg/Kg	1	7/3/2003 10:04:21 AM
Selenium	0.34	0.477	J	mg/Kg	1	7/3/2003 10:04:21 AM
Silver	U	0.382		mg/Kg	1	7/3/2003 10:04:21 AM
Sodium	337	0.573		mg/Kg	1	7/3/2003 10:04:21 AM
Thallium	0.914	0.286		mg/Kg	1	7/3/2003 10:04:21 AM
Vanadium	15.6	0.382		mg/Kg	1	7/3/2003 10:04:21 AM
Zinc	238	0.382		mg/Kg	1	7/3/2003 10:04:21 AM

Qualifiers:

ND - Not Detected at the Reporting Limit

J - Analyte detected below quantitation limits

B - Analyte detected in the associated Method Blank

* - Value exceeds Maximum Contaminant Level

S - Spike Recovery outside accepted recovery limits

R - RPD outside accepted recovery limits

E - Value above quantitation range

American Analytical Laboratories, Inc.

Date: *28-Jul-03*

CLIENT:	AKRF, Inc	**Client Sample ID:**	B12 (5'-7')
Lab Order:	0306116	**Tag Number:**	
Project:	Greenpoint Lumber Yard Brooklyn, NY	**Collection Date:**	6/25/2003
Lab ID:	0306116-02B	**Matrix:**	SOIL

Analyses	Result	Limit	Qual	Units	DF	Date Analyzed
MERCURY SW-846 7471		**SW7471B**				Analyst: **JP**
Mercury	U	0.0500		mg/Kg	1	7/2/2003
TARGET ANALYTE LIST		**SW6010B**		**(SW3050A)**		Analyst: **JP**
Aluminum	3730	0.356		mg/Kg	1	7/3/2003 10:07:36 AM
Antimony	U	0.445		mg/Kg	1	7/3/2003 10:07:36 AM
Arsenic	3.57	0.445		mg/Kg	1	7/3/2003 10:07:36 AM
Barium	34.9	0.356		mg/Kg	1	7/3/2003 10:07:36 AM
Beryllium	U	0.356		mg/Kg	1	7/3/2003 10:07:36 AM
Cadmium	0.288	0.178		mg/Kg	1	7/3/2003 10:07:36 AM
Calcium	1050	0.356		mg/Kg	1	7/3/2003 10:07:36 AM
Chromium	9.48	0.356		mg/Kg	1	7/3/2003 10:07:36 AM
Cobalt	8.52	0.356		mg/Kg	1	7/3/2003 10:07:36 AM
Copper	13.8	0.356		mg/Kg	1	7/3/2003 10:07:36 AM
Iron	5720	0.356		mg/Kg	1	7/3/2003 10:07:36 AM
Lead	35.2	0.267		mg/Kg	1	7/3/2003 10:07:36 AM
Magnesium	414	0.356		mg/Kg	1	7/3/2003 10:07:36 AM
Manganese	235	0.356		mg/Kg	1	7/3/2003 10:07:36 AM
Nickel	9.80	0.356		mg/Kg	1	7/3/2003 10:07:36 AM
Potassium	752	1.25		mg/Kg	1	7/3/2003 10:07:36 AM
Selenium	U	0.445		mg/Kg	1	7/3/2003 10:07:36 AM
Silver	U	0.356		mg/Kg	1	7/3/2003 10:07:36 AM
Sodium	108	0.534		mg/Kg	1	7/3/2003 10:07:36 AM
Thallium	1.25	0.267		mg/Kg	1	7/3/2003 10:07:36 AM
Vanadium	10.4	0.356		mg/Kg	1	7/3/2003 10:07:36 AM
Zinc	50.5	0.356		mg/Kg	1	7/3/2003 10:07:36 AM

Qualifiers:

ND - Not Detected at the Reporting Limit

J - Analyte detected below quantitation limits

B - Analyte detected in the associated Method Blank

* - Value exceeds Maximum Contaminant Level

S - Spike Recovery outside accepted recovery limits

R - RPD outside accepted recovery limits

E - Value above quantitation range

American Analytical Laboratories, Inc.

Date: *28-Jul-03*

CLIENT:	AKRF, Inc	**Client Sample ID:**	B13 (0.5'-2')
Lab Order:	0306116	**Tag Number:**	
Project:	Greenpoint Lumber Yard Brooklyn, NY	**Collection Date:**	6/25/2003
Lab ID:	0306116-03B	**Matrix:**	SOIL

Analyses	Result	Limit	Qual	Units	DF	Date Analyzed
MERCURY SW-846 7471		**SW7471B**				Analyst: **JP**
Mercury	U	0.0500		mg/Kg	1	7/2/2003
TARGET ANALYTE LIST		**SW6010B**		**(SW3050A)**		Analyst: **JP**
Aluminum	3930	0.368		mg/Kg	1	7/3/2003 10:10:15 AM
Antimony	U	0.460		mg/Kg	1	7/3/2003 10:10:15 AM
Arsenic	4.48	0.460		mg/Kg	1	7/3/2003 10:10:15 AM
Barium	73.4	0.368		mg/Kg	1	7/3/2003 10:10:15 AM
Beryllium	U	0.368		mg/Kg	1	7/3/2003 10:10:15 AM
Cadmium	0.091	0.184	J	mg/Kg	1	7/3/2003 10:10:15 AM
Calcium	17300	0.368		mg/Kg	1	7/3/2003 10:10:15 AM
Chromium	12.7	0.368		mg/Kg	1	7/3/2003 10:10:15 AM
Cobalt	6.47	0.368		mg/Kg	1	7/3/2003 10:10:15 AM
Copper	32.1	0.368		mg/Kg	1	7/3/2003 10:10:15 AM
Iron	5380	0.368		mg/Kg	1	7/3/2003 10:10:15 AM
Lead	153	0.276		mg/Kg	1	7/3/2003 10:10:15 AM
Magnesium	431	0.368		mg/Kg	1	7/3/2003 10:10:15 AM
Manganese	97.6	0.368		mg/Kg	1	7/3/2003 10:10:15 AM
Nickel	8.27	0.368		mg/Kg	1	7/3/2003 10:10:15 AM
Potassium	834	1.29		mg/Kg	1	7/3/2003 10:10:15 AM
Selenium	U	0.460		mg/Kg	1	7/3/2003 10:10:15 AM
Silver	U	0.368		mg/Kg	1	7/3/2003 10:10:15 AM
Sodium	266	0.551		mg/Kg	1	7/3/2003 10:10:15 AM
Thallium	1.51	0.276		mg/Kg	1	7/3/2003 10:10:15 AM
Vanadium	13.3	0.368		mg/Kg	1	7/3/2003 10:10:15 AM
Zinc	120	0.368		mg/Kg	1	7/3/2003 10:10:15 AM

Qualifiers:

ND - Not Detected at the Reporting Limit

J - Analyte detected below quantitation limits

B - Analyte detected in the associated Method Blank

* - Value exceeds Maximum Contaminant Level

S - Spike Recovery outside accepted recovery limits

R - RPD outside accepted recovery limits

E - Value above quantitation range

American Analytical Laboratories, Inc.

Date: *28-Jul-03*

CLIENT:	AKRF, Inc	**Client Sample ID:**	B13 (5'-7')
Lab Order:	0306116	**Tag Number:**	
Project:	Greenpoint Lumber Yard Brooklyn, NY	**Collection Date:**	6/25/2003
Lab ID:	0306116-04B	**Matrix:**	SOIL

Analyses	Result	Limit	Qual	Units	DF	Date Analyzed
MERCURY SW-846 7471		**SW7471B**				Analyst: **JP**
Mercury	0.633	0.0500		mg/Kg	1	7/2/2003
TARGET ANALYTE LIST		**SW6010B**		**(SW3050A)**		Analyst: **JP**
Aluminum	3180	0.392		mg/Kg	1	7/3/2003 10:12:46 AM
Antimony	0.623	0.490		mg/Kg	1	7/3/2003 10:12:46 AM
Arsenic	11.6	0.490		mg/Kg	1	7/3/2003 10:12:46 AM
Barium	46.4	0.392		mg/Kg	1	7/3/2003 10:12:46 AM
Beryllium	U	0.392		mg/Kg	1	7/3/2003 10:12:46 AM
Cadmium	U	0.196		mg/Kg	1	7/3/2003 10:12:46 AM
Calcium	4930	0.392		mg/Kg	1	7/3/2003 10:12:46 AM
Chromium	6.99	0.392		mg/Kg	1	7/3/2003 10:12:46 AM
Cobalt	6.45	0.392		mg/Kg	1	7/3/2003 10:12:46 AM
Copper	19.7	0.392		mg/Kg	1	7/3/2003 10:12:46 AM
Iron	6360	0.392		mg/Kg	1	7/3/2003 10:12:46 AM
Lead	187	0.294		mg/Kg	1	7/3/2003 10:12:46 AM
Magnesium	434	0.392		mg/Kg	1	7/3/2003 10:12:46 AM
Manganese	57.1	0.392		mg/Kg	1	7/3/2003 10:12:46 AM
Nickel	14.3	0.392		mg/Kg	1	7/3/2003 10:12:46 AM
Potassium	966	1.37		mg/Kg	1	7/3/2003 10:12:46 AM
Selenium	0.32	0.490	J	mg/Kg	1	7/3/2003 10:12:46 AM
Silver	0.474	0.392		mg/Kg	1	7/3/2003 10:12:46 AM
Sodium	291	0.588		mg/Kg	1	7/3/2003 10:12:46 AM
Thallium	0.697	0.294		mg/Kg	1	7/3/2003 10:12:46 AM
Vanadium	11.0	0.392		mg/Kg	1	7/3/2003 10:12:46 AM
Zinc	25.5	0.392		mg/Kg	1	7/3/2003 10:12:46 AM

Qualifiers:

ND - Not Detected at the Reporting Limit

J - Analyte detected below quantitation limits

B - Analyte detected in the associated Method Blank

* - Value exceeds Maximum Contaminant Level

S - Spike Recovery outside accepted recovery limits

R - RPD outside accepted recovery limits

E - Value above quantitation range

American Analytical Laboratories, Inc.

Date: *28-Jul-03*

CLIENT:	AKRF, Inc	**Client Sample ID:**	MW-12 (0.5'-2')
Lab Order:	0306116	**Tag Number:**	
Project:	Greenpoint Lumber Yard Brooklyn, NY	**Collection Date:**	6/25/2003
Lab ID:	0306116-05B	**Matrix:**	SOIL

Analyses	Result	Limit	Qual	Units	DF	Date Analyzed
MERCURY SW-846 7471		**SW7471B**				Analyst: **JP**
Mercury	0.052	0.0500		mg/Kg	1	7/2/2003
TARGET ANALYTE LIST		**SW6010B**		**(SW3050A)**		Analyst: **JP**
Aluminum	4190	0.339		mg/Kg	1	7/3/2003 10:15:50 AM
Antimony	U	0.424		mg/Kg	1	7/3/2003 10:15:50 AM
Arsenic	2.37	0.424		mg/Kg	1	7/3/2003 10:15:50 AM
Barium	34.6	0.339		mg/Kg	1	7/3/2003 10:15:50 AM
Beryllium	U	0.339		mg/Kg	1	7/3/2003 10:15:50 AM
Cadmium	0.196	0.169		mg/Kg	1	7/3/2003 10:15:50 AM
Calcium	3470	0.339		mg/Kg	1	7/3/2003 10:15:50 AM
Chromium	11.6	0.339		mg/Kg	1	7/3/2003 10:15:50 AM
Cobalt	8.50	0.339		mg/Kg	1	7/3/2003 10:15:50 AM
Copper	67.7	0.339		mg/Kg	1	7/3/2003 10:15:50 AM
Iron	5490	0.339		mg/Kg	1	7/3/2003 10:15:50 AM
Lead	35.3	0.254		mg/Kg	1	7/3/2003 10:15:50 AM
Magnesium	412	0.339		mg/Kg	1	7/3/2003 10:15:50 AM
Manganese	210	0.339		mg/Kg	1	7/3/2003 10:15:50 AM
Nickel	15.5	0.339		mg/Kg	1	7/3/2003 10:15:50 AM
Potassium	1010	1.19		mg/Kg	1	7/3/2003 10:15:50 AM
Selenium	U	0.424		mg/Kg	1	7/3/2003 10:15:50 AM
Silver	U	0.339		mg/Kg	1	7/3/2003 10:15:50 AM
Sodium	135	0.508		mg/Kg	1	7/3/2003 10:15:50 AM
Thallium	1.46	0.254		mg/Kg	1	7/3/2003 10:15:50 AM
Vanadium	17.1	0.339		mg/Kg	1	7/3/2003 10:15:50 AM
Zinc	75.1	0.339		mg/Kg	1	7/3/2003 10:15:50 AM

Qualifiers:

ND - Not Detected at the Reporting Limit

J - Analyte detected below quantitation limits

B - Analyte detected in the associated Method Blank

* - Value exceeds Maximum Contaminant Level

S - Spike Recovery outside accepted recovery limits

R - RPD outside accepted recovery limits

E - Value above quantitation range

American Analytical Laboratories, Inc.

Date: *28-Jul-03*

CLIENT:	AKRF, Inc	**Client Sample ID:**	MW12 (4.5'-5.5')
Lab Order:	0306116	**Tag Number:**	
Project:	Greenpoint Lumber Yard Brooklyn, NY	**Collection Date:**	6/25/2003
Lab ID:	0306116-06B	**Matrix:**	SOIL

Analyses	Result	Limit	Qual	Units	DF	Date Analyzed
MERCURY SW-846 7471		**SW7471B**				Analyst: **JP**
Mercury	U	0.0500		mg/Kg	1	7/2/2003
TARGET ANALYTE LIST		**SW6010B**		**(SW3050A)**		Analyst: **JP**
Aluminum	3300	0.366		mg/Kg	1	7/3/2003 10:18:44 AM
Antimony	U	0.458		mg/Kg	1	7/3/2003 10:18:44 AM
Arsenic	1.79	0.458		mg/Kg	1	7/3/2003 10:18:44 AM
Barium	37.4	0.366		mg/Kg	1	7/3/2003 10:18:44 AM
Beryllium	U	0.366		mg/Kg	1	7/3/2003 10:18:44 AM
Cadmium	U	0.183		mg/Kg	1	7/3/2003 10:18:44 AM
Calcium	2110	0.366		mg/Kg	1	7/3/2003 10:18:44 AM
Chromium	11.6	0.366		mg/Kg	1	7/3/2003 10:18:44 AM
Cobalt	6.76	0.366		mg/Kg	1	7/3/2003 10:18:44 AM
Copper	16.5	0.366		mg/Kg	1	7/3/2003 10:18:44 AM
Iron	4580	0.366		mg/Kg	1	7/3/2003 10:18:44 AM
Lead	27.2	0.275		mg/Kg	1	7/3/2003 10:18:44 AM
Magnesium	445	0.366		mg/Kg	1	7/3/2003 10:18:44 AM
Manganese	174	0.366		mg/Kg	1	7/3/2003 10:18:44 AM
Nickel	23.3	0.366		mg/Kg	1	7/3/2003 10:18:44 AM
Potassium	1020	1.28		mg/Kg	1	7/3/2003 10:18:44 AM
Selenium	U	0.458		mg/Kg	1	7/3/2003 10:18:44 AM
Silver	0.26	0.366	J	mg/Kg	1	7/3/2003 10:18:44 AM
Sodium	143	0.549		mg/Kg	1	7/3/2003 10:18:44 AM
Thallium	1.83	0.275		mg/Kg	1	7/3/2003 10:18:44 AM
Vanadium	14.0	0.366		mg/Kg	1	7/3/2003 10:18:44 AM
Zinc	39.9	0.366		mg/Kg	1	7/3/2003 10:18:44 AM

Qualifiers:

ND - Not Detected at the Reporting Limit

J - Analyte detected below quantitation limits

B - Analyte detected in the associated Method Blank

* - Value exceeds Maximum Contaminant Level

S - Spike Recovery outside accepted recovery limits

R - RPD outside accepted recovery limits

E - Value above quantitation range

American Analytical Laboratories, Inc.

Date: *28-Jul-03*

CLIENT:	AKRF, Inc	**Client Sample ID:**	MW13 (0.5'-2')
Lab Order:	0306116	**Tag Number:**	
Project:	Greenpoint Lumber Yard Brooklyn, NY	**Collection Date:**	6/25/2003
Lab ID:	0306116-07B	**Matrix:**	SOIL

Analyses	Result	Limit	Qual	Units	DF	Date Analyzed
MERCURY SW-846 7471		**SW7471B**				Analyst: **JP**
Mercury	0.100	0.0500		mg/Kg	1	7/2/2003
TARGET ANALYTE LIST		**SW6010B**		**(SW3050A)**		Analyst: **JP**
Aluminum	4050	0.357		mg/Kg	1	7/3/2003 10:21:31 AM
Antimony	U	0.446		mg/Kg	1	7/3/2003 10:21:31 AM
Arsenic	3.62	0.446		mg/Kg	1	7/3/2003 10:21:31 AM
Barium	62.1	0.357		mg/Kg	1	7/3/2003 10:21:31 AM
Beryllium	U	0.357		mg/Kg	1	7/3/2003 10:21:31 AM
Cadmium	0.10	0.179	J	mg/Kg	1	7/3/2003 10:21:31 AM
Calcium	19100	0.357		mg/Kg	1	7/3/2003 10:21:31 AM
Chromium	9.48	0.357		mg/Kg	1	7/3/2003 10:21:31 AM
Cobalt	7.46	0.357		mg/Kg	1	7/3/2003 10:21:31 AM
Copper	32.2	0.357		mg/Kg	1	7/3/2003 10:21:31 AM
Iron	4940	0.357		mg/Kg	1	7/3/2003 10:21:31 AM
Lead	92.0	0.268		mg/Kg	1	7/3/2003 10:21:31 AM
Magnesium	421	0.357		mg/Kg	1	7/3/2003 10:21:31 AM
Manganese	191	0.357		mg/Kg	1	7/3/2003 10:21:31 AM
Nickel	8.14	0.357		mg/Kg	1	7/3/2003 10:21:31 AM
Potassium	1070	1.25		mg/Kg	1	7/3/2003 10:21:31 AM
Selenium	0.496	0.446		mg/Kg	1	7/3/2003 10:21:31 AM
Silver	U	0.357		mg/Kg	1	7/3/2003 10:21:31 AM
Sodium	129	0.536		mg/Kg	1	7/3/2003 10:21:31 AM
Thallium	1.84	0.268		mg/Kg	1	7/3/2003 10:21:31 AM
Vanadium	16.8	0.357		mg/Kg	1	7/3/2003 10:21:31 AM
Zinc	117	0.357		mg/Kg	1	7/3/2003 10:21:31 AM

Qualifiers:

ND - Not Detected at the Reporting Limit

J - Analyte detected below quantitation limits

B - Analyte detected in the associated Method Blank

* - Value exceeds Maximum Contaminant Level

S - Spike Recovery outside accepted recovery limits

R - RPD outside accepted recovery limits

E - Value above quantitation range

American Analytical Laboratories, Inc.

Date: *28-Jul-03*

CLIENT:	AKRF, Inc	**Client Sample ID:**	MW13 (5'-7')
Lab Order:	0306116	**Tag Number:**	
Project:	Greenpoint Lumber Yard Brooklyn, NY	**Collection Date:**	6/25/2003
Lab ID:	0306116-08B	**Matrix:**	SOIL

Analyses	Result	Limit	Qual	Units	DF	Date Analyzed
MERCURY SW-846 7471		**SW7471B**				Analyst: **JP**
Mercury	0.156	0.0500		mg/Kg	1	7/2/2003
TARGET ANALYTE LIST		**SW6010B**		**(SW3050A)**		Analyst: **JP**
Aluminum	4650	0.351		mg/Kg	1	7/3/2003 10:24:23 AM
Antimony	U	0.439		mg/Kg	1	7/3/2003 10:24:23 AM
Arsenic	3.62	0.439		mg/Kg	1	7/3/2003 10:24:23 AM
Barium	87.2	0.351		mg/Kg	1	7/3/2003 10:24:23 AM
Beryllium	U	0.351		mg/Kg	1	7/3/2003 10:24:23 AM
Cadmium	0.17	0.175	J	mg/Kg	1	7/3/2003 10:24:23 AM
Calcium	4270	0.351		mg/Kg	1	7/3/2003 10:24:23 AM
Chromium	12.5	0.351		mg/Kg	1	7/3/2003 10:24:23 AM
Cobalt	8.26	0.351		mg/Kg	1	7/3/2003 10:24:23 AM
Copper	28.6	0.351		mg/Kg	1	7/3/2003 10:24:23 AM
Iron	5780	0.351		mg/Kg	1	7/3/2003 10:24:23 AM
Lead	73.8	0.263		mg/Kg	1	7/3/2003 10:24:23 AM
Magnesium	406	0.351		mg/Kg	1	7/3/2003 10:24:23 AM
Manganese	217	0.351		mg/Kg	1	7/3/2003 10:24:23 AM
Nickel	10.6	0.351		mg/Kg	1	7/3/2003 10:24:23 AM
Potassium	1110	1.23		mg/Kg	1	7/3/2003 10:24:23 AM
Selenium	U	0.439		mg/Kg	1	7/3/2003 10:24:23 AM
Silver	U	0.351		mg/Kg	1	7/3/2003 10:24:23 AM
Sodium	165	0.526		mg/Kg	1	7/3/2003 10:24:23 AM
Thallium	2.15	0.263		mg/Kg	1	7/3/2003 10:24:23 AM
Vanadium	17.1	0.351		mg/Kg	1	7/3/2003 10:24:23 AM
Zinc	112	0.351		mg/Kg	1	7/3/2003 10:24:23 AM

Qualifiers:

ND - Not Detected at the Reporting Limit

J - Analyte detected below quantitation limits

B - Analyte detected in the associated Method Blank

* - Value exceeds Maximum Contaminant Level

S - Spike Recovery outside accepted recovery limits

R - RPD outside accepted recovery limits

E - Value above quantitation range

American Analytical Laboratories, Inc.

Date: *28-Jul-03*

CLIENT:	AKRF, Inc	**Client Sample ID:**	B7R2 (5.5'-6.0')
Lab Order:	0306116	**Tag Number:**	
Project:	Greenpoint Lumber Yard Brooklyn, NY	**Collection Date:**	6/25/2003
Lab ID:	0306116-09B	**Matrix:**	SOIL

Analyses	Result	Limit	Qual	Units	DF	Date Analyzed
MERCURY SW-846 7471		**SW7471B**				Analyst: **JP**
Mercury	U	0.0500		mg/Kg	1	7/2/2003
TARGET ANALYTE LIST		**SW6010B**		**(SW3050A)**		Analyst: **JP**
Aluminum	3670	0.379		mg/Kg	1	7/3/2003 10:36:56 AM
Antimony	2.63	0.473		mg/Kg	1	7/3/2003 10:36:56 AM
Arsenic	2.55	0.473		mg/Kg	1	7/3/2003 10:36:56 AM
Barium	28.4	0.379		mg/Kg	1	7/3/2003 10:36:56 AM
Beryllium	U	0.379		mg/Kg	1	7/3/2003 10:36:56 AM
Cadmium	U	0.189		mg/Kg	1	7/3/2003 10:36:56 AM
Calcium	21300	0.379		mg/Kg	1	7/3/2003 10:36:56 AM
Chromium	4.02	0.379		mg/Kg	1	7/3/2003 10:36:56 AM
Cobalt	4.51	0.379		mg/Kg	1	7/3/2003 10:36:56 AM
Copper	18.8	0.379		mg/Kg	1	7/3/2003 10:36:56 AM
Iron	4840	0.379		mg/Kg	1	7/3/2003 10:36:56 AM
Lead	58.5	0.284		mg/Kg	1	7/3/2003 10:36:56 AM
Magnesium	448	0.379		mg/Kg	1	7/3/2003 10:36:56 AM
Manganese	98.5	0.379		mg/Kg	1	7/3/2003 10:36:56 AM
Nickel	3.46	0.379		mg/Kg	1	7/3/2003 10:36:56 AM
Potassium	1240	1.33		mg/Kg	1	7/3/2003 10:36:56 AM
Selenium	0.46	0.473	J	mg/Kg	1	7/3/2003 10:36:56 AM
Silver	U	0.379		mg/Kg	1	7/3/2003 10:36:56 AM
Sodium	650	0.568		mg/Kg	1	7/3/2003 10:36:56 AM
Thallium	1.25	0.284		mg/Kg	1	7/3/2003 10:36:56 AM
Vanadium	6.38	0.379		mg/Kg	1	7/3/2003 10:36:56 AM
Zinc	32.1	0.379		mg/Kg	1	7/3/2003 10:36:56 AM

Qualifiers:

ND - Not Detected at the Reporting Limit

J - Analyte detected below quantitation limits

B - Analyte detected in the associated Method Blank

* - Value exceeds Maximum Contaminant Level

S - Spike Recovery outside accepted recovery limits

R - RPD outside accepted recovery limits

E - Value above quantitation range

American Analytical Laboratories, Inc.

Date: *28-Jul-03*

CLIENT:	AKRF, Inc	**Client Sample ID:**	B6 (0.5'-2')
Lab Order:	0306116	**Tag Number:**	
Project:	Greenpoint Lumber Yard Brooklyn, NY	**Collection Date:**	6/25/2003
Lab ID:	0306116-10B	**Matrix:**	SOIL

Analyses	Result	Limit	Qual	Units	DF	Date Analyzed
MERCURY SW-846 7471		**SW7471B**				Analyst: **JP**
Mercury	U	0.0500		mg/Kg	1	7/2/2003
TARGET ANALYTE LIST		**SW6010B**		**(SW3050A)**		Analyst: **JP**
Aluminum	2300	0.360		mg/Kg	1	7/3/2003 10:39:32 AM
Antimony	U	0.450		mg/Kg	1	7/3/2003 10:39:32 AM
Arsenic	5.10	0.450		mg/Kg	1	7/3/2003 10:39:32 AM
Barium	317	0.360		mg/Kg	1	7/3/2003 10:39:32 AM
Beryllium	U	0.360		mg/Kg	1	7/3/2003 10:39:32 AM
Cadmium	0.294	0.180		mg/Kg	1	7/3/2003 10:39:32 AM
Calcium	27400	0.360		mg/Kg	1	7/3/2003 10:39:32 AM
Chromium	8.44	0.360		mg/Kg	1	7/3/2003 10:39:32 AM
Cobalt	4.76	0.360		mg/Kg	1	7/3/2003 10:39:32 AM
Copper	150	0.360		mg/Kg	1	7/3/2003 10:39:32 AM
Iron	4320	0.360		mg/Kg	1	7/3/2003 10:39:32 AM
Lead	163	0.270		mg/Kg	1	7/3/2003 10:39:32 AM
Magnesium	327	0.360		mg/Kg	1	7/3/2003 10:39:32 AM
Manganese	87.3	0.360		mg/Kg	1	7/3/2003 10:39:32 AM
Nickel	4.94	0.360		mg/Kg	1	7/3/2003 10:39:32 AM
Potassium	565	1.26		mg/Kg	1	7/3/2003 10:39:32 AM
Selenium	0.549	0.450		mg/Kg	1	7/3/2003 10:39:32 AM
Silver	U	0.360		mg/Kg	1	7/3/2003 10:39:32 AM
Sodium	354	0.540		mg/Kg	1	7/3/2003 10:39:32 AM
Thallium	2.07	0.270		mg/Kg	1	7/3/2003 10:39:32 AM
Vanadium	9.10	0.360		mg/Kg	1	7/3/2003 10:39:32 AM
Zinc	84.5	0.360		mg/Kg	1	7/3/2003 10:39:32 AM

Qualifiers:

ND - Not Detected at the Reporting Limit

J - Analyte detected below quantitation limits

B - Analyte detected in the associated Method Blank

* - Value exceeds Maximum Contaminant Level

S - Spike Recovery outside accepted recovery limits

R - RPD outside accepted recovery limits

E - Value above quantitation range

American Analytical Laboratories, Inc.

Date: *28-Jul-03*

CLIENT:	AKRF, Inc	**Client Sample ID:**	B6 (6'-7')
Lab Order:	0306116	**Tag Number:**	
Project:	Greenpoint Lumber Yard Brooklyn, NY	**Collection Date:**	6/25/2003
Lab ID:	0306116-11B	**Matrix:**	SOIL

Analyses	Result	Limit	Qual	Units	DF	Date Analyzed
MERCURY SW-846 7471		**SW7471B**				Analyst: **JP**
Mercury	U	0.0500		mg/Kg	1	7/2/2003
TARGET ANALYTE LIST		**SW6010B**		**(SW3050A)**		Analyst: **JP**
Aluminum	4530	0.360		mg/Kg	1	7/3/2003 10:42:02 AM
Antimony	U	0.450		mg/Kg	1	7/3/2003 10:42:02 AM
Arsenic	1.93	0.450		mg/Kg	1	7/3/2003 10:42:02 AM
Barium	31.6	0.360		mg/Kg	1	7/3/2003 10:42:02 AM
Beryllium	U	0.360		mg/Kg	1	7/3/2003 10:42:02 AM
Cadmium	U	0.180		mg/Kg	1	7/3/2003 10:42:02 AM
Calcium	1970	0.360		mg/Kg	1	7/3/2003 10:42:02 AM
Chromium	11.4	0.360		mg/Kg	1	7/3/2003 10:42:02 AM
Cobalt	13.8	0.360		mg/Kg	1	7/3/2003 10:42:02 AM
Copper	12.0	0.360		mg/Kg	1	7/3/2003 10:42:02 AM
Iron	6880	0.360		mg/Kg	1	7/3/2003 10:42:02 AM
Lead	16.9	0.270		mg/Kg	1	7/3/2003 10:42:02 AM
Magnesium	367	0.360		mg/Kg	1	7/3/2003 10:42:02 AM
Manganese	383	0.360		mg/Kg	1	7/3/2003 10:42:02 AM
Nickel	8.36	0.360		mg/Kg	1	7/3/2003 10:42:02 AM
Potassium	817	1.26		mg/Kg	1	7/3/2003 10:42:02 AM
Selenium	U	0.450		mg/Kg	1	7/3/2003 10:42:02 AM
Silver	U	0.360		mg/Kg	1	7/3/2003 10:42:02 AM
Sodium	165	0.540		mg/Kg	1	7/3/2003 10:42:02 AM
Thallium	1.66	0.270		mg/Kg	1	7/3/2003 10:42:02 AM
Vanadium	17.7	0.360		mg/Kg	1	7/3/2003 10:42:02 AM
Zinc	34.3	0.360		mg/Kg	1	7/3/2003 10:42:02 AM

Qualifiers:

ND - Not Detected at the Reporting Limit

J - Analyte detected below quantitation limits

B - Analyte detected in the associated Method Blank

* - Value exceeds Maximum Contaminant Level

S - Spike Recovery outside accepted recovery limits

R - RPD outside accepted recovery limits

E - Value above quantitation range

American Analytical Laboratories, Inc.

Date: *28-Jul-03*

CLIENT:	AKRF, Inc	**Client Sample ID:**	MW6 (0.5-2')
Lab Order:	0306116	**Tag Number:**	
Project:	Greenpoint Lumber Yard Brooklyn, NY	**Collection Date:**	6/25/2003
Lab ID:	0306116-12B	**Matrix:**	SOIL

Analyses	Result	Limit	Qual	Units	DF	Date Analyzed
MERCURY SW-846 7471		**SW7471B**				Analyst: **JP**
Mercury	U	0.0500		mg/Kg	1	7/2/2003
TARGET ANALYTE LIST		**SW6010B**		**(SW3050A)**		Analyst: **JP**
Aluminum	3590	0.386		mg/Kg	1	7/3/2003 10:44:32 AM
Antimony	U	0.483		mg/Kg	1	7/3/2003 10:44:32 AM
Arsenic	5.08	0.483		mg/Kg	1	7/3/2003 10:44:32 AM
Barium	70.2	0.386		mg/Kg	1	7/3/2003 10:44:32 AM
Beryllium	U	0.386		mg/Kg	1	7/3/2003 10:44:32 AM
Cadmium	U	0.193		mg/Kg	1	7/3/2003 10:44:32 AM
Calcium	17400	0.386		mg/Kg	1	7/3/2003 10:44:32 AM
Chromium	157	0.386		mg/Kg	1	7/3/2003 10:44:32 AM
Cobalt	7.69	0.386		mg/Kg	1	7/3/2003 10:44:32 AM
Copper	57.1	0.386		mg/Kg	1	7/3/2003 10:44:32 AM
Iron	6040	0.386		mg/Kg	1	7/3/2003 10:44:32 AM
Lead	69.6	0.290		mg/Kg	1	7/3/2003 10:44:32 AM
Magnesium	423	0.386		mg/Kg	1	7/3/2003 10:44:32 AM
Manganese	149	0.386		mg/Kg	1	7/3/2003 10:44:32 AM
Nickel	26.1	0.386		mg/Kg	1	7/3/2003 10:44:32 AM
Potassium	690	1.35		mg/Kg	1	7/3/2003 10:44:32 AM
Selenium	U	0.483		mg/Kg	1	7/3/2003 10:44:32 AM
Silver	U	0.386		mg/Kg	1	7/3/2003 10:44:32 AM
Sodium	249	0.579		mg/Kg	1	7/3/2003 10:44:32 AM
Thallium	0.847	0.290		mg/Kg	1	7/3/2003 10:44:32 AM
Vanadium	20.8	0.386		mg/Kg	1	7/3/2003 10:44:32 AM
Zinc	41.7	0.386		mg/Kg	1	7/3/2003 10:44:32 AM

Qualifiers:

ND - Not Detected at the Reporting Limit

J - Analyte detected below quantitation limits

B - Analyte detected in the associated Method Blank

* - Value exceeds Maximum Contaminant Level

S - Spike Recovery outside accepted recovery limits

R - RPD outside accepted recovery limits

E - Value above quantitation range

American Analytical Laboratories, Inc.

Date: *28-Jul-03*

CLIENT:	AKRF, Inc	**Client Sample ID:**	MW6 (6'-7')
Lab Order:	0306116	**Tag Number:**	
Project:	Greenpoint Lumber Yard Brooklyn, NY	**Collection Date:**	6/25/2003
Lab ID:	0306116-13B	**Matrix:**	SOIL

Analyses	Result	Limit	Qual	Units	DF	Date Analyzed
MERCURY SW-846 7471		**SW7471B**				Analyst: **JP**
Mercury	U	0.0500		mg/Kg	1	7/2/2003
TARGET ANALYTE LIST		**SW6010B**		**(SW3050A)**		Analyst: **JP**
Aluminum	1860	0.383		mg/Kg	1	7/3/2003 10:47:09 AM
Antimony	U	0.479		mg/Kg	1	7/3/2003 10:47:09 AM
Arsenic	1.53	0.479		mg/Kg	1	7/3/2003 10:47:09 AM
Barium	30.0	0.383		mg/Kg	1	7/3/2003 10:47:09 AM
Beryllium	U	0.383		mg/Kg	1	7/3/2003 10:47:09 AM
Cadmium	U	0.192		mg/Kg	1	7/3/2003 10:47:09 AM
Calcium	716	0.383		mg/Kg	1	7/3/2003 10:47:09 AM
Chromium	5.17	0.383		mg/Kg	1	7/3/2003 10:47:09 AM
Cobalt	5.12	0.383		mg/Kg	1	7/3/2003 10:47:09 AM
Copper	20.5	0.383		mg/Kg	1	7/3/2003 10:47:09 AM
Iron	4120	0.383		mg/Kg	1	7/3/2003 10:47:09 AM
Lead	83.2	0.287		mg/Kg	1	7/3/2003 10:47:09 AM
Magnesium	361	0.383		mg/Kg	1	7/3/2003 10:47:09 AM
Manganese	53.2	0.383		mg/Kg	1	7/3/2003 10:47:09 AM
Nickel	6.23	0.383		mg/Kg	1	7/3/2003 10:47:09 AM
Potassium	521	1.34		mg/Kg	1	7/3/2003 10:47:09 AM
Selenium	U	0.479		mg/Kg	1	7/3/2003 10:47:09 AM
Silver	U	0.383		mg/Kg	1	7/3/2003 10:47:09 AM
Sodium	93.6	0.575		mg/Kg	1	7/3/2003 10:47:09 AM
Thallium	0.963	0.287		mg/Kg	1	7/3/2003 10:47:09 AM
Vanadium	8.20	0.383		mg/Kg	1	7/3/2003 10:47:09 AM
Zinc	42.9	0.383		mg/Kg	1	7/3/2003 10:47:09 AM

Qualifiers:

ND - Not Detected at the Reporting Limit

J - Analyte detected below quantitation limits

B - Analyte detected in the associated Method Blank

* - Value exceeds Maximum Contaminant Level

S - Spike Recovery outside accepted recovery limits

R - RPD outside accepted recovery limits

E - Value above quantitation range

American Analytical Laboratories, Inc.

Date: *28-Jul-03*

CLIENT:	AKRF, Inc	**Client Sample ID:**	MW8 (2'-4')
Lab Order:	0306116	**Tag Number:**	
Project:	Greenpoint Lumber Yard Brooklyn, NY	**Collection Date:**	6/25/2003
Lab ID:	0306116-14B	**Matrix:**	SOIL

Analyses	Result	Limit	Qual	Units	DF	Date Analyzed
MERCURY SW-846 7471		**SW7471B**				Analyst: **JP**
Mercury	U	0.0500		mg/Kg	1	7/2/2003
TARGET ANALYTE LIST		**SW6010B**		**(SW3050A)**		Analyst: **JP**
Aluminum	1450	0.364		mg/Kg	1	7/3/2003 10:50:49 AM
Antimony	U	0.455		mg/Kg	1	7/3/2003 10:50:49 AM
Arsenic	17.1	0.455		mg/Kg	1	7/3/2003 10:50:49 AM
Barium	66.6	0.364		mg/Kg	1	7/3/2003 10:50:49 AM
Beryllium	U	0.364		mg/Kg	1	7/3/2003 10:50:49 AM
Cadmium	0.765	0.182		mg/Kg	1	7/3/2003 10:50:49 AM
Calcium	2670	0.364		mg/Kg	1	7/3/2003 10:50:49 AM
Chromium	22.8	0.364		mg/Kg	1	7/3/2003 10:50:49 AM
Cobalt	14.5	0.364		mg/Kg	1	7/3/2003 10:50:49 AM
Copper	80.5	0.364		mg/Kg	1	7/3/2003 10:50:49 AM
Iron	7520	0.364		mg/Kg	1	7/3/2003 10:50:49 AM
Lead	113	0.273		mg/Kg	1	7/3/2003 10:50:49 AM
Magnesium	322	0.364		mg/Kg	1	7/3/2003 10:50:49 AM
Manganese	183	0.364		mg/Kg	1	7/3/2003 10:50:49 AM
Nickel	27.5	0.364		mg/Kg	1	7/3/2003 10:50:49 AM
Potassium	915	1.27		mg/Kg	1	7/3/2003 10:50:49 AM
Selenium	0.29	0.455	J	mg/Kg	1	7/3/2003 10:50:49 AM
Silver	U	0.364		mg/Kg	1	7/3/2003 10:50:49 AM
Sodium	152	0.545		mg/Kg	1	7/3/2003 10:50:49 AM
Thallium	0.279	0.273		mg/Kg	1	7/3/2003 10:50:49 AM
Vanadium	8.96	0.364		mg/Kg	1	7/3/2003 10:50:49 AM
Zinc	99.2	0.364		mg/Kg	1	7/3/2003 10:50:49 AM

Qualifiers:

ND - Not Detected at the Reporting Limit

J - Analyte detected below quantitation limits

B - Analyte detected in the associated Method Blank

* - Value exceeds Maximum Contaminant Level

S - Spike Recovery outside accepted recovery limits

R - RPD outside accepted recovery limits

E - Value above quantitation range

American Analytical Laboratories, Inc.

Date: *28-Jul-03*

CLIENT:	AKRF, Inc	**Client Sample ID:**	MW8 (5'-6.5')
Lab Order:	0306116	**Tag Number:**	
Project:	Greenpoint Lumber Yard Brooklyn, NY	**Collection Date:**	6/25/2003
Lab ID:	0306116-15B	**Matrix:**	SOIL

Analyses	Result	Limit	Qual	Units	DF	Date Analyzed
MERCURY SW-846 7471		**SW7471B**				Analyst: **JP**
Mercury	0.063	0.0500		mg/Kg	1	7/2/2003
TARGET ANALYTE LIST		**SW6010B**		**(SW3050A)**		Analyst: **JP**
Aluminum	5800	0.364		mg/Kg	1	7/3/2003 10:53:23 AM
Antimony	U	0.455		mg/Kg	1	7/3/2003 10:53:23 AM
Arsenic	3.22	0.455		mg/Kg	1	7/3/2003 10:53:23 AM
Barium	59.1	0.364		mg/Kg	1	7/3/2003 10:53:23 AM
Beryllium	U	0.364		mg/Kg	1	7/3/2003 10:53:23 AM
Cadmium	U	0.182		mg/Kg	1	7/3/2003 10:53:23 AM
Calcium	11000	0.364		mg/Kg	1	7/3/2003 10:53:23 AM
Chromium	10.7	0.364		mg/Kg	1	7/3/2003 10:53:23 AM
Cobalt	7.33	0.364		mg/Kg	1	7/3/2003 10:53:23 AM
Copper	30.8	0.364		mg/Kg	1	7/3/2003 10:53:23 AM
Iron	4720	0.364		mg/Kg	1	7/3/2003 10:53:23 AM
Lead	58.8	0.273		mg/Kg	1	7/3/2003 10:53:23 AM
Magnesium	425	0.364		mg/Kg	1	7/3/2003 10:53:23 AM
Manganese	69.9	0.364		mg/Kg	1	7/3/2003 10:53:23 AM
Nickel	9.40	0.364		mg/Kg	1	7/3/2003 10:53:23 AM
Potassium	1130	1.27		mg/Kg	1	7/3/2003 10:53:23 AM
Selenium	0.32	0.455	J	mg/Kg	1	7/3/2003 10:53:23 AM
Silver	U	0.364		mg/Kg	1	7/3/2003 10:53:23 AM
Sodium	1210	0.545		mg/Kg	1	7/3/2003 10:53:23 AM
Thallium	1.51	0.273		mg/Kg	1	7/3/2003 10:53:23 AM
Vanadium	15.9	0.364		mg/Kg	1	7/3/2003 10:53:23 AM
Zinc	35.2	0.364		mg/Kg	1	7/3/2003 10:53:23 AM

Qualifiers:

ND - Not Detected at the Reporting Limit

J - Analyte detected below quantitation limits

B - Analyte detected in the associated Method Blank

* - Value exceeds Maximum Contaminant Level

S - Spike Recovery outside accepted recovery limits

R - RPD outside accepted recovery limits

E - Value above quantitation range

American Analytical Laboratories, Inc.

Date: *28-Jul-03*

CLIENT:	AKRF, Inc	**Client Sample ID:**	B9 (14"-2.5')
Lab Order:	0306116	**Tag Number:**	
Project:	Greenpoint Lumber Yard Brooklyn, NY	**Collection Date:**	6/25/2003
Lab ID:	0306116-16B	**Matrix:**	SOIL

Analyses	Result	Limit	Qual	Units	DF	Date Analyzed
MERCURY SW-846 7471		**SW7471B**				Analyst: **JP**
Mercury	U	0.0500		mg/Kg	1	7/2/2003
TARGET ANALYTE LIST		**SW6010B**		**(SW3050A)**		Analyst: **JP**
Aluminum	2250	0.388		mg/Kg	1	7/3/2003 10:55:55 AM
Antimony	2.00	0.484		mg/Kg	1	7/3/2003 10:55:55 AM
Arsenic	27.3	0.484		mg/Kg	1	7/3/2003 10:55:55 AM
Barium	167	0.388		mg/Kg	1	7/3/2003 10:55:55 AM
Beryllium	U	0.388		mg/Kg	1	7/3/2003 10:55:55 AM
Cadmium	8.14	0.194		mg/Kg	1	7/3/2003 10:55:55 AM
Calcium	2480	0.388		mg/Kg	1	7/3/2003 10:55:55 AM
Chromium	177	0.388		mg/Kg	1	7/3/2003 10:55:55 AM
Cobalt	17.8	0.388		mg/Kg	1	7/3/2003 10:55:55 AM
Copper	413	0.388		mg/Kg	1	7/3/2003 10:55:55 AM
Iron	8330	0.388		mg/Kg	1	7/3/2003 10:55:55 AM
Lead	433	0.291		mg/Kg	1	7/3/2003 10:55:55 AM
Magnesium	351	0.388		mg/Kg	1	7/3/2003 10:55:55 AM
Manganese	218	0.388		mg/Kg	1	7/3/2003 10:55:55 AM
Nickel	261	0.388		mg/Kg	1	7/3/2003 10:55:55 AM
Potassium	658	1.36		mg/Kg	1	7/3/2003 10:55:55 AM
Selenium	U	0.484		mg/Kg	1	7/3/2003 10:55:55 AM
Silver	U	0.388		mg/Kg	1	7/3/2003 10:55:55 AM
Sodium	216	0.581		mg/Kg	1	7/3/2003 10:55:55 AM
Thallium	U	0.291		mg/Kg	1	7/3/2003 10:55:55 AM
Vanadium	37.2	0.388		mg/Kg	1	7/3/2003 10:55:55 AM
Zinc	406	0.388		mg/Kg	1	7/3/2003 10:55:55 AM

Qualifiers:

ND - Not Detected at the Reporting Limit

J - Analyte detected below quantitation limits

B - Analyte detected in the associated Method Blank

* - Value exceeds Maximum Contaminant Level

S - Spike Recovery outside accepted recovery limits

R - RPD outside accepted recovery limits

E - Value above quantitation range

American Analytical Laboratories, Inc.

Date: *28-Jul-03*

CLIENT:	AKRF, Inc	**Client Sample ID:**	B9 (5'-6')
Lab Order:	0306116	**Tag Number:**	
Project:	Greenpoint Lumber Yard Brooklyn, NY	**Collection Date:**	6/25/2003
Lab ID:	0306116-17B	**Matrix:**	SOIL

Analyses	Result	Limit	Qual	Units	DF	Date Analyzed
MERCURY SW-846 7471		**SW7471B**				Analyst: **JP**
Mercury	U	0.0500		mg/Kg	1	7/2/2003
TARGET ANALYTE LIST		**SW6010B**		**(SW3050A)**		Analyst: **JP**
Aluminum	2360	0.377		mg/Kg	1	7/3/2003 10:58:22 AM
Antimony	U	0.472		mg/Kg	1	7/3/2003 10:58:22 AM
Arsenic	13.7	0.472		mg/Kg	1	7/3/2003 10:58:22 AM
Barium	126	0.377		mg/Kg	1	7/3/2003 10:58:22 AM
Beryllium	U	0.377		mg/Kg	1	7/3/2003 10:58:22 AM
Cadmium	3.63	0.189		mg/Kg	1	7/3/2003 10:58:22 AM
Calcium	3950	0.377		mg/Kg	1	7/3/2003 10:58:22 AM
Chromium	16.2	0.377		mg/Kg	1	7/3/2003 10:58:22 AM
Cobalt	11.5	0.377		mg/Kg	1	7/3/2003 10:58:22 AM
Copper	127	0.377		mg/Kg	1	7/3/2003 10:58:22 AM
Iron	6900	0.377		mg/Kg	1	7/3/2003 10:58:22 AM
Lead	248	0.283		mg/Kg	1	7/3/2003 10:58:22 AM
Magnesium	393	0.377		mg/Kg	1	7/3/2003 10:58:22 AM
Manganese	142	0.377		mg/Kg	1	7/3/2003 10:58:22 AM
Nickel	32.8	0.377		mg/Kg	1	7/3/2003 10:58:22 AM
Potassium	782	1.32		mg/Kg	1	7/3/2003 10:58:22 AM
Selenium	0.667	0.472		mg/Kg	1	7/3/2003 10:58:22 AM
Silver	U	0.377		mg/Kg	1	7/3/2003 10:58:22 AM
Sodium	737	0.566		mg/Kg	1	7/3/2003 10:58:22 AM
Thallium	U	0.283		mg/Kg	1	7/3/2003 10:58:22 AM
Vanadium	11.8	0.377		mg/Kg	1	7/3/2003 10:58:22 AM
Zinc	273	0.377		mg/Kg	1	7/3/2003 10:58:22 AM

Qualifiers:

ND - Not Detected at the Reporting Limit

J - Analyte detected below quantitation limits

B - Analyte detected in the associated Method Blank

* - Value exceeds Maximum Contaminant Level

S - Spike Recovery outside accepted recovery limits

R - RPD outside accepted recovery limits

E - Value above quantitation range

American Analytical Laboratories, Inc.

Date: *28-Jul-03*

CLIENT:	AKRF, Inc	**Client Sample ID:**	B8 (0.5-2")
Lab Order:	0306116	**Tag Number:**	
Project:	Greenpoint Lumber Yard Brooklyn, NY	**Collection Date:**	6/25/2003
Lab ID:	0306116-18B	**Matrix:**	SOIL

Analyses	Result	Limit	Qual	Units	DF	Date Analyzed
MERCURY SW-846 7471		**SW7471B**				Analyst: **JP**
Mercury	U	0.0500		mg/Kg	1	7/2/2003
TARGET ANALYTE LIST		**SW6010B**		**(SW3050A)**		Analyst: **JP**
Aluminum	6670	0.360		mg/Kg	1	7/3/2003 11:00:53 AM
Antimony	0.552	0.450		mg/Kg	1	7/3/2003 11:00:53 AM
Arsenic	10.6	0.450		mg/Kg	1	7/3/2003 11:00:53 AM
Barium	456	0.360		mg/Kg	1	7/3/2003 11:00:53 AM
Beryllium	U	0.360		mg/Kg	1	7/3/2003 11:00:53 AM
Cadmium	U	0.180		mg/Kg	1	7/3/2003 11:00:53 AM
Calcium	11400	0.360		mg/Kg	1	7/3/2003 11:00:53 AM
Chromium	149	0.360		mg/Kg	1	7/3/2003 11:00:53 AM
Cobalt	711	0.360		mg/Kg	1	7/3/2003 11:00:53 AM
Copper	1470	0.360		mg/Kg	1	7/3/2003 11:00:53 AM
Iron	7580	0.360		mg/Kg	1	7/3/2003 11:00:53 AM
Lead	2040	0.270		mg/Kg	1	7/3/2003 11:00:53 AM
Magnesium	362	0.360		mg/Kg	1	7/3/2003 11:00:53 AM
Manganese	535	0.360		mg/Kg	1	7/3/2003 11:00:53 AM
Nickel	45.3	0.360		mg/Kg	1	7/3/2003 11:00:53 AM
Potassium	1770	1.26		mg/Kg	1	7/3/2003 11:00:53 AM
Selenium	U	0.450		mg/Kg	1	7/3/2003 11:00:53 AM
Silver	0.657	0.360		mg/Kg	1	7/3/2003 11:00:53 AM
Sodium	1020	0.540		mg/Kg	1	7/3/2003 11:00:53 AM
Thallium	U	0.270		mg/Kg	1	7/3/2003 11:00:53 AM
Vanadium	34.6	0.360		mg/Kg	1	7/3/2003 11:00:53 AM
Zinc	1260	0.360		mg/Kg	1	7/3/2003 11:00:53 AM

Qualifiers:

ND - Not Detected at the Reporting Limit

J - Analyte detected below quantitation limits

B - Analyte detected in the associated Method Blank

* - Value exceeds Maximum Contaminant Level

S - Spike Recovery outside accepted recovery limits

R - RPD outside accepted recovery limits

E - Value above quantitation range

American Analytical Laboratories, Inc.

Date: *28-Jul-03*

CLIENT:	AKRF, Inc	**Client Sample ID:**	B8 (8-10')
Lab Order:	0306116	**Tag Number:**	
Project:	Greenpoint Lumber Yard Brooklyn, NY	**Collection Date:**	6/25/2003
Lab ID:	0306116-19B	**Matrix:**	SOIL

Analyses	Result	Limit	Qual	Units	DF	Date Analyzed
MERCURY SW-846 7471		**SW7471B**				Analyst: **JP**
Mercury	0.218	0.0500		mg/Kg	1	7/2/2003
TARGET ANALYTE LIST		**SW6010B**		**(SW3050A)**		Analyst: **JP**
Aluminum	3170	0.392		mg/Kg	1	7/3/2003 11:10:30 AM
Antimony	U	0.490		mg/Kg	1	7/3/2003 11:10:30 AM
Arsenic	7.46	0.490		mg/Kg	1	7/3/2003 11:10:30 AM
Barium	127	0.392		mg/Kg	1	7/3/2003 11:10:30 AM
Beryllium	U	0.392		mg/Kg	1	7/3/2003 11:10:30 AM
Cadmium	1.01	0.196		mg/Kg	1	7/3/2003 11:10:30 AM
Calcium	4750	0.392		mg/Kg	1	7/3/2003 11:10:30 AM
Chromium	28.2	0.392		mg/Kg	1	7/3/2003 11:10:30 AM
Cobalt	118	0.392		mg/Kg	1	7/3/2003 11:10:30 AM
Copper	387	0.392		mg/Kg	1	7/3/2003 11:10:30 AM
Iron	7410	0.392		mg/Kg	1	7/3/2003 11:10:30 AM
Lead	472	0.294		mg/Kg	1	7/3/2003 11:10:30 AM
Magnesium	413	0.392		mg/Kg	1	7/3/2003 11:10:30 AM
Manganese	219	0.392		mg/Kg	1	7/3/2003 11:10:30 AM
Nickel	14.0	0.392		mg/Kg	1	7/3/2003 11:10:30 AM
Potassium	762	1.37		mg/Kg	1	7/3/2003 11:10:30 AM
Selenium	0.637	0.490		mg/Kg	1	7/3/2003 11:10:30 AM
Silver	U	0.392		mg/Kg	1	7/3/2003 11:10:30 AM
Sodium	381	0.588		mg/Kg	1	7/3/2003 11:10:30 AM
Thallium	0.403	0.294		mg/Kg	1	7/3/2003 11:10:30 AM
Vanadium	13.9	0.392		mg/Kg	1	7/3/2003 11:10:30 AM
Zinc	1280	0.392		mg/Kg	1	7/3/2003 11:10:30 AM

Qualifiers:

ND - Not Detected at the Reporting Limit

J - Analyte detected below quantitation limits

B - Analyte detected in the associated Method Blank

* - Value exceeds Maximum Contaminant Level

S - Spike Recovery outside accepted recovery limits

R - RPD outside accepted recovery limits

E - Value above quantitation range

American Analytical Laboratories, Inc.

Date: *28-Jul-03*

CLIENT:	AKRF, Inc	**Client Sample ID:**	MW10 (0.5-2')
Lab Order:	0306116	**Tag Number:**	
Project:	Greenpoint Lumber Yard Brooklyn, NY	**Collection Date:**	6/25/2003
Lab ID:	0306116-20B	**Matrix:**	SOIL

Analyses	Result	Limit	Qual	Units	DF	Date Analyzed
MERCURY SW-846 7471		**SW7471B**				Analyst: **JP**
Mercury	U	0.0500		mg/Kg	1	7/2/2003
TARGET ANALYTE LIST		**SW6010B**		**(SW3050A)**		Analyst: **JP**
Aluminum	2510	0.398		mg/Kg	1	7/3/2003 11:14:17 AM
Antimony	U	0.498		mg/Kg	1	7/3/2003 11:14:17 AM
Arsenic	4.94	0.498		mg/Kg	1	7/3/2003 11:14:17 AM
Barium	25.8	0.398		mg/Kg	1	7/3/2003 11:14:17 AM
Beryllium	U	0.398		mg/Kg	1	7/3/2003 11:14:17 AM
Cadmium	0.550	0.199		mg/Kg	1	7/3/2003 11:14:17 AM
Calcium	22000	0.398		mg/Kg	1	7/3/2003 11:14:17 AM
Chromium	10.7	0.398		mg/Kg	1	7/3/2003 11:14:17 AM
Cobalt	5.15	0.398		mg/Kg	1	7/3/2003 11:14:17 AM
Copper	27.0	0.398		mg/Kg	1	7/3/2003 11:14:17 AM
Iron	4260	0.398		mg/Kg	1	7/3/2003 11:14:17 AM
Lead	259	0.299		mg/Kg	1	7/3/2003 11:14:17 AM
Magnesium	437	0.398		mg/Kg	1	7/3/2003 11:14:17 AM
Manganese	106	0.398		mg/Kg	1	7/3/2003 11:14:17 AM
Nickel	8.64	0.398		mg/Kg	1	7/3/2003 11:14:17 AM
Potassium	835	1.39		mg/Kg	1	7/3/2003 11:14:17 AM
Selenium	0.47	0.498	J	mg/Kg	1	7/3/2003 11:14:17 AM
Silver	0.34	0.398	J	mg/Kg	1	7/3/2003 11:14:17 AM
Sodium	251	0.598		mg/Kg	1	7/3/2003 11:14:17 AM
Thallium	1.02	0.299		mg/Kg	1	7/3/2003 11:14:17 AM
Vanadium	19.3	0.398		mg/Kg	1	7/3/2003 11:14:17 AM
Zinc	163	0.398		mg/Kg	1	7/3/2003 11:14:17 AM

Qualifiers:

ND - Not Detected at the Reporting Limit

J - Analyte detected below quantitation limits

B - Analyte detected in the associated Method Blank

* - Value exceeds Maximum Contaminant Level

S - Spike Recovery outside accepted recovery limits

R - RPD outside accepted recovery limits

E - Value above quantitation range

Appendix

CLIENT: AKRF, Inc
Work Order: 0306116
Project: Greenpoint Lumber Yard Brooklyn, NY

ANALYTICAL QC SUMMARY REPORT

TestCode: 8081_Soil

Sample ID: **PSB070103**	SampType: **MBLK**	TestCode: **8081_Soil**	Units: **µg/Kg**	Prep Date: **7/1/2003**	Run ID: **SYSTEM QU_030703A**
Client ID: **ZZZZZ**	Batch ID: **1427**	TestNo: **SW8081B**	**(SW3550)**	Analysis Date: **7/3/2003**	SeqNo: **25230**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
4,4´-DDD	U	5.0									
4,4´-DDE	U	5.0									
4,4´-DDT	U	5.0									
Aldrin	U	5.0									
alpha-BHC	U	5.0									
beta-BHC	U	5.0									
Chlordane	U	5.0									
Chlorobenzilate	U	5.0									
DBCP	U	5.0									
delta-BHC	U	5.0									
Dieldrin	U	5.0									
Endosulfan I	U	5.0									
Endosulfan II	U	5.0									
Endosulfan sulfate	U	5.0									
Endrin	U	5.0									
Endrin aldehyde	U	5.0									
Endrin ketone	U	5.0									
gamma-BHC	U	5.0									
Heptachlor	U	5.0									
Heptachlor epoxide	U	5.0									
Hexachlorobenzene	U	5.0									
Hexachlorocyclopentadiene	U	5.0									
Isodrin	U	5.0									
Methoxychlor	U	5.0									
Toxaphene	U	300									

Sample ID: **PSB070203**	SampType: **MBLK**	TestCode: **8081_Soil**	Units: **µg/Kg**	Prep Date: **7/2/2003**	Run ID: **SYSTEM QU_030703A**
Client ID: **ZZZZZ**	Batch ID: **1431**	TestNo: **SW8081B**	**(SW3550)**	Analysis Date: **7/8/2003**	SeqNo: **25252**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual

Qualifiers:
ND - Not Detected at the Reporting Limit
J - Analyte detected below quantitation limits
S - Spike Recovery outside accepted recovery limits
R - RPD outside accepted recovery limits
B - Analyte detected in the associated Method Blank

CLIENT: AKRF, Inc
Work Order: 0306116
Project: Greenpoint Lumber Yard Brooklyn, NY

ANALYTICAL QC SUMMARY REPORT

TestCode: 8081_Soil

Sample ID: **PSB070203** SampType: **MBLK** TestCode: **8081_Soil** Units: **µg/Kg** Prep Date: **7/2/2003** Run ID: **SYSTEM QU_030703A**
Client ID: **ZZZZZ** Batch ID: **1431** TestNo: **SW8081B** **(SW3550)** Analysis Date: **7/8/2003** SeqNo: **25252**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
4,4´-DDD	U	5.0									
4,4´-DDE	U	5.0									
4,4´-DDT	U	5.0									
Aldrin	U	5.0									
alpha-BHC	U	5.0									
beta-BHC	U	5.0									
Chlordane	U	5.0									
Chlorobenzilate	U	5.0									
DBCP	U	5.0									
delta-BHC	U	5.0									
Dieldrin	U	5.0									
Endosulfan I	U	5.0									
Endosulfan II	U	5.0									
Endosulfan sulfate	U	5.0									
Endrin	U	5.0									
Endrin aldehyde	U	5.0									
Endrin ketone	U	5.0									
gamma-BHC	U	5.0									
Heptachlor	U	5.0									
Heptachlor epoxide	U	5.0									
Hexachlorobenzene	U	5.0									
Hexachlorocyclopentadiene	U	5.0									
Isodrin	U	5.0									
Methoxychlor	U	5.0									
Toxaphene	U	300									

Sample ID: **PSB070203** SampType: **MBLK** TestCode: **8081_Soil** Units: **µg/Kg** Prep Date: **7/2/2003** Run ID: **SYSTEM QU_030703B**
Client ID: **ZZZZZ** Batch ID: **1431** TestNo: **SW8081B** **(SW3550)** Analysis Date: **7/8/2003** SeqNo: **25645**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
4,4´-DDD	U	5.0									

Qualifiers: ND - Not Detected at the Reporting Limit
J - Analyte detected below quantitation limits
S - Spike Recovery outside accepted recovery limits
R - RPD outside accepted recovery limits
B - Analyte detected in the associated Method Blank

CLIENT: AKRF, Inc
Work Order: 0306116
Project: Greenpoint Lumber Yard Brooklyn, NY

ANALYTICAL QC SUMMARY REPORT

TestCode: 8081_Soil

Sample ID: PSB070203	SampType: MBLK	TestCode: 8081_Soil	Units: µg/Kg	Prep Date: 7/2/2003	Run ID: SYSTEM QU_030703B
Client ID: ZZZZZ	Batch ID: 1431	TestNo: SW8081B	(SW3550)	Analysis Date: 7/8/2003	SeqNo: 25645

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
4,4´-DDE	U	5.0									
4,4´-DDT	U	5.0									
Aldrin	U	5.0									
alpha-BHC	U	5.0									
beta-BHC	U	5.0									
Chlordane	U	5.0									
Chlorobenzilate	U	5.0									
DBCP	U	5.0									
delta-BHC	U	5.0									
Dieldrin	U	5.0									
Endosulfan I	U	5.0									
Endosulfan II	U	5.0									
Endosulfan sulfate	U	5.0									
Endrin	U	5.0									
Endrin aldehyde	U	5.0									
Endrin ketone	U	5.0									
gamma-BHC	U	5.0									
Heptachlor	U	5.0									
Heptachlor epoxide	U	5.0									
Hexachlorobenzene	U	5.0									
Hexachlorocyclopentadiene	U	5.0									
Isodrin	U	5.0									
Methoxychlor	U	5.0									
Toxaphene	U	300									

Sample ID: MSB070103	SampType: LCS	TestCode: 8081_Soil	Units: µg/Kg	Prep Date: 7/1/2003	Run ID: SYSTEM QU_030703A
Client ID: ZZZZZ	Batch ID: 1427	TestNo: SW8081B	(SW3550)	Analysis Date: 7/4/2003	SeqNo: 25247

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
4,4´-DDT	12.19	5.0	16.65	0	73.2	69	130	0	0		
Aldrin	4.123	5.0	6.66	0	61.9	66	128	0	0		JS

Qualifiers:
ND - Not Detected at the Reporting Limit
J - Analyte detected below quantitation limits
S - Spike Recovery outside accepted recovery limits
R - RPD outside accepted recovery limits
B - Analyte detected in the associated Method Blank

CLIENT: AKRF, Inc
Work Order: 0306116
Project: Greenpoint Lumber Yard Brooklyn, NY

ANALYTICAL QC SUMMARY REPORT

TestCode: 8081_Soil

Sample ID: MSB070103	SampType: LCS	TestCode: 8081_Soil	Units: µg/Kg	Prep Date: 7/1/2003	Run ID: SYSTEM QU_030703A
Client ID: ZZZZZ	Batch ID: 1427	TestNo: SW8081B	(SW3550)	Analysis Date: 7/4/2003	SeqNo: 25247

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Dieldrin	11.99	5.0	16.65	0	72	67	126	0	0		
Endrin	13.4	5.0	16.65	0	80.5	72	124	0	0		
gamma-BHC	4.279	5.0	6.66	0	64.2	68	122	0	0		JS
Heptachlor	5.41	5.0	6.66	0	81.2	64	130	0	0		

Sample ID: MSB070203	SampType: LCS	TestCode: 8081_Soil	Units: µg/Kg	Prep Date: 7/2/2003	Run ID: SYSTEM QU_030703B
Client ID: ZZZZZ	Batch ID: 1431	TestNo: SW8081B	(SW3550)	Analysis Date: 7/8/2003	SeqNo: 25657

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
4,4´-DDT	17.74	5.0	16.65	0	107	69	130	0	0		
Aldrin	6.054	5.0	6.66	0	90.9	66	128	0	0		
Dieldrin	16.9	5.0	16.65	0	102	67	126	0	0		
Endrin	18.47	5.0	16.65	0	111	72	124	0	0		
gamma-BHC	6.487	5.0	6.66	0	97.4	68	122	0	0		
Heptachlor	7.817	5.0	6.66	0	117	64	130	0	0		

Sample ID: 0306116-02BMS	SampType: MS	TestCode: 8081_Soil	Units: µg/Kg	Prep Date: 7/1/2003	Run ID: SYSTEM QU_030703A
Client ID: B12 (5'-7')	Batch ID: 1427	TestNo: SW8081B	(SW3550)	Analysis Date: 7/4/2003	SeqNo: 25248

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Aldrin	5.517	5.0	6.66	0	82.8	66	128	0	0		
Dieldrin	14.87	5.0	16.65	0	89.3	67	126	0	0		
Endrin	22.38	5.0	16.65	23.63	-7.53	72	124	0	0		S
gamma-BHC	4.868	5.0	6.66	0	73.1	68	122	0	0		J
Heptachlor	7.066	5.0	6.66	0	106	64	130	0	0		

Sample ID: 0306116-02BMS	SampType: MS	TestCode: 8081_Soil	Units: µg/Kg	Prep Date: 7/1/2003	Run ID: SYSTEM QU_030703A
Client ID: B12 (5'-7')	Batch ID: 1427	TestNo: SW8081B	(SW3550)	Analysis Date: 7/9/2003	SeqNo: 25337

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
4,4´-DDT	192.2	50	16.65	145.7	279	69	130	0	0		S

Qualifiers:
ND - Not Detected at the Reporting Limit
J - Analyte detected below quantitation limits
S - Spike Recovery outside accepted recovery limits
R - RPD outside accepted recovery limits
B - Analyte detected in the associated Method Blank

CLIENT: AKRF, Inc
Work Order: 0306116
Project: Greenpoint Lumber Yard Brooklyn, NY

ANALYTICAL QC SUMMARY REPORT

TestCode: 8081_Soil

Sample ID: 0306117-03BMS	SampType: MS	TestCode: 8081_Soil	Units: µg/Kg	Prep Date: 7/2/2003	Run ID: SYSTEM QU_030703B
Client ID: ZZZZZ	Batch ID: 1431	TestNo: SW8081B	(SW3550)	Analysis Date: 7/8/2003	SeqNo: 25658

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
4,4´-DDT	15.03	5.0	16.65	0	90.3	69	130	0	0		
Aldrin	6.163	5.0	6.66	0	92.5	66	128	0	0		
Dieldrin	14.33	5.0	16.65	0	86	67	126	0	0		
Endrin	15.28	5.0	16.65	0	91.8	72	124	0	0		
gamma-BHC	5.214	5.0	6.66	0	78.3	68	122	0	0		
Heptachlor	6.094	5.0	6.66	0	91.5	64	130	0	0		

Sample ID: 0306116-02BMSD	SampType: MSD	TestCode: 8081_Soil	Units: µg/Kg	Prep Date: 7/1/2003	Run ID: SYSTEM QU_030703A
Client ID: B12 (5'-7')	Batch ID: 1427	TestNo: SW8081B	(SW3550)	Analysis Date: 7/4/2003	SeqNo: 25249

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
4,4´-DDT	44.63	5.0	16.65	132	-524	69	130	162.9	114	20	SR
Aldrin	6.016	5.0	6.66	0	90.3	66	128	5.517	8.65	20	
Dieldrin	15.17	5.0	16.65	0	91.1	67	126	14.87	2.01	20	
Endrin	20.25	5.0	16.65	23.63	-20.3	72	124	22.38	9.96	20	S
gamma-BHC	5.747	5.0	6.66	0	86.3	68	122	4.868	16.6	20	
Heptachlor	7.281	5.0	6.66	0	109	64	130	7.066	3.00	20	

Sample ID: 0306117-03BMSD	SampType: MSD	TestCode: 8081_Soil	Units: µg/Kg	Prep Date: 7/2/2003	Run ID: SYSTEM QU_030703B
Client ID: ZZZZZ	Batch ID: 1431	TestNo: SW8081B	(SW3550)	Analysis Date: 7/8/2003	SeqNo: 25659

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
4,4´-DDT	17.21	5.0	16.65	0	103	69	130	15.03	13.5	20	
Aldrin	6.247	5.0	6.66	0	93.8	66	128	6.163	1.35	20	
Dieldrin	15.47	5.0	16.65	0	92.9	67	126	14.33	7.67	20	
Endrin	18.49	5.0	16.65	0	111	72	124	15.28	19.0	20	
gamma-BHC	5.696	5.0	6.66	0	85.5	68	122	5.214	8.84	20	
Heptachlor	6.866	5.0	6.66	0	103	64	130	6.094	11.9	20	

Qualifiers:
ND - Not Detected at the Reporting Limit
J - Analyte detected below quantitation limits
S - Spike Recovery outside accepted recovery limits
R - RPD outside accepted recovery limits
B - Analyte detected in the associated Method Blank

CLIENT: AKRF, Inc
Work Order: 0306116
Project: Greenpoint Lumber Yard Brooklyn, NY

ANALYTICAL QC SUMMARY REPORT

TestCode: 8082_Soil

Sample ID: **PSB070103** SampType: **MBLK** TestCode: **8082_Soil** Units: **µg/Kg** Prep Date: **7/1/2003** Run ID: **SYSTEM QU_030707B**
Client ID: **ZZZZZ** Batch ID: **1426** TestNo: **SW8082A** **(SW3550)** Analysis Date: **7/7/2003** SeqNo: **25405**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Aroclor 1016	U	80									
Aroclor 1221	U	80									
Aroclor 1232	U	80									
Aroclor 1242	U	80									
Aroclor 1248	U	80									
Aroclor 1254	U	80									
Aroclor 1260	U	80									

Sample ID: **PSB070203** SampType: **MBLK** TestCode: **8082_Soil** Units: **µg/Kg** Prep Date: **7/2/2003** Run ID: **SYSTEM QU_030707B**
Client ID: **ZZZZZ** Batch ID: **1429** TestNo: **SW8082A** **(SW3550)** Analysis Date: **7/9/2003** SeqNo: **25422**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Aroclor 1016	U	80									
Aroclor 1221	U	80									
Aroclor 1232	U	80									
Aroclor 1242	U	80									
Aroclor 1248	U	80									
Aroclor 1254	U	80									
Aroclor 1260	U	80									

Sample ID: **PSB070203** SampType: **MBLK** TestCode: **8082_Soil** Units: **µg/Kg** Prep Date: **7/2/2003** Run ID: **SYSTEM QU_030707C**
Client ID: **ZZZZZ** Batch ID: **1429** TestNo: **SW8082A** **(SW3550)** Analysis Date: **7/9/2003** SeqNo: **25722**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Aroclor 1016	U	80									
Aroclor 1221	U	80									
Aroclor 1232	U	80									
Aroclor 1242	U	80									
Aroclor 1248	U	80									
Aroclor 1254	U	80									
Aroclor 1260	U	80									

Qualifiers: ND - Not Detected at the Reporting Limit
J - Analyte detected below quantitation limits
S - Spike Recovery outside accepted recovery limits
R - RPD outside accepted recovery limits
B - Analyte detected in the associated Method Blank

CLIENT: AKRF, Inc
Work Order: 0306116
Project: Greenpoint Lumber Yard Brooklyn, NY

ANALYTICAL QC SUMMARY REPORT

TestCode: 8082_Soil

Sample ID: MSB070103	SampType: LCS	TestCode: 8082_Soil	Units: µg/Kg	Prep Date: 7/1/2003	Run ID: SYSTEM QU_030707B
Client ID: ZZZZZ	Batch ID: 1426	TestNo: SW8082A	(SW3550)	Analysis Date: 7/9/2003	SeqNo: 25431

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Aroclor 1016	169	80	166.5	0	101	59	122	0	0		
Aroclor 1260	176.5	80	166.5	0	106	57	121	0	0		

Sample ID: MSB070203	SampType: LCS	TestCode: 8082_Soil	Units: µg/Kg	Prep Date: 7/2/2003	Run ID: SYSTEM QU_030707C
Client ID: ZZZZZ	Batch ID: 1429	TestNo: SW8082A	(SW3550)	Analysis Date: 7/11/2003	SeqNo: 25743

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Aroclor 1016	147.2	80	166.5	0	88.4	59	122	0	0		
Aroclor 1260	162.1	80	166.5	0	97.4	57	121	0	0		

Sample ID: 0306116-04BMS	SampType: MS	TestCode: 8082_Soil	Units: µg/Kg	Prep Date: 7/1/2003	Run ID: SYSTEM QU_030707B
Client ID: B13 (5'-7')	Batch ID: 1426	TestNo: SW8082A	(SW3550)	Analysis Date: 7/9/2003	SeqNo: 25432

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Aroclor 1016	255.1	80	166.5	0	153	59	122	0	0		S
Aroclor 1260	249.8	80	166.5	0	150	57	121	0	0		S

Sample ID: 0306117-01BMS	SampType: MS	TestCode: 8082_Soil	Units: µg/Kg	Prep Date: 7/2/2003	Run ID: SYSTEM QU_030707C
Client ID: ZZZZZ	Batch ID: 1429	TestNo: SW8082A	(SW3550)	Analysis Date: 7/11/2003	SeqNo: 25744

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Aroclor 1016	189.1	80	166.5	0	114	59	122	0	0		
Aroclor 1260	193.5	80	166.5	0	116	57	121	0	0		

Sample ID: 0306116-04BMSD	SampType: MSD	TestCode: 8082_Soil	Units: µg/Kg	Prep Date: 7/1/2003	Run ID: SYSTEM QU_030707B
Client ID: B13 (5'-7')	Batch ID: 1426	TestNo: SW8082A	(SW3550)	Analysis Date: 7/9/2003	SeqNo: 25433

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Aroclor 1016	239	80	166.5	0	144	59	122	255.1	6.54	20	S
Aroclor 1260	231.6	80	166.5	0	139	57	121	249.8	7.57	20	S

Qualifiers:
ND - Not Detected at the Reporting Limit
J - Analyte detected below quantitation limits
S - Spike Recovery outside accepted recovery limits
R - RPD outside accepted recovery limits
B - Analyte detected in the associated Method Blank

CLIENT: AKRF, Inc
Work Order: 0306116
Project: Greenpoint Lumber Yard Brooklyn, NY

ANALYTICAL QC SUMMARY REPORT

TestCode: 8082_Soil

Sample ID: **0306117-01BMSD**	SampType: **MSD**	TestCode: **8082_Soil**	Units: **µg/Kg**	Prep Date: **7/2/2003**	Run ID: **SYSTEM QU_030707C**
Client ID: **ZZZZZ**	Batch ID: **1429**	TestNo: **SW8082A**	**(SW3550)**	Analysis Date: **7/12/2003**	SeqNo: **25745**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Aroclor 1016	291.3	80	166.5	0	175	59	122	189.1	42.6	20	SR
Aroclor 1260	315.2	80	166.5	0	189	57	121	193.5	47.9	20	SR

Qualifiers:
ND - Not Detected at the Reporting Limit
J - Analyte detected below quantitation limits
S - Spike Recovery outside accepted recovery limits
R - RPD outside accepted recovery limits
B - Analyte detected in the associated Method Blank

CLIENT: AKRF, Inc
Work Order: 0306116
Project: Greenpoint Lumber Yard Brooklyn, NY

ANALYTICAL QC SUMMARY REPORT

TestCode: 8270_Soil

Sample ID: SSB070103	SampType: MBLK	TestCode: 8270_Soil	Units: µg/Kg	Prep Date: 7/1/2003	Run ID: SYSTEM T_030701B
Client ID: ZZZZZ	Batch ID: 1425	TestNo: SW8270D	(SW3550A)	Analysis Date: 7/1/2003	SeqNo: 25202

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
1,2,4-Trichlorobenzene	U	40	0	0	0	0	0	0	0		
1,2-Dichlorobenzene	U	40	0	0	0	0	0	0	0		
1,3-Dichlorobenzene	U	40	0	0	0	0	0	0	0		
1,4-Dichlorobenzene	U	40	0	0	0	0	0	0	0		
2,4,5-Trichlorophenol	U	40	0	0	0	0	0	0	0		
2,4,6-Trichlorophenol	U	40	0	0	0	0	0	0	0		
2,4-Dichlorophenol	U	40	0	0	0	0	0	0	0		
2,4-Dimethylphenol	U	40	0	0	0	0	0	0	0		
2,4-Dinitrophenol	U	40	0	0	0	0	0	0	0		
2,4-Dinitrotoluene	U	40	0	0	0	0	0	0	0		
2,6-Dinitrotoluene	U	40	0	0	0	0	0	0	0		
2-Chloronaphthalene	U	40	0	0	0	0	0	0	0		
2-Chlorophenol	U	40	0	0	0	0	0	0	0		
2-Methylnaphthalene	U	40	0	0	0	0	0	0	0		
2-Methylphenol	U	40	0	0	0	0	0	0	0		
2-Nitroaniline	U	40	0	0	0	0	0	0	0		
2-Nitrophenol	U	40	0	0	0	0	0	0	0		
3,3´-Dichlorobenzidine	U	40	0	0	0	0	0	0	0		
3+4-Methylphenol	U	40	0	0	0	0	0	0	0		
3-Nitroaniline	U	40	0	0	0	0	0	0	0		
4,6-Dinitro-2-methylphenol	U	40	0	0	0	0	0	0	0		
4-Bromophenyl phenyl ether	U	40	0	0	0	0	0	0	0		
4-Chloro-3-methylphenol	U	40	0	0	0	0	0	0	0		
4-Chloroaniline	U	40	0	0	0	0	0	0	0		
4-Chlorophenyl phenyl ether	U	40	0	0	0	0	0	0	0		
4-Nitroaniline	U	40	0	0	0	0	0	0	0		
4-Nitrophenol	U	40	0	0	0	0	0	0	0		
Acenaphthene	U	40	0	0	0	0	0	0	0		
Acenaphthylene	U	40	0	0	0	0	0	0	0		
Aniline	U	40	0	0	0	0	0	0	0		
Anthracene	U	40	0	0	0	0	0	0	0		

Qualifiers: ND - Not Detected at the Reporting Limit
J - Analyte detected below quantitation limits
S - Spike Recovery outside accepted recovery limits
R - RPD outside accepted recovery limits
B - Analyte detected in the associated Method Blank

CLIENT: AKRF, Inc
Work Order: 0306116
Project: Greenpoint Lumber Yard Brooklyn, NY

ANALYTICAL QC SUMMARY REPORT

TestCode: 8270_Soil

Sample ID: SSB070103	SampType: MBLK	TestCode: 8270_Soil	Units: µg/Kg	Prep Date: 7/1/2003	Run ID: SYSTEM T_030701B
Client ID: ZZZZZ	Batch ID: 1425	TestNo: SW8270D	(SW3550A)	Analysis Date: 7/1/2003	SeqNo: 25202

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Azobenzene	U	40	0	0	0	0	0	0	0		
Benzidine	U	40	0	0	0	0	0	0	0		
Benzo(a)anthracene	U	40	0	0	0	0	0	0	0		
Benzo(a)pyrene	U	40	0	0	0	0	0	0	0		
Benzo(b)fluoranthene	U	40	0	0	0	0	0	0	0		
Benzo(g,h,i)perylene	U	40	0	0	0	0	0	0	0		
Benzo(k)fluoranthene	U	40	0	0	0	0	0	0	0		
Benzoic acid	U	40	0	0	0	0	0	0	0		
Benzyl alcohol	U	40	0	0	0	0	0	0	0		
Bis(2-chloroethoxy)methane	U	40	0	0	0	0	0	0	0		
Bis(2-chloroethyl)ether	U	40	0	0	0	0	0	0	0		
Bis(2-chloroisopropyl)ether	U	40	0	0	0	0	0	0	0		
Bis(2-ethylhexyl)phthalate	U	40	0	0	0	0	0	0	0		
Butyl benzyl phthalate	U	40	0	0	0	0	0	0	0		
Carbazole	U	40	0	0	0	0	0	0	0		
Chrysene	U	40	0	0	0	0	0	0	0		
Dibenzo(a,h)anthracene	U	40	0	0	0	0	0	0	0		
Dibenzofuran	U	40	0	0	0	0	0	0	0		
Diethyl phthalate	U	40	0	0	0	0	0	0	0		
Dimethyl phthalate	U	40	0	0	0	0	0	0	0		
Di-n-butyl phthalate	U	40	0	0	0	0	0	0	0		
Di-n-octyl phthalate	U	40	0	0	0	0	0	0	0		
Fluoranthene	U	40	0	0	0	0	0	0	0		
Fluorene	U	40	0	0	0	0	0	0	0		
Hexachlorobenzene	U	40	0	0	0	0	0	0	0		
Hexachlorobutadiene	U	40	0	0	0	0	0	0	0		
Hexachlorocyclopentadiene	U	40	0	0	0	0	0	0	0		
Hexachloroethane	U	40	0	0	0	0	0	0	0		
Indeno(1,2,3-c,d)pyrene	U	40	0	0	0	0	0	0	0		
Isophorone	U	40	0	0	0	0	0	0	0		
Naphthalene	U	40	0	0	0	0	0	0	0		

Qualifiers: ND - Not Detected at the Reporting Limit
J - Analyte detected below quantitation limits
S - Spike Recovery outside accepted recovery limits
R - RPD outside accepted recovery limits
B - Analyte detected in the associated Method Blank

CLIENT: AKRF, Inc
Work Order: 0306116
Project: Greenpoint Lumber Yard Brooklyn, NY

ANALYTICAL QC SUMMARY REPORT

TestCode: 8270_Soil

Sample ID: SSB070103	SampType: MBLK	TestCode: 8270_Soil	Units: µg/Kg	Prep Date: 7/1/2003	Run ID: SYSTEM T_030701B
Client ID: ZZZZZ	Batch ID: 1425	TestNo: SW8270D	(SW3550A)	Analysis Date: 7/1/2003	SeqNo: 25202

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Nitrobenzene	U	40	0	0	0	0	0	0	0		
N-Nitrosodimethylamine	U	40	0	0	0	0	0	0	0		
N-Nitrosodi-n-propylamine	U	40	0	0	0	0	0	0	0		
N-Nitrosodiphenylamine	U	40	0	0	0	0	0	0	0		
Pentachlorophenol	U	40	0	0	0	0	0	0	0		
Phenanthrene	U	40	0	0	0	0	0	0	0		
Phenol	U	40	0	0	0	0	0	0	0		
Pyrene	U	40	0	0	0	0	0	0	0		
Pyridine	U	40	0	0	0	0	0	0	0		

Sample ID: SSB070203	SampType: MBLK	TestCode: 8270_Soil	Units: µg/Kg	Prep Date: 7/2/2003	Run ID: SYSTEM T_030701B
Client ID: ZZZZZ	Batch ID: 1428	TestNo: SW8270D	(SW3550A)	Analysis Date: 7/3/2003	SeqNo: 25216

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
1,2,4-Trichlorobenzene	U	40	0	0	0	0	0	0	0		
1,2-Dichlorobenzene	U	40	0	0	0	0	0	0	0		
1,3-Dichlorobenzene	U	40	0	0	0	0	0	0	0		
1,4-Dichlorobenzene	U	40	0	0	0	0	0	0	0		
2,4,5-Trichlorophenol	U	40	0	0	0	0	0	0	0		
2,4,6-Trichlorophenol	U	40	0	0	0	0	0	0	0		
2,4-Dichlorophenol	U	40	0	0	0	0	0	0	0		
2,4-Dimethylphenol	U	40	0	0	0	0	0	0	0		
2,4-Dinitrophenol	U	40	0	0	0	0	0	0	0		
2,4-Dinitrotoluene	U	40	0	0	0	0	0	0	0		
2,6-Dinitrotoluene	U	40	0	0	0	0	0	0	0		
2-Chloronaphthalene	U	40	0	0	0	0	0	0	0		
2-Chlorophenol	U	40	0	0	0	0	0	0	0		
2-Methylnaphthalene	U	40	0	0	0	0	0	0	0		
2-Methylphenol	U	40	0	0	0	0	0	0	0		
2-Nitroaniline	U	40	0	0	0	0	0	0	0		
2-Nitrophenol	U	40	0	0	0	0	0	0	0		

Qualifiers: ND - Not Detected at the Reporting Limit
J - Analyte detected below quantitation limits
S - Spike Recovery outside accepted recovery limits
R - RPD outside accepted recovery limits
B - Analyte detected in the associated Method Blank

CLIENT: AKRF, Inc
Work Order: 0306116
Project: Greenpoint Lumber Yard Brooklyn, NY

ANALYTICAL QC SUMMARY REPORT

TestCode: 8270_Soil

Sample ID: SSB070203	SampType: MBLK	TestCode: 8270_Soil	Units: µg/Kg	Prep Date: 7/2/2003	Run ID: SYSTEM T_030701B
Client ID: ZZZZZ	Batch ID: 1428	TestNo: SW8270D	(SW3550A)	Analysis Date: 7/3/2003	SeqNo: 25216

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
3,3´-Dichlorobenzidine	U	40	0	0	0	0	0	0	0		
3+4-Methylphenol	U	40	0	0	0	0	0	0	0		
3-Nitroaniline	U	40	0	0	0	0	0	0	0		
4,6-Dinitro-2-methylphenol	U	40	0	0	0	0	0	0	0		
4-Bromophenyl phenyl ether	U	40	0	0	0	0	0	0	0		
4-Chloro-3-methylphenol	U	40	0	0	0	0	0	0	0		
4-Chloroaniline	U	40	0	0	0	0	0	0	0		
4-Chlorophenyl phenyl ether	U	40	0	0	0	0	0	0	0		
4-Nitroaniline	U	40	0	0	0	0	0	0	0		
4-Nitrophenol	U	40	0	0	0	0	0	0	0		
Acenaphthene	U	40	0	0	0	0	0	0	0		
Acenaphthylene	U	40	0	0	0	0	0	0	0		
Aniline	U	40	0	0	0	0	0	0	0		
Anthracene	U	40	0	0	0	0	0	0	0		
Azobenzene	U	40	0	0	0	0	0	0	0		
Benzidine	U	40	0	0	0	0	0	0	0		
Benzo(a)anthracene	U	40	0	0	0	0	0	0	0		
Benzo(a)pyrene	U	40	0	0	0	0	0	0	0		
Benzo(b)fluoranthene	U	40	0	0	0	0	0	0	0		
Benzo(g,h,i)perylene	U	40	0	0	0	0	0	0	0		
Benzo(k)fluoranthene	U	40	0	0	0	0	0	0	0		
Benzoic acid	U	40	0	0	0	0	0	0	0		
Benzyl alcohol	U	40	0	0	0	0	0	0	0		
Bis(2-chloroethoxy)methane	U	40	0	0	0	0	0	0	0		
Bis(2-chloroethyl)ether	U	40	0	0	0	0	0	0	0		
Bis(2-chloroisopropyl)ether	U	40	0	0	0	0	0	0	0		
Bis(2-ethylhexyl)phthalate	U	40	0	0	0	0	0	0	0		
Butyl benzyl phthalate	U	40	0	0	0	0	0	0	0		
Carbazole	U	40	0	0	0	0	0	0	0		
Chrysene	U	40	0	0	0	0	0	0	0		
Dibenzo(a,h)anthracene	U	40	0	0	0	0	0	0	0		

Qualifiers: ND - Not Detected at the Reporting Limit
J - Analyte detected below quantitation limits
S - Spike Recovery outside accepted recovery limits
R - RPD outside accepted recovery limits
B - Analyte detected in the associated Method Blank

CLIENT: AKRF, Inc
Work Order: 0306116
Project: Greenpoint Lumber Yard Brooklyn, NY

ANALYTICAL QC SUMMARY REPORT

TestCode: 8270_Soil

Sample ID: SSB070203	SampType: MBLK	TestCode: 8270_Soil	Units: µg/Kg	Prep Date: 7/2/2003	Run ID: SYSTEM T_030701B
Client ID: ZZZZZ	Batch ID: 1428	TestNo: SW8270D	(SW3550A)	Analysis Date: 7/3/2003	SeqNo: 25216

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Dibenzofuran	U	40	0	0	0	0	0	0	0		
Diethyl phthalate	U	40	0	0	0	0	0	0	0		
Dimethyl phthalate	U	40	0	0	0	0	0	0	0		
Di-n-butyl phthalate	U	40	0	0	0	0	0	0	0		
Di-n-octyl phthalate	U	40	0	0	0	0	0	0	0		
Fluoranthene	U	40	0	0	0	0	0	0	0		
Fluorene	U	40	0	0	0	0	0	0	0		
Hexachlorobenzene	U	40	0	0	0	0	0	0	0		
Hexachlorobutadiene	U	40	0	0	0	0	0	0	0		
Hexachlorocyclopentadiene	U	40	0	0	0	0	0	0	0		
Hexachloroethane	U	40	0	0	0	0	0	0	0		
Indeno(1,2,3-c,d)pyrene	U	40	0	0	0	0	0	0	0		
Isophorone	U	40	0	0	0	0	0	0	0		
Naphthalene	U	40	0	0	0	0	0	0	0		
Nitrobenzene	U	40	0	0	0	0	0	0	0		
N-Nitrosodimethylamine	U	40	0	0	0	0	0	0	0		
N-Nitrosodi-n-propylamine	U	40	0	0	0	0	0	0	0		
N-Nitrosodiphenylamine	U	40	0	0	0	0	0	0	0		
Pentachlorophenol	U	40	0	0	0	0	0	0	0		
Phenanthrene	U	40	0	0	0	0	0	0	0		
Phenol	U	40	0	0	0	0	0	0	0		
Pyrene	U	40	0	0	0	0	0	0	0		
Pyridine	U	40	0	0	0	0	0	0	0		

Sample ID: SSB070203	SampType: MBLK	TestCode: 8270_Soil	Units: µg/Kg	Prep Date: 7/2/2003	Run ID: SYSTEM T_030702A
Client ID: ZZZZZ	Batch ID: 1428	TestNo: SW8270D	(SW3550A)	Analysis Date: 7/3/2003	SeqNo: 25537

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
1,2,4-Trichlorobenzene	U	40	0	0	0	0	0	0	0		
1,2-Dichlorobenzene	U	40	0	0	0	0	0	0	0		
1,3-Dichlorobenzene	U	40	0	0	0	0	0	0	0		

Qualifiers: ND - Not Detected at the Reporting Limit; J - Analyte detected below quantitation limits; S - Spike Recovery outside accepted recovery limits; R - RPD outside accepted recovery limits; B - Analyte detected in the associated Method Blank

CLIENT: AKRF, Inc
Work Order: 0306116
Project: Greenpoint Lumber Yard Brooklyn, NY

ANALYTICAL QC SUMMARY REPORT

TestCode: 8270_Soil

Sample ID: SSB070203	SampType: MBLK	TestCode: 8270_Soil	Units: µg/Kg	Prep Date: 7/2/2003	Run ID: SYSTEM T_030702A
Client ID: ZZZZZ	Batch ID: 1428	TestNo: SW8270D	(SW3550A)	Analysis Date: 7/3/2003	SeqNo: 25537

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
1,4-Dichlorobenzene	U	40	0	0	0	0	0	0	0		
2,4,5-Trichlorophenol	U	40	0	0	0	0	0	0	0		
2,4,6-Trichlorophenol	U	40	0	0	0	0	0	0	0		
2,4-Dichlorophenol	U	40	0	0	0	0	0	0	0		
2,4-Dimethylphenol	U	40	0	0	0	0	0	0	0		
2,4-Dinitrophenol	U	40	0	0	0	0	0	0	0		
2,4-Dinitrotoluene	U	40	0	0	0	0	0	0	0		
2,6-Dinitrotoluene	U	40	0	0	0	0	0	0	0		
2-Chloronaphthalene	U	40	0	0	0	0	0	0	0		
2-Chlorophenol	U	40	0	0	0	0	0	0	0		
2-Methylnaphthalene	U	40	0	0	0	0	0	0	0		
2-Methylphenol	U	40	0	0	0	0	0	0	0		
2-Nitroaniline	U	40	0	0	0	0	0	0	0		
2-Nitrophenol	U	40	0	0	0	0	0	0	0		
3,3´-Dichlorobenzidine	U	40	0	0	0	0	0	0	0		
3+4-Methylphenol	U	40	0	0	0	0	0	0	0		
3-Nitroaniline	U	40	0	0	0	0	0	0	0		
4,6-Dinitro-2-methylphenol	U	40	0	0	0	0	0	0	0		
4-Bromophenyl phenyl ether	U	40	0	0	0	0	0	0	0		
4-Chloro-3-methylphenol	U	40	0	0	0	0	0	0	0		
4-Chloroaniline	U	40	0	0	0	0	0	0	0		
4-Chlorophenyl phenyl ether	U	40	0	0	0	0	0	0	0		
4-Nitroaniline	U	40	0	0	0	0	0	0	0		
4-Nitrophenol	U	40	0	0	0	0	0	0	0		
Acenaphthene	U	40	0	0	0	0	0	0	0		
Acenaphthylene	U	40	0	0	0	0	0	0	0		
Aniline	U	40	0	0	0	0	0	0	0		
Anthracene	U	40	0	0	0	0	0	0	0		
Azobenzene	U	40	0	0	0	0	0	0	0		
Benzidine	U	40	0	0	0	0	0	0	0		
Benzo(a)anthracene	U	40	0	0	0	0	0	0	0		

Qualifiers: ND - Not Detected at the Reporting Limit
J - Analyte detected below quantitation limits
S - Spike Recovery outside accepted recovery limits
R - RPD outside accepted recovery limits
B - Analyte detected in the associated Method Blank

CLIENT: AKRF, Inc
Work Order: 0306116
Project: Greenpoint Lumber Yard Brooklyn, NY

ANALYTICAL QC SUMMARY REPORT

TestCode: 8270_Soil

Sample ID: SSB070203	SampType: MBLK	TestCode: 8270_Soil	Units: µg/Kg	Prep Date: 7/2/2003	Run ID: SYSTEM T_030702A
Client ID: ZZZZZ	Batch ID: 1428	TestNo: SW8270D	(SW3550A)	Analysis Date: 7/3/2003	SeqNo: 25537

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Benzo(a)pyrene	U	40	0	0	0	0	0	0	0		
Benzo(b)fluoranthene	U	40	0	0	0	0	0	0	0		
Benzo(g,h,i)perylene	U	40	0	0	0	0	0	0	0		
Benzo(k)fluoranthene	U	40	0	0	0	0	0	0	0		
Benzoic acid	U	40	0	0	0	0	0	0	0		
Benzyl alcohol	U	40	0	0	0	0	0	0	0		
Bis(2-chloroethoxy)methane	U	40	0	0	0	0	0	0	0		
Bis(2-chloroethyl)ether	U	40	0	0	0	0	0	0	0		
Bis(2-chloroisopropyl)ether	U	40	0	0	0	0	0	0	0		
Bis(2-ethylhexyl)phthalate	U	40	0	0	0	0	0	0	0		
Butyl benzyl phthalate	U	40	0	0	0	0	0	0	0		
Carbazole	U	40	0	0	0	0	0	0	0		
Chrysene	U	40	0	0	0	0	0	0	0		
Dibenzo(a,h)anthracene	U	40	0	0	0	0	0	0	0		
Dibenzofuran	U	40	0	0	0	0	0	0	0		
Diethyl phthalate	U	40	0	0	0	0	0	0	0		
Dimethyl phthalate	U	40	0	0	0	0	0	0	0		
Di-n-butyl phthalate	U	40	0	0	0	0	0	0	0		
Di-n-octyl phthalate	U	40	0	0	0	0	0	0	0		
Fluoranthene	U	40	0	0	0	0	0	0	0		
Fluorene	U	40	0	0	0	0	0	0	0		
Hexachlorobenzene	U	40	0	0	0	0	0	0	0		
Hexachlorobutadiene	U	40	0	0	0	0	0	0	0		
Hexachlorocyclopentadiene	U	40	0	0	0	0	0	0	0		
Hexachloroethane	U	40	0	0	0	0	0	0	0		
Indeno(1,2,3-c,d)pyrene	U	40	0	0	0	0	0	0	0		
Isophorone	U	40	0	0	0	0	0	0	0		
Naphthalene	U	40	0	0	0	0	0	0	0		
Nitrobenzene	U	40	0	0	0	0	0	0	0		
N-Nitrosodimethylamine	U	40	0	0	0	0	0	0	0		
N-Nitrosodi-n-propylamine	U	40	0	0	0	0	0	0	0		

Qualifiers:
ND - Not Detected at the Reporting Limit
J - Analyte detected below quantitation limits
S - Spike Recovery outside accepted recovery limits
R - RPD outside accepted recovery limits
B - Analyte detected in the associated Method Blank

CLIENT: AKRF, Inc
Work Order: 0306116
Project: Greenpoint Lumber Yard Brooklyn, NY

ANALYTICAL QC SUMMARY REPORT

TestCode: 8270_Soil

Sample ID: SSB070203	SampType: MBLK	TestCode: 8270_Soil	Units: µg/Kg	Prep Date: 7/2/2003	Run ID: SYSTEM T_030702A
Client ID: ZZZZZ	Batch ID: 1428	TestNo: SW8270D	(SW3550A)	Analysis Date: 7/3/2003	SeqNo: 25537

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
N-Nitrosodiphenylamine	U	40	0	0	0	0	0	0	0		
Pentachlorophenol	U	40	0	0	0	0	0	0	0		
Phenanthrene	U	40	0	0	0	0	0	0	0		
Phenol	U	40	0	0	0	0	0	0	0		
Pyrene	U	40	0	0	0	0	0	0	0		
Pyridine	U	40	0	0	0	0	0	0	0		

Sample ID: LCS070103	SampType: LCS	TestCode: 8270_Soil	Units: µg/Kg	Prep Date: 7/1/2003	Run ID: SYSTEM T_030701B
Client ID: ZZZZZ	Batch ID: 1425	TestNo: SW8270D	(SW3550A)	Analysis Date: 7/2/2003	SeqNo: 25212

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
1,2,4-Trichlorobenzene	489	40	666	0	73.4	53	123	0	0		
1,4-Dichlorobenzene	502.8	40	666	0	75.5	41.5	114	0	0		
2,4-Dinitrotoluene	400.8	40	666	0	60.2	48	85.2	0	0		
2-Chlorophenol	499.6	40	666	0	75	52	113	0	0		
4-Chloro-3-methylphenol	524.6	40	666	0	78.8	50.3	111	0	0		
4-Nitrophenol	423.9	40	666	0	63.6	41.6	108	0	0		
Acenaphthene	475.5	40	666	0	71.4	43.6	113	0	0		
N-Nitrosodi-n-propylamine	476.3	40	666	0	71.5	42	120	0	0		
Pentachlorophenol	411.6	40	666	0	61.8	38.6	109	0	0		
Phenol	514.2	40	666	0	77.2	44.8	113	0	0		
Pyrene	604.3	40	666	0	90.7	46.2	104	0	0		

Sample ID: LCS070203	SampType: LCS	TestCode: 8270_Soil	Units: µg/Kg	Prep Date: 7/2/2003	Run ID: SYSTEM T_030702A
Client ID: ZZZZZ	Batch ID: 1428	TestNo: SW8270D	(SW3550A)	Analysis Date: 7/2/2003	SeqNo: 25533

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
1,2,4-Trichlorobenzene	541.2	40	666	0	81.3	53	123	0	0		
1,4-Dichlorobenzene	513.2	40	666	0	77.1	41.5	114	0	0		
2,4-Dinitrotoluene	420.5	40	666	0	63.1	48	85.2	0	0		
2-Chlorophenol	534.2	40	666	0	80.2	52	113	0	0		

Qualifiers: ND - Not Detected at the Reporting Limit; J - Analyte detected below quantitation limits; S - Spike Recovery outside accepted recovery limits; R - RPD outside accepted recovery limits; B - Analyte detected in the associated Method Blank

CLIENT: AKRF, Inc
Work Order: 0306116
Project: Greenpoint Lumber Yard Brooklyn, NY

ANALYTICAL QC SUMMARY REPORT

TestCode: 8270_Soil

Sample ID: LCS070203	SampType: LCS	TestCode: 8270_Soil	Units: µg/Kg	Prep Date: 7/2/2003	Run ID: SYSTEM T_030702A
Client ID: ZZZZZ	Batch ID: 1428	TestNo: SW8270D	(SW3550A)	Analysis Date: 7/2/2003	SeqNo: 25533

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
4-Chloro-3-methylphenol	538.8	40	666	0	80.9	50.3	111	0	0		
4-Nitrophenol	462.2	40	666	0	69.4	41.6	108	0	0		
Acenaphthene	497	40	666	0	74.6	43.6	113	0	0		
N-Nitrosodi-n-propylamine	521.8	40	666	0	78.4	42	120	0	0		
Pentachlorophenol	445.3	40	666	0	66.9	38.6	109	0	0		
Phenol	511.9	40	666	0	76.9	44.8	113	0	0		
Pyrene	629.8	40	666	0	94.6	46.2	104	0	0		

Sample ID: 0306116-04B MS	SampType: MS	TestCode: 8270_Soil	Units: µg/Kg	Prep Date: 7/1/2003	Run ID: SYSTEM T_030701B
Client ID: B13 (5'-7')	Batch ID: 1425	TestNo: SW8270D	(SW3550A)	Analysis Date: 7/2/2003	SeqNo: 25213

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
1,2,4-Trichlorobenzene	507.9	40	666	0	76.3	53	123	0	0		
1,4-Dichlorobenzene	470.1	40	666	0	70.6	41.5	114	0	0		
2,4-Dinitrotoluene	421.1	40	666	0	63.2	48	85.2	0	0		
2-Chlorophenol	504.4	40	666	0	75.7	52	113	0	0		
4-Chloro-3-methylphenol	557.9	40	666	0	83.8	50.3	111	0	0		
4-Nitrophenol	471.7	40	666	0	70.8	41.6	108	0	0		
Acenaphthene	491.2	40	666	0	73.8	43.6	113	0	0		
N-Nitrosodi-n-propylamine	491.1	40	666	0	73.7	42	120	0	0		
Pentachlorophenol	494.8	40	666	0	74.3	38.6	109	0	0		
Phenol	497.9	40	666	0	74.8	44.8	113	0	0		
Pyrene	808	40	666	0	121	46.2	104	0	0		S

Sample ID: 0306117-03B MS	SampType: MS	TestCode: 8270_Soil	Units: µg/Kg	Prep Date: 7/2/2003	Run ID: SYSTEM T_030702A
Client ID: ZZZZZ	Batch ID: 1428	TestNo: SW8270D	(SW3550A)	Analysis Date: 7/2/2003	SeqNo: 25534

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
1,2,4-Trichlorobenzene	422.8	40	666	0	63.5	53	123	0	0		
1,4-Dichlorobenzene	390.4	40	666	0	58.6	41.5	114	0	0		
2,4-Dinitrotoluene	448.2	40	666	0	67.3	48	85.2	0	0		

Qualifiers: ND - Not Detected at the Reporting Limit; J - Analyte detected below quantitation limits; S - Spike Recovery outside accepted recovery limits; R - RPD outside accepted recovery limits; B - Analyte detected in the associated Method Blank

CLIENT: AKRF, Inc
Work Order: 0306116
Project: Greenpoint Lumber Yard Brooklyn, NY

ANALYTICAL QC SUMMARY REPORT

TestCode: 8270_Soil

Sample ID: **0306117-03B MS** SampType: **MS** TestCode: **8270_Soil** Units: **µg/Kg** Prep Date: **7/2/2003** Run ID: **SYSTEM T_030702A**
Client ID: **ZZZZZ** Batch ID: **1428** TestNo: **SW8270D** **(SW3550A)** Analysis Date: **7/2/2003** SeqNo: **25534**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
2-Chlorophenol	424.9	40	666	0	63.8	52	113	0	0		
4-Chloro-3-methylphenol	573.7	40	666	0	86.1	50.3	111	0	0		
4-Nitrophenol	500.5	40	666	0	75.1	41.6	108	0	0		
Acenaphthene	493.8	40	666	0	74.2	43.6	113	0	0		
N-Nitrosodi-n-propylamine	413.7	40	666	0	62.1	42	120	0	0		
Pentachlorophenol	537.7	40	666	0	80.7	38.6	109	0	0		
Phenol	426.9	40	666	0	64.1	44.8	113	0	0		
Pyrene	665.6	40	666	0	99.9	46.2	104	0	0		

Sample ID: **0306116-04B MSD** SampType: **MSD** TestCode: **8270_Soil** Units: **µg/Kg** Prep Date: **7/1/2003** Run ID: **SYSTEM T_030701B**
Client ID: **B13 (5'-7')** Batch ID: **1425** TestNo: **SW8270D** **(SW3550A)** Analysis Date: **7/2/2003** SeqNo: **25214**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
1,2,4-Trichlorobenzene	493.8	40	666	0	74.1	53	123	0	0		
1,4-Dichlorobenzene	419.2	40	666	0	62.9	41.5	114	0	0		
2,4-Dinitrotoluene	411.7	40	666	0	61.8	48	85.2	0	0		
2-Chlorophenol	482.3	40	666	0	72.4	52	113	0	0		
4-Chloro-3-methylphenol	557.7	40	666	0	83.7	50.3	111	0	0		
4-Nitrophenol	504.1	40	666	0	75.7	41.6	108	0	0		
Acenaphthene	514.4	40	666	0	77.2	43.6	113	0	0		
N-Nitrosodi-n-propylamine	469.3	40	666	0	70.5	42	120	0	0		
Pentachlorophenol	502.9	40	666	0	75.5	38.6	109	0	0		
Phenol	464.5	40	666	0	69.7	44.8	113	0	0		
Pyrene	766.8	40	666	0	115	46.2	104	0	0		S

Sample ID: **0306117-03B MSD** SampType: **MSD** TestCode: **8270_Soil** Units: **µg/Kg** Prep Date: **7/2/2003** Run ID: **SYSTEM T_030702A**
Client ID: **ZZZZZ** Batch ID: **1428** TestNo: **SW8270D** **(SW3550A)** Analysis Date: **7/2/2003** SeqNo: **25535**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
1,2,4-Trichlorobenzene	478.3	40	666	0	71.8	53	123	0	0		
1,4-Dichlorobenzene	462	40	666	0	69.4	41.5	114	0	0		

Qualifiers: ND - Not Detected at the Reporting Limit
J - Analyte detected below quantitation limits
S - Spike Recovery outside accepted recovery limits
R - RPD outside accepted recovery limits
B - Analyte detected in the associated Method Blank

CLIENT: AKRF, Inc
Work Order: 0306116
Project: Greenpoint Lumber Yard Brooklyn, NY

ANALYTICAL QC SUMMARY REPORT

TestCode: 8270_Soil

Sample ID: **0306117-03B MSD**	SampType: **MSD**	TestCode: **8270_Soil**	Units: **µg/Kg**	Prep Date: **7/2/2003**	Run ID: **SYSTEM T_030702A**
Client ID: **ZZZZZ**	Batch ID: **1428**	TestNo: **SW8270D**	**(SW3550A)**	Analysis Date: **7/2/2003**	SeqNo: **25535**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
2,4-Dinitrotoluene	406.6	40	666	0	61.1	48	85.2	0	0		
2-Chlorophenol	462.4	40	666	0	69.4	52	113	0	0		
4-Chloro-3-methylphenol	526.8	40	666	0	79.1	50.3	111	0	0		
4-Nitrophenol	462.1	40	666	0	69.4	41.6	108	0	0		
Acenaphthene	476.8	40	666	0	71.6	43.6	113	0	0		
N-Nitrosodi-n-propylamine	448.1	40	666	0	67.3	42	120	0	0		
Pentachlorophenol	507	40	666	0	76.1	38.6	109	0	0		
Phenol	473.6	40	666	0	71.1	44.8	113	0	0		
Pyrene	610.7	40	666	0	91.7	46.2	104	0	0		

Qualifiers:
ND - Not Detected at the Reporting Limit
J - Analyte detected below quantitation limits
S - Spike Recovery outside accepted recovery limits
R - RPD outside accepted recovery limits
B - Analyte detected in the associated Method Blank

CLIENT: AKRF, Inc
Work Order: 0306116
Project: Greenpoint Lumber Yard Brooklyn, NY

ANALYTICAL QC SUMMARY REPORT

TestCode: Full8260_Soil

Sample ID: **VBLK063003** SampType: **MBLK** TestCode: **Full8260_Soil** Units: **µg/Kg** Prep Date: Run ID: **SYSTEM Y_030630A**
Client ID: **ZZZZZ** Batch ID: **R3162** TestNo: **SW8260B** Analysis Date: **6/30/2003** SeqNo: **25061**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
1,1,1,2-Tetrachloroethane	U	5.0									
1,1,1-Trichloroethane	U	5.0									
1,1,2,2-Tetrachloroethane	U	5.0									
1,1,2-Trichloro-1,2,2-trifluoroethane	U	5.0									
1,1,2-Trichloroethane	U	5.0									
1,1-Dichloroethane	U	5.0									
1,1-Dichloroethene	U	5.0									
1,1-Dichloropropene	U	5.0									
1,2,3-Trichlorobenzene	U	5.0									
1,2,3-Trichloropropane	U	5.0									
1,2,4,5-Tetramethylbenzene	U	5.0									
1,2,4-Trichlorobenzene	U	5.0									
1,2,4-Trimethylbenzene	U	5.0									
1,2-Dibromo-3-chloropropane	U	5.0									
1,2-Dibromoethane	U	5.0									
1,2-Dichlorobenzene	U	5.0									
1,2-Dichloroethane	U	5.0									
1,2-Dichloropropane	U	5.0									
1,3,5-Trimethylbenzene	U	5.0									
1,3-Dichlorobenzene	U	5.0									
1,3-dichloropropane	U	5.0									
1,4-Dichlorobenzene	U	5.0									
2,2-Dichloropropane	U	5.0									
2-Butanone	U	5.0									
2-Chloroethyl vinyl ether	U	5.0									
2-Chlorotoluene	U	5.0									
2-Hexanone	U	5.0									
4-Chlorotoluene	U	5.0									
4-Isopropyltoluene	U	5.0									
4-Methyl-2-pentanone	U	5.0									
Acetone	U	5.0									

Qualifiers: ND - Not Detected at the Reporting Limit
J - Analyte detected below quantitation limits
S - Spike Recovery outside accepted recovery limits
R - RPD outside accepted recovery limits
B - Analyte detected in the associated Method Blank

CLIENT: AKRF, Inc
Work Order: 0306116
Project: Greenpoint Lumber Yard Brooklyn, NY

ANALYTICAL QC SUMMARY REPORT

TestCode: Full8260_Soil

Sample ID: **VBLK063003**	SampType: **MBLK**	TestCode: **Full8260_Soil**	Units: **µg/Kg**	Prep Date:	Run ID: **SYSTEM Y_030630A**
Client ID: **ZZZZZ**	Batch ID: **R3162**	TestNo: **SW8260B**		Analysis Date: **6/30/2003**	SeqNo: **25061**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Acrolein	U	25									
Acrylonitrile	U	5.0									
Benzene	U	5.0									
Bromobenzene	U	5.0									
Bromochloromethane	U	5.0									
Bromodichloromethane	U	5.0									
Bromoform	U	5.0									
Bromomethane	U	5.0									
Carbon disulfide	U	5.0									
Carbon tetrachloride	U	5.0									
Chlorobenzene	U	5.0									
Chlorodifluoromethane	U	5.0									
Chloroethane	U	5.0									
Chloroform	U	5.0									
Chloromethane	U	5.0									
cis-1,2-Dichloroethene	U	5.0									
cis-1,3-Dichloropropene	U	5.0									
Dibromochloromethane	U	5.0									
Dibromomethane	U	5.0									
Dichlorodifluoromethane	U	5.0									
Diisopropyl ether	U	5.0									
Ethanol	U	25									
Ethyl acetate	U	5.0									
Ethylbenzene	U	5.0									
Freon-114	U	5.0									
Hexachlorobutadiene	U	5.0									
Isopropyl acetate	U	5.0									
Isopropylbenzene	U	5.0									
m,p-Xylene	U	10									
Methyl tert-butyl ether	U	5.0									
Methylene chloride	U	5.0									

Qualifiers:
ND - Not Detected at the Reporting Limit
J - Analyte detected below quantitation limits
S - Spike Recovery outside accepted recovery limits
R - RPD outside accepted recovery limits
B - Analyte detected in the associated Method Blank

ANALYTICAL QC SUMMARY REPORT

TestCode: Full8260_Soil

Sample ID: **VBLK063003** SampType: **MBLK** TestCode: **Full8260_Soil** Units: **µg/Kg** Prep Date: Run ID: **SYSTEM Y_030630A**
Client ID: **ZZZZZ** Batch ID: **R3162** TestNo: **SW8260B** Analysis Date: **6/30/2003** SeqNo: **25061**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Naphthalene	U	5.0									
n-Butyl acetate	U	5.0									
n-Butylbenzene	U	5.0									
n-Propyl acetate	U	5.0									
n-Propylbenzene	U	5.0									
o-Xylene	U	5.0									
p-Diethylbenzene	U	5.0									
p-Ethyltoluene	U	5.0									
sec-Butylbenzene	U	5.0									
Styrene	U	5.0									
t-Butyl alcohol	U	5.0									
tert-Butylbenzene	U	5.0									
Tetrachloroethene	U	5.0									
Toluene	U	5.0									
trans-1,2-Dichloroethene	U	5.0									
trans-1,3-Dichloropropene	U	5.0									
Trichloroethene	U	5.0									
Trichlorofluoromethane	U	5.0									
Vinyl acetate	U	5.0									
Vinyl chloride	U	5.0									

Sample ID: **VBLK070103** SampType: **MBLK** TestCode: **Full8260_Soil** Units: **µg/Kg** Prep Date: Run ID: **SYSTEM Y_030630A**
Client ID: **ZZZZZ** Batch ID: **R3162** TestNo: **SW8260B** Analysis Date: **7/1/2003** SeqNo: **25077**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
1,1,1,2-Tetrachloroethane	U	5.0									
1,1,1-Trichloroethane	U	5.0									
1,1,2,2-Tetrachloroethane	U	5.0									
1,1,2-Trichloro-1,2,2-trifluoroethane	U	5.0									
1,1,2-Trichloroethane	U	5.0									
1,1-Dichloroethane	U	5.0									

Qualifiers: ND - Not Detected at the Reporting Limit
J - Analyte detected below quantitation limits
S - Spike Recovery outside accepted recovery limits
R - RPD outside accepted recovery limits
B - Analyte detected in the associated Method Blank

CLIENT: AKRF, Inc
Work Order: 0306116
Project: Greenpoint Lumber Yard Brooklyn, NY

ANALYTICAL QC SUMMARY REPORT

TestCode: Full8260_Soil

Sample ID: **VBLK070103** SampType: **MBLK** TestCode: **Full8260_Soil** Units: **µg/Kg** Prep Date: Run ID: **SYSTEM Y_030630A**
Client ID: **ZZZZZ** Batch ID: **R3162** TestNo: **SW8260B** Analysis Date: **7/1/2003** SeqNo: **25077**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
1,1-Dichloroethene	U	5.0									
1,1-Dichloropropene	U	5.0									
1,2,3-Trichlorobenzene	U	5.0									
1,2,3-Trichloropropane	U	5.0									
1,2,4,5-Tetramethylbenzene	U	5.0									
1,2,4-Trichlorobenzene	U	5.0									
1,2,4-Trimethylbenzene	U	5.0									
1,2-Dibromo-3-chloropropane	U	5.0									
1,2-Dibromoethane	U	5.0									
1,2-Dichlorobenzene	U	5.0									
1,2-Dichloroethane	U	5.0									
1,2-Dichloropropane	U	5.0									
1,3,5-Trimethylbenzene	U	5.0									
1,3-Dichlorobenzene	U	5.0									
1,3-dichloropropane	U	5.0									
1,4-Dichlorobenzene	U	5.0									
2,2-Dichloropropane	U	5.0									
2-Butanone	U	5.0									
2-Chloroethyl vinyl ether	U	5.0									
2-Chlorotoluene	U	5.0									
2-Hexanone	U	5.0									
4-Chlorotoluene	U	5.0									
4-Isopropyltoluene	U	5.0									
4-Methyl-2-pentanone	U	5.0									
Acetone	U	5.0									
Acrolein	U	25									
Acrylonitrile	U	5.0									
Benzene	U	5.0									
Bromobenzene	U	5.0									
Bromochloromethane	U	5.0									
Bromodichloromethane	U	5.0									

Qualifiers:
ND - Not Detected at the Reporting Limit
J - Analyte detected below quantitation limits
S - Spike Recovery outside accepted recovery limits
R - RPD outside accepted recovery limits
B - Analyte detected in the associated Method Blank

CLIENT: AKRF, Inc
Work Order: 0306116
Project: Greenpoint Lumber Yard Brooklyn, NY

ANALYTICAL QC SUMMARY REPORT

TestCode: Full8260_Soil

Sample ID: **VBLK070103** SampType: **MBLK** TestCode: **Full8260_Soil** Units: **µg/Kg** Prep Date: Run ID: **SYSTEM Y_030630A**
Client ID: **ZZZZZ** Batch ID: **R3162** TestNo: **SW8260B** Analysis Date: **7/1/2003** SeqNo: **25077**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Bromoform	U	5.0									
Bromomethane	U	5.0									
Carbon disulfide	U	5.0									
Carbon tetrachloride	U	5.0									
Chlorobenzene	U	5.0									
Chlorodifluoromethane	U	5.0									
Chloroethane	U	5.0									
Chloroform	U	5.0									
Chloromethane	U	5.0									
cis-1,2-Dichloroethene	U	5.0									
cis-1,3-Dichloropropene	U	5.0									
Dibromochloromethane	U	5.0									
Dibromomethane	U	5.0									
Dichlorodifluoromethane	U	5.0									
Diisopropyl ether	U	5.0									
Ethanol	U	25									
Ethyl acetate	U	5.0									
Ethylbenzene	U	5.0									
Freon-114	U	5.0									
Hexachlorobutadiene	U	5.0									
Isopropyl acetate	U	5.0									
Isopropylbenzene	U	5.0									
m,p-Xylene	U	10									
Methyl tert-butyl ether	U	5.0									
Methylene chloride	U	5.0									
Naphthalene	U	5.0									
n-Butyl acetate	U	5.0									
n-Butylbenzene	U	5.0									
n-Propyl acetate	U	5.0									
n-Propylbenzene	U	5.0									
o-Xylene	U	5.0									

Qualifiers:
ND - Not Detected at the Reporting Limit
J - Analyte detected below quantitation limits
S - Spike Recovery outside accepted recovery limits
R - RPD outside accepted recovery limits
B - Analyte detected in the associated Method Blank

CLIENT: AKRF, Inc
Work Order: 0306116
Project: Greenpoint Lumber Yard Brooklyn, NY

ANALYTICAL QC SUMMARY REPORT

TestCode: Full8260_Soil

Sample ID: **VBLK070103** SampType: **MBLK** TestCode: **Full8260_Soil** Units: **µg/Kg** Prep Date: Run ID: **SYSTEM Y_030630A**
Client ID: **ZZZZZ** Batch ID: **R3162** TestNo: **SW8260B** Analysis Date: **7/1/2003** SeqNo: **25077**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
p-Diethylbenzene	U	5.0									
p-Ethyltoluene	U	5.0									
sec-Butylbenzene	U	5.0									
Styrene	U	5.0									
t-Butyl alcohol	U	5.0									
tert-Butylbenzene	U	5.0									
Tetrachloroethene	U	5.0									
Toluene	U	5.0									
trans-1,2-Dichloroethene	U	5.0									
trans-1,3-Dichloropropene	U	5.0									
Trichloroethene	U	5.0									
Trichlorofluoromethane	U	5.0									
Vinyl acetate	U	5.0									
Vinyl chloride	U	5.0									

Sample ID: **LCS063003** SampType: **LCS** TestCode: **Full8260_Soil** Units: **µg/Kg** Prep Date: Run ID: **SYSTEM Y_030630A**
Client ID: **ZZZZZ** Batch ID: **R3162** TestNo: **SW8260B** Analysis Date: **6/30/2003** SeqNo: **25062**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
1,1-Dichloroethene	44.21	5.0	50	0	88.4	67.3	124	0	0		
Benzene	53.98	5.0	50	0	108	65.1	126	0	0		
Chlorobenzene	50.04	5.0	50	0	100	63.7	127	0	0		
Toluene	42.8	5.0	50	0	85.6	68.7	124	0	0		
Trichloroethene	42.21	5.0	50	0	84.4	63.4	123	0	0		

Sample ID: **0306116-01AMS** SampType: **MS** TestCode: **Full8260_Soil** Units: **µg/Kg** Prep Date: Run ID: **SYSTEM Y_030630A**
Client ID: **B12 (0.5-2')** Batch ID: **R3162** TestNo: **SW8260B** Analysis Date: **6/30/2003** SeqNo: **25064**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
1,1-Dichloroethene	16.8	5.0	50	0	33.6	67.3	124	0	0		S
Benzene	26.06	5.0	50	0	52.1	65.1	126	0	0		S

Qualifiers: ND - Not Detected at the Reporting Limit; J - Analyte detected below quantitation limits; S - Spike Recovery outside accepted recovery limits; R - RPD outside accepted recovery limits; B - Analyte detected in the associated Method Blank

CLIENT: AKRF, Inc
Work Order: 0306116
Project: Greenpoint Lumber Yard Brooklyn, NY

ANALYTICAL QC SUMMARY REPORT

TestCode: Full8260_Soil

Sample ID: 0306116-01AMS	SampType: MS	TestCode: Full8260_Soil	Units: µg/Kg	Prep Date:	Run ID: SYSTEM Y_030630A
Client ID: B12 (0.5-2')	Batch ID: R3162	TestNo: SW8260B		Analysis Date: 6/30/2003	SeqNo: 25064

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Chlorobenzene	11.2	5.0	50	0	22.4	63.7	127	0	0		S
Toluene	17.99	5.0	50	0	36	68.7	124	0	0		S
Trichloroethene	13.58	5.0	50	0	27.2	63.4	123	0	0		S

Sample ID: 0306116-01AMSD	SampType: MSD	TestCode: Full8260_Soil	Units: µg/Kg	Prep Date:	Run ID: SYSTEM Y_030630A
Client ID: B12 (0.5-2')	Batch ID: R3162	TestNo: SW8260B		Analysis Date: 6/30/2003	SeqNo: 25065

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
1,1-Dichloroethene	16.02	5.0	50	0	32	67.3	124	16.8	4.75	20	S
Benzene	22.28	5.0	50	0	44.6	65.1	126	26.06	15.6	20	S
Chlorobenzene	7.36	5.0	50	0	14.7	63.7	127	11.2	41.4	20	SR
Toluene	14.18	5.0	50	0	28.4	68.7	124	17.99	23.7	20	SR
Trichloroethene	10.27	5.0	50	0	20.5	63.4	123	13.58	27.8	20	SR

Qualifiers:
ND - Not Detected at the Reporting Limit
J - Analyte detected below quantitation limits
S - Spike Recovery outside accepted recovery limits
R - RPD outside accepted recovery limits
B - Analyte detected in the associated Method Blank

CLIENT: AKRF, Inc
Work Order: 0306116
Project: Greenpoint Lumber Yard Brooklyn, NY

ANALYTICAL QC SUMMARY REPORT

TestCode: ICP_TAL_S

Sample ID: **MB063003A** SampType: **MBLK** TestCode: **ICP_TAL_S** Units: **mg/Kg** Prep Date: Run ID: **ICP A_030703A**
Client ID: **ZZZZZ** Batch ID: **1433** TestNo: **SW6010B** **(SW3050A)** Analysis Date: **7/3/2003** SeqNo: **24826**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Aluminum	U	0.0200									
Antimony	U	0.0250									
Arsenic	U	0.0250									
Barium	U	0.0200									
Beryllium	U	0.0200									
Cadmium	U	0.0100									
Calcium	U	0.0200									
Chromium	U	0.0200									
Cobalt	U	0.0200									
Copper	U	0.0200									
Iron	U	0.0200									
Lead	U	0.0150									
Magnesium	U	0.0200									
Manganese	U	0.0200									
Nickel	U	0.0200									
Potassium	U	0.0700									
Selenium	U	0.0250									
Silver	U	0.0200									
Sodium	U	0.0300									
Thallium	U	0.0150									
Vanadium	U	0.0200									
Zinc	U	0.0200									

Sample ID: **LCS 1** SampType: **LCS** TestCode: **ICP_TAL_S** Units: **mg/Kg** Prep Date: Run ID: **ICP A_030703A**
Client ID: **ZZZZZ** Batch ID: **1433** TestNo: **SW6010B** **(SW3050A)** Analysis Date: **7/3/2003** SeqNo: **24827**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Aluminum	1.978	0.0200	2	0	98.9	75	125	0	0		
Antimony	1.98	0.0250	2	0	99	67	111	0	0		
Arsenic	1.975	0.0250	2	0	98.7	67.6	123	0	0		
Barium	1.973	0.0200	2	0	98.7	65.1	120	0	0		

Qualifiers:
ND - Not Detected at the Reporting Limit
J - Analyte detected below quantitation limits
S - Spike Recovery outside accepted recovery limits
R - RPD outside accepted recovery limits
B - Analyte detected in the associated Method Blank

CLIENT: AKRF, Inc
Work Order: 0306116
Project: Greenpoint Lumber Yard Brooklyn, NY

ANALYTICAL QC SUMMARY REPORT

TestCode: ICP_TAL_S

Sample ID: **LCS 1** SampType: **LCS** TestCode: **ICP_TAL_S** Units: **mg/Kg** Prep Date: Run ID: **ICP A_030703A**
Client ID: **ZZZZZ** Batch ID: **1433** TestNo: **SW6010B** **(SW3050A)** Analysis Date: **7/3/2003** SeqNo: **24827**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Beryllium	2.008	0.0200	2	0	100	60.8	118	0	0		
Cadmium	1.985	0.0100	2	0	99.2	62.9	114	0	0		
Calcium	2.006	0.0200	2	0	100	75	125	0	0		
Chromium	1.985	0.0200	2	0	99.3	64.8	120	0	0		
Cobalt	1.993	0.0200	2	0	99.7	75	125	0	0		
Copper	1.981	0.0200	2	0	99	61.4	118	0	0		
Iron	1.946	0.0200	2	0	97.3	75	125	0	0		
Lead	1.928	0.0150	2	0	96.4	60.6	119	0	0		
Magnesium	2.002	0.0200	2	0	100	75	125	0	0		
Manganese	2.008	0.0200	2	0	100	61	111	0	0		
Nickel	1.999	0.0200	2	0	100	66.5	126	0	0		
Potassium	20.12	0.0700	20	0	101	75	125	0	0		
Selenium	1.975	0.0250	2	0	98.7	60.5	115	0	0		
Silver	1.983	0.0200	2	0	99.1	72.4	106	0	0		
Sodium	2.006	0.0300	2	0	100	75	125	0	0		
Thallium	1.999	0.0150	2	0	99.9	62	116	0	0		
Vanadium	1.996	0.0200	2	0	99.8	75	125	0	0		
Zinc	1.985	0.0200	2	0	99.3	61	112	0	0		

Sample ID: **0306116-20B MS** SampType: **MS** TestCode: **ICP_TAL_S** Units: **mg/Kg** Prep Date: Run ID: **ICP A_030703A**
Client ID: **MW10 (0.5-2')** Batch ID: **1433** TestNo: **SW6010B** **(SW3050A)** Analysis Date: **7/3/2003** SeqNo: **24852**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Aluminum	2448	0.398	19.92	2509	-307	75	125	0	0		S
Antimony	14.05	0.498	19.92	0	70.5	67	111	0	0		
Arsenic	23.51	0.498	19.92	4.937	93.2	67.6	123	0	0		
Barium	41.85	0.398	19.92	25.78	80.7	65.1	120	0	0		
Beryllium	16.7	0.398	19.92	0	83.8	60.8	118	0	0		
Cadmium	17.81	0.199	19.92	0.5503	86.6	62.9	114	0	0		
Calcium	21450	0.398	19.92	21960	-2570	75	125	0	0		S
Chromium	27.07	0.398	19.92	10.74	82	64.8	120	0	0		

Qualifiers:
ND - Not Detected at the Reporting Limit
J - Analyte detected below quantitation limits
S - Spike Recovery outside accepted recovery limits
R - RPD outside accepted recovery limits
B - Analyte detected in the associated Method Blank

CLIENT: AKRF, Inc
Work Order: 0306116
Project: Greenpoint Lumber Yard Brooklyn, NY

ANALYTICAL QC SUMMARY REPORT

TestCode: ICP_TAL_S

Sample ID: 0306116-20B MS	SampType: MS	TestCode: ICP_TAL_S	Units: mg/Kg	Prep Date:	Run ID: ICP A_030703A
Client ID: MW10 (0.5-2')	Batch ID: 1433	TestNo: SW6010B	(SW3050A)	Analysis Date: 7/3/2003	SeqNo: 24852

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Cobalt	20.37	0.398	19.92	5.152	76.4	75	125	0	0		
Copper	43.45	0.398	19.92	26.97	82.7	61.4	118	0	0		
Iron	4172	0.398	19.92	4260	-441	75	125	0	0		S
Lead	266.8	0.299	19.92	259.1	38.7	60.6	119	0	0		S
Magnesium	439.7	0.398	19.92	436.5	16	75	125	0	0		S
Manganese	118.1	0.398	19.92	105.7	62	61	111	0	0		
Nickel	23.74	0.398	19.92	8.637	75.8	66.5	126	0	0		
Potassium	1082	1.39	199.2	835.2	124	75	125	0	0		
Selenium	17.46	0.498	19.92	0.4651	85.3	60.5	115	0	0		
Silver	19.73	0.398	19.92	0.3427	97.3	72.4	106	0	0		
Sodium	263.1	0.598	19.92	251	61.1	75	125	0	0		S
Thallium	18.71	0.299	19.92	1.022	88.8	62	116	0	0		
Vanadium	35.3	0.398	19.92	19.3	80.3	75	125	0	0		
Zinc	173.1	0.398	19.92	163	50.5	61	112	0	0		S

Sample ID: 0306116-20B MSD	SampType: MSD	TestCode: ICP_TAL_S	Units: mg/Kg	Prep Date:	Run ID: ICP A_030703A
Client ID: MW10 (0.5-2')	Batch ID: 1433	TestNo: SW6010B	(SW3050A)	Analysis Date: 7/3/2003	SeqNo: 24853

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Aluminum	2468	0.398	19.92	2509	-204	75	125	2448	0.832	0	S
Antimony	14.28	0.498	19.92	0	71.7	67	111	14.05	1.65	20	
Arsenic	22.88	0.498	19.92	4.937	90.1	67.6	123	23.51	2.72	20	
Barium	42.45	0.398	19.92	25.78	83.7	65.1	120	41.85	1.41	20	
Beryllium	16.88	0.398	19.92	0	84.8	60.8	118	16.7	1.13	20	
Cadmium	17.87	0.199	19.92	0.5503	87	62.9	114	17.81	0.368	20	
Calcium	21540	0.398	19.92	21960	-2110	75	125	21450	0.432	0	S
Chromium	26.69	0.398	19.92	10.74	80.1	64.8	120	27.07	1.41	20	
Cobalt	20.63	0.398	19.92	5.152	77.7	75	125	20.37	1.27	20	
Copper	43.72	0.398	19.92	26.97	84	61.4	118	43.45	0.608	20	
Iron	4201	0.398	19.92	4260	-293	75	125	4172	0.704	0	S
Lead	268.1	0.299	19.92	259.1	45.2	60.6	119	266.8	0.491	20	S

Qualifiers:
ND - Not Detected at the Reporting Limit
J - Analyte detected below quantitation limits
S - Spike Recovery outside accepted recovery limits
R - RPD outside accepted recovery limits
B - Analyte detected in the associated Method Blank

CLIENT: AKRF, Inc
Work Order: 0306116
Project: Greenpoint Lumber Yard Brooklyn, NY

ANALYTICAL QC SUMMARY REPORT

TestCode: ICP_TAL_S

Sample ID: **0306116-20B MSD** SampType: **MSD** TestCode: **ICP_TAL_S** Units: **mg/Kg** Prep Date: Run ID: **ICP A_030703A**
Client ID: **MW10 (0.5-2')** Batch ID: **1433** TestNo: **SW6010B (SW3050A)** Analysis Date: **7/3/2003** SeqNo: **24853**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Magnesium	437.7	0.398	19.92	436.5	5.86	75	125	439.7	0.462	0	S
Manganese	118.7	0.398	19.92	105.7	65.3	61	111	118.1	0.551	20	
Nickel	23.79	0.398	19.92	8.637	76.1	66.5	126	23.74	0.231	20	
Potassium	1097	1.39	199.2	835.2	131	75	125	1082	1.38	0	S
Selenium	17.58	0.498	19.92	0.4651	85.9	60.5	115	17.46	0.659	20	
Silver	19.9	0.398	19.92	0.3427	98.2	72.4	106	19.73	0.842	20	
Sodium	266.1	0.598	19.92	251	75.9	75	125	263.1	1.11	0	
Thallium	18.54	0.299	19.92	1.022	88	62	116	18.71	0.908	20	
Vanadium	35.42	0.398	19.92	19.3	80.9	75	125	35.3	0.355	20	
Zinc	173.2	0.398	19.92	163	51.2	61	112	173.1	0.0740	20	S

Qualifiers:
ND - Not Detected at the Reporting Limit
J - Analyte detected below quantitation limits
S - Spike Recovery outside accepted recovery limits
R - RPD outside accepted recovery limits
B - Analyte detected in the associated Method Blank

American Analytical Laboratories, Inc.

Date: 29-Jul-03

CLIENT: AKRF, Inc
Work Order: 0306116
Project: Greenpoint Lumber Yard Brooklyn,
Test No: SW8081B **Matrix:** S

QC SUMMARY REPORT SURROGATE RECOVERIES

Sample ID	CL10BZ2	XYL2456CLM						
0306116-01B	205 *	95.7						
0306116-02B	143	112						
0306116-02BMS	131	107						
0306116-02BMSD	135	100						
0306116-03B	83.3	87.0						
0306116-04B	101	80.9						
0306116-05B	116	119						
0306116-06B	115	102						
0306116-07B	117	89.1						
0306116-08B	87.3	92.3						
0306116-09B	69.4	90.0						
0306116-10B	75.2	74.3						
0306116-11B	69.0	57.9 *						
0306116-12B	71.2	96.9						
0306116-13B	57.3 *	49.7 *						
0306116-14B	93.4	82.2						
0306116-15B	86.4	82.5						
0306116-16B	77.3	87.2						
0306116-17B	62.2	67.1						
0306116-18B	89.3	99.4						
0306116-19B	80.6	65.0						
0306116-20B	137	130						
0306117-03BMS	98.4	75.7						
0306117-03BMSD	102	82.7						
MSB070103	77.4	59.1 *						
MSB070203	112	99.2						
PSB070103	129	98.6						

Acronym	Surrogate	QC Limits
CL10BZ2	= DCB	61.4-149
XYL2456CLM	= TCX	63.9-130

*** Surrogate recovery outside acceptance limits**

CLIENT: AKRF, Inc
Work Order: 0306116
Project: Greenpoint Lumber Yard Brooklyn,
Test No: SW8081B **Matrix:** S

QC SUMMARY REPORT
SURROGATE RECOVERIES

Sample ID	CL10BZ2	XYL2456CLM						
PSB070203	95.6	81.0						

Acronym		Surrogate	QC Limits
CL10BZ2	=	DCB	61.4-149
XYL2456CLM	=	TCX	63.9-130

*** Surrogate recovery outside acceptance limits**

American Analytical Laboratories, Inc.

Date: 29-Jul-03

CLIENT: AKRF, Inc
Work Order: 0306116
Project: Greenpoint Lumber Yard Brooklyn,
Test No: SW8082A **Matrix:** S

QC SUMMARY REPORT
SURROGATE RECOVERIES

Sample ID	CL10BZ2	XYL2456CLM						
0306116-01B	133 *	71.5						
0306116-02B	130 *	119						
0306116-03B	143 *	127						
0306116-04B	70.4	89.2						
0306116-04BMS	137 *	127						
0306116-04BMSD	127 *	116						
0306116-05B	104	93.3						
0306116-06B	109	102						
0306116-07B	117	105						
0306116-08B	64.7	61.7						
0306116-09B	119	166 *						
0306116-10B	91.2	93.8						
0306116-11B	81.5	75.6						
0306116-12B	86.0	86.1						
0306116-13B	61.7	58.7						
0306116-14B	99.2	82.4						
0306116-15B	74.9	70.3						
0306116-16B	101	87.4						
0306116-17B	103	102						
0306116-18B	83.4	71.6						
0306116-19B	117	100						
0306116-20B	84.8	76.2						
0306117-01BMS	84.6	84.7						
0306117-01BMSD	93.0	71.7						
MSB070103	28.4 *	90.1						
MSB070203	67.4	78.7						
PSB070103	94.1	66.5						

Acronym		Surrogate	QC Limits
CL10BZ2	=	DCB	43.3-125
XYL2456CLM	=	TCX	31.2-128

*** Surrogate recovery outside acceptance limits**

CLIENT: AKRF, Inc
Work Order: 0306116
Project: Greenpoint Lumber Yard Brooklyn,
Test No: SW8082A **Matrix:** S

QC SUMMARY REPORT
SURROGATE RECOVERIES

Sample ID	CL10BZ2	XYL2456CLM						
PSB070203	69.6	60.2						

Acronym		Surrogate	QC Limits
CL10BZ2	=	DCB	43.3-125
XYL2456CLM	=	TCX	31.2-128

*** Surrogate recovery outside acceptance limits**

American Analytical Laboratories, Inc.

Date: 29-Jul-03

CLIENT: AKRF, Inc
Work Order: 0306116
Project: Greenpoint Lumber Yard Brooklyn,
Test No: SW8260B **Matrix:** S

QC SUMMARY REPORT SURROGATE RECOVERIES

Sample ID	BR4FBZ	BZMED8	DBFM					
0306116-01A	103	100	95.7					
0306116-01AMS	106	102	97.5					
0306116-01AMSD	103	101	98.3					
0306116-02A	101	100	95.7					
0306116-03A	117	100	100					
0306116-04A	104	96.6	94.2					
0306116-05A	107	94.6	92.3					
0306116-06A	112	95.8	91.4					
0306116-07A	110	91.4	96.4					
0306116-08A	115	90.6	86.8					
0306116-09A	113	89.3	85.6					
0306116-10A	107	87.6	91.7					
0306116-11A	106	85.0	93.7					
0306116-12A	117	85.4	88.9					
0306116-13A	98.8	94.7	100					
0306116-14A	97.0	95.6	106					
0306116-15A	99.8	95.1	104					
0306116-16A	98.9	93.8	107					
0306116-17A	73.2	90.2	104					
0306116-18A	96.4	94.9	104					
0306116-19A	99.7	97.0	111					
0306116-20A	100	94.0	108					
LCS063003	114	104	105					
VBLK063003	112	100	94.4					
VBLK070103	100	97.3	107					

Acronym		Surrogate	QC Limits
BR4FBZ	=	4-Bromofluorobenzene	65.8-125
BZMED8	=	Toluene-d8	70.3-125
DBFM	=	Dibromofluoromethane	83.7-128

*** Surrogate recovery outside acceptance limits**

American Analytical Laboratories, Inc.

Date: 29-Jul-03

CLIENT: AKRF, Inc
Work Order: 0306116
Project: Greenpoint Lumber Yard Brooklyn,
Test No: SW8270D **Matrix:** S

QC SUMMARY REPORT SURROGATE RECOVERIES

Sample ID	NO2BZD5	PH246BR	PH2F	PHEN2F	PHEND14	PHENOLD6		
0306116-01B	93.6	94.1	95.9	95.4	100	83.7		
0306116-02B	84.0	87.8	87.6	91.7	97.2	79.8		
0306116-03B	79.7	62.9	73.9	90.0	91.8	73.7		
0306116-04B	80.1	92.2	78.8	77.6	104	78.8		
0306116-04B	81.4	91.2	78.5	82.4	95.2	75.3		
0306116-04B	84.6	95.8	89.2	92.9	97.2	77.8		
0306116-04B MS	80.1	92.2	78.8	77.6	104	78.8		
0306116-04B MSD	81.4	91.2	78.5	82.4	95.2	75.3		
0306116-05B	87.0	91.5	88.9	96.6	99.2	80.2		
0306116-06B	81.0	96.2	78.6	92.5	102	76.0		
0306116-07B	127 *	102	95.0	96.0	101	84.5		
0306116-08B	87.5	118	81.2	97.3	108	77.9		
0306116-09B	91.8	77.2	94.4	87.6	111	92.2		
0306116-10B	83.6	90.2	90.1	90.5	96.5	85.8		
0306116-11B	35.3	44.2	36.0	40.6	43.5	36.9		
0306116-12B	79.0	106	85.0	88.5	95.0	71.3		
0306116-13B	74.1	110	83.3	86.5	93.8	74.4		
0306116-14B	79.6	104	77.4	92.6	97.6	72.3		
0306116-15B	64.1	80.0	60.4	75.3	90.7	60.2		
0306116-16B	110	98.0	86.8	102	108	83.8		
0306116-17B	78.0	90.8	81.9	85.6	89.8	74.8		
0306116-18B	85.7	105	79.8	100	103	87.5		
0306116-19B	81.5	107	82.0	88.0	114	80.5		
0306116-20B	84.4	97.3	85.7	87.4	93.6	77.2		
0306117-03B MS	72.5	81.2	77.2	78.4	101	69.6		
0306117-03B MSD	75.4	83.4	77.0	79.6	91.6	79.2		
LCS070103	82.4	84.2	91.5	84.2	104	88.8		

Acronym		Surrogate	QC Limits
NO2BZD5	=	Nitrobenzene-d5	29.6-124.5
PH246BR	=	2,4,6-Tribromophenol	27.9-127.1
PH2F	=	2-Fluorophenol	32.3-123.3
PHEN2F	=	2-Fluorobiphenyl	31.5-113.1
PHEND14	=	4-Terphenyl-d14	29.8-129.9
PHENOLD6	=	Phenol-d6	27.1-126.2

*** Surrogate recovery outside acceptance limits**

CLIENT: AKRF, Inc
Work Order: 0306116
Project: Greenpoint Lumber Yard Brooklyn,
Test No: SW8270D **Matrix:** S

QC SUMMARY REPORT
SURROGATE RECOVERIES

Sample ID	NO2BZD5	PH246BR	PH2F	PHEN2F	PHEND14	PHENOLD6		
LCS070203	88.1	82.7	99.2	86.6	109	89.2		
SSB070103	81.7	81.4	83.6	88.8	98.1	76.0		
SSB070203	92.4	80.6	91.8	93.6	98.3	93.9		

Acronym		Surrogate	QC Limits
NO2BZD5	=	Nitrobenzene-d5	29.6-124.5
PH246BR	=	2,4,6-Tribromophenol	27.9-127.1
PH2F	=	2-Fluorophenol	32.3-123.3
PHEN2F	=	2-Fluorobiphenyl	31.5-113.1
PHEND14	=	4-Terphenyl-d14	29.8-129.9
PHENOLD6	=	Phenol-d6	27.1-126.2

*** Surrogate recovery outside acceptance limits**

AMERICAN ANALYTICAL LABORATORIES, INC.

NYSDOH	ELAP	11418
AIHA	PAT, LPAT	102391
CTDOH	PH-0205	

ASP CATEGORY A
WORKORDER 0306117
AKRF, INC.
GREENPOINT LUMBER YARD
BROOKLYN, N.Y.

56 TOLEDO STREET • FARMINGDALE, NEW YORK 11735
(631) 454-6100 • FAX: (631) 454-8027

ASP CATEGORY A

COVER PAGE

July 28, 2003

Mimi Sotiriou
AKRF, Inc
116 East 27th Street
7th Floor
New York, NY 10016

TEL: (646) 459-3528
FAX (212) 726-0942

RE: Greenpoint Lumber Yard Brooklyn, NY

Order No.: 0306117

Dear Mimi Sotiriou:

American Analytical Laboratories, Inc. received 20 samples on 6/27/2003 for the analyses presented in the following report.

There were no problems with the analyses and all data for associated QC met EPA or laboratory specifications.

If you have any questions regarding these tests results, please feel free to call.

Sincerely,

Lori Beyer

Lori Beyer
Lab Director

American Analytical Laboratories, Inc.

Date: *28-Jul-03*

CLIENT: AKRF, Inc
Project: Greenpoint Lumber Yard Brooklyn, NY
Lab Order: 0306117

Work Order Sample Summary

Lab Sample ID	Client Sample ID	Tag Number	Collection Date	Date Received
0306117-01A	MW10 (5'-7')		6/25/2003	6/27/2003
0306117-01B	MW10 (5'-7')		6/25/2003	6/27/2003
0306117-02A	B10 (5'-7')		6/26/2003	6/27/2003
0306117-02B	B10 (5'-7')		6/26/2003	6/27/2003
0306117-03A	B10 (9'-10')		6/26/2003	6/27/2003
0306117-03B	B10 (9'-10')		6/26/2003	6/27/2003
0306117-04A	MW9 (1.5-3.5')		6/26/2003	6/27/2003
0306117-04B	MW9 (1.5-3.5')		6/26/2003	6/27/2003
0306117-05A	MW9 (5'-6')		6/26/2003	6/27/2003
0306117-05B	MW9 (5'-6')		6/26/2003	6/27/2003
0306117-06A	B7 (9.5'-10.0')		6/26/2003	6/27/2003
0306117-07A	MW7 (10'-11')		6/26/2003	6/27/2003
0306117-07B	MW7 (10'-11')		6/26/2003	6/27/2003
0306117-08A	MW7 (6.5-7.5)		6/26/2003	6/27/2003
0306117-08B	MW7 (6.5-7.5)		6/26/2003	6/27/2003
0306117-09A	B11 (1-3)		6/26/2003	6/27/2003
0306117-09B	B11 (1-3)		6/26/2003	6/27/2003
0306117-10A	B11 (7-9)		6/26/2003	6/27/2003
0306117-10B	B11 (7-9)		6/26/2003	6/27/2003
0306117-11A	MW11 (0.5'-2')		6/26/2003	6/27/2003
0306117-11B	MW11 (0.5'-2')		6/26/2003	6/27/2003
0306117-12A	MW11 (7'-9')		6/26/2003	6/27/2003
0306117-12B	MW11 (7'-9')		6/26/2003	6/27/2003
0306117-13A	MW14 (3'-4')		6/26/2003	6/27/2003
0306117-13B	MW14 (3'-4')		6/26/2003	6/27/2003
0306117-14A	MW14 (6'-8')		6/26/2003	6/27/2003
0306117-14B	MW14 (6'-8')		6/26/2003	6/27/2003
0306117-15A	B14 (2'-3.5')		6/26/2003	6/27/2003
0306117-15B	B14 (2'-3.5')		6/26/2003	6/27/2003
0306117-16A	B14 (6'-8')		6/26/2003	6/27/2003
0306117-16B	B14 (6'-8')		6/26/2003	6/27/2003
0306117-17A	B15 (8.0'-9.0')		6/26/2003	6/27/2003
0306117-17B	B15 (8.0'-9.0')		6/26/2003	6/27/2003
0306117-18A	B15 (0.5'-2')		6/26/2003	6/27/2003
0306117-18B	B15 (0.5'-2')		6/26/2003	6/27/2003
0306117-19A	MW15 (0.5'-2')		6/26/2003	6/27/2003
0306117-19B	MW15 (0.5'-2')		6/26/2003	6/27/2003
0306117-20A	MW15 (6'-8')		6/26/2003	6/27/2003

CLIENT:	AKRF, Inc
Project:	Greenpoint Lumber Yard Brooklyn, NY
Lab Order:	0306117

Work Order Sample Summary

Lab Sample ID	Client Sample ID	Tag Number	Collection Date	Date Received
0306117-20B	MW15 (6'-8')		6/26/2003	6/27/2003

SDG NARRATIVE

SDG Narrative

AAL Work Order:	: 0306117
Sample Matrix	: Soil
Project	: Greenpoint

INTRODUCTION
This narrative covers the analysis of twenty (20) soils in accordance with protocols based on SW846 Methods 8260, 8270, 8081, 8082, 6010 and 7470.

HOLDING TIMES
The analytical holding time for these analyses was met.

CALIBRATIONS
Initial Calibration: All required minimum RRFs and maximum %RSD requirements have been met in accordance with the method.

Continuing Calibration: All required minimum RRFs and maximum %D requirements have been met in accordance with the method.

TUNE PERFORMANCE
All Tune (BFB) specifications met QC requirements.

METHOD BLANKS
The method blanks associated with these samples did not contain any target compounds at or above QC.

MATRIX SPIKE/MATRIX SPIKE DUPLICATE/DUPLICATES
MS/MSD/Dup analysis was performed as required. Results are submitted as an appendix to this report. Spike recoveries and RPD fell within established ranges except where noted on the summary sheets. No laboratory action is required for MS/MSD outliers.

INTERNAL STANDARDS
All area responses and retention times fell within acceptable ranges.

SURROGATES (SYSTEM MONITORING COMPOUNDS)
Surrogate recoveries are summarized in the appendix to this report.

SAMPLE COMMENTS
Samples were analyzed as per the required protocols.

Semivolatile Analysis:
Semivolatile analysis of sample B10 (5'-7') was analyzed at a 1:10 dilution. A secondary diluted reanalysis was perform (1:50) in order to obtain several PAH concentrations within the upper half of the instruments linear calibration range. Results have been hybridized on the Form I.

Sample MW9 (1.5-3.5') was initially analyzed undiluted. A diluted reanalysis (1:5) was performed as a result of Fluoranthene concentrations. Samples MW7 (6.5-7.5) and MW9 (5'-6') were analyzed at 1:2 dilutions. MW7 (6.5-7.5) was reanalyzed at a 1:20 dilution based upon target analyte PAH concentrations. B11 (1-3) was analyzed at a 1:8 dilution. A secondary reanalysis was performed at a 1:80.

MW11 (0.5'-2') and MW15 (0.5'-2') were initially analyzed at 1:2 dilutions. Based upon target analyte concentrations the sample extracts were reanalyzed at 1:10 dilutions.

All samples were analyzed undiluted for VOCs, Pesticides, PCBs and Metals.
I certify that this data package is in compliance with the terms and conditions of the contract, both technically and for completeness, for other than the conditions detailed above. Release of the data contained in this hardcopy data package and in the computer-readable data submitted on floppy diskette has been authorized by the Laboratory manager or his designee, as verified by the following signature." This statement shall be directly followed by signature of the Laboratory Manager or his designee with a typed line below it containing the signer's name and title, and the date of the signature.

Lori Beyer
LABORATORY DIRECTOR

AMERICAN ANALYTICAL LABORATORIES, INC.
56 TOLEDO STREET • FARMINGDALE, NEW YORK 11735 • (631) 454-6100 • FAX: (631) 454-8027

AMERICAN ANALYTICAL LABORATORIES, INC.
56 TOLEDO STREET
FARMINGDALE, NEW YORK 11735
TELEPHONE: (631) 454-6100 FAX: (631) 454-8027

DATA REPORTING QUALIFERS

For reporting results, the following "Results Qualifers" are used:

Value	If the result is greater than or equal to the detection limit, report the value
U	Indicates the compound was analyzed for but was not detected. Report the minimum detection limit for the sample with the U, i.e. "10U". This is not necessarily the instrument detection limit attainable for this particular sample based on any concentration or dilution that may have been required.
J	Indicates an estimated value. The flag is used: (1) When estimating a concentration for a tentatively identified compound (library search hits, where a 1:1 response is assumed.) (2) When the mass spectral data indicated the identification, however the result was less than the specified detection limit greater than zero. If the detection limit was 10ug/L and a concentration of 3ug/L was calculated report as 3J. This flag is used when similar situations arise on any organic parameter i.e. Pesticide, PCBs and others.
B	Indicates the analyte was found in the blank as well as the sample report "10B".
E	Indicates the analytes concentration exceeds the calibrated range of the instrument for that specific analysis.
D	This flag identifies all compounds identified in an analysis at a secondary dilution factor.
P	This flag is used for Pesticide / PCB target analyte when there is >25% difference for detected concentrations between the two GC Columns. The higher of the two values is reported on Form I and flagged with a "P".
N	This flag indicates presumptive evidence of a compound. This is only used for tentatively identified compounds (TICs), where the identification is based on a mass spectral library search. It applies to all TIC results. For generic characterization of a TIC, such as chlorinated hydrocarbon, the flag is not used.

NYSDEC DATA PACKAGE SUMMARY FORMS

NEW YORK STATE DEPARTMENT OF ENVIRONMENTAL CONSERVATION

SAMPLE IDENTIFICATION AND ANALYTICAL REQUIREMENT SUMMARY

CUSTOMER SAMPLE CODE	LABORATORY SAMPLE CODE	ANALYTICAL REQUIREMENTS					
		*VOA GC/MS METHOD #	*BNA GC/MS METHOD #	*VOA GC METHOD #	*PEST PCBs METHOD #	*METALS	*OTHER
MW10(5'-7')	0306117-01	8260	8270	NA	8081/ 8082	6010/ 7470	NA
B10(5'-7')	0306117-02						
B10(9'-10')	0306117-03						
MW9(1.5'-3.5')	0306117-04						
MW9(5'-6')	0306117-05						
B7(9.5-10.0)	0306117-06						
MW7(10-11)	0306117-07						
MW7(6.5-7.5)	0306117-08						
B11(1-3)	0306117-09						
B11(7-9)	0306117-10						
MW11(0.5-2')	0306117-11						
MW11(7'-9')	0306117-12						
MW14(3'-4')	0306117-13						
MW14(6'-8')	0306117-14						
B14(2'-3.5')	0306117-15						
B14(6'-8')	0306117-16						

B15 (8.0'-9.0') 0306117-17
B15 (0.9'-2') 0306117-18
MW15 (0.5-2') 0306117-19
MW15 (6'-8') 0306117-20

NA = Not Applicable

NEW YORK STATE DEPARTMENT OF ENVIRONMENTAL CONSERVATION

SAMPLE PREPARATION AND ANALYSIS SUMMARY
SEMIVOLATILE (BNA)
ANALYSES

LABORATORY SAMPLE ID	MATRIX	DATE COLLECTED	DATE RECEIVED AT LAB	DATE EXTRACTED	DATE ANALYZED
0306117-01	SOIL	06/25/03	06/27/03	07/01/03	07/03/03
0306117-02		06/26/03			07/03/03, 07/08/03
0306117-03					07/02/03
0306117-04					07/07/03
0306117-05					07/07/03
0306117-06					07/07/03
0306117-07					07/03/03
0306117-08					07/03/03, 07/07/03
0306117-09					07/03/03, 07/08/03
0306117-10					07/03/03
0306117-11					07/03/03, 07/07/03
0306117-12					07/03/03
0306117-13					07/08/03
0306117-14					07/10/03
0306117-15					07/10/03
0306117-16					07/09/03
0306117-17					07/09/03
0306117-18					07/10/03
0306117-19					07/10/03, 07/11/03
0306117-20					07/11/03

NEW YORK STATE DEPARTMENT OF ENVIRONMENTAL CONSERVATION

SAMPLE PREPARATION AND ANALYSIS SUMMARY
VOLATILE (VOA)
ANALYSES

LABORATORY SAMPLE ID	MATRIX	DATE COLLECTED	DATE RECEIVED AT LAB	DATE EXTRACTED	DATE ANALYZED
0306117-01	SOIL	06/25/03	06/27/03	NA	07/02/03
0306117-02		06/26/03			07/01/03
0306117-03					
0306117-04					
0306117-05					
0306117-06					
0306117-07					07/02/03
0306117-08					07/01/03
0306117-09					07/01/03
0306117-10					
0306117-11					
0306117-12					
0306117-13					
0306117-14					07/02/03
0306117-15					

0306117-16
0306117-17
0306117-18
0306117-19
0306117-20

NEW YORK STATE DEPARTMENT OF ENVIRONMENTAL CONSERVATION

SAMPLE PREPARATION AND ANALYSIS SUMMARY
PESTICIDE / PCB
ANALYSES

LABORATORY SAMPLE ID	MATRIX	DATE COLLECTED	DATE RECEIVED AT LAB	DATE EXTRACTED	DATE ANALYZED
0306117-01	SOIL	06/25/03	06/27/03	07/01/03	07/04/03
0306117-02	"	06/26/03	"	"	"
0306117-03	"	"	"	"	07/09/03
0306117-04	"	"	"	"	07/04/03
0306117-05	"	"	"	"	"
0306117-06	"	"	"	"	07/08/03
0306117-07	"	"	"	"	07/04/03
0306117-08	"	"	"	"	07/08/03
0306117-09	"	"	"	"	07/08/03
0306117-10	"	"	"	"	"
0306117-11	"	"	"	"	"
0306117-12	"	"	"	"	"
0306117-13	"	"	"	"	07/09/03
0306117-14	"	"	"	"	"
0306117-15	"	"	"	"	07/10/03
0306117-16					
0306117-17					
0306117-18					
0306117-19					
0306117-20					

NEW YORK STATE DEPARTMENT OF ENVIRONMENTAL CONSERVATION

SAMPLE PREPARATION AND ANALYSIS SUMMARY
SEMIVOLATILE (BNA)
ANALYSES

LABORATORY SAMPLE ID	MATRIX	ANALYTICAL PROTOCOL	EXTRACTION METHOD	AUXILLARY CLEAN UP	DIL / CONC. FACTOR
0306117-01	SOIL	SW846 8270	SONC SW846 3550	NA	1
0306117-02	"	"	"	"	10,500
0306117-03	"	"	"	"	1
0306117-04	"	"	"	"	1,5
0306117-05	"	"	"	"	2
0306117-06	"	"	"	"	1
0306117-07	"	"	"	"	1
0306117-08	"	"	"	"	2,20
0306117-09	"	"	"	"	8,80
0306117-10	"	"	"	"	1
0306117-11	"	"	"	"	2,10
0306117-12	"	"	"	"	1
0306117-13	"	"	"	"	1
0306117-14	"	"	"	"	1
0306117-15	"	"	"	"	1
0306117-16					1
0306117-17					1
0306117-18					1
0306117-19					2,10
0306117-20					2,10

NEW YORK STATE DEPARTMENT OF ENVIRONMENTAL CONSERVATION

SAMPLE PREPARATION AND ANALYSIS SUMMARY
INORGANIC ANALYSES

LABORATORY SAMPLE ID	MATRIX	METALS REQUESTED	DATE RECEIVED AT LAB	DATE ANALYZED
0306117-01	SOIL	TAL (23)	6/27/03	7/3/03
0306117-02				
0306117-03				
0306117-04				
0306117-05				
0306117-06				
0306117-07				
0306117-08				
0306117-09				
0306117-10				
0306117-11				
0306117-12				
0306117-13				
0306117-14				
0306117-15				
0306117-16				
0306117-17				
0306117-18				
0306117-19				
0306117-20				

CHAIN OF CUSTODY FORMS

Sheet 2 of 5

AMERICAN ANALYTICAL LABORATORIES, INC.
56 TOLEDO STREET • FARMINGDALE, NEW YORK 11735
(631) 454-6100 • FAX (631) 454-8027 • email: lbeyer@american-analytical.com

NYSDOH	ELAP	11418
CTDOH	PH-0205	
NJDEP	NY050	
PADEP	68-573	

CHAIN OF CUSTODY / REQUEST FOR ANALYSIS DOCUMENT

CLIENT NAME/ADDRESS: AKRF, Inc. — Mimi Sotiriou
CONTACT: 917-612-7877 — 646-459-3528

SAMPLER (SIGNATURE): M Sotiriou
DATE: 6/25/03
TIME: 1600
SAMPLER NAME (PRINT): M. Sotiriou
SAMPLE(S) SEALED: (YES) NO
CORRECT CONTAINER(S): (YES) NO[1,2]

PROJECT LOCATION: 30260-0006
Greenpoint Lumber Yard Brooklyn, NY

LABORATORY ID #	MATRIX	TYPE	PRES.	SAMPLE # - LOCATION	8260 VOC	SVOC 8270	PCB 8081	Rest 8082	TAL Metals	FOR METHANOL PRESERVED SAMPLES [VOLATILE VIAL #]
0306116-10A,B	S			B6 (0.5'-2')	X	X	X	X	X	
0306116-11A,11B				B6 (6'-7')						
0306116-12A,12B				MW6 (0.5'-2')						
0306116-13A,B				MW6 (6'-7')						
0306116-14A,B				MW8 (2'-4')						
0306116-15A,B				MW8 (5'-6.5')						
0306116-16A,B				B9 (14"-2.5')						
0306116-17A,B				B9 (5'-6')						
0306116-18A,18B				B8 ~~(5'-7')~~ (0.5-2')						
0306116-19A,19B				B8 (8'-10')						
0306116-20A,20B				MW10 (0.5-2')						
0306117-01A,B	↓			MW10 (5'-7')						

COOLER TEMPERATURE:

COMMENTS / INSTRUCTIONS

MATRIX S=SOIL; L=LIQUID; SL=SLUDGE; A-AIR; W=WIPE; P=PAINT CHIPS; B=BULK MATERIAL
TYPE G=GRAB; C=COMPOSITE, SS=SPLIT SPOON

TURNAROUND REQUIRED: NORMAL ☒ STAT ☐ BY / /

RELINQUISHED BY (SIGNATURE): M Sotiriou	DATE: ~~6/27/03~~ 6/25/03 TIME: 1200	PRINTED NAME: M. Sotiriou	RECEIVED BY LAB (SIGNATURE): Chris Dunn	DATE: 6-27-03 TIME: 9 pm	PRINTED NAME: Christopher Dunn
RELINQUISHED BY (SIGNATURE)	DATE / TIME	PRINTED NAME	RECEIVED BY LAB (SIGNATURE)	DATE / TIME	PRINTED NAME

AMERICAN ANALYTICAL LABORATORIES, INC.
56 TOLEDO STREET • FARMINGDALE, NEW YORK 11735
(631) 454-6100 • FAX (631) 454-8027 • email: lbeyer@american-analytical.com

NYSDOH 11418
CTDOH PH-0205
NJDEP NY050
PADEP 68-573

CHAIN OF CUSTODY / REQUEST FOR ANALYSIS DOCUMENT

CLIENT NAME/ADDRESS: AKRF, Inc. Mimi Sotiriou

CONTACT: 917-612-7877 646-459-3528

SAMPLER (SIGNATURE): M Sotiriou DATE: 6/26/03 TIME: 1600

SAMPLER NAME (PRINT): M. Sotiriou

SAMPLE(S) SEALED: YES / NO

CORRECT CONTAINER(S): YES / NO

PROJECT LOCATION:

LABORATORY ID #	MATRIX	TYPE	PRES.	SAMPLE # - LOCATION	VOC 8260	SVOC 8270	PCB 8081	Pest 8082	TAL Metals	FOR METHANOL PRESERVED SAMPLES [VOLATILE VIAL #]
0306117-02A,B	S			B10 (5'-7')	X	X	X	X	X	
0306117-03A,B				B10 (9'-10')	X	X	X	X	X	
0306117-04A,B				MW9 (1.5'-3.5')	X	X	X	X	X	
0306117-05A,B				MW9 (5'-6')	X	X	X	X	X	
0306117-06A,B				B7 (9.5-10.0)	✓					
0306117-07A,B				~~MW7 (9-10)~~ (10-11)	X	X	X	X	X	
0306117-08A,B				MW7 (6.5-7.5)	↓	↓	↓	↓	↓	
0306117-09A,B				B11 (1-3)						
0306117-10A,B				B11 (7-9)						
0306117-11A,B				MW11 (0.5-2')						
0306117-12A,B	✓			MW11 (7'-9')	✓	✓	✓	✓	✓	

COOLER TEMPERATURE:

MATRIX S=SOIL; L=LIQUID; SL=SLUDGE; A-AIR; W=WIPE; P=PAINT CHIPS; B=BULK MATERIAL
TYPE G=GRAB; C=COMPOSITE, SS=SPLIT SPOON

TURNAROUND REQUIRED: NORMAL ☒ STAT ☐ BY / /

COMMENTS / INSTRUCTIONS

RELINQUISHED BY (SIGNATURE)	DATE / TIME	PRINTED NAME	RECEIVED BY LAB (SIGNATURE)	DATE / TIME	PRINTED NAME
M Sotiriou	6/26/03 17:00	M. Sotiriou	Chris Dunn	6-27-03 2:20	Chrisopher Dunn
RELINQUISHED BY (SIGNATURE)	DATE / TIME	PRINTED NAME	RECEIVED BY LAB (SIGNATURE)	DATE / TIME	PRINTED NAME

WHITE-OFFICE / CANARY-LAB / PINK-SAMPLE CUSTODIAN / GOLDENROD-CLIENT

Draft 4 of 5

AMERICAN ANALYTICAL LABORATORIES, INC.
56 TOLEDO STREET • FARMINGDALE, NEW YORK 11735
(631) 454-6100 • FAX (631) 454-8027 • email: lbeyer@american-analytical.com

NYSDOH	ELAP	11418
CTDOH	PH-0205	
NJDEP	NY050	
PADEP	68-573	

CHAIN OF CUSTODY / REQUEST FOR ANALYSIS DOCUMENT

CLIENT NAME/ADDRESS: AKRF, Inc. — Mimi Sotiriou
CONTACT: 917-492-7877 — 646-459-3528
PROJECT LOCATION: Greenpoint Lumber Yard, Brooklyn — 30260-0006
SAMPLER (SIGNATURE): MSotiriou — DATE: 6/26/03 — TIME: 1600
SAMPLER NAME (PRINT): Mimi Sotiriou
SAMPLE(S) SEALED: YES / NO
CORRECT CONTAINER(S): YES / NO

LABORATORY ID #	MATRIX	TYPE	PRES.	SAMPLE # - LOCATION	VOC 8260	SVOC 8270	PCB 8081	Pest 8082	TAL Metals	FOR METHANOL PRESERVED SAMPLES [VOLATILE VIAL #]
0306117-13A,B	S			MW14 (3'-4')	X	X	X	X	X	
0306117-14A,B				MW14 (6'-8')						
0306117-15A,B				B14 (2'-3.5')						
0306117-16A,B				B14 (6'-8')						
0306117-17A,B				B15 ~~MW16~~ (8.0'-9.0')						
0306117-18A,B				B15 ~~MW16~~ (0.5'-2')						
0306117-19A,B				MW15 (0.5'-2')						
0306117-20A,B				MW15 (6'-8')						
				~~FIELD BLANK~~						
				~~FIELD BLANK~~						
				~~FIELD BLANK~~						

COOLER TEMPERATURE:

MATRIX S=SOIL; L=LIQUID; SL=SLUDGE; A-AIR; W=WIPE; P=PAINT CHIPS; B=BULK MATERIAL
TYPE G=GRAB; C=COMPOSITE, SS=SPLIT SPOON

TURNAROUND REQUIRED: NORMAL ☒ STAT ☐ BY / /

COMMENTS / INSTRUCTIONS

RELINQUISHED BY (SIGNATURE)	DATE / TIME	PRINTED NAME	RECEIVED BY LAB (SIGNATURE)	DATE / TIME	PRINTED NAME
MSotiriou	6/27/03 12:00	M Sotiriou		6-27-03 2:15	Christopher Dunn
RELINQUISHED BY (SIGNATURE)	DATE / TIME	PRINTED NAME	RECEIVED BY LAB (SIGNATURE)	DATE / TIME	PRINTED NAME

E-O E / C RY-L PINK PLE TODI SOL OD- NT

GC/MS VOLATILE DATA

RESULTS – ORGANIC ANALYSIS DATA SHEET

American Analytical Laboratories, Inc.

Date: *28-Jul-03*

CLIENT:	AKRF, Inc	**Client Sample ID:**	MW10 (5'-7')
Lab Order:	0306117	**Tag Number:**	
Project:	Greenpoint Lumber Yard Brooklyn, NY	**Collection Date:**	6/25/2003
Lab ID:	0306117-01A	**Matrix:**	SOIL

Analyses	Result	Limit	Qual	Units	DF	Date Analyzed
VOLATILES SW-846 METHOD 8260		**SW8260B**				Analyst: **LDS**
1,1,1,2-Tetrachloroethane	U	5.0		µg/Kg	1	7/2/2003 3:15:00 PM
1,1,1-Trichloroethane	U	5.0		µg/Kg	1	7/2/2003 3:15:00 PM
1,1,2,2-Tetrachloroethane	U	5.0		µg/Kg	1	7/2/2003 3:15:00 PM
1,1,2-Trichloro-1,2,2-trifluoroethane	U	5.0		µg/Kg	1	7/2/2003 3:15:00 PM
1,1,2-Trichloroethane	U	5.0		µg/Kg	1	7/2/2003 3:15:00 PM
1,1-Dichloroethane	U	5.0		µg/Kg	1	7/2/2003 3:15:00 PM
1,1-Dichloroethene	U	5.0		µg/Kg	1	7/2/2003 3:15:00 PM
1,1-Dichloropropene	U	5.0		µg/Kg	1	7/2/2003 3:15:00 PM
1,2,3-Trichlorobenzene	U	5.0		µg/Kg	1	7/2/2003 3:15:00 PM
1,2,3-Trichloropropane	U	5.0		µg/Kg	1	7/2/2003 3:15:00 PM
1,2,4,5-Tetramethylbenzene	U	5.0		µg/Kg	1	7/2/2003 3:15:00 PM
1,2,4-Trichlorobenzene	U	5.0		µg/Kg	1	7/2/2003 3:15:00 PM
1,2,4-Trimethylbenzene	U	5.0		µg/Kg	1	7/2/2003 3:15:00 PM
1,2-Dibromo-3-chloropropane	U	5.0		µg/Kg	1	7/2/2003 3:15:00 PM
1,2-Dibromoethane	U	5.0		µg/Kg	1	7/2/2003 3:15:00 PM
1,2-Dichlorobenzene	U	5.0		µg/Kg	1	7/2/2003 3:15:00 PM
1,2-Dichloroethane	U	5.0		µg/Kg	1	7/2/2003 3:15:00 PM
1,2-Dichloropropane	U	5.0		µg/Kg	1	7/2/2003 3:15:00 PM
1,3,5-Trimethylbenzene	U	5.0		µg/Kg	1	7/2/2003 3:15:00 PM
1,3-Dichlorobenzene	U	5.0		µg/Kg	1	7/2/2003 3:15:00 PM
1,3-dichloropropane	U	5.0		µg/Kg	1	7/2/2003 3:15:00 PM
1,4-Dichlorobenzene	U	5.0		µg/Kg	1	7/2/2003 3:15:00 PM
2,2-Dichloropropane	U	5.0		µg/Kg	1	7/2/2003 3:15:00 PM
2-Butanone	U	5.0		µg/Kg	1	7/2/2003 3:15:00 PM
2-Chloroethyl vinyl ether	U	5.0		µg/Kg	1	7/2/2003 3:15:00 PM
2-Chlorotoluene	U	5.0		µg/Kg	1	7/2/2003 3:15:00 PM
2-Hexanone	U	5.0		µg/Kg	1	7/2/2003 3:15:00 PM
4-Chlorotoluene	U	5.0		µg/Kg	1	7/2/2003 3:15:00 PM
4-Isopropyltoluene	U	5.0		µg/Kg	1	7/2/2003 3:15:00 PM
4-Methyl-2-pentanone	U	5.0		µg/Kg	1	7/2/2003 3:15:00 PM
Acetone	U	5.0		µg/Kg	1	7/2/2003 3:15:00 PM
Acrolein	U	25		µg/Kg	1	7/2/2003 3:15:00 PM
Acrylonitrile	U	5.0		µg/Kg	1	7/2/2003 3:15:00 PM
Benzene	U	5.0		µg/Kg	1	7/2/2003 3:15:00 PM
Bromobenzene	U	5.0		µg/Kg	1	7/2/2003 3:15:00 PM
Bromochloromethane	U	5.0		µg/Kg	1	7/2/2003 3:15:00 PM
Bromodichloromethane	U	5.0		µg/Kg	1	7/2/2003 3:15:00 PM
Bromoform	U	5.0		µg/Kg	1	7/2/2003 3:15:00 PM
Bromomethane	U	5.0		µg/Kg	1	7/2/2003 3:15:00 PM
Carbon disulfide	U	5.0		µg/Kg	1	7/2/2003 3:15:00 PM

Qualifiers:

ND - Not Detected at the Reporting Limit

J - Analyte detected below quantitation limits

B - Analyte detected in the associated Method Blank

* - Value exceeds Maximum Contaminant Level

S - Spike Recovery outside accepted recovery limits

R - RPD outside accepted recovery limits

E - Value above quantitation range

American Analytical Laboratories, Inc.

Date: *28-Jul-03*

CLIENT:	AKRF, Inc	**Client Sample ID:**	MW10 (5'-7')
Lab Order:	0306117	**Tag Number:**	
Project:	Greenpoint Lumber Yard Brooklyn, NY	**Collection Date:**	6/25/2003
Lab ID:	0306117-01A	**Matrix:**	SOIL

Analyses	Result	Limit	Qual	Units	DF	Date Analyzed
VOLATILES SW-846 METHOD 8260		**SW8260B**				Analyst: **LDS**
Carbon tetrachloride	U	5.0		µg/Kg	1	7/2/2003 3:15:00 PM
Chlorobenzene	U	5.0		µg/Kg	1	7/2/2003 3:15:00 PM
Chlorodifluoromethane	U	5.0		µg/Kg	1	7/2/2003 3:15:00 PM
Chloroethane	U	5.0		µg/Kg	1	7/2/2003 3:15:00 PM
Chloroform	U	5.0		µg/Kg	1	7/2/2003 3:15:00 PM
Chloromethane	U	5.0		µg/Kg	1	7/2/2003 3:15:00 PM
cis-1,2-Dichloroethene	U	5.0		µg/Kg	1	7/2/2003 3:15:00 PM
cis-1,3-Dichloropropene	U	5.0		µg/Kg	1	7/2/2003 3:15:00 PM
Dibromochloromethane	U	5.0		µg/Kg	1	7/2/2003 3:15:00 PM
Dibromomethane	U	5.0		µg/Kg	1	7/2/2003 3:15:00 PM
Dichlorodifluoromethane	U	5.0		µg/Kg	1	7/2/2003 3:15:00 PM
Diisopropyl ether	U	5.0		µg/Kg	1	7/2/2003 3:15:00 PM
Ethanol	U	25		µg/Kg	1	7/2/2003 3:15:00 PM
Ethyl acetate	U	5.0		µg/Kg	1	7/2/2003 3:15:00 PM
Ethylbenzene	U	5.0		µg/Kg	1	7/2/2003 3:15:00 PM
Freon-114	U	5.0		µg/Kg	1	7/2/2003 3:15:00 PM
Hexachlorobutadiene	U	5.0		µg/Kg	1	7/2/2003 3:15:00 PM
Isopropyl acetate	U	5.0		µg/Kg	1	7/2/2003 3:15:00 PM
Isopropylbenzene	U	5.0		µg/Kg	1	7/2/2003 3:15:00 PM
m,p-Xylene	U	10		µg/Kg	1	7/2/2003 3:15:00 PM
Methyl tert-butyl ether	U	5.0		µg/Kg	1	7/2/2003 3:15:00 PM
Methylene chloride	U	5.0		µg/Kg	1	7/2/2003 3:15:00 PM
Naphthalene	U	5.0		µg/Kg	1	7/2/2003 3:15:00 PM
n-Butyl acetate	U	5.0		µg/Kg	1	7/2/2003 3:15:00 PM
n-Butylbenzene	U	5.0		µg/Kg	1	7/2/2003 3:15:00 PM
n-Propyl acetate	U	5.0		µg/Kg	1	7/2/2003 3:15:00 PM
n-Propylbenzene	U	5.0		µg/Kg	1	7/2/2003 3:15:00 PM
o-Xylene	U	5.0		µg/Kg	1	7/2/2003 3:15:00 PM
p-Diethylbenzene	U	5.0		µg/Kg	1	7/2/2003 3:15:00 PM
p-Ethyltoluene	U	5.0		µg/Kg	1	7/2/2003 3:15:00 PM
sec-Butylbenzene	U	5.0		µg/Kg	1	7/2/2003 3:15:00 PM
Styrene	U	5.0		µg/Kg	1	7/2/2003 3:15:00 PM
t-Butyl alcohol	U	5.0		µg/Kg	1	7/2/2003 3:15:00 PM
tert-Butylbenzene	U	5.0		µg/Kg	1	7/2/2003 3:15:00 PM
Tetrachloroethene	U	5.0		µg/Kg	1	7/2/2003 3:15:00 PM
Toluene	U	5.0		µg/Kg	1	7/2/2003 3:15:00 PM
trans-1,2-Dichloroethene	U	5.0		µg/Kg	1	7/2/2003 3:15:00 PM
trans-1,3-Dichloropropene	U	5.0		µg/Kg	1	7/2/2003 3:15:00 PM
Trichloroethene	U	5.0		µg/Kg	1	7/2/2003 3:15:00 PM
Trichlorofluoromethane	U	5.0		µg/Kg	1	7/2/2003 3:15:00 PM

Qualifiers:

ND - Not Detected at the Reporting Limit

J - Analyte detected below quantitation limits

B - Analyte detected in the associated Method Blank

* - Value exceeds Maximum Contaminant Level

S - Spike Recovery outside accepted recovery limits

R - RPD outside accepted recovery limits

E - Value above quantitation range

American Analytical Laboratories, Inc.

Date: *28-Jul-03*

CLIENT:	AKRF, Inc	**Client Sample ID:**	MW10 (5'-7')
Lab Order:	0306117	**Tag Number:**	
Project:	Greenpoint Lumber Yard Brooklyn, NY	**Collection Date:**	6/25/2003
Lab ID:	0306117-01A	**Matrix:**	SOIL

Analyses	Result	Limit	Qual	Units	DF	Date Analyzed
VOLATILES SW-846 METHOD 8260		**SW8260B**				Analyst: **LDS**
Vinyl acetate	U	5.0		µg/Kg	1	7/2/2003 3:15:00 PM
Vinyl chloride	U	5.0		µg/Kg	1	7/2/2003 3:15:00 PM

Qualifiers:

ND - Not Detected at the Reporting Limit

J - Analyte detected below quantitation limits

B - Analyte detected in the associated Method Blank

* - Value exceeds Maximum Contaminant Level

S - Spike Recovery outside accepted recovery limits

R - RPD outside accepted recovery limits

E - Value above quantitation range

American Analytical Laboratories, Inc.

Date: *28-Jul-03*

CLIENT:	AKRF, Inc	**Client Sample ID:**	B10 (5'-7')
Lab Order:	0306117	**Tag Number:**	
Project:	Greenpoint Lumber Yard Brooklyn, NY	**Collection Date:**	6/26/2003
Lab ID:	0306117-02A	**Matrix:**	SOIL

Analyses	Result	Limit	Qual	Units	DF	Date Analyzed
VOLATILES SW-846 METHOD 8260		**SW8260B**				Analyst: **LDS**
1,1,1,2-Tetrachloroethane	U	5.0		µg/Kg	1	7/1/2003 1:53:00 PM
1,1,1-Trichloroethane	U	5.0		µg/Kg	1	7/1/2003 1:53:00 PM
1,1,2,2-Tetrachloroethane	U	5.0		µg/Kg	1	7/1/2003 1:53:00 PM
1,1,2-Trichloro-1,2,2-trifluoroethane	U	5.0		µg/Kg	1	7/1/2003 1:53:00 PM
1,1,2-Trichloroethane	U	5.0		µg/Kg	1	7/1/2003 1:53:00 PM
1,1-Dichloroethane	U	5.0		µg/Kg	1	7/1/2003 1:53:00 PM
1,1-Dichloroethene	U	5.0		µg/Kg	1	7/1/2003 1:53:00 PM
1,1-Dichloropropene	U	5.0		µg/Kg	1	7/1/2003 1:53:00 PM
1,2,3-Trichlorobenzene	U	5.0		µg/Kg	1	7/1/2003 1:53:00 PM
1,2,3-Trichloropropane	U	5.0		µg/Kg	1	7/1/2003 1:53:00 PM
1,2,4,5-Tetramethylbenzene	U	5.0		µg/Kg	1	7/1/2003 1:53:00 PM
1,2,4-Trichlorobenzene	U	5.0		µg/Kg	1	7/1/2003 1:53:00 PM
1,2,4-Trimethylbenzene	U	5.0		µg/Kg	1	7/1/2003 1:53:00 PM
1,2-Dibromo-3-chloropropane	U	5.0		µg/Kg	1	7/1/2003 1:53:00 PM
1,2-Dibromoethane	U	5.0		µg/Kg	1	7/1/2003 1:53:00 PM
1,2-Dichlorobenzene	U	5.0		µg/Kg	1	7/1/2003 1:53:00 PM
1,2-Dichloroethane	U	5.0		µg/Kg	1	7/1/2003 1:53:00 PM
1,2-Dichloropropane	U	5.0		µg/Kg	1	7/1/2003 1:53:00 PM
1,3,5-Trimethylbenzene	U	5.0		µg/Kg	1	7/1/2003 1:53:00 PM
1,3-Dichlorobenzene	U	5.0		µg/Kg	1	7/1/2003 1:53:00 PM
1,3-dichloropropane	U	5.0		µg/Kg	1	7/1/2003 1:53:00 PM
1,4-Dichlorobenzene	U	5.0		µg/Kg	1	7/1/2003 1:53:00 PM
2,2-Dichloropropane	U	5.0		µg/Kg	1	7/1/2003 1:53:00 PM
2-Butanone	U	5.0		µg/Kg	1	7/1/2003 1:53:00 PM
2-Chloroethyl vinyl ether	U	5.0		µg/Kg	1	7/1/2003 1:53:00 PM
2-Chlorotoluene	U	5.0		µg/Kg	1	7/1/2003 1:53:00 PM
2-Hexanone	U	5.0		µg/Kg	1	7/1/2003 1:53:00 PM
4-Chlorotoluene	U	5.0		µg/Kg	1	7/1/2003 1:53:00 PM
4-Isopropyltoluene	U	5.0		µg/Kg	1	7/1/2003 1:53:00 PM
4-Methyl-2-pentanone	U	5.0		µg/Kg	1	7/1/2003 1:53:00 PM
Acetone	U	5.0		µg/Kg	1	7/1/2003 1:53:00 PM
Acrolein	U	25		µg/Kg	1	7/1/2003 1:53:00 PM
Acrylonitrile	U	5.0		µg/Kg	1	7/1/2003 1:53:00 PM
Benzene	U	5.0		µg/Kg	1	7/1/2003 1:53:00 PM
Bromobenzene	U	5.0		µg/Kg	1	7/1/2003 1:53:00 PM
Bromochloromethane	U	5.0		µg/Kg	1	7/1/2003 1:53:00 PM
Bromodichloromethane	U	5.0		µg/Kg	1	7/1/2003 1:53:00 PM
Bromoform	U	5.0		µg/Kg	1	7/1/2003 1:53:00 PM
Bromomethane	U	5.0		µg/Kg	1	7/1/2003 1:53:00 PM
Carbon disulfide	U	5.0		µg/Kg	1	7/1/2003 1:53:00 PM

Qualifiers:

ND - Not Detected at the Reporting Limit

J - Analyte detected below quantitation limits

B - Analyte detected in the associated Method Blank

* - Value exceeds Maximum Contaminant Level

S - Spike Recovery outside accepted recovery limits

R - RPD outside accepted recovery limits

E - Value above quantitation range

American Analytical Laboratories, Inc.

Date: *28-Jul-03*

CLIENT:	AKRF, Inc	**Client Sample ID:**	B10 (5'-7')
Lab Order:	0306117	**Tag Number:**	
Project:	Greenpoint Lumber Yard Brooklyn, NY	**Collection Date:**	6/26/2003
Lab ID:	0306117-02A	**Matrix:**	SOIL

Analyses	Result	Limit	Qual	Units	DF	Date Analyzed
VOLATILES SW-846 METHOD 8260		**SW8260B**				Analyst: **LDS**
Carbon tetrachloride	U	5.0		µg/Kg	1	7/1/2003 1:53:00 PM
Chlorobenzene	U	5.0		µg/Kg	1	7/1/2003 1:53:00 PM
Chlorodifluoromethane	U	5.0		µg/Kg	1	7/1/2003 1:53:00 PM
Chloroethane	U	5.0		µg/Kg	1	7/1/2003 1:53:00 PM
Chloroform	U	5.0		µg/Kg	1	7/1/2003 1:53:00 PM
Chloromethane	U	5.0		µg/Kg	1	7/1/2003 1:53:00 PM
cis-1,2-Dichloroethene	U	5.0		µg/Kg	1	7/1/2003 1:53:00 PM
cis-1,3-Dichloropropene	U	5.0		µg/Kg	1	7/1/2003 1:53:00 PM
Dibromochloromethane	U	5.0		µg/Kg	1	7/1/2003 1:53:00 PM
Dibromomethane	U	5.0		µg/Kg	1	7/1/2003 1:53:00 PM
Dichlorodifluoromethane	U	5.0		µg/Kg	1	7/1/2003 1:53:00 PM
Diisopropyl ether	U	5.0		µg/Kg	1	7/1/2003 1:53:00 PM
Ethanol	U	25		µg/Kg	1	7/1/2003 1:53:00 PM
Ethyl acetate	U	5.0		µg/Kg	1	7/1/2003 1:53:00 PM
Ethylbenzene	U	5.0		µg/Kg	1	7/1/2003 1:53:00 PM
Freon-114	U	5.0		µg/Kg	1	7/1/2003 1:53:00 PM
Hexachlorobutadiene	U	5.0		µg/Kg	1	7/1/2003 1:53:00 PM
Isopropyl acetate	U	5.0		µg/Kg	1	7/1/2003 1:53:00 PM
Isopropylbenzene	U	5.0		µg/Kg	1	7/1/2003 1:53:00 PM
m,p-Xylene	U	10		µg/Kg	1	7/1/2003 1:53:00 PM
Methyl tert-butyl ether	U	5.0		µg/Kg	1	7/1/2003 1:53:00 PM
Methylene chloride	U	5.0		µg/Kg	1	7/1/2003 1:53:00 PM
Naphthalene	U	5.0		µg/Kg	1	7/1/2003 1:53:00 PM
n-Butyl acetate	U	5.0		µg/Kg	1	7/1/2003 1:53:00 PM
n-Butylbenzene	U	5.0		µg/Kg	1	7/1/2003 1:53:00 PM
n-Propyl acetate	U	5.0		µg/Kg	1	7/1/2003 1:53:00 PM
n-Propylbenzene	U	5.0		µg/Kg	1	7/1/2003 1:53:00 PM
o-Xylene	U	5.0		µg/Kg	1	7/1/2003 1:53:00 PM
p-Diethylbenzene	U	5.0		µg/Kg	1	7/1/2003 1:53:00 PM
p-Ethyltoluene	U	5.0		µg/Kg	1	7/1/2003 1:53:00 PM
sec-Butylbenzene	U	5.0		µg/Kg	1	7/1/2003 1:53:00 PM
Styrene	U	5.0		µg/Kg	1	7/1/2003 1:53:00 PM
t-Butyl alcohol	U	5.0		µg/Kg	1	7/1/2003 1:53:00 PM
tert-Butylbenzene	U	5.0		µg/Kg	1	7/1/2003 1:53:00 PM
Tetrachloroethene	U	5.0		µg/Kg	1	7/1/2003 1:53:00 PM
Toluene	U	5.0		µg/Kg	1	7/1/2003 1:53:00 PM
trans-1,2-Dichloroethene	U	5.0		µg/Kg	1	7/1/2003 1:53:00 PM
trans-1,3-Dichloropropene	U	5.0		µg/Kg	1	7/1/2003 1:53:00 PM
Trichloroethene	U	5.0		µg/Kg	1	7/1/2003 1:53:00 PM
Trichlorofluoromethane	U	5.0		µg/Kg	1	7/1/2003 1:53:00 PM

Qualifiers:

ND - Not Detected at the Reporting Limit

J - Analyte detected below quantitation limits

B - Analyte detected in the associated Method Blank

* - Value exceeds Maximum Contaminant Level

S - Spike Recovery outside accepted recovery limits

R - RPD outside accepted recovery limits

E - Value above quantitation range

American Analytical Laboratories, Inc.

Date: *28-Jul-03*

CLIENT:	AKRF, Inc	**Client Sample ID:**	B10 (5'-7')
Lab Order:	0306117	**Tag Number:**	
Project:	Greenpoint Lumber Yard Brooklyn, NY	**Collection Date:**	6/26/2003
Lab ID:	0306117-02A	**Matrix:**	SOIL

Analyses	Result	Limit	Qual	Units	DF	Date Analyzed
VOLATILES SW-846 METHOD 8260		**SW8260B**				Analyst: **LDS**
Vinyl acetate	U	5.0		µg/Kg	1	7/1/2003 1:53:00 PM
Vinyl chloride	U	5.0		µg/Kg	1	7/1/2003 1:53:00 PM

Qualifiers:

ND - Not Detected at the Reporting Limit

J - Analyte detected below quantitation limits

B - Analyte detected in the associated Method Blank

* - Value exceeds Maximum Contaminant Level

S - Spike Recovery outside accepted recovery limits

R - RPD outside accepted recovery limits

E - Value above quantitation range

American Analytical Laboratories, Inc.

Date: *28-Jul-03*

CLIENT:	AKRF, Inc	**Client Sample ID:**	B10 (9'-10')
Lab Order:	0306117	**Tag Number:**	
Project:	Greenpoint Lumber Yard Brooklyn, NY	**Collection Date:**	6/26/2003
Lab ID:	0306117-03A	**Matrix:**	SOIL

Analyses	Result	Limit	Qual	Units	DF	Date Analyzed
VOLATILES SW-846 METHOD 8260		**SW8260B**				Analyst: **LDS**
1,1,1,2-Tetrachloroethane	U	5.0		µg/Kg	1	7/1/2003 2:30:00 PM
1,1,1-Trichloroethane	U	5.0		µg/Kg	1	7/1/2003 2:30:00 PM
1,1,2,2-Tetrachloroethane	U	5.0		µg/Kg	1	7/1/2003 2:30:00 PM
1,1,2-Trichloro-1,2,2-trifluoroethane	U	5.0		µg/Kg	1	7/1/2003 2:30:00 PM
1,1,2-Trichloroethane	U	5.0		µg/Kg	1	7/1/2003 2:30:00 PM
1,1-Dichloroethane	U	5.0		µg/Kg	1	7/1/2003 2:30:00 PM
1,1-Dichloroethene	U	5.0		µg/Kg	1	7/1/2003 2:30:00 PM
1,1-Dichloropropene	U	5.0		µg/Kg	1	7/1/2003 2:30:00 PM
1,2,3-Trichlorobenzene	U	5.0		µg/Kg	1	7/1/2003 2:30:00 PM
1,2,3-Trichloropropane	U	5.0		µg/Kg	1	7/1/2003 2:30:00 PM
1,2,4,5-Tetramethylbenzene	U	5.0		µg/Kg	1	7/1/2003 2:30:00 PM
1,2,4-Trichlorobenzene	U	5.0		µg/Kg	1	7/1/2003 2:30:00 PM
1,2,4-Trimethylbenzene	U	5.0		µg/Kg	1	7/1/2003 2:30:00 PM
1,2-Dibromo-3-chloropropane	U	5.0		µg/Kg	1	7/1/2003 2:30:00 PM
1,2-Dibromoethane	U	5.0		µg/Kg	1	7/1/2003 2:30:00 PM
1,2-Dichlorobenzene	U	5.0		µg/Kg	1	7/1/2003 2:30:00 PM
1,2-Dichloroethane	U	5.0		µg/Kg	1	7/1/2003 2:30:00 PM
1,2-Dichloropropane	U	5.0		µg/Kg	1	7/1/2003 2:30:00 PM
1,3,5-Trimethylbenzene	U	5.0		µg/Kg	1	7/1/2003 2:30:00 PM
1,3-Dichlorobenzene	U	5.0		µg/Kg	1	7/1/2003 2:30:00 PM
1,3-dichloropropane	U	5.0		µg/Kg	1	7/1/2003 2:30:00 PM
1,4-Dichlorobenzene	U	5.0		µg/Kg	1	7/1/2003 2:30:00 PM
2,2-Dichloropropane	U	5.0		µg/Kg	1	7/1/2003 2:30:00 PM
2-Butanone	U	5.0		µg/Kg	1	7/1/2003 2:30:00 PM
2-Chloroethyl vinyl ether	U	5.0		µg/Kg	1	7/1/2003 2:30:00 PM
2-Chlorotoluene	U	5.0		µg/Kg	1	7/1/2003 2:30:00 PM
2-Hexanone	U	5.0		µg/Kg	1	7/1/2003 2:30:00 PM
4-Chlorotoluene	U	5.0		µg/Kg	1	7/1/2003 2:30:00 PM
4-Isopropyltoluene	U	5.0		µg/Kg	1	7/1/2003 2:30:00 PM
4-Methyl-2-pentanone	U	5.0		µg/Kg	1	7/1/2003 2:30:00 PM
Acetone	U	5.0		µg/Kg	1	7/1/2003 2:30:00 PM
Acrolein	U	25		µg/Kg	1	7/1/2003 2:30:00 PM
Acrylonitrile	U	5.0		µg/Kg	1	7/1/2003 2:30:00 PM
Benzene	U	5.0		µg/Kg	1	7/1/2003 2:30:00 PM
Bromobenzene	U	5.0		µg/Kg	1	7/1/2003 2:30:00 PM
Bromochloromethane	U	5.0		µg/Kg	1	7/1/2003 2:30:00 PM
Bromodichloromethane	U	5.0		µg/Kg	1	7/1/2003 2:30:00 PM
Bromoform	U	5.0		µg/Kg	1	7/1/2003 2:30:00 PM
Bromomethane	U	5.0		µg/Kg	1	7/1/2003 2:30:00 PM
Carbon disulfide	U	5.0		µg/Kg	1	7/1/2003 2:30:00 PM

Qualifiers:

ND - Not Detected at the Reporting Limit

J - Analyte detected below quantitation limits

B - Analyte detected in the associated Method Blank

* - Value exceeds Maximum Contaminant Level

S - Spike Recovery outside accepted recovery limits

R - RPD outside accepted recovery limits

E - Value above quantitation range

American Analytical Laboratories, Inc.

Date: *28-Jul-03*

CLIENT:	AKRF, Inc	**Client Sample ID:**	B10 (9'-10')
Lab Order:	0306117	**Tag Number:**	
Project:	Greenpoint Lumber Yard Brooklyn, NY	**Collection Date:**	6/26/2003
Lab ID:	0306117-03A	**Matrix:**	SOIL

Analyses	Result	Limit	Qual	Units	DF	Date Analyzed
VOLATILES SW-846 METHOD 8260		**SW8260B**				Analyst: **LDS**
Carbon tetrachloride	U	5.0		µg/Kg	1	7/1/2003 2:30:00 PM
Chlorobenzene	U	5.0		µg/Kg	1	7/1/2003 2:30:00 PM
Chlorodifluoromethane	U	5.0		µg/Kg	1	7/1/2003 2:30:00 PM
Chloroethane	U	5.0		µg/Kg	1	7/1/2003 2:30:00 PM
Chloroform	U	5.0		µg/Kg	1	7/1/2003 2:30:00 PM
Chloromethane	U	5.0		µg/Kg	1	7/1/2003 2:30:00 PM
cis-1,2-Dichloroethene	U	5.0		µg/Kg	1	7/1/2003 2:30:00 PM
cis-1,3-Dichloropropene	U	5.0		µg/Kg	1	7/1/2003 2:30:00 PM
Dibromochloromethane	U	5.0		µg/Kg	1	7/1/2003 2:30:00 PM
Dibromomethane	U	5.0		µg/Kg	1	7/1/2003 2:30:00 PM
Dichlorodifluoromethane	U	5.0		µg/Kg	1	7/1/2003 2:30:00 PM
Diisopropyl ether	U	5.0		µg/Kg	1	7/1/2003 2:30:00 PM
Ethanol	U	25		µg/Kg	1	7/1/2003 2:30:00 PM
Ethyl acetate	U	5.0		µg/Kg	1	7/1/2003 2:30:00 PM
Ethylbenzene	U	5.0		µg/Kg	1	7/1/2003 2:30:00 PM
Freon-114	U	5.0		µg/Kg	1	7/1/2003 2:30:00 PM
Hexachlorobutadiene	U	5.0		µg/Kg	1	7/1/2003 2:30:00 PM
Isopropyl acetate	U	5.0		µg/Kg	1	7/1/2003 2:30:00 PM
Isopropylbenzene	U	5.0		µg/Kg	1	7/1/2003 2:30:00 PM
m,p-Xylene	U	10		µg/Kg	1	7/1/2003 2:30:00 PM
Methyl tert-butyl ether	U	5.0		µg/Kg	1	7/1/2003 2:30:00 PM
Methylene chloride	U	5.0		µg/Kg	1	7/1/2003 2:30:00 PM
Naphthalene	U	5.0		µg/Kg	1	7/1/2003 2:30:00 PM
n-Butyl acetate	U	5.0		µg/Kg	1	7/1/2003 2:30:00 PM
n-Butylbenzene	U	5.0		µg/Kg	1	7/1/2003 2:30:00 PM
n-Propyl acetate	U	5.0		µg/Kg	1	7/1/2003 2:30:00 PM
n-Propylbenzene	U	5.0		µg/Kg	1	7/1/2003 2:30:00 PM
o-Xylene	U	5.0		µg/Kg	1	7/1/2003 2:30:00 PM
p-Diethylbenzene	U	5.0		µg/Kg	1	7/1/2003 2:30:00 PM
p-Ethyltoluene	U	5.0		µg/Kg	1	7/1/2003 2:30:00 PM
sec-Butylbenzene	U	5.0		µg/Kg	1	7/1/2003 2:30:00 PM
Styrene	U	5.0		µg/Kg	1	7/1/2003 2:30:00 PM
t-Butyl alcohol	U	5.0		µg/Kg	1	7/1/2003 2:30:00 PM
tert-Butylbenzene	U	5.0		µg/Kg	1	7/1/2003 2:30:00 PM
Tetrachloroethene	U	5.0		µg/Kg	1	7/1/2003 2:30:00 PM
Toluene	U	5.0		µg/Kg	1	7/1/2003 2:30:00 PM
trans-1,2-Dichloroethene	U	5.0		µg/Kg	1	7/1/2003 2:30:00 PM
trans-1,3-Dichloropropene	U	5.0		µg/Kg	1	7/1/2003 2:30:00 PM
Trichloroethene	U	5.0		µg/Kg	1	7/1/2003 2:30:00 PM
Trichlorofluoromethane	U	5.0		µg/Kg	1	7/1/2003 2:30:00 PM

Qualifiers:

ND - Not Detected at the Reporting Limit

J - Analyte detected below quantitation limits

B - Analyte detected in the associated Method Blank

* - Value exceeds Maximum Contaminant Level

S - Spike Recovery outside accepted recovery limits

R - RPD outside accepted recovery limits

E - Value above quantitation range

American Analytical Laboratories, Inc.

Date: *28-Jul-03*

CLIENT:	AKRF, Inc	**Client Sample ID:**	B10 (9'-10')
Lab Order:	0306117	**Tag Number:**	
Project:	Greenpoint Lumber Yard Brooklyn, NY	**Collection Date:**	6/26/2003
Lab ID:	0306117-03A	**Matrix:**	SOIL

Analyses	Result	Limit	Qual	Units	DF	Date Analyzed
VOLATILES SW-846 METHOD 8260		**SW8260B**				Analyst: **LDS**
Vinyl acetate	U	5.0		µg/Kg	1	7/1/2003 2:30:00 PM
Vinyl chloride	U	5.0		µg/Kg	1	7/1/2003 2:30:00 PM

Qualifiers:

ND - Not Detected at the Reporting Limit

J - Analyte detected below quantitation limits

B - Analyte detected in the associated Method Blank

* - Value exceeds Maximum Contaminant Level

S - Spike Recovery outside accepted recovery limits

R - RPD outside accepted recovery limits

E - Value above quantitation range

American Analytical Laboratories, Inc.

Date: *28-Jul-03*

CLIENT:	AKRF, Inc	**Client Sample ID:**	MW9 (1.5-3.5')
Lab Order:	0306117	**Tag Number:**	
Project:	Greenpoint Lumber Yard Brooklyn, NY	**Collection Date:**	6/26/2003
Lab ID:	0306117-04A	**Matrix:**	SOIL

Analyses	Result	Limit	Qual	Units	DF	Date Analyzed
VOLATILES SW-846 METHOD 8260		**SW8260B**				Analyst: **LDS**
1,1,1,2-Tetrachloroethane	U	5.0		µg/Kg	1	7/1/2003 3:08:00 PM
1,1,1-Trichloroethane	U	5.0		µg/Kg	1	7/1/2003 3:08:00 PM
1,1,2,2-Tetrachloroethane	U	5.0		µg/Kg	1	7/1/2003 3:08:00 PM
1,1,2-Trichloro-1,2,2-trifluoroethane	U	5.0		µg/Kg	1	7/1/2003 3:08:00 PM
1,1,2-Trichloroethane	U	5.0		µg/Kg	1	7/1/2003 3:08:00 PM
1,1-Dichloroethane	U	5.0		µg/Kg	1	7/1/2003 3:08:00 PM
1,1-Dichloroethene	U	5.0		µg/Kg	1	7/1/2003 3:08:00 PM
1,1-Dichloropropene	U	5.0		µg/Kg	1	7/1/2003 3:08:00 PM
1,2,3-Trichlorobenzene	U	5.0		µg/Kg	1	7/1/2003 3:08:00 PM
1,2,3-Trichloropropane	U	5.0		µg/Kg	1	7/1/2003 3:08:00 PM
1,2,4,5-Tetramethylbenzene	U	5.0		µg/Kg	1	7/1/2003 3:08:00 PM
1,2,4-Trichlorobenzene	U	5.0		µg/Kg	1	7/1/2003 3:08:00 PM
1,2,4-Trimethylbenzene	U	5.0		µg/Kg	1	7/1/2003 3:08:00 PM
1,2-Dibromo-3-chloropropane	U	5.0		µg/Kg	1	7/1/2003 3:08:00 PM
1,2-Dibromoethane	U	5.0		µg/Kg	1	7/1/2003 3:08:00 PM
1,2-Dichlorobenzene	U	5.0		µg/Kg	1	7/1/2003 3:08:00 PM
1,2-Dichloroethane	U	5.0		µg/Kg	1	7/1/2003 3:08:00 PM
1,2-Dichloropropane	U	5.0		µg/Kg	1	7/1/2003 3:08:00 PM
1,3,5-Trimethylbenzene	U	5.0		µg/Kg	1	7/1/2003 3:08:00 PM
1,3-Dichlorobenzene	U	5.0		µg/Kg	1	7/1/2003 3:08:00 PM
1,3-dichloropropane	U	5.0		µg/Kg	1	7/1/2003 3:08:00 PM
1,4-Dichlorobenzene	U	5.0		µg/Kg	1	7/1/2003 3:08:00 PM
2,2-Dichloropropane	U	5.0		µg/Kg	1	7/1/2003 3:08:00 PM
2-Butanone	U	5.0		µg/Kg	1	7/1/2003 3:08:00 PM
2-Chloroethyl vinyl ether	U	5.0		µg/Kg	1	7/1/2003 3:08:00 PM
2-Chlorotoluene	U	5.0		µg/Kg	1	7/1/2003 3:08:00 PM
2-Hexanone	U	5.0		µg/Kg	1	7/1/2003 3:08:00 PM
4-Chlorotoluene	U	5.0		µg/Kg	1	7/1/2003 3:08:00 PM
4-Isopropyltoluene	U	5.0		µg/Kg	1	7/1/2003 3:08:00 PM
4-Methyl-2-pentanone	U	5.0		µg/Kg	1	7/1/2003 3:08:00 PM
Acetone	U	5.0		µg/Kg	1	7/1/2003 3:08:00 PM
Acrolein	U	25		µg/Kg	1	7/1/2003 3:08:00 PM
Acrylonitrile	U	5.0		µg/Kg	1	7/1/2003 3:08:00 PM
Benzene	U	5.0		µg/Kg	1	7/1/2003 3:08:00 PM
Bromobenzene	U	5.0		µg/Kg	1	7/1/2003 3:08:00 PM
Bromochloromethane	U	5.0		µg/Kg	1	7/1/2003 3:08:00 PM
Bromodichloromethane	U	5.0		µg/Kg	1	7/1/2003 3:08:00 PM
Bromoform	U	5.0		µg/Kg	1	7/1/2003 3:08:00 PM
Bromomethane	U	5.0		µg/Kg	1	7/1/2003 3:08:00 PM
Carbon disulfide	U	5.0		µg/Kg	1	7/1/2003 3:08:00 PM

Qualifiers:

ND - Not Detected at the Reporting Limit

J - Analyte detected below quantitation limits

B - Analyte detected in the associated Method Blank

* - Value exceeds Maximum Contaminant Level

S - Spike Recovery outside accepted recovery limits

R - RPD outside accepted recovery limits

E - Value above quantitation range

American Analytical Laboratories, Inc.

Date: *28-Jul-03*

CLIENT:	AKRF, Inc	**Client Sample ID:**	MW9 (1.5-3.5')
Lab Order:	0306117	**Tag Number:**	
Project:	Greenpoint Lumber Yard Brooklyn, NY	**Collection Date:**	6/26/2003
Lab ID:	0306117-04A	**Matrix:**	SOIL

Analyses	Result	Limit	Qual	Units	DF	Date Analyzed
VOLATILES SW-846 METHOD 8260		**SW8260B**				Analyst: **LDS**
Carbon tetrachloride	U	5.0		µg/Kg	1	7/1/2003 3:08:00 PM
Chlorobenzene	U	5.0		µg/Kg	1	7/1/2003 3:08:00 PM
Chlorodifluoromethane	U	5.0		µg/Kg	1	7/1/2003 3:08:00 PM
Chloroethane	U	5.0		µg/Kg	1	7/1/2003 3:08:00 PM
Chloroform	U	5.0		µg/Kg	1	7/1/2003 3:08:00 PM
Chloromethane	U	5.0		µg/Kg	1	7/1/2003 3:08:00 PM
cis-1,2-Dichloroethene	U	5.0		µg/Kg	1	7/1/2003 3:08:00 PM
cis-1,3-Dichloropropene	U	5.0		µg/Kg	1	7/1/2003 3:08:00 PM
Dibromochloromethane	U	5.0		µg/Kg	1	7/1/2003 3:08:00 PM
Dibromomethane	U	5.0		µg/Kg	1	7/1/2003 3:08:00 PM
Dichlorodifluoromethane	U	5.0		µg/Kg	1	7/1/2003 3:08:00 PM
Diisopropyl ether	U	5.0		µg/Kg	1	7/1/2003 3:08:00 PM
Ethanol	U	25		µg/Kg	1	7/1/2003 3:08:00 PM
Ethyl acetate	U	5.0		µg/Kg	1	7/1/2003 3:08:00 PM
Ethylbenzene	U	5.0		µg/Kg	1	7/1/2003 3:08:00 PM
Freon-114	U	5.0		µg/Kg	1	7/1/2003 3:08:00 PM
Hexachlorobutadiene	U	5.0		µg/Kg	1	7/1/2003 3:08:00 PM
Isopropyl acetate	U	5.0		µg/Kg	1	7/1/2003 3:08:00 PM
Isopropylbenzene	U	5.0		µg/Kg	1	7/1/2003 3:08:00 PM
m,p-Xylene	U	10		µg/Kg	1	7/1/2003 3:08:00 PM
Methyl tert-butyl ether	U	5.0		µg/Kg	1	7/1/2003 3:08:00 PM
Methylene chloride	U	5.0		µg/Kg	1	7/1/2003 3:08:00 PM
Naphthalene	U	5.0		µg/Kg	1	7/1/2003 3:08:00 PM
n-Butyl acetate	U	5.0		µg/Kg	1	7/1/2003 3:08:00 PM
n-Butylbenzene	U	5.0		µg/Kg	1	7/1/2003 3:08:00 PM
n-Propyl acetate	U	5.0		µg/Kg	1	7/1/2003 3:08:00 PM
n-Propylbenzene	U	5.0		µg/Kg	1	7/1/2003 3:08:00 PM
o-Xylene	U	5.0		µg/Kg	1	7/1/2003 3:08:00 PM
p-Diethylbenzene	U	5.0		µg/Kg	1	7/1/2003 3:08:00 PM
p-Ethyltoluene	U	5.0		µg/Kg	1	7/1/2003 3:08:00 PM
sec-Butylbenzene	U	5.0		µg/Kg	1	7/1/2003 3:08:00 PM
Styrene	U	5.0		µg/Kg	1	7/1/2003 3:08:00 PM
t-Butyl alcohol	U	5.0		µg/Kg	1	7/1/2003 3:08:00 PM
tert-Butylbenzene	U	5.0		µg/Kg	1	7/1/2003 3:08:00 PM
Tetrachloroethene	U	5.0		µg/Kg	1	7/1/2003 3:08:00 PM
Toluene	U	5.0		µg/Kg	1	7/1/2003 3:08:00 PM
trans-1,2-Dichloroethene	U	5.0		µg/Kg	1	7/1/2003 3:08:00 PM
trans-1,3-Dichloropropene	U	5.0		µg/Kg	1	7/1/2003 3:08:00 PM
Trichloroethene	U	5.0		µg/Kg	1	7/1/2003 3:08:00 PM
Trichlorofluoromethane	U	5.0		µg/Kg	1	7/1/2003 3:08:00 PM

Qualifiers:

ND - Not Detected at the Reporting Limit

J - Analyte detected below quantitation limits

B - Analyte detected in the associated Method Blank

* - Value exceeds Maximum Contaminant Level

S - Spike Recovery outside accepted recovery limits

R - RPD outside accepted recovery limits

E - Value above quantitation range

American Analytical Laboratories, Inc.

Date: *28-Jul-03*

CLIENT:	AKRF, Inc	**Client Sample ID:**	MW9 (1.5-3.5')
Lab Order:	0306117	**Tag Number:**	
Project:	Greenpoint Lumber Yard Brooklyn, NY	**Collection Date:**	6/26/2003
Lab ID:	0306117-04A	**Matrix:**	SOIL

Analyses	Result	Limit	Qual	Units	DF	Date Analyzed
VOLATILES SW-846 METHOD 8260		**SW8260B**				Analyst: **LDS**
Vinyl acetate	U	5.0		µg/Kg	1	7/1/2003 3:08:00 PM
Vinyl chloride	U	5.0		µg/Kg	1	7/1/2003 3:08:00 PM

Qualifiers:

ND - Not Detected at the Reporting Limit

J - Analyte detected below quantitation limits

B - Analyte detected in the associated Method Blank

* - Value exceeds Maximum Contaminant Level

S - Spike Recovery outside accepted recovery limits

R - RPD outside accepted recovery limits

E - Value above quantitation range

American Analytical Laboratories, Inc.

Date: *28-Jul-03*

CLIENT:	AKRF, Inc	**Client Sample ID:**	MW9 (5'-6')
Lab Order:	0306117	**Tag Number:**	
Project:	Greenpoint Lumber Yard Brooklyn, NY	**Collection Date:**	6/26/2003
Lab ID:	0306117-05A	**Matrix:**	SOIL

Analyses	Result	Limit	Qual	Units	DF	Date Analyzed
VOLATILES SW-846 METHOD 8260		**SW8260B**				Analyst: **LDS**
1,1,1,2-Tetrachloroethane	U	5.0		µg/Kg	1	7/1/2003 3:46:00 PM
1,1,1-Trichloroethane	U	5.0		µg/Kg	1	7/1/2003 3:46:00 PM
1,1,2,2-Tetrachloroethane	U	5.0		µg/Kg	1	7/1/2003 3:46:00 PM
1,1,2-Trichloro-1,2,2-trifluoroethane	U	5.0		µg/Kg	1	7/1/2003 3:46:00 PM
1,1,2-Trichloroethane	U	5.0		µg/Kg	1	7/1/2003 3:46:00 PM
1,1-Dichloroethane	U	5.0		µg/Kg	1	7/1/2003 3:46:00 PM
1,1-Dichloroethene	U	5.0		µg/Kg	1	7/1/2003 3:46:00 PM
1,1-Dichloropropene	U	5.0		µg/Kg	1	7/1/2003 3:46:00 PM
1,2,3-Trichlorobenzene	U	5.0		µg/Kg	1	7/1/2003 3:46:00 PM
1,2,3-Trichloropropane	U	5.0		µg/Kg	1	7/1/2003 3:46:00 PM
1,2,4,5-Tetramethylbenzene	U	5.0		µg/Kg	1	7/1/2003 3:46:00 PM
1,2,4-Trichlorobenzene	U	5.0		µg/Kg	1	7/1/2003 3:46:00 PM
1,2,4-Trimethylbenzene	U	5.0		µg/Kg	1	7/1/2003 3:46:00 PM
1,2-Dibromo-3-chloropropane	U	5.0		µg/Kg	1	7/1/2003 3:46:00 PM
1,2-Dibromoethane	U	5.0		µg/Kg	1	7/1/2003 3:46:00 PM
1,2-Dichlorobenzene	U	5.0		µg/Kg	1	7/1/2003 3:46:00 PM
1,2-Dichloroethane	U	5.0		µg/Kg	1	7/1/2003 3:46:00 PM
1,2-Dichloropropane	U	5.0		µg/Kg	1	7/1/2003 3:46:00 PM
1,3,5-Trimethylbenzene	U	5.0		µg/Kg	1	7/1/2003 3:46:00 PM
1,3-Dichlorobenzene	U	5.0		µg/Kg	1	7/1/2003 3:46:00 PM
1,3-dichloropropane	U	5.0		µg/Kg	1	7/1/2003 3:46:00 PM
1,4-Dichlorobenzene	U	5.0		µg/Kg	1	7/1/2003 3:46:00 PM
2,2-Dichloropropane	U	5.0		µg/Kg	1	7/1/2003 3:46:00 PM
2-Butanone	U	5.0		µg/Kg	1	7/1/2003 3:46:00 PM
2-Chloroethyl vinyl ether	U	5.0		µg/Kg	1	7/1/2003 3:46:00 PM
2-Chlorotoluene	U	5.0		µg/Kg	1	7/1/2003 3:46:00 PM
2-Hexanone	U	5.0		µg/Kg	1	7/1/2003 3:46:00 PM
4-Chlorotoluene	U	5.0		µg/Kg	1	7/1/2003 3:46:00 PM
4-Isopropyltoluene	U	5.0		µg/Kg	1	7/1/2003 3:46:00 PM
4-Methyl-2-pentanone	U	5.0		µg/Kg	1	7/1/2003 3:46:00 PM
Acetone	U	5.0		µg/Kg	1	7/1/2003 3:46:00 PM
Acrolein	U	25		µg/Kg	1	7/1/2003 3:46:00 PM
Acrylonitrile	U	5.0		µg/Kg	1	7/1/2003 3:46:00 PM
Benzene	U	5.0		µg/Kg	1	7/1/2003 3:46:00 PM
Bromobenzene	U	5.0		µg/Kg	1	7/1/2003 3:46:00 PM
Bromochloromethane	U	5.0		µg/Kg	1	7/1/2003 3:46:00 PM
Bromodichloromethane	U	5.0		µg/Kg	1	7/1/2003 3:46:00 PM
Bromoform	U	5.0		µg/Kg	1	7/1/2003 3:46:00 PM
Bromomethane	U	5.0		µg/Kg	1	7/1/2003 3:46:00 PM
Carbon disulfide	U	5.0		µg/Kg	1	7/1/2003 3:46:00 PM

Qualifiers:

ND - Not Detected at the Reporting Limit

J - Analyte detected below quantitation limits

B - Analyte detected in the associated Method Blank

* - Value exceeds Maximum Contaminant Level

S - Spike Recovery outside accepted recovery limits

R - RPD outside accepted recovery limits

E - Value above quantitation range

American Analytical Laboratories, Inc.

Date: *28-Jul-03*

CLIENT:	AKRF, Inc	**Client Sample ID:**	MW9 (5'-6')
Lab Order:	0306117	**Tag Number:**	
Project:	Greenpoint Lumber Yard Brooklyn, NY	**Collection Date:**	6/26/2003
Lab ID:	0306117-05A	**Matrix:**	SOIL

Analyses	Result	Limit	Qual	Units	DF	Date Analyzed
VOLATILES SW-846 METHOD 8260		**SW8260B**				Analyst: **LDS**
Carbon tetrachloride	U	5.0		µg/Kg	1	7/1/2003 3:46:00 PM
Chlorobenzene	U	5.0		µg/Kg	1	7/1/2003 3:46:00 PM
Chlorodifluoromethane	U	5.0		µg/Kg	1	7/1/2003 3:46:00 PM
Chloroethane	U	5.0		µg/Kg	1	7/1/2003 3:46:00 PM
Chloroform	U	5.0		µg/Kg	1	7/1/2003 3:46:00 PM
Chloromethane	U	5.0		µg/Kg	1	7/1/2003 3:46:00 PM
cis-1,2-Dichloroethene	U	5.0		µg/Kg	1	7/1/2003 3:46:00 PM
cis-1,3-Dichloropropene	U	5.0		µg/Kg	1	7/1/2003 3:46:00 PM
Dibromochloromethane	U	5.0		µg/Kg	1	7/1/2003 3:46:00 PM
Dibromomethane	U	5.0		µg/Kg	1	7/1/2003 3:46:00 PM
Dichlorodifluoromethane	U	5.0		µg/Kg	1	7/1/2003 3:46:00 PM
Diisopropyl ether	U	5.0		µg/Kg	1	7/1/2003 3:46:00 PM
Ethanol	U	25		µg/Kg	1	7/1/2003 3:46:00 PM
Ethyl acetate	U	5.0		µg/Kg	1	7/1/2003 3:46:00 PM
Ethylbenzene	U	5.0		µg/Kg	1	7/1/2003 3:46:00 PM
Freon-114	U	5.0		µg/Kg	1	7/1/2003 3:46:00 PM
Hexachlorobutadiene	U	5.0		µg/Kg	1	7/1/2003 3:46:00 PM
Isopropyl acetate	U	5.0		µg/Kg	1	7/1/2003 3:46:00 PM
Isopropylbenzene	U	5.0		µg/Kg	1	7/1/2003 3:46:00 PM
m,p-Xylene	U	10		µg/Kg	1	7/1/2003 3:46:00 PM
Methyl tert-butyl ether	U	5.0		µg/Kg	1	7/1/2003 3:46:00 PM
Methylene chloride	U	5.0		µg/Kg	1	7/1/2003 3:46:00 PM
Naphthalene	U	5.0		µg/Kg	1	7/1/2003 3:46:00 PM
n-Butyl acetate	U	5.0		µg/Kg	1	7/1/2003 3:46:00 PM
n-Butylbenzene	U	5.0		µg/Kg	1	7/1/2003 3:46:00 PM
n-Propyl acetate	U	5.0		µg/Kg	1	7/1/2003 3:46:00 PM
n-Propylbenzene	U	5.0		µg/Kg	1	7/1/2003 3:46:00 PM
o-Xylene	U	5.0		µg/Kg	1	7/1/2003 3:46:00 PM
p-Diethylbenzene	U	5.0		µg/Kg	1	7/1/2003 3:46:00 PM
p-Ethyltoluene	U	5.0		µg/Kg	1	7/1/2003 3:46:00 PM
sec-Butylbenzene	U	5.0		µg/Kg	1	7/1/2003 3:46:00 PM
Styrene	U	5.0		µg/Kg	1	7/1/2003 3:46:00 PM
t-Butyl alcohol	U	5.0		µg/Kg	1	7/1/2003 3:46:00 PM
tert-Butylbenzene	U	5.0		µg/Kg	1	7/1/2003 3:46:00 PM
Tetrachloroethene	U	5.0		µg/Kg	1	7/1/2003 3:46:00 PM
Toluene	U	5.0		µg/Kg	1	7/1/2003 3:46:00 PM
trans-1,2-Dichloroethene	U	5.0		µg/Kg	1	7/1/2003 3:46:00 PM
trans-1,3-Dichloropropene	U	5.0		µg/Kg	1	7/1/2003 3:46:00 PM
Trichloroethene	U	5.0		µg/Kg	1	7/1/2003 3:46:00 PM
Trichlorofluoromethane	U	5.0		µg/Kg	1	7/1/2003 3:46:00 PM

Qualifiers:

ND - Not Detected at the Reporting Limit

J - Analyte detected below quantitation limits

B - Analyte detected in the associated Method Blank

* - Value exceeds Maximum Contaminant Level

S - Spike Recovery outside accepted recovery limits

R - RPD outside accepted recovery limits

E - Value above quantitation range

American Analytical Laboratories, Inc.

Date: *28-Jul-03*

CLIENT:	AKRF, Inc	**Client Sample ID:**	MW9 (5'-6')
Lab Order:	0306117	**Tag Number:**	
Project:	Greenpoint Lumber Yard Brooklyn, NY	**Collection Date:**	6/26/2003
Lab ID:	0306117-05A	**Matrix:**	SOIL

Analyses	Result	Limit	Qual	Units	DF	Date Analyzed
VOLATILES SW-846 METHOD 8260		**SW8260B**				Analyst: **LDS**
Vinyl acetate	U	5.0		µg/Kg	1	7/1/2003 3:46:00 PM
Vinyl chloride	U	5.0		µg/Kg	1	7/1/2003 3:46:00 PM

Qualifiers:

ND - Not Detected at the Reporting Limit

J - Analyte detected below quantitation limits

B - Analyte detected in the associated Method Blank

* - Value exceeds Maximum Contaminant Level

S - Spike Recovery outside accepted recovery limits

R - RPD outside accepted recovery limits

E - Value above quantitation range

American Analytical Laboratories, Inc.

Date: *28-Jul-03*

CLIENT:	AKRF, Inc	**Client Sample ID:**	B7 (9.5'-10.0')
Lab Order:	0306117	**Tag Number:**	
Project:	Greenpoint Lumber Yard Brooklyn, NY	**Collection Date:**	6/26/2003
Lab ID:	0306117-06A	**Matrix:**	SOIL

Analyses	Result	Limit	Qual	Units	DF	Date Analyzed
VOLATILES SW-846 METHOD 8260		**SW8260B**				Analyst: **LDS**
1,1,1,2-Tetrachloroethane	U	5.0		µg/Kg	1	7/1/2003 4:24:00 PM
1,1,1-Trichloroethane	U	5.0		µg/Kg	1	7/1/2003 4:24:00 PM
1,1,2,2-Tetrachloroethane	U	5.0		µg/Kg	1	7/1/2003 4:24:00 PM
1,1,2-Trichloro-1,2,2-trifluoroethane	U	5.0		µg/Kg	1	7/1/2003 4:24:00 PM
1,1,2-Trichloroethane	U	5.0		µg/Kg	1	7/1/2003 4:24:00 PM
1,1-Dichloroethane	U	5.0		µg/Kg	1	7/1/2003 4:24:00 PM
1,1-Dichloroethene	U	5.0		µg/Kg	1	7/1/2003 4:24:00 PM
1,1-Dichloropropene	U	5.0		µg/Kg	1	7/1/2003 4:24:00 PM
1,2,3-Trichlorobenzene	U	5.0		µg/Kg	1	7/1/2003 4:24:00 PM
1,2,3-Trichloropropane	U	5.0		µg/Kg	1	7/1/2003 4:24:00 PM
1,2,4,5-Tetramethylbenzene	U	5.0		µg/Kg	1	7/1/2003 4:24:00 PM
1,2,4-Trichlorobenzene	U	5.0		µg/Kg	1	7/1/2003 4:24:00 PM
1,2,4-Trimethylbenzene	U	5.0		µg/Kg	1	7/1/2003 4:24:00 PM
1,2-Dibromo-3-chloropropane	U	5.0		µg/Kg	1	7/1/2003 4:24:00 PM
1,2-Dibromoethane	U	5.0		µg/Kg	1	7/1/2003 4:24:00 PM
1,2-Dichlorobenzene	U	5.0		µg/Kg	1	7/1/2003 4:24:00 PM
1,2-Dichloroethane	U	5.0		µg/Kg	1	7/1/2003 4:24:00 PM
1,2-Dichloropropane	U	5.0		µg/Kg	1	7/1/2003 4:24:00 PM
1,3,5-Trimethylbenzene	U	5.0		µg/Kg	1	7/1/2003 4:24:00 PM
1,3-Dichlorobenzene	U	5.0		µg/Kg	1	7/1/2003 4:24:00 PM
1,3-dichloropropane	U	5.0		µg/Kg	1	7/1/2003 4:24:00 PM
1,4-Dichlorobenzene	U	5.0		µg/Kg	1	7/1/2003 4:24:00 PM
2,2-Dichloropropane	U	5.0		µg/Kg	1	7/1/2003 4:24:00 PM
2-Butanone	U	5.0		µg/Kg	1	7/1/2003 4:24:00 PM
2-Chloroethyl vinyl ether	U	5.0		µg/Kg	1	7/1/2003 4:24:00 PM
2-Chlorotoluene	U	5.0		µg/Kg	1	7/1/2003 4:24:00 PM
2-Hexanone	U	5.0		µg/Kg	1	7/1/2003 4:24:00 PM
4-Chlorotoluene	U	5.0		µg/Kg	1	7/1/2003 4:24:00 PM
4-Isopropyltoluene	U	5.0		µg/Kg	1	7/1/2003 4:24:00 PM
4-Methyl-2-pentanone	U	5.0		µg/Kg	1	7/1/2003 4:24:00 PM
Acetone	U	5.0		µg/Kg	1	7/1/2003 4:24:00 PM
Acrolein	U	25		µg/Kg	1	7/1/2003 4:24:00 PM
Acrylonitrile	U	5.0		µg/Kg	1	7/1/2003 4:24:00 PM
Benzene	U	5.0		µg/Kg	1	7/1/2003 4:24:00 PM
Bromobenzene	U	5.0		µg/Kg	1	7/1/2003 4:24:00 PM
Bromochloromethane	U	5.0		µg/Kg	1	7/1/2003 4:24:00 PM
Bromodichloromethane	U	5.0		µg/Kg	1	7/1/2003 4:24:00 PM
Bromoform	U	5.0		µg/Kg	1	7/1/2003 4:24:00 PM
Bromomethane	U	5.0		µg/Kg	1	7/1/2003 4:24:00 PM
Carbon disulfide	U	5.0		µg/Kg	1	7/1/2003 4:24:00 PM

Qualifiers:

ND - Not Detected at the Reporting Limit

J - Analyte detected below quantitation limits

B - Analyte detected in the associated Method Blank

* - Value exceeds Maximum Contaminant Level

S - Spike Recovery outside accepted recovery limits

R - RPD outside accepted recovery limits

E - Value above quantitation range

American Analytical Laboratories, Inc.

Date: *28-Jul-03*

CLIENT:	AKRF, Inc	**Client Sample ID:**	B7 (9.5'-10.0')
Lab Order:	0306117	**Tag Number:**	
Project:	Greenpoint Lumber Yard Brooklyn, NY	**Collection Date:**	6/26/2003
Lab ID:	0306117-06A	**Matrix:**	SOIL

Analyses	Result	Limit	Qual	Units	DF	Date Analyzed
VOLATILES SW-846 METHOD 8260		**SW8260B**				Analyst: **LDS**
Carbon tetrachloride	U	5.0		µg/Kg	1	7/1/2003 4:24:00 PM
Chlorobenzene	U	5.0		µg/Kg	1	7/1/2003 4:24:00 PM
Chlorodifluoromethane	U	5.0		µg/Kg	1	7/1/2003 4:24:00 PM
Chloroethane	U	5.0		µg/Kg	1	7/1/2003 4:24:00 PM
Chloroform	U	5.0		µg/Kg	1	7/1/2003 4:24:00 PM
Chloromethane	U	5.0		µg/Kg	1	7/1/2003 4:24:00 PM
cis-1,2-Dichloroethene	U	5.0		µg/Kg	1	7/1/2003 4:24:00 PM
cis-1,3-Dichloropropene	U	5.0		µg/Kg	1	7/1/2003 4:24:00 PM
Dibromochloromethane	U	5.0		µg/Kg	1	7/1/2003 4:24:00 PM
Dibromomethane	U	5.0		µg/Kg	1	7/1/2003 4:24:00 PM
Dichlorodifluoromethane	U	5.0		µg/Kg	1	7/1/2003 4:24:00 PM
Diisopropyl ether	U	5.0		µg/Kg	1	7/1/2003 4:24:00 PM
Ethanol	U	25		µg/Kg	1	7/1/2003 4:24:00 PM
Ethyl acetate	U	5.0		µg/Kg	1	7/1/2003 4:24:00 PM
Ethylbenzene	U	5.0		µg/Kg	1	7/1/2003 4:24:00 PM
Freon-114	U	5.0		µg/Kg	1	7/1/2003 4:24:00 PM
Hexachlorobutadiene	U	5.0		µg/Kg	1	7/1/2003 4:24:00 PM
Isopropyl acetate	U	5.0		µg/Kg	1	7/1/2003 4:24:00 PM
Isopropylbenzene	U	5.0		µg/Kg	1	7/1/2003 4:24:00 PM
m,p-Xylene	U	10		µg/Kg	1	7/1/2003 4:24:00 PM
Methyl tert-butyl ether	U	5.0		µg/Kg	1	7/1/2003 4:24:00 PM
Methylene chloride	U	5.0		µg/Kg	1	7/1/2003 4:24:00 PM
Naphthalene	U	5.0		µg/Kg	1	7/1/2003 4:24:00 PM
n-Butyl acetate	U	5.0		µg/Kg	1	7/1/2003 4:24:00 PM
n-Butylbenzene	U	5.0		µg/Kg	1	7/1/2003 4:24:00 PM
n-Propyl acetate	U	5.0		µg/Kg	1	7/1/2003 4:24:00 PM
n-Propylbenzene	U	5.0		µg/Kg	1	7/1/2003 4:24:00 PM
o-Xylene	U	5.0		µg/Kg	1	7/1/2003 4:24:00 PM
p-Diethylbenzene	U	5.0		µg/Kg	1	7/1/2003 4:24:00 PM
p-Ethyltoluene	U	5.0		µg/Kg	1	7/1/2003 4:24:00 PM
sec-Butylbenzene	U	5.0		µg/Kg	1	7/1/2003 4:24:00 PM
Styrene	U	5.0		µg/Kg	1	7/1/2003 4:24:00 PM
t-Butyl alcohol	U	5.0		µg/Kg	1	7/1/2003 4:24:00 PM
tert-Butylbenzene	U	5.0		µg/Kg	1	7/1/2003 4:24:00 PM
Tetrachloroethene	U	5.0		µg/Kg	1	7/1/2003 4:24:00 PM
Toluene	U	5.0		µg/Kg	1	7/1/2003 4:24:00 PM
trans-1,2-Dichloroethene	U	5.0		µg/Kg	1	7/1/2003 4:24:00 PM
trans-1,3-Dichloropropene	U	5.0		µg/Kg	1	7/1/2003 4:24:00 PM
Trichloroethene	U	5.0		µg/Kg	1	7/1/2003 4:24:00 PM
Trichlorofluoromethane	U	5.0		µg/Kg	1	7/1/2003 4:24:00 PM

Qualifiers:

ND - Not Detected at the Reporting Limit

J - Analyte detected below quantitation limits

B - Analyte detected in the associated Method Blank

* - Value exceeds Maximum Contaminant Level

S - Spike Recovery outside accepted recovery limits

R - RPD outside accepted recovery limits

E - Value above quantitation range

American Analytical Laboratories, Inc.

Date: *28-Jul-03*

CLIENT:	AKRF, Inc	**Client Sample ID:**	B7 (9.5'-10.0')
Lab Order:	0306117	**Tag Number:**	
Project:	Greenpoint Lumber Yard Brooklyn, NY	**Collection Date:**	6/26/2003
Lab ID:	0306117-06A	**Matrix:**	SOIL

Analyses	Result	Limit	Qual	Units	DF	Date Analyzed
VOLATILES SW-846 METHOD 8260		**SW8260B**				Analyst: **LDS**
Vinyl acetate	U	5.0		µg/Kg	1	7/1/2003 4:24:00 PM
Vinyl chloride	U	5.0		µg/Kg	1	7/1/2003 4:24:00 PM

Qualifiers:

ND - Not Detected at the Reporting Limit

J - Analyte detected below quantitation limits

B - Analyte detected in the associated Method Blank

* - Value exceeds Maximum Contaminant Level

S - Spike Recovery outside accepted recovery limits

R - RPD outside accepted recovery limits

E - Value above quantitation range

American Analytical Laboratories, Inc.

Date: *28-Jul-03*

CLIENT:	AKRF, Inc	**Client Sample ID:**	MW7 (10'-11')
Lab Order:	0306117	**Tag Number:**	
Project:	Greenpoint Lumber Yard Brooklyn, NY	**Collection Date:**	6/26/2003
Lab ID:	0306117-07A	**Matrix:**	SOIL

Analyses	Result	Limit	Qual	Units	DF	Date Analyzed
VOLATILES SW-846 METHOD 8260		**SW8260B**				Analyst: **LDS**
1,1,1,2-Tetrachloroethane	U	5.0		µg/Kg	1	7/2/2003 5:10:00 PM
1,1,1,2-Tetrachloroethane	U	5.0		µg/Kg	1	7/1/2003 7:34:00 PM
1,1,1-Trichloroethane	U	5.0		µg/Kg	1	7/1/2003 7:34:00 PM
1,1,1-Trichloroethane	U	5.0		µg/Kg	1	7/2/2003 5:10:00 PM
1,1,2,2-Tetrachloroethane	U	5.0		µg/Kg	1	7/1/2003 7:34:00 PM
1,1,2,2-Tetrachloroethane	U	5.0		µg/Kg	1	7/2/2003 5:10:00 PM
1,1,2-Trichloro-1,2,2-trifluoroethane	U	5.0		µg/Kg	1	7/2/2003 5:10:00 PM
1,1,2-Trichloro-1,2,2-trifluoroethane	U	5.0		µg/Kg	1	7/1/2003 7:34:00 PM
1,1,2-Trichloroethane	U	5.0		µg/Kg	1	7/2/2003 5:10:00 PM
1,1,2-Trichloroethane	U	5.0		µg/Kg	1	7/1/2003 7:34:00 PM
1,1-Dichloroethane	U	5.0		µg/Kg	1	7/2/2003 5:10:00 PM
1,1-Dichloroethane	U	5.0		µg/Kg	1	7/1/2003 7:34:00 PM
1,1-Dichloroethene	U	5.0		µg/Kg	1	7/2/2003 5:10:00 PM
1,1-Dichloroethene	U	5.0		µg/Kg	1	7/1/2003 7:34:00 PM
1,1-Dichloropropene	U	5.0		µg/Kg	1	7/2/2003 5:10:00 PM
1,1-Dichloropropene	U	5.0		µg/Kg	1	7/1/2003 7:34:00 PM
1,2,3-Trichlorobenzene	U	5.0		µg/Kg	1	7/2/2003 5:10:00 PM
1,2,3-Trichlorobenzene	U	5.0		µg/Kg	1	7/1/2003 7:34:00 PM
1,2,3-Trichloropropane	U	5.0		µg/Kg	1	7/2/2003 5:10:00 PM
1,2,3-Trichloropropane	U	5.0		µg/Kg	1	7/1/2003 7:34:00 PM
1,2,4,5-Tetramethylbenzene	U	5.0		µg/Kg	1	7/1/2003 7:34:00 PM
1,2,4,5-Tetramethylbenzene	U	5.0		µg/Kg	1	7/2/2003 5:10:00 PM
1,2,4-Trichlorobenzene	U	5.0		µg/Kg	1	7/1/2003 7:34:00 PM
1,2,4-Trichlorobenzene	U	5.0		µg/Kg	1	7/2/2003 5:10:00 PM
1,2,4-Trimethylbenzene	U	5.0		µg/Kg	1	7/1/2003 7:34:00 PM
1,2,4-Trimethylbenzene	U	5.0		µg/Kg	1	7/2/2003 5:10:00 PM
1,2-Dibromo-3-chloropropane	U	5.0		µg/Kg	1	7/2/2003 5:10:00 PM
1,2-Dibromo-3-chloropropane	U	5.0		µg/Kg	1	7/1/2003 7:34:00 PM
1,2-Dibromoethane	U	5.0		µg/Kg	1	7/2/2003 5:10:00 PM
1,2-Dibromoethane	U	5.0		µg/Kg	1	7/1/2003 7:34:00 PM
1,2-Dichlorobenzene	U	5.0		µg/Kg	1	7/2/2003 5:10:00 PM
1,2-Dichlorobenzene	U	5.0		µg/Kg	1	7/1/2003 7:34:00 PM
1,2-Dichloroethane	U	5.0		µg/Kg	1	7/2/2003 5:10:00 PM
1,2-Dichloroethane	U	5.0		µg/Kg	1	7/1/2003 7:34:00 PM
1,2-Dichloropropane	U	5.0		µg/Kg	1	7/2/2003 5:10:00 PM
1,2-Dichloropropane	U	5.0		µg/Kg	1	7/1/2003 7:34:00 PM
1,3,5-Trimethylbenzene	U	5.0		µg/Kg	1	7/2/2003 5:10:00 PM
1,3,5-Trimethylbenzene	U	5.0		µg/Kg	1	7/1/2003 7:34:00 PM
1,3-Dichlorobenzene	U	5.0		µg/Kg	1	7/1/2003 7:34:00 PM
1,3-Dichlorobenzene	U	5.0		µg/Kg	1	7/2/2003 5:10:00 PM

Qualifiers:

ND - Not Detected at the Reporting Limit

J - Analyte detected below quantitation limits

B - Analyte detected in the associated Method Blank

* - Value exceeds Maximum Contaminant Level

S - Spike Recovery outside accepted recovery limits

R - RPD outside accepted recovery limits

E - Value above quantitation range

American Analytical Laboratories, Inc.

Date: *28-Jul-03*

CLIENT:	AKRF, Inc	**Client Sample ID:**	MW7 (10'-11')
Lab Order:	0306117	**Tag Number:**	
Project:	Greenpoint Lumber Yard Brooklyn, NY	**Collection Date:**	6/26/2003
Lab ID:	0306117-07A	**Matrix:**	SOIL

Analyses	Result	Limit	Qual	Units	DF	Date Analyzed
VOLATILES SW-846 METHOD 8260		**SW8260B**				Analyst: **LDS**
1,3-dichloropropane	U	5.0		µg/Kg	1	7/1/2003 7:34:00 PM
1,3-dichloropropane	U	5.0		µg/Kg	1	7/2/2003 5:10:00 PM
1,4-Dichlorobenzene	U	5.0		µg/Kg	1	7/1/2003 7:34:00 PM
1,4-Dichlorobenzene	U	5.0		µg/Kg	1	7/2/2003 5:10:00 PM
2,2-Dichloropropane	U	5.0		µg/Kg	1	7/1/2003 7:34:00 PM
2,2-Dichloropropane	U	5.0		µg/Kg	1	7/2/2003 5:10:00 PM
2-Butanone	U	5.0		µg/Kg	1	7/2/2003 5:10:00 PM
2-Butanone	U	5.0		µg/Kg	1	7/1/2003 7:34:00 PM
2-Chloroethyl vinyl ether	U	5.0		µg/Kg	1	7/2/2003 5:10:00 PM
2-Chloroethyl vinyl ether	U	5.0		µg/Kg	1	7/1/2003 7:34:00 PM
2-Chlorotoluene	U	5.0		µg/Kg	1	7/2/2003 5:10:00 PM
2-Chlorotoluene	U	5.0		µg/Kg	1	7/1/2003 7:34:00 PM
2-Hexanone	U	5.0		µg/Kg	1	7/2/2003 5:10:00 PM
2-Hexanone	U	5.0		µg/Kg	1	7/1/2003 7:34:00 PM
4-Chlorotoluene	U	5.0		µg/Kg	1	7/2/2003 5:10:00 PM
4-Chlorotoluene	U	5.0		µg/Kg	1	7/1/2003 7:34:00 PM
4-Isopropyltoluene	U	5.0		µg/Kg	1	7/1/2003 7:34:00 PM
4-Isopropyltoluene	U	5.0		µg/Kg	1	7/2/2003 5:10:00 PM
4-Methyl-2-pentanone	U	5.0		µg/Kg	1	7/2/2003 5:10:00 PM
4-Methyl-2-pentanone	U	5.0		µg/Kg	1	7/1/2003 7:34:00 PM
Acetone	25	5.0		µg/Kg	1	7/2/2003 5:10:00 PM
Acetone	64	5.0		µg/Kg	1	7/1/2003 7:34:00 PM
Acrolein	U	25		µg/Kg	1	7/1/2003 7:34:00 PM
Acrolein	U	25		µg/Kg	1	7/2/2003 5:10:00 PM
Acrylonitrile	U	5.0		µg/Kg	1	7/2/2003 5:10:00 PM
Acrylonitrile	U	5.0		µg/Kg	1	7/1/2003 7:34:00 PM
Benzene	U	5.0		µg/Kg	1	7/1/2003 7:34:00 PM
Benzene	U	5.0		µg/Kg	1	7/2/2003 5:10:00 PM
Bromobenzene	U	5.0		µg/Kg	1	7/2/2003 5:10:00 PM
Bromobenzene	U	5.0		µg/Kg	1	7/1/2003 7:34:00 PM
Bromochloromethane	U	5.0		µg/Kg	1	7/2/2003 5:10:00 PM
Bromochloromethane	U	5.0		µg/Kg	1	7/1/2003 7:34:00 PM
Bromodichloromethane	U	5.0		µg/Kg	1	7/2/2003 5:10:00 PM
Bromodichloromethane	U	5.0		µg/Kg	1	7/1/2003 7:34:00 PM
Bromoform	U	5.0		µg/Kg	1	7/2/2003 5:10:00 PM
Bromoform	U	5.0		µg/Kg	1	7/1/2003 7:34:00 PM
Bromomethane	U	5.0		µg/Kg	1	7/1/2003 7:34:00 PM
Bromomethane	U	5.0		µg/Kg	1	7/2/2003 5:10:00 PM
Carbon disulfide	U	5.0		µg/Kg	1	7/2/2003 5:10:00 PM
Carbon disulfide	U	5.0		µg/Kg	1	7/1/2003 7:34:00 PM

Qualifiers:

ND - Not Detected at the Reporting Limit

J - Analyte detected below quantitation limits

B - Analyte detected in the associated Method Blank

* - Value exceeds Maximum Contaminant Level

S - Spike Recovery outside accepted recovery limits

R - RPD outside accepted recovery limits

E - Value above quantitation range

American Analytical Laboratories, Inc.

Date: *28-Jul-03*

CLIENT:	AKRF, Inc	**Client Sample ID:**	MW7 (10'-11')
Lab Order:	0306117	**Tag Number:**	
Project:	Greenpoint Lumber Yard Brooklyn, NY	**Collection Date:**	6/26/2003
Lab ID:	0306117-07A	**Matrix:**	SOIL

Analyses	Result	Limit	Qual	Units	DF	Date Analyzed
VOLATILES SW-846 METHOD 8260		**SW8260B**				Analyst: **LDS**
Carbon tetrachloride	U	5.0		µg/Kg	1	7/1/2003 7:34:00 PM
Carbon tetrachloride	U	5.0		µg/Kg	1	7/2/2003 5:10:00 PM
Chlorobenzene	U	5.0		µg/Kg	1	7/2/2003 5:10:00 PM
Chlorobenzene	U	5.0		µg/Kg	1	7/1/2003 7:34:00 PM
Chlorodifluoromethane	U	5.0		µg/Kg	1	7/1/2003 7:34:00 PM
Chlorodifluoromethane	U	5.0		µg/Kg	1	7/2/2003 5:10:00 PM
Chloroethane	U	5.0		µg/Kg	1	7/1/2003 7:34:00 PM
Chloroethane	U	5.0		µg/Kg	1	7/2/2003 5:10:00 PM
Chloroform	U	5.0		µg/Kg	1	7/1/2003 7:34:00 PM
Chloroform	U	5.0		µg/Kg	1	7/2/2003 5:10:00 PM
Chloromethane	U	5.0		µg/Kg	1	7/2/2003 5:10:00 PM
Chloromethane	U	5.0		µg/Kg	1	7/1/2003 7:34:00 PM
cis-1,2-Dichloroethene	U	5.0		µg/Kg	1	7/2/2003 5:10:00 PM
cis-1,2-Dichloroethene	U	5.0		µg/Kg	1	7/1/2003 7:34:00 PM
cis-1,3-Dichloropropene	U	5.0		µg/Kg	1	7/2/2003 5:10:00 PM
cis-1,3-Dichloropropene	U	5.0		µg/Kg	1	7/1/2003 7:34:00 PM
Dibromochloromethane	U	5.0		µg/Kg	1	7/2/2003 5:10:00 PM
Dibromochloromethane	U	5.0		µg/Kg	1	7/1/2003 7:34:00 PM
Dibromomethane	U	5.0		µg/Kg	1	7/2/2003 5:10:00 PM
Dibromomethane	U	5.0		µg/Kg	1	7/1/2003 7:34:00 PM
Dichlorodifluoromethane	U	5.0		µg/Kg	1	7/2/2003 5:10:00 PM
Dichlorodifluoromethane	U	5.0		µg/Kg	1	7/1/2003 7:34:00 PM
Diisopropyl ether	U	5.0		µg/Kg	1	7/2/2003 5:10:00 PM
Diisopropyl ether	U	5.0		µg/Kg	1	7/1/2003 7:34:00 PM
Ethanol	U	25		µg/Kg	1	7/2/2003 5:10:00 PM
Ethanol	U	25		µg/Kg	1	7/1/2003 7:34:00 PM
Ethyl acetate	U	5.0		µg/Kg	1	7/2/2003 5:10:00 PM
Ethyl acetate	U	5.0		µg/Kg	1	7/1/2003 7:34:00 PM
Ethylbenzene	U	5.0		µg/Kg	1	7/2/2003 5:10:00 PM
Ethylbenzene	U	5.0		µg/Kg	1	7/1/2003 7:34:00 PM
Freon-114	U	5.0		µg/Kg	1	7/2/2003 5:10:00 PM
Freon-114	U	5.0		µg/Kg	1	7/1/2003 7:34:00 PM
Hexachlorobutadiene	U	5.0		µg/Kg	1	7/2/2003 5:10:00 PM
Hexachlorobutadiene	U	5.0		µg/Kg	1	7/1/2003 7:34:00 PM
Isopropyl acetate	U	5.0		µg/Kg	1	7/2/2003 5:10:00 PM
Isopropyl acetate	U	5.0		µg/Kg	1	7/1/2003 7:34:00 PM
Isopropylbenzene	U	5.0		µg/Kg	1	7/2/2003 5:10:00 PM
Isopropylbenzene	U	5.0		µg/Kg	1	7/1/2003 7:34:00 PM
m,p-Xylene	U	10		µg/Kg	1	7/2/2003 5:10:00 PM
m,p-Xylene	U	10		µg/Kg	1	7/1/2003 7:34:00 PM

Qualifiers:

ND - Not Detected at the Reporting Limit

J - Analyte detected below quantitation limits

B - Analyte detected in the associated Method Blank

* - Value exceeds Maximum Contaminant Level

S - Spike Recovery outside accepted recovery limits

R - RPD outside accepted recovery limits

E - Value above quantitation range

American Analytical Laboratories, Inc.

Date: *28-Jul-03*

CLIENT:	AKRF, Inc	**Client Sample ID:**	MW7 (10'-11')
Lab Order:	0306117	**Tag Number:**	
Project:	Greenpoint Lumber Yard Brooklyn, NY	**Collection Date:**	6/26/2003
Lab ID:	0306117-07A	**Matrix:**	SOIL

Analyses	Result	Limit	Qual	Units	DF	Date Analyzed
VOLATILES SW-846 METHOD 8260		**SW8260B**				Analyst: **LDS**
Methyl tert-butyl ether	U	5.0		µg/Kg	1	7/2/2003 5:10:00 PM
Methyl tert-butyl ether	U	5.0		µg/Kg	1	7/1/2003 7:34:00 PM
Methylene chloride	U	5.0		µg/Kg	1	7/2/2003 5:10:00 PM
Methylene chloride	U	5.0		µg/Kg	1	7/1/2003 7:34:00 PM
Naphthalene	U	5.0		µg/Kg	1	7/1/2003 7:34:00 PM
Naphthalene	U	5.0		µg/Kg	1	7/2/2003 5:10:00 PM
n-Butyl acetate	U	5.0		µg/Kg	1	7/1/2003 7:34:00 PM
n-Butyl acetate	U	5.0		µg/Kg	1	7/2/2003 5:10:00 PM
n-Butylbenzene	U	5.0		µg/Kg	1	7/2/2003 5:10:00 PM
n-Butylbenzene	U	5.0		µg/Kg	1	7/1/2003 7:34:00 PM
n-Propyl acetate	U	5.0		µg/Kg	1	7/2/2003 5:10:00 PM
n-Propyl acetate	U	5.0		µg/Kg	1	7/1/2003 7:34:00 PM
n-Propylbenzene	U	5.0		µg/Kg	1	7/1/2003 7:34:00 PM
n-Propylbenzene	U	5.0		µg/Kg	1	7/2/2003 5:10:00 PM
o-Xylene	U	5.0		µg/Kg	1	7/2/2003 5:10:00 PM
o-Xylene	U	5.0		µg/Kg	1	7/1/2003 7:34:00 PM
p-Diethylbenzene	U	5.0		µg/Kg	1	7/2/2003 5:10:00 PM
p-Diethylbenzene	U	5.0		µg/Kg	1	7/1/2003 7:34:00 PM
p-Ethyltoluene	U	5.0		µg/Kg	1	7/2/2003 5:10:00 PM
p-Ethyltoluene	U	5.0		µg/Kg	1	7/1/2003 7:34:00 PM
sec-Butylbenzene	U	5.0		µg/Kg	1	7/2/2003 5:10:00 PM
sec-Butylbenzene	U	5.0		µg/Kg	1	7/1/2003 7:34:00 PM
Styrene	U	5.0		µg/Kg	1	7/2/2003 5:10:00 PM
Styrene	U	5.0		µg/Kg	1	7/1/2003 7:34:00 PM
t-Butyl alcohol	U	5.0		µg/Kg	1	7/2/2003 5:10:00 PM
t-Butyl alcohol	U	5.0		µg/Kg	1	7/1/2003 7:34:00 PM
tert-Butylbenzene	U	5.0		µg/Kg	1	7/2/2003 5:10:00 PM
tert-Butylbenzene	U	5.0		µg/Kg	1	7/1/2003 7:34:00 PM
Tetrachloroethene	U	5.0		µg/Kg	1	7/2/2003 5:10:00 PM
Tetrachloroethene	U	5.0		µg/Kg	1	7/1/2003 7:34:00 PM
Toluene	U	5.0		µg/Kg	1	7/2/2003 5:10:00 PM
Toluene	U	5.0		µg/Kg	1	7/1/2003 7:34:00 PM
trans-1,2-Dichloroethene	U	5.0		µg/Kg	1	7/2/2003 5:10:00 PM
trans-1,2-Dichloroethene	U	5.0		µg/Kg	1	7/1/2003 7:34:00 PM
trans-1,3-Dichloropropene	U	5.0		µg/Kg	1	7/2/2003 5:10:00 PM
trans-1,3-Dichloropropene	U	5.0		µg/Kg	1	7/1/2003 7:34:00 PM
Trichloroethene	U	5.0		µg/Kg	1	7/2/2003 5:10:00 PM
Trichloroethene	U	5.0		µg/Kg	1	7/1/2003 7:34:00 PM
Trichlorofluoromethane	U	5.0		µg/Kg	1	7/1/2003 7:34:00 PM
Trichlorofluoromethane	U	5.0		µg/Kg	1	7/2/2003 5:10:00 PM

Qualifiers:

ND - Not Detected at the Reporting Limit

J - Analyte detected below quantitation limits

B - Analyte detected in the associated Method Blank

* - Value exceeds Maximum Contaminant Level

S - Spike Recovery outside accepted recovery limits

R - RPD outside accepted recovery limits

E - Value above quantitation range

American Analytical Laboratories, Inc.

Date: *28-Jul-03*

CLIENT:	AKRF, Inc	**Client Sample ID:**	MW7 (10'-11')
Lab Order:	0306117	**Tag Number:**	
Project:	Greenpoint Lumber Yard Brooklyn, NY	**Collection Date:**	6/26/2003
Lab ID:	0306117-07A	**Matrix:**	SOIL

Analyses	Result	Limit	Qual	Units	DF	Date Analyzed
VOLATILES SW-846 METHOD 8260		**SW8260B**				Analyst: **LDS**
Vinyl acetate	U	5.0		µg/Kg	1	7/2/2003 5:10:00 PM
Vinyl acetate	U	5.0		µg/Kg	1	7/1/2003 7:34:00 PM
Vinyl chloride	U	5.0		µg/Kg	1	7/1/2003 7:34:00 PM
Vinyl chlorlde	U	5.0		µg/Kg	1	7/2/2003 5:10:00 PM

Qualifiers:

ND - Not Detected at the Reporting Limit

J - Analyte detected below quantitation limits

B - Analyte detected in the associated Method Blank

* - Value exceeds Maximum Contaminant Level

S - Spike Recovery outside accepted recovery limits

R - RPD outside accepted recovery limits

E - Value above quantitation range

American Analytical Laboratories, Inc.

Date: *28-Jul-03*

CLIENT:	AKRF, Inc	**Client Sample ID:**	MW7 (6.5-7.5)
Lab Order:	0306117	**Tag Number:**	
Project:	Greenpoint Lumber Yard Brooklyn, NY	**Collection Date:**	6/26/2003
Lab ID:	0306117-08A	**Matrix:**	SOIL

Analyses	Result	Limit	Qual	Units	DF	Date Analyzed
VOLATILES SW-846 METHOD 8260		**SW8260B**				Analyst: **LDS**
1,1,1,2-Tetrachloroethane	U	5.0		µg/Kg	1	7/1/2003 8:12:00 PM
1,1,1-Trichloroethane	U	5.0		µg/Kg	1	7/1/2003 8:12:00 PM
1,1,2,2-Tetrachloroethane	U	5.0		µg/Kg	1	7/1/2003 8:12:00 PM
1,1,2-Trichloro-1,2,2-trifluoroethane	U	5.0		µg/Kg	1	7/1/2003 8:12:00 PM
1,1,2-Trichloroethane	U	5.0		µg/Kg	1	7/1/2003 8:12:00 PM
1,1-Dichloroethane	U	5.0		µg/Kg	1	7/1/2003 8:12:00 PM
1,1-Dichloroethene	U	5.0		µg/Kg	1	7/1/2003 8:12:00 PM
1,1-Dichloropropene	U	5.0		µg/Kg	1	7/1/2003 8:12:00 PM
1,2,3-Trichlorobenzene	U	5.0		µg/Kg	1	7/1/2003 8:12:00 PM
1,2,3-Trichloropropane	U	5.0		µg/Kg	1	7/1/2003 8:12:00 PM
1,2,4,5-Tetramethylbenzene	U	5.0		µg/Kg	1	7/1/2003 8:12:00 PM
1,2,4-Trichlorobenzene	U	5.0		µg/Kg	1	7/1/2003 8:12:00 PM
1,2,4-Trimethylbenzene	U	5.0		µg/Kg	1	7/1/2003 8:12:00 PM
1,2-Dibromo-3-chloropropane	U	5.0		µg/Kg	1	7/1/2003 8:12:00 PM
1,2-Dibromoethane	U	5.0		µg/Kg	1	7/1/2003 8:12:00 PM
1,2-Dichlorobenzene	U	5.0		µg/Kg	1	7/1/2003 8:12:00 PM
1,2-Dichloroethane	U	5.0		µg/Kg	1	7/1/2003 8:12:00 PM
1,2-Dichloropropane	U	5.0		µg/Kg	1	7/1/2003 8:12:00 PM
1,3,5-Trimethylbenzene	U	5.0		µg/Kg	1	7/1/2003 8:12:00 PM
1,3-Dichlorobenzene	U	5.0		µg/Kg	1	7/1/2003 8:12:00 PM
1,3-dichloropropane	U	5.0		µg/Kg	1	7/1/2003 8:12:00 PM
1,4-Dichlorobenzene	U	5.0		µg/Kg	1	7/1/2003 8:12:00 PM
2,2-Dichloropropane	U	5.0		µg/Kg	1	7/1/2003 8:12:00 PM
2-Butanone	U	5.0		µg/Kg	1	7/1/2003 8:12:00 PM
2-Chloroethyl vinyl ether	U	5.0		µg/Kg	1	7/1/2003 8:12:00 PM
2-Chlorotoluene	U	5.0		µg/Kg	1	7/1/2003 8:12:00 PM
2-Hexanone	U	5.0		µg/Kg	1	7/1/2003 8:12:00 PM
4-Chlorotoluene	U	5.0		µg/Kg	1	7/1/2003 8:12:00 PM
4-Isopropyltoluene	U	5.0		µg/Kg	1	7/1/2003 8:12:00 PM
4-Methyl-2-pentanone	U	5.0		µg/Kg	1	7/1/2003 8:12:00 PM
Acetone	U	5.0		µg/Kg	1	7/1/2003 8:12:00 PM
Acrolein	U	25		µg/Kg	1	7/1/2003 8:12:00 PM
Acrylonitrile	U	5.0		µg/Kg	1	7/1/2003 8:12:00 PM
Benzene	U	5.0		µg/Kg	1	7/1/2003 8:12:00 PM
Bromobenzene	U	5.0		µg/Kg	1	7/1/2003 8:12:00 PM
Bromochloromethane	U	5.0		µg/Kg	1	7/1/2003 8:12:00 PM
Bromodichloromethane	U	5.0		µg/Kg	1	7/1/2003 8:12:00 PM
Bromoform	U	5.0		µg/Kg	1	7/1/2003 8:12:00 PM
Bromomethane	U	5.0		µg/Kg	1	7/1/2003 8:12:00 PM
Carbon disulfide	U	5.0		µg/Kg	1	7/1/2003 8:12:00 PM

Qualifiers:

ND - Not Detected at the Reporting Limit

J - Analyte detected below quantitation limits

B - Analyte detected in the associated Method Blank

* - Value exceeds Maximum Contaminant Level

S - Spike Recovery outside accepted recovery limits

R - RPD outside accepted recovery limits

E - Value above quantitation range

American Analytical Laboratories, Inc.

Date: *28-Jul-03*

CLIENT:	AKRF, Inc	**Client Sample ID:**	MW7 (6.5-7.5)
Lab Order:	0306117	**Tag Number:**	
Project:	Greenpoint Lumber Yard Brooklyn, NY	**Collection Date:**	6/26/2003
Lab ID:	0306117-08A	**Matrix:**	SOIL

Analyses	Result	Limit	Qual	Units	DF	Date Analyzed
VOLATILES SW-846 METHOD 8260		**SW8260B**				Analyst: **LDS**
Carbon tetrachloride	U	5.0		µg/Kg	1	7/1/2003 8:12:00 PM
Chlorobenzene	U	5.0		µg/Kg	1	7/1/2003 8:12:00 PM
Chlorodifluoromethane	U	5.0		µg/Kg	1	7/1/2003 8:12:00 PM
Chloroethane	U	5.0		µg/Kg	1	7/1/2003 8:12:00 PM
Chloroform	U	5.0		µg/Kg	1	7/1/2003 8:12:00 PM
Chloromethane	U	5.0		µg/Kg	1	7/1/2003 8:12:00 PM
cis-1,2-Dichloroethene	U	5.0		µg/Kg	1	7/1/2003 8:12:00 PM
cis-1,3-Dichloropropene	U	5.0		µg/Kg	1	7/1/2003 8:12:00 PM
Dibromochloromethane	U	5.0		µg/Kg	1	7/1/2003 8:12:00 PM
Dibromomethane	U	5.0		µg/Kg	1	7/1/2003 8:12:00 PM
Dichlorodifluoromethane	U	5.0		µg/Kg	1	7/1/2003 8:12:00 PM
Diisopropyl ether	U	5.0		µg/Kg	1	7/1/2003 8:12:00 PM
Ethanol	U	25		µg/Kg	1	7/1/2003 8:12:00 PM
Ethyl acetate	U	5.0		µg/Kg	1	7/1/2003 8:12:00 PM
Ethylbenzene	U	5.0		µg/Kg	1	7/1/2003 8:12:00 PM
Freon-114	U	5.0		µg/Kg	1	7/1/2003 8:12:00 PM
Hexachlorobutadiene	U	5.0		µg/Kg	1	7/1/2003 8:12:00 PM
Isopropyl acetate	U	5.0		µg/Kg	1	7/1/2003 8:12:00 PM
Isopropylbenzene	U	5.0		µg/Kg	1	7/1/2003 8:12:00 PM
m,p-Xylene	U	10		µg/Kg	1	7/1/2003 8:12:00 PM
Methyl tert-butyl ether	U	5.0		µg/Kg	1	7/1/2003 8:12:00 PM
Methylene chloride	U	5.0		µg/Kg	1	7/1/2003 8:12:00 PM
Naphthalene	U	5.0		µg/Kg	1	7/1/2003 8:12:00 PM
n-Butyl acetate	U	5.0		µg/Kg	1	7/1/2003 8:12:00 PM
n-Butylbenzene	U	5.0		µg/Kg	1	7/1/2003 8:12:00 PM
n-Propyl acetate	U	5.0		µg/Kg	1	7/1/2003 8:12:00 PM
n-Propylbenzene	U	5.0		µg/Kg	1	7/1/2003 8:12:00 PM
o-Xylene	U	5.0		µg/Kg	1	7/1/2003 8:12:00 PM
p-Diethylbenzene	U	5.0		µg/Kg	1	7/1/2003 8:12:00 PM
p-Ethyltoluene	U	5.0		µg/Kg	1	7/1/2003 8:12:00 PM
sec-Butylbenzene	U	5.0		µg/Kg	1	7/1/2003 8:12:00 PM
Styrene	U	5.0		µg/Kg	1	7/1/2003 8:12:00 PM
t-Butyl alcohol	U	5.0		µg/Kg	1	7/1/2003 8:12:00 PM
tert-Butylbenzene	U	5.0		µg/Kg	1	7/1/2003 8:12:00 PM
Tetrachloroethene	U	5.0		µg/Kg	1	7/1/2003 8:12:00 PM
Toluene	U	5.0		µg/Kg	1	7/1/2003 8:12:00 PM
trans-1,2-Dichloroethene	U	5.0		µg/Kg	1	7/1/2003 8:12:00 PM
trans-1,3-Dichloropropene	U	5.0		µg/Kg	1	7/1/2003 8:12:00 PM
Trichloroethene	U	5.0		µg/Kg	1	7/1/2003 8:12:00 PM
Trichlorofluoromethane	U	5.0		µg/Kg	1	7/1/2003 8:12:00 PM

Qualifiers:

ND - Not Detected at the Reporting Limit

J - Analyte detected below quantitation limits

B - Analyte detected in the associated Method Blank

* - Value exceeds Maximum Contaminant Level

S - Spike Recovery outside accepted recovery limits

R - RPD outside accepted recovery limits

E - Value above quantitation range

American Analytical Laboratories, Inc.

Date: *28-Jul-03*

CLIENT:	AKRF, Inc	**Client Sample ID:**	MW7 (6.5-7.5)
Lab Order:	0306117	**Tag Number:**	
Project:	Greenpoint Lumber Yard Brooklyn, NY	**Collection Date:**	6/26/2003
Lab ID:	0306117-08A	**Matrix:**	SOIL

Analyses	Result	Limit	Qual	Units	DF	Date Analyzed
VOLATILES SW-846 METHOD 8260		**SW8260B**				Analyst: **LDS**
Vinyl acetate	U	5.0		µg/Kg	1	7/1/2003 8:12:00 PM
Vinyl chloride	U	5.0		µg/Kg	1	7/1/2003 8:12:00 PM

Qualifiers:

ND - Not Detected at the Reporting Limit

J - Analyte detected below quantitation limits

B - Analyte detected in the associated Method Blank

* - Value exceeds Maximum Contaminant Level

S - Spike Recovery outside accepted recovery limits

R - RPD outside accepted recovery limits

E - Value above quantitation range

American Analytical Laboratories, Inc.

Date: *28-Jul-03*

CLIENT:	AKRF, Inc	**Client Sample ID:**	B11 (1-3)
Lab Order:	0306117	**Tag Number:**	
Project:	Greenpoint Lumber Yard Brooklyn, NY	**Collection Date:**	6/26/2003
Lab ID:	0306117-09A	**Matrix:**	SOIL

Analyses	Result	Limit	Qual	Units	DF	Date Analyzed
VOLATILES SW-846 METHOD 8260		**SW8260B**				Analyst: **LDS**
1,1,1,2-Tetrachloroethane	U	5.0		µg/Kg	1	7/1/2003 8:51:00 PM
1,1,1-Trichloroethane	U	5.0		µg/Kg	1	7/1/2003 8:51:00 PM
1,1,2,2-Tetrachloroethane	U	5.0		µg/Kg	1	7/1/2003 8:51:00 PM
1,1,2-Trichloro-1,2,2-trifluoroethane	U	5.0		µg/Kg	1	7/1/2003 8:51:00 PM
1,1,2-Trichloroethane	U	5.0		µg/Kg	1	7/1/2003 8:51:00 PM
1,1-Dichloroethane	U	5.0		µg/Kg	1	7/1/2003 8:51:00 PM
1,1-Dichloroethene	U	5.0		µg/Kg	1	7/1/2003 8:51:00 PM
1,1-Dichloropropene	U	5.0		µg/Kg	1	7/1/2003 8:51:00 PM
1,2,3-Trichlorobenzene	U	5.0		µg/Kg	1	7/1/2003 8:51:00 PM
1,2,3-Trichloropropane	U	5.0		µg/Kg	1	7/1/2003 8:51:00 PM
1,2,4,5-Tetramethylbenzene	U	5.0		µg/Kg	1	7/1/2003 8:51:00 PM
1,2,4-Trichlorobenzene	U	5.0		µg/Kg	1	7/1/2003 8:51:00 PM
1,2,4-Trimethylbenzene	3	5.0	J	µg/Kg	1	7/1/2003 8:51:00 PM
1,2-Dibromo-3-chloropropane	U	5.0		µg/Kg	1	7/1/2003 8:51:00 PM
1,2-Dibromoethane	U	5.0		µg/Kg	1	7/1/2003 8:51:00 PM
1,2-Dichlorobenzene	U	5.0		µg/Kg	1	7/1/2003 8:51:00 PM
1,2-Dichloroethane	U	5.0		µg/Kg	1	7/1/2003 8:51:00 PM
1,2-Dichloropropane	U	5.0		µg/Kg	1	7/1/2003 8:51:00 PM
1,3,5-Trimethylbenzene	4	5.0	J	µg/Kg	1	7/1/2003 8:51:00 PM
1,3-Dichlorobenzene	U	5.0		µg/Kg	1	7/1/2003 8:51:00 PM
1,3-dichloropropane	U	5.0		µg/Kg	1	7/1/2003 8:51:00 PM
1,4-Dichlorobenzene	U	5.0		µg/Kg	1	7/1/2003 8:51:00 PM
2,2-Dichloropropane	U	5.0		µg/Kg	1	7/1/2003 8:51:00 PM
2-Butanone	U	5.0		µg/Kg	1	7/1/2003 8:51:00 PM
2-Chloroethyl vinyl ether	U	5.0		µg/Kg	1	7/1/2003 8:51:00 PM
2-Chlorotoluene	U	5.0		µg/Kg	1	7/1/2003 8:51:00 PM
2-Hexanone	U	5.0		µg/Kg	1	7/1/2003 8:51:00 PM
4-Chlorotoluene	U	5.0		µg/Kg	1	7/1/2003 8:51:00 PM
4-Isopropyltoluene	10	5.0		µg/Kg	1	7/1/2003 8:51:00 PM
4-Methyl-2-pentanone	U	5.0		µg/Kg	1	7/1/2003 8:51:00 PM
Acetone	U	5.0		µg/Kg	1	7/1/2003 8:51:00 PM
Acrolein	U	25		µg/Kg	1	7/1/2003 8:51:00 PM
Acrylonitrile	U	5.0		µg/Kg	1	7/1/2003 8:51:00 PM
Benzene	U	5.0		µg/Kg	1	7/1/2003 8:51:00 PM
Bromobenzene	U	5.0		µg/Kg	1	7/1/2003 8:51:00 PM
Bromochloromethane	U	5.0		µg/Kg	1	7/1/2003 8:51:00 PM
Bromodichloromethane	U	5.0		µg/Kg	1	7/1/2003 8:51:00 PM
Bromoform	U	5.0		µg/Kg	1	7/1/2003 8:51:00 PM
Bromomethane	U	5.0		µg/Kg	1	7/1/2003 8:51:00 PM
Carbon disulfide	U	5.0		µg/Kg	1	7/1/2003 8:51:00 PM

Qualifiers:

ND - Not Detected at the Reporting Limit

J - Analyte detected below quantitation limits

B - Analyte detected in the associated Method Blank

* - Value exceeds Maximum Contaminant Level

S - Spike Recovery outside accepted recovery limits

R - RPD outside accepted recovery limits

E - Value above quantitation range

American Analytical Laboratories, Inc.

Date: *28-Jul-03*

CLIENT:	AKRF, Inc	**Client Sample ID:**	B11 (1-3)
Lab Order:	0306117	**Tag Number:**	
Project:	Greenpoint Lumber Yard Brooklyn, NY	**Collection Date:**	6/26/2003
Lab ID:	0306117-09A	**Matrix:**	SOIL

Analyses	Result	Limit	Qual	Units	DF	Date Analyzed
VOLATILES SW-846 METHOD 8260		**SW8260B**				Analyst: **LDS**
Carbon tetrachloride	U	5.0		µg/Kg	1	7/1/2003 8:51:00 PM
Chlorobenzene	U	5.0		µg/Kg	1	7/1/2003 8:51:00 PM
Chlorodifluoromethane	U	5.0		µg/Kg	1	7/1/2003 8:51:00 PM
Chloroethane	U	5.0		µg/Kg	1	7/1/2003 8:51:00 PM
Chloroform	U	5.0		µg/Kg	1	7/1/2003 8:51:00 PM
Chloromethane	U	5.0		µg/Kg	1	7/1/2003 8:51:00 PM
cis-1,2-Dichloroethene	U	5.0		µg/Kg	1	7/1/2003 8:51:00 PM
cis-1,3-Dichloropropene	U	5.0		µg/Kg	1	7/1/2003 8:51:00 PM
Dibromochloromethane	U	5.0		µg/Kg	1	7/1/2003 8:51:00 PM
Dibromomethane	U	5.0		µg/Kg	1	7/1/2003 8:51:00 PM
Dichlorodifluoromethane	U	5.0		µg/Kg	1	7/1/2003 8:51:00 PM
Diisopropyl ether	U	5.0		µg/Kg	1	7/1/2003 8:51:00 PM
Ethanol	U	25		µg/Kg	1	7/1/2003 8:51:00 PM
Ethyl acetate	U	5.0		µg/Kg	1	7/1/2003 8:51:00 PM
Ethylbenzene	U	5.0		µg/Kg	1	7/1/2003 8:51:00 PM
Freon-114	U	5.0		µg/Kg	1	7/1/2003 8:51:00 PM
Hexachlorobutadiene	U	5.0		µg/Kg	1	7/1/2003 8:51:00 PM
Isopropyl acetate	U	5.0		µg/Kg	1	7/1/2003 8:51:00 PM
Isopropylbenzene	U	5.0		µg/Kg	1	7/1/2003 8:51:00 PM
m,p-Xylene	1	10	J	µg/Kg	1	7/1/2003 8:51:00 PM
Methyl tert-butyl ether	U	5.0		µg/Kg	1	7/1/2003 8:51:00 PM
Methylene chloride	U	5.0		µg/Kg	1	7/1/2003 8:51:00 PM
Naphthalene	110	5.0		µg/Kg	1	7/1/2003 8:51:00 PM
n-Butyl acetate	U	5.0		µg/Kg	1	7/1/2003 8:51:00 PM
n-Butylbenzene	U	5.0		µg/Kg	1	7/1/2003 8:51:00 PM
n-Propyl acetate	U	5.0		µg/Kg	1	7/1/2003 8:51:00 PM
n-Propylbenzene	U	5.0		µg/Kg	1	7/1/2003 8:51:00 PM
o-Xylene	3	5.0	J	µg/Kg	1	7/1/2003 8:51:00 PM
p-Diethylbenzene	11	5.0		µg/Kg	1	7/1/2003 8:51:00 PM
p-Ethyltoluene	6.8	5.0		µg/Kg	1	7/1/2003 8:51:00 PM
sec-Butylbenzene	U	5.0		µg/Kg	1	7/1/2003 8:51:00 PM
Styrene	U	5.0		µg/Kg	1	7/1/2003 8:51:00 PM
t-Butyl alcohol	U	5.0		µg/Kg	1	7/1/2003 8:51:00 PM
tert-Butylbenzene	U	5.0		µg/Kg	1	7/1/2003 8:51:00 PM
Tetrachloroethene	U	5.0		µg/Kg	1	7/1/2003 8:51:00 PM
Toluene	U	5.0		µg/Kg	1	7/1/2003 8:51:00 PM
trans-1,2-Dichloroethene	U	5.0		µg/Kg	1	7/1/2003 8:51:00 PM
trans-1,3-Dichloropropene	U	5.0		µg/Kg	1	7/1/2003 8:51:00 PM
Trichloroethene	U	5.0		µg/Kg	1	7/1/2003 8:51:00 PM
Trichlorofluoromethane	U	5.0		µg/Kg	1	7/1/2003 8:51:00 PM

Qualifiers:

ND - Not Detected at the Reporting Limit

J - Analyte detected below quantitation limits

B - Analyte detected in the associated Method Blank

* - Value exceeds Maximum Contaminant Level

S - Spike Recovery outside accepted recovery limits

R - RPD outside accepted recovery limits

E - Value above quantitation range

American Analytical Laboratories, Inc.

Date: *28-Jul-03*

CLIENT:	AKRF, Inc	**Client Sample ID:**	B11 (1-3)
Lab Order:	0306117	**Tag Number:**	
Project:	Greenpoint Lumber Yard Brooklyn, NY	**Collection Date:**	6/26/2003
Lab ID:	0306117-09A	**Matrix:**	SOIL

Analyses	Result	Limit	Qual	Units	DF	Date Analyzed
VOLATILES SW-846 METHOD 8260		**SW8260B**				Analyst: **LDS**
Vinyl acetate	U	5.0		µg/Kg	1	7/1/2003 8:51:00 PM
Vinyl chloride	U	5.0		µg/Kg	1	7/1/2003 8:51:00 PM

Qualifiers:

ND - Not Detected at the Reporting Limit

J - Analyte detected below quantitation limits

B - Analyte detected in the associated Method Blank

* - Value exceeds Maximum Contaminant Level

S - Spike Recovery outside accepted recovery limits

R - RPD outside accepted recovery limits

E - Value above quantitation range

American Analytical Laboratories, Inc.

Date: *28-Jul-03*

CLIENT:	AKRF, Inc	**Client Sample ID:**	B11 (7-9)
Lab Order:	0306117	**Tag Number:**	
Project:	Greenpoint Lumber Yard Brooklyn, NY	**Collection Date:**	6/26/2003
Lab ID:	0306117-10A	**Matrix:**	SOIL

Analyses	Result	Limit	Qual	Units	DF	Date Analyzed
VOLATILES SW-846 METHOD 8260		**SW8260B**				Analyst: **LDS**
1,1,1,2-Tetrachloroethane	U	5.0		µg/Kg	1	7/1/2003 9:28:00 PM
1,1,1-Trichloroethane	U	5.0		µg/Kg	1	7/1/2003 9:28:00 PM
1,1,2,2-Tetrachloroethane	U	5.0		µg/Kg	1	7/1/2003 9:28:00 PM
1,1,2-Trichloro-1,2,2-trifluoroethane	U	5.0		µg/Kg	1	7/1/2003 9:28:00 PM
1,1,2-Trichloroethane	U	5.0		µg/Kg	1	7/1/2003 9:28:00 PM
1,1-Dichloroethane	U	5.0		µg/Kg	1	7/1/2003 9:28:00 PM
1,1-Dichloroethene	U	5.0		µg/Kg	1	7/1/2003 9:28:00 PM
1,1-Dichloropropene	U	5.0		µg/Kg	1	7/1/2003 9:28:00 PM
1,2,3-Trichlorobenzene	U	5.0		µg/Kg	1	7/1/2003 9:28:00 PM
1,2,3-Trichloropropane	U	5.0		µg/Kg	1	7/1/2003 9:28:00 PM
1,2,4,5-Tetramethylbenzene	U	5.0		µg/Kg	1	7/1/2003 9:28:00 PM
1,2,4-Trichlorobenzene	U	5.0		µg/Kg	1	7/1/2003 9:28:00 PM
1,2,4-Trimethylbenzene	U	5.0		µg/Kg	1	7/1/2003 9:28:00 PM
1,2-Dibromo-3-chloropropane	U	5.0		µg/Kg	1	7/1/2003 9:28:00 PM
1,2-Dibromoethane	U	5.0		µg/Kg	1	7/1/2003 9:28:00 PM
1,2-Dichlorobenzene	U	5.0		µg/Kg	1	7/1/2003 9:28:00 PM
1,2-Dichloroethane	U	5.0		µg/Kg	1	7/1/2003 9:28:00 PM
1,2-Dichloropropane	U	5.0		µg/Kg	1	7/1/2003 9:28:00 PM
1,3,5-Trimethylbenzene	U	5.0		µg/Kg	1	7/1/2003 9:28:00 PM
1,3-Dichlorobenzene	U	5.0		µg/Kg	1	7/1/2003 9:28:00 PM
1,3-dichloropropane	U	5.0		µg/Kg	1	7/1/2003 9:28:00 PM
1,4-Dichlorobenzene	U	5.0		µg/Kg	1	7/1/2003 9:28:00 PM
2,2-Dichloropropane	U	5.0		µg/Kg	1	7/1/2003 9:28:00 PM
2-Butanone	U	5.0		µg/Kg	1	7/1/2003 9:28:00 PM
2-Chloroethyl vinyl ether	U	5.0		µg/Kg	1	7/1/2003 9:28:00 PM
2-Chlorotoluene	U	5.0		µg/Kg	1	7/1/2003 9:28:00 PM
2-Hexanone	U	5.0		µg/Kg	1	7/1/2003 9:28:00 PM
4-Chlorotoluene	U	5.0		µg/Kg	1	7/1/2003 9:28:00 PM
4-Isopropyltoluene	U	5.0		µg/Kg	1	7/1/2003 9:28:00 PM
4-Methyl-2-pentanone	U	5.0		µg/Kg	1	7/1/2003 9:28:00 PM
Acetone	U	5.0		µg/Kg	1	7/1/2003 9:28:00 PM
Acrolein	U	25		µg/Kg	1	7/1/2003 9:28:00 PM
Acrylonitrile	U	5.0		µg/Kg	1	7/1/2003 9:28:00 PM
Benzene	U	5.0		µg/Kg	1	7/1/2003 9:28:00 PM
Bromobenzene	U	5.0		µg/Kg	1	7/1/2003 9:28:00 PM
Bromochloromethane	U	5.0		µg/Kg	1	7/1/2003 9:28:00 PM
Bromodichloromethane	U	5.0		µg/Kg	1	7/1/2003 9:28:00 PM
Bromoform	U	5.0		µg/Kg	1	7/1/2003 9:28:00 PM
Bromomethane	U	5.0		µg/Kg	1	7/1/2003 9:28:00 PM
Carbon disulfide	U	5.0		µg/Kg	1	7/1/2003 9:28:00 PM

Qualifiers:

ND - Not Detected at the Reporting Limit

J - Analyte detected below quantitation limits

B - Analyte detected in the associated Method Blank

* - Value exceeds Maximum Contaminant Level

S - Spike Recovery outside accepted recovery limits

R - RPD outside accepted recovery limits

E - Value above quantitation range

American Analytical Laboratories, Inc.

Date: *28-Jul-03*

CLIENT:	AKRF, Inc	**Client Sample ID:**	B11 (7-9)
Lab Order:	0306117	**Tag Number:**	
Project:	Greenpoint Lumber Yard Brooklyn, NY	**Collection Date:**	6/26/2003
Lab ID:	0306117-10A	**Matrix:**	SOIL

Analyses	Result	Limit	Qual	Units	DF	Date Analyzed
VOLATILES SW-846 METHOD 8260		**SW8260B**				Analyst: **LDS**
Carbon tetrachloride	U	5.0		µg/Kg	1	7/1/2003 9:28:00 PM
Chlorobenzene	U	5.0		µg/Kg	1	7/1/2003 9:28:00 PM
Chlorodifluoromethane	U	5.0		µg/Kg	1	7/1/2003 9:28:00 PM
Chloroethane	U	5.0		µg/Kg	1	7/1/2003 9:28:00 PM
Chloroform	U	5.0		µg/Kg	1	7/1/2003 9:28:00 PM
Chloromethane	U	5.0		µg/Kg	1	7/1/2003 9:28:00 PM
cis-1,2-Dichloroethene	U	5.0		µg/Kg	1	7/1/2003 9:28:00 PM
cis-1,3-Dichloropropene	U	5.0		µg/Kg	1	7/1/2003 9:28:00 PM
Dibromochloromethane	U	5.0		µg/Kg	1	7/1/2003 9:28:00 PM
Dibromomethane	U	5.0		µg/Kg	1	7/1/2003 9:28:00 PM
Dichlorodifluoromethane	U	5.0		µg/Kg	1	7/1/2003 9:28:00 PM
Diisopropyl ether	U	5.0		µg/Kg	1	7/1/2003 9:28:00 PM
Ethanol	U	25		µg/Kg	1	7/1/2003 9:28:00 PM
Ethyl acetate	U	5.0		µg/Kg	1	7/1/2003 9:28:00 PM
Ethylbenzene	U	5.0		µg/Kg	1	7/1/2003 9:28:00 PM
Freon-114	U	5.0		µg/Kg	1	7/1/2003 9:28:00 PM
Hexachlorobutadiene	U	5.0		µg/Kg	1	7/1/2003 9:28:00 PM
Isopropyl acetate	U	5.0		µg/Kg	1	7/1/2003 9:28:00 PM
Isopropylbenzene	U	5.0		µg/Kg	1	7/1/2003 9:28:00 PM
m,p-Xylene	U	10		µg/Kg	1	7/1/2003 9:28:00 PM
Methyl tert-butyl ether	U	5.0		µg/Kg	1	7/1/2003 9:28:00 PM
Methylene chloride	U	5.0		µg/Kg	1	7/1/2003 9:28:00 PM
Naphthalene	U	5.0		µg/Kg	1	7/1/2003 9:28:00 PM
n-Butyl acetate	U	5.0		µg/Kg	1	7/1/2003 9:28:00 PM
n-Butylbenzene	U	5.0		µg/Kg	1	7/1/2003 9:28:00 PM
n-Propyl acetate	U	5.0		µg/Kg	1	7/1/2003 9:28:00 PM
n-Propylbenzene	U	5.0		µg/Kg	1	7/1/2003 9:28:00 PM
o-Xylene	U	5.0		µg/Kg	1	7/1/2003 9:28:00 PM
p-Diethylbenzene	U	5.0		µg/Kg	1	7/1/2003 9:28:00 PM
p-Ethyltoluene	U	5.0		µg/Kg	1	7/1/2003 9:28:00 PM
sec-Butylbenzene	U	5.0		µg/Kg	1	7/1/2003 9:28:00 PM
Styrene	U	5.0		µg/Kg	1	7/1/2003 9:28:00 PM
t-Butyl alcohol	U	5.0		µg/Kg	1	7/1/2003 9:28:00 PM
tert-Butylbenzene	U	5.0		µg/Kg	1	7/1/2003 9:28:00 PM
Tetrachloroethene	U	5.0		µg/Kg	1	7/1/2003 9:28:00 PM
Toluene	U	5.0		µg/Kg	1	7/1/2003 9:28:00 PM
trans-1,2-Dichloroethene	U	5.0		µg/Kg	1	7/1/2003 9:28:00 PM
trans-1,3-Dichloropropene	U	5.0		µg/Kg	1	7/1/2003 9:28:00 PM
Trichloroethene	U	5.0		µg/Kg	1	7/1/2003 9:28:00 PM
Trichlorofluoromethane	U	5.0		µg/Kg	1	7/1/2003 9:28:00 PM

Qualifiers:

ND - Not Detected at the Reporting Limit

J - Analyte detected below quantitation limits

B - Analyte detected in the associated Method Blank

* - Value exceeds Maximum Contaminant Level

S - Spike Recovery outside accepted recovery limits

R - RPD outside accepted recovery limits

E - Value above quantitation range

American Analytical Laboratories, Inc.

Date: *28-Jul-03*

CLIENT:	AKRF, Inc	**Client Sample ID:**	B11 (7-9)
Lab Order:	0306117	**Tag Number:**	
Project:	Greenpoint Lumber Yard Brooklyn, NY	**Collection Date:**	6/26/2003
Lab ID:	0306117-10A	**Matrix:**	SOIL

Analyses	Result	Limit	Qual	Units	DF	Date Analyzed
VOLATILES SW-846 METHOD 8260		**SW8260B**				Analyst: **LDS**
Vinyl acetate	U	5.0		µg/Kg	1	7/1/2003 9:28:00 PM
Vinyl chloride	U	5.0		µg/Kg	1	7/1/2003 9:28:00 PM

Qualifiers:

ND - Not Detected at the Reporting Limit

J - Analyte detected below quantitation limits

B - Analyte detected in the associated Method Blank

* - Value exceeds Maximum Contaminant Level

S - Spike Recovery outside accepted recovery limits

R - RPD outside accepted recovery limits

E - Value above quantitation range

American Analytical Laboratories, Inc.

Date: *28-Jul-03*

CLIENT:	AKRF, Inc	**Client Sample ID:**	MW11 (0.5'-2')
Lab Order:	0306117	**Tag Number:**	
Project:	Greenpoint Lumber Yard Brooklyn, NY	**Collection Date:**	6/26/2003
Lab ID:	0306117-11A	**Matrix:**	SOIL

Analyses	Result	Limit	Qual	Units	DF	Date Analyzed
VOLATILES SW-846 METHOD 8260		**SW8260B**				Analyst: **LDS**
1,1,1,2-Tetrachloroethane	U	5.0		µg/Kg	1	7/1/2003 10:06:00 PM
1,1,1-Trichloroethane	U	5.0		µg/Kg	1	7/1/2003 10:06:00 PM
1,1,2,2-Tetrachloroethane	U	5.0		µg/Kg	1	7/1/2003 10:06:00 PM
1,1,2-Trichloro-1,2,2-trifluoroethane	U	5.0		µg/Kg	1	7/1/2003 10:06:00 PM
1,1,2-Trichloroethane	U	5.0		µg/Kg	1	7/1/2003 10:06:00 PM
1,1-Dichloroethane	U	5.0		µg/Kg	1	7/1/2003 10:06:00 PM
1,1-Dichloroethene	U	5.0		µg/Kg	1	7/1/2003 10:06:00 PM
1,1-Dichloropropene	U	5.0		µg/Kg	1	7/1/2003 10:06:00 PM
1,2,3-Trichlorobenzene	U	5.0		µg/Kg	1	7/1/2003 10:06:00 PM
1,2,3-Trichloropropane	U	5.0		µg/Kg	1	7/1/2003 10:06:00 PM
1,2,4,5-Tetramethylbenzene	U	5.0		µg/Kg	1	7/1/2003 10:06:00 PM
1,2,4-Trichlorobenzene	U	5.0		µg/Kg	1	7/1/2003 10:06:00 PM
1,2,4-Trimethylbenzene	U	5.0		µg/Kg	1	7/1/2003 10:06:00 PM
1,2-Dibromo-3-chloropropane	U	5.0		µg/Kg	1	7/1/2003 10:06:00 PM
1,2-Dibromoethane	U	5.0		µg/Kg	1	7/1/2003 10:06:00 PM
1,2-Dichlorobenzene	U	5.0		µg/Kg	1	7/1/2003 10:06:00 PM
1,2-Dichloroethane	U	5.0		µg/Kg	1	7/1/2003 10:06:00 PM
1,2-Dichloropropane	U	5.0		µg/Kg	1	7/1/2003 10:06:00 PM
1,3,5-Trimethylbenzene	U	5.0		µg/Kg	1	7/1/2003 10:06:00 PM
1,3-Dichlorobenzene	U	5.0		µg/Kg	1	7/1/2003 10:06:00 PM
1,3-dichloropropane	U	5.0		µg/Kg	1	7/1/2003 10:06:00 PM
1,4-Dichlorobenzene	U	5.0		µg/Kg	1	7/1/2003 10:06:00 PM
2,2-Dichloropropane	U	5.0		µg/Kg	1	7/1/2003 10:06:00 PM
2-Butanone	U	5.0		µg/Kg	1	7/1/2003 10:06:00 PM
2-Chloroethyl vinyl ether	U	5.0		µg/Kg	1	7/1/2003 10:06:00 PM
2-Chlorotoluene	U	5.0		µg/Kg	1	7/1/2003 10:06:00 PM
2-Hexanone	U	5.0		µg/Kg	1	7/1/2003 10:06:00 PM
4-Chlorotoluene	U	5.0		µg/Kg	1	7/1/2003 10:06:00 PM
4-Isopropyltoluene	U	5.0		µg/Kg	1	7/1/2003 10:06:00 PM
4-Methyl-2-pentanone	U	5.0		µg/Kg	1	7/1/2003 10:06:00 PM
Acetone	U	5.0		µg/Kg	1	7/1/2003 10:06:00 PM
Acrolein	U	25		µg/Kg	1	7/1/2003 10:06:00 PM
Acrylonitrile	U	5.0		µg/Kg	1	7/1/2003 10:06:00 PM
Benzene	U	5.0		µg/Kg	1	7/1/2003 10:06:00 PM
Bromobenzene	U	5.0		µg/Kg	1	7/1/2003 10:06:00 PM
Bromochloromethane	U	5.0		µg/Kg	1	7/1/2003 10:06:00 PM
Bromodichloromethane	U	5.0		µg/Kg	1	7/1/2003 10:06:00 PM
Bromoform	U	5.0		µg/Kg	1	7/1/2003 10:06:00 PM
Bromomethane	U	5.0		µg/Kg	1	7/1/2003 10:06:00 PM
Carbon disulfide	U	5.0		µg/Kg	1	7/1/2003 10:06:00 PM

Qualifiers:

ND - Not Detected at the Reporting Limit

J - Analyte detected below quantitation limits

B - Analyte detected in the associated Method Blank

* - Value exceeds Maximum Contaminant Level

S - Spike Recovery outside accepted recovery limits

R - RPD outside accepted recovery limits

E - Value above quantitation range

American Analytical Laboratories, Inc.

Date: *28-Jul-03*

CLIENT:	AKRF, Inc	**Client Sample ID:**	MW11 (0.5'-2')
Lab Order:	0306117	**Tag Number:**	
Project:	Greenpoint Lumber Yard Brooklyn, NY	**Collection Date:**	6/26/2003
Lab ID:	0306117-11A	**Matrix:**	SOIL

Analyses	Result	Limit	Qual	Units	DF	Date Analyzed
VOLATILES SW-846 METHOD 8260		**SW8260B**				Analyst: **LDS**
Carbon tetrachloride	U	5.0		µg/Kg	1	7/1/2003 10:06:00 PM
Chlorobenzene	U	5.0		µg/Kg	1	7/1/2003 10:06:00 PM
Chlorodifluoromethane	U	5.0		µg/Kg	1	7/1/2003 10:06:00 PM
Chloroethane	U	5.0		µg/Kg	1	7/1/2003 10:06:00 PM
Chloroform	U	5.0		µg/Kg	1	7/1/2003 10:06:00 PM
Chloromethane	U	5.0		µg/Kg	1	7/1/2003 10:06:00 PM
cis-1,2-Dichloroethene	U	5.0		µg/Kg	1	7/1/2003 10:06:00 PM
cis-1,3-Dichloropropene	U	5.0		µg/Kg	1	7/1/2003 10:06:00 PM
Dibromochloromethane	U	5.0		µg/Kg	1	7/1/2003 10:06:00 PM
Dibromomethane	U	5.0		µg/Kg	1	7/1/2003 10:06:00 PM
Dichlorodifluoromethane	U	5.0		µg/Kg	1	7/1/2003 10:06:00 PM
Diisopropyl ether	U	5.0		µg/Kg	1	7/1/2003 10:06:00 PM
Ethanol	U	25		µg/Kg	1	7/1/2003 10:06:00 PM
Ethyl acetate	U	5.0		µg/Kg	1	7/1/2003 10:06:00 PM
Ethylbenzene	U	5.0		µg/Kg	1	7/1/2003 10:06:00 PM
Freon-114	U	5.0		µg/Kg	1	7/1/2003 10:06:00 PM
Hexachlorobutadiene	U	5.0		µg/Kg	1	7/1/2003 10:06:00 PM
Isopropyl acetate	U	5.0		µg/Kg	1	7/1/2003 10:06:00 PM
Isopropylbenzene	U	5.0		µg/Kg	1	7/1/2003 10:06:00 PM
m,p-Xylene	U	10		µg/Kg	1	7/1/2003 10:06:00 PM
Methyl tert-butyl ether	U	5.0		µg/Kg	1	7/1/2003 10:06:00 PM
Methylene chloride	U	5.0		µg/Kg	1	7/1/2003 10:06:00 PM
Naphthalene	U	5.0		µg/Kg	1	7/1/2003 10:06:00 PM
n-Butyl acetate	U	5.0		µg/Kg	1	7/1/2003 10:06:00 PM
n-Butylbenzene	U	5.0		µg/Kg	1	7/1/2003 10:06:00 PM
n-Propyl acetate	U	5.0		µg/Kg	1	7/1/2003 10:06:00 PM
n-Propylbenzene	U	5.0		µg/Kg	1	7/1/2003 10:06:00 PM
o-Xylene	U	5.0		µg/Kg	1	7/1/2003 10:06:00 PM
p-Diethylbenzene	U	5.0		µg/Kg	1	7/1/2003 10:06:00 PM
p-Ethyltoluene	U	5.0		µg/Kg	1	7/1/2003 10:06:00 PM
sec-Butylbenzene	U	5.0		µg/Kg	1	7/1/2003 10:06:00 PM
Styrene	U	5.0		µg/Kg	1	7/1/2003 10:06:00 PM
t-Butyl alcohol	U	5.0		µg/Kg	1	7/1/2003 10:06:00 PM
tert-Butylbenzene	U	5.0		µg/Kg	1	7/1/2003 10:06:00 PM
Tetrachloroethene	U	5.0		µg/Kg	1	7/1/2003 10:06:00 PM
Toluene	U	5.0		µg/Kg	1	7/1/2003 10:06:00 PM
trans-1,2-Dichloroethene	U	5.0		µg/Kg	1	7/1/2003 10:06:00 PM
trans-1,3-Dichloropropene	U	5.0		µg/Kg	1	7/1/2003 10:06:00 PM
Trichloroethene	U	5.0		µg/Kg	1	7/1/2003 10:06:00 PM
Trichlorofluoromethane	U	5.0		µg/Kg	1	7/1/2003 10:06:00 PM

Qualifiers:

ND - Not Detected at the Reporting Limit

J - Analyte detected below quantitation limits

B - Analyte detected in the associated Method Blank

* - Value exceeds Maximum Contaminant Level

S - Spike Recovery outside accepted recovery limits

R - RPD outside accepted recovery limits

E - Value above quantitation range

American Analytical Laboratories, Inc.

Date: *28-Jul-03*

CLIENT:	AKRF, Inc	**Client Sample ID:**	MW11 (0.5'-2')
Lab Order:	0306117	**Tag Number:**	
Project:	Greenpoint Lumber Yard Brooklyn, NY	**Collection Date:**	6/26/2003
Lab ID:	0306117-11A	**Matrix:**	SOIL

Analyses	Result	Limit	Qual	Units	DF	Date Analyzed
VOLATILES SW-846 METHOD 8260		**SW8260B**				Analyst: **LDS**
Vinyl acetate	U	5.0		µg/Kg	1	7/1/2003 10:06:00 PM
Vinyl chloride	U	5.0		µg/Kg	1	7/1/2003 10:06:00 PM

Qualifiers:

ND - Not Detected at the Reporting Limit

J - Analyte detected below quantitation limits

B - Analyte detected in the associated Method Blank

* - Value exceeds Maximum Contaminant Level

S - Spike Recovery outside accepted recovery limits

R - RPD outside accepted recovery limits

E - Value above quantitation range

American Analytical Laboratories, Inc.

Date: *28-Jul-03*

CLIENT:	AKRF, Inc	**Client Sample ID:**	MW11 (7'-9')
Lab Order:	0306117	**Tag Number:**	
Project:	Greenpoint Lumber Yard Brooklyn, NY	**Collection Date:**	6/26/2003
Lab ID:	0306117-12A	**Matrix:**	SOIL

Analyses	Result	Limit	Qual	Units	DF	Date Analyzed
VOLATILES SW-846 METHOD 8260		**SW8260B**				Analyst: **LDS**
1,1,1,2-Tetrachloroethane	U	5.0		µg/Kg	1	7/1/2003 10:44:00 PM
1,1,1-Trichloroethane	U	5.0		µg/Kg	1	7/1/2003 10:44:00 PM
1,1,2,2-Tetrachloroethane	U	5.0		µg/Kg	1	7/1/2003 10:44:00 PM
1,1,2-Trichloro-1,2,2-trifluoroethane	U	5.0		µg/Kg	1	7/1/2003 10:44:00 PM
1,1,2-Trichloroethane	U	5.0		µg/Kg	1	7/1/2003 10:44:00 PM
1,1-Dichloroethane	U	5.0		µg/Kg	1	7/1/2003 10:44:00 PM
1,1-Dichloroethene	U	5.0		µg/Kg	1	7/1/2003 10:44:00 PM
1,1-Dichloropropene	U	5.0		µg/Kg	1	7/1/2003 10:44:00 PM
1,2,3-Trichlorobenzene	U	5.0		µg/Kg	1	7/1/2003 10:44:00 PM
1,2,3-Trichloropropane	U	5.0		µg/Kg	1	7/1/2003 10:44:00 PM
1,2,4,5-Tetramethylbenzene	U	5.0		µg/Kg	1	7/1/2003 10:44:00 PM
1,2,4-Trichlorobenzene	U	5.0		µg/Kg	1	7/1/2003 10:44:00 PM
1,2,4-Trimethylbenzene	U	5.0		µg/Kg	1	7/1/2003 10:44:00 PM
1,2-Dibromo-3-chloropropane	U	5.0		µg/Kg	1	7/1/2003 10:44:00 PM
1,2-Dibromoethane	U	5.0		µg/Kg	1	7/1/2003 10:44:00 PM
1,2-Dichlorobenzene	U	5.0		µg/Kg	1	7/1/2003 10:44:00 PM
1,2-Dichloroethane	U	5.0		µg/Kg	1	7/1/2003 10:44:00 PM
1,2-Dichloropropane	U	5.0		µg/Kg	1	7/1/2003 10:44:00 PM
1,3,5-Trimethylbenzene	U	5.0		µg/Kg	1	7/1/2003 10:44:00 PM
1,3-Dichlorobenzene	U	5.0		µg/Kg	1	7/1/2003 10:44:00 PM
1,3-dichloropropane	U	5.0		µg/Kg	1	7/1/2003 10:44:00 PM
1,4-Dichlorobenzene	U	5.0		µg/Kg	1	7/1/2003 10:44:00 PM
2,2-Dichloropropane	U	5.0		µg/Kg	1	7/1/2003 10:44:00 PM
2-Butanone	U	5.0		µg/Kg	1	7/1/2003 10:44:00 PM
2-Chloroethyl vinyl ether	U	5.0		µg/Kg	1	7/1/2003 10:44:00 PM
2-Chlorotoluene	U	5.0		µg/Kg	1	7/1/2003 10:44:00 PM
2-Hexanone	U	5.0		µg/Kg	1	7/1/2003 10:44:00 PM
4-Chlorotoluene	U	5.0		µg/Kg	1	7/1/2003 10:44:00 PM
4-Isopropyltoluene	U	5.0		µg/Kg	1	7/1/2003 10:44:00 PM
4-Methyl-2-pentanone	U	5.0		µg/Kg	1	7/1/2003 10:44:00 PM
Acetone	U	5.0		µg/Kg	1	7/1/2003 10:44:00 PM
Acrolein	U	25		µg/Kg	1	7/1/2003 10:44:00 PM
Acrylonitrile	U	5.0		µg/Kg	1	7/1/2003 10:44:00 PM
Benzene	U	5.0		µg/Kg	1	7/1/2003 10:44:00 PM
Bromobenzene	U	5.0		µg/Kg	1	7/1/2003 10:44:00 PM
Bromochloromethane	U	5.0		µg/Kg	1	7/1/2003 10:44:00 PM
Bromodichloromethane	U	5.0		µg/Kg	1	7/1/2003 10:44:00 PM
Bromoform	U	5.0		µg/Kg	1	7/1/2003 10:44:00 PM
Bromomethane	U	5.0		µg/Kg	1	7/1/2003 10:44:00 PM
Carbon disulfide	U	5.0		µg/Kg	1	7/1/2003 10:44:00 PM

Qualifiers:

ND - Not Detected at the Reporting Limit

J - Analyte detected below quantitation limits

B - Analyte detected in the associated Method Blank

* - Value exceeds Maximum Contaminant Level

S - Spike Recovery outside accepted recovery limits

R - RPD outside accepted recovery limits

E - Value above quantitation range

American Analytical Laboratories, Inc.

Date: *28-Jul-03*

CLIENT:	AKRF, Inc	**Client Sample ID:**	MW11 (7'-9')
Lab Order:	0306117	**Tag Number:**	
Project:	Greenpoint Lumber Yard Brooklyn, NY	**Collection Date:**	6/26/2003
Lab ID:	0306117-12A	**Matrix:**	SOIL

Analyses	Result	Limit	Qual	Units	DF	Date Analyzed
VOLATILES SW-846 METHOD 8260		**SW8260B**				Analyst: **LDS**
Carbon tetrachloride	U	5.0		µg/Kg	1	7/1/2003 10:44:00 PM
Chlorobenzene	U	5.0		µg/Kg	1	7/1/2003 10:44:00 PM
Chlorodifluoromethane	U	5.0		µg/Kg	1	7/1/2003 10:44:00 PM
Chloroethane	U	5.0		µg/Kg	1	7/1/2003 10:44:00 PM
Chloroform	U	5.0		µg/Kg	1	7/1/2003 10:44:00 PM
Chloromethane	U	5.0		µg/Kg	1	7/1/2003 10:44:00 PM
cis-1,2-Dichloroethene	U	5.0		µg/Kg	1	7/1/2003 10:44:00 PM
cis-1,3-Dichloropropene	U	5.0		µg/Kg	1	7/1/2003 10:44:00 PM
Dibromochloromethane	U	5.0		µg/Kg	1	7/1/2003 10:44:00 PM
Dibromomethane	U	5.0		µg/Kg	1	7/1/2003 10:44:00 PM
Dichlorodifluoromethane	U	5.0		µg/Kg	1	7/1/2003 10:44:00 PM
Diisopropyl ether	U	5.0		µg/Kg	1	7/1/2003 10:44:00 PM
Ethanol	U	25		µg/Kg	1	7/1/2003 10:44:00 PM
Ethyl acetate	U	5.0		µg/Kg	1	7/1/2003 10:44:00 PM
Ethylbenzene	U	5.0		µg/Kg	1	7/1/2003 10:44:00 PM
Freon-114	U	5.0		µg/Kg	1	7/1/2003 10:44:00 PM
Hexachlorobutadiene	U	5.0		µg/Kg	1	7/1/2003 10:44:00 PM
Isopropyl acetate	U	5.0		µg/Kg	1	7/1/2003 10:44:00 PM
Isopropylbenzene	U	5.0		µg/Kg	1	7/1/2003 10:44:00 PM
m,p-Xylene	U	10		µg/Kg	1	7/1/2003 10:44:00 PM
Methyl tert-butyl ether	U	5.0		µg/Kg	1	7/1/2003 10:44:00 PM
Methylene chloride	U	5.0		µg/Kg	1	7/1/2003 10:44:00 PM
Naphthalene	U	5.0		µg/Kg	1	7/1/2003 10:44:00 PM
n-Butyl acetate	U	5.0		µg/Kg	1	7/1/2003 10:44:00 PM
n-Butylbenzene	U	5.0		µg/Kg	1	7/1/2003 10:44:00 PM
n-Propyl acetate	U	5.0		µg/Kg	1	7/1/2003 10:44:00 PM
n-Propylbenzene	U	5.0		µg/Kg	1	7/1/2003 10:44:00 PM
o-Xylene	U	5.0		µg/Kg	1	7/1/2003 10:44:00 PM
p-Diethylbenzene	U	5.0		µg/Kg	1	7/1/2003 10:44:00 PM
p-Ethyltoluene	U	5.0		µg/Kg	1	7/1/2003 10:44:00 PM
sec-Butylbenzene	U	5.0		µg/Kg	1	7/1/2003 10:44:00 PM
Styrene	U	5.0		µg/Kg	1	7/1/2003 10:44:00 PM
t-Butyl alcohol	U	5.0		µg/Kg	1	7/1/2003 10:44:00 PM
tert-Butylbenzene	U	5.0		µg/Kg	1	7/1/2003 10:44:00 PM
Tetrachloroethene	U	5.0		µg/Kg	1	7/1/2003 10:44:00 PM
Toluene	U	5.0		µg/Kg	1	7/1/2003 10:44:00 PM
trans-1,2-Dichloroethene	U	5.0		µg/Kg	1	7/1/2003 10:44:00 PM
trans-1,3-Dichloropropene	U	5.0		µg/Kg	1	7/1/2003 10:44:00 PM
Trichloroethene	U	5.0		µg/Kg	1	7/1/2003 10:44:00 PM
Trichlorofluoromethane	U	5.0		µg/Kg	1	7/1/2003 10:44:00 PM

Qualifiers:

ND - Not Detected at the Reporting Limit

J - Analyte detected below quantitation limits

B - Analyte detected in the associated Method Blank

* - Value exceeds Maximum Contaminant Level

S - Spike Recovery outside accepted recovery limits

R - RPD outside accepted recovery limits

E - Value above quantitation range

American Analytical Laboratories, Inc.

Date: *28-Jul-03*

CLIENT:	AKRF, Inc	**Client Sample ID:**	MW11 (7'-9')
Lab Order:	0306117	**Tag Number:**	
Project:	Greenpoint Lumber Yard Brooklyn, NY	**Collection Date:**	6/26/2003
Lab ID:	0306117-12A	**Matrix:**	SOIL

Analyses	Result	Limit	Qual	Units	DF	Date Analyzed
VOLATILES SW-846 METHOD 8260		**SW8260B**				Analyst: **LDS**
Vinyl acetate	U	5.0		µg/Kg	1	7/1/2003 10:44:00 PM
Vinyl chloride	U	5.0		µg/Kg	1	7/1/2003 10:44:00 PM

Qualifiers:

ND - Not Detected at the Reporting Limit

J - Analyte detected below quantitation limits

B - Analyte detected in the associated Method Blank

* - Value exceeds Maximum Contaminant Level

S - Spike Recovery outside accepted recovery limits

R - RPD outside accepted recovery limits

E - Value above quantitation range

American Analytical Laboratories, Inc.

Date: *28-Jul-03*

CLIENT:	AKRF, Inc	**Client Sample ID:**	MW14 (3'-4')
Lab Order:	0306117	**Tag Number:**	
Project:	Greenpoint Lumber Yard Brooklyn, NY	**Collection Date:**	6/26/2003
Lab ID:	0306117-13A	**Matrix:**	SOIL

Analyses	Result	Limit	Qual	Units	DF	Date Analyzed
VOLATILES SW-846 METHOD 8260		**SW8260B**				Analyst: **LDS**
1,1,1,2-Tetrachloroethane	U	5.0		µg/Kg	1	7/1/2003 11:21:00 PM
1,1,1-Trichloroethane	U	5.0		µg/Kg	1	7/1/2003 11:21:00 PM
1,1,2,2-Tetrachloroethane	U	5.0		µg/Kg	1	7/1/2003 11:21:00 PM
1,1,2-Trichloro-1,2,2-trifluoroethane	U	5.0		µg/Kg	1	7/1/2003 11:21:00 PM
1,1,2-Trichloroethane	U	5.0		µg/Kg	1	7/1/2003 11:21:00 PM
1,1-Dichloroethane	U	5.0		µg/Kg	1	7/1/2003 11:21:00 PM
1,1-Dichloroethene	U	5.0		µg/Kg	1	7/1/2003 11:21:00 PM
1,1-Dichloropropene	U	5.0		µg/Kg	1	7/1/2003 11:21:00 PM
1,2,3-Trichlorobenzene	U	5.0		µg/Kg	1	7/1/2003 11:21:00 PM
1,2,3-Trichloropropane	U	5.0		µg/Kg	1	7/1/2003 11:21:00 PM
1,2,4,5-Tetramethylbenzene	U	5.0		µg/Kg	1	7/1/2003 11:21:00 PM
1,2,4-Trichlorobenzene	U	5.0		µg/Kg	1	7/1/2003 11:21:00 PM
1,2,4-Trimethylbenzene	U	5.0		µg/Kg	1	7/1/2003 11:21:00 PM
1,2-Dibromo-3-chloropropane	U	5.0		µg/Kg	1	7/1/2003 11:21:00 PM
1,2-Dibromoethane	U	5.0		µg/Kg	1	7/1/2003 11:21:00 PM
1,2-Dichlorobenzene	U	5.0		µg/Kg	1	7/1/2003 11:21:00 PM
1,2-Dichloroethane	U	5.0		µg/Kg	1	7/1/2003 11:21:00 PM
1,2-Dichloropropane	U	5.0		µg/Kg	1	7/1/2003 11:21:00 PM
1,3,5-Trimethylbenzene	U	5.0		µg/Kg	1	7/1/2003 11:21:00 PM
1,3-Dichlorobenzene	U	5.0		µg/Kg	1	7/1/2003 11:21:00 PM
1,3-dichloropropane	U	5.0		µg/Kg	1	7/1/2003 11:21:00 PM
1,4-Dichlorobenzene	U	5.0		µg/Kg	1	7/1/2003 11:21:00 PM
2,2-Dichloropropane	U	5.0		µg/Kg	1	7/1/2003 11:21:00 PM
2-Butanone	U	5.0		µg/Kg	1	7/1/2003 11:21:00 PM
2-Chloroethyl vinyl ether	U	5.0		µg/Kg	1	7/1/2003 11:21:00 PM
2-Chlorotoluene	U	5.0		µg/Kg	1	7/1/2003 11:21:00 PM
2-Hexanone	U	5.0		µg/Kg	1	7/1/2003 11:21:00 PM
4-Chlorotoluene	U	5.0		µg/Kg	1	7/1/2003 11:21:00 PM
4-Isopropyltoluene	U	5.0		µg/Kg	1	7/1/2003 11:21:00 PM
4-Methyl-2-pentanone	U	5.0		µg/Kg	1	7/1/2003 11:21:00 PM
Acetone	49	5.0		µg/Kg	1	7/1/2003 11:21:00 PM
Acrolein	U	25		µg/Kg	1	7/1/2003 11:21:00 PM
Acrylonitrile	U	5.0		µg/Kg	1	7/1/2003 11:21:00 PM
Benzene	U	5.0		µg/Kg	1	7/1/2003 11:21:00 PM
Bromobenzene	U	5.0		µg/Kg	1	7/1/2003 11:21:00 PM
Bromochloromethane	U	5.0		µg/Kg	1	7/1/2003 11:21:00 PM
Bromodichloromethane	U	5.0		µg/Kg	1	7/1/2003 11:21:00 PM
Bromoform	U	5.0		µg/Kg	1	7/1/2003 11:21:00 PM
Bromomethane	U	5.0		µg/Kg	1	7/1/2003 11:21:00 PM
Carbon disulfide	U	5.0		µg/Kg	1	7/1/2003 11:21:00 PM

Qualifiers:

ND - Not Detected at the Reporting Limit

J - Analyte detected below quantitation limits

B - Analyte detected in the associated Method Blank

* - Value exceeds Maximum Contaminant Level

S - Spike Recovery outside accepted recovery limits

R - RPD outside accepted recovery limits

E - Value above quantitation range

American Analytical Laboratories, Inc.

Date: *28-Jul-03*

CLIENT:	AKRF, Inc	**Client Sample ID:**	MW14 (3'-4')
Lab Order:	0306117	**Tag Number:**	
Project:	Greenpoint Lumber Yard Brooklyn, NY	**Collection Date:**	6/26/2003
Lab ID:	0306117-13A	**Matrix:**	SOIL

Analyses	Result	Limit	Qual	Units	DF	Date Analyzed
VOLATILES SW-846 METHOD 8260		**SW8260B**				Analyst: **LDS**
Carbon tetrachloride	U	5.0		µg/Kg	1	7/1/2003 11:21:00 PM
Chlorobenzene	U	5.0		µg/Kg	1	7/1/2003 11:21:00 PM
Chlorodifluoromethane	U	5.0		µg/Kg	1	7/1/2003 11:21:00 PM
Chloroethane	U	5.0		µg/Kg	1	7/1/2003 11:21:00 PM
Chloroform	U	5.0		µg/Kg	1	7/1/2003 11:21:00 PM
Chloromethane	U	5.0		µg/Kg	1	7/1/2003 11:21:00 PM
cis-1,2-Dichloroethene	U	5.0		µg/Kg	1	7/1/2003 11:21:00 PM
cis-1,3-Dichloropropene	U	5.0		µg/Kg	1	7/1/2003 11:21:00 PM
Dibromochloromethane	U	5.0		µg/Kg	1	7/1/2003 11:21:00 PM
Dibromomethane	U	5.0		µg/Kg	1	7/1/2003 11:21:00 PM
Dichlorodifluoromethane	U	5.0		µg/Kg	1	7/1/2003 11:21:00 PM
Diisopropyl ether	U	5.0		µg/Kg	1	7/1/2003 11:21:00 PM
Ethanol	U	25		µg/Kg	1	7/1/2003 11:21:00 PM
Ethyl acetate	U	5.0		µg/Kg	1	7/1/2003 11:21:00 PM
Ethylbenzene	U	5.0		µg/Kg	1	7/1/2003 11:21:00 PM
Freon-114	U	5.0		µg/Kg	1	7/1/2003 11:21:00 PM
Hexachlorobutadiene	U	5.0		µg/Kg	1	7/1/2003 11:21:00 PM
Isopropyl acetate	U	5.0		µg/Kg	1	7/1/2003 11:21:00 PM
Isopropylbenzene	U	5.0		µg/Kg	1	7/1/2003 11:21:00 PM
m,p-Xylene	U	10		µg/Kg	1	7/1/2003 11:21:00 PM
Methyl tert-butyl ether	U	5.0		µg/Kg	1	7/1/2003 11:21:00 PM
Methylene chloride	U	5.0		µg/Kg	1	7/1/2003 11:21:00 PM
Naphthalene	U	5.0		µg/Kg	1	7/1/2003 11:21:00 PM
n-Butyl acetate	U	5.0		µg/Kg	1	7/1/2003 11:21:00 PM
n-Butylbenzene	U	5.0		µg/Kg	1	7/1/2003 11:21:00 PM
n-Propyl acetate	U	5.0		µg/Kg	1	7/1/2003 11:21:00 PM
n-Propylbenzene	U	5.0		µg/Kg	1	7/1/2003 11:21:00 PM
o-Xylene	U	5.0		µg/Kg	1	7/1/2003 11:21:00 PM
p-Diethylbenzene	U	5.0		µg/Kg	1	7/1/2003 11:21:00 PM
p-Ethyltoluene	U	5.0		µg/Kg	1	7/1/2003 11:21:00 PM
sec-Butylbenzene	U	5.0		µg/Kg	1	7/1/2003 11:21:00 PM
Styrene	U	5.0		µg/Kg	1	7/1/2003 11:21:00 PM
t-Butyl alcohol	U	5.0		µg/Kg	1	7/1/2003 11:21:00 PM
tert-Butylbenzene	U	5.0		µg/Kg	1	7/1/2003 11:21:00 PM
Tetrachloroethene	U	5.0		µg/Kg	1	7/1/2003 11:21:00 PM
Toluene	U	5.0		µg/Kg	1	7/1/2003 11:21:00 PM
trans-1,2-Dichloroethene	U	5.0		µg/Kg	1	7/1/2003 11:21:00 PM
trans-1,3-Dichloropropene	U	5.0		µg/Kg	1	7/1/2003 11:21:00 PM
Trichloroethene	U	5.0		µg/Kg	1	7/1/2003 11:21:00 PM
Trichlorofluoromethane	U	5.0		µg/Kg	1	7/1/2003 11:21:00 PM

Qualifiers:

ND - Not Detected at the Reporting Limit

J - Analyte detected below quantitation limits

B - Analyte detected in the associated Method Blank

* - Value exceeds Maximum Contaminant Level

S - Spike Recovery outside accepted recovery limits

R - RPD outside accepted recovery limits

E - Value above quantitation range

American Analytical Laboratories, Inc.

Date: *28-Jul-03*

CLIENT:	AKRF, Inc	**Client Sample ID:**	MW14 (3'-4')
Lab Order:	0306117	**Tag Number:**	
Project:	Greenpoint Lumber Yard Brooklyn, NY	**Collection Date:**	6/26/2003
Lab ID:	0306117-13A	**Matrix:**	SOIL

Analyses	Result	Limit	Qual	Units	DF	Date Analyzed
VOLATILES SW-846 METHOD 8260		**SW8260B**				Analyst: **LDS**
Vinyl acetate	U	5.0		µg/Kg	1	7/1/2003 11:21:00 PM
Vinyl chloride	U	5.0		µg/Kg	1	7/1/2003 11:21:00 PM

Qualifiers:

ND - Not Detected at the Reporting Limit

J - Analyte detected below quantitation limits

B - Analyte detected in the associated Method Blank

* - Value exceeds Maximum Contaminant Level

S - Spike Recovery outside accepted recovery limits

R - RPD outside accepted recovery limits

E - Value above quantitation range

American Analytical Laboratories, Inc.

Date: *28-Jul-03*

CLIENT:	AKRF, Inc	**Client Sample ID:**	MW14 (6'-8')
Lab Order:	0306117	**Tag Number:**	
Project:	Greenpoint Lumber Yard Brooklyn, NY	**Collection Date:**	6/26/2003
Lab ID:	0306117-14A	**Matrix:**	SOIL

Analyses	Result	Limit	Qual	Units	DF	Date Analyzed
VOLATILES SW-846 METHOD 8260		**SW8260B**				Analyst: **LDS**
1,1,1,2-Tetrachloroethane	U	5.0		µg/Kg	1	7/2/2003
1,1,1-Trichloroethane	U	5.0		µg/Kg	1	7/2/2003
1,1,2,2-Tetrachloroethane	U	5.0		µg/Kg	1	7/2/2003
1,1,2-Trichloro-1,2,2-trifluoroethane	U	5.0		µg/Kg	1	7/2/2003
1,1,2-Trichloroethane	U	5.0		µg/Kg	1	7/2/2003
1,1-Dichloroethane	U	5.0		µg/Kg	1	7/2/2003
1,1-Dichloroethene	U	5.0		µg/Kg	1	7/2/2003
1,1-Dichloropropene	U	5.0		µg/Kg	1	7/2/2003
1,2,3-Trichlorobenzene	U	5.0		µg/Kg	1	7/2/2003
1,2,3-Trichloropropane	U	5.0		µg/Kg	1	7/2/2003
1,2,4,5-Tetramethylbenzene	U	5.0		µg/Kg	1	7/2/2003
1,2,4-Trichlorobenzene	U	5.0		µg/Kg	1	7/2/2003
1,2,4-Trimethylbenzene	U	5.0		µg/Kg	1	7/2/2003
1,2-Dibromo-3-chloropropane	U	5.0		µg/Kg	1	7/2/2003
1,2-Dibromoethane	U	5.0		µg/Kg	1	7/2/2003
1,2-Dichlorobenzene	U	5.0		µg/Kg	1	7/2/2003
1,2-Dichloroethane	U	5.0		µg/Kg	1	7/2/2003
1,2-Dichloropropane	U	5.0		µg/Kg	1	7/2/2003
1,3,5-Trimethylbenzene	U	5.0		µg/Kg	1	7/2/2003
1,3-Dichlorobenzene	U	5.0		µg/Kg	1	7/2/2003
1,3-dichloropropane	U	5.0		µg/Kg	1	7/2/2003
1,4-Dichlorobenzene	U	5.0		µg/Kg	1	7/2/2003
2,2-Dichloropropane	U	5.0		µg/Kg	1	7/2/2003
2-Butanone	U	5.0		µg/Kg	1	7/2/2003
2-Chloroethyl vinyl ether	U	5.0		µg/Kg	1	7/2/2003
2-Chlorotoluene	U	5.0		µg/Kg	1	7/2/2003
2-Hexanone	U	5.0		µg/Kg	1	7/2/2003
4-Chlorotoluene	U	5.0		µg/Kg	1	7/2/2003
4-Isopropyltoluene	U	5.0		µg/Kg	1	7/2/2003
4-Methyl-2-pentanone	U	5.0		µg/Kg	1	7/2/2003
Acetone	U	5.0		µg/Kg	1	7/2/2003
Acrolein	U	25		µg/Kg	1	7/2/2003
Acrylonitrile	U	5.0		µg/Kg	1	7/2/2003
Benzene	U	5.0		µg/Kg	1	7/2/2003
Bromobenzene	U	5.0		µg/Kg	1	7/2/2003
Bromochloromethane	U	5.0		µg/Kg	1	7/2/2003
Bromodichloromethane	U	5.0		µg/Kg	1	7/2/2003
Bromoform	U	5.0		µg/Kg	1	7/2/2003
Bromomethane	U	5.0		µg/Kg	1	7/2/2003
Carbon disulfide	U	5.0		µg/Kg	1	7/2/2003

Qualifiers:

ND - Not Detected at the Reporting Limit

J - Analyte detected below quantitation limits

B - Analyte detected in the associated Method Blank

* - Value exceeds Maximum Contaminant Level

S - Spike Recovery outside accepted recovery limits

R - RPD outside accepted recovery limits

E - Value above quantitation range

American Analytical Laboratories, Inc.

Date: *28-Jul-03*

CLIENT:	AKRF, Inc	**Client Sample ID:**	MW14 (6'-8')
Lab Order:	0306117	**Tag Number:**	
Project:	Greenpoint Lumber Yard Brooklyn, NY	**Collection Date:**	6/26/2003
Lab ID:	0306117-14A	**Matrix:**	SOIL

Analyses	Result	Limit	Qual	Units	DF	Date Analyzed
VOLATILES SW-846 METHOD 8260		**SW8260B**				Analyst: **LDS**
Carbon tetrachloride	U	5.0		µg/Kg	1	7/2/2003
Chlorobenzene	U	5.0		µg/Kg	1	7/2/2003
Chlorodifluoromethane	U	5.0		µg/Kg	1	7/2/2003
Chloroethane	U	5.0		µg/Kg	1	7/2/2003
Chloroform	U	5.0		µg/Kg	1	7/2/2003
Chloromethane	U	5.0		µg/Kg	1	7/2/2003
cis-1,2-Dichloroethene	U	5.0		µg/Kg	1	7/2/2003
cis-1,3-Dichloropropene	U	5.0		µg/Kg	1	7/2/2003
Dibromochloromethane	U	5.0		µg/Kg	1	7/2/2003
Dibromomethane	U	5.0		µg/Kg	1	7/2/2003
Dichlorodifluoromethane	U	5.0		µg/Kg	1	7/2/2003
Diisopropyl ether	U	5.0		µg/Kg	1	7/2/2003
Ethanol	U	25		µg/Kg	1	7/2/2003
Ethyl acetate	U	5.0		µg/Kg	1	7/2/2003
Ethylbenzene	U	5.0		µg/Kg	1	7/2/2003
Freon-114	U	5.0		µg/Kg	1	7/2/2003
Hexachlorobutadiene	U	5.0		µg/Kg	1	7/2/2003
Isopropyl acetate	U	5.0		µg/Kg	1	7/2/2003
Isopropylbenzene	U	5.0		µg/Kg	1	7/2/2003
m,p-Xylene	U	10		µg/Kg	1	7/2/2003
Methyl tert-butyl ether	U	5.0		µg/Kg	1	7/2/2003
Methylene chloride	U	5.0		µg/Kg	1	7/2/2003
Naphthalene	U	5.0		µg/Kg	1	7/2/2003
n-Butyl acetate	U	5.0		µg/Kg	1	7/2/2003
n-Butylbenzene	U	5.0		µg/Kg	1	7/2/2003
n-Propyl acetate	U	5.0		µg/Kg	1	7/2/2003
n-Propylbenzene	U	5.0		µg/Kg	1	7/2/2003
o-Xylene	U	5.0		µg/Kg	1	7/2/2003
p-Diethylbenzene	U	5.0		µg/Kg	1	7/2/2003
p-Ethyltoluene	U	5.0		µg/Kg	1	7/2/2003
sec-Butylbenzene	U	5.0		µg/Kg	1	7/2/2003
Styrene	U	5.0		µg/Kg	1	7/2/2003
t-Butyl alcohol	U	5.0		µg/Kg	1	7/2/2003
tert-Butylbenzene	U	5.0		µg/Kg	1	7/2/2003
Tetrachloroethene	U	5.0		µg/Kg	1	7/2/2003
Toluene	U	5.0		µg/Kg	1	7/2/2003
trans-1,2-Dichloroethene	U	5.0		µg/Kg	1	7/2/2003
trans-1,3-Dichloropropene	U	5.0		µg/Kg	1	7/2/2003
Trichloroethene	U	5.0		µg/Kg	1	7/2/2003
Trichlorofluoromethane	U	5.0		µg/Kg	1	7/2/2003

Qualifiers:

ND - Not Detected at the Reporting Limit

J - Analyte detected below quantitation limits

B - Analyte detected in the associated Method Blank

* - Value exceeds Maximum Contaminant Level

S - Spike Recovery outside accepted recovery limits

R - RPD outside accepted recovery limits

E - Value above quantitation range

American Analytical Laboratories, Inc.

Date: *28-Jul-03*

CLIENT:	AKRF, Inc	**Client Sample ID:**	MW14 (6'-8')
Lab Order:	0306117	**Tag Number:**	
Project:	Greenpoint Lumber Yard Brooklyn, NY	**Collection Date:**	6/26/2003
Lab ID:	0306117-14A	**Matrix:**	SOIL

Analyses	Result	Limit	Qual	Units	DF	Date Analyzed
VOLATILES SW-846 METHOD 8260		**SW8260B**				Analyst: **LDS**
Vinyl acetate	U	5.0		µg/Kg	1	7/2/2003
Vinyl chloride	U	5.0		µg/Kg	1	7/2/2003

Qualifiers:

ND - Not Detected at the Reporting Limit

J - Analyte detected below quantitation limits

B - Analyte detected in the associated Method Blank

* - Value exceeds Maximum Contaminant Level

S - Spike Recovery outside accepted recovery limits

R - RPD outside accepted recovery limits

E - Value above quantitation range

American Analytical Laboratories, Inc.

Date: *28-Jul-03*

CLIENT:	AKRF, Inc	**Client Sample ID:**	B14 (2'-3.5')
Lab Order:	0306117	**Tag Number:**	
Project:	Greenpoint Lumber Yard Brooklyn, NY	**Collection Date:**	6/26/2003
Lab ID:	0306117-15A	**Matrix:**	SOIL

Analyses	Result	Limit	Qual	Units	DF	Date Analyzed
VOLATILES SW-846 METHOD 8260		**SW8260B**				Analyst: **LDS**
1,1,1,2-Tetrachloroethane	U	5.0		µg/Kg	1	7/2/2003 12:38:00 AM
1,1,1-Trichloroethane	U	5.0		µg/Kg	1	7/2/2003 12:38:00 AM
1,1,2,2-Tetrachloroethane	U	5.0		µg/Kg	1	7/2/2003 12:38:00 AM
1,1,2-Trichloro-1,2,2-trifluoroethane	U	5.0		µg/Kg	1	7/2/2003 12:38:00 AM
1,1,2-Trichloroethane	U	5.0		µg/Kg	1	7/2/2003 12:38:00 AM
1,1-Dichloroethane	U	5.0		µg/Kg	1	7/2/2003 12:38:00 AM
1,1-Dichloroethene	U	5.0		µg/Kg	1	7/2/2003 12:38:00 AM
1,1-Dichloropropene	U	5.0		µg/Kg	1	7/2/2003 12:38:00 AM
1,2,3-Trichlorobenzene	U	5.0		µg/Kg	1	7/2/2003 12:38:00 AM
1,2,3-Trichloropropane	U	5.0		µg/Kg	1	7/2/2003 12:38:00 AM
1,2,4,5-Tetramethylbenzene	U	5.0		µg/Kg	1	7/2/2003 12:38:00 AM
1,2,4-Trichlorobenzene	U	5.0		µg/Kg	1	7/2/2003 12:38:00 AM
1,2,4-Trimethylbenzene	U	5.0		µg/Kg	1	7/2/2003 12:38:00 AM
1,2-Dibromo-3-chloropropane	U	5.0		µg/Kg	1	7/2/2003 12:38:00 AM
1,2-Dibromoethane	U	5.0		µg/Kg	1	7/2/2003 12:38:00 AM
1,2-Dichlorobenzene	U	5.0		µg/Kg	1	7/2/2003 12:38:00 AM
1,2-Dichloroethane	U	5.0		µg/Kg	1	7/2/2003 12:38:00 AM
1,2-Dichloropropane	U	5.0		µg/Kg	1	7/2/2003 12:38:00 AM
1,3,5-Trimethylbenzene	U	5.0		µg/Kg	1	7/2/2003 12:38:00 AM
1,3-Dichlorobenzene	U	5.0		µg/Kg	1	7/2/2003 12:38:00 AM
1,3-dichloropropane	U	5.0		µg/Kg	1	7/2/2003 12:38:00 AM
1,4-Dichlorobenzene	U	5.0		µg/Kg	1	7/2/2003 12:38:00 AM
2,2-Dichloropropane	U	5.0		µg/Kg	1	7/2/2003 12:38:00 AM
2-Butanone	U	5.0		µg/Kg	1	7/2/2003 12:38:00 AM
2-Chloroethyl vinyl ether	U	5.0		µg/Kg	1	7/2/2003 12:38:00 AM
2-Chlorotoluene	U	5.0		µg/Kg	1	7/2/2003 12:38:00 AM
2-Hexanone	U	5.0		µg/Kg	1	7/2/2003 12:38:00 AM
4-Chlorotoluene	U	5.0		µg/Kg	1	7/2/2003 12:38:00 AM
4-Isopropyltoluene	U	5.0		µg/Kg	1	7/2/2003 12:38:00 AM
4-Methyl-2-pentanone	U	5.0		µg/Kg	1	7/2/2003 12:38:00 AM
Acetone	U	5.0		µg/Kg	1	7/2/2003 12:38:00 AM
Acrolein	U	25		µg/Kg	1	7/2/2003 12:38:00 AM
Acrylonitrile	U	5.0		µg/Kg	1	7/2/2003 12:38:00 AM
Benzene	U	5.0		µg/Kg	1	7/2/2003 12:38:00 AM
Bromobenzene	U	5.0		µg/Kg	1	7/2/2003 12:38:00 AM
Bromochloromethane	U	5.0		µg/Kg	1	7/2/2003 12:38:00 AM
Bromodichloromethane	U	5.0		µg/Kg	1	7/2/2003 12:38:00 AM
Bromoform	U	5.0		µg/Kg	1	7/2/2003 12:38:00 AM
Bromomethane	U	5.0		µg/Kg	1	7/2/2003 12:38:00 AM
Carbon disulfide	U	5.0		µg/Kg	1	7/2/2003 12:38:00 AM

Qualifiers:

ND - Not Detected at the Reporting Limit

J - Analyte detected below quantitation limits

B - Analyte detected in the associated Method Blank

* - Value exceeds Maximum Contaminant Level

S - Spike Recovery outside accepted recovery limits

R - RPD outside accepted recovery limits

E - Value above quantitation range

American Analytical Laboratories, Inc.

Date: *28-Jul-03*

CLIENT:	AKRF, Inc	**Client Sample ID:**	B14 (2'-3.5')
Lab Order:	0306117	**Tag Number:**	
Project:	Greenpoint Lumber Yard Brooklyn, NY	**Collection Date:**	6/26/2003
Lab ID:	0306117-15A	**Matrix:**	SOIL

Analyses	Result	Limit	Qual	Units	DF	Date Analyzed
VOLATILES SW-846 METHOD 8260		**SW8260B**				Analyst: **LDS**
Carbon tetrachloride	U	5.0		µg/Kg	1	7/2/2003 12:38:00 AM
Chlorobenzene	U	5.0		µg/Kg	1	7/2/2003 12:38:00 AM
Chlorodifluoromethane	U	5.0		µg/Kg	1	7/2/2003 12:38:00 AM
Chloroethane	U	5.0		µg/Kg	1	7/2/2003 12:38:00 AM
Chloroform	U	5.0		µg/Kg	1	7/2/2003 12:38:00 AM
Chloromethane	U	5.0		µg/Kg	1	7/2/2003 12:38:00 AM
cis-1,2-Dichloroethene	U	5.0		µg/Kg	1	7/2/2003 12:38:00 AM
cis-1,3-Dichloropropene	U	5.0		µg/Kg	1	7/2/2003 12:38:00 AM
Dibromochloromethane	U	5.0		µg/Kg	1	7/2/2003 12:38:00 AM
Dibromomethane	U	5.0		µg/Kg	1	7/2/2003 12:38:00 AM
Dichlorodifluoromethane	U	5.0		µg/Kg	1	7/2/2003 12:38:00 AM
Diisopropyl ether	U	5.0		µg/Kg	1	7/2/2003 12:38:00 AM
Ethanol	U	25		µg/Kg	1	7/2/2003 12:38:00 AM
Ethyl acetate	U	5.0		µg/Kg	1	7/2/2003 12:38:00 AM
Ethylbenzene	U	5.0		µg/Kg	1	7/2/2003 12:38:00 AM
Freon-114	U	5.0		µg/Kg	1	7/2/2003 12:38:00 AM
Hexachlorobutadiene	U	5.0		µg/Kg	1	7/2/2003 12:38:00 AM
Isopropyl acetate	U	5.0		µg/Kg	1	7/2/2003 12:38:00 AM
Isopropylbenzene	U	5.0		µg/Kg	1	7/2/2003 12:38:00 AM
m,p-Xylene	U	10		µg/Kg	1	7/2/2003 12:38:00 AM
Methyl tert-butyl ether	U	5.0		µg/Kg	1	7/2/2003 12:38:00 AM
Methylene chloride	U	5.0		µg/Kg	1	7/2/2003 12:38:00 AM
Naphthalene	U	5.0		µg/Kg	1	7/2/2003 12:38:00 AM
n-Butyl acetate	U	5.0		µg/Kg	1	7/2/2003 12:38:00 AM
n-Butylbenzene	U	5.0		µg/Kg	1	7/2/2003 12:38:00 AM
n-Propyl acetate	U	5.0		µg/Kg	1	7/2/2003 12:38:00 AM
n-Propylbenzene	U	5.0		µg/Kg	1	7/2/2003 12:38:00 AM
o-Xylene	U	5.0		µg/Kg	1	7/2/2003 12:38:00 AM
p-Diethylbenzene	U	5.0		µg/Kg	1	7/2/2003 12:38:00 AM
p-Ethyltoluene	U	5.0		µg/Kg	1	7/2/2003 12:38:00 AM
sec-Butylbenzene	U	5.0		µg/Kg	1	7/2/2003 12:38:00 AM
Styrene	U	5.0		µg/Kg	1	7/2/2003 12:38:00 AM
t-Butyl alcohol	U	5.0		µg/Kg	1	7/2/2003 12:38:00 AM
tert-Butylbenzene	U	5.0		µg/Kg	1	7/2/2003 12:38:00 AM
Tetrachloroethene	U	5.0		µg/Kg	1	7/2/2003 12:38:00 AM
Toluene	U	5.0		µg/Kg	1	7/2/2003 12:38:00 AM
trans-1,2-Dichloroethene	U	5.0		µg/Kg	1	7/2/2003 12:38:00 AM
trans-1,3-Dichloropropene	U	5.0		µg/Kg	1	7/2/2003 12:38:00 AM
Trichloroethene	3	5.0	J	µg/Kg	1	7/2/2003 12:38:00 AM
Trichlorofluoromethane	U	5.0		µg/Kg	1	7/2/2003 12:38:00 AM

Qualifiers:

ND - Not Detected at the Reporting Limit

J - Analyte detected below quantitation limits

B - Analyte detected in the associated Method Blank

* - Value exceeds Maximum Contaminant Level

S - Spike Recovery outside accepted recovery limits

R - RPD outside accepted recovery limits

E - Value above quantitation range

American Analytical Laboratories, Inc.

Date: *28-Jul-03*

CLIENT:	AKRF, Inc	**Client Sample ID:**	B14 (2'-3.5')
Lab Order:	0306117	**Tag Number:**	
Project:	Greenpoint Lumber Yard Brooklyn, NY	**Collection Date:**	6/26/2003
Lab ID:	0306117-15A	**Matrix:**	SOIL

Analyses	Result	Limit	Qual	Units	DF	Date Analyzed
VOLATILES SW-846 METHOD 8260		**SW8260B**				Analyst: **LDS**
Vinyl acetate	U	5.0		µg/Kg	1	7/2/2003 12:38:00 AM
Vinyl chloride	U	5.0		µg/Kg	1	7/2/2003 12:38:00 AM

Qualifiers:

ND - Not Detected at the Reporting Limit

J - Analyte detected below quantitation limits

B - Analyte detected in the associated Method Blank

* - Value exceeds Maximum Contaminant Level

S - Spike Recovery outside accepted recovery limits

R - RPD outside accepted recovery limits

E - Value above quantitation range

American Analytical Laboratories, Inc.

Date: *28-Jul-03*

CLIENT:	AKRF, Inc	**Client Sample ID:**	B14 (6'-8')
Lab Order:	0306117	**Tag Number:**	
Project:	Greenpoint Lumber Yard Brooklyn, NY	**Collection Date:**	6/26/2003
Lab ID:	0306117-16A	**Matrix:**	SOIL

Analyses	Result	Limit	Qual	Units	DF	Date Analyzed
VOLATILES SW-846 METHOD 8260		**SW8260B**				Analyst: **LDS**
1,1,1,2-Tetrachloroethane	U	5.0		µg/Kg	1	7/2/2003 1:16:00 AM
1,1,1-Trichloroethane	U	5.0		µg/Kg	1	7/2/2003 1:16:00 AM
1,1,2,2-Tetrachloroethane	U	5.0		µg/Kg	1	7/2/2003 1:16:00 AM
1,1,2-Trichloro-1,2,2-trifluoroethane	U	5.0		µg/Kg	1	7/2/2003 1:16:00 AM
1,1,2-Trichloroethane	U	5.0		µg/Kg	1	7/2/2003 1:16:00 AM
1,1-Dichloroethane	U	5.0		µg/Kg	1	7/2/2003 1:16:00 AM
1,1-Dichloroethene	U	5.0		µg/Kg	1	7/2/2003 1:16:00 AM
1,1-Dichloropropene	U	5.0		µg/Kg	1	7/2/2003 1:16:00 AM
1,2,3-Trichlorobenzene	U	5.0		µg/Kg	1	7/2/2003 1:16:00 AM
1,2,3-Trichloropropane	U	5.0		µg/Kg	1	7/2/2003 1:16:00 AM
1,2,4,5-Tetramethylbenzene	U	5.0		µg/Kg	1	7/2/2003 1:16:00 AM
1,2,4-Trichlorobenzene	U	5.0		µg/Kg	1	7/2/2003 1:16:00 AM
1,2,4-Trimethylbenzene	U	5.0		µg/Kg	1	7/2/2003 1:16:00 AM
1,2-Dibromo-3-chloropropane	U	5.0		µg/Kg	1	7/2/2003 1:16:00 AM
1,2-Dibromoethane	U	5.0		µg/Kg	1	7/2/2003 1:16:00 AM
1,2-Dichlorobenzene	U	5.0		µg/Kg	1	7/2/2003 1:16:00 AM
1,2-Dichloroethane	U	5.0		µg/Kg	1	7/2/2003 1:16:00 AM
1,2-Dichloropropane	U	5.0		µg/Kg	1	7/2/2003 1:16:00 AM
1,3,5-Trimethylbenzene	U	5.0		µg/Kg	1	7/2/2003 1:16:00 AM
1,3-Dichlorobenzene	U	5.0		µg/Kg	1	7/2/2003 1:16:00 AM
1,3-dichloropropane	U	5.0		µg/Kg	1	7/2/2003 1:16:00 AM
1,4-Dichlorobenzene	U	5.0		µg/Kg	1	7/2/2003 1:16:00 AM
2,2-Dichloropropane	U	5.0		µg/Kg	1	7/2/2003 1:16:00 AM
2-Butanone	U	5.0		µg/Kg	1	7/2/2003 1:16:00 AM
2-Chloroethyl vinyl ether	U	5.0		µg/Kg	1	7/2/2003 1:16:00 AM
2-Chlorotoluene	U	5.0		µg/Kg	1	7/2/2003 1:16:00 AM
2-Hexanone	U	5.0		µg/Kg	1	7/2/2003 1:16:00 AM
4-Chlorotoluene	U	5.0		µg/Kg	1	7/2/2003 1:16:00 AM
4-Isopropyltoluene	U	5.0		µg/Kg	1	7/2/2003 1:16:00 AM
4-Methyl-2-pentanone	U	5.0		µg/Kg	1	7/2/2003 1:16:00 AM
Acetone	U	5.0		µg/Kg	1	7/2/2003 1:16:00 AM
Acrolein	U	25		µg/Kg	1	7/2/2003 1:16:00 AM
Acrylonitrile	U	5.0		µg/Kg	1	7/2/2003 1:16:00 AM
Benzene	U	5.0		µg/Kg	1	7/2/2003 1:16:00 AM
Bromobenzene	U	5.0		µg/Kg	1	7/2/2003 1:16:00 AM
Bromochloromethane	U	5.0		µg/Kg	1	7/2/2003 1:16:00 AM
Bromodichloromethane	U	5.0		µg/Kg	1	7/2/2003 1:16:00 AM
Bromoform	U	5.0		µg/Kg	1	7/2/2003 1:16:00 AM
Bromomethane	U	5.0		µg/Kg	1	7/2/2003 1:16:00 AM
Carbon disulfide	U	5.0		µg/Kg	1	7/2/2003 1:16:00 AM

Qualifiers:

ND - Not Detected at the Reporting Limit

J - Analyte detected below quantitation limits

B - Analyte detected in the associated Method Blank

* - Value exceeds Maximum Contaminant Level

S - Spike Recovery outside accepted recovery limits

R - RPD outside accepted recovery limits

E - Value above quantitation range

American Analytical Laboratories, Inc.

Date: *28-Jul-03*

CLIENT:	AKRF, Inc	**Client Sample ID:**	B14 (6'-8')
Lab Order:	0306117	**Tag Number:**	
Project:	Greenpoint Lumber Yard Brooklyn, NY	**Collection Date:**	6/26/2003
Lab ID:	0306117-16A	**Matrix:**	SOIL

Analyses	Result	Limit	Qual	Units	DF	Date Analyzed
VOLATILES SW-846 METHOD 8260		**SW8260B**				Analyst: **LDS**
Carbon tetrachloride	U	5.0		µg/Kg	1	7/2/2003 1:16:00 AM
Chlorobenzene	U	5.0		µg/Kg	1	7/2/2003 1:16:00 AM
Chlorodifluoromethane	U	5.0		µg/Kg	1	7/2/2003 1:16:00 AM
Chloroethane	U	5.0		µg/Kg	1	7/2/2003 1:16:00 AM
Chloroform	U	5.0		µg/Kg	1	7/2/2003 1:16:00 AM
Chloromethane	U	5.0		µg/Kg	1	7/2/2003 1:16:00 AM
cis-1,2-Dichloroethene	U	5.0		µg/Kg	1	7/2/2003 1:16:00 AM
cis-1,3-Dichloropropene	U	5.0		µg/Kg	1	7/2/2003 1:16:00 AM
Dibromochloromethane	U	5.0		µg/Kg	1	7/2/2003 1:16:00 AM
Dibromomethane	U	5.0		µg/Kg	1	7/2/2003 1:16:00 AM
Dichlorodifluoromethane	U	5.0		µg/Kg	1	7/2/2003 1:16:00 AM
Diisopropyl ether	U	5.0		µg/Kg	1	7/2/2003 1:16:00 AM
Ethanol	U	25		µg/Kg	1	7/2/2003 1:16:00 AM
Ethyl acetate	U	5.0		µg/Kg	1	7/2/2003 1:16:00 AM
Ethylbenzene	U	5.0		µg/Kg	1	7/2/2003 1:16:00 AM
Freon-114	U	5.0		µg/Kg	1	7/2/2003 1:16:00 AM
Hexachlorobutadiene	U	5.0		µg/Kg	1	7/2/2003 1:16:00 AM
Isopropyl acetate	U	5.0		µg/Kg	1	7/2/2003 1:16:00 AM
Isopropylbenzene	U	5.0		µg/Kg	1	7/2/2003 1:16:00 AM
m,p-Xylene	U	10		µg/Kg	1	7/2/2003 1:16:00 AM
Methyl tert-butyl ether	U	5.0		µg/Kg	1	7/2/2003 1:16:00 AM
Methylene chloride	U	5.0		µg/Kg	1	7/2/2003 1:16:00 AM
Naphthalene	U	5.0		µg/Kg	1	7/2/2003 1:16:00 AM
n-Butyl acetate	U	5.0		µg/Kg	1	7/2/2003 1:16:00 AM
n-Butylbenzene	U	5.0		µg/Kg	1	7/2/2003 1:16:00 AM
n-Propyl acetate	U	5.0		µg/Kg	1	7/2/2003 1:16:00 AM
n-Propylbenzene	U	5.0		µg/Kg	1	7/2/2003 1:16:00 AM
o-Xylene	U	5.0		µg/Kg	1	7/2/2003 1:16:00 AM
p-Diethylbenzene	U	5.0		µg/Kg	1	7/2/2003 1:16:00 AM
p-Ethyltoluene	U	5.0		µg/Kg	1	7/2/2003 1:16:00 AM
sec-Butylbenzene	U	5.0		µg/Kg	1	7/2/2003 1:16:00 AM
Styrene	U	5.0		µg/Kg	1	7/2/2003 1:16:00 AM
t-Butyl alcohol	U	5.0		µg/Kg	1	7/2/2003 1:16:00 AM
tert-Butylbenzene	U	5.0		µg/Kg	1	7/2/2003 1:16:00 AM
Tetrachloroethene	U	5.0		µg/Kg	1	7/2/2003 1:16:00 AM
Toluene	U	5.0		µg/Kg	1	7/2/2003 1:16:00 AM
trans-1,2-Dichloroethene	U	5.0		µg/Kg	1	7/2/2003 1:16:00 AM
trans-1,3-Dichloropropene	U	5.0		µg/Kg	1	7/2/2003 1:16:00 AM
Trichloroethene	U	5.0		µg/Kg	1	7/2/2003 1:16:00 AM
Trichlorofluoromethane	U	5.0		µg/Kg	1	7/2/2003 1:16:00 AM

Qualifiers:

ND - Not Detected at the Reporting Limit

J - Analyte detected below quantitation limits

B - Analyte detected in the associated Method Blank

* - Value exceeds Maximum Contaminant Level

S - Spike Recovery outside accepted recovery limits

R - RPD outside accepted recovery limits

E - Value above quantitation range

American Analytical Laboratories, Inc.

Date: *28-Jul-03*

CLIENT:	AKRF, Inc	**Client Sample ID:**	B14 (6'-8')
Lab Order:	0306117	**Tag Number:**	
Project:	Greenpoint Lumber Yard Brooklyn, NY	**Collection Date:**	6/26/2003
Lab ID:	0306117-16A	**Matrix:**	SOIL

Analyses	Result	Limit	Qual	Units	DF	Date Analyzed
VOLATILES SW-846 METHOD 8260		**SW8260B**				Analyst: **LDS**
Vinyl acetate	U	5.0		µg/Kg	1	7/2/2003 1:16:00 AM
Vinyl chloride	U	5.0		µg/Kg	1	7/2/2003 1:16:00 AM

Qualifiers:

ND - Not Detected at the Reporting Limit

J - Analyte detected below quantitation limits

B - Analyte detected in the associated Method Blank

* - Value exceeds Maximum Contaminant Level

S - Spike Recovery outside accepted recovery limits

R - RPD outside accepted recovery limits

E - Value above quantitation range

American Analytical Laboratories, Inc.

Date: *28-Jul-03*

CLIENT:	AKRF, Inc	**Client Sample ID:**	B15 (8.0'-9.0')
Lab Order:	0306117	**Tag Number:**	
Project:	Greenpoint Lumber Yard Brooklyn, NY	**Collection Date:**	6/26/2003
Lab ID:	0306117-17A	**Matrix:**	SOIL

Analyses	Result	Limit	Qual	Units	DF	Date Analyzed
VOLATILES SW-846 METHOD 8260		**SW8260B**				Analyst: **LDS**
1,1,1,2-Tetrachloroethane	U	5.0		µg/Kg	1	7/2/2003 1:54:00 AM
1,1,1-Trichloroethane	U	5.0		µg/Kg	1	7/2/2003 1:54:00 AM
1,1,2,2-Tetrachloroethane	U	5.0		µg/Kg	1	7/2/2003 1:54:00 AM
1,1,2-Trichloro-1,2,2-trifluoroethane	U	5.0		µg/Kg	1	7/2/2003 1:54:00 AM
1,1,2-Trichloroethane	U	5.0		µg/Kg	1	7/2/2003 1:54:00 AM
1,1-Dichloroethane	U	5.0		µg/Kg	1	7/2/2003 1:54:00 AM
1,1-Dichloroethene	U	5.0		µg/Kg	1	7/2/2003 1:54:00 AM
1,1-Dichloropropene	U	5.0		µg/Kg	1	7/2/2003 1:54:00 AM
1,2,3-Trichlorobenzene	U	5.0		µg/Kg	1	7/2/2003 1:54:00 AM
1,2,3-Trichloropropane	U	5.0		µg/Kg	1	7/2/2003 1:54:00 AM
1,2,4,5-Tetramethylbenzene	U	5.0		µg/Kg	1	7/2/2003 1:54:00 AM
1,2,4-Trichlorobenzene	U	5.0		µg/Kg	1	7/2/2003 1:54:00 AM
1,2,4-Trimethylbenzene	U	5.0		µg/Kg	1	7/2/2003 1:54:00 AM
1,2-Dibromo-3-chloropropane	U	5.0		µg/Kg	1	7/2/2003 1:54:00 AM
1,2-Dibromoethane	U	5.0		µg/Kg	1	7/2/2003 1:54:00 AM
1,2-Dichlorobenzene	U	5.0		µg/Kg	1	7/2/2003 1:54:00 AM
1,2-Dichloroethane	U	5.0		µg/Kg	1	7/2/2003 1:54:00 AM
1,2-Dichloropropane	U	5.0		µg/Kg	1	7/2/2003 1:54:00 AM
1,3,5-Trimethylbenzene	U	5.0		µg/Kg	1	7/2/2003 1:54:00 AM
1,3-Dichlorobenzene	U	5.0		µg/Kg	1	7/2/2003 1:54:00 AM
1,3-dichloropropane	U	5.0		µg/Kg	1	7/2/2003 1:54:00 AM
1,4-Dichlorobenzene	U	5.0		µg/Kg	1	7/2/2003 1:54:00 AM
2,2-Dichloropropane	U	5.0		µg/Kg	1	7/2/2003 1:54:00 AM
2-Butanone	U	5.0		µg/Kg	1	7/2/2003 1:54:00 AM
2-Chloroethyl vinyl ether	U	5.0		µg/Kg	1	7/2/2003 1:54:00 AM
2-Chlorotoluene	U	5.0		µg/Kg	1	7/2/2003 1:54:00 AM
2-Hexanone	U	5.0		µg/Kg	1	7/2/2003 1:54:00 AM
4-Chlorotoluene	U	5.0		µg/Kg	1	7/2/2003 1:54:00 AM
4-Isopropyltoluene	U	5.0		µg/Kg	1	7/2/2003 1:54:00 AM
4-Methyl-2-pentanone	U	5.0		µg/Kg	1	7/2/2003 1:54:00 AM
Acetone	44	5.0		µg/Kg	1	7/2/2003 1:54:00 AM
Acrolein	U	25		µg/Kg	1	7/2/2003 1:54:00 AM
Acrylonitrile	U	5.0		µg/Kg	1	7/2/2003 1:54:00 AM
Benzene	U	5.0		µg/Kg	1	7/2/2003 1:54:00 AM
Bromobenzene	U	5.0		µg/Kg	1	7/2/2003 1:54:00 AM
Bromochloromethane	U	5.0		µg/Kg	1	7/2/2003 1:54:00 AM
Bromodichloromethane	U	5.0		µg/Kg	1	7/2/2003 1:54:00 AM
Bromoform	U	5.0		µg/Kg	1	7/2/2003 1:54:00 AM
Bromomethane	U	5.0		µg/Kg	1	7/2/2003 1:54:00 AM
Carbon disulfide	U	5.0		µg/Kg	1	7/2/2003 1:54:00 AM

Qualifiers:

ND - Not Detected at the Reporting Limit

J - Analyte detected below quantitation limits

B - Analyte detected in the associated Method Blank

* - Value exceeds Maximum Contaminant Level

S - Spike Recovery outside accepted recovery limits

R - RPD outside accepted recovery limits

E - Value above quantitation range

American Analytical Laboratories, Inc.

Date: *28-Jul-03*

CLIENT:	AKRF, Inc	**Client Sample ID:**	B15 (8.0'-9.0')
Lab Order:	0306117	**Tag Number:**	
Project:	Greenpoint Lumber Yard Brooklyn, NY	**Collection Date:**	6/26/2003
Lab ID:	0306117-17A	**Matrix:**	SOIL

Analyses	Result	Limit	Qual	Units	DF	Date Analyzed
VOLATILES SW-846 METHOD 8260		**SW8260B**				Analyst: **LDS**
Carbon tetrachloride	U	5.0		µg/Kg	1	7/2/2003 1:54:00 AM
Chlorobenzene	U	5.0		µg/Kg	1	7/2/2003 1:54:00 AM
Chlorodifluoromethane	U	5.0		µg/Kg	1	7/2/2003 1:54:00 AM
Chloroethane	U	5.0		µg/Kg	1	7/2/2003 1:54:00 AM
Chloroform	U	5.0		µg/Kg	1	7/2/2003 1:54:00 AM
Chloromethane	U	5.0		µg/Kg	1	7/2/2003 1:54:00 AM
cis-1,2-Dichloroethene	U	5.0		µg/Kg	1	7/2/2003 1:54:00 AM
cis-1,3-Dichloropropene	U	5.0		µg/Kg	1	7/2/2003 1:54:00 AM
Dibromochloromethane	U	5.0		µg/Kg	1	7/2/2003 1:54:00 AM
Dibromomethane	U	5.0		µg/Kg	1	7/2/2003 1:54:00 AM
Dichlorodifluoromethane	U	5.0		µg/Kg	1	7/2/2003 1:54:00 AM
Diisopropyl ether	U	5.0		µg/Kg	1	7/2/2003 1:54:00 AM
Ethanol	U	25		µg/Kg	1	7/2/2003 1:54:00 AM
Ethyl acetate	U	5.0		µg/Kg	1	7/2/2003 1:54:00 AM
Ethylbenzene	U	5.0		µg/Kg	1	7/2/2003 1:54:00 AM
Freon-114	U	5.0		µg/Kg	1	7/2/2003 1:54:00 AM
Hexachlorobutadiene	U	5.0		µg/Kg	1	7/2/2003 1:54:00 AM
Isopropyl acetate	U	5.0		µg/Kg	1	7/2/2003 1:54:00 AM
Isopropylbenzene	U	5.0		µg/Kg	1	7/2/2003 1:54:00 AM
m,p-Xylene	U	10		µg/Kg	1	7/2/2003 1:54:00 AM
Methyl tert-butyl ether	U	5.0		µg/Kg	1	7/2/2003 1:54:00 AM
Methylene chloride	U	5.0		µg/Kg	1	7/2/2003 1:54:00 AM
Naphthalene	U	5.0		µg/Kg	1	7/2/2003 1:54:00 AM
n-Butyl acetate	U	5.0		µg/Kg	1	7/2/2003 1:54:00 AM
n-Butylbenzene	U	5.0		µg/Kg	1	7/2/2003 1:54:00 AM
n-Propyl acetate	U	5.0		µg/Kg	1	7/2/2003 1:54:00 AM
n-Propylbenzene	U	5.0		µg/Kg	1	7/2/2003 1:54:00 AM
o-Xylene	U	5.0		µg/Kg	1	7/2/2003 1:54:00 AM
p-Diethylbenzene	U	5.0		µg/Kg	1	7/2/2003 1:54:00 AM
p-Ethyltoluene	U	5.0		µg/Kg	1	7/2/2003 1:54:00 AM
sec-Butylbenzene	U	5.0		µg/Kg	1	7/2/2003 1:54:00 AM
Styrene	U	5.0		µg/Kg	1	7/2/2003 1:54:00 AM
t-Butyl alcohol	U	5.0		µg/Kg	1	7/2/2003 1:54:00 AM
tert-Butylbenzene	U	5.0		µg/Kg	1	7/2/2003 1:54:00 AM
Tetrachloroethene	U	5.0		µg/Kg	1	7/2/2003 1:54:00 AM
Toluene	U	5.0		µg/Kg	1	7/2/2003 1:54:00 AM
trans-1,2-Dichloroethene	U	5.0		µg/Kg	1	7/2/2003 1:54:00 AM
trans-1,3-Dichloropropene	U	5.0		µg/Kg	1	7/2/2003 1:54:00 AM
Trichloroethene	U	5.0		µg/Kg	1	7/2/2003 1:54:00 AM
Trichlorofluoromethane	U	5.0		µg/Kg	1	7/2/2003 1:54:00 AM

Qualifiers:

ND - Not Detected at the Reporting Limit

J - Analyte detected below quantitation limits

B - Analyte detected in the associated Method Blank

* - Value exceeds Maximum Contaminant Level

S - Spike Recovery outside accepted recovery limits

R - RPD outside accepted recovery limits

E - Value above quantitation range

American Analytical Laboratories, Inc.

Date: *28-Jul-03*

CLIENT:	AKRF, Inc	**Client Sample ID:**	B15 (8.0'-9.0')
Lab Order:	0306117	**Tag Number:**	
Project:	Greenpoint Lumber Yard Brooklyn, NY	**Collection Date:**	6/26/2003
Lab ID:	0306117-17A	**Matrix:**	SOIL

Analyses	Result	Limit	Qual	Units	DF	Date Analyzed
VOLATILES SW-846 METHOD 8260		**SW8260B**				Analyst: **LDS**
Vinyl acetate	U	5.0		µg/Kg	1	7/2/2003 1:54:00 AM
Vinyl chloride	U	5.0		µg/Kg	1	7/2/2003 1:54:00 AM

Qualifiers:

ND - Not Detected at the Reporting Limit

J - Analyte detected below quantitation limits

B - Analyte detected in the associated Method Blank

* - Value exceeds Maximum Contaminant Level

S - Spike Recovery outside accepted recovery limits

R - RPD outside accepted recovery limits

E - Value above quantitation range

American Analytical Laboratories, Inc.

Date: *28-Jul-03*

CLIENT:	AKRF, Inc	**Client Sample ID:**	B15 (0.5'-2')
Lab Order:	0306117	**Tag Number:**	
Project:	Greenpoint Lumber Yard Brooklyn, NY	**Collection Date:**	6/26/2003
Lab ID:	0306117-18A	**Matrix:**	SOIL

Analyses	Result	Limit	Qual	Units	DF	Date Analyzed
VOLATILES SW-846 METHOD 8260		**SW8260B**				Analyst: **LDS**
1,1,1,2-Tetrachloroethane	U	5.0		µg/Kg	1	7/2/2003 2:32:00 AM
1,1,1-Trichloroethane	U	5.0		µg/Kg	1	7/2/2003 2:32:00 AM
1,1,2,2-Tetrachloroethane	U	5.0		µg/Kg	1	7/2/2003 2:32:00 AM
1,1,2-Trichloro-1,2,2-trifluoroethane	U	5.0		µg/Kg	1	7/2/2003 2:32:00 AM
1,1,2-Trichloroethane	U	5.0		µg/Kg	1	7/2/2003 2:32:00 AM
1,1-Dichloroethane	U	5.0		µg/Kg	1	7/2/2003 2:32:00 AM
1,1-Dichloroethene	U	5.0		µg/Kg	1	7/2/2003 2:32:00 AM
1,1-Dichloropropene	U	5.0		µg/Kg	1	7/2/2003 2:32:00 AM
1,2,3-Trichlorobenzene	U	5.0		µg/Kg	1	7/2/2003 2:32:00 AM
1,2,3-Trichloropropane	U	5.0		µg/Kg	1	7/2/2003 2:32:00 AM
1,2,4,5-Tetramethylbenzene	U	5.0		µg/Kg	1	7/2/2003 2:32:00 AM
1,2,4-Trichlorobenzene	U	5.0		µg/Kg	1	7/2/2003 2:32:00 AM
1,2,4-Trimethylbenzene	U	5.0		µg/Kg	1	7/2/2003 2:32:00 AM
1,2-Dibromo-3-chloropropane	U	5.0		µg/Kg	1	7/2/2003 2:32:00 AM
1,2-Dibromoethane	U	5.0		µg/Kg	1	7/2/2003 2:32:00 AM
1,2-Dichlorobenzene	U	5.0		µg/Kg	1	7/2/2003 2:32:00 AM
1,2-Dichloroethane	U	5.0		µg/Kg	1	7/2/2003 2:32:00 AM
1,2-Dichloropropane	U	5.0		µg/Kg	1	7/2/2003 2:32:00 AM
1,3,5-Trimethylbenzene	U	5.0		µg/Kg	1	7/2/2003 2:32:00 AM
1,3-Dichlorobenzene	U	5.0		µg/Kg	1	7/2/2003 2:32:00 AM
1,3-dichloropropane	U	5.0		µg/Kg	1	7/2/2003 2:32:00 AM
1,4-Dichlorobenzene	U	5.0		µg/Kg	1	7/2/2003 2:32:00 AM
2,2-Dichloropropane	U	5.0		µg/Kg	1	7/2/2003 2:32:00 AM
2-Butanone	U	5.0		µg/Kg	1	7/2/2003 2:32:00 AM
2-Chloroethyl vinyl ether	U	5.0		µg/Kg	1	7/2/2003 2:32:00 AM
2-Chlorotoluene	U	5.0		µg/Kg	1	7/2/2003 2:32:00 AM
2-Hexanone	U	5.0		µg/Kg	1	7/2/2003 2:32:00 AM
4-Chlorotoluene	U	5.0		µg/Kg	1	7/2/2003 2:32:00 AM
4-Isopropyltoluene	U	5.0		µg/Kg	1	7/2/2003 2:32:00 AM
4-Methyl-2-pentanone	U	5.0		µg/Kg	1	7/2/2003 2:32:00 AM
Acetone	U	5.0		µg/Kg	1	7/2/2003 2:32:00 AM
Acrolein	U	25		µg/Kg	1	7/2/2003 2:32:00 AM
Acrylonitrile	U	5.0		µg/Kg	1	7/2/2003 2:32:00 AM
Benzene	U	5.0		µg/Kg	1	7/2/2003 2:32:00 AM
Bromobenzene	U	5.0		µg/Kg	1	7/2/2003 2:32:00 AM
Bromochloromethane	U	5.0		µg/Kg	1	7/2/2003 2:32:00 AM
Bromodichloromethane	U	5.0		µg/Kg	1	7/2/2003 2:32:00 AM
Bromoform	U	5.0		µg/Kg	1	7/2/2003 2:32:00 AM
Bromomethane	U	5.0		µg/Kg	1	7/2/2003 2:32:00 AM
Carbon disulfide	U	5.0		µg/Kg	1	7/2/2003 2:32:00 AM

Qualifiers:

ND - Not Detected at the Reporting Limit

J - Analyte detected below quantitation limits

B - Analyte detected in the associated Method Blank

* - Value exceeds Maximum Contaminant Level

S - Spike Recovery outside accepted recovery limits

R - RPD outside accepted recovery limits

E - Value above quantitation range

American Analytical Laboratories, Inc.

Date: *28-Jul-03*

CLIENT:	AKRF, Inc	**Client Sample ID:**	B15 (0.5'-2')
Lab Order:	0306117	**Tag Number:**	
Project:	Greenpoint Lumber Yard Brooklyn, NY	**Collection Date:**	6/26/2003
Lab ID:	0306117-18A	**Matrix:**	SOIL

Analyses	Result	Limit	Qual	Units	DF	Date Analyzed
VOLATILES SW-846 METHOD 8260		**SW8260B**				Analyst: **LDS**
Carbon tetrachloride	U	5.0		µg/Kg	1	7/2/2003 2:32:00 AM
Chlorobenzene	U	5.0		µg/Kg	1	7/2/2003 2:32:00 AM
Chlorodifluoromethane	U	5.0		µg/Kg	1	7/2/2003 2:32:00 AM
Chloroethane	U	5.0		µg/Kg	1	7/2/2003 2:32:00 AM
Chloroform	U	5.0		µg/Kg	1	7/2/2003 2:32:00 AM
Chloromethane	U	5.0		µg/Kg	1	7/2/2003 2:32:00 AM
cis-1,2-Dichloroethene	U	5.0		µg/Kg	1	7/2/2003 2:32:00 AM
cis-1,3-Dichloropropene	U	5.0		µg/Kg	1	7/2/2003 2:32:00 AM
Dibromochloromethane	U	5.0		µg/Kg	1	7/2/2003 2:32:00 AM
Dibromomethane	U	5.0		µg/Kg	1	7/2/2003 2:32:00 AM
Dichlorodifluoromethane	U	5.0		µg/Kg	1	7/2/2003 2:32:00 AM
Diisopropyl ether	U	5.0		µg/Kg	1	7/2/2003 2:32:00 AM
Ethanol	U	25		µg/Kg	1	7/2/2003 2:32:00 AM
Ethyl acetate	U	5.0		µg/Kg	1	7/2/2003 2:32:00 AM
Ethylbenzene	U	5.0		µg/Kg	1	7/2/2003 2:32:00 AM
Freon-114	U	5.0		µg/Kg	1	7/2/2003 2:32:00 AM
Hexachlorobutadiene	U	5.0		µg/Kg	1	7/2/2003 2:32:00 AM
Isopropyl acetate	U	5.0		µg/Kg	1	7/2/2003 2:32:00 AM
Isopropylbenzene	U	5.0		µg/Kg	1	7/2/2003 2:32:00 AM
m,p-Xylene	U	10		µg/Kg	1	7/2/2003 2:32:00 AM
Methyl tert-butyl ether	U	5.0		µg/Kg	1	7/2/2003 2:32:00 AM
Methylene chloride	U	5.0		µg/Kg	1	7/2/2003 2:32:00 AM
Naphthalene	U	5.0		µg/Kg	1	7/2/2003 2:32:00 AM
n-Butyl acetate	U	5.0		µg/Kg	1	7/2/2003 2:32:00 AM
n-Butylbenzene	U	5.0		µg/Kg	1	7/2/2003 2:32:00 AM
n-Propyl acetate	U	5.0		µg/Kg	1	7/2/2003 2:32:00 AM
n-Propylbenzene	U	5.0		µg/Kg	1	7/2/2003 2:32:00 AM
o-Xylene	U	5.0		µg/Kg	1	7/2/2003 2:32:00 AM
p-Diethylbenzene	U	5.0		µg/Kg	1	7/2/2003 2:32:00 AM
p-Ethyltoluene	U	5.0		µg/Kg	1	7/2/2003 2:32:00 AM
sec-Butylbenzene	U	5.0		µg/Kg	1	7/2/2003 2:32:00 AM
Styrene	U	5.0		µg/Kg	1	7/2/2003 2:32:00 AM
t-Butyl alcohol	U	5.0		µg/Kg	1	7/2/2003 2:32:00 AM
tert-Butylbenzene	U	5.0		µg/Kg	1	7/2/2003 2:32:00 AM
Tetrachloroethene	U	5.0		µg/Kg	1	7/2/2003 2:32:00 AM
Toluene	U	5.0		µg/Kg	1	7/2/2003 2:32:00 AM
trans-1,2-Dichloroethene	U	5.0		µg/Kg	1	7/2/2003 2:32:00 AM
trans-1,3-Dichloropropene	U	5.0		µg/Kg	1	7/2/2003 2:32:00 AM
Trichloroethene	U	5.0		µg/Kg	1	7/2/2003 2:32:00 AM
Trichlorofluoromethane	U	5.0		µg/Kg	1	7/2/2003 2:32:00 AM

Qualifiers:

ND - Not Detected at the Reporting Limit

J - Analyte detected below quantitation limits

B - Analyte detected in the associated Method Blank

* - Value exceeds Maximum Contaminant Level

S - Spike Recovery outside accepted recovery limits

R - RPD outside accepted recovery limits

E - Value above quantitation range

American Analytical Laboratories, Inc.

Date: *28-Jul-03*

CLIENT:	AKRF, Inc	**Client Sample ID:**	B15 (0.5'-2')
Lab Order:	0306117	**Tag Number:**	
Project:	Greenpoint Lumber Yard Brooklyn, NY	**Collection Date:**	6/26/2003
Lab ID:	0306117-18A	**Matrix:**	SOIL

Analyses	Result	Limit	Qual	Units	DF	Date Analyzed
VOLATILES SW-846 METHOD 8260		**SW8260B**				Analyst: **LDS**
Vinyl acetate	U	5.0		µg/Kg	1	7/2/2003 2:32:00 AM
Vinyl chloride	U	5.0		µg/Kg	1	7/2/2003 2:32:00 AM

Qualifiers:

ND - Not Detected at the Reporting Limit

J - Analyte detected below quantitation limits

B - Analyte detected in the associated Method Blank

* - Value exceeds Maximum Contaminant Level

S - Spike Recovery outside accepted recovery limits

R - RPD outside accepted recovery limits

E - Value above quantitation range

American Analytical Laboratories, Inc.

Date: *28-Jul-03*

CLIENT:	AKRF, Inc	**Client Sample ID:**	MW15 (0.5'-2')
Lab Order:	0306117	**Tag Number:**	
Project:	Greenpoint Lumber Yard Brooklyn, NY	**Collection Date:**	6/26/2003
Lab ID:	0306117-19A	**Matrix:**	SOIL

Analyses	Result	Limit	Qual	Units	DF	Date Analyzed
VOLATILES SW-846 METHOD 8260		**SW8260B**				Analyst: **LDS**
1,1,1,2-Tetrachloroethane	U	5.0		µg/Kg	1	7/2/2003 3:10:00 AM
1,1,1-Trichloroethane	U	5.0		µg/Kg	1	7/2/2003 3:10:00 AM
1,1,2,2-Tetrachloroethane	U	5.0		µg/Kg	1	7/2/2003 3:10:00 AM
1,1,2-Trichloro-1,2,2-trifluoroethane	U	5.0		µg/Kg	1	7/2/2003 3:10:00 AM
1,1,2-Trichloroethane	U	5.0		µg/Kg	1	7/2/2003 3:10:00 AM
1,1-Dichloroethane	U	5.0		µg/Kg	1	7/2/2003 3:10:00 AM
1,1-Dichloroethene	U	5.0		µg/Kg	1	7/2/2003 3:10:00 AM
1,1-Dichloropropene	U	5.0		µg/Kg	1	7/2/2003 3:10:00 AM
1,2,3-Trichlorobenzene	U	5.0		µg/Kg	1	7/2/2003 3:10:00 AM
1,2,3-Trichloropropane	U	5.0		µg/Kg	1	7/2/2003 3:10:00 AM
1,2,4,5-Tetramethylbenzene	U	5.0		µg/Kg	1	7/2/2003 3:10:00 AM
1,2,4-Trichlorobenzene	U	5.0		µg/Kg	1	7/2/2003 3:10:00 AM
1,2,4-Trimethylbenzene	U	5.0		µg/Kg	1	7/2/2003 3:10:00 AM
1,2-Dibromo-3-chloropropane	U	5.0		µg/Kg	1	7/2/2003 3:10:00 AM
1,2-Dibromoethane	U	5.0		µg/Kg	1	7/2/2003 3:10:00 AM
1,2-Dichlorobenzene	U	5.0		µg/Kg	1	7/2/2003 3:10:00 AM
1,2-Dichloroethane	U	5.0		µg/Kg	1	7/2/2003 3:10:00 AM
1,2-Dichloropropane	U	5.0		µg/Kg	1	7/2/2003 3:10:00 AM
1,3,5-Trimethylbenzene	U	5.0		µg/Kg	1	7/2/2003 3:10:00 AM
1,3-Dichlorobenzene	U	5.0		µg/Kg	1	7/2/2003 3:10:00 AM
1,3-dichloropropane	U	5.0		µg/Kg	1	7/2/2003 3:10:00 AM
1,4-Dichlorobenzene	U	5.0		µg/Kg	1	7/2/2003 3:10:00 AM
2,2-Dichloropropane	U	5.0		µg/Kg	1	7/2/2003 3:10:00 AM
2-Butanone	U	5.0		µg/Kg	1	7/2/2003 3:10:00 AM
2-Chloroethyl vinyl ether	U	5.0		µg/Kg	1	7/2/2003 3:10:00 AM
2-Chlorotoluene	U	5.0		µg/Kg	1	7/2/2003 3:10:00 AM
2-Hexanone	U	5.0		µg/Kg	1	7/2/2003 3:10:00 AM
4-Chlorotoluene	U	5.0		µg/Kg	1	7/2/2003 3:10:00 AM
4-Isopropyltoluene	U	5.0		µg/Kg	1	7/2/2003 3:10:00 AM
4-Methyl-2-pentanone	U	5.0		µg/Kg	1	7/2/2003 3:10:00 AM
Acetone	U	5.0		µg/Kg	1	7/2/2003 3:10:00 AM
Acrolein	U	25		µg/Kg	1	7/2/2003 3:10:00 AM
Acrylonitrile	U	5.0		µg/Kg	1	7/2/2003 3:10:00 AM
Benzene	U	5.0		µg/Kg	1	7/2/2003 3:10:00 AM
Bromobenzene	U	5.0		µg/Kg	1	7/2/2003 3:10:00 AM
Bromochloromethane	U	5.0		µg/Kg	1	7/2/2003 3:10:00 AM
Bromodichloromethane	U	5.0		µg/Kg	1	7/2/2003 3:10:00 AM
Bromoform	U	5.0		µg/Kg	1	7/2/2003 3:10:00 AM
Bromomethane	U	5.0		µg/Kg	1	7/2/2003 3:10:00 AM
Carbon disulfide	U	5.0		µg/Kg	1	7/2/2003 3:10:00 AM

Qualifiers:

ND - Not Detected at the Reporting Limit

J - Analyte detected below quantitation limits

B - Analyte detected in the associated Method Blank

* - Value exceeds Maximum Contaminant Level

S - Spike Recovery outside accepted recovery limits

R - RPD outside accepted recovery limits

E - Value above quantitation range

American Analytical Laboratories, Inc.

Date: *28-Jul-03*

CLIENT:	AKRF, Inc	**Client Sample ID:**	MW15 (0.5'-2')
Lab Order:	0306117	**Tag Number:**	
Project:	Greenpoint Lumber Yard Brooklyn, NY	**Collection Date:**	6/26/2003
Lab ID:	0306117-19A	**Matrix:**	SOIL

Analyses	Result	Limit	Qual	Units	DF	Date Analyzed
VOLATILES SW-846 METHOD 8260		**SW8260B**				Analyst: **LDS**
Carbon tetrachloride	U	5.0		µg/Kg	1	7/2/2003 3:10:00 AM
Chlorobenzene	U	5.0		µg/Kg	1	7/2/2003 3:10:00 AM
Chlorodifluoromethane	U	5.0		µg/Kg	1	7/2/2003 3:10:00 AM
Chloroethane	U	5.0		µg/Kg	1	7/2/2003 3:10:00 AM
Chloroform	U	5.0		µg/Kg	1	7/2/2003 3:10:00 AM
Chloromethane	U	5.0		µg/Kg	1	7/2/2003 3:10:00 AM
cis-1,2-Dichloroethene	U	5.0		µg/Kg	1	7/2/2003 3:10:00 AM
cis-1,3-Dichloropropene	U	5.0		µg/Kg	1	7/2/2003 3:10:00 AM
Dibromochloromethane	U	5.0		µg/Kg	1	7/2/2003 3:10:00 AM
Dibromomethane	U	5.0		µg/Kg	1	7/2/2003 3:10:00 AM
Dichlorodifluoromethane	U	5.0		µg/Kg	1	7/2/2003 3:10:00 AM
Diisopropyl ether	U	5.0		µg/Kg	1	7/2/2003 3:10:00 AM
Ethanol	U	25		µg/Kg	1	7/2/2003 3:10:00 AM
Ethyl acetate	U	5.0		µg/Kg	1	7/2/2003 3:10:00 AM
Ethylbenzene	U	5.0		µg/Kg	1	7/2/2003 3:10:00 AM
Freon-114	U	5.0		µg/Kg	1	7/2/2003 3:10:00 AM
Hexachlorobutadiene	U	5.0		µg/Kg	1	7/2/2003 3:10:00 AM
Isopropyl acetate	U	5.0		µg/Kg	1	7/2/2003 3:10:00 AM
Isopropylbenzene	U	5.0		µg/Kg	1	7/2/2003 3:10:00 AM
m,p-Xylene	U	10		µg/Kg	1	7/2/2003 3:10:00 AM
Methyl tert-butyl ether	U	5.0		µg/Kg	1	7/2/2003 3:10:00 AM
Methylene chloride	U	5.0		µg/Kg	1	7/2/2003 3:10:00 AM
Naphthalene	U	5.0		µg/Kg	1	7/2/2003 3.10:00 AM
n-Butyl acetate	U	5.0		µg/Kg	1	7/2/2003 3:10:00 AM
n-Butylbenzene	U	5.0		µg/Kg	1	7/2/2003 3:10:00 AM
n-Propyl acetate	U	5.0		µg/Kg	1	7/2/2003 3:10:00 AM
n-Propylbenzene	U	5.0		µg/Kg	1	7/2/2003 3:10:00 AM
o-Xylene	U	5.0		µg/Kg	1	7/2/2003 3:10:00 AM
p-Diethylbenzene	U	5.0		µg/Kg	1	7/2/2003 3:10:00 AM
p-Ethyltoluene	U	5.0		µg/Kg	1	7/2/2003 3:10:00 AM
sec-Butylbenzene	U	5.0		µg/Kg	1	7/2/2003 3:10:00 AM
Styrene	U	5.0		µg/Kg	1	7/2/2003 3:10:00 AM
t-Butyl alcohol	U	5.0		µg/Kg	1	7/2/2003 3:10:00 AM
tert-Butylbenzene	U	5.0		µg/Kg	1	7/2/2003 3:10:00 AM
Tetrachloroethene	U	5.0		µg/Kg	1	7/2/2003 3:10:00 AM
Toluene	U	5.0		µg/Kg	1	7/2/2003 3:10:00 AM
trans-1,2-Dichloroethene	U	5.0		µg/Kg	1	7/2/2003 3:10:00 AM
trans-1,3-Dichloropropene	U	5.0		µg/Kg	1	7/2/2003 3:10:00 AM
Trichloroethene	U	5.0		µg/Kg	1	7/2/2003 3:10:00 AM
Trichlorofluoromethane	U	5.0		µg/Kg	1	7/2/2003 3:10:00 AM

Qualifiers:

ND - Not Detected at the Reporting Limit

J - Analyte detected below quantitation limits

B - Analyte detected in the associated Method Blank

* - Value exceeds Maximum Contaminant Level

S - Spike Recovery outside accepted recovery limits

R - RPD outside accepted recovery limits

E - Value above quantitation range

American Analytical Laboratories, Inc.

Date: *28-Jul-03*

CLIENT:	AKRF, Inc	**Client Sample ID:**	MW15 (0.5'-2')
Lab Order:	0306117	**Tag Number:**	
Project:	Greenpoint Lumber Yard Brooklyn, NY	**Collection Date:**	6/26/2003
Lab ID:	0306117-19A	**Matrix:**	SOIL

Analyses	Result	Limit	Qual	Units	DF	Date Analyzed
VOLATILES SW-846 METHOD 8260		**SW8260B**				Analyst: **LDS**
Vinyl acetate	U	5.0		µg/Kg	1	7/2/2003 3:10:00 AM
Vinyl chloride	U	5.0		µg/Kg	1	7/2/2003 3:10:00 AM

Qualifiers:

ND - Not Detected at the Reporting Limit

J - Analyte detected below quantitation limits

B - Analyte detected in the associated Method Blank

* - Value exceeds Maximum Contaminant Level

S - Spike Recovery outside accepted recovery limits

R - RPD outside accepted recovery limits

E - Value above quantitation range

American Analytical Laboratories, Inc.

Date: *28-Jul-03*

CLIENT:	AKRF, Inc	**Client Sample ID:**	MW15 (6'-8')
Lab Order:	0306117	**Tag Number:**	
Project:	Greenpoint Lumber Yard Brooklyn, NY	**Collection Date:**	6/26/2003
Lab ID:	0306117-20A	**Matrix:**	SOIL

Analyses	Result	Limit	Qual	Units	DF	Date Analyzed
VOLATILES SW-846 METHOD 8260		**SW8260B**				Analyst: **LDS**
1,1,1,2-Tetrachloroethane	U	5.0		µg/Kg	1	7/2/2003 3:48:00 AM
1,1,1-Trichloroethane	U	5.0		µg/Kg	1	7/2/2003 3:48:00 AM
1,1,2,2-Tetrachloroethane	U	5.0		µg/Kg	1	7/2/2003 3:48:00 AM
1,1,2-Trichloro-1,2,2-trifluoroethane	U	5.0		µg/Kg	1	7/2/2003 3:48:00 AM
1,1,2-Trichloroethane	U	5.0		µg/Kg	1	7/2/2003 3:48:00 AM
1,1-Dichloroethane	U	5.0		µg/Kg	1	7/2/2003 3:48:00 AM
1,1-Dichloroethene	U	5.0		µg/Kg	1	7/2/2003 3:48:00 AM
1,1-Dichloropropene	U	5.0		µg/Kg	1	7/2/2003 3:48:00 AM
1,2,3-Trichlorobenzene	U	5.0		µg/Kg	1	7/2/2003 3:48:00 AM
1,2,3-Trichloropropane	U	5.0		µg/Kg	1	7/2/2003 3:48:00 AM
1,2,4,5-Tetramethylbenzene	U	5.0		µg/Kg	1	7/2/2003 3:48:00 AM
1,2,4-Trichlorobenzene	U	5.0		µg/Kg	1	7/2/2003 3:48:00 AM
1,2,4-Trimethylbenzene	U	5.0		µg/Kg	1	7/2/2003 3:48:00 AM
1,2-Dibromo-3-chloropropane	U	5.0		µg/Kg	1	7/2/2003 3:48:00 AM
1,2-Dibromoethane	U	5.0		µg/Kg	1	7/2/2003 3:48:00 AM
1,2-Dichlorobenzene	U	5.0		µg/Kg	1	7/2/2003 3:48:00 AM
1,2-Dichloroethane	U	5.0		µg/Kg	1	7/2/2003 3:48:00 AM
1,2-Dichloropropane	U	5.0		µg/Kg	1	7/2/2003 3:48:00 AM
1,3,5-Trimethylbenzene	U	5.0		µg/Kg	1	7/2/2003 3:48:00 AM
1,3-Dichlorobenzene	U	5.0		µg/Kg	1	7/2/2003 3:48:00 AM
1,3-dichloropropane	U	5.0		µg/Kg	1	7/2/2003 3:48:00 AM
1,4-Dichlorobenzene	U	5.0		µg/Kg	1	7/2/2003 3:48:00 AM
2,2-Dichloropropane	U	5.0		µg/Kg	1	7/2/2003 3:48:00 AM
2-Butanone	U	5.0		µg/Kg	1	7/2/2003 3:48:00 AM
2-Chloroethyl vinyl ether	U	5.0		µg/Kg	1	7/2/2003 3:48:00 AM
2-Chlorotoluene	U	5.0		µg/Kg	1	7/2/2003 3:48:00 AM
2-Hexanone	U	5.0		µg/Kg	1	7/2/2003 3:48:00 AM
4-Chlorotoluene	U	5.0		µg/Kg	1	7/2/2003 3:48:00 AM
4-Isopropyltoluene	U	5.0		µg/Kg	1	7/2/2003 3:48:00 AM
4-Methyl-2-pentanone	U	5.0		µg/Kg	1	7/2/2003 3:48:00 AM
Acetone	U	5.0		µg/Kg	1	7/2/2003 3:48:00 AM
Acrolein	U	25		µg/Kg	1	7/2/2003 3:48:00 AM
Acrylonitrile	U	5.0		µg/Kg	1	7/2/2003 3:48:00 AM
Benzene	U	5.0		µg/Kg	1	7/2/2003 3:48:00 AM
Bromobenzene	U	5.0		µg/Kg	1	7/2/2003 3:48:00 AM
Bromochloromethane	U	5.0		µg/Kg	1	7/2/2003 3:48:00 AM
Bromodichloromethane	U	5.0		µg/Kg	1	7/2/2003 3:48:00 AM
Bromoform	U	5.0		µg/Kg	1	7/2/2003 3:48:00 AM
Bromomethane	U	5.0		µg/Kg	1	7/2/2003 3:48:00 AM
Carbon disulfide	U	5.0		µg/Kg	1	7/2/2003 3:48:00 AM

Qualifiers:

ND - Not Detected at the Reporting Limit

J - Analyte detected below quantitation limits

B - Analyte detected in the associated Method Blank

* - Value exceeds Maximum Contaminant Level

S - Spike Recovery outside accepted recovery limits

R - RPD outside accepted recovery limits

E - Value above quantitation range

American Analytical Laboratories, Inc.

Date: *28-Jul-03*

CLIENT:	AKRF, Inc	**Client Sample ID:**	MW15 (6'-8')
Lab Order:	0306117	**Tag Number:**	
Project:	Greenpoint Lumber Yard Brooklyn, NY	**Collection Date:**	6/26/2003
Lab ID:	0306117-20A	**Matrix:**	SOIL

Analyses	Result	Limit	Qual	Units	DF	Date Analyzed
VOLATILES SW-846 METHOD 8260		**SW8260B**				Analyst: **LDS**
Carbon tetrachloride	U	5.0		µg/Kg	1	7/2/2003 3:48:00 AM
Chlorobenzene	U	5.0		µg/Kg	1	7/2/2003 3:48:00 AM
Chlorodifluoromethane	U	5.0		µg/Kg	1	7/2/2003 3:48:00 AM
Chloroethane	U	5.0		µg/Kg	1	7/2/2003 3:48:00 AM
Chloroform	U	5.0		µg/Kg	1	7/2/2003 3:48:00 AM
Chloromethane	U	5.0		µg/Kg	1	7/2/2003 3:48:00 AM
cis-1,2-Dichloroethene	U	5.0		µg/Kg	1	7/2/2003 3:48:00 AM
cis-1,3-Dichloropropene	U	5.0		µg/Kg	1	7/2/2003 3:48:00 AM
Dibromochloromethane	U	5.0		µg/Kg	1	7/2/2003 3:48:00 AM
Dibromomethane	U	5.0		µg/Kg	1	7/2/2003 3:48:00 AM
Dichlorodifluoromethane	U	5.0		µg/Kg	1	7/2/2003 3:48:00 AM
Diisopropyl ether	U	5.0		µg/Kg	1	7/2/2003 3:48:00 AM
Ethanol	U	25		µg/Kg	1	7/2/2003 3:48:00 AM
Ethyl acetate	U	5.0		µg/Kg	1	7/2/2003 3:48:00 AM
Ethylbenzene	U	5.0		µg/Kg	1	7/2/2003 3:48:00 AM
Freon-114	U	5.0		µg/Kg	1	7/2/2003 3:48:00 AM
Hexachlorobutadiene	U	5.0		µg/Kg	1	7/2/2003 3:48:00 AM
Isopropyl acetate	U	5.0		µg/Kg	1	7/2/2003 3:48:00 AM
Isopropylbenzene	U	5.0		µg/Kg	1	7/2/2003 3:48:00 AM
m,p-Xylene	U	10		µg/Kg	1	7/2/2003 3:48:00 AM
Methyl tert-butyl ether	U	5.0		µg/Kg	1	7/2/2003 3:48:00 AM
Methylene chloride	U	5.0		µg/Kg	1	7/2/2003 3:48:00 AM
Naphthalene	U	5.0		µg/Kg	1	7/2/2003 3:48:00 AM
n-Butyl acetate	U	5.0		µg/Kg	1	7/2/2003 3:48:00 AM
n-Butylbenzene	U	5.0		µg/Kg	1	7/2/2003 3:48:00 AM
n-Propyl acetate	U	5.0		µg/Kg	1	7/2/2003 3:48:00 AM
n-Propylbenzene	U	5.0		µg/Kg	1	7/2/2003 3:48:00 AM
o-Xylene	U	5.0		µg/Kg	1	7/2/2003 3:48:00 AM
p-Diethylbenzene	U	5.0		µg/Kg	1	7/2/2003 3:48:00 AM
p-Ethyltoluene	U	5.0		µg/Kg	1	7/2/2003 3:48:00 AM
sec-Butylbenzene	U	5.0		µg/Kg	1	7/2/2003 3:48:00 AM
Styrene	U	5.0		µg/Kg	1	7/2/2003 3:48:00 AM
t-Butyl alcohol	U	5.0		µg/Kg	1	7/2/2003 3:48:00 AM
tert-Butylbenzene	U	5.0		µg/Kg	1	7/2/2003 3:48:00 AM
Tetrachloroethene	U	5.0		µg/Kg	1	7/2/2003 3:48:00 AM
Toluene	U	5.0		µg/Kg	1	7/2/2003 3:48:00 AM
trans-1,2-Dichloroethene	U	5.0		µg/Kg	1	7/2/2003 3:48:00 AM
trans-1,3-Dichloropropene	U	5.0		µg/Kg	1	7/2/2003 3:48:00 AM
Trichloroethene	U	5.0		µg/Kg	1	7/2/2003 3:48:00 AM
Trichlorofluoromethane	U	5.0		µg/Kg	1	7/2/2003 3:48:00 AM

Qualifiers:

ND - Not Detected at the Reporting Limit

J - Analyte detected below quantitation limits

B - Analyte detected in the associated Method Blank

* - Value exceeds Maximum Contaminant Level

S - Spike Recovery outside accepted recovery limits

R - RPD outside accepted recovery limits

E - Value above quantitation range

American Analytical Laboratories, Inc.

Date: *28-Jul-03*

CLIENT:	AKRF, Inc	**Client Sample ID:**	MW15 (6'-8')
Lab Order:	0306117	**Tag Number:**	
Project:	Greenpoint Lumber Yard Brooklyn, NY	**Collection Date:**	6/26/2003
Lab ID:	0306117-20A	**Matrix:**	SOIL

Analyses	Result	Limit	Qual	Units	DF	Date Analyzed
VOLATILES SW-846 METHOD 8260		**SW8260B**				Analyst: **LDS**
Vinyl acetate	U	5.0		µg/Kg	1	7/2/2003 3:48:00 AM
Vinyl chloride	U	5.0		µg/Kg	1	7/2/2003 3:48:00 AM

Qualifiers:

ND - Not Detected at the Reporting Limit

J - Analyte detected below quantitation limits

B - Analyte detected in the associated Method Blank

* - Value exceeds Maximum Contaminant Level

S - Spike Recovery outside accepted recovery limits

R - RPD outside accepted recovery limits

E - Value above quantitation range

GC/MS SEMIVOLATILE DATA

RESULTS – ORGANIC ANALYSIS DATA SHEET

American Analytical Laboratories, Inc.

Date: *28-Jul-03*

CLIENT:	AKRF, Inc	**Client Sample ID:**	MW10 (5'-7')
Lab Order:	0306117	**Tag Number:**	
Project:	Greenpoint Lumber Yard Brooklyn, NY	**Collection Date:**	6/25/2003
Lab ID:	0306117-01B	**Matrix:**	SOIL

Analyses	Result	Limit	Qual	Units	DF	Date Analyzed
SEMIVOLATILES SW-846 8270		**SW8270D**		**(SW3550A)**		Analyst: **RN**
1,2,4-Trichlorobenzene	U	40		µg/Kg	1	7/3/2003 3:13:00 AM
1,2-Dichlorobenzene	U	40		µg/Kg	1	7/3/2003 3:13:00 AM
1,3-Dichlorobenzene	U	40		µg/Kg	1	7/3/2003 3:13:00 AM
1,4-Dichlorobenzene	U	40		µg/Kg	1	7/3/2003 3:13:00 AM
2,4,5-Trichlorophenol	U	40		µg/Kg	1	7/3/2003 3:13:00 AM
2,4,6-Trichlorophenol	U	40		µg/Kg	1	7/3/2003 3:13:00 AM
2,4-Dichlorophenol	U	40		µg/Kg	1	7/3/2003 3:13:00 AM
2,4-Dimethylphenol	U	40		µg/Kg	1	7/3/2003 3:13:00 AM
2,4-Dinitrophenol	U	40		µg/Kg	1	7/3/2003 3:13:00 AM
2,4-Dinitrotoluene	U	40		µg/Kg	1	7/3/2003 3:13:00 AM
2,6-Dinitrotoluene	U	40		µg/Kg	1	7/3/2003 3:13:00 AM
2-Chloronaphthalene	U	40		µg/Kg	1	7/3/2003 3:13:00 AM
2-Chlorophenol	U	40		µg/Kg	1	7/3/2003 3:13:00 AM
2-Methylnaphthalene	58	40		µg/Kg	1	7/3/2003 3:13:00 AM
2-Methylphenol	U	40		µg/Kg	1	7/3/2003 3:13:00 AM
2-Nitroaniline	U	40		µg/Kg	1	7/3/2003 3:13:00 AM
2-Nitrophenol	U	40		µg/Kg	1	7/3/2003 3:13:00 AM
3,3'-Dichlorobenzidine	U	40		µg/Kg	1	7/3/2003 3:13:00 AM
3+4-Methylphenol	U	40		µg/Kg	1	7/3/2003 3:13:00 AM
3-Nitroaniline	U	40		µg/Kg	1	7/3/2003 3:13:00 AM
4,6-Dinitro-2-methylphenol	U	40		µg/Kg	1	7/3/2003 3:13:00 AM
4-Bromophenyl phenyl ether	U	40		µg/Kg	1	7/3/2003 3:13:00 AM
4-Chloro-3-methylphenol	U	40		µg/Kg	1	7/3/2003 3:13:00 AM
4-Chloroaniline	U	40		µg/Kg	1	7/3/2003 3:13:00 AM
4-Chlorophenyl phenyl ether	U	40		µg/Kg	1	7/3/2003 3:13:00 AM
4-Nitroaniline	U	40		µg/Kg	1	7/3/2003 3:13:00 AM
4-Nitrophenol	U	40		µg/Kg	1	7/3/2003 3:13:00 AM
Acenaphthene	180	40		µg/Kg	1	7/3/2003 3:13:00 AM
Acenaphthylene	45	40		µg/Kg	1	7/3/2003 3:13:00 AM
Aniline	U	40		µg/Kg	1	7/3/2003 3:13:00 AM
Anthracene	450	40		µg/Kg	1	7/3/2003 3:13:00 AM
Azobenzene	U	40		µg/Kg	1	7/3/2003 3:13:00 AM
Benzidine	U	40		µg/Kg	1	7/3/2003 3:13:00 AM
Benzo(a)anthracene	1000	40		µg/Kg	1	7/3/2003 3:13:00 AM
Benzo(a)pyrene	990	40		µg/Kg	1	7/3/2003 3:13:00 AM
Benzo(b)fluoranthene	1100	40		µg/Kg	1	7/3/2003 3:13:00 AM
Benzo(g,h,i)perylene	690	40		µg/Kg	1	7/3/2003 3:13:00 AM
Benzo(k)fluoranthene	480	40		µg/Kg	1	7/3/2003 3:13:00 AM
Benzoic acid	110	40		µg/Kg	1	7/3/2003 3:13:00 AM
Benzyl alcohol	U	40		µg/Kg	1	7/3/2003 3:13:00 AM

Qualifiers:

ND - Not Detected at the Reporting Limit

J - Analyte detected below quantitation limits

B - Analyte detected in the associated Method Blank

* - Value exceeds Maximum Contaminant Level

S - Spike Recovery outside accepted recovery limits

R - RPD outside accepted recovery limits

E - Value above quantitation range

American Analytical Laboratories, Inc.

Date: *28-Jul-03*

CLIENT:	AKRF, Inc	**Client Sample ID:**	MW10 (5'-7')
Lab Order:	0306117	**Tag Number:**	
Project:	Greenpoint Lumber Yard Brooklyn, NY	**Collection Date:**	6/25/2003
Lab ID:	0306117-01B	**Matrix:**	SOIL

Analyses	Result	Limit	Qual	Units	DF	Date Analyzed
SEMIVOLATILES SW-846 8270		**SW8270D**		**(SW3550A)**		Analyst: **RN**
Bis(2-chloroethoxy)methane	U	40		µg/Kg	1	7/3/2003 3:13:00 AM
Bis(2-chloroethyl)ether	U	40		µg/Kg	1	7/3/2003 3:13:00 AM
Bis(2-chloroisopropyl)ether	U	40		µg/Kg	1	7/3/2003 3:13:00 AM
Bis(2-ethylhexyl)phthalate	55	40		µg/Kg	1	7/3/2003 3:13:00 AM
Butyl benzyl phthalate	U	40		µg/Kg	1	7/3/2003 3:13:00 AM
Carbazole	180	40		µg/Kg	1	7/3/2003 3:13:00 AM
Chrysene	1100	40		µg/Kg	1	7/3/2003 3:13:00 AM
Dibenzo(a,h)anthracene	150	40		µg/Kg	1	7/3/2003 3:13:00 AM
Dibenzofuran	120	40		µg/Kg	1	7/3/2003 3:13:00 AM
Diethyl phthalate	U	40		µg/Kg	1	7/3/2003 3:13:00 AM
Dimethyl phthalate	U	40		µg/Kg	1	7/3/2003 3:13:00 AM
Di-n-butyl phthalate	U	40		µg/Kg	1	7/3/2003 3:13:00 AM
Di-n-octyl phthalate	U	40		µg/Kg	1	7/3/2003 3:13:00 AM
Fluoranthene	2700	40		µg/Kg	1	7/3/2003 3:13:00 AM
Fluorene	190	40		µg/Kg	1	7/3/2003 3:13:00 AM
Hexachlorobenzene	U	40		µg/Kg	1	7/3/2003 3:13:00 AM
Hexachlorobutadiene	U	40		µg/Kg	1	7/3/2003 3:13:00 AM
Hexachlorocyclopentadiene	U	40		µg/Kg	1	7/3/2003 3:13:00 AM
Hexachloroethane	U	40		µg/Kg	1	7/3/2003 3:13:00 AM
Indeno(1,2,3-c,d)pyrene	690	40		µg/Kg	1	7/3/2003 3:13:00 AM
Isophorone	U	40		µg/Kg	1	7/3/2003 3:13:00 AM
Naphthalene	79	40		µg/Kg	1	7/3/2003 3:13:00 AM
Nitrobenzene	U	40		µg/Kg	1	7/3/2003 3:13:00 AM
N-Nitrosodimethylamine	U	40		µg/Kg	1	7/3/2003 3:13:00 AM
N-Nitrosodi-n-propylamine	U	40		µg/Kg	1	7/3/2003 3:13:00 AM
N-Nitrosodiphenylamine	U	40		µg/Kg	1	7/3/2003 3:13:00 AM
Pentachlorophenol	U	40		µg/Kg	1	7/3/2003 3:13:00 AM
Phenanthrene	2400	40		µg/Kg	1	7/3/2003 3:13:00 AM
Phenol	U	40		µg/Kg	1	7/3/2003 3:13:00 AM
Pyrene	2500	40		µg/Kg	1	7/3/2003 3:13:00 AM
Pyridine	U	40		µg/Kg	1	7/3/2003 3:13:00 AM

Qualifiers:

ND - Not Detected at the Reporting Limit

J - Analyte detected below quantitation limits

B - Analyte detected in the associated Method Blank

* - Value exceeds Maximum Contaminant Level

S - Spike Recovery outside accepted recovery limits

R - RPD outside accepted recovery limits

E - Value above quantitation range

American Analytical Laboratories, Inc.

Date: *28-Jul-03*

CLIENT:	AKRF, Inc	**Client Sample ID:**	B10 (5'-7')
Lab Order:	0306117	**Tag Number:**	
Project:	Greenpoint Lumber Yard Brooklyn, NY	**Collection Date:**	6/26/2003
Lab ID:	0306117-02B	**Matrix:**	SOIL

Analyses	Result	Limit	Qual	Units	DF	Date Analyzed
SEMIVOLATILES SW-846 8270		**SW8270D**		**(SW3550A)**		Analyst: **RN**
1,2,4-Trichlorobenzene	U	400		µg/Kg	10	7/3/2003 11:34:00 PM
1,2-Dichlorobenzene	U	400		µg/Kg	10	7/3/2003 11:34:00 PM
1,3-Dichlorobenzene	U	400		µg/Kg	10	7/3/2003 11:34:00 PM
1,4-Dichlorobenzene	U	400		µg/Kg	10	7/3/2003 11:34:00 PM
2,4,5-Trichlorophenol	U	400		µg/Kg	10	7/3/2003 11:34:00 PM
2,4,6-Trichlorophenol	U	400		µg/Kg	10	7/3/2003 11:34:00 PM
2,4-Dichlorophenol	U	400		µg/Kg	10	7/3/2003 11:34:00 PM
2,4-Dimethylphenol	690	400		µg/Kg	10	7/3/2003 11:34:00 PM
2,4-Dinitrophenol	U	400		µg/Kg	10	7/3/2003 11:34:00 PM
2,4-Dinitrotoluene	U	400		µg/Kg	10	7/3/2003 11:34:00 PM
2,6-Dinitrotoluene	U	400		µg/Kg	10	7/3/2003 11:34:00 PM
2-Chloronaphthalene	U	400		µg/Kg	10	7/3/2003 11:34:00 PM
2-Chlorophenol	U	400		µg/Kg	10	7/3/2003 11:34:00 PM
2-Methylnaphthalene	56000	20000		µg/Kg	500	7/8/2003 6:27:00 PM
2-Methylphenol	U	400		µg/Kg	10	7/3/2003 11:34:00 PM
2-Nitroaniline	U	400		µg/Kg	10	7/3/2003 11:34:00 PM
2-Nitrophenol	U	400		µg/Kg	10	7/3/2003 11:34:00 PM
3,3'-Dichlorobenzidine	U	400		µg/Kg	10	7/3/2003 11:34:00 PM
3+4-Methylphenol	1100	400		µg/Kg	10	7/3/2003 11:34:00 PM
3-Nitroaniline	U	400		µg/Kg	10	7/3/2003 11:34:00 PM
4,6-Dinitro-2-methylphenol	U	400		µg/Kg	10	7/3/2003 11:34:00 PM
4-Bromophenyl phenyl ether	U	400		µg/Kg	10	7/3/2003 11:34:00 PM
4-Chloro-3-methylphenol	U	400		µg/Kg	10	7/3/2003 11:34:00 PM
4-Chloroaniline	U	400		µg/Kg	10	7/3/2003 11:34:00 PM
4-Chlorophenyl phenyl ether	U	400		µg/Kg	10	7/3/2003 11:34:00 PM
4-Nitroanlline	U	400		µg/Kg	10	7/3/2003 11:34:00 PM
4-Nitrophenol	U	400		µg/Kg	10	7/3/2003 11:34:00 PM
Acenaphthene	94000	20000		µg/Kg	500	7/8/2003 6:27:00 PM
Acenaphthylene	42000	20000		µg/Kg	500	7/8/2003 6:27:00 PM
Aniline	U	400		µg/Kg	10	7/3/2003 11:34:00 PM
Anthracene	240000	20000		µg/Kg	500	7/8/2003 6:27:00 PM
Azobenzene	U	400		µg/Kg	10	7/3/2003 11:34:00 PM
Benzidine	U	400		µg/Kg	10	7/3/2003 11:34:00 PM
Benzo(a)anthracene	290000	20000		µg/Kg	500	7/8/2003 6:27:00 PM
Benzo(a)pyrene	240000	20000		µg/Kg	500	7/8/2003 6:27:00 PM
Benzo(b)fluoranthene	280000	20000		µg/Kg	500	7/8/2003 6:27:00 PM
Benzo(g,h,i)perylene	130000	20000		µg/Kg	500	7/8/2003 6:27:00 PM
Benzo(k)fluoranthene	82000	20000		µg/Kg	500	7/8/2003 6:27:00 PM
Benzoic acid	U	400		µg/Kg	10	7/3/2003 11:34:00 PM
Benzyl alcohol	U	400		µg/Kg	10	7/3/2003 11:34:00 PM

Qualifiers:

ND - Not Detected at the Reporting Limit

J - Analyte detected below quantitation limits

B - Analyte detected in the associated Method Blank

* - Value exceeds Maximum Contaminant Level

S - Spike Recovery outside accepted recovery limits

R - RPD outside accepted recovery limits

E - Value above quantitation range

American Analytical Laboratories, Inc.

Date: *28-Jul-03*

CLIENT:	AKRF, Inc	**Client Sample ID:**	B10 (5'-7')
Lab Order:	0306117	**Tag Number:**	
Project:	Greenpoint Lumber Yard Brooklyn, NY	**Collection Date:**	6/26/2003
Lab ID:	0306117-02B	**Matrix:**	SOIL

Analyses	Result	Limit	Qual	Units	DF	Date Analyzed
SEMIVOLATILES SW-846 8270		**SW8270D**		**(SW3550A)**		Analyst: **RN**
Bis(2-chloroethoxy)methane	U	400		µg/Kg	10	7/3/2003 11:34:00 PM
Bis(2-chloroethyl)ether	U	400		µg/Kg	10	7/3/2003 11:34:00 PM
Bis(2-chloroisopropyl)ether	U	400		µg/Kg	10	7/3/2003 11:34:00 PM
Bis(2-ethylhexyl)phthalate	U	400		µg/Kg	10	7/3/2003 11:34:00 PM
Butyl benzyl phthalate	U	400		µg/Kg	10	7/3/2003 11:34:00 PM
Carbazole	64000	20000		µg/Kg	500	7/8/2003 6:27:00 PM
Chrysene	270000	20000		µg/Kg	500	7/8/2003 6:27:00 PM
Dibenzo(a,h)anthracene	31000	20000		µg/Kg	500	7/8/2003 6:27:00 PM
Dibenzofuran	100000	20000		µg/Kg	500	7/8/2003 6:27:00 PM
Diethyl phthalate	U	400		µg/Kg	10	7/3/2003 11:34:00 PM
Dimethyl phthalate	U	400		µg/Kg	10	7/3/2003 11:34:00 PM
Di-n-butyl phthalate	U	400		µg/Kg	10	7/3/2003 11:34:00 PM
Di-n-octyl phthalate	U	400		µg/Kg	10	7/3/2003 11:34:00 PM
Fluoranthene	760000	20000		µg/Kg	500	7/8/2003 6:27:00 PM
Fluorene	150000	20000		µg/Kg	500	7/8/2003 6:27:00 PM
Hexachlorobenzene	U	400		µg/Kg	10	7/3/2003 11:34:00 PM
Hexachlorobutadiene	U	400		µg/Kg	10	7/3/2003 11:34:00 PM
Hexachlorocyclopentadiene	U	400		µg/Kg	10	7/3/2003 11:34:00 PM
Hexachloroethane	U	400		µg/Kg	10	7/3/2003 11:34:00 PM
Indeno(1,2,3-c,d)pyrene	140000	20000		µg/Kg	500	7/8/2003 6:27:00 PM
Isophorone	U	400		µg/Kg	10	7/3/2003 11:34:00 PM
Naphthalene	100000	20000		µg/Kg	500	7/8/2003 6:27:00 PM
Nitrobenzene	U	400		µg/Kg	10	7/3/2003 11:34:00 PM
N-Nitrosodimethylamine	U	400		µg/Kg	10	7/3/2003 11:34:00 PM
N-Nitrosodi-n-propylamine	U	400		µg/Kg	10	7/3/2003 11:34:00 PM
N-Nitrosodiphenylamine	U	400		µg/Kg	10	7/3/2003 11:34:00 PM
Pentachlorophenol	U	400		µg/Kg	10	7/3/2003 11:34:00 PM
Phenanthrene	930000	20000		µg/Kg	500	7/8/2003 6:27:00 PM
Phenol	570	400		µg/Kg	10	7/3/2003 11:34:00 PM
Pyrene	690000	20000		µg/Kg	500	7/8/2003 6:27:00 PM
Pyridine	U	400		µg/Kg	10	7/3/2003 11:34:00 PM

Qualifiers:

ND - Not Detected at the Reporting Limit

J - Analyte detected below quantitation limits

B - Analyte detected in the associated Method Blank

* - Value exceeds Maximum Contaminant Level

S - Spike Recovery outside accepted recovery limits

R - RPD outside accepted recovery limits

E - Value above quantitation range

American Analytical Laboratories, Inc.

Date: *28-Jul-03*

CLIENT:	AKRF, Inc	**Client Sample ID:**	B10 (9'-10')
Lab Order:	0306117	**Tag Number:**	
Project:	Greenpoint Lumber Yard Brooklyn, NY	**Collection Date:**	6/26/2003
Lab ID:	0306117-03B	**Matrix:**	SOIL

Analyses	Result	Limit	Qual	Units	DF	Date Analyzed
SEMIVOLATILES SW-846 8270		**SW8270D**		**(SW3550A)**		Analyst: **RN**
1,2,4-Trichlorobenzene	U	40		µg/Kg	1	7/2/2003 11:54:00 PM
1,2-Dichlorobenzene	U	40		µg/Kg	1	7/2/2003 11:54:00 PM
1,3-Dichlorobenzene	U	40		µg/Kg	1	7/2/2003 11:54:00 PM
1,4-Dichlorobenzene	U	40		µg/Kg	1	7/2/2003 11:54:00 PM
2,4,5-Trichlorophenol	U	40		µg/Kg	1	7/2/2003 11:54:00 PM
2,4,6-Trichlorophenol	U	40		µg/Kg	1	7/2/2003 11:54:00 PM
2,4-Dichlorophenol	U	40		µg/Kg	1	7/2/2003 11:54:00 PM
2,4-Dimethylphenol	U	40		µg/Kg	1	7/2/2003 11:54:00 PM
2,4-Dinitrophenol	U	40		µg/Kg	1	7/2/2003 11:54:00 PM
2,4-Dinitrotoluene	U	40		µg/Kg	1	7/2/2003 11:54:00 PM
2,6-Dinitrotoluene	U	40		µg/Kg	1	7/2/2003 11:54:00 PM
2-Chloronaphthalene	U	40		µg/Kg	1	7/2/2003 11:54:00 PM
2-Chlorophenol	U	40		µg/Kg	1	7/2/2003 11:54:00 PM
2-Methylnaphthalene	U	40		µg/Kg	1	7/2/2003 11:54:00 PM
2-Methylphenol	U	40		µg/Kg	1	7/2/2003 11:54:00 PM
2-Nitroaniline	U	40		µg/Kg	1	7/2/2003 11:54:00 PM
2-Nitrophenol	U	40		µg/Kg	1	7/2/2003 11:54:00 PM
3,3'-Dichlorobenzidine	U	40		µg/Kg	1	7/2/2003 11:54:00 PM
3+4-Methylphenol	U	40		µg/Kg	1	7/2/2003 11:54:00 PM
3-Nitroaniline	U	40		µg/Kg	1	7/2/2003 11:54:00 PM
4,6-Dinitro-2-methylphenol	U	40		µg/Kg	1	7/2/2003 11:54:00 PM
4-Bromophenyl phenyl ether	U	40		µg/Kg	1	7/2/2003 11:54:00 PM
4-Chloro-3-methylphenol	U	40		µg/Kg	1	7/2/2003 11:54:00 PM
4-Chloroaniline	U	40		µg/Kg	1	7/2/2003 11:54:00 PM
4-Chlorophenyl phenyl ether	U	40		µg/Kg	1	7/2/2003 11:54:00 PM
4-Nitroaniline	U	40		µg/Kg	1	7/2/2003 11:54:00 PM
4-Nitrophenol	U	40		µg/Kg	1	7/2/2003 11:54:00 PM
Acenaphthene	U	40		µg/Kg	1	7/2/2003 11:54:00 PM
Acenaphthylene	U	40		µg/Kg	1	7/2/2003 11:54:00 PM
Aniline	U	40		µg/Kg	1	7/2/2003 11:54:00 PM
Anthracene	47	40		µg/Kg	1	7/2/2003 11:54:00 PM
Azobenzene	U	40		µg/Kg	1	7/2/2003 11:54:00 PM
Benzidine	U	40		µg/Kg	1	7/2/2003 11:54:00 PM
Benzo(a)anthracene	60	40		µg/Kg	1	7/2/2003 11:54:00 PM
Benzo(a)pyrene	49	40		µg/Kg	1	7/2/2003 11:54:00 PM
Benzo(b)fluoranthene	60	40		µg/Kg	1	7/2/2003 11:54:00 PM
Benzo(g,h,i)perylene	U	40		µg/Kg	1	7/2/2003 11:54:00 PM
Benzo(k)fluoranthene	U	40		µg/Kg	1	7/2/2003 11:54:00 PM
Benzoic acid	95	40		µg/Kg	1	7/2/2003 11:54:00 PM
Benzyl alcohol	U	40		µg/Kg	1	7/2/2003 11:54:00 PM

Qualifiers:

ND - Not Detected at the Reporting Limit

J - Analyte detected below quantitation limits

B - Analyte detected in the associated Method Blank

* - Value exceeds Maximum Contaminant Level

S - Spike Recovery outside accepted recovery limits

R - RPD outside accepted recovery limits

E - Value above quantitation range

American Analytical Laboratories, Inc.

Date: *28-Jul-03*

CLIENT:	AKRF, Inc	**Client Sample ID:**	B10 (9'-10')
Lab Order:	0306117	**Tag Number:**	
Project:	Greenpoint Lumber Yard Brooklyn, NY	**Collection Date:**	6/26/2003
Lab ID:	0306117-03B	**Matrix:**	SOIL

Analyses	Result	Limit	Qual	Units	DF	Date Analyzed
SEMIVOLATILES SW-846 8270		**SW8270D**		**(SW3550A)**		Analyst: **RN**
Bis(2-chloroethoxy)methane	U	40		µg/Kg	1	7/2/2003 11:54:00 PM
Bis(2-chloroethyl)ether	U	40		µg/Kg	1	7/2/2003 11:54:00 PM
Bis(2-chloroisopropyl)ether	U	40		µg/Kg	1	7/2/2003 11:54:00 PM
Bis(2-ethylhexyl)phthalate	U	40		µg/Kg	1	7/2/2003 11:54:00 PM
Butyl benzyl phthalate	U	40		µg/Kg	1	7/2/2003 11:54:00 PM
Carbazole	U	40		µg/Kg	1	7/2/2003 11:54:00 PM
Chrysene	64	40		µg/Kg	1	7/2/2003 11:54:00 PM
Dibenzo(a,h)anthracene	U	40		µg/Kg	1	7/2/2003 11:54:00 PM
Dibenzofuran	U	40		µg/Kg	1	7/2/2003 11:54:00 PM
Diethyl phthalate	U	40		µg/Kg	1	7/2/2003 11:54:00 PM
Dimethyl phthalate	U	40		µg/Kg	1	7/2/2003 11:54:00 PM
Di-n-butyl phthalate	U	40		µg/Kg	1	7/2/2003 11:54:00 PM
Di-n-octyl phthalate	U	40		µg/Kg	1	7/2/2003 11:54:00 PM
Fluoranthene	160	40		µg/Kg	1	7/2/2003 11:54:00 PM
Fluorene	U	40		µg/Kg	1	7/2/2003 11:54:00 PM
Hexachlorobenzene	U	40		µg/Kg	1	7/2/2003 11:54:00 PM
Hexachlorobutadiene	U	40		µg/Kg	1	7/2/2003 11:54:00 PM
Hexachlorocyclopentadiene	U	40		µg/Kg	1	7/2/2003 11:54:00 PM
Hexachloroethane	U	40		µg/Kg	1	7/2/2003 11:54:00 PM
Indeno(1,2,3-c,d)pyrene	U	40		µg/Kg	1	7/2/2003 11:54:00 PM
Isophorone	U	40		µg/Kg	1	7/2/2003 11:54:00 PM
Naphthalene	U	40		µg/Kg	1	7/2/2003 11:54:00 PM
Nitrobenzene	U	40		µg/Kg	1	7/2/2003 11:54:00 PM
N-Nitrosodimethylamine	U	40		µg/Kg	1	7/2/2003 11:54:00 PM
N-Nitrosodi-n-propylamine	U	40		µg/Kg	1	7/2/2003 11:54:00 PM
N-Nitrosodiphenylamine	U	40		µg/Kg	1	7/2/2003 11:54:00 PM
Pentachlorophenol	U	40		µg/Kg	1	7/2/2003 11:54:00 PM
Phenanthrene	180	40		µg/Kg	1	7/2/2003 11:54:00 PM
Phenol	U	40		µg/Kg	1	7/2/2003 11:54:00 PM
Pyrene	150	40		µg/Kg	1	7/2/2003 11:54:00 PM
Pyridine	U	40		µg/Kg	1	7/2/2003 11:54:00 PM

Qualifiers:

ND - Not Detected at the Reporting Limit

J - Analyte detected below quantitation limits

B - Analyte detected in the associated Method Blank

* - Value exceeds Maximum Contaminant Level

S - Spike Recovery outside accepted recovery limits

R - RPD outside accepted recovery limits

E - Value above quantitation range

American Analytical Laboratories, Inc.

Date: *28-Jul-03*

CLIENT:	AKRF, Inc	**Client Sample ID:**	MW9 (1.5-3.5')
Lab Order:	0306117	**Tag Number:**	
Project:	Greenpoint Lumber Yard Brooklyn, NY	**Collection Date:**	6/26/2003
Lab ID:	0306117-04B	**Matrix:**	SOIL

Analyses	Result	Limit	Qual	Units	DF	Date Analyzed
SEMIVOLATILES SW-846 8270		**SW8270D**		**(SW3550A)**		Analyst: **RN**
1,2,4-Trichlorobenzene	U	40		µg/Kg	1	7/7/2003 3:41:00 PM
1,2-Dichlorobenzene	U	40		µg/Kg	1	7/7/2003 3:41:00 PM
1,3-Dichlorobenzene	U	40		µg/Kg	1	7/7/2003 3:41:00 PM
1,4-Dichlorobenzene	U	40		µg/Kg	1	7/7/2003 3:41:00 PM
2,4,5-Trichlorophenol	U	40		µg/Kg	1	7/7/2003 3:41:00 PM
2,4,6-Trichlorophenol	U	40		µg/Kg	1	7/7/2003 3:41:00 PM
2,4-Dichlorophenol	U	40		µg/Kg	1	7/7/2003 3:41:00 PM
2,4-Dimethylphenol	U	40		µg/Kg	1	7/7/2003 3:41:00 PM
2,4-Dinitrophenol	U	40		µg/Kg	1	7/7/2003 3:41:00 PM
2,4-Dinitrotoluene	U	40		µg/Kg	1	7/7/2003 3:41:00 PM
2,6-Dinitrotoluene	U	40		µg/Kg	1	7/7/2003 3:41:00 PM
2-Chloronaphthalene	U	40		µg/Kg	1	7/7/2003 3:41:00 PM
2-Chlorophenol	U	40		µg/Kg	1	7/7/2003 3:41:00 PM
2-Methylnaphthalene	100	40		µg/Kg	1	7/7/2003 3:41:00 PM
2-Methylphenol	U	40		µg/Kg	1	7/7/2003 3:41:00 PM
2-Nitroaniline	U	40		µg/Kg	1	7/7/2003 3:41:00 PM
2-Nitrophenol	U	40		µg/Kg	1	7/7/2003 3:41:00 PM
3,3'-Dichlorobenzidine	U	40		µg/Kg	1	7/7/2003 3:41:00 PM
3+4-Methylphenol	54	40		µg/Kg	1	7/7/2003 3:41:00 PM
3-Nitroaniline	U	40		µg/Kg	1	7/7/2003 3:41:00 PM
4,6-Dinitro-2-methylphenol	U	40		µg/Kg	1	7/7/2003 3:41:00 PM
4-Bromophenyl phenyl ether	U	40		µg/Kg	1	7/7/2003 3:41:00 PM
4-Chloro-3-methylphenol	U	40		µg/Kg	1	7/7/2003 3:41:00 PM
4-Chloroaniline	U	40		µg/Kg	1	7/7/2003 3:41:00 PM
4-Chlorophenyl phenyl ether	U	40		µg/Kg	1	7/7/2003 3:41:00 PM
4-Nitroaniline	U	40		µg/Kg	1	7/7/2003 3:41:00 PM
4-Nitrophenol	U	40		µg/Kg	1	7/7/2003 3:41:00 PM
Acenaphthene	180	40		µg/Kg	1	7/7/2003 3:41:00 PM
Acenaphthylene	89	40		µg/Kg	1	7/7/2003 3:41:00 PM
Aniline	U	40		µg/Kg	1	7/7/2003 3:41:00 PM
Anthracene	580	40		µg/Kg	1	7/7/2003 3:41:00 PM
Azobenzene	U	40		µg/Kg	1	7/7/2003 3:41:00 PM
Benzidine	U	40		µg/Kg	1	7/7/2003 3:41:00 PM
Benzo(a)anthracene	1300	40		µg/Kg	1	7/7/2003 3:41:00 PM
Benzo(a)pyrene	1100	40		µg/Kg	1	7/7/2003 3:41:00 PM
Benzo(b)fluoranthene	1400	40		µg/Kg	1	7/7/2003 3:41:00 PM
Benzo(g,h,i)perylene	740	40		µg/Kg	1	7/7/2003 3:41:00 PM
Benzo(k)fluoranthene	520	40		µg/Kg	1	7/7/2003 3:41:00 PM
Benzoic acid	110	40		µg/Kg	1	7/7/2003 3:41:00 PM
Benzyl alcohol	U	40		µg/Kg	1	7/7/2003 3:41:00 PM

Qualifiers:

ND - Not Detected at the Reporting Limit

J - Analyte detected below quantitation limits

B - Analyte detected in the associated Method Blank

* - Value exceeds Maximum Contaminant Level

S - Spike Recovery outside accepted recovery limits

R - RPD outside accepted recovery limits

E - Value above quantitation range

American Analytical Laboratories, Inc.

Date: *28-Jul-03*

CLIENT:	AKRF, Inc	**Client Sample ID:**	MW9 (1.5-3.5')
Lab Order:	0306117	**Tag Number:**	
Project:	Greenpoint Lumber Yard Brooklyn, NY	**Collection Date:**	6/26/2003
Lab ID:	0306117-04B	**Matrix:**	SOIL

Analyses	Result	Limit	Qual	Units	DF	Date Analyzed
SEMIVOLATILES SW-846 8270		**SW8270D**		**(SW3550A)**		Analyst: **RN**
Bis(2-chloroethoxy)methane	U	40		µg/Kg	1	7/7/2003 3:41:00 PM
Bis(2-chloroethyl)ether	U	40		µg/Kg	1	7/7/2003 3:41:00 PM
Bis(2-chloroisopropyl)ether	U	40		µg/Kg	1	7/7/2003 3:41:00 PM
Bis(2-ethylhexyl)phthalate	91	40		µg/Kg	1	7/7/2003 3:41:00 PM
Butyl benzyl phthalate	U	40		µg/Kg	1	7/7/2003 3:41:00 PM
Carbazole	170	40		µg/Kg	1	7/7/2003 3:41:00 PM
Chrysene	1300	40		µg/Kg	1	7/7/2003 3:41:00 PM
Dibenzo(a,h)anthracene	190	40		µg/Kg	1	7/7/2003 3:41:00 PM
Dibenzofuran	130	40		µg/Kg	1	7/7/2003 3:41:00 PM
Diethyl phthalate	U	40		µg/Kg	1	7/7/2003 3:41:00 PM
Dimethyl phthalate	U	40		µg/Kg	1	7/7/2003 3:41:00 PM
Di-n-butyl phthalate	U	40		µg/Kg	1	7/7/2003 3:41:00 PM
Di-n-octyl phthalate	U	40		µg/Kg	1	7/7/2003 3:41:00 PM
Fluoranthene	3100	200		µg/Kg	5	7/8/2003 4:34:00 PM
Fluorene	230	40		µg/Kg	1	7/7/2003 3:41:00 PM
Hexachlorobenzene	U	40		µg/Kg	1	7/7/2003 3:41:00 PM
Hexachlorobutadiene	U	40		µg/Kg	1	7/7/2003 3:41:00 PM
Hexachlorocyclopentadiene	U	40		µg/Kg	1	7/7/2003 3:41:00 PM
Hexachloroethane	U	40		µg/Kg	1	7/7/2003 3:41:00 PM
Indeno(1,2,3-c,d)pyrene	770	40		µg/Kg	1	7/7/2003 3:41:00 PM
Isophorone	U	40		µg/Kg	1	7/7/2003 3:41:00 PM
Naphthalene	150	40		µg/Kg	1	7/7/2003 3:41:00 PM
Nitrobenzene	U	40		µg/Kg	1	7/7/2003 3:41:00 PM
N-Nitrosodimethylamine	U	40		µg/Kg	1	7/7/2003 3:41:00 PM
N-Nitrosodi-n-propylamine	U	40		µg/Kg	1	7/7/2003 3:41:00 PM
N-Nitrosodiphenylamine	U	40		µg/Kg	1	7/7/2003 3:41:00 PM
Pentachlorophenol	U	40		µg/Kg	1	7/7/2003 3:41:00 PM
Phenanthrene	2300	40		µg/Kg	1	7/7/2003 3:41:00 PM
Phenol	U	40		µg/Kg	1	7/7/2003 3:41:00 PM
Pyrene	2600	40		µg/Kg	1	7/7/2003 3:41:00 PM
Pyridine	U	40		µg/Kg	1	7/7/2003 3:41:00 PM

Qualifiers:

ND - Not Detected at the Reporting Limit

J - Analyte detected below quantitation limits

B - Analyte detected in the associated Method Blank

* - Value exceeds Maximum Contaminant Level

S - Spike Recovery outside accepted recovery limits

R - RPD outside accepted recovery limits

E - Value above quantitation range

American Analytical Laboratories, Inc.

Date: *28-Jul-03*

CLIENT:	AKRF, Inc	**Client Sample ID:**	MW9 (5'-6')
Lab Order:	0306117	**Tag Number:**	
Project:	Greenpoint Lumber Yard Brooklyn, NY	**Collection Date:**	6/26/2003
Lab ID:	0306117-05B	**Matrix:**	SOIL

Analyses	Result	Limit	Qual	Units	DF	Date Analyzed
SEMIVOLATILES SW-846 8270		**SW8270D**		**(SW3550A)**		Analyst: **RN**
1,2,4-Trichlorobenzene	U	80		µg/Kg	2	7/7/2003 3:00:00 PM
1,2-Dichlorobenzene	U	80		µg/Kg	2	7/7/2003 3:00:00 PM
1,3-Dichlorobenzene	U	80		µg/Kg	2	7/7/2003 3:00:00 PM
1,4-Dichlorobenzene	U	80		µg/Kg	2	7/7/2003 3:00:00 PM
2,4,5-Trichlorophenol	U	80		µg/Kg	2	7/7/2003 3:00:00 PM
2,4,6-Trichlorophenol	U	80		µg/Kg	2	7/7/2003 3:00:00 PM
2,4-Dichlorophenol	U	80		µg/Kg	2	7/7/2003 3:00:00 PM
2,4-Dimethylphenol	U	80		µg/Kg	2	7/7/2003 3:00:00 PM
2,4-Dinitrophenol	U	80		µg/Kg	2	7/7/2003 3:00:00 PM
2,4-Dinitrotoluene	U	80		µg/Kg	2	7/7/2003 3:00:00 PM
2,6-Dinitrotoluene	U	80		µg/Kg	2	7/7/2003 3:00:00 PM
2-Chloronaphthalene	U	80		µg/Kg	2	7/7/2003 3:00:00 PM
2-Chlorophenol	U	80		µg/Kg	2	7/7/2003 3:00:00 PM
2-Methylnaphthalene	U	80		µg/Kg	2	7/7/2003 3:00:00 PM
2-Methylphenol	U	80		µg/Kg	2	7/7/2003 3:00:00 PM
2-Nitroaniline	U	80		µg/Kg	2	7/7/2003 3:00:00 PM
2-Nitrophenol	U	80		µg/Kg	2	7/7/2003 3:00:00 PM
3,3'-Dichlorobenzidine	U	80		µg/Kg	2	7/7/2003 3:00:00 PM
3+4-Methylphenol	U	80		µg/Kg	2	7/7/2003 3:00:00 PM
3-Nitroaniline	U	80		µg/Kg	2	7/7/2003 3:00:00 PM
4,6-Dinitro-2-methylphenol	U	80		µg/Kg	2	7/7/2003 3:00:00 PM
4-Bromophenyl phenyl ether	U	80		µg/Kg	2	7/7/2003 3:00:00 PM
4-Chloro-3-methylphenol	U	80		µg/Kg	2	7/7/2003 3:00:00 PM
4-Chloroaniline	U	80		µg/Kg	2	7/7/2003 3:00:00 PM
4-Chlorophenyl phenyl ether	U	80		µg/Kg	2	7/7/2003 3:00:00 PM
4-Nitroaniline	U	80		µg/Kg	2	7/7/2003 3:00:00 PM
4-Nitrophenol	U	80		µg/Kg	2	7/7/2003 3:00:00 PM
Acenaphthene	U	80		µg/Kg	2	7/7/2003 3:00:00 PM
Acenaphthylene	U	80		µg/Kg	2	7/7/2003 3:00:00 PM
Aniline	U	80		µg/Kg	2	7/7/2003 3:00:00 PM
Anthracene	U	80		µg/Kg	2	7/7/2003 3:00:00 PM
Azobenzene	U	80		µg/Kg	2	7/7/2003 3:00:00 PM
Benzidine	U	80		µg/Kg	2	7/7/2003 3:00:00 PM
Benzo(a)anthracene	360	80		µg/Kg	2	7/7/2003 3:00:00 PM
Benzo(a)pyrene	400	80		µg/Kg	2	7/7/2003 3:00:00 PM
Benzo(b)fluoranthene	520	80		µg/Kg	2	7/7/2003 3:00:00 PM
Benzo(g,h,i)perylene	300	80		µg/Kg	2	7/7/2003 3:00:00 PM
Benzo(k)fluoranthene	150	80		µg/Kg	2	7/7/2003 3:00:00 PM
Benzoic acid	98	80		µg/Kg	2	7/7/2003 3:00:00 PM
Benzyl alcohol	U	80		µg/Kg	2	7/7/2003 3:00:00 PM

Qualifiers:

ND - Not Detected at the Reporting Limit

J - Analyte detected below quantitation limits

B - Analyte detected in the associated Method Blank

* - Value exceeds Maximum Contaminant Level

S - Spike Recovery outside accepted recovery limits

R - RPD outside accepted recovery limits

E - Value above quantitation range

American Analytical Laboratories, Inc.

Date: *28-Jul-03*

CLIENT:	AKRF, Inc	**Client Sample ID:**	MW9 (5'-6')
Lab Order:	0306117	**Tag Number:**	
Project:	Greenpoint Lumber Yard Brooklyn, NY	**Collection Date:**	6/26/2003
Lab ID:	0306117-05B	**Matrix:**	SOIL

Analyses	Result	Limit	Qual	Units	DF	Date Analyzed
SEMIVOLATILES SW-846 8270		**SW8270D**		**(SW3550A)**		Analyst: **RN**
Bis(2-chloroethoxy)methane	U	80		µg/Kg	2	7/7/2003 3:00:00 PM
Bis(2-chloroethyl)ether	U	80		µg/Kg	2	7/7/2003 3:00:00 PM
Bis(2-chloroIsopropyl)ether	U	80		µg/Kg	2	7/7/2003 3:00:00 PM
Bis(2-ethylhexyl)phthalate	84	80		µg/Kg	2	7/7/2003 3:00:00 PM
Butyl benzyl phthalate	U	80		µg/Kg	2	7/7/2003 3:00:00 PM
Carbazole	U	80		µg/Kg	2	7/7/2003 3:00:00 PM
Chrysene	450	80		µg/Kg	2	7/7/2003 3:00:00 PM
Dibenzo(a,h)anthracene	82	80		µg/Kg	2	7/7/2003 3:00:00 PM
Dibenzofuran	U	80		µg/Kg	2	7/7/2003 3:00:00 PM
Diethyl phthalate	U	80		µg/Kg	2	7/7/2003 3:00:00 PM
Dimethyl phthalate	U	80		µg/Kg	2	7/7/2003 3:00:00 PM
Di-n-butyl phthalate	U	80		µg/Kg	2	7/7/2003 3:00:00 PM
Di-n-octyl phthalate	U	80		µg/Kg	2	7/7/2003 3:00:00 PM
Fluoranthene	650	80		µg/Kg	2	7/7/2003 3:00:00 PM
Fluorene	U	80		µg/Kg	2	7/7/2003 3:00:00 PM
Hexachlorobenzene	U	80		µg/Kg	2	7/7/2003 3:00:00 PM
Hexachlorobutadiene	U	80		µg/Kg	2	7/7/2003 3:00:00 PM
Hexachlorocyclopentadiene	U	80		µg/Kg	2	7/7/2003 3:00:00 PM
Hexachloroethane	U	80		µg/Kg	2	7/7/2003 3:00:00 PM
Indeno(1,2,3-c,d)pyrene	280	80		µg/Kg	2	7/7/2003 3:00:00 PM
Isophorone	U	80		µg/Kg	2	7/7/2003 3:00:00 PM
Naphthalene	U	80		µg/Kg	2	7/7/2003 3:00:00 PM
Nitrobenzene	U	80		µg/Kg	2	7/7/2003 3:00:00 PM
N-Nitrosodimethylamine	U	80		µg/Kg	2	7/7/2003 3:00:00 PM
N-Nitrosodi-n-propylamine	U	80		µg/Kg	2	7/7/2003 3:00:00 PM
N-Nitrosodiphenylamine	U	80		µg/Kg	2	7/7/2003 3:00:00 PM
Pentachlorophenol	U	80		µg/Kg	2	7/7/2003 3:00:00 PM
Phenanthrene	350	80		µg/Kg	2	7/7/2003 3:00:00 PM
Phenol	U	80		µg/Kg	2	7/7/2003 3:00:00 PM
Pyrene	640	80		µg/Kg	2	7/7/2003 3:00:00 PM
Pyridine	U	80		µg/Kg	2	7/7/2003 3:00:00 PM

Qualifiers:

ND - Not Detected at the Reporting Limit

J - Analyte detected below quantitation limits

B - Analyte detected in the associated Method Blank

* - Value exceeds Maximum Contaminant Level

S - Spike Recovery outside accepted recovery limits

R - RPD outside accepted recovery limits

E - Value above quantitation range

American Analytical Laboratories, Inc.

Date: *28-Jul-03*

CLIENT:	AKRF, Inc	**Client Sample ID:**	MW7 (10'-11')
Lab Order:	0306117	**Tag Number:**	
Project:	Greenpoint Lumber Yard Brooklyn, NY	**Collection Date:**	6/26/2003
Lab ID:	0306117-07B	**Matrix:**	SOIL

Analyses	Result	Limit	Qual	Units	DF	Date Analyzed
SEMIVOLATILES SW-846 8270		**SW8270D**		**(SW3550A)**		Analyst: **RN**
1,2,4-Trichlorobenzene	U	40		µg/Kg	1	7/3/2003 1:35:00 AM
1,2-Dichlorobenzene	U	40		µg/Kg	1	7/3/2003 1:35:00 AM
1,3-Dichlorobenzene	U	40		µg/Kg	1	7/3/2003 1:35:00 AM
1,4-Dichlorobenzene	U	40		µg/Kg	1	7/3/2003 1:35:00 AM
2,4,5-Trichlorophenol	U	40		µg/Kg	1	7/3/2003 1:35:00 AM
2,4,6-Trichlorophenol	U	40		µg/Kg	1	7/3/2003 1:35:00 AM
2,4-Dichlorophenol	U	40		µg/Kg	1	7/3/2003 1:35:00 AM
2,4-Dimethylphenol	U	40		µg/Kg	1	7/3/2003 1:35:00 AM
2,4-Dinitrophenol	U	40		µg/Kg	1	7/3/2003 1:35:00 AM
2,4-Dinitrotoluene	U	40		µg/Kg	1	7/3/2003 1:35:00 AM
2,6-Dinitrotoluene	U	40		µg/Kg	1	7/3/2003 1:35:00 AM
2-Chloronaphthalene	U	40		µg/Kg	1	7/3/2003 1:35:00 AM
2-Chlorophenol	U	40		µg/Kg	1	7/3/2003 1:35:00 AM
2-Methylnaphthalene	U	40		µg/Kg	1	7/3/2003 1:35:00 AM
2-Methylphenol	U	40		µg/Kg	1	7/3/2003 1:35:00 AM
2-Nitroaniline	U	40		µg/Kg	1	7/3/2003 1:35:00 AM
2-Nitrophenol	U	40		µg/Kg	1	7/3/2003 1:35:00 AM
3,3´-Dichlorobenzidine	U	40		µg/Kg	1	7/3/2003 1:35:00 AM
3+4-Methylphenol	62	40		µg/Kg	1	7/3/2003 1:35:00 AM
3-Nitroaniline	U	40		µg/Kg	1	7/3/2003 1:35:00 AM
4,6-Dinitro-2-methylphenol	U	40		µg/Kg	1	7/3/2003 1:35:00 AM
4-Bromophenyl phenyl ether	U	40		µg/Kg	1	7/3/2003 1:35:00 AM
4-Chloro-3-methylphenol	U	40		µg/Kg	1	7/3/2003 1:35:00 AM
4-Chloroaniline	U	40		µg/Kg	1	7/3/2003 1:35:00 AM
4-Chlorophenyl phenyl ether	U	40		µg/Kg	1	7/3/2003 1:35:00 AM
4-Nitroaniline	U	40		µg/Kg	1	7/3/2003 1:35:00 AM
4-Nitrophenol	U	40		µg/Kg	1	7/3/2003 1:35:00 AM
Acenaphthene	U	40		µg/Kg	1	7/3/2003 1:35:00 AM
Acenaphthylene	U	40		µg/Kg	1	7/3/2003 1:35:00 AM
Aniline	U	40		µg/Kg	1	7/3/2003 1:35:00 AM
Anthracene	U	40		µg/Kg	1	7/3/2003 1:35:00 AM
Azobenzene	U	40		µg/Kg	1	7/3/2003 1:35:00 AM
Benzidine	U	40		µg/Kg	1	7/3/2003 1:35:00 AM
Benzo(a)anthracene	U	40		µg/Kg	1	7/3/2003 1:35:00 AM
Benzo(a)pyrene	U	40		µg/Kg	1	7/3/2003 1:35:00 AM
Benzo(b)fluoranthene	U	40		µg/Kg	1	7/3/2003 1:35:00 AM
Benzo(g,h,i)perylene	U	40		µg/Kg	1	7/3/2003 1:35:00 AM
Benzo(k)fluoranthene	U	40		µg/Kg	1	7/3/2003 1:35:00 AM
Benzoic acid	U	40		µg/Kg	1	7/3/2003 1:35:00 AM
Benzyl alcohol	U	40		µg/Kg	1	7/3/2003 1:35:00 AM

Qualifiers:

ND - Not Detected at the Reporting Limit

J - Analyte detected below quantitation limits

B - Analyte detected in the associated Method Blank

* - Value exceeds Maximum Contaminant Level

S - Spike Recovery outside accepted recovery limits

R - RPD outside accepted recovery limits

E - Value above quantitation range

American Analytical Laboratories, Inc.

Date: *28-Jul-03*

CLIENT:	AKRF, Inc	**Client Sample ID:**	MW7 (10'-11')
Lab Order:	0306117	**Tag Number:**	
Project:	Greenpoint Lumber Yard Brooklyn, NY	**Collection Date:**	6/26/2003
Lab ID:	0306117-07B	**Matrix:**	SOIL

Analyses	Result	Limit	Qual	Units	DF	Date Analyzed
SEMIVOLATILES SW-846 8270		**SW8270D**		**(SW3550A)**		Analyst: **RN**
Bis(2-chloroethoxy)methane	U	40		µg/Kg	1	7/3/2003 1:35:00 AM
Bis(2-chloroethyl)ether	U	40		µg/Kg	1	7/3/2003 1:35:00 AM
Bis(2-chloroisopropyl)ether	U	40		µg/Kg	1	7/3/2003 1:35:00 AM
Bis(2-ethylhexyl)phthalate	U	40		µg/Kg	1	7/3/2003 1:35:00 AM
Butyl benzyl phthalate	U	40		µg/Kg	1	7/3/2003 1:35:00 AM
Carbazole	U	40		µg/Kg	1	7/3/2003 1:35:00 AM
Chrysene	47	40		µg/Kg	1	7/3/2003 1:35:00 AM
Dibenzo(a,h)anthracene	U	40		µg/Kg	1	7/3/2003 1:35:00 AM
Dibenzofuran	U	40		µg/Kg	1	7/3/2003 1:35:00 AM
Diethyl phthalate	U	40		µg/Kg	1	7/3/2003 1:35:00 AM
Dimethyl phthalate	U	40		µg/Kg	1	7/3/2003 1:35:00 AM
Di-n-butyl phthalate	U	40		µg/Kg	1	7/3/2003 1:35:00 AM
Di-n-octyl phthalate	U	40		µg/Kg	1	7/3/2003 1:35:00 AM
Fluoranthene	72	40		µg/Kg	1	7/3/2003 1:35:00 AM
Fluorene	U	40		µg/Kg	1	7/3/2003 1:35:00 AM
Hexachlorobenzene	U	40		µg/Kg	1	7/3/2003 1:35:00 AM
Hexachlorobutadiene	U	40		µg/Kg	1	7/3/2003 1:35:00 AM
Hexachlorocyclopentadiene	U	40		µg/Kg	1	7/3/2003 1:35:00 AM
Hexachloroethane	U	40		µg/Kg	1	7/3/2003 1:35:00 AM
Indeno(1,2,3-c,d)pyrene	U	40		µg/Kg	1	7/3/2003 1:35:00 AM
Isophorone	U	40		µg/Kg	1	7/3/2003 1:35:00 AM
Naphthalene	U	40		µg/Kg	1	7/3/2003 1:35:00 AM
Nitrobenzene	U	40		µg/Kg	1	7/3/2003 1:35:00 AM
N-Nitrosodimethylamine	U	40		µg/Kg	1	7/3/2003 1:35:00 AM
N-Nitrosodi-n-propylamine	U	40		µg/Kg	1	7/3/2003 1:35:00 AM
N-Nitrosodiphenylamine	U	40		µg/Kg	1	7/3/2003 1:35:00 AM
Pentachlorophenol	U	40		µg/Kg	1	7/3/2003 1:35:00 AM
Phenanthrene	59	40		µg/Kg	1	7/3/2003 1:35:00 AM
Phenol	U	40		µg/Kg	1	7/3/2003 1:35:00 AM
Pyrene	68	40		µg/Kg	1	7/3/2003 1:35:00 AM
Pyridine	U	40		µg/Kg	1	7/3/2003 1:35:00 AM

Qualifiers:

ND - Not Detected at the Reporting Limit

J - Analyte detected below quantitation limits

B - Analyte detected in the associated Method Blank

* - Value exceeds Maximum Contaminant Level

S - Spike Recovery outside accepted recovery limits

R - RPD outside accepted recovery limits

E - Value above quantitation range

American Analytical Laboratories, Inc.

Date: *28-Jul-03*

CLIENT:	AKRF, Inc	**Client Sample ID:**	MW7 (6.5-7.5)
Lab Order:	0306117	**Tag Number:**	
Project:	Greenpoint Lumber Yard Brooklyn, NY	**Collection Date:**	6/26/2003
Lab ID:	0306117-08B	**Matrix:**	SOIL

Analyses	Result	Limit	Qual	Units	DF	Date Analyzed
SEMIVOLATILES SW-846 8270		**SW8270D**		**(SW3550A)**		Analyst: **RN**
1,2,4-Trichlorobenzene	U	80		µg/Kg	2	7/3/2003 9:18:00 PM
1,2-Dichlorobenzene	U	80		µg/Kg	2	7/3/2003 9:18:00 PM
1,3-Dichlorobenzene	U	80		µg/Kg	2	7/3/2003 9:18:00 PM
1,4-Dichlorobenzene	U	80		µg/Kg	2	7/3/2003 9:18:00 PM
2,4,5-Trichlorophenol	U	80		µg/Kg	2	7/3/2003 9:18:00 PM
2,4,6-Trichlorophenol	U	80		µg/Kg	2	7/3/2003 9:18:00 PM
2,4-Dichlorophenol	U	80		µg/Kg	2	7/3/2003 9:18:00 PM
2,4-Dimethylphenol	U	80		µg/Kg	2	7/3/2003 9:18:00 PM
2,4-Dinitrophenol	U	80		µg/Kg	2	7/3/2003 9:18:00 PM
2,4-Dinitrotoluene	U	80		µg/Kg	2	7/3/2003 9:18:00 PM
2,6-Dinitrotoluene	U	80		µg/Kg	2	7/3/2003 9:18:00 PM
2-Chloronaphthalene	U	80		µg/Kg	2	7/3/2003 9:18:00 PM
2-Chlorophenol	U	80		µg/Kg	2	7/3/2003 9:18:00 PM
2-Methylnaphthalene	680	80		µg/Kg	2	7/3/2003 9:18:00 PM
2-Methylphenol	87	80		µg/Kg	2	7/3/2003 9:18:00 PM
2-Nitroaniline	U	80		µg/Kg	2	7/3/2003 9:18:00 PM
2-Nitrophenol	U	80		µg/Kg	2	7/3/2003 9:18:00 PM
3,3´-Dichlorobenzidine	U	80		µg/Kg	2	7/3/2003 9:18:00 PM
3+4-Methylphenol	U	80		µg/Kg	2	7/3/2003 9:18:00 PM
3-Nitroaniline	U	80		µg/Kg	2	7/3/2003 9:18:00 PM
4,6-Dinitro-2-methylphenol	U	80		µg/Kg	2	7/3/2003 9:18:00 PM
4-Bromophenyl phenyl ether	U	80		µg/Kg	2	7/3/2003 9:18:00 PM
4-Chloro-3-methylphenol	U	80		µg/Kg	2	7/3/2003 9:18:00 PM
4-Chloroaniline	U	80		µg/Kg	2	7/3/2003 9:18:00 PM
4-Chlorophenyl phenyl ether	U	80		µg/Kg	2	7/3/2003 9:18:00 PM
4-Nitroaniline	U	80		µg/Kg	2	7/3/2003 9:18:00 PM
4-Nitrophenol	U	80		µg/Kg	2	7/3/2003 9:18:00 PM
Acenaphthene	1400	80		µg/Kg	2	7/3/2003 9:18:00 PM
Acenaphthylene	480	80		µg/Kg	2	7/3/2003 9:18:00 PM
Aniline	U	80		µg/Kg	2	7/3/2003 9:18:00 PM
Anthracene	3800	80		µg/Kg	2	7/3/2003 9:18:00 PM
Azobenzene	U	80		µg/Kg	2	7/3/2003 9:18:00 PM
Benzidine	U	80		µg/Kg	2	7/3/2003 9:18:00 PM
Benzo(a)anthracene	8400	800		µg/Kg	20	7/7/2003 5:13:00 PM
Benzo(a)pyrene	7400	800		µg/Kg	20	7/7/2003 5:13:00 PM
Benzo(b)fluoranthene	8600	800		µg/Kg	20	7/7/2003 5:13:00 PM
Benzo(g,h,i)perylene	3900	80		µg/Kg	2	7/3/2003 9:18:00 PM
Benzo(k)fluoranthene	2500	80		µg/Kg	2	7/3/2003 9:18:00 PM
Benzoic acid	U	80		µg/Kg	2	7/3/2003 9:18:00 PM
Benzyl alcohol	U	80		µg/Kg	2	7/3/2003 9:18:00 PM

Qualifiers:

ND - Not Detected at the Reporting Limit

J - Analyte detected below quantitation limits

B - Analyte detected in the associated Method Blank

* - Value exceeds Maximum Contaminant Level

S - Spike Recovery outside accepted recovery limits

R - RPD outside accepted recovery limits

E - Value above quantitation range

American Analytical Laboratories, Inc.

Date: *28-Jul-03*

CLIENT:	AKRF, Inc	**Client Sample ID:**	MW7 (6.5-7.5)
Lab Order:	0306117	**Tag Number:**	
Project:	Greenpoint Lumber Yard Brooklyn, NY	**Collection Date:**	6/26/2003
Lab ID:	0306117-08B	**Matrix:**	SOIL

Analyses	Result	Limit	Qual	Units	DF	Date Analyzed
SEMIVOLATILES SW-846 8270		**SW8270D**		**(SW3550A)**		Analyst: **RN**
Bis(2-chloroethoxy)methane	U	80		µg/Kg	2	7/3/2003 9:18:00 PM
Bis(2-chloroethyl)ether	U	80		µg/Kg	2	7/3/2003 9:18:00 PM
Bis(2-chloroisopropyl)ether	U	80		µg/Kg	2	7/3/2003 9:18:00 PM
Bis(2-ethylhexyl)phthalate	U	80		µg/Kg	2	7/3/2003 9:18:00 PM
Butyl benzyl phthalate	U	80		µg/Kg	2	7/3/2003 9:18:00 PM
Carbazole	1700	80		µg/Kg	2	7/3/2003 9:18:00 PM
Carbazole	1900	800		µg/Kg	20	7/7/2003 5:13:00 PM
Chrysene	8100	800		µg/Kg	20	7/7/2003 5:13:00 PM
Dibenzo(a,h)anthracene	1000	80		µg/Kg	2	7/3/2003 9:18:00 PM
Dibenzofuran	1500	80		µg/Kg	2	7/3/2003 9:18:00 PM
Diethyl phthalate	U	80		µg/Kg	2	7/3/2003 9:18:00 PM
Dimethyl phthalate	U	80		µg/Kg	2	7/3/2003 9:18:00 PM
Di-n-butyl phthalate	U	80		µg/Kg	2	7/3/2003 9:18:00 PM
Di-n-octyl phthalate	U	80		µg/Kg	2	7/3/2003 9:18:00 PM
Fluoranthene	20000	800		µg/Kg	20	7/7/2003 5:13:00 PM
Fluorene	1800	80		µg/Kg	2	7/3/2003 9:18:00 PM
Hexachlorobenzene	U	80		µg/Kg	2	7/3/2003 9:18:00 PM
Hexachlorobutadiene	U	80		µg/Kg	2	7/3/2003 9:18:00 PM
Hexachlorocyclopentadiene	U	80		µg/Kg	2	7/3/2003 9:18:00 PM
Hexachloroethane	U	80		µg/Kg	2	7/3/2003 9:18:00 PM
Indeno(1,2,3-c,d)pyrene	4100	80		µg/Kg	2	7/3/2003 9:18:00 PM
Isophorone	U	80		µg/Kg	2	7/3/2003 9:18:00 PM
Naphthalene	1400	80		µg/Kg	2	7/3/2003 9:18:00 PM
Nitrobenzene	U	80		µg/Kg	2	7/3/2003 9:18:00 PM
N-Nitrosodimethylamine	U	80		µg/Kg	2	7/3/2003 9:18:00 PM
N-Nitrosodi-n-propylamine	U	80		µg/Kg	2	7/3/2003 9:18:00 PM
N-Nitrosodiphenylamine	U	80		µg/Kg	2	7/3/2003 9:18:00 PM
Pentachlorophenol	U	80		µg/Kg	2	7/3/2003 9:18:00 PM
Phenanthrene	19000	800		µg/Kg	20	7/7/2003 5:13:00 PM
Phenol	U	80		µg/Kg	2	7/3/2003 9:18:00 PM
Pyrene	17000	800		µg/Kg	20	7/7/2003 5:13:00 PM
Pyridine	U	80		µg/Kg	2	7/3/2003 9:18:00 PM

Qualifiers:

ND - Not Detected at the Reporting Limit

J - Analyte detected below quantitation limits

B - Analyte detected in the associated Method Blank

* - Value exceeds Maximum Contaminant Level

S - Spike Recovery outside accepted recovery limits

R - RPD outside accepted recovery limits

E - Value above quantitation range

American Analytical Laboratories, Inc.

Date: *28-Jul-03*

CLIENT:	AKRF, Inc	**Client Sample ID:**	B11 (1-3)
Lab Order:	0306117	**Tag Number:**	
Project:	Greenpoint Lumber Yard Brooklyn, NY	**Collection Date:**	6/26/2003
Lab ID:	0306117-09B	**Matrix:**	SOIL

Analyses	Result	Limit	Qual	Units	DF	Date Analyzed
SEMIVOLATILES SW-846 8270		**SW8270D**		**(SW3550A)**		Analyst: **RN**
1,2,4-Trichlorobenzene	U	320		µg/Kg	8	7/3/2003 10:49:00 PM
1,2-Dichlorobenzene	U	320		µg/Kg	8	7/3/2003 10:49:00 PM
1,3-Dichlorobenzene	U	320		µg/Kg	8	7/3/2003 10:49:00 PM
1,4-Dichlorobenzene	U	320		µg/Kg	8	7/3/2003 10:49:00 PM
2,4,5-Trichlorophenol	U	320		µg/Kg	8	7/3/2003 10:49:00 PM
2,4,6-Trichlorophenol	U	320		µg/Kg	8	7/3/2003 10:49:00 PM
2,4-Dichlorophenol	U	320		µg/Kg	8	7/3/2003 10:49:00 PM
2,4-Dimethylphenol	U	320		µg/Kg	8	7/3/2003 10:49:00 PM
2,4-Dinitrophenol	U	320		µg/Kg	8	7/3/2003 10:49:00 PM
2,4-Dinitrotoluene	U	320		µg/Kg	8	7/3/2003 10:49:00 PM
2,6-Dinitrotoluene	U	320		µg/Kg	8	7/3/2003 10:49:00 PM
2-Chloronaphthalene	U	320		µg/Kg	8	7/3/2003 10:49:00 PM
2-Chlorophenol	U	320		µg/Kg	8	7/3/2003 10:49:00 PM
2-Methylnaphthalene	1500	320		µg/Kg	8	7/3/2003 10:49:00 PM
2-Methylphenol	U	320		µg/Kg	8	7/3/2003 10:49:00 PM
2-Nitroaniline	U	320		µg/Kg	8	7/3/2003 10:49:00 PM
2-Nitrophenol	U	320		µg/Kg	8	7/3/2003 10:49:00 PM
3,3´-Dichlorobenzidine	U	320		µg/Kg	8	7/3/2003 10:49:00 PM
3+4-Methylphenol	U	320		µg/Kg	8	7/3/2003 10:49:00 PM
3-Nitroaniline	U	320		µg/Kg	8	7/3/2003 10:49:00 PM
4,6-Dinitro-2-methylphenol	U	320		µg/Kg	8	7/3/2003 10:49:00 PM
4-Bromophenyl phenyl ether	U	320		µg/Kg	8	7/3/2003 10:49:00 PM
4-Chloro-3-methylphenol	U	320		µg/Kg	8	7/3/2003 10:49:00 PM
4-Chloroaniline	U	320		µg/Kg	8	7/3/2003 10:49:00 PM
4-Chlorophenyl phenyl ether	U	320		µg/Kg	8	7/3/2003 10:49:00 PM
4-Nitroaniline	U	320		µg/Kg	8	7/3/2003 10:49:00 PM
4-Nitrophenol	U	320		µg/Kg	8	7/3/2003 10:49:00 PM
Acenaphthene	4000	320		µg/Kg	8	7/3/2003 10:49:00 PM
Acenaphthylene	580	320		µg/Kg	8	7/3/2003 10:49:00 PM
Aniline	U	320		µg/Kg	8	7/3/2003 10:49:00 PM
Anthracene	13000	320		µg/Kg	8	7/3/2003 10:49:00 PM
Azobenzene	U	320		µg/Kg	8	7/3/2003 10:49:00 PM
Benzidine	U	320		µg/Kg	8	7/3/2003 10:49:00 PM
Benzo(a)anthracene	36000	3200		µg/Kg	80	7/8/2003 5:35:00 PM
Benzo(a)pyrene	32000	3200		µg/Kg	80	7/8/2003 5:35:00 PM
Benzo(b)fluoranthene	39000	3200		µg/Kg	80	7/8/2003 5:35:00 PM
Benzo(g,h,i)perylene	17000	320		µg/Kg	8	7/3/2003 10:49:00 PM
Benzo(k)fluoranthene	11000	320		µg/Kg	8	7/3/2003 10:49:00 PM
Benzoic acid	U	320		µg/Kg	8	7/3/2003 10:49:00 PM
Benzyl alcohol	U	320		µg/Kg	8	7/3/2003 10:49:00 PM

Qualifiers:

ND - Not Detected at the Reporting Limit

J - Analyte detected below quantitation limits

B - Analyte detected in the associated Method Blank

* - Value exceeds Maximum Contaminant Level

S - Spike Recovery outside accepted recovery limits

R - RPD outside accepted recovery limits

E - Value above quantitation range

American Analytical Laboratories, Inc.

Date: *28-Jul-03*

CLIENT:	AKRF, Inc	**Client Sample ID:**	B11 (1-3)
Lab Order:	0306117	**Tag Number:**	
Project:	Greenpoint Lumber Yard Brooklyn, NY	**Collection Date:**	6/26/2003
Lab ID:	0306117-09B	**Matrix:**	SOIL

Analyses	Result	Limit	Qual	Units	DF	Date Analyzed
SEMIVOLATILES SW-846 8270		**SW8270D**		**(SW3550A)**		Analyst: **RN**
Bis(2-chloroethoxy)methane	U	320		µg/Kg	8	7/3/2003 10:49:00 PM
Bis(2-chloroethyl)ether	U	320		µg/Kg	8	7/3/2003 10:49:00 PM
Bis(2-chloroisopropyl)ether	U	320		µg/Kg	8	7/3/2003 10:49:00 PM
Bis(2-ethylhexyl)phthalate	U	320		µg/Kg	8	7/3/2003 10:49:00 PM
Butyl benzyl phthalate	U	320		µg/Kg	8	7/3/2003 10:49:00 PM
Carbazole	4900	320		µg/Kg	8	7/3/2003 10:49:00 PM
Chrysene	37000	3200		µg/Kg	80	7/8/2003 5:35:00 PM
Dibenzo(a,h)anthracene	5500	320		µg/Kg	8	7/3/2003 10:49:00 PM
Dibenzofuran	4200	320		µg/Kg	8	7/3/2003 10:49:00 PM
Diethyl phthalate	U	320		µg/Kg	8	7/3/2003 10:49:00 PM
Dimethyl phthalate	U	320		µg/Kg	8	7/3/2003 10:49:00 PM
Di-n-butyl phthalate	U	320		µg/Kg	8	7/3/2003 10:49:00 PM
Di-n-octyl phthalate	U	320		µg/Kg	8	7/3/2003 10:49:00 PM
Fluoranthene	69000	3200		µg/Kg	80	7/8/2003 5:35:00 PM
Fluorene	5500	320		µg/Kg	8	7/3/2003 10:49:00 PM
Hexachlorobenzene	U	320		µg/Kg	8	7/3/2003 10:49:00 PM
Hexachlorobutadiene	U	320		µg/Kg	8	7/3/2003 10:49:00 PM
Hexachlorocyclopentadiene	U	320		µg/Kg	8	7/3/2003 10:49:00 PM
Hexachloroethane	U	320		µg/Kg	8	7/3/2003 10:49:00 PM
Indeno(1,2,3-c,d)pyrene	19000	320		µg/Kg	8	7/3/2003 10:49:00 PM
Isophorone	U	320		µg/Kg	8	7/3/2003 10:49:00 PM
Naphthalene	3600	320		µg/Kg	8	7/3/2003 10:49:00 PM
Nitrobenzene	U	320		µg/Kg	8	7/3/2003 10:49:00 PM
N-Nitrosodimethylamine	U	320		µg/Kg	8	7/3/2003 10:49:00 PM
N-Nitrosodi-n-propylamine	U	320		µg/Kg	8	7/3/2003 10:49:00 PM
N-Nitrosodiphenylamine	U	320		µg/Kg	8	7/3/2003 10:49:00 PM
Pentachlorophenol	U	320		µg/Kg	8	7/3/2003 10:49:00 PM
Phenanthrene	52000	3200		µg/Kg	80	7/8/2003 5:35:00 PM
Phenol	U	320		µg/Kg	8	7/3/2003 10:49:00 PM
Pyrene	65000	3200		µg/Kg	80	7/8/2003 5:35:00 PM
Pyridine	U	320		µg/Kg	8	7/3/2003 10:49:00 PM

Qualifiers:

ND - Not Detected at the Reporting Limit

J - Analyte detected below quantitation limits

B - Analyte detected in the associated Method Blank

* - Value exceeds Maximum Contaminant Level

S - Spike Recovery outside accepted recovery limits

R - RPD outside accepted recovery limits

E - Value above quantitation range

American Analytical Laboratories, Inc.

Date: *28-Jul-03*

CLIENT:	AKRF, Inc	**Client Sample ID:**	B11 (7-9)
Lab Order:	0306117	**Tag Number:**	
Project:	Greenpoint Lumber Yard Brooklyn, NY	**Collection Date:**	6/26/2003
Lab ID:	0306117-10B	**Matrix:**	SOIL

Analyses	Result	Limit	Qual	Units	DF	Date Analyzed
SEMIVOLATILES SW-846 8270		**SW8270D**		**(SW3550A)**		Analyst: **RN**
1,2,4-Trichlorobenzene	U	40		µg/Kg	1	7/3/2003 2:05:00 PM
1,2-Dichlorobenzene	U	40		µg/Kg	1	7/3/2003 2:05:00 PM
1,3-Dichlorobenzene	U	40		µg/Kg	1	7/3/2003 2:05:00 PM
1,4-Dichlorobenzene	U	40		µg/Kg	1	7/3/2003 2:05:00 PM
2,4,5-Trichlorophenol	U	40		µg/Kg	1	7/3/2003 2:05:00 PM
2,4,6-Trichlorophenol	U	40		µg/Kg	1	7/3/2003 2:05:00 PM
2,4-Dichlorophenol	U	40		µg/Kg	1	7/3/2003 2:05:00 PM
2,4-Dimethylphenol	U	40		µg/Kg	1	7/3/2003 2:05:00 PM
2,4-Dinitrophenol	U	40		µg/Kg	1	7/3/2003 2:05:00 PM
2,4-Dinitrotoluene	U	40		µg/Kg	1	7/3/2003 2:05:00 PM
2,6-Dinitrotoluene	U	40		µg/Kg	1	7/3/2003 2:05:00 PM
2-Chloronaphthalene	U	40		µg/Kg	1	7/3/2003 2:05:00 PM
2-Chlorophenol	U	40		µg/Kg	1	7/3/2003 2:05:00 PM
2-Methylnaphthalene	41	40		µg/Kg	1	7/3/2003 2:05:00 PM
2-Methylphenol	U	40		µg/Kg	1	7/3/2003 2:05:00 PM
2-Nitroaniline	U	40		µg/Kg	1	7/3/2003 2:05:00 PM
2-Nitrophenol	U	40		µg/Kg	1	7/3/2003 2:05:00 PM
3,3'-Dichlorobenzidine	U	40		µg/Kg	1	7/3/2003 2:05:00 PM
3+4-Methylphenol	U	40		µg/Kg	1	7/3/2003 2:05:00 PM
3-Nitroaniline	U	40		µg/Kg	1	7/3/2003 2:05:00 PM
4,6-Dinitro-2-methylphenol	U	40		µg/Kg	1	7/3/2003 2:05:00 PM
4-Bromophenyl phenyl ether	U	40		µg/Kg	1	7/3/2003 2:05:00 PM
4-Chloro-3-methylphenol	U	40		µg/Kg	1	7/3/2003 2:05:00 PM
4-Chloroaniline	U	40		µg/Kg	1	7/3/2003 2:05:00 PM
4-Chlorophenyl phenyl ether	U	40		µg/Kg	1	7/3/2003 2:05:00 PM
4-Nitroaniline	U	40		µg/Kg	1	7/3/2003 2:05:00 PM
4-Nitrophenol	U	40		µg/Kg	1	7/3/2003 2:05:00 PM
Acenaphthene	110	40		µg/Kg	1	7/3/2003 2:05:00 PM
Acenaphthylene	U	40		µg/Kg	1	7/3/2003 2:05:00 PM
Aniline	U	40		µg/Kg	1	7/3/2003 2:05:00 PM
Anthracene	310	40		µg/Kg	1	7/3/2003 2:05:00 PM
Azobenzene	U	40		µg/Kg	1	7/3/2003 2:05:00 PM
Benzidine	U	40		µg/Kg	1	7/3/2003 2:05:00 PM
Benzo(a)anthracene	640	40		µg/Kg	1	7/3/2003 2:05:00 PM
Benzo(a)pyrene	590	40		µg/Kg	1	7/3/2003 2:05:00 PM
Benzo(b)fluoranthene	670	40		µg/Kg	1	7/3/2003 2:05:00 PM
Benzo(g,h,i)perylene	330	40		µg/Kg	1	7/3/2003 2:05:00 PM
Benzo(k)fluoranthene	270	40		µg/Kg	1	7/3/2003 2:05:00 PM
Benzoic acid	240	40		µg/Kg	1	7/3/2003 2:05:00 PM
Benzyl alcohol	U	40		µg/Kg	1	7/3/2003 2:05:00 PM

Qualifiers:

ND - Not Detected at the Reporting Limit

J - Analyte detected below quantitation limits

B - Analyte detected in the associated Method Blank

* - Value exceeds Maximum Contaminant Level

S - Spike Recovery outside accepted recovery limits

R - RPD outside accepted recovery limits

E - Value above quantitation range

American Analytical Laboratories, Inc.

Date: *28-Jul-03*

CLIENT:	AKRF, Inc	**Client Sample ID:**	B11 (7-9)
Lab Order:	0306117	**Tag Number:**	
Project:	Greenpoint Lumber Yard Brooklyn, NY	**Collection Date:**	6/26/2003
Lab ID:	0306117-10B	**Matrix:**	SOIL

Analyses	Result	Limit	Qual	Units	DF	Date Analyzed
SEMIVOLATILES SW-846 8270		**SW8270D**		**(SW3550A)**		Analyst: **RN**
Bis(2-chloroethoxy)methane	U	40		µg/Kg	1	7/3/2003 2:05:00 PM
Bis(2-chloroethyl)ether	U	40		µg/Kg	1	7/3/2003 2:05:00 PM
Bis(2-chloroisopropyl)ether	U	40		µg/Kg	1	7/3/2003 2:05:00 PM
Bis(2-ethylhexyl)phthalate	U	40		µg/Kg	1	7/3/2003 2:05:00 PM
Butyl benzyl phthalate	U	40		µg/Kg	1	7/3/2003 2:05:00 PM
Carbazole	120	40		µg/Kg	1	7/3/2003 2:05:00 PM
Chrysene	670	40		µg/Kg	1	7/3/2003 2:05:00 PM
Dibenzo(a,h)anthracene	100	40		µg/Kg	1	7/3/2003 2:05:00 PM
Dibenzofuran	94	40		µg/Kg	1	7/3/2003 2:05:00 PM
Diethyl phthalate	U	40		µg/Kg	1	7/3/2003 2:05:00 PM
Dimethyl phthalate	U	40		µg/Kg	1	7/3/2003 2:05:00 PM
Di-n-butyl phthalate	U	40		µg/Kg	1	7/3/2003 2:05:00 PM
Di-n-octyl phthalate	U	40		µg/Kg	1	7/3/2003 2:05:00 PM
Fluoranthene	1200	40		µg/Kg	1	7/3/2003 2:05:00 PM
Fluorene	140	40		µg/Kg	1	7/3/2003 2:05:00 PM
Hexachlorobenzene	U	40		µg/Kg	1	7/3/2003 2:05:00 PM
Hexachlorobutadiene	U	40		µg/Kg	1	7/3/2003 2:05:00 PM
Hexachlorocyclopentadiene	U	40		µg/Kg	1	7/3/2003 2:05:00 PM
Hexachloroethane	U	40		µg/Kg	1	7/3/2003 2:05:00 PM
Indeno(1,2,3-c,d)pyrene	340	40		µg/Kg	1	7/3/2003 2:05:00 PM
Isophorone	U	40		µg/Kg	1	7/3/2003 2:05:00 PM
Naphthalene	83	40		µg/Kg	1	7/3/2003 2:05:00 PM
Nitrobenzene	U	40		µg/Kg	1	7/3/2003 2:05:00 PM
N-Nitrosodimethylamine	U	40		µg/Kg	1	7/3/2003 2:05:00 PM
N-Nitrosodi-n-propylamine	U	40		µg/Kg	1	7/3/2003 2:05:00 PM
N-Nitrosodiphenylamine	U	40		µg/Kg	1	7/3/2003 2:05:00 PM
Pentachlorophenol	U	40		µg/Kg	1	7/3/2003 2:05:00 PM
Phenanthrene	1200	40		µg/Kg	1	7/3/2003 2:05:00 PM
Phenol	U	40		µg/Kg	1	7/3/2003 2:05:00 PM
Pyrene	1100	40		µg/Kg	1	7/3/2003 2:05:00 PM
Pyridine	U	40		µg/Kg	1	7/3/2003 2:05:00 PM

Qualifiers:

ND - Not Detected at the Reporting Limit

J - Analyte detected below quantitation limits

B - Analyte detected in the associated Method Blank

* - Value exceeds Maximum Contaminant Level

S - Spike Recovery outside accepted recovery limits

R - RPD outside accepted recovery limits

E - Value above quantitation range

American Analytical Laboratories, Inc.

Date: *28-Jul-03*

CLIENT:	AKRF, Inc	**Client Sample ID:**	MW11 (0.5'-2')
Lab Order:	0306117	**Tag Number:**	
Project:	Greenpoint Lumber Yard Brooklyn, NY	**Collection Date:**	6/26/2003
Lab ID:	0306117-11B	**Matrix:**	SOIL

Analyses	Result	Limit	Qual	Units	DF	Date Analyzed
SEMIVOLATILES SW-846 8270		**SW8270D**		**(SW3550A)**		Analyst: **RN**
1,2,4-Trichlorobenzene	U	80		µg/Kg	2	7/3/2003 10:04:00 PM
1,2-Dichlorobenzene	U	80		µg/Kg	2	7/3/2003 10:04:00 PM
1,3-Dichlorobenzene	U	80		µg/Kg	2	7/3/2003 10:04:00 PM
1,4-Dichlorobenzene	U	80		µg/Kg	2	7/3/2003 10:04:00 PM
2,4,5-Trichlorophenol	U	80		µg/Kg	2	7/3/2003 10:04:00 PM
2,4,6-Trichlorophenol	U	80		µg/Kg	2	7/3/2003 10:04:00 PM
2,4-Dichlorophenol	U	80		µg/Kg	2	7/3/2003 10:04:00 PM
2,4-Dimethylphenol	U	80		µg/Kg	2	7/3/2003 10:04:00 PM
2,4-Dinitrophenol	U	80		µg/Kg	2	7/3/2003 10:04:00 PM
2,4-Dinitrotoluene	U	80		µg/Kg	2	7/3/2003 10:04:00 PM
2,6-Dinitrotoluene	U	80		µg/Kg	2	7/3/2003 10:04:00 PM
2-Chloronaphthalene	U	80		µg/Kg	2	7/3/2003 10:04:00 PM
2-Chlorophenol	U	80		µg/Kg	2	7/3/2003 10:04:00 PM
2-Methylnaphthalene	120	80		µg/Kg	2	7/3/2003 10:04:00 PM
2-Methylphenol	U	80		µg/Kg	2	7/3/2003 10:04:00 PM
2-Nitroaniline	U	80		µg/Kg	2	7/3/2003 10:04:00 PM
2-Nitrophenol	U	80		µg/Kg	2	7/3/2003 10:04:00 PM
3,3'-Dichlorobenzidine	U	80		µg/Kg	2	7/3/2003 10:04:00 PM
3+4-Methylphenol	U	80		µg/Kg	2	7/3/2003 10:04:00 PM
3-Nitroaniline	U	80		µg/Kg	2	7/3/2003 10:04:00 PM
4,6-Dinitro-2-methylphenol	U	80		µg/Kg	2	7/3/2003 10:04:00 PM
4-Bromophenyl phenyl ether	U	80		µg/Kg	2	7/3/2003 10:04:00 PM
4-Chloro-3-methylphenol	U	80		µg/Kg	2	7/3/2003 10:04:00 PM
4-Chloroaniline	U	80		µg/Kg	2	7/3/2003 10:04:00 PM
4-Chlorophenyl phenyl ether	U	80		µg/Kg	2	7/3/2003 10:04:00 PM
4-Nitroaniline	U	80		µg/Kg	2	7/3/2003 10:04:00 PM
4-Nitrophenol	U	80		µg/Kg	2	7/3/2003 10:04:00 PM
Acenaphthene	450	80		µg/Kg	2	7/3/2003 10:04:00 PM
Acenaphthylene	U	80		µg/Kg	2	7/3/2003 10:04:00 PM
Aniline	U	80		µg/Kg	2	7/3/2003 10:04:00 PM
Anthracene	1100	80		µg/Kg	2	7/3/2003 10:04:00 PM
Azobenzene	U	80		µg/Kg	2	7/3/2003 10:04:00 PM
Benzidine	U	80		µg/Kg	2	7/3/2003 10:04:00 PM
Benzo(a)anthracene	2200	80		µg/Kg	2	7/3/2003 10:04:00 PM
Benzo(a)pyrene	1900	80		µg/Kg	2	7/3/2003 10:04:00 PM
Benzo(b)fluoranthene	2300	80		µg/Kg	2	7/3/2003 10:04:00 PM
Benzo(g,h,i)perylene	1300	80		µg/Kg	2	7/3/2003 10:04:00 PM
Benzo(k)fluoranthene	850	80		µg/Kg	2	7/3/2003 10:04:00 PM
Benzoic acid	U	80		µg/Kg	2	7/3/2003 10:04:00 PM
Benzyl alcohol	U	80		µg/Kg	2	7/3/2003 10:04:00 PM

Qualifiers:

ND - Not Detected at the Reporting Limit

J - Analyte detected below quantitation limits

B - Analyte detected in the associated Method Blank

* - Value exceeds Maximum Contaminant Level

S - Spike Recovery outside accepted recovery limits

R - RPD outside accepted recovery limits

E - Value above quantitation range

American Analytical Laboratories, Inc.

Date: *28-Jul-03*

CLIENT:	AKRF, Inc	**Client Sample ID:**	MW11 (0.5'-2')
Lab Order:	0306117	**Tag Number:**	
Project:	Greenpoint Lumber Yard Brooklyn, NY	**Collection Date:**	6/26/2003
Lab ID:	0306117-11B	**Matrix:**	SOIL

Analyses	Result	Limit	Qual	Units	DF	Date Analyzed
SEMIVOLATILES SW-846 8270		**SW8270D**		**(SW3550A)**		Analyst: **RN**
Bis(2-chloroethoxy)methane	U	80		µg/Kg	2	7/3/2003 10:04:00 PM
Bis(2-chloroethyl)ether	U	80		µg/Kg	2	7/3/2003 10:04:00 PM
Bis(2-chloroisopropyl)ether	U	80		µg/Kg	2	7/3/2003 10:04:00 PM
Bis(2-ethylhexyl)phthalate	130	80		µg/Kg	2	7/3/2003 10:04:00 PM
Butyl benzyl phthalate	U	80		µg/Kg	2	7/3/2003 10:04:00 PM
Carbazole	470	80		µg/Kg	2	7/3/2003 10:04:00 PM
Chrysene	2400	80		µg/Kg	2	7/3/2003 10:04:00 PM
Dibenzo(a,h)anthracene	320	80		µg/Kg	2	7/3/2003 10:04:00 PM
Dibenzofuran	240	80		µg/Kg	2	7/3/2003 10:04:00 PM
Diethyl phthalate	U	80		µg/Kg	2	7/3/2003 10:04:00 PM
Dimethyl phthalate	U	80		µg/Kg	2	7/3/2003 10:04:00 PM
Di-n-butyl phthalate	U	80		µg/Kg	2	7/3/2003 10:04:00 PM
Di-n-octyl phthalate	U	80		µg/Kg	2	7/3/2003 10:04:00 PM
Fluoranthene	6400	400		µg/Kg	10	7/7/2003 5:56:00 PM
Fluorene	430	80		µg/Kg	2	7/3/2003 10:04:00 PM
Hexachlorobenzene	U	80		µg/Kg	2	7/3/2003 10:04:00 PM
Hexachlorobutadiene	U	80		µg/Kg	2	7/3/2003 10:04:00 PM
Hexachlorocyclopentadiene	U	80		µg/Kg	2	7/3/2003 10:04:00 PM
Hexachloroethane	U	80		µg/Kg	2	7/3/2003 10:04:00 PM
Indeno(1,2,3-c,d)pyrene	1300	80		µg/Kg	2	7/3/2003 10:04:00 PM
Isophorone	U	80		µg/Kg	2	7/3/2003 10:04:00 PM
Naphthalene	100	80		µg/Kg	2	7/3/2003 10:04:00 PM
Nitrobenzene	U	80		µg/Kg	2	7/3/2003 10:04:00 PM
N-Nitrosodimethylamine	U	80		µg/Kg	2	7/3/2003 10:04:00 PM
N-Nitrosodi-n-propylamine	U	80		µg/Kg	2	7/3/2003 10:04:00 PM
N-Nitrosodiphenylamine	U	80		µg/Kg	2	7/3/2003 10:04:00 PM
Pentachlorophenol	U	80		µg/Kg	2	7/3/2003 10:04:00 PM
Phenanthrene	6600	400		µg/Kg	10	7/7/2003 5:56:00 PM
Phenol	U	80		µg/Kg	2	7/3/2003 10:04:00 PM
Pyrene	5100	80		µg/Kg	2	7/3/2003 10:04:00 PM
Pyridine	U	80		µg/Kg	2	7/3/2003 10:04:00 PM

Qualifiers:

ND - Not Detected at the Reporting Limit

J - Analyte detected below quantitation limits

B - Analyte detected in the associated Method Blank

* - Value exceeds Maximum Contaminant Level

S - Spike Recovery outside accepted recovery limits

R - RPD outside accepted recovery limits

E - Value above quantitation range

American Analytical Laboratories, Inc.

Date: *28-Jul-03*

CLIENT:	AKRF, Inc	**Client Sample ID:**	MW11 (7'-9')
Lab Order:	0306117	**Tag Number:**	
Project:	Greenpoint Lumber Yard Brooklyn, NY	**Collection Date:**	6/26/2003
Lab ID:	0306117-12B	**Matrix:**	SOIL

Analyses	Result	Limit	Qual	Units	DF	Date Analyzed
SEMIVOLATILES SW-846 8270		**SW8270D**		**(SW3550A)**		Analyst: **RN**
1,2,4-Trichlorobenzene	U	40		µg/Kg	1	7/3/2003 2:25:00 AM
1,2-Dichlorobenzene	U	40		µg/Kg	1	7/3/2003 2:25:00 AM
1,3-Dichlorobenzene	U	40		µg/Kg	1	7/3/2003 2:25:00 AM
1,4-Dichlorobenzene	U	40		µg/Kg	1	7/3/2003 2:25:00 AM
2,4,5-Trichlorophenol	U	40		µg/Kg	1	7/3/2003 2:25:00 AM
2,4,6-Trichlorophenol	U	40		µg/Kg	1	7/3/2003 2:25:00 AM
2,4-Dichlorophenol	U	40		µg/Kg	1	7/3/2003 2:25:00 AM
2,4-Dimethylphenol	U	40		µg/Kg	1	7/3/2003 2:25:00 AM
2,4-Dinitrophenol	U	40		µg/Kg	1	7/3/2003 2:25:00 AM
2,4-Dinitrotoluene	U	40		µg/Kg	1	7/3/2003 2:25:00 AM
2,6-Dinitrotoluene	U	40		µg/Kg	1	7/3/2003 2:25:00 AM
2-Chloronaphthalene	U	40		µg/Kg	1	7/3/2003 2:25:00 AM
2-Chlorophenol	U	40		µg/Kg	1	7/3/2003 2:25:00 AM
2-Methylnaphthalene	U	40		µg/Kg	1	7/3/2003 2:25:00 AM
2-Methylphenol	U	40		µg/Kg	1	7/3/2003 2:25:00 AM
2-Nitroaniline	U	40		µg/Kg	1	7/3/2003 2:25:00 AM
2-Nitrophenol	U	40		µg/Kg	1	7/3/2003 2:25:00 AM
3,3´-Dichlorobenzidine	U	40		µg/Kg	1	7/3/2003 2:25:00 AM
3+4-Methylphenol	U	40		µg/Kg	1	7/3/2003 2:25:00 AM
3-Nitroaniline	U	40		µg/Kg	1	7/3/2003 2:25:00 AM
4,6-Dinitro-2-methylphenol	U	40		µg/Kg	1	7/3/2003 2:25:00 AM
4-Bromophenyl phenyl ether	U	40		µg/Kg	1	7/3/2003 2:25:00 AM
4-Chloro-3-methylphenol	U	40		µg/Kg	1	7/3/2003 2:25:00 AM
4-Chloroaniline	U	40		µg/Kg	1	7/3/2003 2:25:00 AM
4-Chlorophenyl phenyl ether	U	40		µg/Kg	1	7/3/2003 2:25:00 AM
4-Nitroaniline	U	40		µg/Kg	1	7/3/2003 2:25:00 AM
4-Nitrophenol	U	40		µg/Kg	1	7/3/2003 2:25:00 AM
Acenaphthene	U	40		µg/Kg	1	7/3/2003 2:25:00 AM
Acenaphthylene	U	40		µg/Kg	1	7/3/2003 2:25:00 AM
Aniline	U	40		µg/Kg	1	7/3/2003 2:25:00 AM
Anthracene	U	40		µg/Kg	1	7/3/2003 2:25:00 AM
Azobenzene	U	40		µg/Kg	1	7/3/2003 2:25:00 AM
Benzidine	U	40		µg/Kg	1	7/3/2003 2:25:00 AM
Benzo(a)anthracene	U	40		µg/Kg	1	7/3/2003 2:25:00 AM
Benzo(a)pyrene	U	40		µg/Kg	1	7/3/2003 2:25:00 AM
Benzo(b)fluoranthene	U	40		µg/Kg	1	7/3/2003 2:25:00 AM
Benzo(g,h,i)perylene	U	40		µg/Kg	1	7/3/2003 2:25:00 AM
Benzo(k)fluoranthene	U	40		µg/Kg	1	7/3/2003 2:25:00 AM
Benzoic acid	120	40		µg/Kg	1	7/3/2003 2:25:00 AM
Benzyl alcohol	U	40		µg/Kg	1	7/3/2003 2:25:00 AM

Qualifiers:

ND - Not Detected at the Reporting Limit

J - Analyte detected below quantitation limits

B - Analyte detected in the associated Method Blank

* - Value exceeds Maximum Contaminant Level

S - Spike Recovery outside accepted recovery limits

R - RPD outside accepted recovery limits

E - Value above quantitation range

American Analytical Laboratories, Inc.

Date: *28-Jul-03*

CLIENT:	AKRF, Inc	**Client Sample ID:**	MW11 (7'-9')
Lab Order:	0306117	**Tag Number:**	
Project:	Greenpoint Lumber Yard Brooklyn, NY	**Collection Date:**	6/26/2003
Lab ID:	0306117-12B	**Matrix:**	SOIL

Analyses	Result	Limit	Qual	Units	DF	Date Analyzed
SEMIVOLATILES SW-846 8270		**SW8270D**		**(SW3550A)**		Analyst: **RN**
Bis(2-chloroethoxy)methane	U	40		µg/Kg	1	7/3/2003 2:25:00 AM
Bis(2-chloroethyl)ether	U	40		µg/Kg	1	7/3/2003 2:25:00 AM
Bis(2-chloroisopropyl)ether	U	40		µg/Kg	1	7/3/2003 2:25:00 AM
Bis(2-ethylhexyl)phthalate	U	40		µg/Kg	1	7/3/2003 2:25:00 AM
Butyl benzyl phthalate	U	40		µg/Kg	1	7/3/2003 2:25:00 AM
Carbazole	U	40		µg/Kg	1	7/3/2003 2:25:00 AM
Chrysene	U	40		µg/Kg	1	7/3/2003 2:25:00 AM
Dibenzo(a,h)anthracene	U	40		µg/Kg	1	7/3/2003 2:25:00 AM
Dibenzofuran	U	40		µg/Kg	1	7/3/2003 2:25:00 AM
Diethyl phthalate	U	40		µg/Kg	1	7/3/2003 2:25:00 AM
Dimethyl phthalate	U	40		µg/Kg	1	7/3/2003 2:25:00 AM
Di-n-butyl phthalate	U	40		µg/Kg	1	7/3/2003 2:25:00 AM
Di-n-octyl phthalate	U	40		µg/Kg	1	7/3/2003 2:25:00 AM
Fluoranthene	U	40		µg/Kg	1	7/3/2003 2:25:00 AM
Fluorene	U	40		µg/Kg	1	7/3/2003 2:25:00 AM
Hexachlorobenzene	U	40		µg/Kg	1	7/3/2003 2:25:00 AM
Hexachlorobutadiene	U	40		µg/Kg	1	7/3/2003 2:25:00 AM
Hexachlorocyclopentadiene	U	40		µg/Kg	1	7/3/2003 2:25:00 AM
Hexachloroethane	U	40		µg/Kg	1	7/3/2003 2:25:00 AM
Indeno(1,2,3-c,d)pyrene	U	40		µg/Kg	1	7/3/2003 2:25:00 AM
Isophorone	U	40		µg/Kg	1	7/3/2003 2:25:00 AM
Naphthalene	U	40		µg/Kg	1	7/3/2003 2:25:00 AM
Nitrobenzene	U	40		µg/Kg	1	7/3/2003 2:25:00 AM
N-Nitrosodimethylamine	U	40		µg/Kg	1	7/3/2003 2:25:00 AM
N-Nitrosodi-n-propylamine	U	40		µg/Kg	1	7/3/2003 2:25:00 AM
N-Nitrosodiphenylamine	U	40		µg/Kg	1	7/3/2003 2:25:00 AM
Pentachlorophenol	U	40		µg/Kg	1	7/3/2003 2:25:00 AM
Phenanthrene	U	40		µg/Kg	1	7/3/2003 2:25:00 AM
Phenol	U	40		µg/Kg	1	7/3/2003 2:25:00 AM
Pyrene	U	40		µg/Kg	1	7/3/2003 2:25:00 AM
Pyridine	U	40		µg/Kg	1	7/3/2003 2:25:00 AM

Qualifiers:

ND - Not Detected at the Reporting Limit

J - Analyte detected below quantitation limits

B - Analyte detected in the associated Method Blank

* - Value exceeds Maximum Contaminant Level

S - Spike Recovery outside accepted recovery limits

R - RPD outside accepted recovery limits

E - Value above quantitation range

American Analytical Laboratories, Inc.

Date: *28-Jul-03*

CLIENT:	AKRF, Inc	**Client Sample ID:**	MW14 (3'-4')
Lab Order:	0306117	**Tag Number:**	
Project:	Greenpoint Lumber Yard Brooklyn, NY	**Collection Date:**	6/26/2003
Lab ID:	0306117-13B	**Matrix:**	SOIL

Analyses	Result	Limit	Qual	Units	DF	Date Analyzed
SEMIVOLATILES SW-846 8270		**SW8270D**		**(SW3550A)**		Analyst: **RN**
1,2,4-Trichlorobenzene	U	40		µg/Kg	1	7/8/2003 8:54:00 PM
1,2-Dichlorobenzene	U	40		µg/Kg	1	7/8/2003 8:54:00 PM
1,3-Dichlorobenzene	U	40		µg/Kg	1	7/8/2003 8:54:00 PM
1,4-Dichlorobenzene	U	40		µg/Kg	1	7/8/2003 8:54:00 PM
2,4,5-Trichlorophenol	U	40		µg/Kg	1	7/8/2003 8:54:00 PM
2,4,6-Trichlorophenol	U	40		µg/Kg	1	7/8/2003 8:54:00 PM
2,4-Dichlorophenol	U	40		µg/Kg	1	7/8/2003 8:54:00 PM
2,4-Dimethylphenol	U	40		µg/Kg	1	7/8/2003 8:54:00 PM
2,4-Dinitrophenol	U	40		µg/Kg	1	7/8/2003 8:54:00 PM
2,4-Dinitrotoluene	U	40		µg/Kg	1	7/8/2003 8:54:00 PM
2,6-Dinitrotoluene	U	40		µg/Kg	1	7/8/2003 8:54:00 PM
2-Chloronaphthalene	U	40		µg/Kg	1	7/8/2003 8:54:00 PM
2-Chlorophenol	U	40		µg/Kg	1	7/8/2003 8:54:00 PM
2-Methylnaphthalene	U	40		µg/Kg	1	7/8/2003 8:54:00 PM
2-Methylphenol	U	40		µg/Kg	1	7/8/2003 8:54:00 PM
2-Nitroaniline	U	40		µg/Kg	1	7/8/2003 8:54:00 PM
2-Nitrophenol	U	40		µg/Kg	1	7/8/2003 8:54:00 PM
3,3'-Dichlorobenzidine	U	40		µg/Kg	1	7/8/2003 8:54:00 PM
3+4-Methylphenol	U	40		µg/Kg	1	7/8/2003 8:54:00 PM
3-Nitroaniline	U	40		µg/Kg	1	7/8/2003 8:54:00 PM
4,6-Dinitro-2-methylphenol	U	40		µg/Kg	1	7/8/2003 8:54:00 PM
4-Bromophenyl phenyl ether	U	40		µg/Kg	1	7/8/2003 8:54:00 PM
4-Chloro-3-methylphenol	U	40		µg/Kg	1	7/8/2003 8:54:00 PM
4-Chloroaniline	U	40		µg/Kg	1	7/8/2003 8:54:00 PM
4-Chlorophenyl phenyl ether	U	40		µg/Kg	1	7/8/2003 8:54:00 PM
4-Nitroaniline	U	40		µg/Kg	1	7/8/2003 8:54:00 PM
4-Nitrophenol	U	40		µg/Kg	1	7/8/2003 8:54:00 PM
Acenaphthene	U	40		µg/Kg	1	7/8/2003 8:54:00 PM
Acenaphthylene	U	40		µg/Kg	1	7/8/2003 8:54:00 PM
Aniline	U	40		µg/Kg	1	7/8/2003 8:54:00 PM
Anthracene	89	40		µg/Kg	1	7/8/2003 8:54:00 PM
Azobenzene	U	40		µg/Kg	1	7/8/2003 8:54:00 PM
Benzidine	U	40		µg/Kg	1	7/8/2003 8:54:00 PM
Benzo(a)anthracene	370	40		µg/Kg	1	7/8/2003 8:54:00 PM
Benzo(a)pyrene	340	40		µg/Kg	1	7/8/2003 8:54:00 PM
Benzo(b)fluoranthene	420	40		µg/Kg	1	7/8/2003 8:54:00 PM
Benzo(g,h,i)perylene	190	40		µg/Kg	1	7/8/2003 8:54:00 PM
Benzo(k)fluoranthene	140	40		µg/Kg	1	7/8/2003 8:54:00 PM
Benzoic acid	U	40		µg/Kg	1	7/8/2003 8:54:00 PM
Benzyl alcohol	U	40		µg/Kg	1	7/8/2003 8:54:00 PM

Qualifiers:

ND - Not Detected at the Reporting Limit

J - Analyte detected below quantitation limits

B - Analyte detected in the associated Method Blank

* - Value exceeds Maximum Contaminant Level

S - Spike Recovery outside accepted recovery limits

R - RPD outside accepted recovery limits

E - Value above quantitation range

American Analytical Laboratories, Inc.

Date: *28-Jul-03*

CLIENT:	AKRF, Inc	**Client Sample ID:**	MW14 (3'-4')
Lab Order:	0306117	**Tag Number:**	
Project:	Greenpoint Lumber Yard Brooklyn, NY	**Collection Date:**	6/26/2003
Lab ID:	0306117-13B	**Matrix:**	SOIL

Analyses	Result	Limit	Qual	Units	DF	Date Analyzed
SEMIVOLATILES SW-846 8270		**SW8270D**		**(SW3550A)**		Analyst: **RN**
Bis(2-chloroethoxy)methane	U	40		µg/Kg	1	7/8/2003 8:54:00 PM
Bis(2-chloroethyl)ether	U	40		µg/Kg	1	7/8/2003 8:54:00 PM
Bis(2-chloroisopropyl)ether	U	40		µg/Kg	1	7/8/2003 8:54:00 PM
Bis(2-ethylhexyl)phthalate	U	40		µg/Kg	1	7/8/2003 8:54:00 PM
Butyl benzyl phthalate	U	40		µg/Kg	1	7/8/2003 8:54:00 PM
Carbazole	U	40		µg/Kg	1	7/8/2003 8:54:00 PM
Chrysene	470	40		µg/Kg	1	7/8/2003 8:54:00 PM
Dibenzo(a,h)anthracene	50	40		µg/Kg	1	7/8/2003 8:54:00 PM
Dibenzofuran	U	40		µg/Kg	1	7/8/2003 8:54:00 PM
Diethyl phthalate	U	40		µg/Kg	1	7/8/2003 8:54:00 PM
Dimethyl phthalate	U	40		µg/Kg	1	7/8/2003 8:54:00 PM
Di-n-butyl phthalate	U	40		µg/Kg	1	7/8/2003 8:54:00 PM
Di-n-octyl phthalate	U	40		µg/Kg	1	7/8/2003 8:54:00 PM
Fluoranthene	890	40		µg/Kg	1	7/8/2003 8:54:00 PM
Fluorene	U	40		µg/Kg	1	7/8/2003 8:54:00 PM
Hexachlorobenzene	U	40		µg/Kg	1	7/8/2003 8:54:00 PM
Hexachlorobutadiene	U	40		µg/Kg	1	7/8/2003 8:54:00 PM
Hexachlorocyclopentadiene	U	40		µg/Kg	1	7/8/2003 8:54:00 PM
Hexachloroethane	U	40		µg/Kg	1	7/8/2003 8:54:00 PM
Indeno(1,2,3-c,d)pyrene	200	40		µg/Kg	1	7/8/2003 8:54:00 PM
Isophorone	U	40		µg/Kg	1	7/8/2003 8:54:00 PM
Naphthalene	U	40		µg/Kg	1	7/8/2003 8:54:00 PM
Nitrobenzene	U	40		µg/Kg	1	7/8/2003 8:54:00 PM
N-Nitrosodimethylamine	U	40		µg/Kg	1	7/8/2003 8:54:00 PM
N-Nitrosodi-n-propylamine	U	40		µg/Kg	1	7/8/2003 8:54:00 PM
N-Nitrosodiphenylamine	U	40		µg/Kg	1	7/8/2003 8:54:00 PM
Pentachlorophenol	U	40		µg/Kg	1	7/8/2003 8:54:00 PM
Phenanthrene	500	40		µg/Kg	1	7/8/2003 8:54:00 PM
Phenol	U	40		µg/Kg	1	7/8/2003 8:54:00 PM
Pyrene	820	40		µg/Kg	1	7/8/2003 8:54:00 PM
Pyridine	U	40		µg/Kg	1	7/8/2003 8:54:00 PM

Qualifiers:

ND - Not Detected at the Reporting Limit

J - Analyte detected below quantitation limits

B - Analyte detected in the associated Method Blank

* - Value exceeds Maximum Contaminant Level

S - Spike Recovery outside accepted recovery limits

R - RPD outside accepted recovery limits

E - Value above quantitation range

American Analytical Laboratories, Inc.

Date: *28-Jul-03*

CLIENT:	AKRF, Inc	**Client Sample ID:**	MW14 (6'-8')
Lab Order:	0306117	**Tag Number:**	
Project:	Greenpoint Lumber Yard Brooklyn, NY	**Collection Date:**	6/26/2003
Lab ID:	0306117-14B	**Matrix:**	SOIL

Analyses	Result	Limit	Qual	Units	DF	Date Analyzed
SEMIVOLATILES SW-846 8270		**SW8270D**		**(SW3550A)**		Analyst: **RN**
1,2,4-Trichlorobenzene	U	40		µg/Kg	1	7/10/2003 9:12:00 PM
1,2-Dichlorobenzene	U	40		µg/Kg	1	7/10/2003 9:12:00 PM
1,3-Dichlorobenzene	U	40		µg/Kg	1	7/10/2003 9:12:00 PM
1,4-Dichlorobenzene	U	40		µg/Kg	1	7/10/2003 9:12:00 PM
2,4,5-Trichlorophenol	U	40		µg/Kg	1	7/10/2003 9:12:00 PM
2,4,6-Trichlorophenol	U	40		µg/Kg	1	7/10/2003 9:12:00 PM
2,4-Dichlorophenol	U	40		µg/Kg	1	7/10/2003 9:12:00 PM
2,4-Dimethylphenol	U	40		µg/Kg	1	7/10/2003 9:12:00 PM
2,4-Dinitrophenol	U	40		µg/Kg	1	7/10/2003 9:12:00 PM
2,4-Dinitrotoluene	U	40		µg/Kg	1	7/10/2003 9:12:00 PM
2,6-Dinitrotoluene	U	40		µg/Kg	1	7/10/2003 9:12:00 PM
2-Chloronaphthalene	U	40		µg/Kg	1	7/10/2003 9:12:00 PM
2-Chlorophenol	U	40		µg/Kg	1	7/10/2003 9:12:00 PM
2-Methylnaphthalene	U	40		µg/Kg	1	7/10/2003 9:12:00 PM
2-Methylphenol	U	40		µg/Kg	1	7/10/2003 9:12:00 PM
2-Nitroaniline	U	40		µg/Kg	1	7/10/2003 9:12:00 PM
2-Nitrophenol	U	40		µg/Kg	1	7/10/2003 9:12:00 PM
3,3'-Dichlorobenzidine	U	40		µg/Kg	1	7/10/2003 9:12:00 PM
3+4-Methylphenol	42	40		µg/Kg	1	7/10/2003 9:12:00 PM
3-Nitroaniline	U	40		µg/Kg	1	7/10/2003 9:12:00 PM
4,6-Dinitro-2-methylphenol	U	40		µg/Kg	1	7/10/2003 9:12:00 PM
4-Bromophenyl phenyl ether	U	40		µg/Kg	1	7/10/2003 9:12:00 PM
4-Chloro-3-methylphenol	U	40		µg/Kg	1	7/10/2003 9:12:00 PM
4-Chloroaniline	U	40		µg/Kg	1	7/10/2003 9:12:00 PM
4-Chlorophenyl phenyl ether	U	40		µg/Kg	1	7/10/2003 9:12:00 PM
4-Nitroaniline	U	40		µg/Kg	1	7/10/2003 9:12:00 PM
4-Nitrophenol	U	40		µg/Kg	1	7/10/2003 9:12:00 PM
Acenaphthene	U	40		µg/Kg	1	7/10/2003 9:12:00 PM
Acenaphthylene	U	40		µg/Kg	1	7/10/2003 9:12:00 PM
Aniline	U	40		µg/Kg	1	7/10/2003 9:12:00 PM
Anthracene	46	40		µg/Kg	1	7/10/2003 9:12:00 PM
Azobenzene	U	40		µg/Kg	1	7/10/2003 9:12:00 PM
Benzidine	U	40		µg/Kg	1	7/10/2003 9:12:00 PM
Benzo(a)anthracene	310	40		µg/Kg	1	7/10/2003 9:12:00 PM
Benzo(a)pyrene	310	40		µg/Kg	1	7/10/2003 9:12:00 PM
Benzo(b)fluoranthene	430	40		µg/Kg	1	7/10/2003 9:12:00 PM
Benzo(g,h,i)perylene	200	40		µg/Kg	1	7/10/2003 9:12:00 PM
Benzo(k)fluoranthene	130	40		µg/Kg	1	7/10/2003 9:12:00 PM
Benzoic acid	160	40		µg/Kg	1	7/10/2003 9:12:00 PM
Benzyl alcohol	U	40		µg/Kg	1	7/10/2003 9:12:00 PM

Qualifiers:

ND - Not Detected at the Reporting Limit

J - Analyte detected below quantitation limits

B - Analyte detected in the associated Method Blank

* - Value exceeds Maximum Contaminant Level

S - Spike Recovery outside accepted recovery limits

R - RPD outside accepted recovery limits

E - Value above quantitation range

American Analytical Laboratories, Inc.

Date: *28-Jul-03*

CLIENT:	AKRF, Inc	**Client Sample ID:**	MW14 (6'-8')
Lab Order:	0306117	**Tag Number:**	
Project:	Greenpoint Lumber Yard Brooklyn, NY	**Collection Date:**	6/26/2003
Lab ID:	0306117-14B	**Matrix:**	SOIL

Analyses	Result	Limit	Qual	Units	DF	Date Analyzed
SEMIVOLATILES SW-846 8270		**SW8270D**		**(SW3550A)**		Analyst: **RN**
Bis(2-chloroethoxy)methane	U	40		µg/Kg	1	7/10/2003 9:12:00 PM
Bis(2-chloroethyl)ether	U	40		µg/Kg	1	7/10/2003 9:12:00 PM
Bis(2-chloroisopropyl)ether	U	40		µg/Kg	1	7/10/2003 9:12:00 PM
Bis(2-ethylhexyl)phthalate	U	40		µg/Kg	1	7/10/2003 9:12:00 PM
Butyl benzyl phthalate	U	40		µg/Kg	1	7/10/2003 9:12:00 PM
Carbazole	U	40		µg/Kg	1	7/10/2003 9:12:00 PM
Chrysene	410	40		µg/Kg	1	7/10/2003 9:12:00 PM
Dibenzo(a,h)anthracene	56	40		µg/Kg	1	7/10/2003 9:12:00 PM
Dibenzofuran	U	40		µg/Kg	1	7/10/2003 9:12:00 PM
Diethyl phthalate	U	40		µg/Kg	1	7/10/2003 9:12:00 PM
Dimethyl phthalate	U	40		µg/Kg	1	7/10/2003 9:12:00 PM
Di-n-butyl phthalate	U	40		µg/Kg	1	7/10/2003 9:12:00 PM
Di-n-octyl phthalate	U	40		µg/Kg	1	7/10/2003 9:12:00 PM
Fluoranthene	710	40		µg/Kg	1	7/10/2003 9:12:00 PM
Fluorene	U	40		µg/Kg	1	7/10/2003 9:12:00 PM
Hexachlorobenzene	U	40		µg/Kg	1	7/10/2003 9:12:00 PM
Hexachlorobutadiene	U	40		µg/Kg	1	7/10/2003 9:12:00 PM
Hexachlorocyclopentadiene	U	40		µg/Kg	1	7/10/2003 9:12:00 PM
Hexachloroethane	U	40		µg/Kg	1	7/10/2003 9:12:00 PM
Indeno(1,2,3-c,d)pyrene	210	40		µg/Kg	1	7/10/2003 9:12:00 PM
Isophorone	U	40		µg/Kg	1	7/10/2003 9:12:00 PM
Naphthalene	U	40		µg/Kg	1	7/10/2003 9:12:00 PM
Nitrobenzene	U	40		µg/Kg	1	7/10/2003 9:12:00 PM
N-Nitrosodimethylamine	U	40		µg/Kg	1	7/10/2003 9:12:00 PM
N-Nitrosodi-n-propylamine	U	40		µg/Kg	1	7/10/2003 9:12:00 PM
N-Nitrosodiphenylamine	U	40		µg/Kg	1	7/10/2003 9:12:00 PM
Pentachlorophenol	U	40		µg/Kg	1	7/10/2003 9:12:00 PM
Phenanthrene	340	40		µg/Kg	1	7/10/2003 9:12:00 PM
Phenol	U	40		µg/Kg	1	7/10/2003 9:12:00 PM
Pyrene	770	40		µg/Kg	1	7/10/2003 9:12:00 PM
Pyridine	U	40		µg/Kg	1	7/10/2003 9:12:00 PM

Qualifiers:

ND - Not Detected at the Reporting Limit

J - Analyte detected below quantitation limits

B - Analyte detected in the associated Method Blank

* - Value exceeds Maximum Contaminant Level

S - Spike Recovery outside accepted recovery limits

R - RPD outside accepted recovery limits

E - Value above quantitation range

American Analytical Laboratories, Inc.

Date: *28-Jul-03*

CLIENT:	AKRF, Inc	**Client Sample ID:**	B14 (2'-3.5')
Lab Order:	0306117	**Tag Number:**	
Project:	Greenpoint Lumber Yard Brooklyn, NY	**Collection Date:**	6/26/2003
Lab ID:	0306117-15B	**Matrix:**	SOIL

Analyses	Result	Limit	Qual	Units	DF	Date Analyzed
SEMIVOLATILES SW-846 8270		**SW8270D**		**(SW3550A)**		Analyst: **RN**
1,2,4-Trichlorobenzene	U	40		µg/Kg	1	7/10/2003 9:58:00 PM
1,2-Dichlorobenzene	U	40		µg/Kg	1	7/10/2003 9:58:00 PM
1,3-Dichlorobenzene	U	40		µg/Kg	1	7/10/2003 9:58:00 PM
1,4-Dichlorobenzene	55	40		µg/Kg	1	7/10/2003 9:58:00 PM
2,4,5-Trichlorophenol	U	40		µg/Kg	1	7/10/2003 9:58:00 PM
2,4,6-Trichlorophenol	U	40		µg/Kg	1	7/10/2003 9:58:00 PM
2,4-Dichlorophenol	U	40		µg/Kg	1	7/10/2003 9:58:00 PM
2,4-Dimethylphenol	U	40		µg/Kg	1	7/10/2003 9:58:00 PM
2,4-Dinitrophenol	U	40		µg/Kg	1	7/10/2003 9:58:00 PM
2,4-Dinitrotoluene	U	40		µg/Kg	1	7/10/2003 9:58:00 PM
2,6-Dinitrotoluene	U	40		µg/Kg	1	7/10/2003 9:58:00 PM
2-Chloronaphthalene	U	40		µg/Kg	1	7/10/2003 9:58:00 PM
2-Chlorophenol	U	40		µg/Kg	1	7/10/2003 9:58:00 PM
2-Methylnaphthalene	U	40		µg/Kg	1	7/10/2003 9:58:00 PM
2-Methylphenol	U	40		µg/Kg	1	7/10/2003 9:58:00 PM
2-Nitroaniline	U	40		µg/Kg	1	7/10/2003 9:58:00 PM
2-Nitrophenol	U	40		µg/Kg	1	7/10/2003 9:58:00 PM
3,3'-Dichlorobenzidine	U	40		µg/Kg	1	7/10/2003 9:58:00 PM
3+4-Methylphenol	U	40		µg/Kg	1	7/10/2003 9:58:00 PM
3-Nitroaniline	U	40		µg/Kg	1	7/10/2003 9:58:00 PM
4,6-Dinitro-2-methylphenol	U	40		µg/Kg	1	7/10/2003 9:58:00 PM
4-Bromophenyl phenyl ether	U	40		µg/Kg	1	7/10/2003 9:58:00 PM
4-Chloro-3-methylphenol	U	40		µg/Kg	1	7/10/2003 9:58:00 PM
4-Chloroaniline	U	40		µg/Kg	1	7/10/2003 9:58:00 PM
4-Chlorophenyl phenyl ether	U	40		µg/Kg	1	7/10/2003 9:58:00 PM
4-Nitroaniline	U	40		µg/Kg	1	7/10/2003 9:58:00 PM
4-Nitrophenol	U	40		µg/Kg	1	7/10/2003 9:58:00 PM
Acenaphthene	U	40		µg/Kg	1	7/10/2003 9:58:00 PM
Acenaphthylene	U	40		µg/Kg	1	7/10/2003 9:58:00 PM
Aniline	U	40		µg/Kg	1	7/10/2003 9:58:00 PM
Anthracene	56	40		µg/Kg	1	7/10/2003 9:58:00 PM
Azobenzene	U	40		µg/Kg	1	7/10/2003 9:58:00 PM
Benzidine	U	40		µg/Kg	1	7/10/2003 9:58:00 PM
Benzo(a)anthracene	240	40		µg/Kg	1	7/10/2003 9:58:00 PM
Benzo(a)pyrene	250	40		µg/Kg	1	7/10/2003 9:58:00 PM
Benzo(b)fluoranthene	320	40		µg/Kg	1	7/10/2003 9:58:00 PM
Benzo(g,h,i)perylene	220	40		µg/Kg	1	7/10/2003 9:58:00 PM
Benzo(k)fluoranthene	100	40		µg/Kg	1	7/10/2003 9:58:00 PM
Benzoic acid	84	40		µg/Kg	1	7/10/2003 9:58:00 PM
Benzyl alcohol	U	40		µg/Kg	1	7/10/2003 9:58:00 PM

Qualifiers:

ND - Not Detected at the Reporting Limit

J - Analyte detected below quantitation limits

B - Analyte detected in the associated Method Blank

* - Value exceeds Maximum Contaminant Level

S - Spike Recovery outside accepted recovery limits

R - RPD outside accepted recovery limits

E - Value above quantitation range

American Analytical Laboratories, Inc.

Date: *28-Jul-03*

CLIENT:	AKRF, Inc	**Client Sample ID:**	B14 (2'-3.5')
Lab Order:	0306117	**Tag Number:**	
Project:	Greenpoint Lumber Yard Brooklyn, NY	**Collection Date:**	6/26/2003
Lab ID:	0306117-15B	**Matrix:**	SOIL

Analyses	Result	Limit	Qual	Units	DF	Date Analyzed
SEMIVOLATILES SW-846 8270		**SW8270D**		**(SW3550A)**		Analyst: **RN**
Bis(2-chloroethoxy)methane	U	40		µg/Kg	1	7/10/2003 9:58:00 PM
Bis(2-chloroethyl)ether	U	40		µg/Kg	1	7/10/2003 9:58:00 PM
Bis(2-chloroisopropyl)ether	U	40		µg/Kg	1	7/10/2003 9:58:00 PM
Bis(2-ethylhexyl)phthalate	U	40		µg/Kg	1	7/10/2003 9:58:00 PM
Butyl benzyl phthalate	U	40		µg/Kg	1	7/10/2003 9:58:00 PM
Carbazole	U	40		µg/Kg	1	7/10/2003 9:58:00 PM
Chrysene	260	40		µg/Kg	1	7/10/2003 9:58:00 PM
Dibenzo(a,h)anthracene	55	40		µg/Kg	1	7/10/2003 9:58:00 PM
Dibenzofuran	U	40		µg/Kg	1	7/10/2003 9:58:00 PM
Diethyl phthalate	U	40		µg/Kg	1	7/10/2003 9:58:00 PM
Dimethyl phthalate	U	40		µg/Kg	1	7/10/2003 9:58:00 PM
Di-n-butyl phthalate	U	40		µg/Kg	1	7/10/2003 9:58:00 PM
Di-n-octyl phthalate	U	40		µg/Kg	1	7/10/2003 9:58:00 PM
Fluoranthene	400	40		µg/Kg	1	7/10/2003 9:58:00 PM
Fluorene	U	40		µg/Kg	1	7/10/2003 9:58:00 PM
Hexachlorobenzene	U	40		µg/Kg	1	7/10/2003 9:58:00 PM
Hexachlorobutadiene	U	40		µg/Kg	1	7/10/2003 9:58:00 PM
Hexachlorocyclopentadiene	U	40		µg/Kg	1	7/10/2003 9:58:00 PM
Hexachloroethane	U	40		µg/Kg	1	7/10/2003 9:58:00 PM
Indeno(1,2,3-c,d)pyrene	190	40		µg/Kg	1	7/10/2003 9:58:00 PM
Isophorone	U	40		µg/Kg	1	7/10/2003 9:58:00 PM
Naphthalene	U	40		µg/Kg	1	7/10/2003 9:58:00 PM
Nitrobenzene	U	40		µg/Kg	1	7/10/2003 9:58:00 PM
N-Nitrosodimethylamine	U	40		µg/Kg	1	7/10/2003 9:58:00 PM
N-Nitrosodi-n-propylamine	U	40		µg/Kg	1	7/10/2003 9:58:00 PM
N-Nitrosodiphenylamine	U	40		µg/Kg	1	7/10/2003 9:58:00 PM
Pentachlorophenol	U	40		µg/Kg	1	7/10/2003 9:58:00 PM
Phenanthrene	180	40		µg/Kg	1	7/10/2003 9:58:00 PM
Phenol	U	40		µg/Kg	1	7/10/2003 9:58:00 PM
Pyrene	410	40		µg/Kg	1	7/10/2003 9:58:00 PM
Pyridine	U	40		µg/Kg	1	7/10/2003 9:58:00 PM

Qualifiers:

ND - Not Detected at the Reporting Limit

J - Analyte detected below quantitation limits

B - Analyte detected in the associated Method Blank

* - Value exceeds Maximum Contaminant Level

S - Spike Recovery outside accepted recovery limits

R - RPD outside accepted recovery limits

E - Value above quantitation range

American Analytical Laboratories, Inc.

Date: *28-Jul-03*

CLIENT:	AKRF, Inc	**Client Sample ID:**	B14 (6'-8')
Lab Order:	0306117	**Tag Number:**	
Project:	Greenpoint Lumber Yard Brooklyn, NY	**Collection Date:**	6/26/2003
Lab ID:	0306117-16B	**Matrix:**	SOIL

Analyses	Result	Limit	Qual	Units	DF	Date Analyzed
SEMIVOLATILES SW-846 8270		**SW8270D**		**(SW3550A)**		Analyst: **RN**
1,2,4-Trichlorobenzene	U	40		µg/Kg	1	7/9/2003 9:46:00 AM
1,2-Dichlorobenzene	U	40		µg/Kg	1	7/9/2003 9:46:00 AM
1,3-Dichlorobenzene	U	40		µg/Kg	1	7/9/2003 9:46:00 AM
1,4-Dichlorobenzene	U	40		µg/Kg	1	7/9/2003 9:46:00 AM
2,4,5-Trichlorophenol	U	40		µg/Kg	1	7/9/2003 9:46:00 AM
2,4,6-Trichlorophenol	U	40		µg/Kg	1	7/9/2003 9:46:00 AM
2,4-Dichlorophenol	U	40		µg/Kg	1	7/9/2003 9:46:00 AM
2,4-Dimethylphenol	U	40		µg/Kg	1	7/9/2003 9:46:00 AM
2,4-Dinitrophenol	U	40		µg/Kg	1	7/9/2003 9:46:00 AM
2,4-Dinitrotoluene	U	40		µg/Kg	1	7/9/2003 9:46:00 AM
2,6-Dinitrotoluene	U	40		µg/Kg	1	7/9/2003 9:46:00 AM
2-Chloronaphthalene	U	40		µg/Kg	1	7/9/2003 9:46:00 AM
2-Chlorophenol	U	40		µg/Kg	1	7/9/2003 9:46:00 AM
2-Methylnaphthalene	U	40		µg/Kg	1	7/9/2003 9:46:00 AM
2-Methylphenol	U	40		µg/Kg	1	7/9/2003 9:46:00 AM
2-Nitroaniline	U	40		µg/Kg	1	7/9/2003 9:46:00 AM
2-Nitrophenol	U	40		µg/Kg	1	7/9/2003 9:46:00 AM
3,3'-Dichlorobenzidine	U	40		µg/Kg	1	7/9/2003 9:46:00 AM
3+4-Methylphenol	U	40		µg/Kg	1	7/9/2003 9:46:00 AM
3-Nitroaniline	U	40		µg/Kg	1	7/9/2003 9:46:00 AM
4,6-Dinitro-2-methylphenol	U	40		µg/Kg	1	7/9/2003 9:46:00 AM
4-Bromophenyl phenyl ether	U	40		µg/Kg	1	7/9/2003 9:46:00 AM
4-Chloro-3-methylphenol	U	40		µg/Kg	1	7/9/2003 9:46:00 AM
4-Chloroaniline	U	40		µg/Kg	1	7/9/2003 9:46:00 AM
4-Chlorophenyl phenyl ether	U	40		µg/Kg	1	7/9/2003 9:46:00 AM
4-Nitroaniline	U	40		µg/Kg	1	7/9/2003 9:46:00 AM
4-Nitrophenol	U	40		µg/Kg	1	7/9/2003 9:46:00 AM
Acenaphthene	U	40		µg/Kg	1	7/9/2003 9:46:00 AM
Acenaphthylene	U	40		µg/Kg	1	7/9/2003 9:46:00 AM
Aniline	U	40		µg/Kg	1	7/9/2003 9:46:00 AM
Anthracene	U	40		µg/Kg	1	7/9/2003 9:46:00 AM
Azobenzene	U	40		µg/Kg	1	7/9/2003 9:46:00 AM
Benzidine	U	40		µg/Kg	1	7/9/2003 9:46:00 AM
Benzo(a)anthracene	U	40		µg/Kg	1	7/9/2003 9:46:00 AM
Benzo(a)pyrene	U	40		µg/Kg	1	7/9/2003 9:46:00 AM
Benzo(b)fluoranthene	U	40		µg/Kg	1	7/9/2003 9:46:00 AM
Benzo(g,h,i)perylene	U	40		µg/Kg	1	7/9/2003 9:46:00 AM
Benzo(k)fluoranthene	U	40		µg/Kg	1	7/9/2003 9:46:00 AM
Benzoic acid	U	40		µg/Kg	1	7/9/2003 9:46:00 AM
Benzyl alcohol	U	40		µg/Kg	1	7/9/2003 9:46:00 AM

Qualifiers:

ND - Not Detected at the Reporting Limit

J - Analyte detected below quantitation limits

B - Analyte detected in the associated Method Blank

* - Value exceeds Maximum Contaminant Level

S - Spike Recovery outside accepted recovery limits

R - RPD outside accepted recovery limits

E - Value above quantitation range

American Analytical Laboratories, Inc.

Date: *28-Jul-03*

CLIENT:	AKRF, Inc	**Client Sample ID:**	B14 (6'-8')
Lab Order:	0306117	**Tag Number:**	
Project:	Greenpoint Lumber Yard Brooklyn, NY	**Collection Date:**	6/26/2003
Lab ID:	0306117-16B	**Matrix:**	SOIL

Analyses	Result	Limit	Qual	Units	DF	Date Analyzed
SEMIVOLATILES SW-846 8270		**SW8270D**		**(SW3550A)**		Analyst: **RN**
Bis(2-chloroethoxy)methane	U	40		µg/Kg	1	7/9/2003 9:46:00 AM
Bis(2-chloroethyl)ether	U	40		µg/Kg	1	7/9/2003 9:46:00 AM
Bis(2-chloroisopropyl)ether	U	40		µg/Kg	1	7/9/2003 9:46:00 AM
Bis(2-ethylhexyl)phthalate	U	40		µg/Kg	1	7/9/2003 9:46:00 AM
Butyl benzyl phthalate	U	40		µg/Kg	1	7/9/2003 9:46:00 AM
Carbazole	U	40		µg/Kg	1	7/9/2003 9:46:00 AM
Chrysene	U	40		µg/Kg	1	7/9/2003 9:46:00 AM
Dibenzo(a,h)anthracene	U	40		µg/Kg	1	7/9/2003 9:46:00 AM
Dibenzofuran	U	40		µg/Kg	1	7/9/2003 9:46:00 AM
Diethyl phthalate	U	40		µg/Kg	1	7/9/2003 9:46:00 AM
Dimethyl phthalate	U	40		µg/Kg	1	7/9/2003 9:46:00 AM
Di-n-butyl phthalate	U	40		µg/Kg	1	7/9/2003 9:46:00 AM
Di-n-octyl phthalate	U	40		µg/Kg	1	7/9/2003 9:46:00 AM
Fluoranthene	U	40		µg/Kg	1	7/9/2003 9:46:00 AM
Fluorene	U	40		µg/Kg	1	7/9/2003 9:46:00 AM
Hexachlorobenzene	U	40		µg/Kg	1	7/9/2003 9:46:00 AM
Hexachlorobutadiene	U	40		µg/Kg	1	7/9/2003 9:46:00 AM
Hexachlorocyclopentadiene	U	40		µg/Kg	1	7/9/2003 9:46:00 AM
Hexachloroethane	U	40		µg/Kg	1	7/9/2003 9:46:00 AM
Indeno(1,2,3-c,d)pyrene	U	40		µg/Kg	1	7/9/2003 9:46:00 AM
Isophorone	U	40		µg/Kg	1	7/9/2003 9:46:00 AM
Naphthalene	U	40		µg/Kg	1	7/9/2003 9:46:00 AM
Nitrobenzene	U	40		µg/Kg	1	7/9/2003 9:46:00 AM
N-Nitrosodimethylamine	U	40		µg/Kg	1	7/9/2003 9:46:00 AM
N-Nitrosodi-n-propylamine	U	40		µg/Kg	1	7/9/2003 9:46:00 AM
N-Nitrosodiphenylamine	U	40		µg/Kg	1	7/9/2003 9:46:00 AM
Pentachlorophenol	U	40		µg/Kg	1	7/9/2003 9:46:00 AM
Phenanthrene	U	40		µg/Kg	1	7/9/2003 9:46:00 AM
Phenol	U	40		µg/Kg	1	7/9/2003 9:46:00 AM
Pyrene	U	40		µg/Kg	1	7/9/2003 9:46:00 AM
Pyridine	U	40		µg/Kg	1	7/9/2003 9:46:00 AM

Qualifiers:

ND - Not Detected at the Reporting Limit

J - Analyte detected below quantitation limits

B - Analyte detected in the associated Method Blank

* - Value exceeds Maximum Contaminant Level

S - Spike Recovery outside accepted recovery limits

R - RPD outside accepted recovery limits

E - Value above quantitation range

American Analytical Laboratories, Inc.

Date: *28-Jul-03*

CLIENT:	AKRF, Inc	**Client Sample ID:**	B15 (8.0'-9.0')
Lab Order:	0306117	**Tag Number:**	
Project:	Greenpoint Lumber Yard Brooklyn, NY	**Collection Date:**	6/26/2003
Lab ID:	0306117-17B	**Matrix:**	SOIL

Analyses	Result	Limit	Qual	Units	DF	Date Analyzed
SEMIVOLATILES SW-846 8270		**SW8270D**		**(SW3550A)**		Analyst: **RN**
1,2,4-Trichlorobenzene	U	40		µg/Kg	1	7/9/2003 10:26:00 AM
1,2-Dichlorobenzene	U	40		µg/Kg	1	7/9/2003 10:26:00 AM
1,3-Dichlorobenzene	U	40		µg/Kg	1	7/9/2003 10:26:00 AM
1,4-Dichlorobenzene	U	40		µg/Kg	1	7/9/2003 10:26:00 AM
2,4,5-Trichlorophenol	U	40		µg/Kg	1	7/9/2003 10:26:00 AM
2,4,6-Trichlorophenol	U	40		µg/Kg	1	7/9/2003 10:26:00 AM
2,4-Dichlorophenol	U	40		µg/Kg	1	7/9/2003 10:26:00 AM
2,4-Dimethylphenol	U	40		µg/Kg	1	7/9/2003 10:26:00 AM
2,4-Dinitrophenol	U	40		µg/Kg	1	7/9/2003 10:26:00 AM
2,4-Dinitrotoluene	U	40		µg/Kg	1	7/9/2003 10:26:00 AM
2,6-Dinitrotoluene	U	40		µg/Kg	1	7/9/2003 10:26:00 AM
2-Chloronaphthalene	U	40		µg/Kg	1	7/9/2003 10:26:00 AM
2-Chlorophenol	U	40		µg/Kg	1	7/9/2003 10:26:00 AM
2-Methylnaphthalene	U	40		µg/Kg	1	7/9/2003 10:26:00 AM
2-Methylphenol	U	40		µg/Kg	1	7/9/2003 10:26:00 AM
2-Nitroaniline	U	40		µg/Kg	1	7/9/2003 10:26:00 AM
2-Nitrophenol	U	40		µg/Kg	1	7/9/2003 10:26:00 AM
3,3'-Dichlorobenzidine	U	40		µg/Kg	1	7/9/2003 10:26:00 AM
3+4-Methylphenol	U	40		µg/Kg	1	7/9/2003 10:26:00 AM
3-Nitroaniline	U	40		µg/Kg	1	7/9/2003 10:26:00 AM
4,6-Dinitro-2-methylphenol	U	40		µg/Kg	1	7/9/2003 10:26:00 AM
4-Bromophenyl phenyl ether	U	40		µg/Kg	1	7/9/2003 10:26:00 AM
4-Chloro-3-methylphenol	U	40		µg/Kg	1	7/9/2003 10:26:00 AM
4-Chloroaniline	U	40		µg/Kg	1	7/9/2003 10:26:00 AM
4-Chlorophenyl phenyl ether	U	40		µg/Kg	1	7/9/2003 10:26:00 AM
4-Nitroaniline	U	40		µg/Kg	1	7/9/2003 10:26:00 AM
4-Nitrophenol	U	40		µg/Kg	1	7/9/2003 10:26:00 AM
Acenaphthene	U	40		µg/Kg	1	7/9/2003 10:26:00 AM
Acenaphthylene	U	40		µg/Kg	1	7/9/2003 10:26:00 AM
Aniline	U	40		µg/Kg	1	7/9/2003 10:26:00 AM
Anthracene	U	40		µg/Kg	1	7/9/2003 10:26:00 AM
Azobenzene	U	40		µg/Kg	1	7/9/2003 10:26:00 AM
Benzidine	U	40		µg/Kg	1	7/9/2003 10:26:00 AM
Benzo(a)anthracene	U	40		µg/Kg	1	7/9/2003 10:26:00 AM
Benzo(a)pyrene	U	40		µg/Kg	1	7/9/2003 10:26:00 AM
Benzo(b)fluoranthene	U	40		µg/Kg	1	7/9/2003 10:26:00 AM
Benzo(g,h,i)perylene	U	40		µg/Kg	1	7/9/2003 10:26:00 AM
Benzo(k)fluoranthene	U	40		µg/Kg	1	7/9/2003 10:26:00 AM
Benzoic acid	U	40		µg/Kg	1	7/9/2003 10:26:00 AM
Benzyl alcohol	U	40		µg/Kg	1	7/9/2003 10:26:00 AM

Qualifiers:

ND - Not Detected at the Reporting Limit

J - Analyte detected below quantitation limits

B - Analyte detected in the associated Method Blank

* - Value exceeds Maximum Contaminant Level

S - Spike Recovery outside accepted recovery limits

R - RPD outside accepted recovery limits

E - Value above quantitation range

American Analytical Laboratories, Inc.

Date: *28-Jul-03*

CLIENT:	AKRF, Inc	**Client Sample ID:**	B15 (8.0'-9.0')
Lab Order:	0306117	**Tag Number:**	
Project:	Greenpoint Lumber Yard Brooklyn, NY	**Collection Date:**	6/26/2003
Lab ID:	0306117-17B	**Matrix:**	SOIL

Analyses	Result	Limit	Qual	Units	DF	Date Analyzed
SEMIVOLATILES SW-846 8270		**SW8270D**		**(SW3550A)**		Analyst: **RN**
Bis(2-chloroethoxy)methane	U	40		µg/Kg	1	7/9/2003 10:26:00 AM
Bis(2-chloroethyl)ether	U	40		µg/Kg	1	7/9/2003 10:26:00 AM
Bis(2-chloroisopropyl)ether	U	40		µg/Kg	1	7/9/2003 10:26:00 AM
Bis(2-ethylhexyl)phthalate	U	40		µg/Kg	1	7/9/2003 10:26:00 AM
Butyl benzyl phthalate	U	40		µg/Kg	1	7/9/2003 10:26:00 AM
Carbazole	U	40		µg/Kg	1	7/9/2003 10:26:00 AM
Chrysene	U	40		µg/Kg	1	7/9/2003 10:26:00 AM
Dibenzo(a,h)anthracene	U	40		µg/Kg	1	7/9/2003 10:26:00 AM
Dibenzofuran	U	40		µg/Kg	1	7/9/2003 10:26:00 AM
Diethyl phthalate	U	40		µg/Kg	1	7/9/2003 10:26:00 AM
Dimethyl phthalate	U	40		µg/Kg	1	7/9/2003 10:26:00 AM
Di-n-butyl phthalate	U	40		µg/Kg	1	7/9/2003 10:26:00 AM
Di-n-octyl phthalate	U	40		µg/Kg	1	7/9/2003 10:26:00 AM
Fluoranthene	59	40		µg/Kg	1	7/9/2003 10:26:00 AM
Fluorene	U	40		µg/Kg	1	7/9/2003 10:26:00 AM
Hexachlorobenzene	U	40		µg/Kg	1	7/9/2003 10:26:00 AM
Hexachlorobutadiene	U	40		µg/Kg	1	7/9/2003 10:26:00 AM
Hexachlorocyclopentadiene	U	40		µg/Kg	1	7/9/2003 10:26:00 AM
Hexachloroethane	U	40		µg/Kg	1	7/9/2003 10:26:00 AM
Indeno(1,2,3-c,d)pyrene	U	40		µg/Kg	1	7/9/2003 10:26:00 AM
Isophorone	U	40		µg/Kg	1	7/9/2003 10:26:00 AM
Naphthalene	U	40		µg/Kg	1	7/9/2003 10:26:00 AM
Nitrobenzene	U	40		µg/Kg	1	7/9/2003 10:26:00 AM
N-Nitrosodimethylamine	U	40		µg/Kg	1	7/9/2003 10:26:00 AM
N-Nitrosodi-n-propylamine	U	40		µg/Kg	1	7/9/2003 10:26:00 AM
N-Nitrosodiphenylamine	U	40		µg/Kg	1	7/9/2003 10:26:00 AM
Pentachlorophenol	U	40		µg/Kg	1	7/9/2003 10:26:00 AM
Phenanthrene	47	40		µg/Kg	1	7/9/2003 10:26:00 AM
Phenol	U	40		µg/Kg	1	7/9/2003 10:26:00 AM
Pyrene	60	40		µg/Kg	1	7/9/2003 10:26:00 AM
Pyridine	U	40		µg/Kg	1	7/9/2003 10:26:00 AM

Qualifiers:

ND - Not Detected at the Reporting Limit

J - Analyte detected below quantitation limits

B - Analyte detected in the associated Method Blank

* - Value exceeds Maximum Contaminant Level

S - Spike Recovery outside accepted recovery limits

R - RPD outside accepted recovery limits

E - Value above quantitation range

American Analytical Laboratories, Inc.

Date: *28-Jul-03*

CLIENT:	AKRF, Inc	**Client Sample ID:**	B15 (0.5'-2')
Lab Order:	0306117	**Tag Number:**	
Project:	Greenpoint Lumber Yard Brooklyn, NY	**Collection Date:**	6/26/2003
Lab ID:	0306117-18B	**Matrix:**	SOIL

Analyses	Result	Limit	Qual	Units	DF	Date Analyzed
SEMIVOLATILES SW-846 8270		**SW8270D**		**(SW3550A)**		Analyst: **RN**
1,2,4-Trichlorobenzene	U	40		µg/Kg	1	7/10/2003 10:46:00 PM
1,2-Dichlorobenzene	69	40		µg/Kg	1	7/10/2003 10:46:00 PM
1,3-Dichlorobenzene	U	40		µg/Kg	1	7/10/2003 10:46:00 PM
1,4-Dichlorobenzene	U	40		µg/Kg	1	7/10/2003 10:46:00 PM
2,4,5-Trichlorophenol	U	40		µg/Kg	1	7/10/2003 10:46:00 PM
2,4,6-Trichlorophenol	U	40		µg/Kg	1	7/10/2003 10:46:00 PM
2,4-Dichlorophenol	U	40		µg/Kg	1	7/10/2003 10:46:00 PM
2,4-Dimethylphenol	U	40		µg/Kg	1	7/10/2003 10:46:00 PM
2,4-Dinitrophenol	U	40		µg/Kg	1	7/10/2003 10:46:00 PM
2,4-Dinitrotoluene	U	40		µg/Kg	1	7/10/2003 10:46:00 PM
2,6-Dinitrotoluene	U	40		µg/Kg	1	7/10/2003 10:46:00 PM
2-Chloronaphthalene	U	40		µg/Kg	1	7/10/2003 10:46:00 PM
2-Chlorophenol	U	40		µg/Kg	1	7/10/2003 10:46:00 PM
2-Methylnaphthalene	250	40		µg/Kg	1	7/10/2003 10:46:00 PM
2-Methylphenol	U	40		µg/Kg	1	7/10/2003 10:46:00 PM
2-Nitroaniline	U	40		µg/Kg	1	7/10/2003 10:46:00 PM
2-Nitrophenol	U	40		µg/Kg	1	7/10/2003 10:46:00 PM
3,3'-Dichlorobenzidine	U	40		µg/Kg	1	7/10/2003 10:46:00 PM
3+4-Methylphenol	U	40		µg/Kg	1	7/10/2003 10:46:00 PM
3-Nitroaniline	U	40		µg/Kg	1	7/10/2003 10:46:00 PM
4,6-Dinitro-2-methylphenol	U	40		µg/Kg	1	7/10/2003 10:46:00 PM
4-Bromophenyl phenyl ether	U	40		µg/Kg	1	7/10/2003 10:46:00 PM
4-Chloro-3-methylphenol	U	40		µg/Kg	1	7/10/2003 10:46:00 PM
4-Chloroaniline	U	40		µg/Kg	1	7/10/2003 10:46:00 PM
4-Chlorophenyl phenyl ether	U	40		µg/Kg	1	7/10/2003 10:46:00 PM
4-Nitroaniline	U	40		µg/Kg	1	7/10/2003 10:46:00 PM
4-Nitrophenol	U	40		µg/Kg	1	7/10/2003 10:46:00 PM
Acenaphthene	43	40		µg/Kg	1	7/10/2003 10:46:00 PM
Acenaphthylene	U	40		µg/Kg	1	7/10/2003 10:46:00 PM
Aniline	U	40		µg/Kg	1	7/10/2003 10:46:00 PM
Anthracene	110	40		µg/Kg	1	7/10/2003 10:46:00 PM
Azobenzene	U	40		µg/Kg	1	7/10/2003 10:46:00 PM
Benzidine	U	40		µg/Kg	1	7/10/2003 10:46:00 PM
Benzo(a)anthracene	460	40		µg/Kg	1	7/10/2003 10:46:00 PM
Benzo(a)pyrene	410	40		µg/Kg	1	7/10/2003 10:46:00 PM
Benzo(b)fluoranthene	590	40		µg/Kg	1	7/10/2003 10:46:00 PM
Benzo(g,h,i)perylene	440	40		µg/Kg	1	7/10/2003 10:46:00 PM
Benzo(k)fluoranthene	240	40		µg/Kg	1	7/10/2003 10:46:00 PM
Benzoic acid	U	40		µg/Kg	1	7/10/2003 10:46:00 PM
Benzyl alcohol	U	40		µg/Kg	1	7/10/2003 10:46:00 PM

Qualifiers:

ND - Not Detected at the Reporting Limit

J - Analyte detected below quantitation limits

B - Analyte detected in the associated Method Blank

* - Value exceeds Maximum Contaminant Level

S - Spike Recovery outside accepted recovery limits

R - RPD outside accepted recovery limits

E - Value above quantitation range

American Analytical Laboratories, Inc.

Date: *28-Jul-03*

CLIENT:	AKRF, Inc	**Client Sample ID:**	B15 (0.5'-2')
Lab Order:	0306117	**Tag Number:**	
Project:	Greenpoint Lumber Yard Brooklyn, NY	**Collection Date:**	6/26/2003
Lab ID:	0306117-18B	**Matrix:**	SOIL

Analyses	Result	Limit	Qual	Units	DF	Date Analyzed
SEMIVOLATILES SW-846 8270		**SW8270D**		**(SW3550A)**		Analyst: **RN**
Bis(2-chloroethoxy)methane	U	40		µg/Kg	1	7/10/2003 10:46:00 PM
Bis(2-chloroethyl)ether	U	40		µg/Kg	1	7/10/2003 10:46:00 PM
Bis(2-chloroisopropyl)ether	U	40		µg/Kg	1	7/10/2003 10:46:00 PM
Bis(2-ethylhexyl)phthalate	690	40		µg/Kg	1	7/10/2003 10:46:00 PM
Butyl benzyl phthalate	U	40		µg/Kg	1	7/10/2003 10:46:00 PM
Carbazole	U	40		µg/Kg	1	7/10/2003 10:46:00 PM
Chrysene	540	40		µg/Kg	1	7/10/2003 10:46:00 PM
Dibenzo(a,h)anthracene	70	40		µg/Kg	1	7/10/2003 10:46:00 PM
Dibenzofuran	40	40		µg/Kg	1	7/10/2003 10:46:00 PM
Diethyl phthalate	U	40		µg/Kg	1	7/10/2003 10:46:00 PM
Dimethyl phthalate	U	40		µg/Kg	1	7/10/2003 10:46:00 PM
Di-n-butyl phthalate	U	40		µg/Kg	1	7/10/2003 10:46:00 PM
Di-n-octyl phthalate	U	40		µg/Kg	1	7/10/2003 10:46:00 PM
Fluoranthene	730	40		µg/Kg	1	7/10/2003 10:46:00 PM
Fluorene	62	40		µg/Kg	1	7/10/2003 10:46:00 PM
Hexachlorobenzene	U	40		µg/Kg	1	7/10/2003 10:46:00 PM
Hexachlorobutadiene	U	40		µg/Kg	1	7/10/2003 10:46:00 PM
Hexachlorocyclopentadiene	U	40		µg/Kg	1	7/10/2003 10:46:00 PM
Hexachloroethane	U	40		µg/Kg	1	7/10/2003 10:46:00 PM
Indeno(1,2,3-c,d)pyrene	330	40		µg/Kg	1	7/10/2003 10:46:00 PM
Isophorone	U	40		µg/Kg	1	7/10/2003 10:46:00 PM
Naphthalene	160	40		µg/Kg	1	7/10/2003 10:46:00 PM
Nitrobenzene	U	40		µg/Kg	1	7/10/2003 10:46:00 PM
N-Nitrosodimethylamine	U	40		µg/Kg	1	7/10/2003 10:46:00 PM
N-Nitrosodi-n-propylamine	U	40		µg/Kg	1	7/10/2003 10:46:00 PM
N-Nitrosodiphenylamine	U	40		µg/Kg	1	7/10/2003 10:46:00 PM
Pentachlorophenol	U	40		µg/Kg	1	7/10/2003 10:46:00 PM
Phenanthrene	510	40		µg/Kg	1	7/10/2003 10:46:00 PM
Phenol	U	40		µg/Kg	1	7/10/2003 10:46:00 PM
Pyrene	800	40		µg/Kg	1	7/10/2003 10:46:00 PM
Pyridine	U	40		µg/Kg	1	7/10/2003 10:46:00 PM

Qualifiers:

ND - Not Detected at the Reporting Limit

J - Analyte detected below quantitation limits

B - Analyte detected in the associated Method Blank

* - Value exceeds Maximum Contaminant Level

S - Spike Recovery outside accepted recovery limits

R - RPD outside accepted recovery limits

E - Value above quantitation range

American Analytical Laboratories, Inc.

Date: *28-Jul-03*

CLIENT:	AKRF, Inc	**Client Sample ID:**	MW15 (0.5'-2')
Lab Order:	0306117	**Tag Number:**	
Project:	Greenpoint Lumber Yard Brooklyn, NY	**Collection Date:**	6/26/2003
Lab ID:	0306117-19B	**Matrix:**	SOIL

Analyses	Result	Limit	Qual	Units	DF	Date Analyzed
SEMIVOLATILES SW-846 8270		**SW8270D**		**(SW3550A)**		Analyst: **RN**
1,2,4-Trichlorobenzene	U	80		µg/Kg	2	7/10/2003 11:33:00 PM
1,2-Dichlorobenzene	U	80		µg/Kg	2	7/10/2003 11:33:00 PM
1,3-Dichlorobenzene	U	80		µg/Kg	2	7/10/2003 11:33:00 PM
1,4-Dichlorobenzene	U	80		µg/Kg	2	7/10/2003 11:33:00 PM
2,4,5-Trichlorophenol	U	80		µg/Kg	2	7/10/2003 11:33:00 PM
2,4,6-Trichlorophenol	U	80		µg/Kg	2	7/10/2003 11:33:00 PM
2,4-Dichlorophenol	U	80		µg/Kg	2	7/10/2003 11:33:00 PM
2,4-Dimethylphenol	U	80		µg/Kg	2	7/10/2003 11:33:00 PM
2,4-Dinitrophenol	U	80		µg/Kg	2	7/10/2003 11:33:00 PM
2,4-Dinitrotoluene	U	80		µg/Kg	2	7/10/2003 11:33:00 PM
2,6-Dinitrotoluene	U	80		µg/Kg	2	7/10/2003 11:33:00 PM
2-Chloronaphthalene	U	80		µg/Kg	2	7/10/2003 11:33:00 PM
2-Chlorophenol	U	80		µg/Kg	2	7/10/2003 11:33:00 PM
2-Methylnaphthalene	220	80		µg/Kg	2	7/10/2003 11:33:00 PM
2-Methylphenol	U	80		µg/Kg	2	7/10/2003 11:33:00 PM
2-Nitroaniline	U	80		µg/Kg	2	7/10/2003 11:33:00 PM
2-Nitrophenol	U	80		µg/Kg	2	7/10/2003 11:33:00 PM
3,3'-Dichlorobenzidine	U	80		µg/Kg	2	7/10/2003 11:33:00 PM
3+4-Methylphenol	U	80		µg/Kg	2	7/10/2003 11:33:00 PM
3-Nitroaniline	U	80		µg/Kg	2	7/10/2003 11:33:00 PM
4,6-Dinitro-2-methylphenol	U	80		µg/Kg	2	7/10/2003 11:33:00 PM
4-Bromophenyl phenyl ether	U	80		µg/Kg	2	7/10/2003 11:33:00 PM
4-Chloro-3-methylphenol	U	80		µg/Kg	2	7/10/2003 11:33:00 PM
4-Chloroaniline	U	80		µg/Kg	2	7/10/2003 11:33:00 PM
4-Chlorophenyl phenyl ether	U	80		µg/Kg	2	7/10/2003 11:33:00 PM
4-Nitroaniline	U	80		µg/Kg	2	7/10/2003 11:33:00 PM
4-Nitrophenol	U	80		µg/Kg	2	7/10/2003 11:33:00 PM
Acenaphthene	550	80		µg/Kg	2	7/10/2003 11:33:00 PM
Acenaphthylene	200	80		µg/Kg	2	7/10/2003 11:33:00 PM
Aniline	U	80		µg/Kg	2	7/10/2003 11:33:00 PM
Anthracene	1400	80		µg/Kg	2	7/10/2003 11:33:00 PM
Azobenzene	U	80		µg/Kg	2	7/10/2003 11:33:00 PM
Benzidine	U	80		µg/Kg	2	7/10/2003 11:33:00 PM
Benzo(a)anthracene	2700	80		µg/Kg	2	7/10/2003 11:33:00 PM
Benzo(a)pyrene	2200	80		µg/Kg	2	7/10/2003 11:33:00 PM
Benzo(b)fluoranthene	2800	80		µg/Kg	2	7/10/2003 11:33:00 PM
Benzo(g,h,i)perylene	1300	80		µg/Kg	2	7/10/2003 11:33:00 PM
Benzo(k)fluoranthene	720	80		µg/Kg	2	7/10/2003 11:33:00 PM
Benzoic acid	U	80		µg/Kg	2	7/10/2003 11:33:00 PM
Benzyl alcohol	U	80		µg/Kg	2	7/10/2003 11:33:00 PM

Qualifiers:

ND - Not Detected at the Reporting Limit

J - Analyte detected below quantitation limits

B - Analyte detected in the associated Method Blank

* - Value exceeds Maximum Contaminant Level

S - Spike Recovery outside accepted recovery limits

R - RPD outside accepted recovery limits

E - Value above quantitation range

American Analytical Laboratories, Inc.

Date: *28-Jul-03*

CLIENT:	AKRF, Inc	**Client Sample ID:**	MW15 (0.5'-2')
Lab Order:	0306117	**Tag Number:**	
Project:	Greenpoint Lumber Yard Brooklyn, NY	**Collection Date:**	6/26/2003
Lab ID:	0306117-19B	**Matrix:**	SOIL

Analyses	Result	Limit	Qual	Units	DF	Date Analyzed
SEMIVOLATILES SW-846 8270		**SW8270D**		**(SW3550A)**		Analyst: **RN**
Bis(2-chloroethoxy)methane	U	80		µg/Kg	2	7/10/2003 11:33:00 PM
Bis(2-chloroethyl)ether	U	80		µg/Kg	2	7/10/2003 11:33:00 PM
Bis(2-chloroisopropyl)ether	U	80		µg/Kg	2	7/10/2003 11:33:00 PM
Bis(2-ethylhexyl)phthalate	1100	80		µg/Kg	2	7/10/2003 11:33:00 PM
Butyl benzyl phthalate	U	80		µg/Kg	2	7/10/2003 11:33:00 PM
Carbazole	180	80		µg/Kg	2	7/10/2003 11:33:00 PM
Chrysene	2700	80		µg/Kg	2	7/10/2003 11:33:00 PM
Dibenzo(a,h)anthracene	370	80		µg/Kg	2	7/10/2003 11:33:00 PM
Dibenzofuran	300	80		µg/Kg	2	7/10/2003 11:33:00 PM
Diethyl phthalate	U	80		µg/Kg	2	7/10/2003 11:33:00 PM
Dimethyl phthalate	U	80		µg/Kg	2	7/10/2003 11:33:00 PM
Di-n-butyl phthalate	U	80		µg/Kg	2	7/10/2003 11:33:00 PM
Di-n-octyl phthalate	U	80		µg/Kg	2	7/10/2003 11:33:00 PM
Fluoranthene	5300	400		µg/Kg	10	7/11/2003 3:12:00 PM
Fluorene	460	80		µg/Kg	2	7/10/2003 11:33:00 PM
Hexachlorobenzene	U	80		µg/Kg	2	7/10/2003 11:33:00 PM
Hexachlorobutadiene	U	80		µg/Kg	2	7/10/2003 11:33:00 PM
Hexachlorocyclopentadiene	U	80		µg/Kg	2	7/10/2003 11:33:00 PM
Hexachloroethane	U	80		µg/Kg	2	7/10/2003 11:33:00 PM
Indeno(1,2,3-c,d)pyrene	1300	80		µg/Kg	2	7/10/2003 11:33:00 PM
Isophorone	U	80		µg/Kg	2	7/10/2003 11:33:00 PM
Naphthalene	200	80		µg/Kg	2	7/10/2003 11:33:00 PM
Nitrobenzene	U	80		µg/Kg	2	7/10/2003 11:33:00 PM
N-Nitrosodimethylamine	U	80		µg/Kg	2	7/10/2003 11:33:00 PM
N-Nitrosodi-n-propylamine	U	80		µg/Kg	2	7/10/2003 11:33:00 PM
N-Nitrosodiphenylamine	U	80		µg/Kg	2	7/10/2003 11:33:00 PM
Pentachlorophenol	U	80		µg/Kg	2	7/10/2003 11:33:00 PM
Phenanthrene	2700	80		µg/Kg	2	7/10/2003 11:33:00 PM
Phenol	U	80		µg/Kg	2	7/10/2003 11:33:00 PM
Pyrene	5600	400		µg/Kg	10	7/11/2003 3:12:00 PM
Pyridine	U	80		µg/Kg	2	7/10/2003 11:33:00 PM

Qualifiers:

ND - Not Detected at the Reporting Limit

J - Analyte detected below quantitation limits

B - Analyte detected in the associated Method Blank

* - Value exceeds Maximum Contaminant Level

S - Spike Recovery outside accepted recovery limits

R - RPD outside accepted recovery limits

E - Value above quantitation range

American Analytical Laboratories, Inc.

Date: *28-Jul-03*

CLIENT:	AKRF, Inc	**Client Sample ID:**	MW15 (6'-8')
Lab Order:	0306117	**Tag Number:**	
Project:	Greenpoint Lumber Yard Brooklyn, NY	**Collection Date:**	6/26/2003
Lab ID:	0306117-20B	**Matrix:**	SOIL

Analyses	Result	Limit	Qual	Units	DF	Date Analyzed
SEMIVOLATILES SW-846 8270		**SW8270D**		**(SW3550A)**		Analyst: **RN**
1,2,4-Trichlorobenzene	U	80		µg/Kg	2	7/11/2003 12:21:00 AM
1,2-Dichlorobenzene	U	80		µg/Kg	2	7/11/2003 12:21:00 AM
1,3-Dichlorobenzene	U	80		µg/Kg	2	7/11/2003 12:21:00 AM
1,4-Dichlorobenzene	U	80		µg/Kg	2	7/11/2003 12:21:00 AM
2,4,5-Trichlorophenol	U	80		µg/Kg	2	7/11/2003 12:21:00 AM
2,4,6-Trichlorophenol	U	80		µg/Kg	2	7/11/2003 12:21:00 AM
2,4-Dichlorophenol	U	80		µg/Kg	2	7/11/2003 12:21:00 AM
2,4-Dimethylphenol	U	80		µg/Kg	2	7/11/2003 12:21:00 AM
2,4-Dinitrophenol	U	80		µg/Kg	2	7/11/2003 12:21:00 AM
2,4-Dinitrotoluene	U	80		µg/Kg	2	7/11/2003 12:21:00 AM
2,6-Dinitrotoluene	U	80		µg/Kg	2	7/11/2003 12:21:00 AM
2-Chloronaphthalene	U	80		µg/Kg	2	7/11/2003 12:21:00 AM
2-Chlorophenol	U	80		µg/Kg	2	7/11/2003 12:21:00 AM
2-Methylnaphthalene	95	80		µg/Kg	2	7/11/2003 12:21:00 AM
2-Methylphenol	U	80		µg/Kg	2	7/11/2003 12:21:00 AM
2-Nitroaniline	U	80		µg/Kg	2	7/11/2003 12:21:00 AM
2-Nitrophenol	U	80		µg/Kg	2	7/11/2003 12:21:00 AM
3,3'-Dichlorobenzidine	U	80		µg/Kg	2	7/11/2003 12:21:00 AM
3+4-Methylphenol	U	80		µg/Kg	2	7/11/2003 12:21:00 AM
3-Nitroaniline	U	80		µg/Kg	2	7/11/2003 12:21:00 AM
4,6-Dinitro-2-methylphenol	U	80		µg/Kg	2	7/11/2003 12:21:00 AM
4-Bromophenyl phenyl ether	U	80		µg/Kg	2	7/11/2003 12:21:00 AM
4-Chloro-3-methylphenol	U	80		µg/Kg	2	7/11/2003 12:21:00 AM
4-Chloroaniline	U	80		µg/Kg	2	7/11/2003 12:21:00 AM
4-Chlorophenyl phenyl ether	U	80		µg/Kg	2	7/11/2003 12:21:00 AM
4-Nitroaniline	U	80		µg/Kg	2	7/11/2003 12:21:00 AM
4-Nitrophenol	U	80		µg/Kg	2	7/11/2003 12:21:00 AM
Acenaphthene	570	80		µg/Kg	2	7/11/2003 12:21:00 AM
Acenaphthylene	300	80		µg/Kg	2	7/11/2003 12:21:00 AM
Aniline	U	80		µg/Kg	2	7/11/2003 12:21:00 AM
Anthracene	1600	80		µg/Kg	2	7/11/2003 12:21:00 AM
Azobenzene	U	80		µg/Kg	2	7/11/2003 12:21:00 AM
Benzidine	U	80		µg/Kg	2	7/11/2003 12:21:00 AM
Benzo(a)anthracene	4600	80		µg/Kg	2	7/11/2003 12:21:00 AM
Benzo(a)pyrene	3800	80		µg/Kg	2	7/11/2003 12:21:00 AM
Benzo(b)fluoranthene	4200	80		µg/Kg	2	7/11/2003 12:21:00 AM
Benzo(g,h,i)perylene	2200	80		µg/Kg	2	7/11/2003 12:21:00 AM
Benzo(k)fluoranthene	1800	80		µg/Kg	2	7/11/2003 12:21:00 AM
Benzoic acid	U	80		µg/Kg	2	7/11/2003 12:21:00 AM
Benzyl alcohol	U	80		µg/Kg	2	7/11/2003 12:21:00 AM

Qualifiers:

ND - Not Detected at the Reporting Limit

J - Analyte detected below quantitation limits

B - Analyte detected in the associated Method Blank

* - Value exceeds Maximum Contaminant Level

S - Spike Recovery outside accepted recovery limits

R - RPD outside accepted recovery limits

E - Value above quantitation range

American Analytical Laboratories, Inc.

Date: *28-Jul-03*

CLIENT:	AKRF, Inc	**Client Sample ID:**	MW15 (6'-8')
Lab Order:	0306117	**Tag Number:**	
Project:	Greenpoint Lumber Yard Brooklyn, NY	**Collection Date:**	6/26/2003
Lab ID:	0306117-20B	**Matrix:**	SOIL

Analyses	Result	Limit	Qual	Units	DF	Date Analyzed
SEMIVOLATILES SW-846 8270		**SW8270D**		**(SW3550A)**		Analyst: **RN**
Bis(2-chloroethoxy)methane	U	80		µg/Kg	2	7/11/2003 12:21:00 AM
Bis(2-chloroethyl)ether	U	80		µg/Kg	2	7/11/2003 12:21:00 AM
Bis(2-chloroisopropyl)ether	U	80		µg/Kg	2	7/11/2003 12:21:00 AM
Bis(2-ethylhexyl)phthalate	U	80		µg/Kg	2	7/11/2003 12:21:00 AM
Butyl benzyl phthalate	U	80		µg/Kg	2	7/11/2003 12:21:00 AM
Carbazole	330	80		µg/Kg	2	7/11/2003 12:21:00 AM
Chrysene	4700	80		µg/Kg	2	7/11/2003 12:21:00 AM
Dibenzo(a,h)anthracene	620	80		µg/Kg	2	7/11/2003 12:21:00 AM
Dibenzofuran	290	80		µg/Kg	2	7/11/2003 12:21:00 AM
Diethyl phthalate	U	80		µg/Kg	2	7/11/2003 12:21:00 AM
Dimethyl phthalate	U	80		µg/Kg	2	7/11/2003 12:21:00 AM
Di-n-butyl phthalate	U	80		µg/Kg	2	7/11/2003 12:21:00 AM
Di-n-octyl phthalate	U	80		µg/Kg	2	7/11/2003 12:21:00 AM
Fluoranthene	8500	400		µg/Kg	10	7/11/2003 3:52:00 PM
Fluorene	460	80		µg/Kg	2	7/11/2003 12:21:00 AM
Hexachlorobenzene	U	80		µg/Kg	2	7/11/2003 12:21:00 AM
Hexachlorobutadiene	U	80		µg/Kg	2	7/11/2003 12:21:00 AM
Hexachlorocyclopentadiene	U	80		µg/Kg	2	7/11/2003 12:21:00 AM
Hexachloroethane	U	80		µg/Kg	2	7/11/2003 12:21:00 AM
Indeno(1,2,3-c,d)pyrene	2200	80		µg/Kg	2	7/11/2003 12:21:00 AM
Isophorone	U	80		µg/Kg	2	7/11/2003 12:21:00 AM
Naphthalene	190	80		µg/Kg	2	7/11/2003 12:21:00 AM
Nitrobenzene	U	80		µg/Kg	2	7/11/2003 12:21:00 AM
N-Nitrosodimethylamine	U	80		µg/Kg	2	7/11/2003 12:21:00 AM
N-Nitrosodi-n-propylamine	U	80		µg/Kg	2	7/11/2003 12:21:00 AM
N-Nitrosodiphenylamine	U	80		µg/Kg	2	7/11/2003 12:21:00 AM
Pentachlorophenol	U	80		µg/Kg	2	7/11/2003 12:21:00 AM
Phenanthrene	4700	80		µg/Kg	2	7/11/2003 12:21:00 AM
Phenol	U	80		µg/Kg	2	7/11/2003 12:21:00 AM
Pyrene	8400	400		µg/Kg	10	7/11/2003 3:52:00 PM
Pyridine	U	80		µg/Kg	2	7/11/2003 12:21:00 AM

Qualifiers:

ND - Not Detected at the Reporting Limit

J - Analyte detected below quantitation limits

B - Analyte detected in the associated Method Blank

* - Value exceeds Maximum Contaminant Level

S - Spike Recovery outside accepted recovery limits

R - RPD outside accepted recovery limits

E - Value above quantitation range

GC PESTICIDE/PCB DATA

RESULTS – ORGANIC ANALYSIS DATA SHEET

American Analytical Laboratories, Inc.

Date: *28-Jul-03*

CLIENT:	AKRF, Inc	**Client Sample ID:**	MW10 (5'-7')
Lab Order:	0306117	**Tag Number:**	
Project:	Greenpoint Lumber Yard Brooklyn, NY	**Collection Date:**	6/25/2003
Lab ID:	0306117-01B	**Matrix:**	SOIL

Analyses	Result	Limit	Qual	Units	DF	Date Analyzed
PESTICIDES SW-846 8081		**SW8081B**		**(SW3550)**		Analyst: **KB**
4,4'-DDD	U	5.0		µg/Kg	1	7/4/2003 11:10:00 AM
4,4'-DDE	U	5.0		µg/Kg	1	7/4/2003 11:10:00 AM
4,4'-DDT	U	5.0		µg/Kg	1	7/4/2003 11:10:00 AM
Aldrin	U	5.0		µg/Kg	1	7/4/2003 11:10:00 AM
alpha-BHC	U	5.0		µg/Kg	1	7/4/2003 11:10:00 AM
beta-BHC	U	5.0		µg/Kg	1	7/4/2003 11:10:00 AM
Chlordane	7.5	5.0		µg/Kg	1	7/4/2003 11:10:00 AM
Chlorobenzilate	U	5.0		µg/Kg	1	7/4/2003 11:10:00 AM
DBCP	U	5.0		µg/Kg	1	7/4/2003 11:10:00 AM
delta-BHC	U	5.0		µg/Kg	1	7/4/2003 11:10:00 AM
Dieldrin	U	5.0		µg/Kg	1	7/4/2003 11:10:00 AM
Endosulfan I	U	5.0		µg/Kg	1	7/4/2003 11:10:00 AM
Endosulfan II	U	5.0		µg/Kg	1	7/4/2003 11:10:00 AM
Endosulfan sulfate	U	5.0		µg/Kg	1	7/4/2003 11:10:00 AM
Endrin	U	5.0		µg/Kg	1	7/4/2003 11:10:00 AM
Endrin aldehyde	U	5.0		µg/Kg	1	7/4/2003 11:10:00 AM
Endrin ketone	U	5.0		µg/Kg	1	7/4/2003 11:10:00 AM
gamma-BHC	U	5.0		µg/Kg	1	7/4/2003 11:10:00 AM
Heptachlor	U	5.0		µg/Kg	1	7/4/2003 11:10:00 AM
Heptachlor epoxide	U	5.0		µg/Kg	1	7/4/2003 11:10:00 AM
Hexachlorobenzene	U	5.0		µg/Kg	1	7/4/2003 11:10:00 AM
Hexachlorocyclopentadiene	U	5.0		µg/Kg	1	7/4/2003 11:10:00 AM
Isodrin	U	5.0		µg/Kg	1	7/4/2003 11:10:00 AM
Methoxychlor	U	5.0		µg/Kg	1	7/4/2003 11:10:00 AM
Toxaphene	U	300		µg/Kg	1	7/4/2003 11:10:00 AM

Qualifiers:

ND - Not Detected at the Reporting Limit

J - Analyte detected below quantitation limits

B - Analyte detected in the associated Method Blank

* - Value exceeds Maximum Contaminant Level

S - Spike Recovery outside accepted recovery limits

R - RPD outside accepted recovery limits

E - Value above quantitation range

American Analytical Laboratories, Inc.

Date: *28-Jul-03*

CLIENT:	AKRF, Inc	**Client Sample ID:**	B10 (5'-7')
Lab Order:	0306117	**Tag Number:**	
Project:	Greenpoint Lumber Yard Brooklyn, NY	**Collection Date:**	6/26/2003
Lab ID:	0306117-02B	**Matrix:**	SOIL

Analyses	Result	Limit	Qual	Units	DF	Date Analyzed
PESTICIDES SW-846 8081		**SW8081B**		**(SW3550)**		Analyst: **KB**
4,4'-DDD	25	5.0		µg/Kg	1	7/4/2003 11:53:00 AM
4,4'-DDE	27	5.0		µg/Kg	1	7/4/2003 11:53:00 AM
4,4'-DDT	32	5.0		µg/Kg	1	7/4/2003 11:53:00 AM
Aldrin	U	5.0		µg/Kg	1	7/4/2003 11:53:00 AM
alpha-BHC	U	5.0		µg/Kg	1	7/4/2003 11:53:00 AM
beta-BHC	U	5.0		µg/Kg	1	7/4/2003 11:53:00 AM
Chlordane	67	5.0		µg/Kg	1	7/4/2003 11:53:00 AM
Chlorobenzilate	U	5.0		µg/Kg	1	7/4/2003 11:53:00 AM
DBCP	U	5.0		µg/Kg	1	7/4/2003 11:53:00 AM
delta-BHC	U	5.0		µg/Kg	1	7/4/2003 11:53:00 AM
Dieldrin	U	5.0		µg/Kg	1	7/4/2003 11:53:00 AM
Endosulfan I	U	5.0		µg/Kg	1	7/4/2003 11:53:00 AM
Endosulfan II	U	5.0		µg/Kg	1	7/4/2003 11:53:00 AM
Endosulfan sulfate	U	5.0		µg/Kg	1	7/4/2003 11:53:00 AM
Endrin	U	5.0		µg/Kg	1	7/4/2003 11:53:00 AM
Endrin aldehyde	U	5.0		µg/Kg	1	7/4/2003 11:53:00 AM
Endrin ketone	U	5.0		µg/Kg	1	7/4/2003 11:53:00 AM
gamma-BHC	U	5.0		µg/Kg	1	7/4/2003 11:53:00 AM
Heptachlor	U	5.0		µg/Kg	1	7/4/2003 11:53:00 AM
Heptachlor epoxide	U	5.0		µg/Kg	1	7/4/2003 11:53:00 AM
Hexachlorobenzene	U	5.0		µg/Kg	1	7/4/2003 11:53:00 AM
Hexachlorocyclopentadiene	U	5.0		µg/Kg	1	7/4/2003 11:53:00 AM
Isodrin	U	5.0		µg/Kg	1	7/4/2003 11:53:00 AM
Methoxychlor	U	5.0		µg/Kg	1	7/4/2003 11:53:00 AM
Toxaphene	U	300		µg/Kg	1	7/4/2003 11:53:00 AM

Qualifiers:

ND - Not Detected at the Reporting Limit

J - Analyte detected below quantitation limits

B - Analyte detected in the associated Method Blank

* - Value exceeds Maximum Contaminant Level

S - Spike Recovery outside accepted recovery limits

R - RPD outside accepted recovery limits

E - Value above quantitation range

American Analytical Laboratories, Inc.

Date: *28-Jul-03*

CLIENT:	AKRF, Inc	**Client Sample ID:**	B10 (9'-10')
Lab Order:	0306117	**Tag Number:**	
Project:	Greenpoint Lumber Yard Brooklyn, NY	**Collection Date:**	6/26/2003
Lab ID:	0306117-03B	**Matrix:**	SOIL

Analyses	Result	Limit	Qual	Units	DF	Date Analyzed
PESTICIDES SW-846 8081		**SW8081B**		**(SW3550)**		Analyst: **KB**
4,4'-DDD	U	5.0		µg/Kg	1	7/9/2003 8:59:00 PM
4,4'-DDE	U	5.0		µg/Kg	1	7/9/2003 8:59:00 PM
4,4'-DDT	U	5.0		µg/Kg	1	7/9/2003 8:59:00 PM
Aldrin	U	5.0		µg/Kg	1	7/9/2003 8:59:00 PM
alpha-BHC	U	5.0		µg/Kg	1	7/9/2003 8:59:00 PM
beta-BHC	U	5.0		µg/Kg	1	7/9/2003 8:59:00 PM
Chlordane	U	5.0		µg/Kg	1	7/9/2003 8:59:00 PM
Chlorobenzilate	U	5.0		µg/Kg	1	7/9/2003 8:59:00 PM
DBCP	U	5.0		µg/Kg	1	7/9/2003 8:59:00 PM
delta-BHC	U	5.0		µg/Kg	1	7/9/2003 8:59:00 PM
Dieldrin	U	5.0		µg/Kg	1	7/9/2003 8:59:00 PM
Endosulfan I	U	5.0		µg/Kg	1	7/9/2003 8:59:00 PM
Endosulfan II	U	5.0		µg/Kg	1	7/9/2003 8:59:00 PM
Endosulfan sulfate	U	5.0		µg/Kg	1	7/9/2003 8:59:00 PM
Endrin	U	5.0		µg/Kg	1	7/9/2003 8:59:00 PM
Endrin aldehyde	U	5.0		µg/Kg	1	7/9/2003 8:59:00 PM
Endrin ketone	U	5.0		µg/Kg	1	7/9/2003 8:59:00 PM
gamma-BHC	U	5.0		µg/Kg	1	7/9/2003 8:59:00 PM
Heptachlor	U	5.0		µg/Kg	1	7/9/2003 8:59:00 PM
Heptachlor epoxide	U	5.0		µg/Kg	1	7/9/2003 8:59:00 PM
Hexachlorobenzene	U	5.0		µg/Kg	1	7/9/2003 8:59:00 PM
Hexachlorocyclopentadiene	U	5.0		µg/Kg	1	7/9/2003 8:59:00 PM
Isodrin	U	5.0		µg/Kg	1	7/9/2003 8:59:00 PM
Methoxychlor	U	5.0		µg/Kg	1	7/9/2003 8:59:00 PM
Toxaphene	U	300		µg/Kg	1	7/9/2003 8:59:00 PM

Qualifiers:

ND - Not Detected at the Reporting Limit

J - Analyte detected below quantitation limits

B - Analyte detected in the associated Method Blank

* - Value exceeds Maximum Contaminant Level

S - Spike Recovery outside accepted recovery limits

R - RPD outside accepted recovery limits

E - Value above quantitation range

American Analytical Laboratories, Inc.

Date: *28-Jul-03*

CLIENT:	AKRF, Inc	**Client Sample ID:**	MW9 (1.5-3.5')
Lab Order:	0306117	**Tag Number:**	
Project:	Greenpoint Lumber Yard Brooklyn, NY	**Collection Date:**	6/26/2003
Lab ID:	0306117-04B	**Matrix:**	SOIL

Analyses	Result	Limit	Qual	Units	DF	Date Analyzed
PESTICIDES SW-846 8081		**SW8081B**		**(SW3550)**		Analyst: **KB**
4,4'-DDD	U	5.0		µg/Kg	1	7/4/2003 12:58:00 PM
4,4'-DDE	U	5.0		µg/Kg	1	7/4/2003 12:58:00 PM
4,4'-DDT	U	5.0		µg/Kg	1	7/4/2003 12:58:00 PM
Aldrin	U	5.0		µg/Kg	1	7/4/2003 12:58:00 PM
alpha-BHC	U	5.0		µg/Kg	1	7/4/2003 12:58:00 PM
beta-BHC	U	5.0		µg/Kg	1	7/4/2003 12:58:00 PM
Chlordane	U	5.0		µg/Kg	1	7/4/2003 12:58:00 PM
Chlorobenzilate	U	5.0		µg/Kg	1	7/4/2003 12:58:00 PM
DBCP	U	5.0		µg/Kg	1	7/4/2003 12:58:00 PM
delta-BHC	U	5.0		µg/Kg	1	7/4/2003 12:58:00 PM
Dieldrin	U	5.0		µg/Kg	1	7/4/2003 12:58:00 PM
Endosulfan I	U	5.0		µg/Kg	1	7/4/2003 12:58:00 PM
Endosulfan II	U	5.0		µg/Kg	1	7/4/2003 12:58:00 PM
Endosulfan sulfate	U	5.0		µg/Kg	1	7/4/2003 12:58:00 PM
Endrin	U	5.0		µg/Kg	1	7/4/2003 12:58:00 PM
Endrin aldehyde	U	5.0		µg/Kg	1	7/4/2003 12:58:00 PM
Endrin ketone	U	5.0		µg/Kg	1	7/4/2003 12:58:00 PM
gamma-BHC	U	5.0		µg/Kg	1	7/4/2003 12:58:00 PM
Heptachlor	U	5.0		µg/Kg	1	7/4/2003 12:58:00 PM
Heptachlor epoxide	U	5.0		µg/Kg	1	7/4/2003 12:58:00 PM
Hexachlorobenzene	U	5.0		µg/Kg	1	7/4/2003 12:58:00 PM
Hexachlorocyclopentadiene	U	5.0		µg/Kg	1	7/4/2003 12:58:00 PM
Isodrin	U	5.0		µg/Kg	1	7/4/2003 12:58:00 PM
Methoxychlor	U	5.0		µg/Kg	1	7/4/2003 12:58:00 PM
Toxaphene	U	300		µg/Kg	1	7/4/2003 12:58:00 PM

Qualifiers:

ND - Not Detected at the Reporting Limit

J - Analyte detected below quantitation limits

B - Analyte detected in the associated Method Blank

* - Value exceeds Maximum Contaminant Level

S - Spike Recovery outside accepted recovery limits

R - RPD outside accepted recovery limits

E - Value above quantitation range

American Analytical Laboratories, Inc.

Date: *28-Jul-03*

CLIENT:	AKRF, Inc	**Client Sample ID:**	MW9 (5'-6')
Lab Order:	0306117	**Tag Number:**	
Project:	Greenpoint Lumber Yard Brooklyn, NY	**Collection Date:**	6/26/2003
Lab ID:	0306117-05B	**Matrix:**	SOIL

Analyses	Result	Limit	Qual	Units	DF	Date Analyzed
PESTICIDES SW-846 8081		**SW8081B**		**(SW3550)**		Analyst: **KB**
4,4'-DDD	U	5.0		µg/Kg	1	7/4/2003 1:41:00 PM
4,4'-DDE	U	5.0		µg/Kg	1	7/4/2003 1:41:00 PM
4,4'-DDT	U	5.0		µg/Kg	1	7/4/2003 1:41:00 PM
Aldrin	U	5.0		µg/Kg	1	7/4/2003 1:41:00 PM
alpha-BHC	U	5.0		µg/Kg	1	7/4/2003 1:41:00 PM
beta-BHC	U	5.0		µg/Kg	1	7/4/2003 1:41:00 PM
Chlordane	U	5.0		µg/Kg	1	7/4/2003 1:41:00 PM
Chlorobenzilate	U	5.0		µg/Kg	1	7/4/2003 1:41:00 PM
DBCP	U	5.0		µg/Kg	1	7/4/2003 1:41:00 PM
delta-BHC	U	5.0		µg/Kg	1	7/4/2003 1:41:00 PM
Dieldrin	U	5.0		µg/Kg	1	7/4/2003 1:41:00 PM
Endosulfan I	U	5.0		µg/Kg	1	7/4/2003 1:41:00 PM
Endosulfan II	U	5.0		µg/Kg	1	7/4/2003 1:41:00 PM
Endosulfan sulfate	U	5.0		µg/Kg	1	7/4/2003 1:41:00 PM
Endrin	U	5.0		µg/Kg	1	7/4/2003 1:41:00 PM
Endrin aldehyde	U	5.0		µg/Kg	1	7/4/2003 1:41:00 PM
Endrin ketone	U	5.0		µg/Kg	1	7/4/2003 1:41:00 PM
gamma-BHC	U	5.0		µg/Kg	1	7/4/2003 1:41:00 PM
Heptachlor	U	5.0		µg/Kg	1	7/4/2003 1:41:00 PM
Heptachlor epoxide	U	5.0		µg/Kg	1	7/4/2003 1:41:00 PM
Hexachlorobenzene	U	5.0		µg/Kg	1	7/4/2003 1:41:00 PM
Hexachlorocyclopentadiene	U	5.0		µg/Kg	1	7/4/2003 1:41:00 PM
Isodrin	U	5.0		µg/Kg	1	7/4/2003 1:41:00 PM
Methoxychlor	U	5.0		µg/Kg	1	7/4/2003 1:41:00 PM
Toxaphene	U	300		µg/Kg	1	7/4/2003 1:41:00 PM

Qualifiers:

ND - Not Detected at the Reporting Limit

J - Analyte detected below quantitation limits

B - Analyte detected in the associated Method Blank

* - Value exceeds Maximum Contaminant Level

S - Spike Recovery outside accepted recovery limits

R - RPD outside accepted recovery limits

E - Value above quantitation range

American Analytical Laboratories, Inc.

Date: *28-Jul-03*

CLIENT:	AKRF, Inc	**Client Sample ID:**	MW7 (10'-11')
Lab Order:	0306117	**Tag Number:**	
Project:	Greenpoint Lumber Yard Brooklyn, NY	**Collection Date:**	6/26/2003
Lab ID:	0306117-07B	**Matrix:**	SOIL

Analyses	Result	Limit	Qual	Units	DF	Date Analyzed
PESTICIDES SW-846 8081		**SW8081B**		**(SW3550)**		Analyst: **KB**
4,4'-DDD	U	5.0		µg/Kg	1	7/8/2003 8:48:00 AM
4,4'-DDE	U	5.0		µg/Kg	1	7/8/2003 8:48:00 AM
4,4'-DDT	U	5.0		µg/Kg	1	7/8/2003 8:48:00 AM
Aldrin	U	5.0		µg/Kg	1	7/8/2003 8:48:00 AM
alpha-BHC	U	5.0		µg/Kg	1	7/8/2003 8:48:00 AM
beta-BHC	5	5.0	J	µg/Kg	1	7/8/2003 8:48:00 AM
Chlordane	U	5.0		µg/Kg	1	7/8/2003 8:48:00 AM
Chlorobenzilate	U	5.0		µg/Kg	1	7/8/2003 8:48:00 AM
DBCP	U	5.0		µg/Kg	1	7/8/2003 8:48:00 AM
delta-BHC	U	5.0		µg/Kg	1	7/8/2003 8:48:00 AM
Dieldrin	U	5.0		µg/Kg	1	7/8/2003 8:48:00 AM
Endosulfan I	U	5.0		µg/Kg	1	7/8/2003 8:48:00 AM
Endosulfan II	U	5.0		µg/Kg	1	7/8/2003 8:48:00 AM
Endosulfan sulfate	U	5.0		µg/Kg	1	7/8/2003 8:48:00 AM
Endrin	U	5.0		µg/Kg	1	7/8/2003 8:48:00 AM
Endrin aldehyde	U	5.0		µg/Kg	1	7/8/2003 8:48:00 AM
Endrin ketone	U	5.0		µg/Kg	1	7/8/2003 8:48:00 AM
gamma-BHC	U	5.0		µg/Kg	1	7/8/2003 8:48:00 AM
Heptachlor	U	5.0		µg/Kg	1	7/8/2003 8:48:00 AM
Heptachlor epoxide	U	5.0		µg/Kg	1	7/8/2003 8:48:00 AM
Hexachlorobenzene	U	5.0		µg/Kg	1	7/8/2003 8:48:00 AM
Hexachlorocyclopentadiene	U	5.0		µg/Kg	1	7/8/2003 8:48:00 AM
Isodrin	U	5.0		µg/Kg	1	7/8/2003 8:48:00 AM
Methoxychlor	U	5.0		µg/Kg	1	7/8/2003 8:48:00 AM
Toxaphene	U	300		µg/Kg	1	7/8/2003 8:48:00 AM

Qualifiers:

ND - Not Detected at the Reporting Limit

J - Analyte detected below quantitation limits

B - Analyte detected in the associated Method Blank

* - Value exceeds Maximum Contaminant Level

S - Spike Recovery outside accepted recovery limits

R - RPD outside accepted recovery limits

E - Value above quantitation range

American Analytical Laboratories, Inc.

Date: *28-Jul-03*

CLIENT:	AKRF, Inc	**Client Sample ID:**	MW7 (6.5-7.5)
Lab Order:	0306117	**Tag Number:**	
Project:	Greenpoint Lumber Yard Brooklyn, NY	**Collection Date:**	6/26/2003
Lab ID:	0306117-08B	**Matrix:**	SOIL

Analyses	Result	Limit	Qual	Units	DF	Date Analyzed
PESTICIDES SW-846 8081		**SW8081B**		**(SW3550)**		Analyst: **KB**
4,4'-DDD	U	5.0		µg/Kg	1	7/4/2003 2:24:00 PM
4,4'-DDE	U	5.0		µg/Kg	1	7/4/2003 2:24:00 PM
4,4'-DDT	U	5.0		µg/Kg	1	7/4/2003 2:24:00 PM
Aldrin	U	5.0		µg/Kg	1	7/4/2003 2:24:00 PM
alpha-BHC	U	5.0		µg/Kg	1	7/4/2003 2:24:00 PM
beta-BHC	U	5.0		µg/Kg	1	7/4/2003 2:24:00 PM
Chlordane	U	5.0		µg/Kg	1	7/4/2003 2:24:00 PM
Chlorobenzilate	U	5.0		µg/Kg	1	7/4/2003 2:24:00 PM
DBCP	U	5.0		µg/Kg	1	7/4/2003 2:24:00 PM
delta-BHC	U	5.0		µg/Kg	1	7/4/2003 2:24:00 PM
Dieldrin	U	5.0		µg/Kg	1	7/4/2003 2:24:00 PM
Endosulfan I	U	5.0		µg/Kg	1	7/4/2003 2:24:00 PM
Endosulfan II	U	5.0		µg/Kg	1	7/4/2003 2:24:00 PM
Endosulfan sulfate	U	5.0		µg/Kg	1	7/4/2003 2:24:00 PM
Endrin	U	5.0		µg/Kg	1	7/4/2003 2:24:00 PM
Endrin aldehyde	U	5.0		µg/Kg	1	7/4/2003 2:24:00 PM
Endrin ketone	U	5.0		µg/Kg	1	7/4/2003 2:24:00 PM
gamma-BHC	U	5.0		µg/Kg	1	7/4/2003 2:24:00 PM
Heptachlor	8.0	5.0		µg/Kg	1	7/4/2003 2:24:00 PM
Heptachlor epoxide	U	5.0		µg/Kg	1	7/4/2003 2:24:00 PM
Hexachlorobenzene	U	5.0		µg/Kg	1	7/4/2003 2:24:00 PM
Hexachlorocyclopentadiene	U	5.0		µg/Kg	1	7/4/2003 2:24:00 PM
Isodrin	U	5.0		µg/Kg	1	7/4/2003 2:24:00 PM
Methoxychlor	U	5.0		µg/Kg	1	7/4/2003 2:24:00 PM
Toxaphene	U	300		µg/Kg	1	7/4/2003 2:24:00 PM

Qualifiers:

ND - Not Detected at the Reporting Limit
J - Analyte detected below quantitation limits
B - Analyte detected in the associated Method Blank
* - Value exceeds Maximum Contaminant Level
S - Spike Recovery outside accepted recovery limits
R - RPD outside accepted recovery limits
E - Value above quantitation range

American Analytical Laboratories, Inc.

Date: *28-Jul-03*

CLIENT:	AKRF, Inc	**Client Sample ID:**	B11 (1-3)
Lab Order:	0306117	**Tag Number:**	
Project:	Greenpoint Lumber Yard Brooklyn, NY	**Collection Date:**	6/26/2003
Lab ID:	0306117-09B	**Matrix:**	SOIL

Analyses	Result	Limit	Qual	Units	DF	Date Analyzed
PESTICIDES SW-846 8081		**SW8081B**		**(SW3550)**		Analyst: **KB**
4,4'-DDD	150	5.0		µg/Kg	1	7/8/2003 9:31:00 AM
4,4'-DDE	140	5.0		µg/Kg	1	7/8/2003 9:31:00 AM
4,4'-DDT	29	5.0		µg/Kg	1	7/8/2003 9:31:00 AM
Aldrin	U	5.0		µg/Kg	1	7/8/2003 9:31:00 AM
alpha-BHC	U	5.0		µg/Kg	1	7/8/2003 9:31:00 AM
beta-BHC	U	5.0		µg/Kg	1	7/8/2003 9:31:00 AM
Chlordane	160	5.0		µg/Kg	1	7/8/2003 9:31:00 AM
Chlorobenzilate	U	5.0		µg/Kg	1	7/8/2003 9:31:00 AM
DBCP	U	5.0		µg/Kg	1	7/8/2003 9:31:00 AM
delta-BHC	U	5.0		µg/Kg	1	7/8/2003 9:31:00 AM
Dieldrin	U	5.0		µg/Kg	1	7/8/2003 9:31:00 AM
Endosulfan I	U	5.0		µg/Kg	1	7/8/2003 9:31:00 AM
Endosulfan II	U	5.0		µg/Kg	1	7/8/2003 9:31:00 AM
Endosulfan sulfate	U	5.0		µg/Kg	1	7/8/2003 9:31:00 AM
Endrin	U	5.0		µg/Kg	1	7/8/2003 9:31:00 AM
Endrin aldehyde	U	5.0		µg/Kg	1	7/8/2003 9:31:00 AM
Endrin ketone	U	5.0		µg/Kg	1	7/8/2003 9:31:00 AM
gamma-BHC	U	5.0		µg/Kg	1	7/8/2003 9:31:00 AM
Heptachlor	U	5.0		µg/Kg	1	7/8/2003 9:31:00 AM
Heptachlor epoxide	U	5.0		µg/Kg	1	7/8/2003 9:31:00 AM
Hexachlorobenzene	U	5.0		µg/Kg	1	7/8/2003 9:31:00 AM
Hexachlorocyclopentadiene	U	5.0		µg/Kg	1	7/8/2003 9:31:00 AM
Isodrin	U	5.0		µg/Kg	1	7/8/2003 9:31:00 AM
Methoxychlor	U	5.0		µg/Kg	1	7/8/2003 9:31:00 AM
Toxaphene	U	300		µg/Kg	1	7/8/2003 9:31:00 AM

Qualifiers:

ND - Not Detected at the Reporting Limit

J - Analyte detected below quantitation limits

B - Analyte detected in the associated Method Blank

* - Value exceeds Maximum Contaminant Level

S - Spike Recovery outside accepted recovery limits

R - RPD outside accepted recovery limits

E - Value above quantitation range

American Analytical Laboratories, Inc.

Date: *28-Jul-03*

CLIENT:	AKRF, Inc	**Client Sample ID:**	B11 (7-9)
Lab Order:	0306117	**Tag Number:**	
Project:	Greenpoint Lumber Yard Brooklyn, NY	**Collection Date:**	6/26/2003
Lab ID:	0306117-10B	**Matrix:**	SOIL

Analyses	Result	Limit	Qual	Units	DF	Date Analyzed
PESTICIDES SW-846 8081		**SW8081B**		**(SW3550)**		Analyst: **KB**
4,4'-DDD	U	5.0		µg/Kg	1	7/8/2003 10:13:00 AM
4,4'-DDE	U	5.0		µg/Kg	1	7/8/2003 10:13:00 AM
4,4'-DDT	U	5.0		µg/Kg	1	7/8/2003 10:13:00 AM
Aldrin	U	5.0		µg/Kg	1	7/8/2003 10:13:00 AM
alpha-BHC	U	5.0		µg/Kg	1	7/8/2003 10:13:00 AM
beta-BHC	U	5.0		µg/Kg	1	7/8/2003 10:13:00 AM
Chlordane	U	5.0		µg/Kg	1	7/8/2003 10:13:00 AM
Chlorobenzilate	U	5.0		µg/Kg	1	7/8/2003 10:13:00 AM
DBCP	U	5.0		µg/Kg	1	7/8/2003 10:13:00 AM
delta-BHC	U	5.0		µg/Kg	1	7/8/2003 10:13:00 AM
Dieldrin	U	5.0		µg/Kg	1	7/8/2003 10:13:00 AM
Endosulfan I	U	5.0		µg/Kg	1	7/8/2003 10:13:00 AM
Endosulfan II	U	5.0		µg/Kg	1	7/8/2003 10:13:00 AM
Endosulfan sulfate	U	5.0		µg/Kg	1	7/8/2003 10:13:00 AM
Endrin	U	5.0		µg/Kg	1	7/8/2003 10:13:00 AM
Endrin aldehyde	U	5.0		µg/Kg	1	7/8/2003 10:13:00 AM
Endrin ketone	U	5.0		µg/Kg	1	7/8/2003 10:13:00 AM
gamma-BHC	U	5.0		µg/Kg	1	7/8/2003 10:13:00 AM
Heptachlor	U	5.0		µg/Kg	1	7/8/2003 10:13:00 AM
Heptachlor epoxide	U	5.0		µg/Kg	1	7/8/2003 10:13:00 AM
Hexachlorobenzene	U	5.0		µg/Kg	1	7/8/2003 10:13:00 AM
Hexachlorocyclopentadiene	U	5.0		µg/Kg	1	7/8/2003 10:13:00 AM
Isodrin	U	5.0		µg/Kg	1	7/8/2003 10:13:00 AM
Methoxychlor	U	5.0		µg/Kg	1	7/8/2003 10:13:00 AM
Toxaphene	U	300		µg/Kg	1	7/8/2003 10:13:00 AM

Qualifiers:

ND - Not Detected at the Reporting Limit

J - Analyte detected below quantitation limits

B - Analyte detected in the associated Method Blank

* - Value exceeds Maximum Contaminant Level

S - Spike Recovery outside accepted recovery limits

R - RPD outside accepted recovery limits

E - Value above quantitation range

American Analytical Laboratories, Inc.

Date: *28-Jul-03*

CLIENT:	AKRF, Inc	**Client Sample ID:**	MW11 (0.5'-2')
Lab Order:	0306117	**Tag Number:**	
Project:	Greenpoint Lumber Yard Brooklyn, NY	**Collection Date:**	6/26/2003
Lab ID:	0306117-11B	**Matrix:**	SOIL

Analyses	Result	Limit	Qual	Units	DF	Date Analyzed
PESTICIDES SW-846 8081		**SW8081B**		**(SW3550)**		Analyst: **KB**
4,4'-DDD	U	5.0		µg/Kg	1	7/8/2003 10:56:00 AM
4,4'-DDE	13	5.0		µg/Kg	1	7/8/2003 10:56:00 AM
4,4'-DDT	19	5.0		µg/Kg	1	7/8/2003 10:56:00 AM
Aldrin	U	5.0		µg/Kg	1	7/8/2003 10:56:00 AM
alpha-BHC	U	5.0		µg/Kg	1	7/8/2003 10:56:00 AM
beta-BHC	U	5.0		µg/Kg	1	7/8/2003 10:56:00 AM
Chlordane	16	5.0		µg/Kg	1	7/8/2003 10:56:00 AM
Chlorobenzilate	U	5.0		µg/Kg	1	7/8/2003 10:56:00 AM
DBCP	U	5.0		µg/Kg	1	7/8/2003 10:56:00 AM
delta-BHC	U	5.0		µg/Kg	1	7/8/2003 10:56:00 AM
Dieldrin	U	5.0		µg/Kg	1	7/8/2003 10:56:00 AM
Endosulfan I	U	5.0		µg/Kg	1	7/8/2003 10:56:00 AM
Endosulfan II	U	5.0		µg/Kg	1	7/8/2003 10:56:00 AM
Endosulfan sulfate	U	5.0		µg/Kg	1	7/8/2003 10:56:00 AM
Endrin	U	5.0		µg/Kg	1	7/8/2003 10:56:00 AM
Endrin aldehyde	U	5.0		µg/Kg	1	7/8/2003 10:56:00 AM
Endrin ketone	U	5.0		µg/Kg	1	7/8/2003 10:56:00 AM
gamma-BHC	U	5.0		µg/Kg	1	7/8/2003 10:56:00 AM
Heptachlor	U	5.0		µg/Kg	1	7/8/2003 10:56:00 AM
Heptachlor epoxide	U	5.0		µg/Kg	1	7/8/2003 10:56:00 AM
Hexachlorobenzene	U	5.0		µg/Kg	1	7/8/2003 10:56:00 AM
Hexachlorocyclopentadiene	U	5.0		µg/Kg	1	7/8/2003 10:56:00 AM
Isodrin	U	5.0		µg/Kg	1	7/8/2003 10:56:00 AM
Methoxychlor	U	5.0		µg/Kg	1	7/8/2003 10:56:00 AM
Toxaphene	U	300		µg/Kg	1	7/8/2003 10:56:00 AM

Qualifiers:

ND - Not Detected at the Reporting Limit

J - Analyte detected below quantitation limits

B - Analyte detected in the associated Method Blank

* - Value exceeds Maximum Contaminant Level

S - Spike Recovery outside accepted recovery limits

R - RPD outside accepted recovery limits

E - Value above quantitation range

American Analytical Laboratories, Inc.

Date: *28-Jul-03*

CLIENT:	AKRF, Inc	**Client Sample ID:**	MW11 (7'-9')
Lab Order:	0306117	**Tag Number:**	
Project:	Greenpoint Lumber Yard Brooklyn, NY	**Collection Date:**	6/26/2003
Lab ID:	0306117-12B	**Matrix:**	SOIL

Analyses	Result	Limit	Qual	Units	DF	Date Analyzed
PESTICIDES SW-846 8081		**SW8081B**		**(SW3550)**		Analyst: **KB**
4,4'-DDD	U	5.0		µg/Kg	1	7/8/2003 12:16:00 PM
4,4'-DDE	U	5.0		µg/Kg	1	7/8/2003 12:16:00 PM
4,4'-DDT	U	5.0		µg/Kg	1	7/8/2003 12:16:00 PM
Aldrin	U	5.0		µg/Kg	1	7/8/2003 12:16:00 PM
alpha-BHC	U	5.0		µg/Kg	1	7/8/2003 12:16:00 PM
beta-BHC	U	5.0		µg/Kg	1	7/8/2003 12:16:00 PM
Chlordane	U	5.0		µg/Kg	1	7/8/2003 12:16:00 PM
Chlorobenzilate	U	5.0		µg/Kg	1	7/8/2003 12:16:00 PM
DBCP	U	5.0		µg/Kg	1	7/8/2003 12:16:00 PM
delta-BHC	U	5.0		µg/Kg	1	7/8/2003 12:16:00 PM
Dieldrin	U	5.0		µg/Kg	1	7/8/2003 12:16:00 PM
Endosulfan I	U	5.0		µg/Kg	1	7/8/2003 12:16:00 PM
Endosulfan II	U	5.0		µg/Kg	1	7/8/2003 12:16:00 PM
Endosulfan sulfate	U	5.0		µg/Kg	1	7/8/2003 12:16:00 PM
Endrin	U	5.0		µg/Kg	1	7/8/2003 12:16:00 PM
Endrin aldehyde	U	5.0		µg/Kg	1	7/8/2003 12:16:00 PM
Endrin ketone	U	5.0		µg/Kg	1	7/8/2003 12:16:00 PM
gamma-BHC	U	5.0		µg/Kg	1	7/8/2003 12:16:00 PM
Heptachlor	U	5.0		µg/Kg	1	7/8/2003 12:16:00 PM
Heptachlor epoxide	U	5.0		µg/Kg	1	7/8/2003 12:16:00 PM
Hexachlorobenzene	U	5.0		µg/Kg	1	7/8/2003 12:16:00 PM
Hexachlorocyclopentadiene	U	5.0		µg/Kg	1	7/8/2003 12:16:00 PM
Isodrin	U	5.0		µg/Kg	1	7/8/2003 12:16:00 PM
Methoxychlor	U	5.0		µg/Kg	1	7/8/2003 12:16:00 PM
Toxaphene	U	300		µg/Kg	1	7/8/2003 12:16:00 PM

Qualifiers:

ND - Not Detected at the Reporting Limit

J - Analyte detected below quantitation limits

B - Analyte detected in the associated Method Blank

* - Value exceeds Maximum Contaminant Level

S - Spike Recovery outside accepted recovery limits

R - RPD outside accepted recovery limits

E - Value above quantitation range

American Analytical Laboratories, Inc.

Date: *28-Jul-03*

CLIENT:	AKRF, Inc	**Client Sample ID:**	MW14 (3'-4')
Lab Order:	0306117	**Tag Number:**	
Project:	Greenpoint Lumber Yard Brooklyn, NY	**Collection Date:**	6/26/2003
Lab ID:	0306117-13B	**Matrix:**	SOIL

Analyses	Result	Limit	Qual	Units	DF	Date Analyzed
PESTICIDES SW-846 8081		**SW8081B**		**(SW3550)**		Analyst: **KB**
4,4'-DDD	U	5.0		µg/Kg	1	7/9/2003 10:25:00 PM
4,4'-DDE	U	5.0		µg/Kg	1	7/9/2003 10:25:00 PM
4,4'-DDT	U	5.0		µg/Kg	1	7/9/2003 10:25:00 PM
Aldrin	U	5.0		µg/Kg	1	7/9/2003 10:25:00 PM
alpha-BHC	U	5.0		µg/Kg	1	7/9/2003 10:25:00 PM
beta-BHC	U	5.0		µg/Kg	1	7/9/2003 10:25:00 PM
Chlordane	U	5.0		µg/Kg	1	7/9/2003 10:25:00 PM
Chlorobenzilate	U	5.0		µg/Kg	1	7/9/2003 10:25:00 PM
DBCP	U	5.0		µg/Kg	1	7/9/2003 10:25:00 PM
delta-BHC	U	5.0		µg/Kg	1	7/9/2003 10:25:00 PM
Dieldrin	U	5.0		µg/Kg	1	7/9/2003 10:25:00 PM
Endosulfan I	U	5.0		µg/Kg	1	7/9/2003 10:25:00 PM
Endosulfan II	U	5.0		µg/Kg	1	7/9/2003 10:25:00 PM
Endosulfan sulfate	U	5.0		µg/Kg	1	7/9/2003 10:25:00 PM
Endrin	U	5.0		µg/Kg	1	7/9/2003 10:25:00 PM
Endrin aldehyde	U	5.0		µg/Kg	1	7/9/2003 10:25:00 PM
Endrin ketone	U	5.0		µg/Kg	1	7/9/2003 10:25:00 PM
gamma-BHC	U	5.0		µg/Kg	1	7/9/2003 10:25:00 PM
Heptachlor	U	5.0		µg/Kg	1	7/9/2003 10:25:00 PM
Heptachlor epoxide	U	5.0		µg/Kg	1	7/9/2003 10:25:00 PM
Hexachlorobenzene	U	5.0		µg/Kg	1	7/9/2003 10:25:00 PM
Hexachlorocyclopentadiene	U	5.0		µg/Kg	1	7/9/2003 10:25:00 PM
Isodrin	U	5.0		µg/Kg	1	7/9/2003 10:25:00 PM
Methoxychlor	U	5.0		µg/Kg	1	7/9/2003 10:25:00 PM
Toxaphene	U	300		µg/Kg	1	7/9/2003 10:25:00 PM

Qualifiers:

ND - Not Detected at the Reporting Limit

J - Analyte detected below quantitation limits

B - Analyte detected in the associated Method Blank

* - Value exceeds Maximum Contaminant Level

S - Spike Recovery outside accepted recovery limits

R - RPD outside accepted recovery limits

E - Value above quantitation range

American Analytical Laboratories, Inc.

Date: *28-Jul-03*

CLIENT:	AKRF, Inc	**Client Sample ID:**	MW14 (6'-8')
Lab Order:	0306117	**Tag Number:**	
Project:	Greenpoint Lumber Yard Brooklyn, NY	**Collection Date:**	6/26/2003
Lab ID:	0306117-14B	**Matrix:**	SOIL

Analyses	Result	Limit	Qual	Units	DF	Date Analyzed
PESTICIDES SW-846 8081		**SW8081B**		**(SW3550)**		Analyst: **KB**
4,4'-DDD	U	5.0		µg/Kg	1	7/9/2003 11:30:00 PM
4,4'-DDE	U	5.0		µg/Kg	1	7/9/2003 11:30:00 PM
4,4'-DDT	U	5.0		µg/Kg	1	7/9/2003 11:30:00 PM
Aldrin	U	5.0		µg/Kg	1	7/9/2003 11:30:00 PM
alpha-BHC	U	5.0		µg/Kg	1	7/9/2003 11:30:00 PM
beta-BHC	U	5.0		µg/Kg	1	7/9/2003 11:30:00 PM
Chlordane	U	5.0		µg/Kg	1	7/9/2003 11:30:00 PM
Chlorobenzilate	U	5.0		µg/Kg	1	7/9/2003 11:30:00 PM
DBCP	U	5.0		µg/Kg	1	7/9/2003 11:30:00 PM
delta-BHC	U	5.0		µg/Kg	1	7/9/2003 11:30:00 PM
Dieldrin	U	5.0		µg/Kg	1	7/9/2003 11:30:00 PM
Endosulfan I	U	5.0		µg/Kg	1	7/9/2003 11:30:00 PM
Endosulfan II	U	5.0		µg/Kg	1	7/9/2003 11:30:00 PM
Endosulfan sulfate	U	5.0		µg/Kg	1	7/9/2003 11:30:00 PM
Endrin	U	5.0		µg/Kg	1	7/9/2003 11:30:00 PM
Endrin aldehyde	U	5.0		µg/Kg	1	7/9/2003 11:30:00 PM
Endrin ketone	U	5.0		µg/Kg	1	7/9/2003 11:30:00 PM
gamma-BHC	U	5.0		µg/Kg	1	7/9/2003 11:30:00 PM
Heptachlor	U	5.0		µg/Kg	1	7/9/2003 11:30:00 PM
Heptachlor epoxide	U	5.0		µg/Kg	1	7/9/2003 11:30:00 PM
Hexachlorobenzene	U	5.0		µg/Kg	1	7/9/2003 11:30:00 PM
Hexachlorocyclopentadiene	U	5.0		µg/Kg	1	7/9/2003 11:30:00 PM
Isodrin	U	5.0		µg/Kg	1	7/9/2003 11:30:00 PM
Methoxychlor	U	5.0		µg/Kg	1	7/9/2003 11:30:00 PM
Toxaphene	U	300		µg/Kg	1	7/9/2003 11:30:00 PM

Qualifiers:

ND - Not Detected at the Reporting Limit

J - Analyte detected below quantitation limits

B - Analyte detected in the associated Method Blank

* - Value exceeds Maximum Contaminant Level

S - Spike Recovery outside accepted recovery limits

R - RPD outside accepted recovery limits

E - Value above quantitation range

American Analytical Laboratories, Inc.

Date: *28-Jul-03*

CLIENT:	AKRF, Inc	**Client Sample ID:**	B14 (2'-3.5')
Lab Order:	0306117	**Tag Number:**	
Project:	Greenpoint Lumber Yard Brooklyn, NY	**Collection Date:**	6/26/2003
Lab ID:	0306117-15B	**Matrix:**	SOIL

Analyses	Result	Limit	Qual	Units	DF	Date Analyzed
PESTICIDES SW-846 8081		**SW8081B**		**(SW3550)**		Analyst: **KB**
4,4'-DDD	U	5.0		µg/Kg	1	7/10/2003 12:13:00 AM
4,4'-DDE	U	5.0		µg/Kg	1	7/10/2003 12:13:00 AM
4,4'-DDT	U	5.0		µg/Kg	1	7/10/2003 12:13:00 AM
Aldrin	U	5.0		µg/Kg	1	7/10/2003 12:13:00 AM
alpha-BHC	U	5.0		µg/Kg	1	7/10/2003 12:13:00 AM
beta-BHC	U	5.0		µg/Kg	1	7/10/2003 12:13:00 AM
Chlordane	U	5.0		µg/Kg	1	7/10/2003 12:13:00 AM
Chlorobenzilate	U	5.0		µg/Kg	1	7/10/2003 12:13:00 AM
DBCP	U	5.0		µg/Kg	1	7/10/2003 12:13:00 AM
delta-BHC	U	5.0		µg/Kg	1	7/10/2003 12:13:00 AM
Dieldrin	U	5.0		µg/Kg	1	7/10/2003 12:13:00 AM
Endosulfan I	U	5.0		µg/Kg	1	7/10/2003 12:13:00 AM
Endosulfan II	U	5.0		µg/Kg	1	7/10/2003 12:13:00 AM
Endosulfan sulfate	U	5.0		µg/Kg	1	7/10/2003 12:13:00 AM
Endrin	U	5.0		µg/Kg	1	7/10/2003 12:13:00 AM
Endrin aldehyde	U	5.0		µg/Kg	1	7/10/2003 12:13:00 AM
Endrin ketone	U	5.0		µg/Kg	1	7/10/2003 12:13:00 AM
gamma-BHC	U	5.0		µg/Kg	1	7/10/2003 12:13:00 AM
Heptachlor	U	5.0		µg/Kg	1	7/10/2003 12:13:00 AM
Heptachlor epoxide	U	5.0		µg/Kg	1	7/10/2003 12:13:00 AM
Hexachlorobenzene	U	5.0		µg/Kg	1	7/10/2003 12:13:00 AM
Hexachlorocyclopentadiene	U	5.0		µg/Kg	1	7/10/2003 12:13:00 AM
Isodrin	U	5.0		µg/Kg	1	7/10/2003 12:13:00 AM
Methoxychlor	U	5.0		µg/Kg	1	7/10/2003 12:13:00 AM
Toxaphene	U	300		µg/Kg	1	7/10/2003 12:13:00 AM

Qualifiers:

ND - Not Detected at the Reporting Limit

J - Analyte detected below quantitation limits

B - Analyte detected in the associated Method Blank

* - Value exceeds Maximum Contaminant Level

S - Spike Recovery outside accepted recovery limits

R - RPD outside accepted recovery limits

E - Value above quantitation range

American Analytical Laboratories, Inc.

Date: *28-Jul-03*

CLIENT:	AKRF, Inc	**Client Sample ID:**	B14 (6'-8')
Lab Order:	0306117	**Tag Number:**	
Project:	Greenpoint Lumber Yard Brooklyn, NY	**Collection Date:**	6/26/2003
Lab ID:	0306117-16B	**Matrix:**	SOIL

Analyses	Result	Limit	Qual	Units	DF	Date Analyzed
PESTICIDES SW-846 8081		**SW8081B**		**(SW3550)**		Analyst: **KB**
4,4'-DDD	U	5.0		µg/Kg	1	7/10/2003 12:56:00 AM
4,4'-DDE	U	5.0		µg/Kg	1	7/10/2003 12:56:00 AM
4,4'-DDT	U	5.0		µg/Kg	1	7/10/2003 12:56:00 AM
Aldrin	U	5.0		µg/Kg	1	7/10/2003 12:56:00 AM
alpha-BHC	U	5.0		µg/Kg	1	7/10/2003 12:56:00 AM
beta-BHC	U	5.0		µg/Kg	1	7/10/2003 12:56:00 AM
Chlordane	U	5.0		µg/Kg	1	7/10/2003 12:56:00 AM
Chlorobenzilate	U	5.0		µg/Kg	1	7/10/2003 12:56:00 AM
DBCP	U	5.0		µg/Kg	1	7/10/2003 12:56:00 AM
delta-BHC	U	5.0		µg/Kg	1	7/10/2003 12:56:00 AM
Dieldrin	U	5.0		µg/Kg	1	7/10/2003 12:56:00 AM
Endosulfan I	U	5.0		µg/Kg	1	7/10/2003 12:56:00 AM
Endosulfan II	U	5.0		µg/Kg	1	7/10/2003 12:56:00 AM
Endosulfan sulfate	U	5.0		µg/Kg	1	7/10/2003 12:56:00 AM
Endrin	U	5.0		µg/Kg	1	7/10/2003 12:56:00 AM
Endrin aldehyde	U	5.0		µg/Kg	1	7/10/2003 12:56:00 AM
Endrin ketone	U	5.0		µg/Kg	1	7/10/2003 12:56:00 AM
gamma-BHC	U	5.0		µg/Kg	1	7/10/2003 12:56:00 AM
Heptachlor	U	5.0		µg/Kg	1	7/10/2003 12:56:00 AM
Heptachlor epoxide	U	5.0		µg/Kg	1	7/10/2003 12:56:00 AM
Hexachlorobenzene	U	5.0		µg/Kg	1	7/10/2003 12:56:00 AM
Hexachlorocyclopentadiene	U	5.0		µg/Kg	1	7/10/2003 12:56:00 AM
Isodrin	U	5.0		µg/Kg	1	7/10/2003 12:56:00 AM
Methoxychlor	U	5.0		µg/Kg	1	7/10/2003 12:56:00 AM
Toxaphene	U	300		µg/Kg	1	7/10/2003 12:56:00 AM

Qualifiers:

ND - Not Detected at the Reporting Limit

J - Analyte detected below quantitation limits

B - Analyte detected in the associated Method Blank

* - Value exceeds Maximum Contaminant Level

S - Spike Recovery outside accepted recovery limits

R - RPD outside accepted recovery limits

E - Value above quantitation range

American Analytical Laboratories, Inc.

Date: *28-Jul-03*

CLIENT:	AKRF, Inc	**Client Sample ID:**	B15 (8.0'-9.0')
Lab Order:	0306117	**Tag Number:**	
Project:	Greenpoint Lumber Yard Brooklyn, NY	**Collection Date:**	6/26/2003
Lab ID:	0306117-17B	**Matrix:**	SOIL

Analyses	Result	Limit	Qual	Units	DF	Date Analyzed
PESTICIDES SW-846 8081		**SW8081B**		**(SW3550)**		Analyst: **KB**
4,4'-DDD	U	5.0		µg/Kg	1	7/10/2003 3:27:00 AM
4,4'-DDE	U	5.0		µg/Kg	1	7/10/2003 3:27:00 AM
4,4'-DDT	U	5.0		µg/Kg	1	7/10/2003 3:27:00 AM
Aldrin	U	5.0		µg/Kg	1	7/10/2003 3:27:00 AM
alpha-BHC	U	5.0		µg/Kg	1	7/10/2003 3:27:00 AM
beta-BHC	U	5.0		µg/Kg	1	7/10/2003 3:27:00 AM
Chlordane	U	5.0		µg/Kg	1	7/10/2003 3:27:00 AM
Chlorobenzilate	U	5.0		µg/Kg	1	7/10/2003 3:27:00 AM
DBCP	U	5.0		µg/Kg	1	7/10/2003 3:27:00 AM
delta-BHC	U	5.0		µg/Kg	1	7/10/2003 3:27:00 AM
Dieldrin	U	5.0		µg/Kg	1	7/10/2003 3:27:00 AM
Endosulfan I	U	5.0		µg/Kg	1	7/10/2003 3:27:00 AM
Endosulfan II	U	5.0		µg/Kg	1	7/10/2003 3:27:00 AM
Endosulfan sulfate	U	5.0		µg/Kg	1	7/10/2003 3:27:00 AM
Endrin	U	5.0		µg/Kg	1	7/10/2003 3:27:00 AM
Endrin aldehyde	U	5.0		µg/Kg	1	7/10/2003 3:27:00 AM
Endrin ketone	U	5.0		µg/Kg	1	7/10/2003 3:27:00 AM
gamma-BHC	U	5.0		µg/Kg	1	7/10/2003 3:27:00 AM
Heptachlor	U	5.0		µg/Kg	1	7/10/2003 3:27:00 AM
Heptachlor epoxide	U	5.0		µg/Kg	1	7/10/2003 3:27:00 AM
Hexachlorobenzene	U	5.0		µg/Kg	1	7/10/2003 3:27:00 AM
Hexachlorocyclopentadiene	U	5.0		µg/Kg	1	7/10/2003 3:27:00 AM
Isodrin	U	5.0		µg/Kg	1	7/10/2003 3:27:00 AM
Methoxychlor	U	5.0		µg/Kg	1	7/10/2003 3:27:00 AM
Toxaphene	U	300		µg/Kg	1	7/10/2003 3:27:00 AM

Qualifiers:

ND - Not Detected at the Reporting Limit

J - Analyte detected below quantitation limits

B - Analyte detected in the associated Method Blank

* - Value exceeds Maximum Contaminant Level

S - Spike Recovery outside accepted recovery limits

R - RPD outside accepted recovery limits

E - Value above quantitation range

American Analytical Laboratories, Inc.

Date: *28-Jul-03*

CLIENT:	AKRF, Inc	**Client Sample ID:**	B15 (0.5'-2')
Lab Order:	0306117	**Tag Number:**	
Project:	Greenpoint Lumber Yard Brooklyn, NY	**Collection Date:**	6/26/2003
Lab ID:	0306117-18B	**Matrix:**	SOIL

Analyses	Result	Limit	Qual	Units	DF	Date Analyzed
PESTICIDES SW-846 8081		**SW8081B**		**(SW3550)**		Analyst: **KB**
4,4'-DDD	U	5.0		µg/Kg	1	7/10/2003 4:10:00 AM
4,4'-DDE	U	5.0		µg/Kg	1	7/10/2003 4:10:00 AM
4,4'-DDT	U	5.0		µg/Kg	1	7/10/2003 4:10:00 AM
Aldrin	U	5.0		µg/Kg	1	7/10/2003 4:10:00 AM
alpha-BHC	U	5.0		µg/Kg	1	7/10/2003 4:10:00 AM
beta-BHC	U	5.0		µg/Kg	1	7/10/2003 4:10:00 AM
Chlordane	U	5.0		µg/Kg	1	7/10/2003 4:10:00 AM
Chlorobenzilate	U	5.0		µg/Kg	1	7/10/2003 4:10:00 AM
DBCP	U	5.0		µg/Kg	1	7/10/2003 4:10:00 AM
delta-BHC	U	5.0		µg/Kg	1	7/10/2003 4:10:00 AM
Dieldrin	U	5.0		µg/Kg	1	7/10/2003 4:10:00 AM
Endosulfan I	U	5.0		µg/Kg	1	7/10/2003 4:10:00 AM
Endosulfan II	U	5.0		µg/Kg	1	7/10/2003 4:10:00 AM
Endosulfan sulfate	U	5.0		µg/Kg	1	7/10/2003 4:10:00 AM
Endrin	U	5.0		µg/Kg	1	7/10/2003 4:10:00 AM
Endrin aldehyde	U	5.0		µg/Kg	1	7/10/2003 4:10:00 AM
Endrin ketone	U	5.0		µg/Kg	1	7/10/2003 4:10:00 AM
gamma-BHC	U	5.0		µg/Kg	1	7/10/2003 4:10:00 AM
Heptachlor	U	5.0		µg/Kg	1	7/10/2003 4:10:00 AM
Heptachlor epoxide	U	5.0		µg/Kg	1	7/10/2003 4:10:00 AM
Hexachlorobenzene	U	5.0		µg/Kg	1	7/10/2003 4:10:00 AM
Hexachlorocyclopentadiene	U	5.0		µg/Kg	1	7/10/2003 4:10:00 AM
Isodrin	U	5.0		µg/Kg	1	7/10/2003 4:10:00 AM
Methoxychlor	U	5.0		µg/Kg	1	7/10/2003 4:10:00 AM
Toxaphene	U	300		µg/Kg	1	7/10/2003 4:10:00 AM

Qualifiers:

ND - Not Detected at the Reporting Limit

J - Analyte detected below quantitation limits

B - Analyte detected in the associated Method Blank

* - Value exceeds Maximum Contaminant Level

S - Spike Recovery outside accepted recovery limits

R - RPD outside accepted recovery limits

E - Value above quantitation range

American Analytical Laboratories, Inc.

Date: *28-Jul-03*

CLIENT:	AKRF, Inc	**Client Sample ID:**	MW15 (0.5'-2')
Lab Order:	0306117	**Tag Number:**	
Project:	Greenpoint Lumber Yard Brooklyn, NY	**Collection Date:**	6/26/2003
Lab ID:	0306117-19B	**Matrix:**	SOIL

Analyses	Result	Limit	Qual	Units	DF	Date Analyzed
PESTICIDES SW-846 8081		**SW8081B**		**(SW3550)**		Analyst: **KB**
4,4'-DDD	24	5.0		µg/Kg	1	7/10/2003 4:53:00 AM
4,4'-DDE	17	5.0		µg/Kg	1	7/10/2003 4:53:00 AM
4,4'-DDT	U	5.0		µg/Kg	1	7/10/2003 4:53:00 AM
Aldrin	U	5.0		µg/Kg	1	7/10/2003 4:53:00 AM
alpha-BHC	U	5.0		µg/Kg	1	7/10/2003 4:53:00 AM
beta-BHC	U	5.0		µg/Kg	1	7/10/2003 4:53:00 AM
Chlordane	U	5.0		µg/Kg	1	7/10/2003 4:53:00 AM
Chlorobenzilate	U	5.0		µg/Kg	1	7/10/2003 4:53:00 AM
DBCP	U	5.0		µg/Kg	1	7/10/2003 4:53:00 AM
delta-BHC	U	5.0		µg/Kg	1	7/10/2003 4:53:00 AM
Dieldrin	U	5.0		µg/Kg	1	7/10/2003 4:53:00 AM
Endosulfan I	U	5.0		µg/Kg	1	7/10/2003 4:53:00 AM
Endosulfan II	U	5.0		µg/Kg	1	7/10/2003 4:53:00 AM
Endosulfan sulfate	U	5.0		µg/Kg	1	7/10/2003 4:53:00 AM
Endrin	U	5.0		µg/Kg	1	7/10/2003 4:53:00 AM
Endrin aldehyde	U	5.0		µg/Kg	1	7/10/2003 4:53:00 AM
Endrin ketone	U	5.0		µg/Kg	1	7/10/2003 4:53:00 AM
gamma-BHC	U	5.0		µg/Kg	1	7/10/2003 4:53:00 AM
Heptachlor	U	5.0		µg/Kg	1	7/10/2003 4:53:00 AM
Heptachlor epoxide	U	5.0		µg/Kg	1	7/10/2003 4:53:00 AM
Hexachlorobenzene	U	5.0		µg/Kg	1	7/10/2003 4:53:00 AM
Hexachlorocyclopentadiene	U	5.0		µg/Kg	1	7/10/2003 4:53:00 AM
Isodrin	U	5.0		µg/Kg	1	7/10/2003 4:53:00 AM
Methoxychlor	U	5.0		µg/Kg	1	7/10/2003 4:53:00 AM
Toxaphene	U	300		µg/Kg	1	7/10/2003 4:53:00 AM

Qualifiers:

ND - Not Detected at the Reporting Limit

J - Analyte detected below quantitation limits

B - Analyte detected in the associated Method Blank

* - Value exceeds Maximum Contaminant Level

S - Spike Recovery outside accepted recovery limits

R - RPD outside accepted recovery limits

E - Value above quantitation range

American Analytical Laboratories, Inc.

Date: *28-Jul-03*

CLIENT:	AKRF, Inc	**Client Sample ID:**	MW15 (6'-8')
Lab Order:	0306117	**Tag Number:**	
Project:	Greenpoint Lumber Yard Brooklyn, NY	**Collection Date:**	6/26/2003
Lab ID:	0306117-20B	**Matrix:**	SOIL

Analyses	Result	Limit	Qual	Units	DF	Date Analyzed
PESTICIDES SW-846 8081		**SW8081B**		**(SW3550)**		Analyst: **KB**
4,4'-DDD	U	5.0		µg/Kg	1	7/10/2003 5:58:00 AM
4,4'-DDE	U	5.0		µg/Kg	1	7/10/2003 5:58:00 AM
4,4'-DDT	U	5.0		µg/Kg	1	7/10/2003 5:58:00 AM
Aldrin	U	5.0		µg/Kg	1	7/10/2003 5:58:00 AM
alpha-BHC	U	5.0		µg/Kg	1	7/10/2003 5:58:00 AM
beta-BHC	U	5.0		µg/Kg	1	7/10/2003 5:58:00 AM
Chlordane	U	5.0		µg/Kg	1	7/10/2003 5:58:00 AM
Chlorobenzilate	U	5.0		µg/Kg	1	7/10/2003 5:58:00 AM
DBCP	U	5.0		µg/Kg	1	7/10/2003 5:58:00 AM
delta-BHC	U	5.0		µg/Kg	1	7/10/2003 5:58:00 AM
Dieldrin	U	5.0		µg/Kg	1	7/10/2003 5:58:00 AM
Endosulfan I	U	5.0		µg/Kg	1	7/10/2003 5:58:00 AM
Endosulfan II	U	5.0		µg/Kg	1	7/10/2003 5:58:00 AM
Endosulfan sulfate	U	5.0		µg/Kg	1	7/10/2003 5:58:00 AM
Endrin	U	5.0		µg/Kg	1	7/10/2003 5:58:00 AM
Endrin aldehyde	U	5.0		µg/Kg	1	7/10/2003 5:58:00 AM
Endrin ketone	U	5.0		µg/Kg	1	7/10/2003 5:58:00 AM
gamma-BHC	U	5.0		µg/Kg	1	7/10/2003 5:58:00 AM
Heptachlor	U	5.0		µg/Kg	1	7/10/2003 5:58:00 AM
Heptachlor epoxide	U	5.0		µg/Kg	1	7/10/2003 5:58:00 AM
Hexachlorobenzene	U	5.0		µg/Kg	1	7/10/2003 5:58:00 AM
Hexachlorocyclopentadiene	U	5.0		µg/Kg	1	7/10/2003 5:58:00 AM
Isodrin	U	5.0		µg/Kg	1	7/10/2003 5:58:00 AM
Methoxychlor	U	5.0		µg/Kg	1	7/10/2003 5:58:00 AM
Toxaphene	U	300		µg/Kg	1	7/10/2003 5:58:00 AM

Qualifiers:

ND - Not Detected at the Reporting Limit

J - Analyte detected below quantitation limits

B - Analyte detected in the associated Method Blank

* - Value exceeds Maximum Contaminant Level

S - Spike Recovery outside accepted recovery limits

R - RPD outside accepted recovery limits

E - Value above quantitation range

American Analytical Laboratories, Inc.

Date: *28-Jul-03*

CLIENT:	AKRF, Inc	**Client Sample ID:**	MW10 (5'-7')
Lab Order:	0306117	**Tag Number:**	
Project:	Greenpoint Lumber Yard Brooklyn, NY	**Collection Date:**	6/25/2003
Lab ID:	0306117-01B	**Matrix:**	SOIL

Analyses	Result	Limit	Qual	Units	DF	Date Analyzed
PCB'S AS AROCLORS SW-846 8082		**SW8082A**		**(SW3550)**		Analyst: **KB**
Aroclor 1016	U	80		µg/Kg	1	7/9/2003 10:35:00 AM
Aroclor 1221	U	80		µg/Kg	1	7/9/2003 10:35:00 AM
Aroclor 1232	U	80		µg/Kg	1	7/9/2003 10:35:00 AM
Aroclor 1242	U	80		µg/Kg	1	7/9/2003 10:35:00 AM
Aroclor 1248	U	80		µg/Kg	1	7/9/2003 10:35:00 AM
Aroclor 1254	U	80		µg/Kg	1	7/9/2003 10:35:00 AM
Aroclor 1260	U	80		µg/Kg	1	7/9/2003 10:35:00 AM

Qualifiers:

ND - Not Detected at the Reporting Limit

J - Analyte detected below quantitation limits

B - Analyte detected in the associated Method Blank

* - Value exceeds Maximum Contaminant Level

S - Spike Recovery outside accepted recovery limits

R - RPD outside accepted recovery limits

E - Value above quantitation range

American Analytical Laboratories, Inc.

Date: *28-Jul-03*

CLIENT:	AKRF, Inc	**Client Sample ID:**	B10 (5'-7')
Lab Order:	0306117	**Tag Number:**	
Project:	Greenpoint Lumber Yard Brooklyn, NY	**Collection Date:**	6/26/2003
Lab ID:	0306117-02B	**Matrix:**	SOIL

Analyses	Result	Limit	Qual	Units	DF	Date Analyzed
PCB'S AS AROCLORS SW-846 8082		**SW8082A**		**(SW3550)**		Analyst: **KB**
Aroclor 1016	U	80		µg/Kg	1	7/9/2003 11:17:00 AM
Aroclor 1221	U	80		µg/Kg	1	7/9/2003 11:17:00 AM
Aroclor 1232	U	80		µg/Kg	1	7/9/2003 11:17:00 AM
Aroclor 1242	U	80		µg/Kg	1	7/9/2003 11:17:00 AM
Aroclor 1248	U	80		µg/Kg	1	7/9/2003 11:17:00 AM
Aroclor 1254	150	80		µg/Kg	1	7/9/2003 11:17:00 AM
Aroclor 1260	160	80		µg/Kg	1	7/9/2003 11:17:00 AM

Qualifiers:

ND - Not Detected at the Reporting Limit

J - Analyte detected below quantitation limits

B - Analyte detected in the associated Method Blank

* - Value exceeds Maximum Contaminant Level

S - Spike Recovery outside accepted recovery limits

R - RPD outside accepted recovery limits

E - Value above quantitation range

American Analytical Laboratories, Inc.

Date: *28-Jul-03*

CLIENT:	AKRF, Inc	**Client Sample ID:**	B10 (9'-10')
Lab Order:	0306117	**Tag Number:**	
Project:	Greenpoint Lumber Yard Brooklyn, NY	**Collection Date:**	6/26/2003
Lab ID:	0306117-03B	**Matrix:**	SOIL

Analyses	Result	Limit	Qual	Units	DF	Date Analyzed
PCB'S AS AROCLORS SW-846 8082		**SW8082A**		**(SW3550)**		Analyst: **KB**
Aroclor 1016	U	80		µg/Kg	1	7/11/2003 4:57:00 AM
Aroclor 1221	U	80		µg/Kg	1	7/11/2003 4:57:00 AM
Aroclor 1232	U	80		µg/Kg	1	7/11/2003 4:57:00 AM
Aroclor 1242	U	80		µg/Kg	1	7/11/2003 4:57:00 AM
Aroclor 1248	U	80		µg/Kg	1	7/11/2003 4:57:00 AM
Aroclor 1254	U	80		µg/Kg	1	7/11/2003 4:57:00 AM
Aroclor 1260	U	80		µg/Kg	1	7/11/2003 4:57:00 AM

Qualifiers:

ND - Not Detected at the Reporting Limit

J - Analyte detected below quantitation limits

B - Analyte detected in the associated Method Blank

* - Value exceeds Maximum Contaminant Level

S - Spike Recovery outside accepted recovery limits

R - RPD outside accepted recovery limits

E - Value above quantitation range

American Analytical Laboratories, Inc.

Date: *28-Jul-03*

CLIENT:	AKRF, Inc	**Client Sample ID:**	MW9 (1.5-3.5')
Lab Order:	0306117	**Tag Number:**	
Project:	Greenpoint Lumber Yard Brooklyn, NY	**Collection Date:**	6/26/2003
Lab ID:	0306117-04B	**Matrix:**	SOIL

Analyses	Result	Limit	Qual	Units	DF	Date Analyzed
PCB'S AS AROCLORS SW-846 8082		**SW8082A**		**(SW3550)**		Analyst: **KB**
Aroclor 1016	U	80		µg/Kg	1	7/11/2003 5:40:00 AM
Aroclor 1221	U	80		µg/Kg	1	7/11/2003 5:40:00 AM
Aroclor 1232	U	80		µg/Kg	1	7/11/2003 5:40:00 AM
Aroclor 1242	U	80		µg/Kg	1	7/11/2003 5:40:00 AM
Aroclor 1248	U	80		µg/Kg	1	7/11/2003 5:40:00 AM
Aroclor 1254	U	80		µg/Kg	1	7/11/2003 5:40:00 AM
Aroclor 1260	U	80		µg/Kg	1	7/11/2003 5:40:00 AM

Qualifiers:

ND - Not Detected at the Reporting Limit

J - Analyte detected below quantitation limits

B - Analyte detected in the associated Method Blank

* - Value exceeds Maximum Contaminant Level

S - Spike Recovery outside accepted recovery limits

R - RPD outside accepted recovery limits

E - Value above quantitation range

American Analytical Laboratories, Inc.

Date: *28-Jul-03*

CLIENT:	AKRF, Inc	**Client Sample ID:**	MW9 (5'-6')
Lab Order:	0306117	**Tag Number:**	
Project:	Greenpoint Lumber Yard Brooklyn, NY	**Collection Date:**	6/26/2003
Lab ID:	0306117-05B	**Matrix:**	SOIL

Analyses	Result	Limit	Qual	Units	DF	Date Analyzed
PCB'S AS AROCLORS SW-846 8082		**SW8082A**		**(SW3550)**		Analyst: **KB**
Aroclor 1016	U	80		µg/Kg	1	7/11/2003 6:23:00 AM
Aroclor 1221	U	80		µg/Kg	1	7/11/2003 6:23:00 AM
Aroclor 1232	U	80		µg/Kg	1	7/11/2003 6:23:00 AM
Aroclor 1242	U	80		µg/Kg	1	7/11/2003 6:23:00 AM
Aroclor 1248	U	80		µg/Kg	1	7/11/2003 6:23:00 AM
Aroclor 1254	U	80		µg/Kg	1	7/11/2003 6:23:00 AM
Aroclor 1260	40	80	J	µg/Kg	1	7/11/2003 6:23:00 AM

Qualifiers:

ND - Not Detected at the Reporting Limit

J - Analyte detected below quantitation limits

B - Analyte detected in the associated Method Blank

* - Value exceeds Maximum Contaminant Level

S - Spike Recovery outside accepted recovery limits

R - RPD outside accepted recovery limits

E - Value above quantitation range

American Analytical Laboratories, Inc.

Date: *28-Jul-03*

CLIENT:	AKRF, Inc	**Client Sample ID:**	MW7 (10'-11')
Lab Order:	0306117	**Tag Number:**	
Project:	Greenpoint Lumber Yard Brooklyn, NY	**Collection Date:**	6/26/2003
Lab ID:	0306117-07B	**Matrix:**	SOIL

Analyses	Result	Limit	Qual	Units	DF	Date Analyzed
PCB'S AS AROCLORS SW-846 8082		**SW8082A**		**(SW3550)**		Analyst: **KB**
Aroclor 1016	U	80		µg/Kg	1	7/11/2003 7:28:00 AM
Aroclor 1221	U	80		µg/Kg	1	7/11/2003 7:28:00 AM
Aroclor 1232	U	80		µg/Kg	1	7/11/2003 7:28:00 AM
Aroclor 1242	U	80		µg/Kg	1	7/11/2003 7:28:00 AM
Aroclor 1248	U	80		µg/Kg	1	7/11/2003 7:28:00 AM
Aroclor 1254	U	80		µg/Kg	1	7/11/2003 7:28:00 AM
Aroclor 1260	U	80		µg/Kg	1	7/11/2003 7:28:00 AM

Qualifiers:

ND - Not Detected at the Reporting Limit

J - Analyte detected below quantitation limits

B - Analyte detected in the associated Method Blank

* - Value exceeds Maximum Contaminant Level

S - Spike Recovery outside accepted recovery limits

R - RPD outside accepted recovery limits

E - Value above quantitation range

American Analytical Laboratories, Inc.

Date: *28-Jul-03*

CLIENT:	AKRF, Inc	**Client Sample ID:**	MW7 (6.5-7.5)
Lab Order:	0306117	**Tag Number:**	
Project:	Greenpoint Lumber Yard Brooklyn, NY	**Collection Date:**	6/26/2003
Lab ID:	0306117-08B	**Matrix:**	SOIL

Analyses	Result	Limit	Qual	Units	DF	Date Analyzed
PCB'S AS AROCLORS SW-846 8082		**SW8082A**		**(SW3550)**		Analyst: **KB**
Aroclor 1016	U	80		µg/Kg	1	7/11/2003 8:11:00 AM
Aroclor 1221	U	80		µg/Kg	1	7/11/2003 8:11:00 AM
Aroclor 1232	U	80		µg/Kg	1	7/11/2003 8:11:00 AM
Aroclor 1242	U	80		µg/Kg	1	7/11/2003 8:11:00 AM
Aroclor 1248	U	80		µg/Kg	1	7/11/2003 8:11:00 AM
Aroclor 1254	U	80		µg/Kg	1	7/11/2003 8:11:00 AM
Aroclor 1260	U	80		µg/Kg	1	7/11/2003 8:11:00 AM

Qualifiers:

ND - Not Detected at the Reporting Limit

J - Analyte detected below quantitation limits

B - Analyte detected in the associated Method Blank

* - Value exceeds Maximum Contaminant Level

S - Spike Recovery outside accepted recovery limits

R - RPD outside accepted recovery limits

E - Value above quantitation range

American Analytical Laboratories, Inc.

Date: *28-Jul-03*

CLIENT:	AKRF, Inc	**Client Sample ID:**	B11 (1-3)
Lab Order:	0306117	**Tag Number:**	
Project:	Greenpoint Lumber Yard Brooklyn, NY	**Collection Date:**	6/26/2003
Lab ID:	0306117-09B	**Matrix:**	SOIL

Analyses	Result	Limit	Qual	Units	DF	Date Analyzed
PCB'S AS AROCLORS SW-846 8082		**SW8082A**		**(SW3550)**		Analyst: **KB**
Aroclor 1016	U	80		µg/Kg	1	7/11/2003 8:54:00 AM
Aroclor 1221	U	80		µg/Kg	1	7/11/2003 8:54:00 AM
Aroclor 1232	U	80		µg/Kg	1	7/11/2003 8:54:00 AM
Aroclor 1242	U	80		µg/Kg	1	7/11/2003 8:54:00 AM
Aroclor 1248	U	80		µg/Kg	1	7/11/2003 8:54:00 AM
Aroclor 1254	480	80		µg/Kg	1	7/11/2003 8:54:00 AM
Aroclor 1260	160	80		µg/Kg	1	7/11/2003 8:54:00 AM

Qualifiers:

ND - Not Detected at the Reporting Limit

J - Analyte detected below quantitation limits

B - Analyte detected in the associated Method Blank

* - Value exceeds Maximum Contaminant Level

S - Spike Recovery outside accepted recovery limits

R - RPD outside accepted recovery limits

E - Value above quantitation range

American Analytical Laboratories, Inc.

Date: *28-Jul-03*

CLIENT:	AKRF, Inc	**Client Sample ID:**	B11 (7-9)
Lab Order:	0306117	**Tag Number:**	
Project:	Greenpoint Lumber Yard Brooklyn, NY	**Collection Date:**	6/26/2003
Lab ID:	0306117-10B	**Matrix:**	SOIL

Analyses	Result	Limit	Qual	Units	DF	Date Analyzed
PCB'S AS AROCLORS SW-846 8082		**SW8082A**		**(SW3550)**		Analyst: **KB**
Aroclor 1016	U	80		µg/Kg	1	7/11/2003 10:38:00 AM
Aroclor 1221	U	80		µg/Kg	1	7/11/2003 10:38:00 AM
Aroclor 1232	U	80		µg/Kg	1	7/11/2003 10:38:00 AM
Aroclor 1242	U	80		µg/Kg	1	7/11/2003 10:38:00 AM
Aroclor 1248	U	80		µg/Kg	1	7/11/2003 10:38:00 AM
Aroclor 1254	U	80		µg/Kg	1	7/11/2003 10:38:00 AM
Aroclor 1260	U	80		µg/Kg	1	7/11/2003 10:38:00 AM

Qualifiers:

ND - Not Detected at the Reporting Limit

J - Analyte detected below quantitation limits

B - Analyte detected in the associated Method Blank

* - Value exceeds Maximum Contaminant Level

S - Spike Recovery outside accepted recovery limits

R - RPD outside accepted recovery limits

E - Value above quantitation range

American Analytical Laboratories, Inc.

Date: *28-Jul-03*

CLIENT:	AKRF, Inc	**Client Sample ID:**	MW11 (0.5'-2')
Lab Order:	0306117	**Tag Number:**	
Project:	Greenpoint Lumber Yard Brooklyn, NY	**Collection Date:**	6/26/2003
Lab ID:	0306117-11B	**Matrix:**	SOIL

Analyses	Result	Limit	Qual	Units	DF	Date Analyzed
PCB'S AS AROCLORS SW-846 8082		**SW8082A**		**(SW3550)**		Analyst: **KB**
Aroclor 1016	U	80		µg/Kg	1	7/11/2003 11:21:00 AM
Aroclor 1221	U	80		µg/Kg	1	7/11/2003 11:21:00 AM
Aroclor 1232	U	80		µg/Kg	1	7/11/2003 11:21:00 AM
Aroclor 1242	U	80		µg/Kg	1	7/11/2003 11:21:00 AM
Aroclor 1248	U	80		µg/Kg	1	7/11/2003 11:21:00 AM
Aroclor 1254	U	80		µg/Kg	1	7/11/2003 11:21:00 AM
Aroclor 1260	50	80	J	µg/Kg	1	7/11/2003 11:21:00 AM

Qualifiers:

ND - Not Detected at the Reporting Limit

J - Analyte detected below quantitation limits

B - Analyte detected in the associated Method Blank

* - Value exceeds Maximum Contaminant Level

S - Spike Recovery outside accepted recovery limits

R - RPD outside accepted recovery limits

E - Value above quantitation range

American Analytical Laboratories, Inc.

Date: *28-Jul-03*

CLIENT:	AKRF, Inc	**Client Sample ID:**	MW11 (7'-9')
Lab Order:	0306117	**Tag Number:**	
Project:	Greenpoint Lumber Yard Brooklyn, NY	**Collection Date:**	6/26/2003
Lab ID:	0306117-12B	**Matrix:**	SOIL

Analyses	Result	Limit	Qual	Units	DF	Date Analyzed
PCB'S AS AROCLORS SW-846 8082		**SW8082A**		**(SW3550)**		Analyst: **KB**
Aroclor 1016	U	80		µg/Kg	1	7/11/2003 12:04:00 PM
Aroclor 1221	U	80		µg/Kg	1	7/11/2003 12:04:00 PM
Aroclor 1232	U	80		µg/Kg	1	7/11/2003 12:04:00 PM
Aroclor 1242	U	80		µg/Kg	1	7/11/2003 12:04:00 PM
Aroclor 1248	U	80		µg/Kg	1	7/11/2003 12:04:00 PM
Aroclor 1254	U	80		µg/Kg	1	7/11/2003 12:04:00 PM
Aroclor 1260	U	80		µg/Kg	1	7/11/2003 12:04:00 PM

Qualifiers:

ND - Not Detected at the Reporting Limit

J - Analyte detected below quantitation limits

B - Analyte detected in the associated Method Blank

* - Value exceeds Maximum Contaminant Level

S - Spike Recovery outside accepted recovery limits

R - RPD outside accepted recovery limits

E - Value above quantitation range

American Analytical Laboratories, Inc.

Date: *28-Jul-03*

CLIENT:	AKRF, Inc	**Client Sample ID:**	MW14 (3'-4')
Lab Order:	0306117	**Tag Number:**	
Project:	Greenpoint Lumber Yard Brooklyn, NY	**Collection Date:**	6/26/2003
Lab ID:	0306117-13B	**Matrix:**	SOIL

Analyses	Result	Limit	Qual	Units	DF	Date Analyzed
PCB'S AS AROCLORS SW-846 8082		**SW8082A**		**(SW3550)**		Analyst: **KB**
Aroclor 1016	U	80		µg/Kg	1	7/11/2003 4:14:00 PM
Aroclor 1221	U	80		µg/Kg	1	7/11/2003 4:14:00 PM
Aroclor 1232	U	80		µg/Kg	1	7/11/2003 4:14:00 PM
Aroclor 1242	U	80		µg/Kg	1	7/11/2003 4:14:00 PM
Aroclor 1248	U	80		µg/Kg	1	7/11/2003 4:14:00 PM
Aroclor 1254	U	80		µg/Kg	1	7/11/2003 4:14:00 PM
Aroclor 1260	U	80		µg/Kg	1	7/11/2003 4:14:00 PM

Qualifiers:

ND - Not Detected at the Reporting Limit

J - Analyte detected below quantitation limits

B - Analyte detected in the associated Method Blank

* - Value exceeds Maximum Contaminant Level

S - Spike Recovery outside accepted recovery limits

R - RPD outside accepted recovery limits

E - Value above quantitation range

American Analytical Laboratories, Inc.

Date: *28-Jul-03*

CLIENT:	AKRF, Inc	**Client Sample ID:**	MW14 (6'-8')
Lab Order:	0306117	**Tag Number:**	
Project:	Greenpoint Lumber Yard Brooklyn, NY	**Collection Date:**	6/26/2003
Lab ID:	0306117-14B	**Matrix:**	SOIL

Analyses	Result	Limit	Qual	Units	DF	Date Analyzed
PCB'S AS AROCLORS SW-846 8082		**SW8082A**		**(SW3550)**		Analyst: **KB**
Aroclor 1016	U	80		µg/Kg	1	7/11/2003 4:56:00 PM
Aroclor 1221	U	80		µg/Kg	1	7/11/2003 4:56:00 PM
Aroclor 1232	U	80		µg/Kg	1	7/11/2003 4:56:00 PM
Aroclor 1242	U	80		µg/Kg	1	7/11/2003 4:56:00 PM
Aroclor 1248	U	80		µg/Kg	1	7/11/2003 4:56:00 PM
Aroclor 1254	U	80		µg/Kg	1	7/11/2003 4:56:00 PM
Aroclor 1260	U	80		µg/Kg	1	7/11/2003 4:56:00 PM

Qualifiers:

ND - Not Detected at the Reporting Limit

J - Analyte detected below quantitation limits

B - Analyte detected in the associated Method Blank

* - Value exceeds Maximum Contaminant Level

S - Spike Recovery outside accepted recovery limits

R - RPD outside accepted recovery limits

E - Value above quantitation range

American Analytical Laboratories, Inc.

Date: *28-Jul-03*

CLIENT:	AKRF, Inc	**Client Sample ID:**	B14 (2'-3.5')
Lab Order:	0306117	**Tag Number:**	
Project:	Greenpoint Lumber Yard Brooklyn, NY	**Collection Date:**	6/26/2003
Lab ID:	0306117-15B	**Matrix:**	SOIL

Analyses	Result	Limit	Qual	Units	DF	Date Analyzed
PCB'S AS AROCLORS SW-846 8082		**SW8082A**		**(SW3550)**		Analyst: **KB**
Aroclor 1016	U	80		µg/Kg	1	7/11/2003 5:39:00 PM
Aroclor 1221	U	80		µg/Kg	1	7/11/2003 5:39:00 PM
Aroclor 1232	U	80		µg/Kg	1	7/11/2003 5:39:00 PM
Aroclor 1242	U	80		µg/Kg	1	7/11/2003 5:39:00 PM
Aroclor 1248	U	80		µg/Kg	1	7/11/2003 5:39:00 PM
Aroclor 1254	U	80		µg/Kg	1	7/11/2003 5:39:00 PM
Aroclor 1260	U	80		µg/Kg	1	7/11/2003 5:39:00 PM

Qualifiers:

- ND - Not Detected at the Reporting Limit
- J - Analyte detected below quantitation limits
- B - Analyte detected in the associated Method Blank
- * - Value exceeds Maximum Contaminant Level
- S - Spike Recovery outside accepted recovery limits
- R - RPD outside accepted recovery limits
- E - Value above quantitation range

American Analytical Laboratories, Inc.

Date: *28-Jul-03*

CLIENT:	AKRF, Inc	**Client Sample ID:**	B14 (6'-8')
Lab Order:	0306117	**Tag Number:**	
Project:	Greenpoint Lumber Yard Brooklyn, NY	**Collection Date:**	6/26/2003
Lab ID:	0306117-16B	**Matrix:**	SOIL

Analyses	Result	Limit	Qual	Units	DF	Date Analyzed
PCB'S AS AROCLORS SW-846 8082		**SW8082A**		**(SW3550)**		Analyst: **KB**
Aroclor 1016	U	80		µg/Kg	1	7/11/2003 6:45:00 PM
Aroclor 1221	U	80		µg/Kg	1	7/11/2003 6:45:00 PM
Aroclor 1232	U	80		µg/Kg	1	7/11/2003 6:45:00 PM
Aroclor 1242	U	80		µg/Kg	1	7/11/2003 6:45:00 PM
Aroclor 1248	U	80		µg/Kg	1	7/11/2003 6:45:00 PM
Aroclor 1254	U	80		µg/Kg	1	7/11/2003 6:45:00 PM
Aroclor 1260	U	80		µg/Kg	1	7/11/2003 6:45:00 PM

Qualifiers:

ND - Not Detected at the Reporting Limit

J - Analyte detected below quantitation limits

B - Analyte detected in the associated Method Blank

* - Value exceeds Maximum Contaminant Level

S - Spike Recovery outside accepted recovery limits

R - RPD outside accepted recovery limits

E - Value above quantitation range

American Analytical Laboratories, Inc.

Date: *28-Jul-03*

CLIENT:	AKRF, Inc	**Client Sample ID:**	B15 (8.0'-9.0')
Lab Order:	0306117	**Tag Number:**	
Project:	Greenpoint Lumber Yard Brooklyn, NY	**Collection Date:**	6/26/2003
Lab ID:	0306117-17B	**Matrix:**	SOIL

Analyses	Result	Limit	Qual	Units	DF	Date Analyzed
PCB'S AS AROCLORS SW-846 8082		**SW8082A**		**(SW3550)**		Analyst: **KB**
Aroclor 1016	U	80		µg/Kg	1	7/11/2003 7:28:00 PM
Aroclor 1221	U	80		µg/Kg	1	7/11/2003 7:28:00 PM
Aroclor 1232	U	80		µg/Kg	1	7/11/2003 7:28:00 PM
Aroclor 1242	U	80		µg/Kg	1	7/11/2003 7:28:00 PM
Aroclor 1248	U	80		µg/Kg	1	7/11/2003 7:28:00 PM
Aroclor 1254	U	80		µg/Kg	1	7/11/2003 7:28:00 PM
Aroclor 1260	U	80		µg/Kg	1	7/11/2003 7:28:00 PM

Qualifiers:

ND - Not Detected at the Reporting Limit

J - Analyte detected below quantitation limits

B - Analyte detected in the associated Method Blank

* - Value exceeds Maximum Contaminant Level

S - Spike Recovery outside accepted recovery limits

R - RPD outside accepted recovery limits

E - Value above quantitation range

American Analytical Laboratories, Inc.

Date: *28-Jul-03*

CLIENT:	AKRF, Inc	**Client Sample ID:**	B15 (0.5'-2')
Lab Order:	0306117	**Tag Number:**	
Project:	Greenpoint Lumber Yard Brooklyn, NY	**Collection Date:**	6/26/2003
Lab ID:	0306117-18B	**Matrix:**	SOIL

Analyses	Result	Limit	Qual	Units	DF	Date Analyzed
PCB'S AS AROCLORS SW-846 8082		**SW8082A**		**(SW3550)**		Analyst: **KB**
Aroclor 1016	U	80		µg/Kg	1	7/11/2003 8:11:00 PM
Aroclor 1221	U	80		µg/Kg	1	7/11/2003 8:11:00 PM
Aroclor 1232	U	80		µg/Kg	1	7/11/2003 8:11:00 PM
Aroclor 1242	U	80		µg/Kg	1	7/11/2003 8:11:00 PM
Aroclor 1248	U	80		µg/Kg	1	7/11/2003 8:11:00 PM
Aroclor 1254	60	80	J	µg/Kg	1	7/11/2003 8:11:00 PM
Aroclor 1260	50	80	J	µg/Kg	1	7/11/2003 8:11:00 PM

Qualifiers:

ND - Not Detected at the Reporting Limit

J - Analyte detected below quantitation limits

B - Analyte detected in the associated Method Blank

* - Value exceeds Maximum Contaminant Level

S - Spike Recovery outside accepted recovery limits

R - RPD outside accepted recovery limits

E - Value above quantitation range

American Analytical Laboratories, Inc.

Date: *28-Jul-03*

CLIENT:	AKRF, Inc	**Client Sample ID:**	MW15 (0.5'-2')
Lab Order:	0306117	**Tag Number:**	
Project:	Greenpoint Lumber Yard Brooklyn, NY	**Collection Date:**	6/26/2003
Lab ID:	0306117-19B	**Matrix:**	SOIL

Analyses	Result	Limit	Qual	Units	DF	Date Analyzed
PCB'S AS AROCLORS SW-846 8082		**SW8082A**		**(SW3550)**		Analyst: **KB**
Aroclor 1016	U	80		µg/Kg	1	7/11/2003 9:17:00 PM
Aroclor 1221	U	80		µg/Kg	1	7/11/2003 9:17:00 PM
Aroclor 1232	U	80		µg/Kg	1	7/11/2003 9:17:00 PM
Aroclor 1242	U	80		µg/Kg	1	7/11/2003 9:17:00 PM
Aroclor 1248	U	80		µg/Kg	1	7/11/2003 9:17:00 PM
Aroclor 1254	50	80	J	µg/Kg	1	7/11/2003 9:17:00 PM
Aroclor 1260	50	80	J	µg/Kg	1	7/11/2003 9:17:00 PM

Qualifiers:

ND - Not Detected at the Reporting Limit

J - Analyte detected below quantitation limits

B - Analyte detected in the associated Method Blank

* - Value exceeds Maximum Contaminant Level

S - Spike Recovery outside accepted recovery limits

R - RPD outside accepted recovery limits

E - Value above quantitation range

American Analytical Laboratories, Inc.

Date: *28-Jul-03*

CLIENT:	AKRF, Inc	**Client Sample ID:**	MW15 (6'-8')
Lab Order:	0306117	**Tag Number:**	
Project:	Greenpoint Lumber Yard Brooklyn, NY	**Collection Date:**	6/26/2003
Lab ID:	0306117-20B	**Matrix:**	SOIL

Analyses	Result	Limit	Qual	Units	DF	Date Analyzed
PCB'S AS AROCLORS SW-846 8082		**SW8082A**		**(SW3550)**		Analyst: **KB**
Aroclor 1016	U	80		µg/Kg	1	7/11/2003 10:00:00 PM
Aroclor 1221	U	80		µg/Kg	1	7/11/2003 10:00:00 PM
Aroclor 1232	U	80		µg/Kg	1	7/11/2003 10:00:00 PM
Aroclor 1242	U	80		µg/Kg	1	7/11/2003 10:00:00 PM
Aroclor 1248	U	80		µg/Kg	1	7/11/2003 10:00:00 PM
Aroclor 1254	U	80		µg/Kg	1	7/11/2003 10:00:00 PM
Aroclor 1260	U	80		µg/Kg	1	7/11/2003 10:00:00 PM

Qualifiers:

ND - Not Detected at the Reporting Limit

J - Analyte detected below quantitation limits

B - Analyte detected in the associated Method Blank

* - Value exceeds Maximum Contaminant Level

S - Spike Recovery outside accepted recovery limits

R - RPD outside accepted recovery limits

E - Value above quantitation range

INORGANIC DATA

RESULTS - INORGANIC ANALYSIS DATA SHEET

American Analytical Laboratories, Inc.

Date: *28-Jul-03*

CLIENT:	AKRF, Inc	**Client Sample ID:**	MW10 (5'-7')
Lab Order:	0306117	**Tag Number:**	
Project:	Greenpoint Lumber Yard Brooklyn, NY	**Collection Date:**	6/25/2003
Lab ID:	0306117-01B	**Matrix:**	SOIL

Analyses	Result	Limit	Qual	Units	DF	Date Analyzed
MERCURY SW-846 7471		**SW7471B**				Analyst: **JP**
Mercury	0.094	0.0500		mg/Kg	1	7/3/2003
TARGET ANALYTE LIST		**SW6010B**		**(SW3050A)**		Analyst: **JP**
Aluminum	5330	0.348		mg/Kg	1	7/3/2003 11:33:18 AM
Antimony	U	0.436		mg/Kg	1	7/3/2003 11:33:18 AM
Arsenic	5.14	0.436		mg/Kg	1	7/3/2003 11:33:18 AM
Barium	57.1	0.348		mg/Kg	1	7/3/2003 11:33:18 AM
Beryllium	U	0.348		mg/Kg	1	7/3/2003 11:33:18 AM
Cadmium	0.433	0.174		mg/Kg	1	7/3/2003 11:33:18 AM
Calcium	3540	0.348		mg/Kg	1	7/3/2003 11:33:18 AM
Chromium	10.3	0.348		mg/Kg	1	7/3/2003 11:33:18 AM
Cobalt	8.85	0.348		mg/Kg	1	7/3/2003 11:33:18 AM
Copper	36.6	0.348		mg/Kg	1	7/3/2003 11:33:18 AM
Iron	5490	0.348		mg/Kg	1	7/3/2003 11:33:18 AM
Lead	46.8	0.261		mg/Kg	1	7/3/2003 11:33:18 AM
Magnesium	380	0.348		mg/Kg	1	7/3/2003 11:33:18 AM
Manganese	219	0.348		mg/Kg	1	7/3/2003 11:33:18 AM
Nickel	11.3	0.348		mg/Kg	1	7/3/2003 11:33:18 AM
Potassium	761	1.22		mg/Kg	1	7/3/2003 11:33:18 AM
Selenium	U	0.436		mg/Kg	1	7/3/2003 11:33:18 AM
Silver	U	0.348		mg/Kg	1	7/3/2003 11:33:18 AM
Sodium	240	0.523		mg/Kg	1	7/3/2003 11:33:18 AM
Thallium	1.05	0.261		mg/Kg	1	7/3/2003 11:33:18 AM
Vanadium	14.1	0.348		mg/Kg	1	7/3/2003 11:33:18 AM
Zinc	98.1	0.348		mg/Kg	1	7/3/2003 11:33:18 AM

Qualifiers:

ND - Not Detected at the Reporting Limit

J - Analyte detected below quantitation limits

B - Analyte detected in the associated Method Blank

* - Value exceeds Maximum Contaminant Level

S - Spike Recovery outside accepted recovery limits

R - RPD outside accepted recovery limits

E - Value above quantitation range

American Analytical Laboratories, Inc.

Date: *28-Jul-03*

CLIENT:	AKRF, Inc	**Client Sample ID:**	B10 (5'-7')
Lab Order:	0306117	**Tag Number:**	
Project:	Greenpoint Lumber Yard Brooklyn, NY	**Collection Date:**	6/26/2003
Lab ID:	0306117-02B	**Matrix:**	SOIL

Analyses	Result	Limit	Qual	Units	DF	Date Analyzed
MERCURY SW-846 7471		**SW7471B**				Analyst: **JP**
Mercury	0.276	0.0500		mg/Kg	1	7/3/2003
TARGET ANALYTE LIST		**SW6010B**		**(SW3050A)**		Analyst: **JP**
Aluminum	2890	0.356		mg/Kg	1	7/3/2003 11:39:01 AM
Antimony	U	0.445		mg/Kg	1	7/3/2003 11:39:01 AM
Arsenic	9.33	0.445		mg/Kg	1	7/3/2003 11:39:01 AM
Barium	141	0.356		mg/Kg	1	7/3/2003 11:39:01 AM
Beryllium	U	0.356		mg/Kg	1	7/3/2003 11:39:01 AM
Cadmium	4.06	0.178		mg/Kg	1	7/3/2003 11:39:01 AM
Calcium	18100	0.356		mg/Kg	1	7/3/2003 11:39:01 AM
Chromium	21.3	0.356		mg/Kg	1	7/3/2003 11:39:01 AM
Cobalt	13.9	0.356		mg/Kg	1	7/3/2003 11:39:01 AM
Copper	86.8	0.356		mg/Kg	1	7/3/2003 11:39:01 AM
Iron	6350	0.356		mg/Kg	1	7/3/2003 11:39:01 AM
Lead	246	0.267		mg/Kg	1	7/3/2003 11:39:01 AM
Magnesium	412	0.356		mg/Kg	1	7/3/2003 11:39:01 AM
Manganese	189	0.356		mg/Kg	1	7/3/2003 11:39:01 AM
Nickel	19.1	0.356		mg/Kg	1	7/3/2003 11:39:01 AM
Potassium	1110	1.25		mg/Kg	1	7/3/2003 11:39:01 AM
Selenium	0.43	0.445	J	mg/Kg	1	7/3/2003 11:39:01 AM
Silver	0.26	0.356	J	mg/Kg	1	7/3/2003 11:39:01 AM
Sodium	359	0.534		mg/Kg	1	7/3/2003 11:39:01 AM
Thallium	0.869	0.267		mg/Kg	1	7/3/2003 11:39:01 AM
Vanadium	14.3	0.356		mg/Kg	1	7/3/2003 11:39:01 AM
Zinc	288	0.356		mg/Kg	1	7/3/2003 11:39:01 AM

Qualifiers:

ND - Not Detected at the Reporting Limit

J - Analyte detected below quantitation limits

B - Analyte detected in the associated Method Blank

* - Value exceeds Maximum Contaminant Level

S - Spike Recovery outside accepted recovery limits

R - RPD outside accepted recovery limits

E - Value above quantitation range

American Analytical Laboratories, Inc.

Date: *28-Jul-03*

CLIENT:	AKRF, Inc	**Client Sample ID:**	B10 (9'-10')
Lab Order:	0306117	**Tag Number:**	
Project:	Greenpoint Lumber Yard Brooklyn, NY	**Collection Date:**	6/26/2003
Lab ID:	0306117-03B	**Matrix:**	SOIL

Analyses	Result	Limit	Qual	Units	DF	Date Analyzed
MERCURY SW-846 7471		**SW7471B**				Analyst: **JP**
Mercury	U	0.0500		mg/Kg	1	7/3/2003
TARGET ANALYTE LIST		**SW6010B**		**(SW3050A)**		Analyst: **JP**
Aluminum	4230	0.365		mg/Kg	1	7/3/2003 11:42:13 AM
Antimony	U	0.456		mg/Kg	1	7/3/2003 11:42:13 AM
Arsenic	3.18	0.456		mg/Kg	1	7/3/2003 11:42:13 AM
Barium	39.5	0.365		mg/Kg	1	7/3/2003 11:42:13 AM
Beryllium	U	0.365		mg/Kg	1	7/3/2003 11:42:13 AM
Cadmium	U	0.182		mg/Kg	1	7/3/2003 11:42:13 AM
Calcium	5820	0.365		mg/Kg	1	7/3/2003 11:42:13 AM
Chromium	5.01	0.365		mg/Kg	1	7/3/2003 11:42:13 AM
Cobalt	6.16	0.365		mg/Kg	1	7/3/2003 11:42:13 AM
Copper	22.5	0.365		mg/Kg	1	7/3/2003 11:42:13 AM
Iron	3730	0.365		mg/Kg	1	7/3/2003 11:42:13 AM
Lead	3.12	0.274		mg/Kg	1	7/3/2003 11:42:13 AM
Magnesium	233	0.365		mg/Kg	1	7/3/2003 11:42:13 AM
Manganese	37.5	0.365		mg/Kg	1	7/3/2003 11:42:13 AM
Nickel	9.59	0.365		mg/Kg	1	7/3/2003 11:42:13 AM
Potassium	423	1.28		mg/Kg	1	7/3/2003 11:42:13 AM
Selenium	U	0.456		mg/Kg	1	7/3/2003 11:42:13 AM
Silver	U	0.365		mg/Kg	1	7/3/2003 11:42:13 AM
Sodium	402	0.547		mg/Kg	1	7/3/2003 11:42:13 AM
Thallium	0.994	0.274		mg/Kg	1	7/3/2003 11:42:13 AM
Vanadium	11.8	0.365		mg/Kg	1	7/3/2003 11:42:13 AM
Zinc	8.20	0.365		mg/Kg	1	7/3/2003 11:42:13 AM

Qualifiers:

ND - Not Detected at the Reporting Limit

J - Analyte detected below quantitation limits

B - Analyte detected in the associated Method Blank

* - Value exceeds Maximum Contaminant Level

S - Spike Recovery outside accepted recovery limits

R - RPD outside accepted recovery limits

E - Value above quantitation range

American Analytical Laboratories, Inc.

Date: *28-Jul-03*

CLIENT:	AKRF, Inc	**Client Sample ID:**	MW9 (1.5-3.5')
Lab Order:	0306117	**Tag Number:**	
Project:	Greenpoint Lumber Yard Brooklyn, NY	**Collection Date:**	6/26/2003
Lab ID:	0306117-04B	**Matrix:**	SOIL

Analyses	Result	Limit	Qual	Units	DF	Date Analyzed
MERCURY SW-846 7471		**SW7471B**				Analyst: **JP**
Mercury	U	0.0500		mg/Kg	1	7/3/2003
TARGET ANALYTE LIST		**SW6010B**		**(SW3050A)**		Analyst: **JP**
Aluminum	5430	0.392		mg/Kg	1	7/3/2003 11:44:37 AM
Antimony	U	0.490		mg/Kg	1	7/3/2003 11:44:37 AM
Arsenic	22.2	0.490		mg/Kg	1	7/3/2003 11:44:37 AM
Barium	162	0.392		mg/Kg	1	7/3/2003 11:44:37 AM
Beryllium	U	0.392		mg/Kg	1	7/3/2003 11:44:37 AM
Cadmium	2.33	0.196		mg/Kg	1	7/3/2003 11:44:37 AM
Calcium	6350	0.392		mg/Kg	1	7/3/2003 11:44:37 AM
Chromium	16.0	0.392		mg/Kg	1	7/3/2003 11:44:37 AM
Cobalt	12.3	0.392		mg/Kg	1	7/3/2003 11:44:37 AM
Copper	178	0.392		mg/Kg	1	7/3/2003 11:44:37 AM
Iron	6910	0.392		mg/Kg	1	7/3/2003 11:44:37 AM
Lead	161	0.294		mg/Kg	1	7/3/2003 11:44:37 AM
Magnesium	349	0.392		mg/Kg	1	7/3/2003 11:44:37 AM
Manganese	149	0.392		mg/Kg	1	7/3/2003 11:44:37 AM
Nickel	15.5	0.392		mg/Kg	1	7/3/2003 11:44:37 AM
Potassium	855	1.37		mg/Kg	1	7/3/2003 11:44:37 AM
Selenium	0.545	0.490		mg/Kg	1	7/3/2003 11:44:37 AM
Silver	U	0.392		mg/Kg	1	7/3/2003 11:44:37 AM
Sodium	341	0.588		mg/Kg	1	7/3/2003 11:44:37 AM
Thallium	1.71	0.294		mg/Kg	1	7/3/2003 11:44:37 AM
Vanadium	18.8	0.392		mg/Kg	1	7/3/2003 11:44:37 AM
Zinc	379	0.392		mg/Kg	1	7/3/2003 11:44:37 AM

Qualifiers:

ND - Not Detected at the Reporting Limit

J - Analyte detected below quantitation limits

B - Analyte detected in the associated Method Blank

* - Value exceeds Maximum Contaminant Level

S - Spike Recovery outside accepted recovery limits

R - RPD outside accepted recovery limits

E - Value above quantitation range

American Analytical Laboratories, Inc.

Date: *28-Jul-03*

CLIENT:	AKRF, Inc	**Client Sample ID:**	MW9 (5'-6')
Lab Order:	0306117	**Tag Number:**	
Project:	Greenpoint Lumber Yard Brooklyn, NY	**Collection Date:**	6/26/2003
Lab ID:	0306117-05B	**Matrix:**	SOIL

Analyses	Result	Limit	Qual	Units	DF	Date Analyzed
MERCURY SW-846 7471		**SW7471B**				Analyst: **JP**
Mercury	U	0.0500		mg/Kg	1	7/3/2003
TARGET ANALYTE LIST		**SW6010B**		**(SW3050A)**		Analyst: **JP**
Aluminum	0.31	0.366	J	mg/Kg	1	7/3/2003 11:53:08 AM
Antimony	U	0.458		mg/Kg	1	7/3/2003 11:53:08 AM
Arsenic	U	0.458		mg/Kg	1	7/3/2003 11:53:08 AM
Barium	0.407	0.366		mg/Kg	1	7/3/2003 11:53:08 AM
Beryllium	0.384	0.366		mg/Kg	1	7/3/2003 11:53:08 AM
Cadmium	0.344	0.183		mg/Kg	1	7/3/2003 11:53:08 AM
Calcium	0.421	0.366		mg/Kg	1	7/3/2003 11:53:08 AM
Chromium	0.31	0.366	J	mg/Kg	1	7/3/2003 11:53:08 AM
Cobalt	0.29	0.366	J	mg/Kg	1	7/3/2003 11:53:08 AM
Copper	0.33	0.366	J	mg/Kg	1	7/3/2003 11:53:08 AM
Iron	0.790	0.366		mg/Kg	1	7/3/2003 11:53:08 AM
Lead	U	0.275		mg/Kg	1	7/3/2003 11:53:08 AM
Magnesium	0.424	0.366		mg/Kg	1	7/3/2003 11:53:08 AM
Manganese	0.373	0.366		mg/Kg	1	7/3/2003 11:53:08 AM
Nickel	0.28	0.366	J	mg/Kg	1	7/3/2003 11:53:08 AM
Potassium	4.16	1.28		mg/Kg	1	7/3/2003 11:53:08 AM
Selenium	U	0.458		mg/Kg	1	7/3/2003 11:53:08 AM
Silver	0.36	0.366	J	mg/Kg	1	7/3/2003 11:53:08 AM
Sodium	0.18	0.549	J	mg/Kg	1	7/3/2003 11:53:08 AM
Thallium	0.522	0.275		mg/Kg	1	7/3/2003 11:53:08 AM
Vanadium	0.36	0.366	J	mg/Kg	1	7/3/2003 11:53:08 AM
Zinc	0.34	0.366	J	mg/Kg	1	7/3/2003 11:53:08 AM

Qualifiers:

ND - Not Detected at the Reporting Limit

J - Analyte detected below quantitation limits

B - Analyte detected in the associated Method Blank

* - Value exceeds Maximum Contaminant Level

S - Spike Recovery outside accepted recovery limits

R - RPD outside accepted recovery limits

E - Value above quantitation range

American Analytical Laboratories, Inc.

Date: *28-Jul-03*

CLIENT:	AKRF, Inc	**Client Sample ID:**	MW7 (10'-11')
Lab Order:	0306117	**Tag Number:**	
Project:	Greenpoint Lumber Yard Brooklyn, NY	**Collection Date:**	6/26/2003
Lab ID:	0306117-07B	**Matrix:**	SOIL

Analyses	Result	Limit	Qual	Units	DF	Date Analyzed
MERCURY SW-846 7471		**SW7471B**				Analyst: **JP**
Mercury	U	0.0500		mg/Kg	1	7/3/2003
TARGET ANALYTE LIST		**SW6010B**		**(SW3050A)**		Analyst: **JP**
Aluminum	3660	0.337		mg/Kg	1	7/3/2003 11:55:49 AM
Antimony	U	0.421		mg/Kg	1	7/3/2003 11:55:49 AM
Arsenic	3.25	0.421		mg/Kg	1	7/3/2003 11:55:49 AM
Barium	70.9	0.337		mg/Kg	1	7/3/2003 11:55:49 AM
Beryllium	U	0.337		mg/Kg	1	7/3/2003 11:55:49 AM
Cadmium	U	0.168		mg/Kg	1	7/3/2003 11:55:49 AM
Calcium	19300	0.337		mg/Kg	1	7/3/2003 11:55:49 AM
Chromium	5.68	0.337		mg/Kg	1	7/3/2003 11:55:49 AM
Cobalt	5.61	0.337		mg/Kg	1	7/3/2003 11:55:49 AM
Copper	205	0.337		mg/Kg	1	7/3/2003 11:55:49 AM
Iron	3550	0.337		mg/Kg	1	7/3/2003 11:55:49 AM
Lead	22.4	0.253		mg/Kg	1	7/3/2003 11:55:49 AM
Magnesium	357	0.337		mg/Kg	1	7/3/2003 11:55:49 AM
Manganese	61.9	0.337		mg/Kg	1	7/3/2003 11:55:49 AM
Nickel	5.25	0.337		mg/Kg	1	7/3/2003 11:55:49 AM
Potassium	1180	1.18		mg/Kg	1	7/3/2003 11:55:49 AM
Selenium	U	0.421		mg/Kg	1	7/3/2003 11:55:49 AM
Silver	U	0.337		mg/Kg	1	7/3/2003 11:55:49 AM
Sodium	727	0.505		mg/Kg	1	7/3/2003 11:55:49 AM
Thallium	1.75	0.253		mg/Kg	1	7/3/2003 11:55:49 AM
Vanadium	9.89	0.337		mg/Kg	1	7/3/2003 11:55:49 AM
Zinc	24.7	0.337		mg/Kg	1	7/3/2003 11:55:49 AM

Qualifiers:

ND - Not Detected at the Reporting Limit

J - Analyte detected below quantitation limits

B - Analyte detected in the associated Method Blank

* - Value exceeds Maximum Contaminant Level

S - Spike Recovery outside accepted recovery limits

R - RPD outside accepted recovery limits

E - Value above quantitation range

American Analytical Laboratories, Inc.

Date: *28-Jul-03*

CLIENT:	AKRF, Inc	**Client Sample ID:**	MW7 (6.5-7.5)
Lab Order:	0306117	**Tag Number:**	
Project:	Greenpoint Lumber Yard Brooklyn, NY	**Collection Date:**	6/26/2003
Lab ID:	0306117-08B	**Matrix:**	SOIL

Analyses	Result	Limit	Qual	Units	DF	Date Analyzed
MERCURY SW-846 7471		**SW7471B**				Analyst: **JP**
Mercury	U	0.0500		mg/Kg	1	7/3/2003
TARGET ANALYTE LIST		**SW6010B**		**(SW3050A)**		Analyst: **JP**
Aluminum	2060	0.355		mg/Kg	1	7/3/2003 11:58:32 AM
Antimony	U	0.443		mg/Kg	1	7/3/2003 11:58:32 AM
Arsenic	4.56	0.443		mg/Kg	1	7/3/2003 11:58:32 AM
Barium	42.9	0.355		mg/Kg	1	7/3/2003 11:58:32 AM
Beryllium	U	0.355		mg/Kg	1	7/3/2003 11:58:32 AM
Cadmium	0.199	0.177		mg/Kg	1	7/3/2003 11:58:32 AM
Calcium	20400	0.355		mg/Kg	1	7/3/2003 11:58:32 AM
Chromium	4.83	0.355		mg/Kg	1	7/3/2003 11:58:32 AM
Cobalt	7.64	0.355		mg/Kg	1	7/3/2003 11:58:32 AM
Copper	26.6	0.355		mg/Kg	1	7/3/2003 11:58:32 AM
Iron	5060	0.355		mg/Kg	1	7/3/2003 11:58:32 AM
Lead	220	0.266		mg/Kg	1	7/3/2003 11:58:32 AM
Magnesium	400	0.355		mg/Kg	1	7/3/2003 11:58:32 AM
Manganese	203	0.355		mg/Kg	1	7/3/2003 11:58:32 AM
Nickel	6.58	0.355		mg/Kg	1	7/3/2003 11:58:32 AM
Potassium	1090	1.24		mg/Kg	1	7/3/2003 11:58:32 AM
Selenium	1.04	0.443		mg/Kg	1	7/3/2003 11:58:32 AM
Silver	U	0.355		mg/Kg	1	7/3/2003 11:58:32 AM
Sodium	257	0.532		mg/Kg	1	7/3/2003 11:58:32 AM
Thallium	1.35	0.266		mg/Kg	1	7/3/2003 11:58:32 AM
Vanadium	12.5	0.355		mg/Kg	1	7/3/2003 11:58:32 AM
Zinc	59.9	0.355		mg/Kg	1	7/3/2003 11:58:32 AM

Qualifiers:

ND - Not Detected at the Reporting Limit

J - Analyte detected below quantitation limits

B - Analyte detected in the associated Method Blank

* - Value exceeds Maximum Contaminant Level

S - Spike Recovery outside accepted recovery limits

R - RPD outside accepted recovery limits

E - Value above quantitation range

American Analytical Laboratories, Inc.

Date: *28-Jul-03*

CLIENT:	AKRF, Inc	**Client Sample ID:**	B11 (1-3)
Lab Order:	0306117	**Tag Number:**	
Project:	Greenpoint Lumber Yard Brooklyn, NY	**Collection Date:**	6/26/2003
Lab ID:	0306117-09B	**Matrix:**	SOIL

Analyses	Result	Limit	Qual	Units	DF	Date Analyzed
MERCURY SW-846 7471		**SW7471B**				Analyst: **JP**
Mercury	U	0.0500		mg/Kg	1	7/3/2003
TARGET ANALYTE LIST		**SW6010B**		**(SW3050A)**		Analyst: **JP**
Aluminum	2840	0.352		mg/Kg	1	7/3/2003 12:00:56 PM
Antimony	3.67	0.440		mg/Kg	1	7/3/2003 12:00:56 PM
Arsenic	6.63	0.440		mg/Kg	1	7/3/2003 12:00:56 PM
Barium	153	0.352		mg/Kg	1	7/3/2003 12:00:56 PM
Beryllium	U	0.352		mg/Kg	1	7/3/2003 12:00:56 PM
Cadmium	3.46	0.176		mg/Kg	1	7/3/2003 12:00:56 PM
Calcium	6840	0.352		mg/Kg	1	7/3/2003 12:00:56 PM
Chromium	12.1	0.352		mg/Kg	1	7/3/2003 12:00:56 PM
Cobalt	8.77	0.352		mg/Kg	1	7/3/2003 12:00:56 PM
Copper	186	0.352		mg/Kg	1	7/3/2003 12:00:56 PM
Iron	5340	0.352		mg/Kg	1	7/3/2003 12:00:56 PM
Lead	969	0.264		mg/Kg	1	7/3/2003 12:00:56 PM
Magnesium	389	0.352		mg/Kg	1	7/3/2003 12:00:56 PM
Manganese	150	0.352		mg/Kg	1	7/3/2003 12:00:56 PM
Nickel	15.4	0.352		mg/Kg	1	7/3/2003 12:00:56 PM
Potassium	765	1.23		mg/Kg	1	7/3/2003 12:00:56 PM
Selenium	U	0.440		mg/Kg	1	7/3/2003 12:00:56 PM
Silver	0.26	0.352	J	mg/Kg	1	7/3/2003 12:00:56 PM
Sodium	234	0.528		mg/Kg	1	7/3/2003 12:00:56 PM
Thallium	0.870	0.264		mg/Kg	1	7/3/2003 12:00:56 PM
Vanadium	16.6	0.352		mg/Kg	1	7/3/2003 12:00:56 PM
Zinc	297	0.352		mg/Kg	1	7/3/2003 12:00:56 PM

Qualifiers:

ND - Not Detected at the Reporting Limit

J - Analyte detected below quantitation limits

B - Analyte detected in the associated Method Blank

* - Value exceeds Maximum Contaminant Level

S - Spike Recovery outside accepted recovery limits

R - RPD outside accepted recovery limits

E - Value above quantitation range

American Analytical Laboratories, Inc.

Date: *28-Jul-03*

CLIENT:	AKRF, Inc	**Client Sample ID:**	B11 (7-9)
Lab Order:	0306117	**Tag Number:**	
Project:	Greenpoint Lumber Yard Brooklyn, NY	**Collection Date:**	6/26/2003
Lab ID:	0306117-10B	**Matrix:**	SOIL

Analyses	Result	Limit	Qual	Units	DF	Date Analyzed
MERCURY SW-846 7471		**SW7471B**				Analyst: **JP**
Mercury	0.067	0.0500		mg/Kg	1	7/3/2003
TARGET ANALYTE LIST		**SW6010B**		**(SW3050A)**		Analyst: **JP**
Aluminum	4020	0.337		mg/Kg	1	7/3/2003 12:03:46 PM
Antimony	U	0.421		mg/Kg	1	7/3/2003 12:03:46 PM
Arsenic	2.36	0.421		mg/Kg	1	7/3/2003 12:03:46 PM
Barium	40.2	0.337		mg/Kg	1	7/3/2003 12:03:46 PM
Beryllium	U	0.337		mg/Kg	1	7/3/2003 12:03:46 PM
Cadmium	1.72	0.168		mg/Kg	1	7/3/2003 12:03:46 PM
Calcium	1750	0.337		mg/Kg	1	7/3/2003 12:03:46 PM
Chromium	6.56	0.337		mg/Kg	1	7/3/2003 12:03:46 PM
Cobalt	7.76	0.337		mg/Kg	1	7/3/2003 12:03:46 PM
Copper	19.9	0.337		mg/Kg	1	7/3/2003 12:03:46 PM
Iron	4390	0.337		mg/Kg	1	7/3/2003 12:03:46 PM
Lead	45.1	0.253		mg/Kg	1	7/3/2003 12:03:46 PM
Magnesium	384	0.337		mg/Kg	1	7/3/2003 12:03:46 PM
Manganese	125	0.337		mg/Kg	1	7/3/2003 12:03:46 PM
Nickel	10.9	0.337		mg/Kg	1	7/3/2003 12:03:46 PM
Potassium	652	1.18		mg/Kg	1	7/3/2003 12:03:46 PM
Selenium	U	0.421		mg/Kg	1	7/3/2003 12:03:46 PM
Silver	U	0.337		mg/Kg	1	7/3/2003 12:03:46 PM
Sodium	163	0.505		mg/Kg	1	7/3/2003 12:03:46 PM
Thallium	0.817	0.253		mg/Kg	1	7/3/2003 12:03:46 PM
Vanadium	11.6	0.337		mg/Kg	1	7/3/2003 12:03:46 PM
Zinc	269	0.337		mg/Kg	1	7/3/2003 12:03:46 PM

Qualifiers:

ND - Not Detected at the Reporting Limit

J - Analyte detected below quantitation limits

B - Analyte detected in the associated Method Blank

* - Value exceeds Maximum Contaminant Level

S - Spike Recovery outside accepted recovery limits

R - RPD outside accepted recovery limits

E - Value above quantitation range

American Analytical Laboratories, Inc.

Date: *28-Jul-03*

CLIENT:	AKRF, Inc	**Client Sample ID:**	MW11 (0.5'-2')
Lab Order:	0306117	**Tag Number:**	
Project:	Greenpoint Lumber Yard Brooklyn, NY	**Collection Date:**	6/26/2003
Lab ID:	0306117-11B	**Matrix:**	SOIL

Analyses	Result	Limit	Qual	Units	DF	Date Analyzed
MERCURY SW-846 7471		**SW7471B**				Analyst: **JP**
Mercury	0.092	0.0500		mg/Kg	1	7/3/2003
TARGET ANALYTE LIST		**SW6010B**		**(SW3050A)**		Analyst: **JP**
Aluminum	1930	0.348		mg/Kg	1	7/3/2003 12:06:09 PM
Antimony	6.12	0.436		mg/Kg	1	7/3/2003 12:06:09 PM
Arsenic	9.54	0.436		mg/Kg	1	7/3/2003 12:06:09 PM
Barium	97.4	0.348		mg/Kg	1	7/3/2003 12:06:09 PM
Beryllium	U	0.348		mg/Kg	1	7/3/2003 12:06:09 PM
Cadmium	0.476	0.174		mg/Kg	1	7/3/2003 12:06:09 PM
Calcium	6470	0.348		mg/Kg	1	7/3/2003 12:06:09 PM
Chromium	9.01	0.348		mg/Kg	1	7/3/2003 12:06:09 PM
Cobalt	14.4	0.348		mg/Kg	1	7/3/2003 12:06:09 PM
Copper	280	0.348		mg/Kg	1	7/3/2003 12:06:09 PM
Iron	6050	0.348		mg/Kg	1	7/3/2003 12:06:09 PM
Lead	1350	0.261		mg/Kg	1	7/3/2003 12:06:09 PM
Magnesium	285	0.348		mg/Kg	1	7/3/2003 12:06:09 PM
Manganese	198	0.348		mg/Kg	1	7/3/2003 12:06:09 PM
Nickel	13.4	0.348		mg/Kg	1	7/3/2003 12:06:09 PM
Potassium	651	1.22		mg/Kg	1	7/3/2003 12:06:09 PM
Selenium	U	0.436		mg/Kg	1	7/3/2003 12:06:09 PM
Silver	0.358	0.348		mg/Kg	1	7/3/2003 12:06:09 PM
Sodium	226	0.523		mg/Kg	1	7/3/2003 12:06:09 PM
Thallium	0.529	0.261		mg/Kg	1	7/3/2003 12:06:09 PM
Vanadium	11.7	0.348		mg/Kg	1	7/3/2003 12:06:09 PM
Zinc	315	0.348		mg/Kg	1	7/3/2003 12:06:09 PM

Qualifiers:

ND - Not Detected at the Reporting Limit

J - Analyte detected below quantitation limits

B - Analyte detected in the associated Method Blank

* - Value exceeds Maximum Contaminant Level

S - Spike Recovery outside accepted recovery limits

R - RPD outside accepted recovery limits

E - Value above quantitation range

American Analytical Laboratories, Inc.

Date: *28-Jul-03*

CLIENT:	AKRF, Inc	**Client Sample ID:**	MW11 (7'-9')
Lab Order:	0306117	**Tag Number:**	
Project:	Greenpoint Lumber Yard Brooklyn, NY	**Collection Date:**	6/26/2003
Lab ID:	0306117-12B	**Matrix:**	SOIL

Analyses	Result	Limit	Qual	Units	DF	Date Analyzed
MERCURY SW-846 7471		**SW7471B**				Analyst: **JP**
Mercury	U	0.0500		mg/Kg	1	7/3/2003
TARGET ANALYTE LIST		**SW6010B**		**(SW3050A)**		Analyst: **JP**
Aluminum	4560	0.370		mg/Kg	1	7/3/2003 12:08:45 PM
Antimony	U	0.463		mg/Kg	1	7/3/2003 12:08:45 PM
Arsenic	3.41	0.463		mg/Kg	1	7/3/2003 12:08:45 PM
Barium	14.8	0.370		mg/Kg	1	7/3/2003 12:08:45 PM
Beryllium	U	0.370		mg/Kg	1	7/3/2003 12:08:45 PM
Cadmium	U	0.185		mg/Kg	1	7/3/2003 12:08:45 PM
Calcium	2640	0.370		mg/Kg	1	7/3/2003 12:08:45 PM
Chromium	7.00	0.370		mg/Kg	1	7/3/2003 12:08:45 PM
Cobalt	8.01	0.370		mg/Kg	1	7/3/2003 12:08:45 PM
Copper	11.9	0.370		mg/Kg	1	7/3/2003 12:08:45 PM
Iron	5420	0.370		mg/Kg	1	7/3/2003 12:08:45 PM
Lead	8.70	0.278		mg/Kg	1	7/3/2003 12:08:45 PM
Magnesium	417	0.370		mg/Kg	1	7/3/2003 12:08:45 PM
Manganese	209	0.370		mg/Kg	1	7/3/2003 12:08:45 PM
Nickel	7.17	0.370		mg/Kg	1	7/3/2003 12:08:45 PM
Potassium	743	1.30		mg/Kg	1	7/3/2003 12:08:45 PM
Selenium	U	0.463		mg/Kg	1	7/3/2003 12:08:45 PM
Silver	U	0.370		mg/Kg	1	7/3/2003 12:08:45 PM
Sodium	130	0.556		mg/Kg	1	7/3/2003 12:08:45 PM
Thallium	1.75	0.278		mg/Kg	1	7/3/2003 12:08:45 PM
Vanadium	13.1	0.370		mg/Kg	1	7/3/2003 12:08:45 PM
Zinc	30.4	0.370		mg/Kg	1	7/3/2003 12:08:45 PM

Qualifiers:

ND - Not Detected at the Reporting Limit

J - Analyte detected below quantitation limits

B - Analyte detected in the associated Method Blank

* - Value exceeds Maximum Contaminant Level

S - Spike Recovery outside accepted recovery limits

R - RPD outside accepted recovery limits

E - Value above quantitation range

American Analytical Laboratories, Inc.

Date: *28-Jul-03*

CLIENT:	AKRF, Inc	**Client Sample ID:**	MW14 (3'-4')
Lab Order:	0306117	**Tag Number:**	
Project:	Greenpoint Lumber Yard Brooklyn, NY	**Collection Date:**	6/26/2003
Lab ID:	0306117-13B	**Matrix:**	SOIL

Analyses	Result	Limit	Qual	Units	DF	Date Analyzed
MERCURY SW-846 7471		**SW7471B**				Analyst: **JP**
Mercury	0.056	0.0500		mg/Kg	1	7/3/2003
TARGET ANALYTE LIST		**SW6010B**		**(SW3050A)**		Analyst: **JP**
Aluminum	6160	0.355		mg/Kg	1	7/3/2003 12:11:16 PM
Antimony	U	0.443		mg/Kg	1	7/3/2003 12:11:16 PM
Arsenic	3.90	0.443		mg/Kg	1	7/3/2003 12:11:16 PM
Barium	33.8	0.355		mg/Kg	1	7/3/2003 12:11:16 PM
Beryllium	U	0.355		mg/Kg	1	7/3/2003 12:11:16 PM
Cadmium	U	0.177		mg/Kg	1	7/3/2003 12:11:16 PM
Calcium	674	0.355		mg/Kg	1	7/3/2003 12:11:16 PM
Chromium	10.2	0.355		mg/Kg	1	7/3/2003 12:11:16 PM
Cobalt	13.4	0.355		mg/Kg	1	7/3/2003 12:11:16 PM
Copper	12.6	0.355		mg/Kg	1	7/3/2003 12:11:16 PM
Iron	6270	0.355		mg/Kg	1	7/3/2003 12:11:16 PM
Lead	21.7	0.266		mg/Kg	1	7/3/2003 12:11:16 PM
Magnesium	425	0.355		mg/Kg	1	7/3/2003 12:11:16 PM
Manganese	181	0.355		mg/Kg	1	7/3/2003 12:11:16 PM
Nickel	13.8	0.355		mg/Kg	1	7/3/2003 12:11:16 PM
Potassium	975	1.24		mg/Kg	1	7/3/2003 12:11:16 PM
Selenium	U	0.443		mg/Kg	1	7/3/2003 12:11:16 PM
Silver	U	0.355		mg/Kg	1	7/3/2003 12:11:16 PM
Sodium	134	0.532		mg/Kg	1	7/3/2003 12:11:16 PM
Thallium	1.67	0.266		mg/Kg	1	7/3/2003 12:11:16 PM
Vanadium	16.2	0.355		mg/Kg	1	7/3/2003 12:11:16 PM
Zinc	62.0	0.355		mg/Kg	1	7/3/2003 12:11:16 PM

Qualifiers:

ND - Not Detected at the Reporting Limit

J - Analyte detected below quantitation limits

B - Analyte detected in the associated Method Blank

* - Value exceeds Maximum Contaminant Level

S - Spike Recovery outside accepted recovery limits

R - RPD outside accepted recovery limits

E - Value above quantitation range

American Analytical Laboratories, Inc.

Date: *28-Jul-03*

CLIENT:	AKRF, Inc	**Client Sample ID:**	MW14 (6'-8')
Lab Order:	0306117	**Tag Number:**	
Project:	Greenpoint Lumber Yard Brooklyn, NY	**Collection Date:**	6/26/2003
Lab ID:	0306117-14B	**Matrix:**	SOIL

Analyses	Result	Limit	Qual	Units	DF	Date Analyzed
MERCURY SW-846 7471		**SW7471B**				Analyst: **JP**
Mercury	0.068	0.0500		mg/Kg	1	7/3/2003
TARGET ANALYTE LIST		**SW6010B**		**(SW3050A)**		Analyst: **JP**
Aluminum	5360	0.348		mg/Kg	1	7/3/2003 12:13:57 PM
Antimony	U	0.436		mg/Kg	1	7/3/2003 12:13:57 PM
Arsenic	3.63	0.436		mg/Kg	1	7/3/2003 12:13:57 PM
Barium	23.5	0.348		mg/Kg	1	7/3/2003 12:13:57 PM
Beryllium	U	0.348		mg/Kg	1	7/3/2003 12:13:57 PM
Cadmium	U	0.174		mg/Kg	1	7/3/2003 12:13:57 PM
Calcium	914	0.348		mg/Kg	1	7/3/2003 12:13:57 PM
Chromium	8.81	0.348		mg/Kg	1	7/3/2003 12:13:57 PM
Cobalt	9.13	0.348		mg/Kg	1	7/3/2003 12:13:57 PM
Copper	9.57	0.348		mg/Kg	1	7/3/2003 12:13:57 PM
Iron	5780	0.348		mg/Kg	1	7/3/2003 12:13:57 PM
Lead	14.8	0.261		mg/Kg	1	7/3/2003 12:13:57 PM
Magnesium	405	0.348		mg/Kg	1	7/3/2003 12:13:57 PM
Manganese	238	0.348		mg/Kg	1	7/3/2003 12:13:57 PM
Nickel	9.25	0.348		mg/Kg	1	7/3/2003 12:13:57 PM
Potassium	563	1.22		mg/Kg	1	7/3/2003 12:13:57 PM
Selenium	U	0.436		mg/Kg	1	7/3/2003 12:13:57 PM
Silver	U	0.348		mg/Kg	1	7/3/2003 12:13:57 PM
Sodium	117	0.523		mg/Kg	1	7/3/2003 12:13:57 PM
Thallium	1.59	0.261		mg/Kg	1	7/3/2003 12:13:57 PM
Vanadium	14.1	0.348		mg/Kg	1	7/3/2003 12:13:57 PM
Zinc	31.7	0.348		mg/Kg	1	7/3/2003 12:13:57 PM

Qualifiers:

ND - Not Detected at the Reporting Limit

J - Analyte detected below quantitation limits

B - Analyte detected in the associated Method Blank

* - Value exceeds Maximum Contaminant Level

S - Spike Recovery outside accepted recovery limits

R - RPD outside accepted recovery limits

E - Value above quantitation range

American Analytical Laboratories, Inc.

Date: *28-Jul-03*

CLIENT:	AKRF, Inc	**Client Sample ID:**	B14 (2'-3.5')
Lab Order:	0306117	**Tag Number:**	
Project:	Greenpoint Lumber Yard Brooklyn, NY	**Collection Date:**	6/26/2003
Lab ID:	0306117-15B	**Matrix:**	SOIL

Analyses	Result	Limit	Qual	Units	DF	Date Analyzed
MERCURY SW-846 7471		**SW7471B**				Analyst: **JP**
Mercury	0.422	0.0500		mg/Kg	1	7/3/2003
TARGET ANALYTE LIST		**SW6010B**		**(SW3050A)**		Analyst: **JP**
Aluminum	2810	0.376		mg/Kg	1	7/3/2003 12:16:18 PM
Antimony	U	0.470		mg/Kg	1	7/3/2003 12:16:18 PM
Arsenic	3.89	0.470		mg/Kg	1	7/3/2003 12:16:18 PM
Barium	518	0.376		mg/Kg	1	7/3/2003 12:16:18 PM
Beryllium	U	0.376		mg/Kg	1	7/3/2003 12:16:18 PM
Cadmium	1.66	0.188		mg/Kg	1	7/3/2003 12:16:18 PM
Calcium	23300	0.376		mg/Kg	1	7/3/2003 12:16:18 PM
Chromium	20.2	0.376		mg/Kg	1	7/3/2003 12:16:18 PM
Cobalt	8.48	0.376		mg/Kg	1	7/3/2003 12:16:18 PM
Copper	71.7	0.376		mg/Kg	1	7/3/2003 12:16:18 PM
Iron	6050	0.376		mg/Kg	1	7/3/2003 12:16:18 PM
Lead	1870	0.282		mg/Kg	1	7/3/2003 12:16:18 PM
Magnesium	377	0.376		mg/Kg	1	7/3/2003 12:16:18 PM
Manganese	145	0.376		mg/Kg	1	7/3/2003 12:16:18 PM
Nickel	5.71	0.376		mg/Kg	1	7/3/2003 12:16:18 PM
Potassium	1100	1.32		mg/Kg	1	7/3/2003 12:16:18 PM
Selenium	U	0.470		mg/Kg	1	7/3/2003 12:16:18 PM
Silver	0.456	0.376		mg/Kg	1	7/3/2003 12:16:18 PM
Sodium	250	0.564		mg/Kg	1	7/3/2003 12:16:18 PM
Thallium	1.66	0.282		mg/Kg	1	7/3/2003 12:16:18 PM
Vanadium	10.3	0.376		mg/Kg	1	7/3/2003 12:16:18 PM
Zinc	586	0.376		mg/Kg	1	7/3/2003 12:16:18 PM

Qualifiers:

ND - Not Detected at the Reporting Limit

J - Analyte detected below quantitation limits

B - Analyte detected in the associated Method Blank

* - Value exceeds Maximum Contaminant Level

S - Spike Recovery outside accepted recovery limits

R - RPD outside accepted recovery limits

E - Value above quantitation range

American Analytical Laboratories, Inc.

Date: *28-Jul-03*

CLIENT:	AKRF, Inc	**Client Sample ID:**	B14 (6'-8')
Lab Order:	0306117	**Tag Number:**	
Project:	Greenpoint Lumber Yard Brooklyn, NY	**Collection Date:**	6/26/2003
Lab ID:	0306117-16B	**Matrix:**	SOIL

Analyses	Result	Limit	Qual	Units	DF	Date Analyzed
MERCURY SW-846 7471		**SW7471B**				Analyst: **JP**
Mercury	U	0.0500		mg/Kg	1	7/3/2003
TARGET ANALYTE LIST		**SW6010B**		**(SW3050A)**		Analyst: **JP**
Aluminum	6140	0.375		mg/Kg	1	7/3/2003 12:28:52 PM
Antimony	U	0.468		mg/Kg	1	7/3/2003 12:28:52 PM
Arsenic	2.91	0.468		mg/Kg	1	7/3/2003 12:28:52 PM
Barium	28.0	0.375		mg/Kg	1	7/3/2003 12:28:52 PM
Beryllium	U	0.375		mg/Kg	1	7/3/2003 12:28:52 PM
Cadmium	0.505	0.187		mg/Kg	1	7/3/2003 12:28:52 PM
Calcium	785	0.375		mg/Kg	1	7/3/2003 12:28:52 PM
Chromium	10.2	0.375		mg/Kg	1	7/3/2003 12:28:52 PM
Cobalt	10.5	0.375		mg/Kg	1	7/3/2003 12:28:52 PM
Copper	18.7	0.375		mg/Kg	1	7/3/2003 12:28:52 PM
Iron	6080	0.375		mg/Kg	1	7/3/2003 12:28:52 PM
Lead	14.1	0.281		mg/Kg	1	7/3/2003 12:28:52 PM
Magnesium	436	0.375		mg/Kg	1	7/3/2003 12:28:52 PM
Manganese	100	0.375		mg/Kg	1	7/3/2003 12:28:52 PM
Nickel	17.0	0.375		mg/Kg	1	7/3/2003 12:28:52 PM
Potassium	792	1.31		mg/Kg	1	7/3/2003 12:28:52 PM
Selenium	U	0.468		mg/Kg	1	7/3/2003 12:28:52 PM
Silver	U	0.375		mg/Kg	1	7/3/2003 12:28:52 PM
Sodium	146	0.562		mg/Kg	1	7/3/2003 12:28:52 PM
Thallium	1.29	0.281		mg/Kg	1	7/3/2003 12:28:52 PM
Vanadium	14.0	0.375		mg/Kg	1	7/3/2003 12:28:52 PM
Zinc	99.1	0.375		mg/Kg	1	7/3/2003 12:28:52 PM

Qualifiers:

ND - Not Detected at the Reporting Limit

J - Analyte detected below quantitation limits

B - Analyte detected in the associated Method Blank

* - Value exceeds Maximum Contaminant Level

S - Spike Recovery outside accepted recovery limits

R - RPD outside accepted recovery limits

E - Value above quantitation range

American Analytical Laboratories, Inc.

Date: *28-Jul-03*

CLIENT:	AKRF, Inc	**Client Sample ID:**	B15 (8.0'-9.0')
Lab Order:	0306117	**Tag Number:**	
Project:	Greenpoint Lumber Yard Brooklyn, NY	**Collection Date:**	6/26/2003
Lab ID:	0306117-17B	**Matrix:**	SOIL

Analyses	Result	Limit	Qual	Units	DF	Date Analyzed
MERCURY SW-846 7471		**SW7471B**				Analyst: **JP**
Mercury	U	0.0500		mg/Kg	1	7/3/2003
TARGET ANALYTE LIST		**SW6010B**		**(SW3050A)**		Analyst: **JP**
Aluminum	3950	0.380		mg/Kg	1	7/3/2003 12:31:45 PM
Antimony	U	0.475		mg/Kg	1	7/3/2003 12:31:45 PM
Arsenic	2.94	0.475		mg/Kg	1	7/3/2003 12:31:45 PM
Barium	17.2	0.380		mg/Kg	1	7/3/2003 12:31:45 PM
Beryllium	U	0.380		mg/Kg	1	7/3/2003 12:31:45 PM
Cadmium	U	0.190		mg/Kg	1	7/3/2003 12:31:45 PM
Calcium	588	0.380		mg/Kg	1	7/3/2003 12:31:45 PM
Chromium	6.77	0.380		mg/Kg	1	7/3/2003 12:31:45 PM
Cobalt	7.84	0.380		mg/Kg	1	7/3/2003 12:31:45 PM
Copper	13.8	0.380		mg/Kg	1	7/3/2003 12:31:45 PM
Iron	5750	0.380		mg/Kg	1	7/3/2003 12:31:45 PM
Lead	8.13	0.285		mg/Kg	1	7/3/2003 12:31:45 PM
Magnesium	417	0.380		mg/Kg	1	7/3/2003 12:31:45 PM
Manganese	183	0.380		mg/Kg	1	7/3/2003 12:31:45 PM
Nickel	9.51	0.380		mg/Kg	1	7/3/2003 12:31:45 PM
Potassium	484	1.33		mg/Kg	1	7/3/2003 12:31:45 PM
Selenium	U	0.475		mg/Kg	1	7/3/2003 12:31:45 PM
Silver	U	0.380		mg/Kg	1	7/3/2003 12:31:45 PM
Sodium	139	0.570		mg/Kg	1	7/3/2003 12:31:45 PM
Thallium	0.924	0.285		mg/Kg	1	7/3/2003 12:31:45 PM
Vanadium	10.4	0.380		mg/Kg	1	7/3/2003 12:31:45 PM
Zinc	29.9	0.380		mg/Kg	1	7/3/2003 12:31:45 PM

Qualifiers:

ND - Not Detected at the Reporting Limit

J - Analyte detected below quantitation limits

B - Analyte detected in the associated Method Blank

* - Value exceeds Maximum Contaminant Level

S - Spike Recovery outside accepted recovery limits

R - RPD outside accepted recovery limits

E - Value above quantitation range

American Analytical Laboratories, Inc.

Date: *28-Jul-03*

CLIENT:	AKRF, Inc	**Client Sample ID:**	B15 (0.5'-2')
Lab Order:	0306117	**Tag Number:**	
Project:	Greenpoint Lumber Yard Brooklyn, NY	**Collection Date:**	6/26/2003
Lab ID:	0306117-18B	**Matrix:**	SOIL

Analyses	Result	Limit	Qual	Units	DF	Date Analyzed
MERCURY SW-846 7471		**SW7471B**				Analyst: **JP**
Mercury	U	0.0500		mg/Kg	1	7/3/2003
TARGET ANALYTE LIST		**SW6010B**		**(SW3050A)**		Analyst: **JP**
Aluminum	6730	0.383		mg/Kg	1	7/3/2003 12:34:35 PM
Antimony	U	0.479		mg/Kg	1	7/3/2003 12:34:35 PM
Arsenic	10.5	0.479		mg/Kg	1	7/3/2003 12:34:35 PM
Barium	218	0.383		mg/Kg	1	7/3/2003 12:34:35 PM
Beryllium	4.02	0.383		mg/Kg	1	7/3/2003 12:34:35 PM
Cadmium	U	0.192		mg/Kg	1	7/3/2003 12:34:35 PM
Calcium	13200	0.383		mg/Kg	1	7/3/2003 12:34:35 PM
Chromium	68.3	0.383		mg/Kg	1	7/3/2003 12:34:35 PM
Cobalt	54.7	0.383		mg/Kg	1	7/3/2003 12:34:35 PM
Copper	598	0.383		mg/Kg	1	7/3/2003 12:34:35 PM
Iron	7940	0.383		mg/Kg	1	7/3/2003 12:34:35 PM
Lead	397	0.287		mg/Kg	1	7/3/2003 12:34:35 PM
Magnesium	416	0.383		mg/Kg	1	7/3/2003 12:34:35 PM
Manganese	246	0.383		mg/Kg	1	7/3/2003 12:34:35 PM
Nickel	72.6	0.383		mg/Kg	1	7/3/2003 12:34:35 PM
Potassium	1400	1.34		mg/Kg	1	7/3/2003 12:34:35 PM
Selenium	U	0.479		mg/Kg	1	7/3/2003 12:34:35 PM
Silver	U	0.383		mg/Kg	1	7/3/2003 12:34:35 PM
Sodium	546	0.575		mg/Kg	1	7/3/2003 12:34:35 PM
Thallium	U	0.287		mg/Kg	1	7/3/2003 12:34:35 PM
Vanadium	21.3	0.383		mg/Kg	1	7/3/2003 12:34:35 PM
Zinc	1230	0.383		mg/Kg	1	7/3/2003 12:34:35 PM

Qualifiers:

ND - Not Detected at the Reporting Limit

J - Analyte detected below quantitation limits

B - Analyte detected in the associated Method Blank

* - Value exceeds Maximum Contaminant Level

S - Spike Recovery outside accepted recovery limits

R - RPD outside accepted recovery limits

E - Value above quantitation range

American Analytical Laboratories, Inc.

Date: *28-Jul-03*

CLIENT:	AKRF, Inc	**Client Sample ID:**	MW15 (0.5'-2')
Lab Order:	0306117	**Tag Number:**	
Project:	Greenpoint Lumber Yard Brooklyn, NY	**Collection Date:**	6/26/2003
Lab ID:	0306117-19B	**Matrix:**	SOIL

Analyses	Result	Limit	Qual	Units	DF	Date Analyzed
MERCURY SW-846 7471		**SW7471B**				Analyst: **JP**
Mercury	U	0.0500		mg/Kg	1	7/3/2003
TARGET ANALYTE LIST		**SW6010B**		**(SW3050A)**		Analyst: **JP**
Aluminum	2670	0.361		mg/Kg	1	7/3/2003 12:37:29 PM
Antimony	U	0.451		mg/Kg	1	7/3/2003 12:37:29 PM
Arsenic	6.54	0.451		mg/Kg	1	7/3/2003 12:37:29 PM
Barium	111	0.361		mg/Kg	1	7/3/2003 12:37:29 PM
Beryllium	U	0.361		mg/Kg	1	7/3/2003 12:37:29 PM
Cadmium	0.198	0.181		mg/Kg	1	7/3/2003 12:37:29 PM
Calcium	23400	0.361		mg/Kg	1	7/3/2003 12:37:29 PM
Chromium	6.32	0.361		mg/Kg	1	7/3/2003 12:37:29 PM
Cobalt	6.70	0.361		mg/Kg	1	7/3/2003 12:37:29 PM
Copper	39.1	0.361		mg/Kg	1	7/3/2003 12:37:29 PM
Iron	5330	0.361		mg/Kg	1	7/3/2003 12:37:29 PM
Lead	178	0.271		mg/Kg	1	7/3/2003 12:37:29 PM
Magnesium	408	0.361		mg/Kg	1	7/3/2003 12:37:29 PM
Manganese	139	0.361		mg/Kg	1	7/3/2003 12:37:29 PM
Nickel	6.64	0.361		mg/Kg	1	7/3/2003 12:37:29 PM
Potassium	943	1.26		mg/Kg	1	7/3/2003 12:37:29 PM
Selenium	U	0.451		mg/Kg	1	7/3/2003 12:37:29 PM
Silver	U	0.361		mg/Kg	1	7/3/2003 12:37:29 PM
Sodium	347	0.542		mg/Kg	1	7/3/2003 12:37:29 PM
Thallium	1.77	0.271		mg/Kg	1	7/3/2003 12:37:29 PM
Vanadium	10.3	0.361		mg/Kg	1	7/3/2003 12:37:29 PM
Zinc	121	0.361		mg/Kg	1	7/3/2003 12:37:29 PM

Qualifiers:

ND - Not Detected at the Reporting Limit

J - Analyte detected below quantitation limits

B - Analyte detected in the associated Method Blank

* - Value exceeds Maximum Contaminant Level

S - Spike Recovery outside accepted recovery limits

R - RPD outside accepted recovery limits

E - Value above quantitation range

American Analytical Laboratories, Inc.

Date: *28-Jul-03*

CLIENT:	AKRF, Inc	**Client Sample ID:**	MW15 (6'-8')
Lab Order:	0306117	**Tag Number:**	
Project:	Greenpoint Lumber Yard Brooklyn, NY	**Collection Date:**	6/26/2003
Lab ID:	0306117-20B	**Matrix:**	SOIL

Analyses	Result	Limit	Qual	Units	DF	Date Analyzed
MERCURY SW-846 7471		**SW7471B**				Analyst: **JP**
Mercury	0.846	0.0500		mg/Kg	1	7/3/2003
TARGET ANALYTE LIST		**SW6010B**		**(SW3050A)**		Analyst: **JP**
Aluminum	2620	0.368		mg/Kg	1	7/3/2003 12:40:26 PM
Antimony	U	0.460		mg/Kg	1	7/3/2003 12:40:26 PM
Arsenic	8.55	0.460		mg/Kg	1	7/3/2003 12:40:26 PM
Barium	46.2	0.368		mg/Kg	1	7/3/2003 12:40:26 PM
Beryllium	U	0.368		mg/Kg	1	7/3/2003 12:40:26 PM
Cadmium	0.12	0.184	J	mg/Kg	1	7/3/2003 12:40:26 PM
Calcium	2340	0.368		mg/Kg	1	7/3/2003 12:40:26 PM
Chromium	6.86	0.368		mg/Kg	1	7/3/2003 12:40:26 PM
Cobalt	10.7	0.368		mg/Kg	1	7/3/2003 12:40:26 PM
Copper	28.6	0.368		mg/Kg	1	7/3/2003 12:40:26 PM
Iron	6290	0.368		mg/Kg	1	7/3/2003 12:40:26 PM
Lead	178	0.276		mg/Kg	1	7/3/2003 12:40:26 PM
Magnesium	415	0.368		mg/Kg	1	7/3/2003 12:40:26 PM
Manganese	147	0.368		mg/Kg	1	7/3/2003 12:40:26 PM
Nickel	14.4	0.368		mg/Kg	1	7/3/2003 12:40:26 PM
Potassium	534	1.29		mg/Kg	1	7/3/2003 12:40:26 PM
Selenium	U	0.460		mg/Kg	1	7/3/2003 12:40:26 PM
Silver	U	0.368		mg/Kg	1	7/3/2003 12:40:26 PM
Sodium	202	0.551		mg/Kg	1	7/3/2003 12:40:26 PM
Thallium	1.17	0.276		mg/Kg	1	7/3/2003 12:40:26 PM
Vanadium	10.7	0.368		mg/Kg	1	7/3/2003 12:40:26 PM
Zinc	71.6	0.368		mg/Kg	1	7/3/2003 12:40:26 PM

Qualifiers:

ND - Not Detected at the Reporting Limit

J - Analyte detected below quantitation limits

B - Analyte detected in the associated Method Blank

* - Value exceeds Maximum Contaminant Level

S - Spike Recovery outside accepted recovery limits

R - RPD outside accepted recovery limits

E - Value above quantitation range

Appendix

CLIENT: AKRF, Inc
Work Order: 0306117
Project: Greenpoint Lumber Yard Brooklyn, NY

ANALYTICAL QC SUMMARY REPORT

TestCode: 8081_Soil

Sample ID: **PSB070203** SampType: **MBLK** TestCode: **8081_Soil** Units: **µg/Kg** Prep Date: **7/2/2003** Run ID: **SYSTEM QU_030703A**
Client ID: **ZZZZZ** Batch ID: **1431** TestNo: **SW8081B** **(SW3550)** Analysis Date: **7/8/2003** SeqNo: **25252**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
4,4´-DDD	U	5.0									
4,4´-DDE	U	5.0									
4,4´-DDT	U	5.0									
Aldrin	U	5.0									
alpha-BHC	U	5.0									
beta-BHC	U	5.0									
Chlordane	U	5.0									
Chlorobenzilate	U	5.0									
DBCP	U	5.0									
delta-BHC	U	5.0									
Dieldrin	U	5.0									
Endosulfan I	U	5.0									
Endosulfan II	U	5.0									
Endosulfan sulfate	U	5.0									
Endrin	U	5.0									
Endrin aldehyde	U	5.0									
Endrin ketone	U	5.0									
gamma-BHC	U	5.0									
Heptachlor	U	5.0									
Heptachlor epoxide	U	5.0									
Hexachlorobenzene	U	5.0									
Hexachlorocyclopentadiene	U	5.0									
Isodrin	U	5.0									
Methoxychlor	U	5.0									
Toxaphene	U	300									

Sample ID: **PSB070303** SampType: **MBLK** TestCode: **8081_Soil** Units: **µg/Kg** Prep Date: **7/3/2003** Run ID: **SYSTEM QU_030709E**
Client ID: **ZZZZZ** Batch ID: **1446** TestNo: **SW8081B** **(SW3550)** Analysis Date: **7/9/2003** SeqNo: **25527**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual

Qualifiers: ND - Not Detected at the Reporting Limit
J - Analyte detected below quantitation limits
S - Spike Recovery outside accepted recovery limits
R - RPD outside accepted recovery limits
B - Analyte detected in the associated Method Blank

CLIENT: AKRF, Inc
Work Order: 0306117
Project: Greenpoint Lumber Yard Brooklyn, NY

ANALYTICAL QC SUMMARY REPORT

TestCode: 8081_Soil

Sample ID: PSB070303	SampType: MBLK	TestCode: 8081_Soil	Units: µg/Kg	Prep Date: 7/3/2003	Run ID: SYSTEM QU_030709E
Client ID: ZZZZZ	Batch ID: 1446	TestNo: SW8081B	(SW3550)	Analysis Date: 7/9/2003	SeqNo: 25527

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
4,4´-DDD	U	5.0									
4,4´-DDE	U	5.0									
4,4´-DDT	U	5.0									
Aldrin	U	5.0									
alpha-BHC	U	5.0									
beta-BHC	U	5.0									
Chlordane	U	5.0									
Chlorobenzilate	U	5.0									
DBCP	U	5.0									
delta-BHC	U	5.0									
Dieldrin	U	5.0									
Endosulfan I	U	5.0									
Endosulfan II	U	5.0									
Endosulfan sulfate	U	5.0									
Endrin	U	5.0									
Endrin aldehyde	U	5.0									
Endrin ketone	U	5.0									
gamma-BHC	U	5.0									
Heptachlor	U	5.0									
Heptachlor epoxide	U	5.0									
Hexachlorobenzene	U	5.0									
Hexachlorocyclopentadiene	U	5.0									
Isodrin	U	5.0									
Methoxychlor	U	5.0									
Toxaphene	U	300									

Sample ID: PSB070203	SampType: MBLK	TestCode: 8081_Soil	Units: µg/Kg	Prep Date: 7/2/2003	Run ID: SYSTEM QU_030703B
Client ID: ZZZZZ	Batch ID: 1431	TestNo: SW8081B	(SW3550)	Analysis Date: 7/8/2003	SeqNo: 25645

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
4,4´-DDD	U	5.0									

Qualifiers:
ND - Not Detected at the Reporting Limit
J - Analyte detected below quantitation limits
S - Spike Recovery outside accepted recovery limits
R - RPD outside accepted recovery limits
B - Analyte detected in the associated Method Blank

CLIENT: AKRF, Inc
Work Order: 0306117
Project: Greenpoint Lumber Yard Brooklyn, NY

ANALYTICAL QC SUMMARY REPORT

TestCode: 8081_Soil

Sample ID: **PSB070203**	SampType: **MBLK**	TestCode: **8081_Soil**	Units: **µg/Kg**	Prep Date: **7/2/2003**	Run ID: **SYSTEM QU_030703B**
Client ID: **ZZZZZ**	Batch ID: **1431**	TestNo: **SW8081B**	**(SW3550)**	Analysis Date: **7/8/2003**	SeqNo: **25645**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
4,4´-DDE	U	5.0									
4,4´-DDT	U	5.0									
Aldrin	U	5.0									
alpha-BHC	U	5.0									
beta-BHC	U	5.0									
Chlordane	U	5.0									
Chlorobenzilate	U	5.0									
DBCP	U	5.0									
delta-BHC	U	5.0									
Dieldrin	U	5.0									
Endosulfan I	U	5.0									
Endosulfan II	U	5.0									
Endosulfan sulfate	U	5.0									
Endrin	U	5.0									
Endrin aldehyde	U	5.0									
Endrin ketone	U	5.0									
gamma-BHC	U	5.0									
Heptachlor	U	5.0									
Heptachlor epoxide	U	5.0									
Hexachlorobenzene	U	5.0									
Hexachlorocyclopentadiene	U	5.0									
Isodrin	U	5.0									
Methoxychlor	U	5.0									
Toxaphene	U	300									

Sample ID: **PSB070303**	SampType: **MBLK**	TestCode: **8081_Soil**	Units: **µg/Kg**	Prep Date: **7/3/2003**	Run ID: **SYSTEM QU_030703B**
Client ID: **ZZZZZ**	Batch ID: **1446**	TestNo: **SW8081B**	**(SW3550)**	Analysis Date: **7/9/2003**	SeqNo: **25660**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
4,4´-DDD	U	5.0									
4,4´-DDE	U	5.0									

Qualifiers:
ND - Not Detected at the Reporting Limit
J - Analyte detected below quantitation limits
S - Spike Recovery outside accepted recovery limits
R - RPD outside accepted recovery limits
B - Analyte detected in the associated Method Blank

CLIENT: AKRF, Inc
Work Order: 0306117
Project: Greenpoint Lumber Yard Brooklyn, NY

ANALYTICAL QC SUMMARY REPORT

TestCode: 8081_Soil

Sample ID: PSB070303	SampType: MBLK	TestCode: 8081_Soil	Units: µg/Kg	Prep Date: 7/3/2003	Run ID: SYSTEM QU_030703B
Client ID: ZZZZZ	Batch ID: 1446	TestNo: SW8081B	(SW3550)	Analysis Date: 7/9/2003	SeqNo: 25660

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
4,4´-DDT	U	5.0									
Aldrin	U	5.0									
alpha-BHC	U	5.0									
beta-BHC	U	5.0									
Chlordane	U	5.0									
Chlorobenzilate	U	5.0									
DBCP	U	5.0									
delta-BHC	U	5.0									
Dieldrin	U	5.0									
Endosulfan I	U	5.0									
Endosulfan II	U	5.0									
Endosulfan sulfate	U	5.0									
Endrin	U	5.0									
Endrin aldehyde	U	5.0									
Endrin ketone	U	5.0									
gamma-BHC	U	5.0									
Heptachlor	U	5.0									
Heptachlor epoxide	U	5.0									
Hexachlorobenzene	U	5.0									
Hexachlorocyclopentadiene	U	5.0									
Isodrin	U	5.0									
Methoxychlor	U	5.0									
Toxaphene	U	300									

Sample ID: MSB070203	SampType: LCS	TestCode: 8081_Soil	Units: µg/Kg	Prep Date: 7/2/2003	Run ID: SYSTEM QU_030703B
Client ID: ZZZZZ	Batch ID: 1431	TestNo: SW8081B	(SW3550)	Analysis Date: 7/8/2003	SeqNo: 25657

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
4,4´-DDT	17.74	5.0	16.65	0	107	69	130	0	0		
Aldrin	6.054	5.0	6.66	0	90.9	66	128	0	0		
Dieldrin	16.9	5.0	16.65	0	102	67	126	0	0		

Qualifiers:
ND - Not Detected at the Reporting Limit
J - Analyte detected below quantitation limits
S - Spike Recovery outside accepted recovery limits
R - RPD outside accepted recovery limits
B - Analyte detected in the associated Method Blank

CLIENT: AKRF, Inc
Work Order: 0306117
Project: Greenpoint Lumber Yard Brooklyn, NY

ANALYTICAL QC SUMMARY REPORT

TestCode: 8081_Soil

Sample ID: MSB070203	SampType: LCS	TestCode: 8081_Soil	Units: µg/Kg	Prep Date: 7/2/2003	Run ID: SYSTEM QU_030703B
Client ID: ZZZZZ	Batch ID: 1431	TestNo: SW8081B	(SW3550)	Analysis Date: 7/8/2003	SeqNo: 25657

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Endrin	18.47	5.0	16.65	0	111	72	124	0	0		
gamma-BHC	6.487	5.0	6.66	0	97.4	68	122	0	0		
Heptachlor	7.817	5.0	6.66	0	117	64	130	0	0		

Sample ID: MSB070303	SampType: LCS	TestCode: 8081_Soil	Units: µg/Kg	Prep Date: 7/3/2003	Run ID: SYSTEM QU_030703B
Client ID: ZZZZZ	Batch ID: 1446	TestNo: SW8081B	(SW3550)	Analysis Date: 7/10/2003	SeqNo: 25671

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
4,4´-DDT	21.42	5.0	16.65	0	129	69	130	0	0		
Aldrin	6.377	5.0	6.66	0	95.8	66	128	0	0		
Dieldrin	21.88	5.0	16.65	0	131	67	126	0	0		S
Endrin	26.44	5.0	16.65	0	159	72	124	0	0		S
gamma-BHC	6.707	5.0	6.66	0	101	68	122	0	0		
Heptachlor	6.757	5.0	6.66	0	101	64	130	0	0		

Sample ID: 0306117-03BMS	SampType: MS	TestCode: 8081_Soil	Units: µg/Kg	Prep Date: 7/2/2003	Run ID: SYSTEM QU_030703B
Client ID: B10 (9'-10')	Batch ID: 1431	TestNo: SW8081B	(SW3550)	Analysis Date: 7/8/2003	SeqNo: 25658

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
4,4´-DDT	15.03	5.0	16.65	0	90.3	69	130	0	0		
Aldrin	6.163	5.0	6.66	0	92.5	66	128	0	0		
Dieldrin	14.33	5.0	16.65	0	86	67	126	0	0		
Endrin	15.28	5.0	16.65	0	91.8	72	124	0	0		
gamma-BHC	5.214	5.0	6.66	0	78.3	68	122	0	0		
Heptachlor	6.094	5.0	6.66	0	91.5	64	130	0	0		

Sample ID: 0306117-16BMS	SampType: MS	TestCode: 8081_Soil	Units: µg/Kg	Prep Date: 7/3/2003	Run ID: SYSTEM QU_030703B
Client ID: B14 (6'-8')	Batch ID: 1446	TestNo: SW8081B	(SW3550)	Analysis Date: 7/11/2003	SeqNo: 25672

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
4,4´-DDT	14.93	5.0	16.65	0	89.7	69	130	0	0		

Qualifiers:
ND - Not Detected at the Reporting Limit
J - Analyte detected below quantitation limits
S - Spike Recovery outside accepted recovery limits
R - RPD outside accepted recovery limits
B - Analyte detected in the associated Method Blank

CLIENT: AKRF, Inc
Work Order: 0306117
Project: Greenpoint Lumber Yard Brooklyn, NY

ANALYTICAL QC SUMMARY REPORT

TestCode: 8081_Soil

Sample ID: 0306117-16BMS	SampType: MS	TestCode: 8081_Soil	Units: µg/Kg	Prep Date: 7/3/2003	Run ID: SYSTEM QU_030703B
Client ID: B14 (6'-8')	Batch ID: 1446	TestNo: SW8081B	(SW3550)	Analysis Date: 7/11/2003	SeqNo: 25672

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Aldrin	5.565	5.0	6.66	0	83.6	66	128	0	0		
Dieldrin	14.93	5.0	16.65	0	89.7	67	126	0	0		
Endrin	17.82	5.0	16.65	0	107	72	124	0	0		
gamma-BHC	5.166	5.0	6.66	0	77.6	68	122	0	0		
Heptachlor	6.34	5.0	6.66	0	95.2	64	130	0	0		

Sample ID: 0306117-03BMSD	SampType: MSD	TestCode: 8081_Soil	Units: µg/Kg	Prep Date: 7/2/2003	Run ID: SYSTEM QU_030703B
Client ID: B10 (9'-10')	Batch ID: 1431	TestNo: SW8081B	(SW3550)	Analysis Date: 7/8/2003	SeqNo: 25659

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
4,4´-DDT	17.21	5.0	16.65	0	103	69	130	15.03	13.5	20	
Aldrin	6.247	5.0	6.66	0	93.8	66	128	6.163	1.35	20	
Dieldrin	15.47	5.0	16.65	0	92.9	67	126	14.33	7.67	20	
Endrin	18.49	5.0	16.65	0	111	72	124	15.28	19.0	20	
gamma-BHC	5.696	5.0	6.66	0	85.5	68	122	5.214	8.84	20	
Heptachlor	6.866	5.0	6.66	0	103	64	130	6.094	11.9	20	

Sample ID: 0306117-16BMSD	SampType: MSD	TestCode: 8081_Soil	Units: µg/Kg	Prep Date: 7/3/2003	Run ID: SYSTEM QU_030703B
Client ID: B14 (6'-8')	Batch ID: 1446	TestNo: SW8081B	(SW3550)	Analysis Date: 7/11/2003	SeqNo: 25673

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
4,4´-DDT	19.66	5.0	16.65	0	118	69	130	14.93	27.3	20	R
Aldrin	6.82	5.0	6.66	0	102	66	128	5.565	20.3	20	R
Dieldrin	19.76	5.0	16.65	0	119	67	126	14.93	27.9	20	R
Endrin	23.73	5.0	16.65	0	143	72	124	17.82	28.4	20	SR
gamma-BHC	6.284	5.0	6.66	0	94.4	68	122	5.166	19.5	20	
Heptachlor	7.451	5.0	6.66	0	112	64	130	6.34	16.1	20	

Qualifiers:
ND - Not Detected at the Reporting Limit
J - Analyte detected below quantitation limits
S - Spike Recovery outside accepted recovery limits
R - RPD outside accepted recovery limits
B - Analyte detected in the associated Method Blank

CLIENT: AKRF, Inc
Work Order: 0306117
Project: Greenpoint Lumber Yard Brooklyn, NY

ANALYTICAL QC SUMMARY REPORT

TestCode: 8082_Soil

Sample ID: **PSB070303** SampType: **MBLK** TestCode: **8082_Soil** Units: **µg/Kg** Prep Date: **7/3/2003** Run ID: **SYSTEM QU_030707A**
Client ID: **ZZZZZ** Batch ID: **1445** TestNo: **SW8082A** **(SW3550)** Analysis Date: **7/8/2003** SeqNo: **25043**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Aroclor 1016	U	80									
Aroclor 1221	U	80									
Aroclor 1232	U	80									
Aroclor 1242	U	80									
Aroclor 1248	U	80									
Aroclor 1254	U	80									
Aroclor 1260	U	80									

Sample ID: **PSB070203** SampType: **MBLK** TestCode: **8082_Soil** Units: **µg/Kg** Prep Date: **7/2/2003** Run ID: **SYSTEM QU_030707B**
Client ID: **ZZZZZ** Batch ID: **1429** TestNo: **SW8082A** **(SW3550)** Analysis Date: **7/9/2003** SeqNo: **25422**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Aroclor 1016	U	80									
Aroclor 1221	U	80									
Aroclor 1232	U	80									
Aroclor 1242	U	80									
Aroclor 1248	U	80									
Aroclor 1254	U	80									
Aroclor 1260	U	80									

Sample ID: **PSB070303** SampType: **MBLK** TestCode: **8082_Soil** Units: **µg/Kg** Prep Date: **7/3/2003** Run ID: **SYSTEM QU_030709F**
Client ID: **ZZZZZ** Batch ID: **1445** TestNo: **SW8082A** **(SW3550)** Analysis Date: **7/11/2003** SeqNo: **25530**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Aroclor 1016	U	80									
Aroclor 1221	U	80									
Aroclor 1232	U	80									
Aroclor 1242	U	80									
Aroclor 1248	U	80									
Aroclor 1254	U	80									
Aroclor 1260	U	80									

Qualifiers:
ND - Not Detected at the Reporting Limit
J - Analyte detected below quantitation limits
S - Spike Recovery outside accepted recovery limits
R - RPD outside accepted recovery limits
B - Analyte detected in the associated Method Blank

CLIENT: AKRF, Inc
Work Order: 0306117
Project: Greenpoint Lumber Yard Brooklyn, NY

ANALYTICAL QC SUMMARY REPORT

TestCode: 8082_Soil

Sample ID: PSB070203	SampType: MBLK	TestCode: 8082_Soil	Units: µg/Kg	Prep Date: 7/2/2003	Run ID: SYSTEM QU_030707C
Client ID: ZZZZZ	Batch ID: 1429	TestNo: SW8082A	(SW3550)	Analysis Date: 7/9/2003	SeqNo: 25722

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Aroclor 1016	U	80									
Aroclor 1221	U	80									
Aroclor 1232	U	80									
Aroclor 1242	U	80									
Aroclor 1248	U	80									
Aroclor 1254	U	80									
Aroclor 1260	U	80									

Sample ID: PSB070303	SampType: MBLK	TestCode: 8082_Soil	Units: µg/Kg	Prep Date: 7/3/2003	Run ID: SYSTEM QU_030707C
Client ID: ZZZZZ	Batch ID: 1445	TestNo: SW8082A	(SW3550)	Analysis Date: 7/11/2003	SeqNo: 25746

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Aroclor 1016	U	80									
Aroclor 1221	U	80									
Aroclor 1232	U	80									
Aroclor 1242	U	80									
Aroclor 1248	U	80									
Aroclor 1254	U	80									
Aroclor 1260	U	80									

Sample ID: MSB070203	SampType: LCS	TestCode: 8082_Soil	Units: µg/Kg	Prep Date: 7/2/2003	Run ID: SYSTEM QU_030707C
Client ID: ZZZZZ	Batch ID: 1429	TestNo: SW8082A	(SW3550)	Analysis Date: 7/11/2003	SeqNo: 25743

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Aroclor 1016	147.2	80	166.5	0	88.4	59	122	0	0		
Aroclor 1260	162.1	80	166.5	0	97.4	57	121	0	0		

Sample ID: MSB070303	SampType: LCS	TestCode: 8082_Soil	Units: µg/Kg	Prep Date: 7/3/2003	Run ID: SYSTEM QU_030707C
Client ID: ZZZZZ	Batch ID: 1445	TestNo: SW8082A	(SW3550)	Analysis Date: 7/12/2003	SeqNo: 25755

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual

Qualifiers:
ND - Not Detected at the Reporting Limit
J - Analyte detected below quantitation limits
S - Spike Recovery outside accepted recovery limits
R - RPD outside accepted recovery limits
B - Analyte detected in the associated Method Blank

CLIENT: AKRF, Inc
Work Order: 0306117
Project: Greenpoint Lumber Yard Brooklyn, NY

ANALYTICAL QC SUMMARY REPORT

TestCode: 8082_Soil

Sample ID: MSB070303	SampType: LCS	TestCode: 8082_Soil	Units: µg/Kg	Prep Date: 7/3/2003	Run ID: SYSTEM QU_030707C
Client ID: ZZZZZ	Batch ID: 1445	TestNo: SW8082A	(SW3550)	Analysis Date: 7/12/2003	SeqNo: 25755

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Aroclor 1016	131.4	80	166.5	0	78.9	59	122	0	0		
Aroclor 1260	141.4	80	166.5	0	84.9	57	121	0	0		

Sample ID: 0306117-01BMS	SampType: MS	TestCode: 8082_Soil	Units: µg/Kg	Prep Date: 7/2/2003	Run ID: SYSTEM QU_030707C
Client ID: MW10 (5'-7')	Batch ID: 1429	TestNo: SW8082A	(SW3550)	Analysis Date: 7/11/2003	SeqNo: 25744

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Aroclor 1016	189.1	80	166.5	0	114	59	122	0	0		
Aroclor 1260	193.5	80	166.5	0	116	57	121	0	0		

Sample ID: 0306117-17BMS	SampType: MS	TestCode: 8082_Soil	Units: µg/Kg	Prep Date: 7/3/2003	Run ID: SYSTEM QU_030707C
Client ID: B15 (8.0'-9.0')	Batch ID: 1445	TestNo: SW8082A	(SW3550)	Analysis Date: 7/12/2003	SeqNo: 25756

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Aroclor 1016	228.2	80	166.5	0	137	59	122	0	0		S
Aroclor 1260	254.3	80	166.5	0	153	57	121	0	0		S

Sample ID: 0306117-01BMSD	SampType: MSD	TestCode: 8082_Soil	Units: µg/Kg	Prep Date: 7/2/2003	Run ID: SYSTEM QU_030707C
Client ID: MW10 (5'-7')	Batch ID: 1429	TestNo: SW8082A	(SW3550)	Analysis Date: 7/12/2003	SeqNo: 25745

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Aroclor 1016	291.3	80	166.5	0	175	59	122	189.1	42.6	20	SR
Aroclor 1260	315.2	80	166.5	0	189	57	121	193.5	47.9	20	SR

Sample ID: 0306117-17BMSD	SampType: MSD	TestCode: 8082_Soil	Units: µg/Kg	Prep Date: 7/3/2003	Run ID: SYSTEM QU_030707C
Client ID: B15 (8.0'-9.0')	Batch ID: 1445	TestNo: SW8082A	(SW3550)	Analysis Date: 7/12/2003	SeqNo: 25757

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Aroclor 1016	367.2	80	166.5	0	221	59	122	228.2	46.7	20	SR
Aroclor 1260	401.1	80	166.5	0	241	57	121	254.3	44.8	20	SR

Qualifiers:
ND - Not Detected at the Reporting Limit
J - Analyte detected below quantitation limits
S - Spike Recovery outside accepted recovery limits
R - RPD outside accepted recovery limits
B - Analyte detected in the associated Method Blank

CLIENT: AKRF, Inc
Work Order: 0306117
Project: Greenpoint Lumber Yard Brooklyn, NY

ANALYTICAL QC SUMMARY REPORT

TestCode: 8270_Soil

Sample ID: SSB070203	SampType: MBLK	TestCode: 8270_Soil	Units: µg/Kg	Prep Date: 7/2/2003	Run ID: SYSTEM T_030701B
Client ID: ZZZZZ	Batch ID: 1428	TestNo: SW8270D	(SW3550A)	Analysis Date: 7/3/2003	SeqNo: 25216

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
1,2,4-Trichlorobenzene	U	40	0	0	0	0	0	0	0		
1,2-Dichlorobenzene	U	40	0	0	0	0	0	0	0		
1,3-Dichlorobenzene	U	40	0	0	0	0	0	0	0		
1,4-Dichlorobenzene	U	40	0	0	0	0	0	0	0		
2,4,5-Trichlorophenol	U	40	0	0	0	0	0	0	0		
2,4,6-Trichlorophenol	U	40	0	0	0	0	0	0	0		
2,4-Dichlorophenol	U	40	0	0	0	0	0	0	0		
2,4-Dimethylphenol	U	40	0	0	0	0	0	0	0		
2,4-Dinitrophenol	U	40	0	0	0	0	0	0	0		
2,4-Dinitrotoluene	U	40	0	0	0	0	0	0	0		
2,6-Dinitrotoluene	U	40	0	0	0	0	0	0	0		
2-Chloronaphthalene	U	40	0	0	0	0	0	0	0		
2-Chlorophenol	U	40	0	0	0	0	0	0	0		
2-Methylnaphthalene	U	40	0	0	0	0	0	0	0		
2-Methylphenol	U	40	0	0	0	0	0	0	0		
2-Nitroaniline	U	40	0	0	0	0	0	0	0		
2-Nitrophenol	U	40	0	0	0	0	0	0	0		
3,3´-Dichlorobenzidine	U	40	0	0	0	0	0	0	0		
3+4-Methylphenol	U	40	0	0	0	0	0	0	0		
3-Nitroaniline	U	40	0	0	0	0	0	0	0		
4,6-Dinitro-2-methylphenol	U	40	0	0	0	0	0	0	0		
4-Bromophenyl phenyl ether	U	40	0	0	0	0	0	0	0		
4-Chloro-3-methylphenol	U	40	0	0	0	0	0	0	0		
4-Chloroaniline	U	40	0	0	0	0	0	0	0		
4-Chlorophenyl phenyl ether	U	40	0	0	0	0	0	0	0		
4-Nitroaniline	U	40	0	0	0	0	0	0	0		
4-Nitrophenol	U	40	0	0	0	0	0	0	0		
Acenaphthene	U	40	0	0	0	0	0	0	0		
Acenaphthylene	U	40	0	0	0	0	0	0	0		
Aniline	U	40	0	0	0	0	0	0	0		
Anthracene	U	40	0	0	0	0	0	0	0		

Qualifiers: ND - Not Detected at the Reporting Limit
J - Analyte detected below quantitation limits
S - Spike Recovery outside accepted recovery limits
R - RPD outside accepted recovery limits
B - Analyte detected in the associated Method Blank

CLIENT: AKRF, Inc
Work Order: 0306117
Project: Greenpoint Lumber Yard Brooklyn, NY

ANALYTICAL QC SUMMARY REPORT

TestCode: 8270_Soil

Sample ID: SSB070203	SampType: MBLK	TestCode: 8270_Soil	Units: µg/Kg	Prep Date: 7/2/2003	Run ID: SYSTEM T_030701B
Client ID: ZZZZZ	Batch ID: 1428	TestNo: SW8270D	(SW3550A)	Analysis Date: 7/3/2003	SeqNo: 25216

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Azobenzene	U	40	0	0	0	0	0	0	0		
Benzidine	U	40	0	0	0	0	0	0	0		
Benzo(a)anthracene	U	40	0	0	0	0	0	0	0		
Benzo(a)pyrene	U	40	0	0	0	0	0	0	0		
Benzo(b)fluoranthene	U	40	0	0	0	0	0	0	0		
Benzo(g,h,i)perylene	U	40	0	0	0	0	0	0	0		
Benzo(k)fluoranthene	U	40	0	0	0	0	0	0	0		
Benzoic acid	U	40	0	0	0	0	0	0	0		
Benzyl alcohol	U	40	0	0	0	0	0	0	0		
Bis(2-chloroethoxy)methane	U	40	0	0	0	0	0	0	0		
Bis(2-chloroethyl)ether	U	40	0	0	0	0	0	0	0		
Bis(2-chloroisopropyl)ether	U	40	0	0	0	0	0	0	0		
Bis(2-ethylhexyl)phthalate	U	40	0	0	0	0	0	0	0		
Butyl benzyl phthalate	U	40	0	0	0	0	0	0	0		
Carbazole	U	40	0	0	0	0	0	0	0		
Chrysene	U	40	0	0	0	0	0	0	0		
Dibenzo(a,h)anthracene	U	40	0	0	0	0	0	0	0		
Dibenzofuran	U	40	0	0	0	0	0	0	0		
Diethyl phthalate	U	40	0	0	0	0	0	0	0		
Dimethyl phthalate	U	40	0	0	0	0	0	0	0		
Di-n-butyl phthalate	U	40	0	0	0	0	0	0	0		
Di-n-octyl phthalate	U	40	0	0	0	0	0	0	0		
Fluoranthene	U	40	0	0	0	0	0	0	0		
Fluorene	U	40	0	0	0	0	0	0	0		
Hexachlorobenzene	U	40	0	0	0	0	0	0	0		
Hexachlorobutadiene	U	40	0	0	0	0	0	0	0		
Hexachlorocyclopentadiene	U	40	0	0	0	0	0	0	0		
Hexachloroethane	U	40	0	0	0	0	0	0	0		
Indeno(1,2,3-c,d)pyrene	U	40	0	0	0	0	0	0	0		
Isophorone	U	40	0	0	0	0	0	0	0		
Naphthalene	U	40	0	0	0	0	0	0	0		

Qualifiers: ND - Not Detected at the Reporting Limit
J - Analyte detected below quantitation limits
S - Spike Recovery outside accepted recovery limits
R - RPD outside accepted recovery limits
B - Analyte detected in the associated Method Blank

CLIENT: AKRF, Inc
Work Order: 0306117
Project: Greenpoint Lumber Yard Brooklyn, NY

ANALYTICAL QC SUMMARY REPORT

TestCode: 8270_Soil

Sample ID: SSB070203	SampType: MBLK	TestCode: 8270_Soil	Units: µg/Kg	Prep Date: 7/2/2003	Run ID: SYSTEM T_030701B
Client ID: ZZZZZ	Batch ID: 1428	TestNo: SW8270D	(SW3550A)	Analysis Date: 7/3/2003	SeqNo: 25216

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Nitrobenzene	U	40	0	0	0	0	0	0	0		
N-Nitrosodimethylamine	U	40	0	0	0	0	0	0	0		
N-Nitrosodi-n-propylamine	U	40	0	0	0	0	0	0	0		
N-Nitrosodiphenylamine	U	40	0	0	0	0	0	0	0		
Pentachlorophenol	U	40	0	0	0	0	0	0	0		
Phenanthrene	U	40	0	0	0	0	0	0	0		
Phenol	U	40	0	0	0	0	0	0	0		
Pyrene	U	40	0	0	0	0	0	0	0		
Pyridine	U	40	0	0	0	0	0	0	0		

Sample ID: SSB070803 A	SampType: MBLK	TestCode: 8270_Soil	Units: µg/Kg	Prep Date: 7/8/2003	Run ID: SYSTEM T_030630C
Client ID: ZZZZZ	Batch ID: 1447	TestNo: SW8270D	(SW3550A)	Analysis Date: 7/8/2003	SeqNo: 25397

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
1,2,4-Trichlorobenzene	U	40	0	0	0	0	0	0	0		
1,2-Dichlorobenzene	U	40	0	0	0	0	0	0	0		
1,3-Dichlorobenzene	U	40	0	0	0	0	0	0	0		
1,4-Dichlorobenzene	U	40	0	0	0	0	0	0	0		
2,4,5-Trichlorophenol	U	40	0	0	0	0	0	0	0		
2,4,6-Trichlorophenol	U	40	0	0	0	0	0	0	0		
2,4-Dichlorophenol	U	40	0	0	0	0	0	0	0		
2,4-Dimethylphenol	U	40	0	0	0	0	0	0	0		
2,4-Dinitrophenol	U	40	0	0	0	0	0	0	0		
2,4-Dinitrotoluene	U	40	0	0	0	0	0	0	0		
2,6-Dinitrotoluene	U	40	0	0	0	0	0	0	0		
2-Chloronaphthalene	U	40	0	0	0	0	0	0	0		
2-Chlorophenol	U	40	0	0	0	0	0	0	0		
2-Methylnaphthalene	U	40	0	0	0	0	0	0	0		
2-Methylphenol	U	40	0	0	0	0	0	0	0		
2-Nitroaniline	U	40	0	0	0	0	0	0	0		
2-Nitrophenol	U	40	0	0	0	0	0	0	0		

Qualifiers: ND - Not Detected at the Reporting Limit
J - Analyte detected below quantitation limits
S - Spike Recovery outside accepted recovery limits
R - RPD outside accepted recovery limits
B - Analyte detected in the associated Method Blank

CLIENT: AKRF, Inc
Work Order: 0306117
Project: Greenpoint Lumber Yard Brooklyn, NY

ANALYTICAL QC SUMMARY REPORT

TestCode: 8270_Soil

Sample ID: SSB070803 A	SampType: MBLK	TestCode: 8270_Soil	Units: µg/Kg	Prep Date: 7/8/2003	Run ID: SYSTEM T_030630C
Client ID: ZZZZZ	Batch ID: 1447	TestNo: SW8270D	(SW3550A)	Analysis Date: 7/8/2003	SeqNo: 25397

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
3,3´-Dichlorobenzidine	U	40	0	0	0	0	0	0	0		
3+4-Methylphenol	U	40	0	0	0	0	0	0	0		
3-Nitroaniline	U	40	0	0	0	0	0	0	0		
4,6-Dinitro-2-methylphenol	U	40	0	0	0	0	0	0	0		
4-Bromophenyl phenyl ether	U	40	0	0	0	0	0	0	0		
4-Chloro-3-methylphenol	U	40	0	0	0	0	0	0	0		
4-Chloroaniline	U	40	0	0	0	0	0	0	0		
4-Chlorophenyl phenyl ether	U	40	0	0	0	0	0	0	0		
4-Nitroaniline	U	40	0	0	0	0	0	0	0		
4-Nitrophenol	U	40	0	0	0	0	0	0	0		
Acenaphthene	U	40	0	0	0	0	0	0	0		
Acenaphthylene	U	40	0	0	0	0	0	0	0		
Aniline	U	40	0	0	0	0	0	0	0		
Anthracene	U	40	0	0	0	0	0	0	0		
Azobenzene	U	40	0	0	0	0	0	0	0		
Benzidine	U	40	0	0	0	0	0	0	0		
Benzo(a)anthracene	U	40	0	0	0	0	0	0	0		
Benzo(a)pyrene	U	40	0	0	0	0	0	0	0		
Benzo(b)fluoranthene	U	40	0	0	0	0	0	0	0		
Benzo(g,h,i)perylene	U	40	0	0	0	0	0	0	0		
Benzo(k)fluoranthene	U	40	0	0	0	0	0	0	0		
Benzoic acid	U	40	0	0	0	0	0	0	0		
Benzyl alcohol	U	40	0	0	0	0	0	0	0		
Bis(2-chloroethoxy)methane	U	40	0	0	0	0	0	0	0		
Bis(2-chloroethyl)ether	U	40	0	0	0	0	0	0	0		
Bis(2-chloroisopropyl)ether	U	40	0	0	0	0	0	0	0		
Bis(2-ethylhexyl)phthalate	U	40	0	0	0	0	0	0	0		
Butyl benzyl phthalate	U	40	0	0	0	0	0	0	0		
Carbazole	U	40	0	0	0	0	0	0	0		
Chrysene	U	40	0	0	0	0	0	0	0		
Dibenzo(a,h)anthracene	U	40	0	0	0	0	0	0	0		

Qualifiers:
ND - Not Detected at the Reporting Limit
J - Analyte detected below quantitation limits
S - Spike Recovery outside accepted recovery limits
R - RPD outside accepted recovery limits
B - Analyte detected in the associated Method Blank

CLIENT: AKRF, Inc
Work Order: 0306117
Project: Greenpoint Lumber Yard Brooklyn, NY

ANALYTICAL QC SUMMARY REPORT

TestCode: 8270_Soil

Sample ID: SSB070803 A	SampType: MBLK	TestCode: 8270_Soil	Units: µg/Kg	Prep Date: 7/8/2003	Run ID: SYSTEM T_030630C
Client ID: ZZZZZ	Batch ID: 1447	TestNo: SW8270D	(SW3550A)	Analysis Date: 7/8/2003	SeqNo: 25397

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Dibenzofuran	U	40	0	0	0	0	0	0	0		
Diethyl phthalate	U	40	0	0	0	0	0	0	0		
Dimethyl phthalate	U	40	0	0	0	0	0	0	0		
Di-n-butyl phthalate	U	40	0	0	0	0	0	0	0		
Di-n-octyl phthalate	U	40	0	0	0	0	0	0	0		
Fluoranthene	U	40	0	0	0	0	0	0	0		
Fluorene	U	40	0	0	0	0	0	0	0		
Hexachlorobenzene	U	40	0	0	0	0	0	0	0		
Hexachlorobutadiene	U	40	0	0	0	0	0	0	0		
Hexachlorocyclopentadiene	U	40	0	0	0	0	0	0	0		
Hexachloroethane	U	40	0	0	0	0	0	0	0		
Indeno(1,2,3-c,d)pyrene	U	40	0	0	0	0	0	0	0		
Isophorone	U	40	0	0	0	0	0	0	0		
Naphthalene	U	40	0	0	0	0	0	0	0		
Nitrobenzene	U	40	0	0	0	0	0	0	0		
N-Nitrosodimethylamine	U	40	0	0	0	0	0	0	0		
N-Nitrosodi-n-propylamine	U	40	0	0	0	0	0	0	0		
N-Nitrosodiphenylamine	U	40	0	0	0	0	0	0	0		
Pentachlorophenol	U	40	0	0	0	0	0	0	0		
Phenanthrene	U	40	0	0	0	0	0	0	0		
Phenol	U	40	0	0	0	0	0	0	0		
Pyrene	U	40	0	0	0	0	0	0	0		
Pyridine	U	40	0	0	0	0	0	0	0		

Sample ID: SSB070203	SampType: MBLK	TestCode: 8270_Soil	Units: µg/Kg	Prep Date: 7/2/2003	Run ID: SYSTEM T_030702A
Client ID: ZZZZZ	Batch ID: 1428	TestNo: SW8270D	(SW3550A)	Analysis Date: 7/3/2003	SeqNo: 25537

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
1,2,4-Trichlorobenzene	U	40	0	0	0	0	0	0	0		
1,2-Dichlorobenzene	U	40	0	0	0	0	0	0	0		
1,3-Dichlorobenzene	U	40	0	0	0	0	0	0	0		

Qualifiers: ND - Not Detected at the Reporting Limit
J - Analyte detected below quantitation limits
S - Spike Recovery outside accepted recovery limits
R - RPD outside accepted recovery limits
B - Analyte detected in the associated Method Blank

CLIENT: AKRF, Inc
Work Order: 0306117
Project: Greenpoint Lumber Yard Brooklyn, NY

ANALYTICAL QC SUMMARY REPORT

TestCode: 8270_Soil

Sample ID: **SSB070203**	SampType: **MBLK**	TestCode: **8270_Soil**	Units: **µg/Kg**	Prep Date: **7/2/2003**	Run ID: **SYSTEM T_030702A**
Client ID: **ZZZZZ**	Batch ID: **1428**	TestNo: **SW8270D**	**(SW3550A)**	Analysis Date: **7/3/2003**	SeqNo: **25537**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
1,4-Dichlorobenzene	U	40	0	0	0	0	0	0	0		
2,4,5-Trichlorophenol	U	40	0	0	0	0	0	0	0		
2,4,6-Trichlorophenol	U	40	0	0	0	0	0	0	0		
2,4-Dichlorophenol	U	40	0	0	0	0	0	0	0		
2,4-Dimethylphenol	U	40	0	0	0	0	0	0	0		
2,4-Dinitrophenol	U	40	0	0	0	0	0	0	0		
2,4-Dinitrotoluene	U	40	0	0	0	0	0	0	0		
2,6-Dinitrotoluene	U	40	0	0	0	0	0	0	0		
2-Chloronaphthalene	U	40	0	0	0	0	0	0	0		
2-Chlorophenol	U	40	0	0	0	0	0	0	0		
2-Methylnaphthalene	U	40	0	0	0	0	0	0	0		
2-Methylphenol	U	40	0	0	0	0	0	0	0		
2-Nitroaniline	U	40	0	0	0	0	0	0	0		
2-Nitrophenol	U	40	0	0	0	0	0	0	0		
3,3´-Dichlorobenzidine	U	40	0	0	0	0	0	0	0		
3+4-Methylphenol	U	40	0	0	0	0	0	0	0		
3-Nitroaniline	U	40	0	0	0	0	0	0	0		
4,6-Dinitro-2-methylphenol	U	40	0	0	0	0	0	0	0		
4-Bromophenyl phenyl ether	U	40	0	0	0	0	0	0	0		
4-Chloro-3-methylphenol	U	40	0	0	0	0	0	0	0		
4-Chloroaniline	U	40	0	0	0	0	0	0	0		
4-Chlorophenyl phenyl ether	U	40	0	0	0	0	0	0	0		
4-Nitroaniline	U	40	0	0	0	0	0	0	0		
4-Nitrophenol	U	40	0	0	0	0	0	0	0		
Acenaphthene	U	40	0	0	0	0	0	0	0		
Acenaphthylene	U	40	0	0	0	0	0	0	0		
Aniline	U	40	0	0	0	0	0	0	0		
Anthracene	U	40	0	0	0	0	0	0	0		
Azobenzene	U	40	0	0	0	0	0	0	0		
Benzidine	U	40	0	0	0	0	0	0	0		
Benzo(a)anthracene	U	40	0	0	0	0	0	0	0		

Qualifiers: ND - Not Detected at the Reporting Limit
J - Analyte detected below quantitation limits
S - Spike Recovery outside accepted recovery limits
R - RPD outside accepted recovery limits
B - Analyte detected in the associated Method Blank

CLIENT: AKRF, Inc
Work Order: 0306117
Project: Greenpoint Lumber Yard Brooklyn, NY

ANALYTICAL QC SUMMARY REPORT

TestCode: 8270_Soil

Sample ID: SSB070203	SampType: MBLK	TestCode: 8270_Soil	Units: µg/Kg	Prep Date: 7/2/2003	Run ID: SYSTEM T_030702A
Client ID: ZZZZZ	Batch ID: 1428	TestNo: SW8270D	(SW3550A)	Analysis Date: 7/3/2003	SeqNo: 25537

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Benzo(a)pyrene	U	40	0	0	0	0	0	0	0		
Benzo(b)fluoranthene	U	40	0	0	0	0	0	0	0		
Benzo(g,h,i)perylene	U	40	0	0	0	0	0	0	0		
Benzo(k)fluoranthene	U	40	0	0	0	0	0	0	0		
Benzoic acid	U	40	0	0	0	0	0	0	0		
Benzyl alcohol	U	40	0	0	0	0	0	0	0		
Bis(2-chloroethoxy)methane	U	40	0	0	0	0	0	0	0		
Bis(2-chloroethyl)ether	U	40	0	0	0	0	0	0	0		
Bis(2-chloroisopropyl)ether	U	40	0	0	0	0	0	0	0		
Bis(2-ethylhexyl)phthalate	U	40	0	0	0	0	0	0	0		
Butyl benzyl phthalate	U	40	0	0	0	0	0	0	0		
Carbazole	U	40	0	0	0	0	0	0	0		
Chrysene	U	40	0	0	0	0	0	0	0		
Dibenzo(a,h)anthracene	U	40	0	0	0	0	0	0	0		
Dibenzofuran	U	40	0	0	0	0	0	0	0		
Diethyl phthalate	U	40	0	0	0	0	0	0	0		
Dimethyl phthalate	U	40	0	0	0	0	0	0	0		
Di-n-butyl phthalate	U	40	0	0	0	0	0	0	0		
Di-n-octyl phthalate	U	40	0	0	0	0	0	0	0		
Fluoranthene	U	40	0	0	0	0	0	0	0		
Fluorene	U	40	0	0	0	0	0	0	0		
Hexachlorobenzene	U	40	0	0	0	0	0	0	0		
Hexachlorobutadiene	U	40	0	0	0	0	0	0	0		
Hexachlorocyclopentadiene	U	40	0	0	0	0	0	0	0		
Hexachloroethane	U	40	0	0	0	0	0	0	0		
Indeno(1,2,3-c,d)pyrene	U	40	0	0	0	0	0	0	0		
Isophorone	U	40	0	0	0	0	0	0	0		
Naphthalene	U	40	0	0	0	0	0	0	0		
Nitrobenzene	U	40	0	0	0	0	0	0	0		
N-Nitrosodimethylamine	U	40	0	0	0	0	0	0	0		
N-Nitrosodi-n-propylamine	U	40	0	0	0	0	0	0	0		

Qualifiers: ND - Not Detected at the Reporting Limit
J - Analyte detected below quantitation limits
S - Spike Recovery outside accepted recovery limits
R - RPD outside accepted recovery limits
B - Analyte detected in the associated Method Blank

CLIENT: AKRF, Inc
Work Order: 0306117
Project: Greenpoint Lumber Yard Brooklyn, NY

ANALYTICAL QC SUMMARY REPORT

TestCode: 8270_Soil

Sample ID: SSB070203	SampType: MBLK	TestCode: 8270_Soil	Units: µg/Kg	Prep Date: 7/2/2003	Run ID: SYSTEM T_030702A
Client ID: ZZZZZ	Batch ID: 1428	TestNo: SW8270D	(SW3550A)	Analysis Date: 7/3/2003	SeqNo: 25537

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
N-Nitrosodiphenylamine	U	40	0	0	0	0	0	0	0		
Pentachlorophenol	U	40	0	0	0	0	0	0	0		
Phenanthrene	U	40	0	0	0	0	0	0	0		
Phenol	U	40	0	0	0	0	0	0	0		
Pyrene	U	40	0	0	0	0	0	0	0		
Pyridine	U	40	0	0	0	0	0	0	0		

Sample ID: SSB070803B	SampType: MBLK	TestCode: 8270_Soil	Units: µg/Kg	Prep Date: 7/8/2003	Run ID: SYSTEM T_030702A
Client ID: ZZZZZ	Batch ID: 1447	TestNo: SW8270D	(SW3550A)	Analysis Date: 7/9/2003	SeqNo: 25556

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
1,2,4-Trichlorobenzene	U	40	0	0	0	0	0	0	0		
1,2-Dichlorobenzene	U	40	0	0	0	0	0	0	0		
1,3-Dichlorobenzene	U	40	0	0	0	0	0	0	0		
1,4-Dichlorobenzene	U	40	0	0	0	0	0	0	0		
2,4,5-Trichlorophenol	U	40	0	0	0	0	0	0	0		
2,4,6-Trichlorophenol	U	40	0	0	0	0	0	0	0		
2,4-Dichlorophenol	U	40	0	0	0	0	0	0	0		
2,4-Dimethylphenol	U	40	0	0	0	0	0	0	0		
2,4-Dinitrophenol	U	40	0	0	0	0	0	0	0		
2,4-Dinitrotoluene	U	40	0	0	0	0	0	0	0		
2,6-Dinitrotoluene	U	40	0	0	0	0	0	0	0		
2-Chloronaphthalene	U	40	0	0	0	0	0	0	0		
2-Chlorophenol	U	40	0	0	0	0	0	0	0		
2-Methylnaphthalene	U	40	0	0	0	0	0	0	0		
2-Methylphenol	U	40	0	0	0	0	0	0	0		
2-Nitroaniline	U	40	0	0	0	0	0	0	0		
2-Nitrophenol	U	40	0	0	0	0	0	0	0		
3,3´-Dichlorobenzidine	U	40	0	0	0	0	0	0	0		
3+4-Methylphenol	U	40	0	0	0	0	0	0	0		
3-Nitroaniline	U	40	0	0	0	0	0	0	0		

Qualifiers: ND - Not Detected at the Reporting Limit
J - Analyte detected below quantitation limits
S - Spike Recovery outside accepted recovery limits
R - RPD outside accepted recovery limits
B - Analyte detected in the associated Method Blank

CLIENT: AKRF, Inc
Work Order: 0306117
Project: Greenpoint Lumber Yard Brooklyn, NY

ANALYTICAL QC SUMMARY REPORT

TestCode: 8270_Soil

Sample ID: SSB070803B	SampType: MBLK	TestCode: 8270_Soil	Units: µg/Kg	Prep Date: 7/8/2003	Run ID: SYSTEM T_030702A
Client ID: ZZZZZ	Batch ID: 1447	TestNo: SW8270D	(SW3550A)	Analysis Date: 7/9/2003	SeqNo: 25556

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
4,6-Dinitro-2-methylphenol	U	40	0	0	0	0	0	0	0		
4-Bromophenyl phenyl ether	U	40	0	0	0	0	0	0	0		
4-Chloro-3-methylphenol	U	40	0	0	0	0	0	0	0		
4-Chloroaniline	U	40	0	0	0	0	0	0	0		
4-Chlorophenyl phenyl ether	U	40	0	0	0	0	0	0	0		
4-Nitroaniline	U	40	0	0	0	0	0	0	0		
4-Nitrophenol	U	40	0	0	0	0	0	0	0		
Acenaphthene	U	40	0	0	0	0	0	0	0		
Acenaphthylene	U	40	0	0	0	0	0	0	0		
Aniline	U	40	0	0	0	0	0	0	0		
Anthracene	U	40	0	0	0	0	0	0	0		
Azobenzene	U	40	0	0	0	0	0	0	0		
Benzidine	U	40	0	0	0	0	0	0	0		
Benzo(a)anthracene	U	40	0	0	0	0	0	0	0		
Benzo(a)pyrene	U	40	0	0	0	0	0	0	0		
Benzo(b)fluoranthene	U	40	0	0	0	0	0	0	0		
Benzo(g,h,i)perylene	U	40	0	0	0	0	0	0	0		
Benzo(k)fluoranthene	U	40	0	0	0	0	0	0	0		
Benzoic acid	U	40	0	0	0	0	0	0	0		
Benzyl alcohol	U	40	0	0	0	0	0	0	0		
Bis(2-chloroethoxy)methane	U	40	0	0	0	0	0	0	0		
Bis(2-chloroethyl)ether	U	40	0	0	0	0	0	0	0		
Bis(2-chloroisopropyl)ether	U	40	0	0	0	0	0	0	0		
Bis(2-ethylhexyl)phthalate	U	40	0	0	0	0	0	0	0		
Butyl benzyl phthalate	U	40	0	0	0	0	0	0	0		
Carbazole	U	40	0	0	0	0	0	0	0		
Chrysene	U	40	0	0	0	0	0	0	0		
Dibenzo(a,h)anthracene	U	40	0	0	0	0	0	0	0		
Dibenzofuran	U	40	0	0	0	0	0	0	0		
Diethyl phthalate	U	40	0	0	0	0	0	0	0		
Dimethyl phthalate	U	40	0	0	0	0	0	0	0		

Qualifiers:
ND - Not Detected at the Reporting Limit
J - Analyte detected below quantitation limits
S - Spike Recovery outside accepted recovery limits
R - RPD outside accepted recovery limits
B - Analyte detected in the associated Method Blank

CLIENT: AKRF, Inc
Work Order: 0306117
Project: Greenpoint Lumber Yard Brooklyn, NY

ANALYTICAL QC SUMMARY REPORT

TestCode: 8270_Soil

Sample ID: SSB070803B	SampType: MBLK	TestCode: 8270_Soil	Units: µg/Kg	Prep Date: 7/8/2003	Run ID: SYSTEM T_030702A
Client ID: ZZZZZ	Batch ID: 1447	TestNo: SW8270D	(SW3550A)	Analysis Date: 7/9/2003	SeqNo: 25556

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Di-n-butyl phthalate	U	40	0	0	0	0	0	0	0		
Di-n-octyl phthalate	U	40	0	0	0	0	0	0	0		
Fluoranthene	U	40	0	0	0	0	0	0	0		
Fluorene	U	40	0	0	0	0	0	0	0		
Hexachlorobenzene	U	40	0	0	0	0	0	0	0		
Hexachlorobutadiene	U	40	0	0	0	0	0	0	0		
Hexachlorocyclopentadiene	U	40	0	0	0	0	0	0	0		
Hexachloroethane	U	40	0	0	0	0	0	0	0		
Indeno(1,2,3-c,d)pyrene	U	40	0	0	0	0	0	0	0		
Isophorone	U	40	0	0	0	0	0	0	0		
Naphthalene	U	40	0	0	0	0	0	0	0		
Nitrobenzene	U	40	0	0	0	0	0	0	0		
N-Nitrosodimethylamine	U	40	0	0	0	0	0	0	0		
N-Nitrosodi-n-propylamine	U	40	0	0	0	0	0	0	0		
N-Nitrosodiphenylamine	U	40	0	0	0	0	0	0	0		
Pentachlorophenol	U	40	0	0	0	0	0	0	0		
Phenanthrene	U	40	0	0	0	0	0	0	0		
Phenol	U	40	0	0	0	0	0	0	0		
Pyrene	U	40	0	0	0	0	0	0	0		
Pyridine	U	40	0	0	0	0	0	0	0		

Sample ID: LCS070203	SampType: LCS	TestCode: 8270_Soil	Units: µg/Kg	Prep Date: 7/2/2003	Run ID: SYSTEM T_030702A
Client ID: ZZZZZ	Batch ID: 1428	TestNo: SW8270D	(SW3550A)	Analysis Date: 7/2/2003	SeqNo: 25533

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
1,2,4-Trichlorobenzene	541.2	40	666	0	81.3	53	123	0	0		
1,4-Dichlorobenzene	513.2	40	666	0	77.1	41.5	114	0	0		
2,4-Dinitrotoluene	420.5	40	666	0	63.1	48	85.2	0	0		
2-Chlorophenol	534.2	40	666	0	80.2	52	113	0	0		
4-Chloro-3-methylphenol	538.8	40	666	0	80.9	50.3	111	0	0		
4-Nitrophenol	462.2	40	666	0	69.4	41.6	108	0	0		

Qualifiers: ND - Not Detected at the Reporting Limit; S - Spike Recovery outside accepted recovery limits; B - Analyte detected in the associated Method Blank
J - Analyte detected below quantitation limits; R - RPD outside accepted recovery limits

CLIENT: AKRF, Inc
Work Order: 0306117
Project: Greenpoint Lumber Yard Brooklyn, NY

ANALYTICAL QC SUMMARY REPORT

TestCode: 8270_Soil

Sample ID: LCS070203	SampType: LCS	TestCode: 8270_Soil	Units: µg/Kg	Prep Date: 7/2/2003	Run ID: SYSTEM T_030702A
Client ID: ZZZZZ	Batch ID: 1428	TestNo: SW8270D	(SW3550A)	Analysis Date: 7/2/2003	SeqNo: 25533

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Acenaphthene	497	40	666	0	74.6	43.6	113	0	0		
N-Nitrosodi-n-propylamine	521.8	40	666	0	78.4	42	120	0	0		
Pentachlorophenol	445.3	40	666	0	66.9	38.6	109	0	0		
Phenol	511.9	40	666	0	76.9	44.8	113	0	0		
Pyrene	629.8	40	666	0	94.6	46.2	104	0	0		

Sample ID: LCS070803	SampType: LCS	TestCode: 8270_Soil	Units: µg/Kg	Prep Date: 7/8/2003	Run ID: SYSTEM T_030702A
Client ID: ZZZZZ	Batch ID: 1447	TestNo: SW8270D	(SW3550A)	Analysis Date: 7/10/2003	SeqNo: 25557

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
1,2,4-Trichlorobenzene	452.7	40	666	0	68	53	123	0	0		
1,4-Dichlorobenzene	445.3	40	666	0	66.9	41.5	114	0	0		
2,4-Dinitrotoluene	328.4	40	666	0	49.3	48	85.2	0	0		
2-Chlorophenol	449.8	40	666	0	67.5	52	113	0	0		
4-Chloro-3-methylphenol	440.4	40	666	0	66.1	50.3	111	0	0		
4-Nitrophenol	379.2	40	666	0	56.9	41.6	108	0	0		
Acenaphthene	455.6	40	666	0	68.4	43.6	113	0	0		
N-Nitrosodi-n-propylamine	443.4	40	666	0	66.6	42	120	0	0		
Pentachlorophenol	404.1	40	666	0	60.7	38.6	109	0	0		
Phenol	462.4	40	666	0	69.4	44.8	113	0	0		
Pyrene	510.9	40	666	0	76.7	46.2	104	0	0		

Sample ID: 0306117-03B MS	SampType: MS	TestCode: 8270_Soil	Units: µg/Kg	Prep Date: 7/2/2003	Run ID: SYSTEM T_030702A
Client ID: B10 (9'-10')	Batch ID: 1428	TestNo: SW8270D	(SW3550A)	Analysis Date: 7/2/2003	SeqNo: 25534

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
1,2,4-Trichlorobenzene	422.8	40	666	0	63.5	53	123	0	0		
1,4-Dichlorobenzene	390.4	40	666	0	58.6	41.5	114	0	0		
2,4-Dinitrotoluene	448.2	40	666	0	67.3	48	85.2	0	0		
2-Chlorophenol	424.9	40	666	0	63.8	52	113	0	0		
4-Chloro-3-methylphenol	573.7	40	666	0	86.1	50.3	111	0	0		

Qualifiers:
ND - Not Detected at the Reporting Limit
J - Analyte detected below quantitation limits
S - Spike Recovery outside accepted recovery limits
R - RPD outside accepted recovery limits
B - Analyte detected in the associated Method Blank

CLIENT: AKRF, Inc
Work Order: 0306117
Project: Greenpoint Lumber Yard Brooklyn, NY

ANALYTICAL QC SUMMARY REPORT

TestCode: 8270_Soil

Sample ID: 0306117-03B MS	SampType: MS	TestCode: 8270_Soil	Units: µg/Kg	Prep Date: 7/2/2003	Run ID: SYSTEM T_030702A
Client ID: B10 (9'-10')	Batch ID: 1428	TestNo: SW8270D	(SW3550A)	Analysis Date: 7/2/2003	SeqNo: 25534

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
4-Nitrophenol	500.5	40	666	0	75.1	41.6	108	0	0		
Acenaphthene	493.8	40	666	0	74.2	43.6	113	0	0		
N-Nitrosodi-n-propylamine	413.7	40	666	0	62.1	42	120	0	0		
Pentachlorophenol	537.7	40	666	0	80.7	38.6	109	0	0		
Phenol	426.9	40	666	0	64.1	44.8	113	0	0		
Pyrene	665.6	40	666	0	99.9	46.2	104	0	0		

Sample ID: 0306117-17B MS	SampType: MS	TestCode: 8270_Soil	Units: µg/Kg	Prep Date: 7/8/2003	Run ID: SYSTEM T_030702A
Client ID: B15 (8.0'-9.0')	Batch ID: 1447	TestNo: SW8270D	(SW3550A)	Analysis Date: 7/10/2003	SeqNo: 25558

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
1,2,4-Trichlorobenzene	473.8	40	666	0	71.1	53	123	0	0		
1,4-Dichlorobenzene	414.4	40	666	0	62.2	41.5	114	0	0		
2,4-Dinitrotoluene	387.7	40	666	0	58.2	48	85.2	0	0		
2-Chlorophenol	423.4	40	666	0	63.6	52	113	0	0		
4-Chloro-3-methylphenol	478.8	40	666	0	71.9	50.3	111	0	0		
4-Nitrophenol	411.7	40	666	0	61.8	41.6	108	0	0		
Acenaphthene	441.2	40	666	0	66.2	43.6	113	0	0		
N-Nitrosodi-n-propylamine	421.5	40	666	0	63.3	42	120	0	0		
Pentachlorophenol	461.6	40	666	0	69.3	38.6	109	0	0		
Phenol	454.2	40	666	0	68.2	44.8	113	0	0		
Pyrene	688.5	40	666	0	103	46.2	104	0	0		

Sample ID: 0306117-03B MSD	SampType: MSD	TestCode: 8270_Soil	Units: µg/Kg	Prep Date: 7/2/2003	Run ID: SYSTEM T_030702A
Client ID: B10 (9'-10')	Batch ID: 1428	TestNo: SW8270D	(SW3550A)	Analysis Date: 7/2/2003	SeqNo: 25535

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
1,2,4-Trichlorobenzene	478.3	40	666	0	71.8	53	123	0	0		
1,4-Dichlorobenzene	462	40	666	0	69.4	41.5	114	0	0		
2,4-Dinitrotoluene	406.6	40	666	0	61.1	48	85.2	0	0		
2-Chlorophenol	462.4	40	666	0	69.4	52	113	0	0		

Qualifiers: ND - Not Detected at the Reporting Limit
J - Analyte detected below quantitation limits
S - Spike Recovery outside accepted recovery limits
R - RPD outside accepted recovery limits
B - Analyte detected in the associated Method Blank

CLIENT: AKRF, Inc
Work Order: 0306117
Project: Greenpoint Lumber Yard Brooklyn, NY

ANALYTICAL QC SUMMARY REPORT

TestCode: 8270_Soil

Sample ID: 0306117-03B MSD	SampType: MSD	TestCode: 8270_Soil	Units: µg/Kg	Prep Date: 7/2/2003	Run ID: SYSTEM T_030702A
Client ID: B10 (9'-10')	Batch ID: 1428	TestNo: SW8270D	(SW3550A)	Analysis Date: 7/2/2003	SeqNo: 25535

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
4-Chloro-3-methylphenol	526.8	40	666	0	79.1	50.3	111	0	0		
4-Nitrophenol	462.1	40	666	0	69.4	41.6	108	0	0		
Acenaphthene	476.8	40	666	0	71.6	43.6	113	0	0		
N-Nitrosodi-n-propylamine	448.1	40	666	0	67.3	42	120	0	0		
Pentachlorophenol	507	40	666	0	76.1	38.6	109	0	0		
Phenol	473.6	40	666	0	71.1	44.8	113	0	0		
Pyrene	610.7	40	666	0	91.7	46.2	104	0	0		

Sample ID: 0306117-17B MSD	SampType: MSD	TestCode: 8270_Soil	Units: µg/Kg	Prep Date: 7/8/2003	Run ID: SYSTEM T_030702A
Client ID: B15 (8.0'-9.0')	Batch ID: 1447	TestNo: SW8270D	(SW3550A)	Analysis Date: 7/10/2003	SeqNo: 25559

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
1,2,4-Trichlorobenzene	411.1	40	666	0	61.7	53	123	0	0		
1,4-Dichlorobenzene	409.2	40	666	0	61.4	41.5	114	0	0		
2,4-Dinitrotoluene	406.4	40	666	0	61	48	85.2	0	0		
2-Chlorophenol	493.4	40	666	0	74.1	52	113	0	0		
4-Chloro-3-methylphenol	499.3	40	666	0	75	50.3	111	0	0		
4-Nitrophenol	417	40	666	0	62.6	41.6	108	0	0		
Acenaphthene	461.5	40	666	0	69.3	43.6	113	0	0		
N-Nitrosodi-n-propylamine	485.3	40	666	0	72.9	42	120	0	0		
Pentachlorophenol	458.7	40	666	0	68.9	38.6	109	0	0		
Phenol	443.8	40	666	0	66.6	44.8	113	0	0		
Pyrene	698.9	40	666	0	105	46.2	104	0	0		S

Qualifiers:
ND - Not Detected at the Reporting Limit
J - Analyte detected below quantitation limits
S - Spike Recovery outside accepted recovery limits
R - RPD outside accepted recovery limits
B - Analyte detected in the associated Method Blank

CLIENT: AKRF, Inc
Work Order: 0306117
Project: Greenpoint Lumber Yard Brooklyn, NY

ANALYTICAL QC SUMMARY REPORT

TestCode: Full8260_Soil

Sample ID: **VBLK070203**	SampType: **MBLK**	TestCode: **Full8260_Soil**	Units: **µg/Kg**	Prep Date:	Run ID: **SYSTEM Y_030701A**
Client ID: **ZZZZZ**	Batch ID: **R3163**	TestNo: **SW8260B**		Analysis Date: **7/2/2003**	SeqNo: **24768**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
1,1,1,2-Tetrachloroethane	U	5.0									
1,1,1-Trichloroethane	U	5.0									
1,1,2,2-Tetrachloroethane	U	5.0									
1,1,2-Trichloro-1,2,2-trifluoroethane	U	5.0									
1,1,2-Trichloroethane	U	5.0									
1,1-Dichloroethane	U	5.0									
1,1-Dichloroethene	U	5.0									
1,1-Dichloropropene	U	5.0									
1,2,3-Trichlorobenzene	U	5.0									
1,2,3-Trichloropropane	U	5.0									
1,2,4,5-Tetramethylbenzene	U	5.0									
1,2,4-Trichlorobenzene	U	5.0									
1,2,4-Trimethylbenzene	U	5.0									
1,2-Dibromo-3-chloropropane	U	5.0									
1,2-Dibromoethane	U	5.0									
1,2-Dichlorobenzene	U	5.0									
1,2-Dichloroethane	U	5.0									
1,2-Dichloropropane	U	5.0									
1,3,5-Trimethylbenzene	U	5.0									
1,3-Dichlorobenzene	U	5.0									
1,3-dichloropropane	U	5.0									
1,4-Dichlorobenzene	U	5.0									
2,2-Dichloropropane	U	5.0									
2-Butanone	U	5.0									
2-Chloroethyl vinyl ether	U	5.0									
2-Chlorotoluene	U	5.0									
2-Hexanone	U	5.0									
4-Chlorotoluene	U	5.0									
4-Isopropyltoluene	U	5.0									
4-Methyl-2-pentanone	U	5.0									
Acetone	U	5.0									

Qualifiers: ND - Not Detected at the Reporting Limit
J - Analyte detected below quantitation limits
S - Spike Recovery outside accepted recovery limits
R - RPD outside accepted recovery limits
B - Analyte detected in the associated Method Blank

CLIENT: AKRF, Inc
Work Order: 0306117
Project: Greenpoint Lumber Yard Brooklyn, NY

ANALYTICAL QC SUMMARY REPORT

TestCode: Full8260_Soil

Sample ID: **VBLK070203** SampType: **MBLK** TestCode: **Full8260_Soil** Units: **µg/Kg** Prep Date: Run ID: **SYSTEM Y_030701A**
Client ID: **ZZZZZ** Batch ID: **R3163** TestNo: **SW8260B** Analysis Date: **7/2/2003** SeqNo: **24768**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Acrolein	U	25									
Acrylonitrile	U	5.0									
Benzene	U	5.0									
Bromobenzene	U	5.0									
Bromochloromethane	U	5.0									
Bromodichloromethane	U	5.0									
Bromoform	U	5.0									
Bromomethane	U	5.0									
Carbon disulfide	U	5.0									
Carbon tetrachloride	U	5.0									
Chlorobenzene	U	5.0									
Chlorodifluoromethane	U	5.0									
Chloroethane	U	5.0									
Chloroform	U	5.0									
Chloromethane	U	5.0									
cis-1,2-Dichloroethene	U	5.0									
cis-1,3-Dichloropropene	U	5.0									
Dibromochloromethane	U	5.0									
Dibromomethane	U	5.0									
Dichlorodifluoromethane	U	5.0									
Diisopropyl ether	U	5.0									
Ethanol	U	25									
Ethyl acetate	U	5.0									
Ethylbenzene	U	5.0									
Freon-114	U	5.0									
Hexachlorobutadiene	U	5.0									
Isopropyl acetate	U	5.0									
Isopropylbenzene	U	5.0									
m,p-Xylene	U	10									
Methyl tert-butyl ether	U	5.0									
Methylene chloride	U	5.0									

Qualifiers:
ND - Not Detected at the Reporting Limit
J - Analyte detected below quantitation limits
S - Spike Recovery outside accepted recovery limits
R - RPD outside accepted recovery limits
B - Analyte detected in the associated Method Blank

CLIENT: AKRF, Inc
Work Order: 0306117
Project: Greenpoint Lumber Yard Brooklyn, NY

ANALYTICAL QC SUMMARY REPORT

TestCode: Full8260_Soil

Sample ID: **VBLK070203** SampType: **MBLK** TestCode: **Full8260_Soil** Units: **µg/Kg** Prep Date: Run ID: **SYSTEM Y_030701A**
Client ID: **ZZZZZ** Batch ID: **R3163** TestNo: **SW8260B** Analysis Date: **7/2/2003** SeqNo: **24768**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Naphthalene	U	5.0									
n-Butyl acetate	U	5.0									
n-Butylbenzene	U	5.0									
n-Propyl acetate	U	5.0									
n-Propylbenzene	U	5.0									
o-Xylene	U	5.0									
p-Diethylbenzene	U	5.0									
p-Ethyltoluene	U	5.0									
sec-Butylbenzene	U	5.0									
Styrene	U	5.0									
t-Butyl alcohol	U	5.0									
tert-Butylbenzene	U	5.0									
Tetrachloroethene	U	5.0									
Toluene	U	5.0									
trans-1,2-Dichloroethene	U	5.0									
trans-1,3-Dichloropropene	U	5.0									
Trichloroethene	U	5.0									
Trichlorofluoromethane	U	5.0									
Vinyl acetate	U	5.0									
Vinyl chloride	U	5.0									

Sample ID: **VBLK070103** SampType: **MBLK** TestCode: **Full8260_Soil** Units: **µg/Kg** Prep Date: Run ID: **SYSTEM Y_030701A**
Client ID: **ZZZZZ** Batch ID: **R3163** TestNo: **SW8260B** Analysis Date: **7/1/2003** SeqNo: **25036**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
1,1,1,2-Tetrachloroethane	U	5.0									
1,1,1-Trichloroethane	U	5.0									
1,1,2,2-Tetrachloroethane	U	5.0									
1,1,2-Trichloro-1,2,2-trifluoroethane	U	5.0									
1,1,2-Trichloroethane	U	5.0									
1,1-Dichloroethane	U	5.0									

Qualifiers: ND - Not Detected at the Reporting Limit
J - Analyte detected below quantitation limits
S - Spike Recovery outside accepted recovery limits
R - RPD outside accepted recovery limits
B - Analyte detected in the associated Method Blank

CLIENT: AKRF, Inc
Work Order: 0306117
Project: Greenpoint Lumber Yard Brooklyn, NY

ANALYTICAL QC SUMMARY REPORT

TestCode: Full8260_Soil

Sample ID: **VBLK070103** SampType: **MBLK** TestCode: **Full8260_Soil** Units: **µg/Kg** Prep Date: Run ID: **SYSTEM Y_030701A**
Client ID: **ZZZZZ** Batch ID: **R3163** TestNo: **SW8260B** Analysis Date: **7/1/2003** SeqNo: **25036**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
1,1-Dichloroethene	U	5.0									
1,1-Dichloropropene	U	5.0									
1,2,3-Trichlorobenzene	U	5.0									
1,2,3-Trichloropropane	U	5.0									
1,2,4,5-Tetramethylbenzene	U	5.0									
1,2,4-Trichlorobenzene	U	5.0									
1,2,4-Trimethylbenzene	U	5.0									
1,2-Dibromo-3-chloropropane	U	5.0									
1,2-Dibromoethane	U	5.0									
1,2-Dichlorobenzene	U	5.0									
1,2-Dichloroethane	U	5.0									
1,2-Dichloropropane	U	5.0									
1,3,5-Trimethylbenzene	U	5.0									
1,3-Dichlorobenzene	U	5.0									
1,3-dichloropropane	U	5.0									
1,4-Dichlorobenzene	U	5.0									
2,2-Dichloropropane	U	5.0									
2-Butanone	U	5.0									
2-Chloroethyl vinyl ether	U	5.0									
2-Chlorotoluene	U	5.0									
2-Hexanone	U	5.0									
4-Chlorotoluene	U	5.0									
4-Isopropyltoluene	U	5.0									
4-Methyl-2-pentanone	U	5.0									
Acetone	U	5.0									
Acrolein	U	25									
Acrylonitrile	U	5.0									
Benzene	U	5.0									
Bromobenzene	U	5.0									
Bromochloromethane	U	5.0									
Bromodichloromethane	U	5.0									

Qualifiers:
ND - Not Detected at the Reporting Limit
J - Analyte detected below quantitation limits
S - Spike Recovery outside accepted recovery limits
R - RPD outside accepted recovery limits
B - Analyte detected in the associated Method Blank

CLIENT: AKRF, Inc
Work Order: 0306117
Project: Greenpoint Lumber Yard Brooklyn, NY

ANALYTICAL QC SUMMARY REPORT

TestCode: Full8260_Soil

Sample ID: **VBLK070103**	SampType: **MBLK**	TestCode: **Full8260_Soil**	Units: **µg/Kg**	Prep Date:	Run ID: **SYSTEM Y_030701A**
Client ID: **ZZZZZ**	Batch ID: **R3163**	TestNo: **SW8260B**		Analysis Date: **7/1/2003**	SeqNo: **25036**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Bromoform	U	5.0									
Bromomethane	U	5.0									
Carbon disulfide	U	5.0									
Carbon tetrachloride	U	5.0									
Chlorobenzene	U	5.0									
Chlorodifluoromethane	U	5.0									
Chloroethane	U	5.0									
Chloroform	U	5.0									
Chloromethane	U	5.0									
cis-1,2-Dichloroethene	U	5.0									
cis-1,3-Dichloropropene	U	5.0									
Dibromochloromethane	U	5.0									
Dibromomethane	U	5.0									
Dichlorodifluoromethane	U	5.0									
Diisopropyl ether	U	5.0									
Ethanol	U	25									
Ethyl acetate	U	5.0									
Ethylbenzene	U	5.0									
Freon-114	U	5.0									
Hexachlorobutadiene	U	5.0									
Isopropyl acetate	U	5.0									
Isopropylbenzene	U	5.0									
m,p-Xylene	U	10									
Methyl tert-butyl ether	U	5.0									
Methylene chloride	U	5.0									
Naphthalene	U	5.0									
n-Butyl acetate	U	5.0									
n-Butylbenzene	U	5.0									
n-Propyl acetate	U	5.0									
n-Propylbenzene	U	5.0									
o-Xylene	U	5.0									

Qualifiers:
ND - Not Detected at the Reporting Limit
J - Analyte detected below quantitation limits
S - Spike Recovery outside accepted recovery limits
R - RPD outside accepted recovery limits
B - Analyte detected in the associated Method Blank

CLIENT: AKRF, Inc
Work Order: 0306117
Project: Greenpoint Lumber Yard Brooklyn, NY

ANALYTICAL QC SUMMARY REPORT

TestCode: Full8260_Soil

Sample ID: VBLK070103	SampType: MBLK	TestCode: Full8260_Soil	Units: µg/Kg	Prep Date:	Run ID: SYSTEM Y_030701A
Client ID: ZZZZZ	Batch ID: R3163	TestNo: SW8260B		Analysis Date: 7/1/2003	SeqNo: 25036

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
p-Diethylbenzene	U	5.0									
p-Ethyltoluene	U	5.0									
sec-Butylbenzene	U	5.0									
Styrene	U	5.0									
t-Butyl alcohol	U	5.0									
tert-Butylbenzene	U	5.0									
Tetrachloroethene	U	5.0									
Toluene	U	5.0									
trans-1,2-Dichloroethene	U	5.0									
trans-1,3-Dichloropropene	U	5.0									
Trichloroethene	U	5.0									
Trichlorofluoromethane	U	5.0									
Vinyl acetate	U	5.0									
Vinyl chloride	U	5.0									

Sample ID: VBLK070103B	SampType: MBLK	TestCode: Full8260_Soil	Units: µg/Kg	Prep Date:	Run ID: SYSTEM Y_030701A
Client ID: ZZZZZ	Batch ID: R3163	TestNo: SW8260B		Analysis Date: 7/1/2003	SeqNo: 25046

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
1,1,1,2-Tetrachloroethane	U	5.0									
1,1,1-Trichloroethane	U	5.0									
1,1,2,2-Tetrachloroethane	U	5.0									
1,1,2-Trichloro-1,2,2-trifluoroethane	U	5.0									
1,1,2-Trichloroethane	U	5.0									
1,1-Dichloroethane	U	5.0									
1,1-Dichloroethene	U	5.0									
1,1-Dichloropropene	U	5.0									
1,2,3-Trichlorobenzene	U	5.0									
1,2,3-Trichloropropane	U	5.0									
1,2,4,5-Tetramethylbenzene	U	5.0									
1,2,4-Trichlorobenzene	U	5.0									

Qualifiers: ND - Not Detected at the Reporting Limit
J - Analyte detected below quantitation limits
S - Spike Recovery outside accepted recovery limits
R - RPD outside accepted recovery limits
B - Analyte detected in the associated Method Blank

CLIENT: AKRF, Inc
Work Order: 0306117
Project: Greenpoint Lumber Yard Brooklyn, NY

ANALYTICAL QC SUMMARY REPORT

TestCode: Full8260_Soil

Sample ID: **VBLK070103B** SampType: **MBLK** TestCode: **Full8260_Soil** Units: **µg/Kg** Prep Date: Run ID: **SYSTEM Y_030701A**
Client ID: **ZZZZZ** Batch ID: **R3163** TestNo: **SW8260B** Analysis Date: **7/1/2003** SeqNo: **25046**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
1,2,4-Trimethylbenzene	U	5.0									
1,2-Dibromo-3-chloropropane	U	5.0									
1,2-Dibromoethane	U	5.0									
1,2-Dichlorobenzene	U	5.0									
1,2-Dichloroethane	U	5.0									
1,2-Dichloropropane	U	5.0									
1,3,5-Trimethylbenzene	U	5.0									
1,3-Dichlorobenzene	U	5.0									
1,3-dichloropropane	U	5.0									
1,4-Dichlorobenzene	U	5.0									
2,2-Dichloropropane	U	5.0									
2-Butanone	U	5.0									
2-Chloroethyl vinyl ether	U	5.0									
2-Chlorotoluene	U	5.0									
2-Hexanone	U	5.0									
4-Chlorotoluene	U	5.0									
4-Isopropyltoluene	U	5.0									
4-Methyl-2-pentanone	U	5.0									
Acetone	U	5.0									
Acrolein	U	25									
Acrylonitrile	U	5.0									
Benzene	U	5.0									
Bromobenzene	U	5.0									
Bromochloromethane	U	5.0									
Bromodichloromethane	U	5.0									
Bromoform	U	5.0									
Bromomethane	U	5.0									
Carbon disulfide	U	5.0									
Carbon tetrachloride	U	5.0									
Chlorobenzene	U	5.0									
Chlorodifluoromethane	U	5.0									

Qualifiers:
ND - Not Detected at the Reporting Limit
J - Analyte detected below quantitation limits
S - Spike Recovery outside accepted recovery limits
R - RPD outside accepted recovery limits
B - Analyte detected in the associated Method Blank

CLIENT: AKRF, Inc
Work Order: 0306117
Project: Greenpoint Lumber Yard Brooklyn, NY

ANALYTICAL QC SUMMARY REPORT

TestCode: Full8260_Soil

Sample ID: **VBLK070103B** SampType: **MBLK** TestCode: **Full8260_Soil** Units: **µg/Kg** Prep Date: Run ID: **SYSTEM Y_030701A**
Client ID: **ZZZZZ** Batch ID: **R3163** TestNo: **SW8260B** Analysis Date: **7/1/2003** SeqNo: **25046**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Chloroethane	U	5.0									
Chloroform	U	5.0									
Chloromethane	U	5.0									
cis-1,2-Dichloroethene	U	5.0									
cis-1,3-Dichloropropene	U	5.0									
Dibromochloromethane	U	5.0									
Dibromomethane	U	5.0									
Dichlorodifluoromethane	U	5.0									
Diisopropyl ether	U	5.0									
Ethanol	U	25									
Ethyl acetate	U	5.0									
Ethylbenzene	U	5.0									
Freon-114	U	5.0									
Hexachlorobutadiene	U	5.0									
Isopropyl acetate	U	5.0									
Isopropylbenzene	U	5.0									
m,p-Xylene	U	10									
Methyl tert-butyl ether	U	5.0									
Methylene chloride	U	5.0									
Naphthalene	U	5.0									
n-Butyl acetate	U	5.0									
n-Butylbenzene	U	5.0									
n-Propyl acetate	U	5.0									
n-Propylbenzene	U	5.0									
o-Xylene	U	5.0									
p-Diethylbenzene	U	5.0									
p-Ethyltoluene	U	5.0									
sec-Butylbenzene	U	5.0									
Styrene	U	5.0									
t-Butyl alcohol	U	5.0									
tert-Butylbenzene	U	5.0									

Qualifiers:
ND - Not Detected at the Reporting Limit
J - Analyte detected below quantitation limits
S - Spike Recovery outside accepted recovery limits
R - RPD outside accepted recovery limits
B - Analyte detected in the associated Method Blank

CLIENT: AKRF, Inc
Work Order: 0306117
Project: Greenpoint Lumber Yard Brooklyn, NY

ANALYTICAL QC SUMMARY REPORT

TestCode: Full8260_Soil

Sample ID: **VBLK070103B**	SampType: **MBLK**	TestCode: **Full8260_Soil**	Units: **µg/Kg**	Prep Date:	Run ID: **SYSTEM Y_030701A**
Client ID: **ZZZZZ**	Batch ID: **R3163**	TestNo: **SW8260B**		Analysis Date: **7/1/2003**	SeqNo: **25046**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Tetrachloroethene	U	5.0									
Toluene	U	5.0									
trans-1,2-Dichloroethene	U	5.0									
trans-1,3-Dichloropropene	U	5.0									
Trichloroethene	U	5.0									
Trichlorofluoromethane	U	5.0									
Vinyl acetate	U	5.0									
Vinyl chloride	U	5.0									

Sample ID: **LSC070203**	SampType: **LCS**	TestCode: **Full8260_Soil**	Units: **µg/Kg**	Prep Date:	Run ID: **SYSTEM Y_030701A**
Client ID: **ZZZZZ**	Batch ID: **R3163**	TestNo: **SW8260B**		Analysis Date: **7/2/2003**	SeqNo: **24769**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
1,1-Dichloroethene	53.97	5.0	50	0	108	67.3	124	0	0		
Benzene	54.72	5.0	50	0	109	65.1	126	0	0		
Chlorobenzene	55.92	5.0	50	0	112	63.7	127	0	0		
Toluene	53.57	5.0	50	0	107	68.7	124	0	0		
Trichloroethene	56.66	5.0	50	0	113	63.4	123	0	0		

Sample ID: **0306117-01AMS**	SampType: **MS**	TestCode: **Full8260_Soil**	Units: **µg/Kg**	Prep Date:	Run ID: **SYSTEM Y_030701A**
Client ID: **MW10 (5'-7')**	Batch ID: **R3163**	TestNo: **SW8260B**		Analysis Date: **7/2/2003**	SeqNo: **24772**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
1,1-Dichloroethene	23.6	5.0	50	0	47.2	67.3	124	0	0		S
Benzene	24.56	5.0	50	0	49.1	65.1	126	0	0		S
Chlorobenzene	16.89	5.0	50	0	33.8	63.7	127	0	0		S
Toluene	20.65	5.0	50	0	41.3	68.7	124	0	0		S
Trichloroethene	19.44	5.0	50	0	38.9	63.4	123	0	0		S

Qualifiers: ND - Not Detected at the Reporting Limit
J - Analyte detected below quantitation limits
S - Spike Recovery outside accepted recovery limits
R - RPD outside accepted recovery limits
B - Analyte detected in the associated Method Blank

CLIENT: AKRF, Inc
Work Order: 0306117
Project: Greenpoint Lumber Yard Brooklyn, NY

ANALYTICAL QC SUMMARY REPORT

TestCode: Full8260_Soil

Sample ID: **0306117-01AMSD** SampType: **MSD** TestCode: **Full8260_Soil** Units: **µg/Kg** Prep Date: Run ID: **SYSTEM Y_030701A**
Client ID: **MW10 (5'-7')** Batch ID: **R3163** TestNo: **SW8260B** Analysis Date: **7/2/2003** SeqNo: **24773**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
1,1-Dichloroethene	24.18	5.0	50	0	48.4	67.3	124	23.6	2.43	20	S
Benzene	26.11	5.0	50	0	52.2	65.1	126	24.56	6.12	20	S
Chlorobenzene	16.01	5.0	50	0	32	63.7	127	16.89	5.35	20	S
Toluene	21.5	5.0	50	0	43	68.7	124	20.65	4.03	20	S
Trichloroethene	19.58	5.0	50	0	39.2	63.4	123	19.44	0.718	20	S

Qualifiers:
ND - Not Detected at the Reporting Limit
J - Analyte detected below quantitation limits
S - Spike Recovery outside accepted recovery limits
R - RPD outside accepted recovery limits
B - Analyte detected in the associated Method Blank

CLIENT: AKRF, Inc
Work Order: 0306117
Project: Greenpoint Lumber Yard Brooklyn, NY

ANALYTICAL QC SUMMARY REPORT

TestCode: ICP_TAL_S

Sample ID: **MB070203B** SampType: **MBLK** TestCode: **ICP_TAL_S** Units: **mg/Kg** Prep Date: Run ID: **ICP A_030703A**
Client ID: **ZZZZZ** Batch ID: **1434** TestNo: **SW6010B** **(SW3050A)** Analysis Date: **7/3/2003** SeqNo: **24854**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Aluminum	U	0.0200									
Antimony	U	0.0250									
Arsenic	U	0.0250									
Barium	U	0.0200									
Beryllium	U	0.0200									
Cadmium	U	0.0100									
Calcium	U	0.0200									
Chromium	U	0.0200									
Cobalt	U	0.0200									
Copper	U	0.0200									
Iron	U	0.0200									
Lead	U	0.0150									
Magnesium	U	0.0200									
Manganese	U	0.0200									
Nickel	U	0.0200									
Potassium	U	0.0700									
Selenium	U	0.0250									
Silver	U	0.0200									
Sodium	U	0.0300									
Thallium	U	0.0150									
Vanadium	U	0.0200									
Zinc	U	0.0200									

Sample ID: **LCS2** SampType: **LCS** TestCode: **ICP_TAL_S** Units: **mg/Kg** Prep Date: Run ID: **ICP A_030703A**
Client ID: **ZZZZZ** Batch ID: **1434** TestNo: **SW6010B** **(SW3050A)** Analysis Date: **7/3/2003** SeqNo: **24855**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Aluminum	1.994	0.0200	2	0	99.7	75	125	0	0		
Antimony	1.989	0.0250	2	0	99.5	67	111	0	0		
Arsenic	2.134	0.0250	2	0	107	67.6	123	0	0		
Barium	1.992	0.0200	2	0	99.6	65.1	120	0	0		

Qualifiers: ND - Not Detected at the Reporting Limit
J - Analyte detected below quantitation limits
S - Spike Recovery outside accepted recovery limits
R - RPD outside accepted recovery limits
B - Analyte detected in the associated Method Blank

CLIENT: AKRF, Inc
Work Order: 0306117
Project: Greenpoint Lumber Yard Brooklyn, NY

ANALYTICAL QC SUMMARY REPORT

TestCode: ICP_TAL_S

Sample ID: LCS2	SampType: LCS	TestCode: ICP_TAL_S	Units: mg/Kg	Prep Date:	Run ID: ICP A_030703A
Client ID: ZZZZZ	Batch ID: 1434	TestNo: SW6010B	(SW3050A)	Analysis Date: 7/3/2003	SeqNo: 24855

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Beryllium	2.011	0.0200	2	0	101	60.8	118	0	0		
Cadmium	1.97	0.0100	2	0	98.5	62.9	114	0	0		
Calcium	2.03	0.0200	2	0	101	75	125	0	0		
Chromium	2.01	0.0200	2	0	101	64.8	120	0	0		
Cobalt	1.998	0.0200	2	0	99.9	75	125	0	0		
Copper	1.983	0.0200	2	0	99.1	61.4	118	0	0		
Iron	1.938	0.0200	2	0	96.9	75	125	0	0		
Lead	1.929	0.0150	2	0	96.4	60.6	119	0	0		
Magnesium	2.011	0.0200	2	0	101	75	125	0	0		
Manganese	2.02	0.0200	2	0	101	61	111	0	0		
Nickel	2.024	0.0200	2	0	101	66.5	126	0	0		
Potassium	20.17	0.0700	20	0	101	75	125	0	0		
Selenium	2.033	0.0250	2	0	102	60.5	115	0	0		
Silver	2.014	0.0200	2	0	101	72.4	106	0	0		
Sodium	2	0.0300	2	0	100	75	125	0	0		
Thallium	2.034	0.0150	2	0	102	62	116	0	0		
Vanadium	2.009	0.0200	2	0	100	75	125	0	0		
Zinc	2.004	0.0200	2	0	100	61	112	0	0		

Sample ID: 0306117-20B MS	SampType: MS	TestCode: ICP_TAL_S	Units: mg/Kg	Prep Date:	Run ID: ICP A_030703A
Client ID: MW15 (6'-8')	Batch ID: 1434	TestNo: SW6010B	(SW3050A)	Analysis Date: 7/3/2003	SeqNo: 24879

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Aluminum	2596	0.368	18.38	2621	-138	75	125	0	0		S
Antimony	13.54	0.460	18.38	0	73.7	67	111	0	0		
Arsenic	26.74	0.460	18.38	8.553	98.9	67.6	123	0	0		
Barium	61.7	0.368	18.38	46.16	84.5	65.1	120	0	0		
Beryllium	14.1	0.368	18.38	0	76.7	60.8	118	0	0		
Cadmium	16.08	0.184	18.38	0.1171	86.8	62.9	114	0	0		
Calcium	2284	0.368	18.38	2340	-302	75	125	0	0		S
Chromium	22.8	0.368	18.38	6.863	86.7	64.8	120	0	0		

Qualifiers: ND - Not Detected at the Reporting Limit
J - Analyte detected below quantitation limits
S - Spike Recovery outside accepted recovery limits
R - RPD outside accepted recovery limits
B - Analyte detected in the associated Method Blank

CLIENT: AKRF, Inc
Work Order: 0306117
Project: Greenpoint Lumber Yard Brooklyn, NY

ANALYTICAL QC SUMMARY REPORT

TestCode: ICP_TAL_S

Sample ID: 0306117-20B MS	SampType: MS	TestCode: ICP_TAL_S	Units: mg/Kg	Prep Date:	Run ID: ICP A_030703A
Client ID: MW15 (6'-8')	Batch ID: 1434	TestNo: SW6010B	(SW3050A)	Analysis Date: 7/3/2003	SeqNo: 24879

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Cobalt	25.95	0.368	18.38	10.74	82.8	75	125	0	0		
Copper	45.35	0.368	18.38	28.57	91.3	61.4	118	0	0		
Iron	6214	0.368	18.38	6294	-436	75	125	0	0		S
Lead	188.8	0.276	18.38	177.6	60.9	60.6	119	0	0		
Magnesium	415.3	0.368	18.38	414.6	3.96	75	125	0	0		S
Manganese	157.7	0.368	18.38	146.7	59.9	61	111	0	0		S
Nickel	29.45	0.368	18.38	14.37	82.1	66.5	126	0	0		
Potassium	716	1.29	183.8	534.2	98.9	75	125	0	0		
Selenium	14.44	0.460	18.38	0	78.6	60.5	115	0	0		
Silver	17.33	0.368	18.38	0	94.3	72.4	106	0	0		
Sodium	217.3	0.551	18.38	201.7	84.8	75	125	0	0		
Thallium	15.56	0.276	18.38	1.172	78.3	62	116	0	0		
Vanadium	27.27	0.368	18.38	10.7	90.1	75	125	0	0		
Zinc	85.38	0.368	18.38	71.57	75.1	61	112	0	0		

Sample ID: 0306117-20B MSD	SampType: MSD	TestCode: ICP_TAL_S	Units: mg/Kg	Prep Date:	Run ID: ICP A_030703A
Client ID: MW15 (6'-8')	Batch ID: 1434	TestNo: SW6010B	(SW3050A)	Analysis Date: 7/3/2003	SeqNo: 24880

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Aluminum	2599	0.368	18.38	2621	-122	75	125	2596	0.114	0	S
Antimony	13.78	0.460	18.38	0	75	67	111	13.54	1.76	20	
Arsenic	26.48	0.460	18.38	8.553	97.5	67.6	123	26.74	0.976	20	
Barium	61.89	0.368	18.38	46.16	85.6	65.1	120	61.7	0.319	20	
Beryllium	13.93	0.368	18.38	0	75.8	60.8	118	14.1	1.22	20	
Cadmium	16.2	0.184	18.38	0.1171	87.5	62.9	114	16.08	0.760	20	
Calcium	2290	0.368	18.38	2340	-271	75	125	2284	0.245	0	S
Chromium	23.07	0.368	18.38	6.863	88.1	64.8	120	22.8	1.14	20	
Cobalt	25.17	0.368	18.38	10.74	78.5	75	125	25.95	3.05	20	
Copper	45.41	0.368	18.38	28.57	91.6	61.4	118	45.35	0.135	20	
Iron	6161	0.368	18.38	6294	-724	75	125	6214	0.857	0	S
Lead	188.4	0.276	18.38	177.6	58.8	60.6	119	188.8	0.202	20	S

Qualifiers: ND - Not Detected at the Reporting Limit
J - Analyte detected below quantitation limits
S - Spike Recovery outside accepted recovery limits
R - RPD outside accepted recovery limits
B - Analyte detected in the associated Method Blank

CLIENT: AKRF, Inc
Work Order: 0306117
Project: Greenpoint Lumber Yard Brooklyn, NY

ANALYTICAL QC SUMMARY REPORT

TestCode: ICP_TAL_S

Sample ID: **0306117-20B MSD**	SampType: **MSD**	TestCode: **ICP_TAL_S**	Units: **mg/Kg**	Prep Date:	Run ID: **ICP A_030703A**
Client ID: **MW15 (6'-8')**	Batch ID: **1434**	TestNo: **SW6010B**	**(SW3050A)**	Analysis Date: **7/3/2003**	SeqNo: **24880**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Magnesium	414.1	0.368	18.38	414.6	-2.82	75	125	415.3	0.301	0	S
Manganese	157.8	0.368	18.38	146.7	60.4	61	111	157.7	0.0561	20	S
Nickel	29.61	0.368	18.38	14.37	82.9	66.5	126	29.45	0.534	20	
Potassium	715.7	1.29	183.8	534.2	98.7	75	125	716	0.0319	0	
Selenium	14.94	0.460	18.38	0	81.3	60.5	115	14.44	3.35	20	
Silver	17.44	0.368	18.38	0	94.9	72.4	106	17.33	0.599	20	
Sodium	217.4	0.551	18.38	201.7	85.6	75	125	217.3	0.0695	0	
Thallium	15.55	0.276	18.38	1.172	78.2	62	116	15.56	0.0471	20	
Vanadium	27.22	0.368	18.38	10.7	89.9	75	125	27.27	0.169	20	
Zinc	85.36	0.368	18.38	71.57	75	61	112	85.38	0.0186	20	

Qualifiers:
ND - Not Detected at the Reporting Limit
J - Analyte detected below quantitation limits
S - Spike Recovery outside accepted recovery limits
R - RPD outside accepted recovery limits
B - Analyte detected in the associated Method Blank

American Analytical Laboratories, Inc.

Date: 30-Jul-03

CLIENT: AKRF, Inc
Work Order: 0306117
Project: Greenpoint Lumber Yard Brooklyn
Test No: SW8081B **Matrix:** S

QC SUMMARY REPORT
SURROGATE RECOVERIES

Sample ID	CL10BZ2	XYL2456CLM						
0306117-01B	68.0	50.9 *						
0306117-02B	57.8 *	70.1						
0306117-03B	105	102						
0306117-03BMS	98.4	75.7						
0306117-03BMSD	102	82.7						
0306117-04B	76.0	73.5						
0306117-05B	96.7	85.4						
0306117-07B	77.9	69.2						
0306117-08B	66.9	69.9						
0306117-09B	84.1	89.3						
0306117-10B	81.8	78.1						
0306117-11B	72.0	74.9						
0306117-12B	99.0	74.3						
0306117-13B	81.5	70.3						
0306117-14B	104	89.5						
0306117-15B	63.4	65.3						
0306117-16B	46.9 *	94.4						
0306117-16BMS	102	71.4						
0306117-16BMSD	126	85.4						
0306117-17B	82.1	65.6						
0306117-18B	55.6 *	65.7						
0306117-19B	87.6	99.3						
0306117-20B	88.7	81.1						
MSB070203	112	99.2						
MSB070303	141	114						
PSB070203	95.6	81.0						
PSB070303	116	106						

Acronym		Surrogate	QC Limits
CL10BZ2	=	DCB	61.4-149
XYL2456CLM	=	TCX	63.9-130

*** Surrogate recovery outside acceptance limits**

American Analytical Laboratories, Inc.

Date: 30-Jul-03

CLIENT: AKRF, Inc
Work Order: 0306117
Project: Greenpoint Lumber Yard Brooklyn
Test No: SW8082A **Matrix:** S

QC SUMMARY REPORT
SURROGATE RECOVERIES

Sample ID	CL10BZ2	XYL2456CLM						
0306117-01B	48.8	60.3						
0306117-01BMS	84.6	84.7						
0306117-01BMSD	93.0	71.7						
0306117-02B	70.9	65.3						
0306117-03B	56.6	78.5						
0306117-04B	43.8	69.6						
0306117-05B	133	121						
0306117-07B	125	112						
0306117-08B	116	97.4						
0306117-09B	68.6	57.4						
0306117-10B	87.6	76.4						
0306117-11B	83.3	71.0						
0306117-12B	52.5	65.2						
0306117-13B	54.0	61.4						
0306117-14B	75.6	73.3						
0306117-15B	25.3 *	57.2						
0306117-16B	65.5	89.1						
0306117-17B	101	87.4						
0306117-17BMS	123	109						
0306117-17BMSD	112	97.8						
0306117-18B	68.4	60.6						
0306117-19B	76.8	70.1						
0306117-20B	62.3	61.9						
MSB070203	67.4	78.7						
MSB070303	77.7	68.6						
PSB070203	69.6	60.2						
PSB070303	65.5	55.2						

Acronym		Surrogate	QC Limits
CL10BZ2	=	DCB	34.2-138
XYL2456CLM	=	TCX	31.2-128

*** Surrogate recovery outside acceptance limits**

American Analytical Laboratories, Inc.

Date: 30-Jul-03

CLIENT: AKRF, Inc
Work Order: 0306117
Project: Greenpoint Lumber Yard Brooklyn
Test No: SW8260B **Matrix:** S

QC SUMMARY REPORT
SURROGATE RECOVERIES

Sample ID	BR4FBZ	BZMED8	DBFM					
0306117-01A	118	86.3	89.1					
0306117-01AMS	120	86.9	88.5					
0306117-01AMSD	119	87.7	89.8					
0306117-02A	90.8	95.1	110					
0306117-03A	97.9	100	104					
0306117-04A	93.0	96.0	110					
0306117-05A	97.3	95.3	112					
0306117-06A	95.6	96.4	96.2					
0306117-07A	108	85.7	21.6 *					
0306117-08A	102	98.8	95.2					
0306117-09A	101	94.0	95.3					
0306117-10A	97.0	98.2	94.2					
0306117-11A	97.0	97.9	98.2					
0306117-12A	98.5	98.8	99.5					
0306117-13A	99.2	97.9	98.6					
0306117-14A	96.7	97.0	99.5					
0306117-15A	98.3	96.1	97.0					
0306117-16A	97.3	97.0	95.8					
0306117-17A	97.5	99.5	98.3					
0306117-18A	94.3	98.5	96.6					
0306117-19A	98.5	97.6	97.1					
0306117-20A	96.0	101	98.7					
LSC070203	99.9	97.9	104					
VBLK070103	100	97.3	107					
VBLK070103B	95.9	98.0	94.7					
VBLK070203	98.5	99.7	102					

Acronym		Surrogate	QC Limits
BR4FBZ	=	4-Bromofluorobenzene	65.8-125
BZMED8	=	Toluene-d8	70.3-125
DBFM	=	Dibromofluoromethane	83.7-128

*** Surrogate recovery outside acceptance limits**

American Analytical Laboratories, Inc.

Date: 30-Jul-03

CLIENT: AKRF, Inc
Work Order: 0306117
Project: Greenpoint Lumber Yard Brooklyn
Test No: SW8270D **Matrix:** S

QC SUMMARY REPORT SURROGATE RECOVERIES

Sample ID	NO2BZD5	PH246BR	PH2F	PHEN2F	PHEND14	PHENOLD6		
0306117-01B	77.1	101	73.2	90.1	99.1	74.8		
0306117-02B	94.0	104	76.5	98.0	100	71.0		
0306117-03B	72.5	81.2	77.2	78.4	101	69.6		
0306117-03B	75.4	83.4	77.0	79.6	91.6	79.2		
0306117-03B	79.9	86.1	92.2	76.7	97.4	78.2		
0306117-03B MS	72.5	81.2	77.2	78.4	101	69.6		
0306117-03B MSD	75.4	83.4	77.0	79.6	91.6	79.2		
0306117-04B	80.0	115	78.0	91.3	95.0	75.4		
0306117-05B	67.2	69.5	64.6	73.8	83.0	54.6		
0306117-07B	73.5	84.7	70.0	90.4	94.1	70.4		
0306117-08B	66.8	118	69.1	84.6	96.8	71.0		
0306117-09B	105	89.2	74.4	86.4	86.4	66.4		
0306117-10B	80.8	104	82.2	89.4	98.9	75.7		
0306117-11B	62.2	107	52.4	81.8	89.0	61.5		
0306117-12B	82.7	89.2	89.8	84.2	97.7	72.6		
0306117-13B	83.3	85.8	78.0	82.5	95.3	62.3		
0306117-14B	73.8	100	70.8	83.0	102	75.2		
0306117-15B	89.7	103	85.6	93.6	105	85.4		
0306117-16B	48.0	79.0	65.5	67.7	101	52.8		
0306117-17B	82.4	77.6	74.4	75.5	101	77.1		
0306117-17B	69.6	90.0	78.0	75.7	98.4	69.8		
0306117-17B	86.7	87.2	84.5	85.2	100	61.4		
0306117-17B MS	82.4	77.6	74.4	75.5	101	77.1		
0306117-17B MSD	69.6	90.0	78.0	75.7	98.4	69.8		
0306117-18B	85.6	92.9	71.6	84.9	95.6	76.0		
0306117-19B	91.6	95.7	71.2	89.8	105	75.2		
0306117-20B	75.0	95.3	79.2	84.6	97.0	73.1		

Acronym		Surrogate	QC Limits
NO2BZD5	=	Nitrobenzene-d5	29.6-124.5
PH246BR	=	2,4,6-Tribromophenol	27.9-127.1
PH2F	=	2-Fluorophenol	32.3-123.3
PHEN2F	=	2-Fluorobiphenyl	31.5-113.1
PHEND14	=	4-Terphenyl-d14	29.8-129.9
PHENOLD6	=	Phenol-d6	27.1-126.2

*** Surrogate recovery outside acceptance limits**

CLIENT: AKRF, Inc
Work Order: 0306117
Project: Greenpoint Lumber Yard Brooklyn
Test No: SW8270D **Matrix:** S

QC SUMMARY REPORT
SURROGATE RECOVERIES

Sample ID	NO2BZD5	PH246BR	PH2F	PHEN2F	PHEND14	PHENOLD6		
LCS070203	88.1	82.7	99.2	86.6	109	89.2		
LCS070803	80.3	79.4	74.2	76.6	81.5	77.2		
SSB070203	92.4	80.6	91.8	93.6	98.3	93.9		
SSB070803 A	75.1	89.0	69.5	78.1	107	52.6		
SSB070803B	86.2	74.2	80.0	85.5	101	54.4		

Acronym		Surrogate	QC Limits
NO2BZD5	=	Nitrobenzene-d5	29.6-124.5
PH246BR	=	2,4,6-Tribromophenol	27.9-127.1
PH2F	=	2-Fluorophenol	32.3-123.3
PHEN2F	=	2-Fluorobiphenyl	31.5-113.1
PHEND14	=	4-Terphenyl-d14	29.8-129.9
PHENOLD6	=	Phenol-d6	27.1-126.2

*** Surrogate recovery outside acceptance limits**

AMERICAN ANALYTICAL LABORATORIES, INC.

NYSDOH ELAP 11418
AIHA PAT, LPAT 102391
CTDOH PH-0205

ASP CATEGORY A
WORKORDER 0306118
AKRF, INC.
GREENPOINT LUMBER YARD
BROOKLYN, N.Y.

56 TOLEDO STREET • FARMINGDALE, NEW YORK 11735
(631) 454-6100 • FAX: (631) 454-8027

ASP CATEGORY A

COVER PAGE

July 28, 2003

Mimi Sotiriou
AKRF, Inc
116 East 27th Street
7th Floor
New York, NY 10016

TEL: (646) 459-3528
FAX (212) 726-0942

RE: Greenpoint Lumber Yard Brooklyn, NY

Order No.: 0306118

Dear Mimi Sotiriou:

American Analytical Laboratories, Inc. received 8 samples on 6/27/2003 for the analyses presented in the following report.

There were no problems with the analyses and all data for associated QC met EPA or laboratory specifications.

If you have any questions regarding these tests results, please feel free to call.

Sincerely,

Lori Beyer

Lab Director

American Analytical Laboratories, Inc.

Date: *28-Jul-03*

CLIENT: AKRF, Inc
Project: Greenpoint Lumber Yard Brooklyn, NY
Lab Order: 0306118

Work Order Sample Summary

Lab Sample ID	Client Sample ID	Tag Number	Collection Date	Date Received
0306118-01A	MW16 (0.5-2')		6/26/2003	6/27/2003
0306118-01B	MW16 (0.5-2')		6/26/2003	6/27/2003
0306118-02A	MW16 (8.5-9.5)		6/26/2003	6/27/2003
0306118-02B	MW16 (8.5-9.5)		6/26/2003	6/27/2003
0306118-03A	Trip Blank #1		6/26/2003	6/27/2003
0306118-04A	Field Blank #1		6/26/2003	6/27/2003
0306118-04B	Field Blank #1		6/26/2003	6/27/2003
0306118-05A	Field Blank #2		6/26/2003	6/27/2003
0306118-05B	Field Blank #2		6/26/2003	6/27/2003
0306118-06A	Field Blank #3		6/26/2003	6/27/2003
0306118-06B	Field Blank #3		6/26/2003	6/27/2003
0306118-07A	Trip Blank #2		6/26/2003	6/27/2003
0306118-08A	Trip Blank #3		6/26/2003	6/27/2003

SDG NARRATIVE

SDG Narrative

AAL Work Order:	: 0306118
Sample Matrix	: Soil
Project	: Greenpoint

INTRODUCTION
This narrative covers the analysis of two (2) soils and the associated quality control samples (Field Blanks and Trip Blanks) in accordance with protocols based on SW846 Methods 8260, 8270, 8081, 8082, 6010 and 7470.

HOLDING TIMES
The analytical holding time for these analyses was met.

CALIBRATIONS
Initial Calibration: All required minimum RRFs and maximum %RSD requirements have been met in accordance with the method.

Continuing Calibration: All required minimum RRFs and maximum %D requirements have been met in accordance with the method.

TUNE PERFORMANCE
All Tune (BFB) specifications met QC requirements.

METHOD BLANKS
The method blanks associated with these samples did not contain any target compounds at or above QC.

MATRIX SPIKE/MATRIX SPIKE DUPLICATE/DUPLICATES
MS/MSD/Dup analysis was performed as required. Results are submitted as an appendix to this report. Spike recoveries and RPD fell within established ranges except where noted on the summary sheets. No laboratory action is required for MS/MSD outliers.

INTERNAL STANDARDS
All area responses and retention times fell within acceptable ranges.

SURROGATES (SYSTEM MONITORING COMPOUNDS)
Surrogate recoveries are summarized in the appendix to this report.

SAMPLE COMMENTS
Samples were analyzed as per the required protocols.

Semivolatile Analysis:
Semivolatile analysis of sample MW16 (8.5-9.5) was analyzed at a 1:2 dilution.

All samples were analyzed undiluted for VOCs, Pesticides, PCBs and Metals.

I certify that this data package is in compliance with the terms and conditions of the contract, both technically and for completeness, for other than the conditions detailed above. Release of the data contained in this hardcopy data package and in the computer-readable data submitted on floppy diskette has been authorized by the Laboratory manager or his designee, as verified by the following signature." This statement shall be directly followed by signature of the Laboratory Manager or his designee with a typed line below it containing the signer's name and title, and the date of the signature.

Lori Beyer
LABORATORY DIRECTOR

AMERICAN ANALYTICAL LABORATORIES, INC.
56 TOLEDO STREET
FARMINGDALE, NEW YORK 11735
TELEPHONE: (631) 454-6100 FAX: (631) 454-8027

DATA REPORTING QUALIFERS

For reporting results, the following "Results Qualifers" are used:

Value	If the result is greater than or equal to the detection limit, report the value
U	Indicates the compound was analyzed for but was not detected. Report the minimum detection limit for the sample with the U, i.e. "10U". This is not necessarily the instrument detection limit attainable for this particular sample based on any concentration or dilution that may have been required.
J	Indicates an estimated value. The flag is used: (1) When estimating a concentration for a tentatively identified compound (library search hits, where a 1:1 response is assumed.) (2) When the mass spectral data indicated the identification, however the result was less than the specified detection limit greater than zero. If the detection limit was 10ug/L and a concentration of 3ug/L was calculated report as 3J. This flag is used when similar situations arise on any organic parameter i.e. Pesticide, PCBs and others.
B	Indicates the analyte was found in the blank as well as the sample report "10B".
E	Indicates the analytes concentration exceeds the calibrated range of the instrument for that specific analysis.
D	This flag identifies all compounds identified in an analysis at a secondary dilution factor.
P	This flag is used for Pesticide / PCB target analyte when there is >25% difference for detected concentrations between the two GC Columns. The higher of the two values is reported on Form I and flagged with a "P".
N	This flag indicates presumptive evidence of a compound. This is only used for tentatively identified compounds (TICs), where the identification is based on a mass spectral library search. It applies to all TIC results. For generic characterization of a TIC, such as chlorinated hydrocarbon, the flag is not used.

NYSDEC DATA PACKAGE SUMMARY FORMS

NEW YORK STATE DEPARTMENT OF ENVIRONMENTAL CONSERVATION

SAMPLE IDENTIFICATION AND ANALYTICAL REQUIREMENT SUMMARY

CUSTOMER SAMPLE CODE	LABORATORY SAMPLE CODE	ANALYTICAL REQUIREMENTS					
		*VOA GC/MS METHOD #	*BNA GC/MS METHOD #	*VOA GC METHOD #	*PEST PCBs METHOD #	*METALS	*OTHER
MW16(0.5-2)	0306118-01	8260	8270	NA	8081/8082	6010/7470	NA
MW16(8.5-9.5)	0306118-02	↓	↓	↓	↓	↓	
Trip Blank 1	0306118-03		—	—	—	—	
Field Blank 1	0306118-04		8270	NA	8081/8082	6010/7470	
Field Blank 2	0306118-05		↓	↓	↓	↓	
Field Blank 3	0306118-06		↓	↓	↓	↓	
Trip Blank 2	0306118-07		—	—	—	—	
Trip Blank 3	0306118-08	↓	—	—	—	—	↓

NA = not applicable

NEW YORK STATE DEPARTMENT OF ENVIRONMENTAL CONSERVATION

SAMPLE PREPARATION AND ANALYSIS SUMMARY
SEMIVOLATILE (BNA)
ANALYSES

LABORATORY SAMPLE ID	MATRIX	DATE COLLECTED	DATE RECEIVED AT LAB	DATE EXTRACTED	DATE ANALYZED
0306118-01	SOIL	06/26/03	06/27/03	6/30/03	7/9/03
0306118-02	SOIL	↓	↓	↓	↓
0306118-03	AQUEOUS				—
0306118-04	↓				6/30/03
0306118-05					6/30/03
0306118-06					6/30/03
0306118-07					—
0306118-08	↓	↓	↓	↓	—

NEW YORK STATE DEPARTMENT OF ENVIRONMENTAL CONSERVATION

SAMPLE PREPARATION AND ANALYSIS SUMMARY
VOLATILE (VOA)
ANALYSES

LABORATORY SAMPLE ID	MATRIX	DATE COLLECTED	DATE RECEIVED AT LAB	DATE EXTRACTED	DATE ANALYZED
0306118-01	SOIL	06/26/03	06/27/03	NA	07/02/03
0306118-02	↓				
0306118-03	AQUEOUS				
0306118-04					
0306118-05					
0306118-06					
0306118-07					
0306118-08	↓	↓	↓	↓	↓

NEW YORK STATE DEPARTMENT OF ENVIRONMENTAL CONSERVATION

SAMPLE PREPARATION AND ANALYSIS SUMMARY
PESTICIDE / PCB
ANALYSES

LABORATORY SAMPLE ID	MATRIX	DATE COLLECTED	DATE RECEIVED AT LAB	DATE EXTRACTED	DATE ANALYZED
0306118-01	SOIL	6/26/03	6/27/03	6/30/03	7/10/03
0306118-02	↓	↓	↓	↓	↓
0306118-03	AQUEOUS	↓	↓	↓	7/1/03
0306118-04	↓	↓	↓	↓	↓
0306118-05	↓	↓	↓	↓	↓
0306118-06	↓	↓	↓	↓	↓
0306118-07	↓	↓	↓	↓	↓
0306118-08	↓	↓	↓	↓	↓

NEW YORK STATE DEPARTMENT OF ENVIRONMENTAL CONSERVATION

SAMPLE PREPARATION AND ANALYSIS SUMMARY
SEMIVOLATILE (BNA)
ANALYSES

LABORATORY SAMPLE ID	MATRIX	ANALYTICAL PROTOCOL	EXTRACTION METHOD	AUXILLARY CLEAN UP	DIL / CONC. FACTOR
0306118-01	SOIL	SW846 8270	SONC (3550)	NA	1
0306118-02	↓	↓	↓	↓	2
0306118-03	AQUEOUS	—	—	—	—
0306118-04	↓	SW846 8270	SEPF (3510)	NA	1
0306118-05	↓	↓	↓	↓	1
0306118-06	↓	↓	↓	↓	1
0306118-07	↓	—	—	—	1
0306118-08	↓	—	—	—	—

NEW YORK STATE DEPARTMENT OF ENVIRONMENTAL CONSERVATION

SAMPLE PREPARATION AND ANALYSIS SUMMARY
INORGANIC ANALYSES

LABORATORY SAMPLE ID	MATRIX	METALS REQUESTED	DATE RECEIVED AT LAB	DATE ANALYZED
0306118-01	SOIL	TAL (23)	6/27/03	07/07/03
0306118-02	↓	↓	↓	
0306118-03	AQUEOUS			
0306118-04				
0306118-05				
0306118-06				
0306118-07				
0306118-08	↓	↓	↓	

CHAIN OF CUSTODY FORMS

Sheet 5 of 5

AMERICAN ANALYTICAL LABORATORIES, INC.
56 TOLEDO STREET • FARMINGDALE, NEW YORK 11735
(631) 454-6100 • FAX (631) 454-8027 • email: lbeyer@american-analytical.com

SDC	ELA
CTDOH	PH-0205
NJDEP	NY050
PADEP	68-573

CHAIN OF CUSTODY / REQUEST FOR ANALYSIS DOCUMENT

CLIENT NAME/ADDRESS: AKRF, Inc. (917)612-7877
CONTACT: Mimi Sotiriou (646)459-3528
SAMPLER (SIGNATURE): MSotiriou DATE: 6/26/03 TIME: 1600
SAMPLER NAME (PRINT): Mimi Sotiriou
SAMPLE(S) SEALED: YES / NO
CORRECT CONTAINER(S): YES / NO
PROJECT LOCATION: Greenpoint Lumber Yard, Brooklyn. 30260-0006

LABORATORY ID #	MATRIX	TYPE	PRES.	SAMPLE # - LOCATION	VOC 8260	SVOC 8270	PCB 8081	Pest 8082	TAL Metals	FOR METHANOL PRESERVED SAMPLES [VOLATILE VIAL #]
0306118-01AB	S			MW16 (0.5'-2')	X	X	X	X	X	
0306118-02A,B	S			MW16 (8.5-9.5)	X	X	X	X	X	
0306118-03A	L			Trip Blank #1	X					
0306118-04A,B	L			Field Blank #1	X	X	X	X	X	
0306118-05A,B	L			Field Blank #2	X	X	X	X	X	
0306118-06AB	L			Field Blank #3	X	X	X	X	X	
0306118-07A	L			Trip Blank #2	X					
0306118-08A	L			Trip Blank #3	X					

COOLER TEMPERATURE:

COMMENTS / INSTRUCTIONS

MATRIX S=SOIL; L=LIQUID; SL=SLUDGE; A-AIR; W=WIPE; P=PAINT CHIPS; B=BULK MATERIAL
TYPE G=GRAB; C=COMPOSITE, SS=SPLIT SPOON

TURNAROUND REQUIRED: NORMAL ☒ STAT ☐ BY / /

RELINQUISHED BY (SIGNATURE)	DATE / TIME	PRINTED NAME	RECEIVED BY LAB (SIGNATURE)	DATE / TIME	PRINTED NAME
MSotiriou	6/27/03 12:00	M. Sotiriou		6-27-03 2: Pm	Christopher Dunn
RELINQUISHED BY (SIGNATURE)	DATE / TIME	PRINTED NAME	RECEIVED BY LAB (SIGNATURE)	DATE / TIME	PRINTED NAME

GC/MS VOLATILE DATA

RESULTS – ORGANIC ANALYSIS DATA SHEET

American Analytical Laboratories, Inc.

Date: *28-Jul-03*

CLIENT:	AKRF, Inc	**Client Sample ID:**	MW16 (0.5-2')
Lab Order:	0306118	**Tag Number:**	
Project:	Greenpoint Lumber Yard Brooklyn, NY	**Collection Date:**	6/26/2003
Lab ID:	0306118-01A	**Matrix:**	SOIL

Analyses	Result	Limit	Qual	Units	DF	Date Analyzed
VOLATILES SW-846 METHOD 8260		**SW8260B**				Analyst: **LDS**
1,1,1,2-Tetrachloroethane	U	5.0		µg/Kg	1	7/2/2003 4:25:00 AM
1,1,1-Trichloroethane	U	5.0		µg/Kg	1	7/2/2003 4:25:00 AM
1,1,2,2-Tetrachloroethane	U	5.0		µg/Kg	1	7/2/2003 4:25:00 AM
1,1,2-Trichloro-1,2,2-trifluoroethane	U	5.0		µg/Kg	1	7/2/2003 4:25:00 AM
1,1,2-Trichloroethane	U	5.0		µg/Kg	1	7/2/2003 4:25:00 AM
1,1-Dichloroethane	U	5.0		µg/Kg	1	7/2/2003 4:25:00 AM
1,1-Dichloroethene	U	5.0		µg/Kg	1	7/2/2003 4:25:00 AM
1,1-Dichloropropene	U	5.0		µg/Kg	1	7/2/2003 4:25:00 AM
1,2,3-Trichlorobenzene	U	5.0		µg/Kg	1	7/2/2003 4:25:00 AM
1,2,3-Trichloropropane	U	5.0		µg/Kg	1	7/2/2003 4:25:00 AM
1,2,4,5-Tetramethylbenzene	U	5.0		µg/Kg	1	7/2/2003 4:25:00 AM
1,2,4-Trichlorobenzene	U	5.0		µg/Kg	1	7/2/2003 4:25:00 AM
1,2,4-Trimethylbenzene	U	5.0		µg/Kg	1	7/2/2003 4:25:00 AM
1,2-Dibromo-3-chloropropane	U	5.0		µg/Kg	1	7/2/2003 4:25:00 AM
1,2-Dibromoethane	U	5.0		µg/Kg	1	7/2/2003 4:25:00 AM
1,2-Dichlorobenzene	U	5.0		µg/Kg	1	7/2/2003 4:25:00 AM
1,2-Dichloroethane	U	5.0		µg/Kg	1	7/2/2003 4:25:00 AM
1,2-Dichloropropane	U	5.0		µg/Kg	1	7/2/2003 4:25:00 AM
1,3,5-Trimethylbenzene	U	5.0		µg/Kg	1	7/2/2003 4:25:00 AM
1,3-Dichlorobenzene	U	5.0		µg/Kg	1	7/2/2003 4:25:00 AM
1,3-dichloropropane	U	5.0		µg/Kg	1	7/2/2003 4:25:00 AM
1,4-Dichlorobenzene	U	5.0		µg/Kg	1	7/2/2003 4:25:00 AM
2,2-Dichloropropane	U	5.0		µg/Kg	1	7/2/2003 4:25:00 AM
2-Butanone	U	5.0		µg/Kg	1	7/2/2003 4:25:00 AM
2-Chloroethyl vinyl ether	U	5.0		µg/Kg	1	7/2/2003 4:25:00 AM
2-Chlorotoluene	U	5.0		µg/Kg	1	7/2/2003 4:25:00 AM
2-Hexanone	U	5.0		µg/Kg	1	7/2/2003 4:25:00 AM
4-Chlorotoluene	U	5.0		µg/Kg	1	7/2/2003 4:25:00 AM
4-Isopropyltoluene	U	5.0		µg/Kg	1	7/2/2003 4:25:00 AM
4-Methyl-2-pentanone	U	5.0		µg/Kg	1	7/2/2003 4:25:00 AM
Acetone	U	5.0		µg/Kg	1	7/2/2003 4:25:00 AM
Acrolein	U	25		µg/Kg	1	7/2/2003 4:25:00 AM
Acrylonitrile	U	5.0		µg/Kg	1	7/2/2003 4:25:00 AM
Benzene	U	5.0		µg/Kg	1	7/2/2003 4:25:00 AM
Bromobenzene	U	5.0		µg/Kg	1	7/2/2003 4:25:00 AM
Bromochloromethane	U	5.0		µg/Kg	1	7/2/2003 4:25:00 AM
Bromodichloromethane	U	5.0		µg/Kg	1	7/2/2003 4:25:00 AM
Bromoform	U	5.0		µg/Kg	1	7/2/2003 4:25:00 AM
Bromomethane	U	5.0		µg/Kg	1	7/2/2003 4:25:00 AM
Carbon disulfide	U	5.0		µg/Kg	1	7/2/2003 4:25:00 AM

Qualifiers:

ND - Not Detected at the Reporting Limit

J - Analyte detected below quantitation limits

B - Analyte detected in the associated Method Blank

* - Value exceeds Maximum Contaminant Level

S - Spike Recovery outside accepted recovery limits

R - RPD outside accepted recovery limits

E - Value above quantitation range

American Analytical Laboratories, Inc.

Date: *28-Jul-03*

CLIENT:	AKRF, Inc	**Client Sample ID:**	MW16 (0.5-2')
Lab Order:	0306118	**Tag Number:**	
Project:	Greenpoint Lumber Yard Brooklyn, NY	**Collection Date:**	6/26/2003
Lab ID:	0306118-01A	**Matrix:**	SOIL

Analyses	Result	Limit	Qual	Units	DF	Date Analyzed
VOLATILES SW-846 METHOD 8260		**SW8260B**				Analyst: **LDS**
Carbon tetrachloride	U	5.0		µg/Kg	1	7/2/2003 4:25:00 AM
Chlorobenzene	U	5.0		µg/Kg	1	7/2/2003 4:25:00 AM
Chlorodifluoromethane	U	5.0		µg/Kg	1	7/2/2003 4:25:00 AM
Chloroethane	U	5.0		µg/Kg	1	7/2/2003 4:25:00 AM
Chloroform	U	5.0		µg/Kg	1	7/2/2003 4:25:00 AM
Chloromethane	U	5.0		µg/Kg	1	7/2/2003 4:25:00 AM
cis-1,2-Dichloroethene	U	5.0		µg/Kg	1	7/2/2003 4:25:00 AM
cis-1,3-Dichloropropene	U	5.0		µg/Kg	1	7/2/2003 4:25:00 AM
Dibromochloromethane	U	5.0		µg/Kg	1	7/2/2003 4:25:00 AM
Dibromomethane	U	5.0		µg/Kg	1	7/2/2003 4:25:00 AM
Dichlorodifluoromethane	U	5.0		µg/Kg	1	7/2/2003 4:25:00 AM
Diisopropyl ether	U	5.0		µg/Kg	1	7/2/2003 4:25:00 AM
Ethanol	U	25		µg/Kg	1	7/2/2003 4:25:00 AM
Ethyl acetate	U	5.0		µg/Kg	1	7/2/2003 4:25:00 AM
Ethylbenzene	U	5.0		µg/Kg	1	7/2/2003 4:25:00 AM
Freon-114	U	5.0		µg/Kg	1	7/2/2003 4:25:00 AM
Hexachlorobutadiene	U	5.0		µg/Kg	1	7/2/2003 4:25:00 AM
Isopropyl acetate	U	5.0		µg/Kg	1	7/2/2003 4:25:00 AM
Isopropylbenzene	U	5.0		µg/Kg	1	7/2/2003 4:25:00 AM
m,p-Xylene	U	10		µg/Kg	1	7/2/2003 4:25:00 AM
Methyl tert-butyl ether	U	5.0		µg/Kg	1	7/2/2003 4:25:00 AM
Methylene chloride	U	5.0		µg/Kg	1	7/2/2003 4:25:00 AM
Naphthalene	U	5.0		µg/Kg	1	7/2/2003 4:25:00 AM
n-Butyl acetate	U	5.0		µg/Kg	1	7/2/2003 4:25:00 AM
n-Butylbenzene	U	5.0		µg/Kg	1	7/2/2003 4:25:00 AM
n-Propyl acetate	U	5.0		µg/Kg	1	7/2/2003 4:25:00 AM
n-Propylbenzene	U	5.0		µg/Kg	1	7/2/2003 4:25:00 AM
o-Xylene	U	5.0		µg/Kg	1	7/2/2003 4:25:00 AM
p-Diethylbenzene	U	5.0		µg/Kg	1	7/2/2003 4:25:00 AM
p-Ethyltoluene	U	5.0		µg/Kg	1	7/2/2003 4:25:00 AM
sec-Butylbenzene	U	5.0		µg/Kg	1	7/2/2003 4:25:00 AM
Styrene	U	5.0		µg/Kg	1	7/2/2003 4:25:00 AM
t-Butyl alcohol	U	5.0		µg/Kg	1	7/2/2003 4:25:00 AM
tert-Butylbenzene	U	5.0		µg/Kg	1	7/2/2003 4:25:00 AM
Tetrachloroethene	U	5.0		µg/Kg	1	7/2/2003 4:25:00 AM
Toluene	U	5.0		µg/Kg	1	7/2/2003 4:25:00 AM
trans-1,2-Dichloroethene	U	5.0		µg/Kg	1	7/2/2003 4:25:00 AM
trans-1,3-Dichloropropene	U	5.0		µg/Kg	1	7/2/2003 4:25:00 AM
Trichloroethene	U	5.0		µg/Kg	1	7/2/2003 4:25:00 AM
Trichlorofluoromethane	U	5.0		µg/Kg	1	7/2/2003 4:25:00 AM

Qualifiers:

ND - Not Detected at the Reporting Limit

J - Analyte detected below quantitation limits

B - Analyte detected in the associated Method Blank

* - Value exceeds Maximum Contaminant Level

S - Spike Recovery outside accepted recovery limits

R - RPD outside accepted recovery limits

E - Value above quantitation range

American Analytical Laboratories, Inc.

Date: *28-Jul-03*

CLIENT:	AKRF, Inc	**Client Sample ID:**	MW16 (0.5-2')
Lab Order:	0306118	**Tag Number:**	
Project:	Greenpoint Lumber Yard Brooklyn, NY	**Collection Date:**	6/26/2003
Lab ID:	0306118-01A	**Matrix:**	SOIL

Analyses	Result	Limit	Qual	Units	DF	Date Analyzed
VOLATILES SW-846 METHOD 8260		**SW8260B**				Analyst: **LDS**
Vinyl acetate	U	5.0		µg/Kg	1	7/2/2003 4:25:00 AM
Vinyl chloride	U	5.0		µg/Kg	1	7/2/2003 4:25:00 AM

Qualifiers:

ND - Not Detected at the Reporting Limit

J - Analyte detected below quantitation limits

B - Analyte detected in the associated Method Blank

* - Value exceeds Maximum Contaminant Level

S - Spike Recovery outside accepted recovery limits

R - RPD outside accepted recovery limits

E - Value above quantitation range

American Analytical Laboratories, Inc.

Date: *28-Jul-03*

CLIENT:	AKRF, Inc	**Client Sample ID:**	MW16 (8.5-9.5)
Lab Order:	0306118	**Tag Number:**	
Project:	Greenpoint Lumber Yard Brooklyn, NY	**Collection Date:**	6/26/2003
Lab ID:	0306118-02A	**Matrix:**	SOIL

Analyses	Result	Limit	Qual	Units	DF	Date Analyzed
VOLATILES SW-846 METHOD 8260		**SW8260B**				Analyst: **LDS**
1,1,1,2-Tetrachloroethane	U	5.0		µg/Kg	1	7/2/2003 8:52:00 AM
1,1,1-Trichloroethane	U	5.0		µg/Kg	1	7/2/2003 8:52:00 AM
1,1,2,2-Tetrachloroethane	U	5.0		µg/Kg	1	7/2/2003 8:52:00 AM
1,1,2-Trichloro-1,2,2-trifluoroethane	U	5.0		µg/Kg	1	7/2/2003 8:52:00 AM
1,1,2-Trichloroethane	U	5.0		µg/Kg	1	7/2/2003 8:52:00 AM
1,1-Dichloroethane	U	5.0		µg/Kg	1	7/2/2003 8:52:00 AM
1,1-Dichloroethene	U	5.0		µg/Kg	1	7/2/2003 8:52:00 AM
1,1-Dichloropropene	U	5.0		µg/Kg	1	7/2/2003 8:52:00 AM
1,2,3-Trichlorobenzene	U	5.0		µg/Kg	1	7/2/2003 8:52:00 AM
1,2,3-Trichloropropane	U	5.0		µg/Kg	1	7/2/2003 8:52:00 AM
1,2,4,5-Tetramethylbenzene	U	5.0		µg/Kg	1	7/2/2003 8:52:00 AM
1,2,4-Trichlorobenzene	U	5.0		µg/Kg	1	7/2/2003 8:52:00 AM
1,2,4-Trimethylbenzene	U	5.0		µg/Kg	1	7/2/2003 8:52:00 AM
1,2-Dibromo-3-chloropropane	U	5.0		µg/Kg	1	7/2/2003 8:52:00 AM
1,2-Dibromoethane	U	5.0		µg/Kg	1	7/2/2003 8:52:00 AM
1,2-Dichlorobenzene	U	5.0		µg/Kg	1	7/2/2003 8:52:00 AM
1,2-Dichloroethane	U	5.0		µg/Kg	1	7/2/2003 8:52:00 AM
1,2-Dichloropropane	U	5.0		µg/Kg	1	7/2/2003 8:52:00 AM
1,3,5-Trimethylbenzene	U	5.0		µg/Kg	1	7/2/2003 8:52:00 AM
1,3-Dichlorobenzene	U	5.0		µg/Kg	1	7/2/2003 8:52:00 AM
1,3-dichloropropane	U	5.0		µg/Kg	1	7/2/2003 8:52:00 AM
1,4-Dichlorobenzene	U	5.0		µg/Kg	1	7/2/2003 8:52:00 AM
2,2-Dichloropropane	U	5.0		µg/Kg	1	7/2/2003 8:52:00 AM
2-Butanone	U	5.0		µg/Kg	1	7/2/2003 8:52:00 AM
2-Chloroethyl vinyl ether	U	5.0		µg/Kg	1	7/2/2003 8:52:00 AM
2-Chlorotoluene	U	5.0		µg/Kg	1	7/2/2003 8:52:00 AM
2-Hexanone	U	5.0		µg/Kg	1	7/2/2003 8:52:00 AM
4-Chlorotoluene	U	5.0		µg/Kg	1	7/2/2003 8:52:00 AM
4-Isopropyltoluene	U	5.0		µg/Kg	1	7/2/2003 8:52:00 AM
4-Methyl-2-pentanone	U	5.0		µg/Kg	1	7/2/2003 8:52:00 AM
Acetone	55	5.0		µg/Kg	1	7/2/2003 8:52:00 AM
Acrolein	U	25		µg/Kg	1	7/2/2003 8:52:00 AM
Acrylonitrile	U	5.0		µg/Kg	1	7/2/2003 8:52:00 AM
Benzene	U	5.0		µg/Kg	1	7/2/2003 8:52:00 AM
Bromobenzene	U	5.0		µg/Kg	1	7/2/2003 8:52:00 AM
Bromochloromethane	U	5.0		µg/Kg	1	7/2/2003 8:52:00 AM
Bromodichloromethane	U	5.0		µg/Kg	1	7/2/2003 8:52:00 AM
Bromoform	U	5.0		µg/Kg	1	7/2/2003 8:52:00 AM
Bromomethane	U	5.0		µg/Kg	1	7/2/2003 8:52:00 AM
Carbon disulfide	U	5.0		µg/Kg	1	7/2/2003 8:52:00 AM

Qualifiers:

ND - Not Detected at the Reporting Limit

J - Analyte detected below quantitation limits

B - Analyte detected in the associated Method Blank

* - Value exceeds Maximum Contaminant Level

S - Spike Recovery outside accepted recovery limits

R - RPD outside accepted recovery limits

E - Value above quantitation range

American Analytical Laboratories, Inc.

Date: *28-Jul-03*

CLIENT:	AKRF, Inc	**Client Sample ID:**	MW16 (8.5-9.5)
Lab Order:	0306118	**Tag Number:**	
Project:	Greenpoint Lumber Yard Brooklyn, NY	**Collection Date:**	6/26/2003
Lab ID:	0306118-02A	**Matrix:**	SOIL

Analyses	Result	Limit	Qual	Units	DF	Date Analyzed
VOLATILES SW-846 METHOD 8260		**SW8260B**				Analyst: **LDS**
Carbon tetrachloride	U	5.0		µg/Kg	1	7/2/2003 8:52:00 AM
Chlorobenzene	U	5.0		µg/Kg	1	7/2/2003 8:52:00 AM
Chlorodifluoromethane	U	5.0		µg/Kg	1	7/2/2003 8:52:00 AM
Chloroethane	U	5.0		µg/Kg	1	7/2/2003 8:52:00 AM
Chloroform	U	5.0		µg/Kg	1	7/2/2003 8:52:00 AM
Chloromethane	U	5.0		µg/Kg	1	7/2/2003 8:52:00 AM
cis-1,2-Dichloroethene	U	5.0		µg/Kg	1	7/2/2003 8:52:00 AM
cis-1,3-Dichloropropene	U	5.0		µg/Kg	1	7/2/2003 8:52:00 AM
Dibromochloromethane	U	5.0		µg/Kg	1	7/2/2003 8:52:00 AM
Dibromomethane	U	5.0		µg/Kg	1	7/2/2003 8:52:00 AM
Dichlorodifluoromethane	U	5.0		µg/Kg	1	7/2/2003 8:52:00 AM
Diisopropyl ether	U	5.0		µg/Kg	1	7/2/2003 8:52:00 AM
Ethanol	U	25		µg/Kg	1	7/2/2003 8:52:00 AM
Ethyl acetate	U	5.0		µg/Kg	1	7/2/2003 8:52:00 AM
Ethylbenzene	U	5.0		µg/Kg	1	7/2/2003 8:52:00 AM
Freon-114	U	5.0		µg/Kg	1	7/2/2003 8:52:00 AM
Hexachlorobutadiene	U	5.0		µg/Kg	1	7/2/2003 8:52:00 AM
Isopropyl acetate	U	5.0		µg/Kg	1	7/2/2003 8:52:00 AM
Isopropylbenzene	U	5.0		µg/Kg	1	7/2/2003 8:52:00 AM
m,p-Xylene	U	10		µg/Kg	1	7/2/2003 8:52:00 AM
Methyl tert-butyl ether	U	5.0		µg/Kg	1	7/2/2003 8:52:00 AM
Methylene chloride	U	5.0		µg/Kg	1	7/2/2003 8:52:00 AM
Naphthalene	U	5.0		µg/Kg	1	7/2/2003 8:52:00 AM
n-Butyl acetate	U	5.0		µg/Kg	1	7/2/2003 8:52:00 AM
n-Butylbenzene	U	5.0		µg/Kg	1	7/2/2003 8:52:00 AM
n-Propyl acetate	U	5.0		µg/Kg	1	7/2/2003 8:52:00 AM
n-Propylbenzene	U	5.0		µg/Kg	1	7/2/2003 8:52:00 AM
o-Xylene	U	5.0		µg/Kg	1	7/2/2003 8:52:00 AM
p-Diethylbenzene	U	5.0		µg/Kg	1	7/2/2003 8:52:00 AM
p-Ethyltoluene	U	5.0		µg/Kg	1	7/2/2003 8:52:00 AM
sec-Butylbenzene	U	5.0		µg/Kg	1	7/2/2003 8:52:00 AM
Styrene	U	5.0		µg/Kg	1	7/2/2003 8:52:00 AM
t-Butyl alcohol	U	5.0		µg/Kg	1	7/2/2003 8:52:00 AM
tert-Butylbenzene	U	5.0		µg/Kg	1	7/2/2003 8:52:00 AM
Tetrachloroethene	U	5.0		µg/Kg	1	7/2/2003 8:52:00 AM
Toluene	U	5.0		µg/Kg	1	7/2/2003 8:52:00 AM
trans-1,2-Dichloroethene	U	5.0		µg/Kg	1	7/2/2003 8:52:00 AM
trans-1,3-Dichloropropene	U	5.0		µg/Kg	1	7/2/2003 8:52:00 AM
Trichloroethene	U	5.0		µg/Kg	1	7/2/2003 8:52:00 AM
Trichlorofluoromethane	U	5.0		µg/Kg	1	7/2/2003 8:52:00 AM

Qualifiers:

ND - Not Detected at the Reporting Limit

J - Analyte detected below quantitation limits

B - Analyte detected in the associated Method Blank

* - Value exceeds Maximum Contaminant Level

S - Spike Recovery outside accepted recovery limits

R - RPD outside accepted recovery limits

E - Value above quantitation range

American Analytical Laboratories, Inc.

Date: *28-Jul-03*

CLIENT:	AKRF, Inc	**Client Sample ID:**	MW16 (8.5-9.5)
Lab Order:	0306118	**Tag Number:**	
Project:	Greenpoint Lumber Yard Brooklyn, NY	**Collection Date:**	6/26/2003
Lab ID:	0306118-02A	**Matrix:**	SOIL

Analyses	Result	Limit	Qual	Units	DF	Date Analyzed
VOLATILES SW-846 METHOD 8260		**SW8260B**				Analyst: **LDS**
Vinyl acetate	U	5.0		µg/Kg	1	7/2/2003 8:52:00 AM
Vinyl chloride	U	5.0		µg/Kg	1	7/2/2003 8:52:00 AM

Qualifiers:

ND - Not Detected at the Reporting Limit

J - Analyte detected below quantitation limits

B - Analyte detected in the associated Method Blank

* - Value exceeds Maximum Contaminant Level

S - Spike Recovery outside accepted recovery limits

R - RPD outside accepted recovery limits

E - Value above quantitation range

American Analytical Laboratories, Inc.

Date: *28-Jul-03*

CLIENT:	AKRF, Inc	**Client Sample ID:**	Trip Blank #1
Lab Order:	0306118	**Tag Number:**	
Project:	Greenpoint Lumber Yard Brooklyn, NY	**Collection Date:**	6/26/2003
Lab ID:	0306118-03A	**Matrix:**	LIQUID

Analyses	Result	Limit	Qual	Units	DF	Date Analyzed
VOLATILES SW-846 METHOD 8260		**SW8260B**				Analyst: **LDS**
1,1,1,2-Tetrachloroethane	U	1.0		µg/L	1	7/2/2003 11:25:00 AM
1,1,1-Trichloroethane	U	1.0		µg/L	1	7/2/2003 11:25:00 AM
1,1,2,2-Tetrachloroethane	U	1.0		µg/L	1	7/2/2003 11:25:00 AM
1,1,2-Trichloro-1,2,2-trifluoroethane	U	1.0		µg/L	1	7/2/2003 11:25:00 AM
1,1,2-Trichloroethane	U	1.0		µg/L	1	7/2/2003 11:25:00 AM
1,1-Dichloroethane	U	1.0		µg/L	1	7/2/2003 11:25:00 AM
1,1-Dichloroethene	U	1.0		µg/L	1	7/2/2003 11:25:00 AM
1,1-Dichloropropene	U	1.0		µg/L	1	7/2/2003 11:25:00 AM
1,2,3-Trichlorobenzene	U	1.0		µg/L	1	7/2/2003 11:25:00 AM
1,2,3-Trichloropropane	U	1.0		µg/L	1	7/2/2003 11:25:00 AM
1,2,4,5-Tetramethylbenzene	U	1.0		µg/L	1	7/2/2003 11:25:00 AM
1,2,4-Trichlorobenzene	U	1.0		µg/L	1	7/2/2003 11:25:00 AM
1,2,4-Trimethylbenzene	U	1.0		µg/L	1	7/2/2003 11:25:00 AM
1,2-Dibromo-3-chloropropane	U	1.0		µg/L	1	7/2/2003 11:25:00 AM
1,2-Dibromoethane	U	1.0		µg/L	1	7/2/2003 11:25:00 AM
1,2-Dichlorobenzene	U	1.0		µg/L	1	7/2/2003 11:25:00 AM
1,2-Dichloroethane	U	1.0		µg/L	1	7/2/2003 11:25:00 AM
1,2-Dichloropropane	U	1.0		µg/L	1	7/2/2003 11:25:00 AM
1,3,5-Trimethylbenzene	U	1.0		µg/L	1	7/2/2003 11:25:00 AM
1,3-Dichlorobenzene	U	1.0		µg/L	1	7/2/2003 11:25:00 AM
1,3-dichloropropane	U	1.0		µg/L	1	7/2/2003 11:25:00 AM
1,4-Dichlorobenzene	U	1.0		µg/L	1	7/2/2003 11:25:00 AM
2,2-Dichloropropane	U	1.0		µg/L	1	7/2/2003 11:25:00 AM
2-Butanone	U	1.0		µg/L	1	7/2/2003 11:25:00 AM
2-Chloroethyl vinyl ether	U	1.0		µg/L	1	7/2/2003 11:25:00 AM
2-Chlorotoluene	U	1.0		µg/L	1	7/2/2003 11:25:00 AM
2-Hexanone	U	1.0		µg/L	1	7/2/2003 11:25:00 AM
4-Chlorotoluene	U	1.0		µg/L	1	7/2/2003 11:25:00 AM
4-Isopropyltoluene	U	1.0		µg/L	1	7/2/2003 11:25:00 AM
4-Methyl-2-pentanone	U	1.0		µg/L	1	7/2/2003 11:25:00 AM
Acetone	U	1.0		µg/L	1	7/2/2003 11:25:00 AM
Acrolein	U	1.0		µg/L	1	7/2/2003 11:25:00 AM
Acrylonitrile	U	1.0		µg/L	1	7/2/2003 11:25:00 AM
Benzene	U	1.0		µg/L	1	7/2/2003 11:25:00 AM
Bromobenzene	U	1.0		µg/L	1	7/2/2003 11:25:00 AM
Bromochloromethane	U	1.0		µg/L	1	7/2/2003 11:25:00 AM
Bromodichloromethane	U	1.0		µg/L	1	7/2/2003 11:25:00 AM
Bromoform	U	1.0		µg/L	1	7/2/2003 11:25:00 AM
Bromomethane	U	1.0		µg/L	1	7/2/2003 11:25:00 AM
Carbon disulfide	U	1.0		µg/L	1	7/2/2003 11:25:00 AM

Qualifiers:

ND - Not Detected at the Reporting Limit

J - Analyte detected below quantitation limits

B - Analyte detected in the associated Method Blank

* - Value exceeds Maximum Contaminant Level

S - Spike Recovery outside accepted recovery limits

R - RPD outside accepted recovery limits

E - Value above quantitation range

American Analytical Laboratories, Inc.

Date: *28-Jul-03*

CLIENT:	AKRF, Inc	**Client Sample ID:**	Trip Blank #1
Lab Order:	0306118	**Tag Number:**	
Project:	Greenpoint Lumber Yard Brooklyn, NY	**Collection Date:**	6/26/2003
Lab ID:	0306118-03A	**Matrix:**	LIQUID

Analyses	Result	Limit	Qual	Units	DF	Date Analyzed
VOLATILES SW-846 METHOD 8260		**SW8260B**				Analyst: **LDS**
Carbon tetrachloride	U	1.0		µg/L	1	7/2/2003 11:25:00 AM
Chlorobenzene	U	1.0		µg/L	1	7/2/2003 11:25:00 AM
Chlorodifluoromethane	U	1.0		µg/L	1	7/2/2003 11:25:00 AM
Chloroethane	U	1.0		µg/L	1	7/2/2003 11:25:00 AM
Chloroform	U	1.0		µg/L	1	7/2/2003 11:25:00 AM
Chloromethane	U	1.0		µg/L	1	7/2/2003 11:25:00 AM
cis-1,2-Dichloroethene	U	1.0		µg/L	1	7/2/2003 11:25:00 AM
cis-1,3-Dichloropropene	U	1.0		µg/L	1	7/2/2003 11:25:00 AM
Dibromochloromethane	U	1.0		µg/L	1	7/2/2003 11:25:00 AM
Dibromomethane	U	1.0		µg/L	1	7/2/2003 11:25:00 AM
Dichlorodifluoromethane	U	1.0		µg/L	1	7/2/2003 11:25:00 AM
Diisopropyl ether	U	1.0		µg/L	1	7/2/2003 11:25:00 AM
Ethanol	U	1.0		µg/L	1	7/2/2003 11:25:00 AM
Ethyl acetate	U	1.0		µg/L	1	7/2/2003 11:25:00 AM
Ethylbenzene	U	1.0		µg/L	1	7/2/2003 11:25:00 AM
Freon-114	U	1.0		µg/L	1	7/2/2003 11:25:00 AM
Hexachlorobutadiene	U	1.0		µg/L	1	7/2/2003 11:25:00 AM
Isopropyl acetate	U	1.0		µg/L	1	7/2/2003 11:25:00 AM
Isopropylbenzene	U	1.0		µg/L	1	7/2/2003 11:25:00 AM
m,p-Xylene	U	2.0		µg/L	1	7/2/2003 11:25:00 AM
Methyl tert-butyl ether	U	1.0		µg/L	1	7/2/2003 11:25:00 AM
Methylene chloride	U	1.0		µg/L	1	7/2/2003 11:25:00 AM
Naphthalene	U	1.0		µg/L	1	7/2/2003 11:25:00 AM
n-Butyl acetate	U	1.0		µg/L	1	7/2/2003 11:25:00 AM
n-Butylbenzene	U	1.0		µg/L	1	7/2/2003 11:25:00 AM
n-Propyl acetate	U	1.0		µg/L	1	7/2/2003 11:25:00 AM
n-Propylbenzene	U	1.0		µg/L	1	7/2/2003 11:25:00 AM
o-Xylene	U	1.0		µg/L	1	7/2/2003 11:25:00 AM
p-Diethylbenzene	U	1.0		µg/L	1	7/2/2003 11:25:00 AM
p-Ethyltoluene	U	1.0		µg/L	1	7/2/2003 11:25:00 AM
sec-Butylbenzene	U	1.0		µg/L	1	7/2/2003 11:25:00 AM
Styrene	U	1.0		µg/L	1	7/2/2003 11:25:00 AM
t-Butyl alcohol	U	1.0		µg/L	1	7/2/2003 11:25:00 AM
tert-Butylbenzene	U	1.0		µg/L	1	7/2/2003 11:25:00 AM
Tetrachloroethene	U	1.0		µg/L	1	7/2/2003 11:25:00 AM
Toluene	U	1.0		µg/L	1	7/2/2003 11:25:00 AM
trans-1,2-Dichloroethene	U	1.0		µg/L	1	7/2/2003 11:25:00 AM
trans-1,3-Dichloropropene	U	1.0		µg/L	1	7/2/2003 11:25:00 AM
Trichloroethene	U	1.0		µg/L	1	7/2/2003 11:25:00 AM
Trichlorofluoromethane	U	1.0		µg/L	1	7/2/2003 11:25:00 AM

Qualifiers:

ND - Not Detected at the Reporting Limit

J - Analyte detected below quantitation limits

B - Analyte detected in the associated Method Blank

* - Value exceeds Maximum Contaminant Level

S - Spike Recovery outside accepted recovery limits

R - RPD outside accepted recovery limits

E - Value above quantitation range

American Analytical Laboratories, Inc.

Date: *28-Jul-03*

CLIENT:	AKRF, Inc	**Client Sample ID:**	Trip Blank #1
Lab Order:	0306118	**Tag Number:**	
Project:	Greenpoint Lumber Yard Brooklyn, NY	**Collection Date:**	6/26/2003
Lab ID:	0306118-03A	**Matrix:**	LIQUID

Analyses	Result	Limit	Qual	Units	DF	Date Analyzed
VOLATILES SW-846 METHOD 8260		**SW8260B**				Analyst: **LDS**
Vinyl acetate	U	1.0		µg/L	1	7/2/2003 11:25:00 AM
Vinyl chloride	U	1.0		µg/L	1	7/2/2003 11:25:00 AM

Qualifiers:

ND - Not Detected at the Reporting Limit

J - Analyte detected below quantitation limits

B - Analyte detected in the associated Method Blank

* - Value exceeds Maximum Contaminant Level

S - Spike Recovery outside accepted recovery limits

R - RPD outside accepted recovery limits

E - Value above quantitation range

American Analytical Laboratories, Inc.

Date: *28-Jul-03*

CLIENT:	AKRF, Inc	**Client Sample ID:**	Field Blank #1
Lab Order:	0306118	**Tag Number:**	
Project:	Greenpoint Lumber Yard Brooklyn, NY	**Collection Date:**	6/26/2003
Lab ID:	0306118-04A	**Matrix:**	LIQUID

Analyses	Result	Limit	Qual	Units	DF	Date Analyzed
VOLATILES SW-846 METHOD 8260		**SW8260B**				Analyst: **LDS**
1,1,1,2-Tetrachloroethane	U	1.0		µg/L	1	7/2/2003 12:03:00 PM
1,1,1-Trichloroethane	U	1.0		µg/L	1	7/2/2003 12:03:00 PM
1,1,2,2-Tetrachloroethane	U	1.0		µg/L	1	7/2/2003 12:03:00 PM
1,1,2-Trichloro-1,2,2-trifluoroethane	U	1.0		µg/L	1	7/2/2003 12:03:00 PM
1,1,2-Trichloroethane	U	1.0		µg/L	1	7/2/2003 12:03:00 PM
1,1-Dichloroethane	U	1.0		µg/L	1	7/2/2003 12:03:00 PM
1,1-Dichloroethene	U	1.0		µg/L	1	7/2/2003 12:03:00 PM
1,1-Dichloropropene	U	1.0		µg/L	1	7/2/2003 12:03:00 PM
1,2,3-Trichlorobenzene	U	1.0		µg/L	1	7/2/2003 12:03:00 PM
1,2,3-Trichloropropane	U	1.0		µg/L	1	7/2/2003 12:03:00 PM
1,2,4,5-Tetramethylbenzene	U	1.0		µg/L	1	7/2/2003 12:03:00 PM
1,2,4-Trichlorobenzene	U	1.0		µg/L	1	7/2/2003 12:03:00 PM
1,2,4-Trimethylbenzene	U	1.0		µg/L	1	7/2/2003 12:03:00 PM
1,2-Dibromo-3-chloropropane	U	1.0		µg/L	1	7/2/2003 12:03:00 PM
1,2-Dibromoethane	U	1.0		µg/L	1	7/2/2003 12:03:00 PM
1,2-Dichlorobenzene	U	1.0		µg/L	1	7/2/2003 12:03:00 PM
1,2-Dichloroethane	U	1.0		µg/L	1	7/2/2003 12:03:00 PM
1,2-Dichloropropane	U	1.0		µg/L	1	7/2/2003 12:03:00 PM
1,3,5-Trimethylbenzene	U	1.0		µg/L	1	7/2/2003 12:03:00 PM
1,3-Dichlorobenzene	U	1.0		µg/L	1	7/2/2003 12:03:00 PM
1,3-dichloropropane	U	1.0		µg/L	1	7/2/2003 12:03:00 PM
1,4-Dichlorobenzene	U	1.0		µg/L	1	7/2/2003 12:03:00 PM
2,2-Dichloropropane	U	1.0		µg/L	1	7/2/2003 12:03:00 PM
2-Butanone	U	1.0		µg/L	1	7/2/2003 12:03:00 PM
2-Chloroethyl vinyl ether	U	1.0		µg/L	1	7/2/2003 12:03:00 PM
2-Chlorotoluene	U	1.0		µg/L	1	7/2/2003 12:03:00 PM
2-Hexanone	U	1.0		µg/L	1	7/2/2003 12:03:00 PM
4-Chlorotoluene	U	1.0		µg/L	1	7/2/2003 12:03:00 PM
4-Isopropyltoluene	U	1.0		µg/L	1	7/2/2003 12:03:00 PM
4-Methyl-2-pentanone	U	1.0		µg/L	1	7/2/2003 12:03:00 PM
Acetone	U	1.0		µg/L	1	7/2/2003 12:03:00 PM
Acrolein	U	1.0		µg/L	1	7/2/2003 12:03:00 PM
Acrylonitrile	U	1.0		µg/L	1	7/2/2003 12:03:00 PM
Benzene	U	1.0		µg/L	1	7/2/2003 12:03:00 PM
Bromobenzene	U	1.0		µg/L	1	7/2/2003 12:03:00 PM
Bromochloromethane	U	1.0		µg/L	1	7/2/2003 12:03:00 PM
Bromodichloromethane	U	1.0		µg/L	1	7/2/2003 12:03:00 PM
Bromoform	U	1.0		µg/L	1	7/2/2003 12:03:00 PM
Bromomethane	U	1.0		µg/L	1	7/2/2003 12:03:00 PM
Carbon disulfide	U	1.0		µg/L	1	7/2/2003 12:03:00 PM

Qualifiers:

ND - Not Detected at the Reporting Limit

J - Analyte detected below quantitation limits

B - Analyte detected in the associated Method Blank

* - Value exceeds Maximum Contaminant Level

S - Spike Recovery outside accepted recovery limits

R - RPD outside accepted recovery limits

E - Value above quantitation range

American Analytical Laboratories, Inc.

Date: *28-Jul-03*

CLIENT:	AKRF, Inc	**Client Sample ID:**	Field Blank #1
Lab Order:	0306118	**Tag Number:**	
Project:	Greenpoint Lumber Yard Brooklyn, NY	**Collection Date:**	6/26/2003
Lab ID:	0306118-04A	**Matrix:**	LIQUID

Analyses	Result	Limit	Qual	Units	DF	Date Analyzed
VOLATILES SW-846 METHOD 8260		**SW8260B**				Analyst: **LDS**
Carbon tetrachloride	U	1.0		µg/L	1	7/2/2003 12:03:00 PM
Chlorobenzene	U	1.0		µg/L	1	7/2/2003 12:03:00 PM
Chlorodifluoromethane	U	1.0		µg/L	1	7/2/2003 12:03:00 PM
Chloroethane	U	1.0		µg/L	1	7/2/2003 12:03:00 PM
Chloroform	U	1.0		µg/L	1	7/2/2003 12:03:00 PM
Chloromethane	U	1.0		µg/L	1	7/2/2003 12:03:00 PM
cis-1,2-Dichloroethene	U	1.0		µg/L	1	7/2/2003 12:03:00 PM
cis-1,3-Dichloropropene	U	1.0		µg/L	1	7/2/2003 12:03:00 PM
Dibromochloromethane	U	1.0		µg/L	1	7/2/2003 12:03:00 PM
Dibromomethane	U	1.0		µg/L	1	7/2/2003 12:03:00 PM
Dichlorodifluoromethane	U	1.0		µg/L	1	7/2/2003 12:03:00 PM
Diisopropyl ether	U	1.0		µg/L	1	7/2/2003 12:03:00 PM
Ethanol	U	1.0		µg/L	1	7/2/2003 12:03:00 PM
Ethyl acetate	U	1.0		µg/L	1	7/2/2003 12:03:00 PM
Ethylbenzene	U	1.0		µg/L	1	7/2/2003 12:03:00 PM
Freon-114	U	1.0		µg/L	1	7/2/2003 12:03:00 PM
Hexachlorobutadiene	U	1.0		µg/L	1	7/2/2003 12:03:00 PM
Isopropyl acetate	U	1.0		µg/L	1	7/2/2003 12:03:00 PM
Isopropylbenzene	U	1.0		µg/L	1	7/2/2003 12:03:00 PM
m,p-Xylene	U	2.0		µg/L	1	7/2/2003 12:03:00 PM
Methyl tert-butyl ether	U	1.0		µg/L	1	7/2/2003 12:03:00 PM
Methylene chloride	U	1.0		µg/L	1	7/2/2003 12:03:00 PM
Naphthalene	U	1.0		µg/L	1	7/2/2003 12:03:00 PM
n-Butyl acetate	U	1.0		µg/L	1	7/2/2003 12:03:00 PM
n-Butylbenzene	U	1.0		µg/L	1	7/2/2003 12:03:00 PM
n-Propyl acetate	U	1.0		µg/L	1	7/2/2003 12:03:00 PM
n-Propylbenzene	U	1.0		µg/L	1	7/2/2003 12:03:00 PM
o-Xylene	U	1.0		µg/L	1	7/2/2003 12:03:00 PM
p-Diethylbenzene	U	1.0		µg/L	1	7/2/2003 12:03:00 PM
p-Ethyltoluene	U	1.0		µg/L	1	7/2/2003 12:03:00 PM
sec-Butylbenzene	U	1.0		µg/L	1	7/2/2003 12:03:00 PM
Styrene	U	1.0		µg/L	1	7/2/2003 12:03:00 PM
t-Butyl alcohol	U	1.0		µg/L	1	7/2/2003 12:03:00 PM
tert-Butylbenzene	U	1.0		µg/L	1	7/2/2003 12:03:00 PM
Tetrachloroethene	U	1.0		µg/L	1	7/2/2003 12:03:00 PM
Toluene	U	1.0		µg/L	1	7/2/2003 12:03:00 PM
trans-1,2-Dichloroethene	U	1.0		µg/L	1	7/2/2003 12:03:00 PM
trans-1,3-Dichloropropene	U	1.0		µg/L	1	7/2/2003 12:03:00 PM
Trichloroethene	U	1.0		µg/L	1	7/2/2003 12:03:00 PM
Trichlorofluoromethane	U	1.0		µg/L	1	7/2/2003 12:03:00 PM

Qualifiers:

ND - Not Detected at the Reporting Limit

J - Analyte detected below quantitation limits

B - Analyte detected in the associated Method Blank

* - Value exceeds Maximum Contaminant Level

S - Spike Recovery outside accepted recovery limits

R - RPD outside accepted recovery limits

E - Value above quantitation range

American Analytical Laboratories, Inc.

Date: *28-Jul-03*

CLIENT:	AKRF, Inc	**Client Sample ID:**	Field Blank #1
Lab Order:	0306118	**Tag Number:**	
Project:	Greenpoint Lumber Yard Brooklyn, NY	**Collection Date:**	6/26/2003
Lab ID:	0306118-04A	**Matrix:**	LIQUID

Analyses	Result	Limit	Qual	Units	DF	Date Analyzed
VOLATILES SW-846 METHOD 8260		**SW8260B**				Analyst: **LDS**
Vinyl acetate	U	1.0		µg/L	1	7/2/2003 12:03:00 PM
Vinyl chloride	U	1.0		µg/L	1	7/2/2003 12:03:00 PM

Qualifiers:

ND - Not Detected at the Reporting Limit

J - Analyte detected below quantitation limits

B - Analyte detected in the associated Method Blank

* - Value exceeds Maximum Contaminant Level

S - Spike Recovery outside accepted recovery limits

R - RPD outside accepted recovery limits

E - Value above quantitation range

American Analytical Laboratories, Inc.

Date: *28-Jul-03*

CLIENT:	AKRF, Inc	**Client Sample ID:**	Field Blank #2
Lab Order:	0306118	**Tag Number:**	
Project:	Greenpoint Lumber Yard Brooklyn, NY	**Collection Date:**	6/26/2003
Lab ID:	0306118-05A	**Matrix:**	LIQUID

Analyses	Result	Limit	Qual	Units	DF	Date Analyzed
VOLATILES SW-846 METHOD 8260		**SW8260B**				Analyst: **LDS**
1,1,1,2-Tetrachloroethane	U	1.0		µg/L	1	7/2/2003 12:41:00 PM
1,1,1-Trichloroethane	U	1.0		µg/L	1	7/2/2003 12:41:00 PM
1,1,2,2-Tetrachloroethane	U	1.0		µg/L	1	7/2/2003 12:41:00 PM
1,1,2-Trichloro-1,2,2-trifluoroethane	U	1.0		µg/L	1	7/2/2003 12:41:00 PM
1,1,2-Trichloroethane	U	1.0		µg/L	1	7/2/2003 12:41:00 PM
1,1-Dichloroethane	U	1.0		µg/L	1	7/2/2003 12:41:00 PM
1,1-Dichloroethene	U	1.0		µg/L	1	7/2/2003 12:41:00 PM
1,1-Dichloropropene	U	1.0		µg/L	1	7/2/2003 12:41:00 PM
1,2,3-Trichlorobenzene	U	1.0		µg/L	1	7/2/2003 12:41:00 PM
1,2,3-Trichloropropane	U	1.0		µg/L	1	7/2/2003 12:41:00 PM
1,2,4,5-Tetramethylbenzene	U	1.0		µg/L	1	7/2/2003 12:41:00 PM
1,2,4-Trichlorobenzene	U	1.0		µg/L	1	7/2/2003 12:41:00 PM
1,2,4-Trimethylbenzene	U	1.0		µg/L	1	7/2/2003 12:41:00 PM
1,2-Dibromo-3-chloropropane	U	1.0		µg/L	1	7/2/2003 12:41:00 PM
1,2-Dibromoethane	U	1.0		µg/L	1	7/2/2003 12:41:00 PM
1,2-Dichlorobenzene	U	1.0		µg/L	1	7/2/2003 12:41:00 PM
1,2-Dichloroethane	U	1.0		µg/L	1	7/2/2003 12:41:00 PM
1,2-Dichloropropane	U	1.0		µg/L	1	7/2/2003 12:41:00 PM
1,3,5-Trimethylbenzene	U	1.0		µg/L	1	7/2/2003 12:41:00 PM
1,3-Dichlorobenzene	U	1.0		µg/L	1	7/2/2003 12:41:00 PM
1,3-dichloropropane	U	1.0		µg/L	1	7/2/2003 12:41:00 PM
1,4-Dichlorobenzene	U	1.0		µg/L	1	7/2/2003 12:41:00 PM
2,2-Dichloropropane	U	1.0		µg/L	1	7/2/2003 12:41:00 PM
2-Butanone	U	1.0		µg/L	1	7/2/2003 12:41:00 PM
2-Chloroethyl vinyl ether	U	1.0		µg/L	1	7/2/2003 12:41:00 PM
2-Chlorotoluene	U	1.0		µg/L	1	7/2/2003 12:41:00 PM
2-Hexanone	U	1.0		µg/L	1	7/2/2003 12:41:00 PM
4-Chlorotoluene	U	1.0		µg/L	1	7/2/2003 12:41:00 PM
4-Isopropyltoluene	U	1.0		µg/L	1	7/2/2003 12:41:00 PM
4-Methyl-2-pentanone	U	1.0		µg/L	1	7/2/2003 12:41:00 PM
Acetone	U	1.0		µg/L	1	7/2/2003 12:41:00 PM
Acrolein	U	1.0		µg/L	1	7/2/2003 12:41:00 PM
Acrylonitrile	U	1.0		µg/L	1	7/2/2003 12:41:00 PM
Benzene	U	1.0		µg/L	1	7/2/2003 12:41:00 PM
Bromobenzene	U	1.0		µg/L	1	7/2/2003 12:41:00 PM
Bromochloromethane	U	1.0		µg/L	1	7/2/2003 12:41:00 PM
Bromodichloromethane	U	1.0		µg/L	1	7/2/2003 12:41:00 PM
Bromoform	U	1.0		µg/L	1	7/2/2003 12:41:00 PM
Bromomethane	U	1.0		µg/L	1	7/2/2003 12:41:00 PM
Carbon disulfide	U	1.0		µg/L	1	7/2/2003 12:41:00 PM

Qualifiers:

ND - Not Detected at the Reporting Limit

J - Analyte detected below quantitation limits

B - Analyte detected in the associated Method Blank

* - Value exceeds Maximum Contaminant Level

S - Spike Recovery outside accepted recovery limits

R - RPD outside accepted recovery limits

E - Value above quantitation range

American Analytical Laboratories, Inc.

Date: *28-Jul-03*

CLIENT:	AKRF, Inc	**Client Sample ID:**	Field Blank #2
Lab Order:	0306118	**Tag Number:**	
Project:	Greenpoint Lumber Yard Brooklyn, NY	**Collection Date:**	6/26/2003
Lab ID:	0306118-05A	**Matrix:**	LIQUID

Analyses	Result	Limit	Qual	Units	DF	Date Analyzed
VOLATILES SW-846 METHOD 8260		**SW8260B**				Analyst: **LDS**
Carbon tetrachloride	U	1.0		µg/L	1	7/2/2003 12:41:00 PM
Chlorobenzene	U	1.0		µg/L	1	7/2/2003 12:41:00 PM
Chlorodifluoromethane	U	1.0		µg/L	1	7/2/2003 12:41:00 PM
Chloroethane	U	1.0		µg/L	1	7/2/2003 12:41:00 PM
Chloroform	U	1.0		µg/L	1	7/2/2003 12:41:00 PM
Chloromethane	U	1.0		µg/L	1	7/2/2003 12:41:00 PM
cis-1,2-Dichloroethene	U	1.0		µg/L	1	7/2/2003 12:41:00 PM
cis-1,3-Dichloropropene	U	1.0		µg/L	1	7/2/2003 12:41:00 PM
Dibromochloromethane	U	1.0		µg/L	1	7/2/2003 12:41:00 PM
Dibromomethane	U	1.0		µg/L	1	7/2/2003 12:41:00 PM
Dichlorodifluoromethane	U	1.0		µg/L	1	7/2/2003 12:41:00 PM
Diisopropyl ether	U	1.0		µg/L	1	7/2/2003 12:41:00 PM
Ethanol	U	1.0		µg/L	1	7/2/2003 12:41:00 PM
Ethyl acetate	U	1.0		µg/L	1	7/2/2003 12:41:00 PM
Ethylbenzene	U	1.0		µg/L	1	7/2/2003 12:41:00 PM
Freon-114	U	1.0		µg/L	1	7/2/2003 12:41:00 PM
Hexachlorobutadiene	U	1.0		µg/L	1	7/2/2003 12:41:00 PM
Isopropyl acetate	U	1.0		µg/L	1	7/2/2003 12:41:00 PM
Isopropylbenzene	U	1.0		µg/L	1	7/2/2003 12:41:00 PM
m,p-Xylene	U	2.0		µg/L	1	7/2/2003 12:41:00 PM
Methyl tert-butyl ether	U	1.0		µg/L	1	7/2/2003 12:41:00 PM
Methylene chloride	U	1.0		µg/L	1	7/2/2003 12:41:00 PM
Naphthalene	U	1.0		µg/L	1	7/2/2003 12:41:00 PM
n-Butyl acetate	U	1.0		µg/L	1	7/2/2003 12:41:00 PM
n-Butylbenzene	U	1.0		µg/L	1	7/2/2003 12:41:00 PM
n-Propyl acetate	U	1.0		µg/L	1	7/2/2003 12:41:00 PM
n-Propylbenzene	U	1.0		µg/L	1	7/2/2003 12:41:00 PM
o-Xylene	U	1.0		µg/L	1	7/2/2003 12:41:00 PM
p-Diethylbenzene	U	1.0		µg/L	1	7/2/2003 12:41:00 PM
p-Ethyltoluene	U	1.0		µg/L	1	7/2/2003 12:41:00 PM
sec-Butylbenzene	U	1.0		µg/L	1	7/2/2003 12:41:00 PM
Styrene	U	1.0		µg/L	1	7/2/2003 12:41:00 PM
t-Butyl alcohol	U	1.0		µg/L	1	7/2/2003 12:41:00 PM
tert-Butylbenzene	U	1.0		µg/L	1	7/2/2003 12:41:00 PM
Tetrachloroethene	U	1.0		µg/L	1	7/2/2003 12:41:00 PM
Toluene	U	1.0		µg/L	1	7/2/2003 12:41:00 PM
trans-1,2-Dichloroethene	U	1.0		µg/L	1	7/2/2003 12:41:00 PM
trans-1,3-Dichloropropene	U	1.0		µg/L	1	7/2/2003 12:41:00 PM
Trichloroethene	U	1.0		µg/L	1	7/2/2003 12:41:00 PM
Trichlorofluoromethane	U	1.0		µg/L	1	7/2/2003 12:41:00 PM

Qualifiers:

ND - Not Detected at the Reporting Limit

J - Analyte detected below quantitation limits

B - Analyte detected in the associated Method Blank

* - Value exceeds Maximum Contaminant Level

S - Spike Recovery outside accepted recovery limits

R - RPD outside accepted recovery limits

E - Value above quantitation range

American Analytical Laboratories, Inc.

Date: *28-Jul-03*

CLIENT:	AKRF, Inc	**Client Sample ID:**	Field Blank #2
Lab Order:	0306118	**Tag Number:**	
Project:	Greenpoint Lumber Yard Brooklyn, NY	**Collection Date:**	6/26/2003
Lab ID:	0306118-05A	**Matrix:**	LIQUID

Analyses	Result	Limit	Qual	Units	DF	Date Analyzed
VOLATILES SW-846 METHOD 8260		**SW8260B**				Analyst: **LDS**
Vinyl acetate	U	1.0		µg/L	1	7/2/2003 12:41:00 PM
Vinyl chloride	U	1.0		µg/L	1	7/2/2003 12:41:00 PM

Qualifiers:

ND - Not Detected at the Reporting Limit

J - Analyte detected below quantitation limits

B - Analyte detected in the associated Method Blank

* - Value exceeds Maximum Contaminant Level

S - Spike Recovery outside accepted recovery limits

R - RPD outside accepted recovery limits

E - Value above quantitation range

American Analytical Laboratories, Inc.

Date: *28-Jul-03*

CLIENT:	AKRF, Inc	**Client Sample ID:**	Field Blank #3
Lab Order:	0306118	**Tag Number:**	
Project:	Greenpoint Lumber Yard Brooklyn, NY	**Collection Date:**	6/26/2003
Lab ID:	0306118-06A	**Matrix:**	LIQUID

Analyses	Result	Limit	Qual	Units	DF	Date Analyzed
VOLATILES SW-846 METHOD 8260		**SW8260B**				Analyst: **LDS**
1,1,1,2-Tetrachloroethane	U	1.0		µg/L	1	7/2/2003 1:20:00 PM
1,1,1-Trichloroethane	U	1.0		µg/L	1	7/2/2003 1:20:00 PM
1,1,2,2-Tetrachloroethane	U	1.0		µg/L	1	7/2/2003 1:20:00 PM
1,1,2-Trichloro-1,2,2-trifluoroethane	U	1.0		µg/L	1	7/2/2003 1:20:00 PM
1,1,2-Trichloroethane	U	1.0		µg/L	1	7/2/2003 1:20:00 PM
1,1-Dichloroethane	U	1.0		µg/L	1	7/2/2003 1:20:00 PM
1,1-Dichloroethene	U	1.0		µg/L	1	7/2/2003 1:20:00 PM
1,1-Dichloropropene	U	1.0		µg/L	1	7/2/2003 1:20:00 PM
1,2,3-Trichlorobenzene	U	1.0		µg/L	1	7/2/2003 1:20:00 PM
1,2,3-Trichloropropane	U	1.0		µg/L	1	7/2/2003 1:20:00 PM
1,2,4,5-Tetramethylbenzene	U	1.0		µg/L	1	7/2/2003 1:20:00 PM
1,2,4-Trichlorobenzene	U	1.0		µg/L	1	7/2/2003 1:20:00 PM
1,2,4-Trimethylbenzene	U	1.0		µg/L	1	7/2/2003 1:20:00 PM
1,2-Dibromo-3-chloropropane	U	1.0		µg/L	1	7/2/2003 1:20:00 PM
1,2-Dibromoethane	U	1.0		µg/L	1	7/2/2003 1:20:00 PM
1,2-Dichlorobenzene	U	1.0		µg/L	1	7/2/2003 1:20:00 PM
1,2-Dichloroethane	U	1.0		µg/L	1	7/2/2003 1:20:00 PM
1,2-Dichloropropane	U	1.0		µg/L	1	7/2/2003 1:20:00 PM
1,3,5-Trimethylbenzene	U	1.0		µg/L	1	7/2/2003 1:20:00 PM
1,3-Dichlorobenzene	U	1.0		µg/L	1	7/2/2003 1:20:00 PM
1,3-dichloropropane	U	1.0		µg/L	1	7/2/2003 1:20:00 PM
1,4-Dichlorobenzene	U	1.0		µg/L	1	7/2/2003 1:20:00 PM
2,2-Dichloropropane	U	1.0		µg/L	1	7/2/2003 1:20:00 PM
2-Butanone	U	1.0		µg/L	1	7/2/2003 1:20:00 PM
2-Chloroethyl vinyl ether	U	1.0		µg/L	1	7/2/2003 1:20:00 PM
2-Chlorotoluene	U	1.0		µg/L	1	7/2/2003 1:20:00 PM
2-Hexanone	U	1.0		µg/L	1	7/2/2003 1:20:00 PM
4-Chlorotoluene	U	1.0		µg/L	1	7/2/2003 1:20:00 PM
4-Isopropyltoluene	U	1.0		µg/L	1	7/2/2003 1:20:00 PM
4-Methyl-2-pentanone	U	1.0		µg/L	1	7/2/2003 1:20:00 PM
Acetone	U	1.0		µg/L	1	7/2/2003 1:20:00 PM
Acrolein	U	1.0		µg/L	1	7/2/2003 1:20:00 PM
Acrylonitrile	U	1.0		µg/L	1	7/2/2003 1:20:00 PM
Benzene	U	1.0		µg/L	1	7/2/2003 1:20:00 PM
Bromobenzene	U	1.0		µg/L	1	7/2/2003 1:20:00 PM
Bromochloromethane	U	1.0		µg/L	1	7/2/2003 1:20:00 PM
Bromodichloromethane	U	1.0		µg/L	1	7/2/2003 1:20:00 PM
Bromoform	U	1.0		µg/L	1	7/2/2003 1:20:00 PM
Bromomethane	U	1.0		µg/L	1	7/2/2003 1:20:00 PM
Carbon disulfide	U	1.0		µg/L	1	7/2/2003 1:20:00 PM

Qualifiers:

ND - Not Detected at the Reporting Limit

J - Analyte detected below quantitation limits

B - Analyte detected in the associated Method Blank

* - Value exceeds Maximum Contaminant Level

S - Spike Recovery outside accepted recovery limits

R - RPD outside accepted recovery limits

E - Value above quantitation range

American Analytical Laboratories, Inc.

Date: *28-Jul-03*

CLIENT:	AKRF, Inc	**Client Sample ID:**	Field Blank #3
Lab Order:	0306118	**Tag Number:**	
Project:	Greenpoint Lumber Yard Brooklyn, NY	**Collection Date:**	6/26/2003
Lab ID:	0306118-06A	**Matrix:**	LIQUID

Analyses	Result	Limit	Qual	Units	DF	Date Analyzed
VOLATILES SW-846 METHOD 8260		**SW8260B**				Analyst: **LDS**
Carbon tetrachloride	U	1.0		µg/L	1	7/2/2003 1:20:00 PM
Chlorobenzene	U	1.0		µg/L	1	7/2/2003 1:20:00 PM
Chlorodifluoromethane	U	1.0		µg/L	1	7/2/2003 1:20:00 PM
Chloroethane	U	1.0		µg/L	1	7/2/2003 1:20:00 PM
Chloroform	U	1.0		µg/L	1	7/2/2003 1:20:00 PM
Chloromethane	U	1.0		µg/L	1	7/2/2003 1:20:00 PM
cis-1,2-Dichloroethene	U	1.0		µg/L	1	7/2/2003 1:20:00 PM
cis-1,3-Dichloropropene	U	1.0		µg/L	1	7/2/2003 1:20:00 PM
Dibromochloromethane	U	1.0		µg/L	1	7/2/2003 1:20:00 PM
Dibromomethane	U	1.0		µg/L	1	7/2/2003 1:20:00 PM
Dichlorodifluoromethane	U	1.0		µg/L	1	7/2/2003 1:20:00 PM
Diisopropyl ether	U	1.0		µg/L	1	7/2/2003 1:20:00 PM
Ethanol	U	1.0		µg/L	1	7/2/2003 1:20:00 PM
Ethyl acetate	U	1.0		µg/L	1	7/2/2003 1:20:00 PM
Ethylbenzene	U	1.0		µg/L	1	7/2/2003 1:20:00 PM
Freon-114	U	1.0		µg/L	1	7/2/2003 1:20:00 PM
Hexachlorobutadiene	U	1.0		µg/L	1	7/2/2003 1:20:00 PM
Isopropyl acetate	U	1.0		µg/L	1	7/2/2003 1:20:00 PM
Isopropylbenzene	U	1.0		µg/L	1	7/2/2003 1:20:00 PM
m,p-Xylene	U	2.0		µg/L	1	7/2/2003 1:20:00 PM
Methyl tert-butyl ether	U	1.0		µg/L	1	7/2/2003 1:20:00 PM
Methylene chloride	U	1.0		µg/L	1	7/2/2003 1:20:00 PM
Naphthalene	U	1.0		µg/L	1	7/2/2003 1:20:00 PM
n-Butyl acetate	U	1.0		µg/L	1	7/2/2003 1:20:00 PM
n-Butylbenzene	U	1.0		µg/L	1	7/2/2003 1:20:00 PM
n-Propyl acetate	U	1.0		µg/L	1	7/2/2003 1:20:00 PM
n-Propylbenzene	U	1.0		µg/L	1	7/2/2003 1:20:00 PM
o-Xylene	U	1.0		µg/L	1	7/2/2003 1:20:00 PM
p-Diethylbenzene	U	1.0		µg/L	1	7/2/2003 1:20:00 PM
p-Ethyltoluene	U	1.0		µg/L	1	7/2/2003 1:20:00 PM
sec-Butylbenzene	U	1.0		µg/L	1	7/2/2003 1:20:00 PM
Styrene	U	1.0		µg/L	1	7/2/2003 1:20:00 PM
t-Butyl alcohol	U	1.0		µg/L	1	7/2/2003 1:20:00 PM
tert-Butylbenzene	U	1.0		µg/L	1	7/2/2003 1:20:00 PM
Tetrachloroethene	U	1.0		µg/L	1	7/2/2003 1:20:00 PM
Toluene	U	1.0		µg/L	1	7/2/2003 1:20:00 PM
trans-1,2-Dichloroethene	U	1.0		µg/L	1	7/2/2003 1:20:00 PM
trans-1,3-Dichloropropene	U	1.0		µg/L	1	7/2/2003 1:20:00 PM
Trichloroethene	U	1.0		µg/L	1	7/2/2003 1:20:00 PM
Trichlorofluoromethane	U	1.0		µg/L	1	7/2/2003 1:20:00 PM

Qualifiers:

ND - Not Detected at the Reporting Limit

J - Analyte detected below quantitation limits

B - Analyte detected in the associated Method Blank

* - Value exceeds Maximum Contaminant Level

S - Spike Recovery outside accepted recovery limits

R - RPD outside accepted recovery limits

E - Value above quantitation range

American Analytical Laboratories, Inc.

Date: *28-Jul-03*

CLIENT:	AKRF, Inc	**Client Sample ID:**	Field Blank #3
Lab Order:	0306118	**Tag Number:**	
Project:	Greenpoint Lumber Yard Brooklyn, NY	**Collection Date:**	6/26/2003
Lab ID:	0306118-06A	**Matrix:**	LIQUID

Analyses	Result	Limit	Qual	Units	DF	Date Analyzed
VOLATILES SW-846 METHOD 8260		**SW8260B**				Analyst: **LDS**
Vinyl acetate	U	1.0		µg/L	1	7/2/2003 1:20:00 PM
Vinyl chloride	U	1.0		µg/L	1	7/2/2003 1:20:00 PM

Qualifiers:

ND - Not Detected at the Reporting Limit

J - Analyte detected below quantitation limits

B - Analyte detected in the associated Method Blank

* - Value exceeds Maximum Contaminant Level

S - Spike Recovery outside accepted recovery limits

R - RPD outside accepted recovery limits

E - Value above quantitation range

American Analytical Laboratories, Inc.

Date: *28-Jul-03*

CLIENT:	AKRF, Inc	**Client Sample ID:**	Trip Blank #2
Lab Order:	0306118	**Tag Number:**	
Project:	Greenpoint Lumber Yard Brooklyn, NY	**Collection Date:**	6/26/2003
Lab ID:	0306118-07A	**Matrix:**	LIQUID

Analyses	Result	Limit	Qual	Units	DF	Date Analyzed
VOLATILES SW-846 METHOD 8260		**SW8260B**				Analyst: **LDS**
1,1,1,2-Tetrachloroethane	U	1.0		µg/L	1	7/2/2003 1:58:00 PM
1,1,1-Trichloroethane	U	1.0		µg/L	1	7/2/2003 1:58:00 PM
1,1,2,2-Tetrachloroethane	U	1.0		µg/L	1	7/2/2003 1:58:00 PM
1,1,2-Trichloro-1,2,2-trifluoroethane	U	1.0		µg/L	1	7/2/2003 1:58:00 PM
1,1,2-Trichloroethane	U	1.0		µg/L	1	7/2/2003 1:58:00 PM
1,1-Dichloroethane	U	1.0		µg/L	1	7/2/2003 1:58:00 PM
1,1-Dichloroethene	U	1.0		µg/L	1	7/2/2003 1:58:00 PM
1,1-Dichloropropene	U	1.0		µg/L	1	7/2/2003 1:58:00 PM
1,2,3-Trichlorobenzene	U	1.0		µg/L	1	7/2/2003 1:58:00 PM
1,2,3-Trichloropropane	U	1.0		µg/L	1	7/2/2003 1:58:00 PM
1,2,4,5-Tetramethylbenzene	U	1.0		µg/L	1	7/2/2003 1:58:00 PM
1,2,4-Trichlorobenzene	U	1.0		µg/L	1	7/2/2003 1:58:00 PM
1,2,4-Trimethylbenzene	U	1.0		µg/L	1	7/2/2003 1:58:00 PM
1,2-Dibromo-3-chloropropane	U	1.0		µg/L	1	7/2/2003 1:58:00 PM
1,2-Dibromoethane	U	1.0		µg/L	1	7/2/2003 1:58:00 PM
1,2-Dichlorobenzene	U	1.0		µg/L	1	7/2/2003 1:58:00 PM
1,2-Dichloroethane	U	1.0		µg/L	1	7/2/2003 1:58:00 PM
1,2-Dichloropropane	U	1.0		µg/L	1	7/2/2003 1:58:00 PM
1,3,5-Trimethylbenzene	U	1.0		µg/L	1	7/2/2003 1:58:00 PM
1,3-Dichlorobenzene	U	1.0		µg/L	1	7/2/2003 1:58:00 PM
1,3-dichloropropane	U	1.0		µg/L	1	7/2/2003 1:58:00 PM
1,4-Dichlorobenzene	U	1.0		µg/L	1	7/2/2003 1:58:00 PM
2,2-Dichloropropane	U	1.0		µg/L	1	7/2/2003 1:58:00 PM
2-Butanone	U	1.0		µg/L	1	7/2/2003 1:58:00 PM
2-Chloroethyl vinyl ether	U	1.0		µg/L	1	7/2/2003 1:58:00 PM
2-Chlorotoluene	U	1.0		µg/L	1	7/2/2003 1:58:00 PM
2-Hexanone	U	1.0		µg/L	1	7/2/2003 1:58:00 PM
4-Chlorotoluene	U	1.0		µg/L	1	7/2/2003 1:58:00 PM
4-Isopropyltoluene	U	1.0		µg/L	1	7/2/2003 1:58:00 PM
4-Methyl-2-pentanone	U	1.0		µg/L	1	7/2/2003 1:58:00 PM
Acetone	U	1.0		µg/L	1	7/2/2003 1:58:00 PM
Acrolein	U	1.0		µg/L	1	7/2/2003 1:58:00 PM
Acrylonitrile	U	1.0		µg/L	1	7/2/2003 1:58:00 PM
Benzene	U	1.0		µg/L	1	7/2/2003 1:58:00 PM
Bromobenzene	U	1.0		µg/L	1	7/2/2003 1:58:00 PM
Bromochloromethane	U	1.0		µg/L	1	7/2/2003 1:58:00 PM
Bromodichloromethane	U	1.0		µg/L	1	7/2/2003 1:58:00 PM
Bromoform	U	1.0		µg/L	1	7/2/2003 1:58:00 PM
Bromomethane	U	1.0		µg/L	1	7/2/2003 1:58:00 PM
Carbon disulfide	U	1.0		µg/L	1	7/2/2003 1:58:00 PM

Qualifiers:

ND - Not Detected at the Reporting Limit

J - Analyte detected below quantitation limits

B - Analyte detected in the associated Method Blank

* - Value exceeds Maximum Contaminant Level

S - Spike Recovery outside accepted recovery limits

R - RPD outside accepted recovery limits

E - Value above quantitation range

American Analytical Laboratories, Inc.

Date: *28-Jul-03*

CLIENT:	AKRF, Inc	**Client Sample ID:**	Trip Blank #2
Lab Order:	0306118	**Tag Number:**	
Project:	Greenpoint Lumber Yard Brooklyn, NY	**Collection Date:**	6/26/2003
Lab ID:	0306118-07A	**Matrix:**	LIQUID

Analyses	Result	Limit	Qual	Units	DF	Date Analyzed
VOLATILES SW-846 METHOD 8260		**SW8260B**				Analyst: **LDS**
Carbon tetrachloride	U	1.0		µg/L	1	7/2/2003 1:58:00 PM
Chlorobenzene	U	1.0		µg/L	1	7/2/2003 1:58:00 PM
Chlorodifluoromethane	U	1.0		µg/L	1	7/2/2003 1:58:00 PM
Chloroethane	U	1.0		µg/L	1	7/2/2003 1:58:00 PM
Chloroform	U	1.0		µg/L	1	7/2/2003 1:58:00 PM
Chloromethane	U	1.0		µg/L	1	7/2/2003 1:58:00 PM
cis-1,2-Dichloroethene	U	1.0		µg/L	1	7/2/2003 1:58:00 PM
cis-1,3-Dichloropropene	U	1.0		µg/L	1	7/2/2003 1:58:00 PM
Dibromochloromethane	U	1.0		µg/L	1	7/2/2003 1:58:00 PM
Dibromomethane	U	1.0		µg/L	1	7/2/2003 1:58:00 PM
Dichlorodifluoromethane	U	1.0		µg/L	1	7/2/2003 1:58:00 PM
Diisopropyl ether	U	1.0		µg/L	1	7/2/2003 1:58:00 PM
Ethanol	U	1.0		µg/L	1	7/2/2003 1:58:00 PM
Ethyl acetate	U	1.0		µg/L	1	7/2/2003 1:58:00 PM
Ethylbenzene	U	1.0		µg/L	1	7/2/2003 1:58:00 PM
Freon-114	U	1.0		µg/L	1	7/2/2003 1:58:00 PM
Hexachlorobutadiene	U	1.0		µg/L	1	7/2/2003 1:58:00 PM
Isopropyl acetate	U	1.0		µg/L	1	7/2/2003 1:58:00 PM
Isopropylbenzene	U	1.0		µg/L	1	7/2/2003 1:58:00 PM
m,p-Xylene	U	2.0		µg/L	1	7/2/2003 1:58:00 PM
Methyl tert-butyl ether	U	1.0		µg/L	1	7/2/2003 1:58:00 PM
Methylene chloride	U	1.0		µg/L	1	7/2/2003 1:58:00 PM
Naphthalene	U	1.0		µg/L	1	7/2/2003 1:58:00 PM
n-Butyl acetate	U	1.0		µg/L	1	7/2/2003 1:58:00 PM
n-Butylbenzene	U	1.0		µg/L	1	7/2/2003 1:58:00 PM
n-Propyl acetate	U	1.0		µg/L	1	7/2/2003 1:58:00 PM
n-Propylbenzene	U	1.0		µg/L	1	7/2/2003 1:58:00 PM
o-Xylene	U	1.0		µg/L	1	7/2/2003 1:58:00 PM
p-Diethylbenzene	U	1.0		µg/L	1	7/2/2003 1:58:00 PM
p-Ethyltoluene	U	1.0		µg/L	1	7/2/2003 1:58:00 PM
sec-Butylbenzene	U	1.0		µg/L	1	7/2/2003 1:58:00 PM
Styrene	U	1.0		µg/L	1	7/2/2003 1:58:00 PM
t-Butyl alcohol	U	1.0		µg/L	1	7/2/2003 1:58:00 PM
tert-Butylbenzene	U	1.0		µg/L	1	7/2/2003 1:58:00 PM
Tetrachloroethene	U	1.0		µg/L	1	7/2/2003 1:58:00 PM
Toluene	U	1.0		µg/L	1	7/2/2003 1:58:00 PM
trans-1,2-Dichloroethene	U	1.0		µg/L	1	7/2/2003 1:58:00 PM
trans-1,3-Dichloropropene	U	1.0		µg/L	1	7/2/2003 1:58:00 PM
Trichloroethene	U	1.0		µg/L	1	7/2/2003 1:58:00 PM
Trichlorofluoromethane	U	1.0		µg/L	1	7/2/2003 1:58:00 PM

Qualifiers:

ND - Not Detected at the Reporting Limit

J - Analyte detected below quantitation limits

B - Analyte detected in the associated Method Blank

* - Value exceeds Maximum Contaminant Level

S - Spike Recovery outside accepted recovery limits

R - RPD outside accepted recovery limits

E - Value above quantitation range

American Analytical Laboratories, Inc.

Date: *28-Jul-03*

CLIENT:	AKRF, Inc	**Client Sample ID:**	Trip Blank #2
Lab Order:	0306118	**Tag Number:**	
Project:	Greenpoint Lumber Yard Brooklyn, NY	**Collection Date:**	6/26/2003
Lab ID:	0306118-07A	**Matrix:**	LIQUID

Analyses	Result	Limit	Qual	Units	DF	Date Analyzed
VOLATILES SW-846 METHOD 8260		**SW8260B**				Analyst: **LDS**
Vinyl acetate	U	1.0		µg/L	1	7/2/2003 1:58:00 PM
Vinyl chloride	U	1.0		µg/L	1	7/2/2003 1:58:00 PM

Qualifiers:

ND - Not Detected at the Reporting Limit

J - Analyte detected below quantitation limits

B - Analyte detected in the associated Method Blank

* - Value exceeds Maximum Contaminant Level

S - Spike Recovery outside accepted recovery limits

R - RPD outside accepted recovery limits

E - Value above quantitation range

American Analytical Laboratories, Inc.

Date: *28-Jul-03*

CLIENT:	AKRF, Inc	**Client Sample ID:**	Trip Blank #3
Lab Order:	0306118	**Tag Number:**	
Project:	Greenpoint Lumber Yard Brooklyn, NY	**Collection Date:**	6/26/2003
Lab ID:	0306118-08A	**Matrix:**	LIQUID

Analyses	Result	Limit	Qual	Units	DF	Date Analyzed
VOLATILES SW-846 METHOD 8260		**SW8260B**				Analyst: **LDS**
1,1,1,2-Tetrachloroethane	U	1.0		µg/L	1	7/2/2003 2:37:00 PM
1,1,1-Trichloroethane	U	1.0		µg/L	1	7/2/2003 2:37:00 PM
1,1,2,2-Tetrachloroethane	U	1.0		µg/L	1	7/2/2003 2:37:00 PM
1,1,2-Trichloro-1,2,2-trifluoroethane	U	1.0		µg/L	1	7/2/2003 2:37:00 PM
1,1,2-Trichloroethane	U	1.0		µg/L	1	7/2/2003 2:37:00 PM
1,1-Dichloroethane	U	1.0		µg/L	1	7/2/2003 2:37:00 PM
1,1-Dichloroethene	U	1.0		µg/L	1	7/2/2003 2:37:00 PM
1,1-Dichloropropene	U	1.0		µg/L	1	7/2/2003 2:37:00 PM
1,2,3-Trichlorobenzene	U	1.0		µg/L	1	7/2/2003 2:37:00 PM
1,2,3-Trichloropropane	U	1.0		µg/L	1	7/2/2003 2:37:00 PM
1,2,4,5-Tetramethylbenzene	U	1.0		µg/L	1	7/2/2003 2:37:00 PM
1,2,4-Trichlorobenzene	U	1.0		µg/L	1	7/2/2003 2:37:00 PM
1,2,4-Trimethylbenzene	U	1.0		µg/L	1	7/2/2003 2:37:00 PM
1,2-Dibromo-3-chloropropane	U	1.0		µg/L	1	7/2/2003 2:37:00 PM
1,2-Dibromoethane	U	1.0		µg/L	1	7/2/2003 2:37:00 PM
1,2-Dichlorobenzene	U	1.0		µg/L	1	7/2/2003 2:37:00 PM
1,2-Dichloroethane	U	1.0		µg/L	1	7/2/2003 2:37:00 PM
1,2-Dichloropropane	U	1.0		µg/L	1	7/2/2003 2:37:00 PM
1,3,5-Trimethylbenzene	U	1.0		µg/L	1	7/2/2003 2:37:00 PM
1,3-Dichlorobenzene	U	1.0		µg/L	1	7/2/2003 2:37:00 PM
1,3-dichloropropane	U	1.0		µg/L	1	7/2/2003 2:37:00 PM
1,4-Dichlorobenzene	U	1.0		µg/L	1	7/2/2003 2:37:00 PM
2,2-Dichloropropane	U	1.0		µg/L	1	7/2/2003 2:37:00 PM
2-Butanone	U	1.0		µg/L	1	7/2/2003 2:37:00 PM
2-Chloroethyl vinyl ether	U	1.0		µg/L	1	7/2/2003 2:37:00 PM
2-Chlorotoluene	U	1.0		µg/L	1	7/2/2003 2:37:00 PM
2-Hexanone	U	1.0		µg/L	1	7/2/2003 2:37:00 PM
4-Chlorotoluene	U	1.0		µg/L	1	7/2/2003 2:37:00 PM
4-Isopropyltoluene	U	1.0		µg/L	1	7/2/2003 2:37:00 PM
4-Methyl-2-pentanone	U	1.0		µg/L	1	7/2/2003 2:37:00 PM
Acetone	U	1.0		µg/L	1	7/2/2003 2:37:00 PM
Acrolein	U	1.0		µg/L	1	7/2/2003 2:37:00 PM
Acrylonitrile	U	1.0		µg/L	1	7/2/2003 2:37:00 PM
Benzene	U	1.0		µg/L	1	7/2/2003 2:37:00 PM
Bromobenzene	U	1.0		µg/L	1	7/2/2003 2:37:00 PM
Bromochloromethane	U	1.0		µg/L	1	7/2/2003 2:37:00 PM
Bromodichloromethane	U	1.0		µg/L	1	7/2/2003 2:37:00 PM
Bromoform	U	1.0		µg/L	1	7/2/2003 2:37:00 PM
Bromomethane	U	1.0		µg/L	1	7/2/2003 2:37:00 PM
Carbon disulfide	U	1.0		µg/L	1	7/2/2003 2:37:00 PM

Qualifiers:

ND - Not Detected at the Reporting Limit

J - Analyte detected below quantitation limits

B - Analyte detected in the associated Method Blank

* - Value exceeds Maximum Contaminant Level

S - Spike Recovery outside accepted recovery limits

R - RPD outside accepted recovery limits

E - Value above quantitation range

American Analytical Laboratories, Inc.

Date: *28-Jul-03*

CLIENT:	AKRF, Inc	**Client Sample ID:**	Trip Blank #3
Lab Order:	0306118	**Tag Number:**	
Project:	Greenpoint Lumber Yard Brooklyn, NY	**Collection Date:**	6/26/2003
Lab ID:	0306118-08A	**Matrix:**	LIQUID

Analyses	Result	Limit	Qual	Units	DF	Date Analyzed
VOLATILES SW-846 METHOD 8260		**SW8260B**				Analyst: **LDS**
Carbon tetrachloride	U	1.0		µg/L	1	7/2/2003 2:37:00 PM
Chlorobenzene	U	1.0		µg/L	1	7/2/2003 2:37:00 PM
Chlorodifluoromethane	U	1.0		µg/L	1	7/2/2003 2:37:00 PM
Chloroethane	U	1.0		µg/L	1	7/2/2003 2:37:00 PM
Chloroform	U	1.0		µg/L	1	7/2/2003 2:37:00 PM
Chloromethane	U	1.0		µg/L	1	7/2/2003 2:37:00 PM
cis-1,2-Dichloroethene	U	1.0		µg/L	1	7/2/2003 2:37:00 PM
cis-1,3-Dichloropropene	U	1.0		µg/L	1	7/2/2003 2:37:00 PM
Dibromochloromethane	U	1.0		µg/L	1	7/2/2003 2:37:00 PM
Dibromomethane	U	1.0		µg/L	1	7/2/2003 2:37:00 PM
Dichlorodifluoromethane	U	1.0		µg/L	1	7/2/2003 2:37:00 PM
Diisopropyl ether	U	1.0		µg/L	1	7/2/2003 2:37:00 PM
Ethanol	U	1.0		µg/L	1	7/2/2003 2:37:00 PM
Ethyl acetate	U	1.0		µg/L	1	7/2/2003 2:37:00 PM
Ethylbenzene	U	1.0		µg/L	1	7/2/2003 2:37:00 PM
Freon-114	U	1.0		µg/L	1	7/2/2003 2:37:00 PM
Hexachlorobutadiene	U	1.0		µg/L	1	7/2/2003 2:37:00 PM
Isopropyl acetate	U	1.0		µg/L	1	7/2/2003 2:37:00 PM
Isopropylbenzene	U	1.0		µg/L	1	7/2/2003 2:37:00 PM
m,p-Xylene	U	2.0		µg/L	1	7/2/2003 2:37:00 PM
Methyl tert-butyl ether	U	1.0		µg/L	1	7/2/2003 2:37:00 PM
Methylene chloride	U	1.0		µg/L	1	7/2/2003 2:37:00 PM
Naphthalene	U	1.0		µg/L	1	7/2/2003 2:37:00 PM
n-Butyl acetate	U	1.0		µg/L	1	7/2/2003 2:37:00 PM
n-Butylbenzene	U	1.0		µg/L	1	7/2/2003 2:37:00 PM
n-Propyl acetate	U	1.0		µg/L	1	7/2/2003 2:37:00 PM
n-Propylbenzene	U	1.0		µg/L	1	7/2/2003 2:37:00 PM
o-Xylene	U	1.0		µg/L	1	7/2/2003 2:37:00 PM
p-Diethylbenzene	U	1.0		µg/L	1	7/2/2003 2:37:00 PM
p-Ethyltoluene	U	1.0		µg/L	1	7/2/2003 2:37:00 PM
sec-Butylbenzene	U	1.0		µg/L	1	7/2/2003 2:37:00 PM
Styrene	U	1.0		µg/L	1	7/2/2003 2:37:00 PM
t-Butyl alcohol	U	1.0		µg/L	1	7/2/2003 2:37:00 PM
tert-Butylbenzene	U	1.0		µg/L	1	7/2/2003 2:37:00 PM
Tetrachloroethene	U	1.0		µg/L	1	7/2/2003 2:37:00 PM
Toluene	U	1.0		µg/L	1	7/2/2003 2:37:00 PM
trans-1,2-Dichloroethene	U	1.0		µg/L	1	7/2/2003 2:37:00 PM
trans-1,3-Dichloropropene	U	1.0		µg/L	1	7/2/2003 2:37:00 PM
Trichloroethene	U	1.0		µg/L	1	7/2/2003 2:37:00 PM
Trichlorofluoromethane	U	1.0		µg/L	1	7/2/2003 2:37:00 PM

Qualifiers:

ND - Not Detected at the Reporting Limit

J - Analyte detected below quantitation limits

B - Analyte detected in the associated Method Blank

* - Value exceeds Maximum Contaminant Level

S - Spike Recovery outside accepted recovery limits

R - RPD outside accepted recovery limits

E - Value above quantitation range

American Analytical Laboratories, Inc.

Date: *28-Jul-03*

CLIENT:	AKRF, Inc	**Client Sample ID:**	Trip Blank #3
Lab Order:	0306118	**Tag Number:**	
Project:	Greenpoint Lumber Yard Brooklyn, NY	**Collection Date:**	6/26/2003
Lab ID:	0306118-08A	**Matrix:**	LIQUID

Analyses	Result	Limit	Qual	Units	DF	Date Analyzed
VOLATILES SW-846 METHOD 8260		**SW8260B**				Analyst: **LDS**
Vinyl acetate	U	1.0		µg/L	1	7/2/2003 2:37:00 PM
Vinyl chloride	U	1.0		µg/L	1	7/2/2003 2:37:00 PM

Qualifiers:

ND - Not Detected at the Reporting Limit

J - Analyte detected below quantitation limits

B - Analyte detected in the associated Method Blank

* - Value exceeds Maximum Contaminant Level

S - Spike Recovery outside accepted recovery limits

R - RPD outside accepted recovery limits

E - Value above quantitation range

GC/MS SEMIVOLATILE DATA

RESULTS – ORGANIC ANALYSIS DATA SHEET

American Analytical Laboratories, Inc.

Date: *28-Jul-03*

CLIENT:	AKRF, Inc	**Client Sample ID:**	MW16 (0.5-2')
Lab Order:	0306118	**Tag Number:**	
Project:	Greenpoint Lumber Yard Brooklyn, NY	**Collection Date:**	6/26/2003
Lab ID:	0306118-01B	**Matrix:**	SOIL

Analyses	Result	Limit	Qual	Units	DF	Date Analyzed
SEMIVOLATILES SW-846 8270		**SW8270D**		**(SW3550A)**		Analyst: **RN**
1,2,4-Trichlorobenzene	U	40		µg/Kg	1	7/9/2003 12:24:00 PM
1,2-Dichlorobenzene	U	40		µg/Kg	1	7/9/2003 12:24:00 PM
1,3-Dichlorobenzene	U	40		µg/Kg	1	7/9/2003 12:24:00 PM
1,4-Dichlorobenzene	U	40		µg/Kg	1	7/9/2003 12:24:00 PM
2,4,5-Trichlorophenol	U	40		µg/Kg	1	7/9/2003 12:24:00 PM
2,4,6-Trichlorophenol	U	40		µg/Kg	1	7/9/2003 12:24:00 PM
2,4-Dichlorophenol	U	40		µg/Kg	1	7/9/2003 12:24:00 PM
2,4-Dimethylphenol	U	40		µg/Kg	1	7/9/2003 12:24:00 PM
2,4-Dinitrophenol	U	40		µg/Kg	1	7/9/2003 12:24:00 PM
2,4-Dinitrotoluene	U	40		µg/Kg	1	7/9/2003 12:24:00 PM
2,6-Dinitrotoluene	U	40		µg/Kg	1	7/9/2003 12:24:00 PM
2-Chloronaphthalene	U	40		µg/Kg	1	7/9/2003 12:24:00 PM
2-Chlorophenol	U	40		µg/Kg	1	7/9/2003 12:24:00 PM
2-Methylnaphthalene	U	40		µg/Kg	1	7/9/2003 12:24:00 PM
2-Methylphenol	U	40		µg/Kg	1	7/9/2003 12:24:00 PM
2-Nitroaniline	U	40		µg/Kg	1	7/9/2003 12:24:00 PM
2-Nitrophenol	U	40		µg/Kg	1	7/9/2003 12:24:00 PM
3,3´-Dichlorobenzidine	U	40		µg/Kg	1	7/9/2003 12:24:00 PM
3+4-Methylphenol	U	40		µg/Kg	1	7/9/2003 12:24:00 PM
3-Nitroaniline	U	40		µg/Kg	1	7/9/2003 12:24:00 PM
4,6-Dinitro-2-methylphenol	U	40		µg/Kg	1	7/9/2003 12:24:00 PM
4-Bromophenyl phenyl ether	U	40		µg/Kg	1	7/9/2003 12:24:00 PM
4-Chloro-3-methylphenol	U	40		µg/Kg	1	7/9/2003 12:24:00 PM
4-Chloroaniline	U	40		µg/Kg	1	7/9/2003 12:24:00 PM
4-Chlorophenyl phenyl ether	U	40		µg/Kg	1	7/9/2003 12:24:00 PM
4-Nitroaniline	U	40		µg/Kg	1	7/9/2003 12:24:00 PM
4-Nitrophenol	U	40		µg/Kg	1	7/9/2003 12:24:00 PM
Acenaphthene	93	40		µg/Kg	1	7/9/2003 12:24:00 PM
Acenaphthylene	55	40		µg/Kg	1	7/9/2003 12:24:00 PM
Aniline	U	40		µg/Kg	1	7/9/2003 12:24:00 PM
Anthracene	260	40		µg/Kg	1	7/9/2003 12:24:00 PM
Azobenzene	U	40		µg/Kg	1	7/9/2003 12:24:00 PM
Benzidine	U	40		µg/Kg	1	7/9/2003 12:24:00 PM
Benzo(a)anthracene	1300	40		µg/Kg	1	7/9/2003 12:24:00 PM
Benzo(a)pyrene	1600	40		µg/Kg	1	7/9/2003 12:24:00 PM
Benzo(b)fluoranthene	2200	40		µg/Kg	1	7/9/2003 12:24:00 PM
Benzo(g,h,i)perylene	1400	40		µg/Kg	1	7/9/2003 12:24:00 PM
Benzo(k)fluoranthene	640	40		µg/Kg	1	7/9/2003 12:24:00 PM
Benzoic acid	U	40		µg/Kg	1	7/9/2003 12:24:00 PM
Benzyl alcohol	U	40		µg/Kg	1	7/9/2003 12:24:00 PM

Qualifiers:

ND - Not Detected at the Reporting Limit

J - Analyte detected below quantitation limits

B - Analyte detected in the associated Method Blank

* - Value exceeds Maximum Contaminant Level

S - Spike Recovery outside accepted recovery limits

R - RPD outside accepted recovery limits

E - Value above quantitation range

American Analytical Laboratories, Inc.

Date: *28-Jul-03*

CLIENT:	AKRF, Inc	**Client Sample ID:**	MW16 (0.5-2')
Lab Order:	0306118	**Tag Number:**	
Project:	Greenpoint Lumber Yard Brooklyn, NY	**Collection Date:**	6/26/2003
Lab ID:	0306118-01B	**Matrix:**	SOIL

Analyses	Result	Limit	Qual	Units	DF	Date Analyzed
SEMIVOLATILES SW-846 8270		**SW8270D**		**(SW3550A)**		Analyst: **RN**
Bis(2-chloroethoxy)methane	U	40		µg/Kg	1	7/9/2003 12:24:00 PM
Bis(2-chloroethyl)ether	U	40		µg/Kg	1	7/9/2003 12:24:00 PM
Bis(2-chloroisopropyl)ether	U	40		µg/Kg	1	7/9/2003 12:24:00 PM
Bis(2-ethylhexyl)phthalate	110	40		µg/Kg	1	7/9/2003 12:24:00 PM
Butyl benzyl phthalate	U	40		µg/Kg	1	7/9/2003 12:24:00 PM
Carbazole	91	40		µg/Kg	1	7/9/2003 12:24:00 PM
Chrysene	1500	40		µg/Kg	1	7/9/2003 12:24:00 PM
Dibenzo(a,h)anthracene	330	40		µg/Kg	1	7/9/2003 12:24:00 PM
Dibenzofuran	U	40		µg/Kg	1	7/9/2003 12:24:00 PM
Diethyl phthalate	U	40		µg/Kg	1	7/9/2003 12:24:00 PM
Dimethyl phthalate	U	40		µg/Kg	1	7/9/2003 12:24:00 PM
Di-n-butyl phthalate	U	40		µg/Kg	1	7/9/2003 12:24:00 PM
Di-n-octyl phthalate	U	40		µg/Kg	1	7/9/2003 12:24:00 PM
Fluoranthene	2000	40		µg/Kg	1	7/9/2003 12:24:00 PM
Fluorene	70	40		µg/Kg	1	7/9/2003 12:24:00 PM
Hexachlorobenzene	U	40		µg/Kg	1	7/9/2003 12:24:00 PM
Hexachlorobutadiene	U	40		µg/Kg	1	7/9/2003 12:24:00 PM
Hexachlorocyclopentadiene	U	40		µg/Kg	1	7/9/2003 12:24:00 PM
Hexachloroethane	U	40		µg/Kg	1	7/9/2003 12:24:00 PM
Indeno(1,2,3-c,d)pyrene	1300	40		µg/Kg	1	7/9/2003 12:24:00 PM
Isophorone	U	40		µg/Kg	1	7/9/2003 12:24:00 PM
Naphthalene	U	40		µg/Kg	1	7/9/2003 12:24:00 PM
Nitrobenzene	U	40		µg/Kg	1	7/9/2003 12:24:00 PM
N-Nitrosodimethylamine	U	40		µg/Kg	1	7/9/2003 12:24:00 PM
N-Nitrosodi-n-propylamine	U	40		µg/Kg	1	7/9/2003 12:24:00 PM
N-Nitrosodiphenylamine	U	40		µg/Kg	1	7/9/2003 12:24:00 PM
Pentachlorophenol	U	40		µg/Kg	1	7/9/2003 12:24:00 PM
Phenanthrene	1200	40		µg/Kg	1	7/9/2003 12:24:00 PM
Phenol	U	40		µg/Kg	1	7/9/2003 12:24:00 PM
Pyrene	2100	40		µg/Kg	1	7/9/2003 12:24:00 PM
Pyridine	U	40		µg/Kg	1	7/9/2003 12:24:00 PM

Qualifiers:

ND - Not Detected at the Reporting Limit

J - Analyte detected below quantitation limits

B - Analyte detected in the associated Method Blank

* - Value exceeds Maximum Contaminant Level

S - Spike Recovery outside accepted recovery limits

R - RPD outside accepted recovery limits

E - Value above quantitation range

American Analytical Laboratories, Inc.

Date: *28-Jul-03*

CLIENT:	AKRF, Inc	**Client Sample ID:**	MW16 (8.5-9.5)
Lab Order:	0306118	**Tag Number:**	
Project:	Greenpoint Lumber Yard Brooklyn, NY	**Collection Date:**	6/26/2003
Lab ID:	0306118-02B	**Matrix:**	SOIL

Analyses	Result	Limit	Qual	Units	DF	Date Analyzed
SEMIVOLATILES SW-846 8270		**SW8270D**		**(SW3550A)**		Analyst: **RN**
1,2,4-Trichlorobenzene	U	80		µg/Kg	2	7/9/2003 11:45:00 AM
1,2-Dichlorobenzene	U	80		µg/Kg	2	7/9/2003 11:45:00 AM
1,3-Dichlorobenzene	U	80		µg/Kg	2	7/9/2003 11:45:00 AM
1,4-Dichlorobenzene	U	80		µg/Kg	2	7/9/2003 11:45:00 AM
2,4,5-Trichlorophenol	U	80		µg/Kg	2	7/9/2003 11:45:00 AM
2,4,6-Trichlorophenol	U	80		µg/Kg	2	7/9/2003 11:45:00 AM
2,4-Dichlorophenol	U	80		µg/Kg	2	7/9/2003 11:45:00 AM
2,4-Dimethylphenol	U	80		µg/Kg	2	7/9/2003 11:45:00 AM
2,4-Dinitrophenol	U	80		µg/Kg	2	7/9/2003 11:45:00 AM
2,4-Dinitrotoluene	U	80		µg/Kg	2	7/9/2003 11:45:00 AM
2,6-Dinitrotoluene	U	80		µg/Kg	2	7/9/2003 11:45:00 AM
2-Chloronaphthalene	U	80		µg/Kg	2	7/9/2003 11:45:00 AM
2-Chlorophenol	U	80		µg/Kg	2	7/9/2003 11:45:00 AM
2-Methylnaphthalene	U	80		µg/Kg	2	7/9/2003 11:45:00 AM
2-Methylphenol	U	80		µg/Kg	2	7/9/2003 11:45:00 AM
2-Nitroaniline	U	80		µg/Kg	2	7/9/2003 11:45:00 AM
2-Nitrophenol	U	80		µg/Kg	2	7/9/2003 11:45:00 AM
3,3'-Dichlorobenzidine	U	80		µg/Kg	2	7/9/2003 11:45:00 AM
3+4-Methylphenol	U	80		µg/Kg	2	7/9/2003 11:45:00 AM
3-Nitroanlline	U	80		µg/Kg	2	7/9/2003 11:45:00 AM
4,6-Dinitro-2-methylphenol	U	80		µg/Kg	2	7/9/2003 11:45:00 AM
4-Bromophenyl phenyl ether	U	80		µg/Kg	2	7/9/2003 11:45:00 AM
4-Chloro-3-methylphenol	U	80		µg/Kg	2	7/9/2003 11:45:00 AM
4-Chloroaniline	U	80		µg/Kg	2	7/9/2003 11:45:00 AM
4-Chlorophenyl phenyl ether	U	80		µg/Kg	2	7/9/2003 11:45:00 AM
4-Nitroaniline	U	80		µg/Kg	2	7/9/2003 11:45:00 AM
4-Nitrophenol	U	80		µg/Kg	2	7/9/2003 11:45:00 AM
Acenaphthene	U	80		µg/Kg	2	7/9/2003 11:45:00 AM
Acenaphthylene	U	80		µg/Kg	2	7/9/2003 11:45:00 AM
Anlline	U	80		µg/Kg	2	7/9/2003 11:45:00 AM
Anthracene	U	80		µg/Kg	2	7/9/2003 11:45:00 AM
Azobenzene	U	80		µg/Kg	2	7/9/2003 11:45:00 AM
Benzidine	U	80		µg/Kg	2	7/9/2003 11:45:00 AM
Benzo(a)anthracene	U	80		µg/Kg	2	7/9/2003 11:45:00 AM
Benzo(a)pyrene	U	80		µg/Kg	2	7/9/2003 11:45:00 AM
Benzo(b)fluoranthene	U	80		µg/Kg	2	7/9/2003 11:45:00 AM
Benzo(g,h,i)perylene	U	80		µg/Kg	2	7/9/2003 11:45:00 AM
Benzo(k)fluoranthene	U	80		µg/Kg	2	7/9/2003 11:45:00 AM
Benzoic acid	U	80		µg/Kg	2	7/9/2003 11:45:00 AM
Benzyl alcohol	U	80		µg/Kg	2	7/9/2003 11:45:00 AM

Qualifiers:

ND - Not Detected at the Reporting Limit

J - Analyte detected below quantitation limits

B - Analyte detected in the associated Method Blank

* - Value exceeds Maximum Contaminant Level

S - Spike Recovery outside accepted recovery limits

R - RPD outside accepted recovery limits

E - Value above quantitation range

American Analytical Laboratories, Inc.

Date: *28-Jul-03*

CLIENT:	AKRF, Inc	**Client Sample ID:**	MW16 (8.5-9.5)
Lab Order:	0306118	**Tag Number:**	
Project:	Greenpoint Lumber Yard Brooklyn, NY	**Collection Date:**	6/26/2003
Lab ID:	0306118-02B	**Matrix:**	SOIL

Analyses	Result	Limit	Qual	Units	DF	Date Analyzed
SEMIVOLATILES SW-846 8270		**SW8270D**		**(SW3550A)**		Analyst: **RN**
Bis(2-chloroethoxy)methane	U	80		µg/Kg	2	7/9/2003 11:45:00 AM
Bis(2-chloroethyl)ether	U	80		µg/Kg	2	7/9/2003 11:45:00 AM
Bis(2-chloroisopropyl)ether	U	80		µg/Kg	2	7/9/2003 11:45:00 AM
Bis(2-ethylhexyl)phthalate	U	80		µg/Kg	2	7/9/2003 11:45:00 AM
Butyl benzyl phthalate	U	80		µg/Kg	2	7/9/2003 11:45:00 AM
Carbazole	U	80		µg/Kg	2	7/9/2003 11:45:00 AM
Chrysene	82	80		µg/Kg	2	7/9/2003 11:45:00 AM
Dibenzo(a,h)anthracene	U	80		µg/Kg	2	7/9/2003 11:45:00 AM
Dibenzofuran	U	80		µg/Kg	2	7/9/2003 11:45:00 AM
Diethyl phthalate	U	80		µg/Kg	2	7/9/2003 11:45:00 AM
Dimethyl phthalate	U	80		µg/Kg	2	7/9/2003 11:45:00 AM
Di-n-butyl phthalate	U	80		µg/Kg	2	7/9/2003 11:45:00 AM
Di-n-octyl phthalate	U	80		µg/Kg	2	7/9/2003 11:45:00 AM
Fluoranthene	200	80		µg/Kg	2	7/9/2003 11:45:00 AM
Fluorene	U	80		µg/Kg	2	7/9/2003 11:45:00 AM
Hexachlorobenzene	U	80		µg/Kg	2	7/9/2003 11:45:00 AM
Hexachlorobutadiene	U	80		µg/Kg	2	7/9/2003 11:45:00 AM
Hexachlorocyclopentadiene	U	80		µg/Kg	2	7/9/2003 11:45:00 AM
Hexachloroethane	U	80		µg/Kg	2	7/9/2003 11:45:00 AM
Indeno(1,2,3-c,d)pyrene	U	80		µg/Kg	2	7/9/2003 11:45:00 AM
Isophorone	U	80		µg/Kg	2	7/9/2003 11:45:00 AM
Naphthalene	U	80		µg/Kg	2	7/9/2003 11:45:00 AM
Nitrobenzene	U	80		µg/Kg	2	7/9/2003 11:45:00 AM
N-Nitrosodimethylamine	U	80		µg/Kg	2	7/9/2003 11:45:00 AM
N-Nitrosodi-n-propylamine	U	80		µg/Kg	2	7/9/2003 11:45:00 AM
N-Nitrosodiphenylamine	U	80		µg/Kg	2	7/9/2003 11:45:00 AM
Pentachlorophenol	U	80		µg/Kg	2	7/9/2003 11:45:00 AM
Phenanthrene	170	80		µg/Kg	2	7/9/2003 11:45:00 AM
Phenol	U	80		µg/Kg	2	7/9/2003 11:45:00 AM
Pyrene	200	80		µg/Kg	2	7/9/2003 11:45:00 AM
Pyridine	U	80		µg/Kg	2	7/9/2003 11:45:00 AM

Qualifiers:

ND - Not Detected at the Reporting Limit

J - Analyte detected below quantitation limits

B - Analyte detected in the associated Method Blank

* - Value exceeds Maximum Contaminant Level

S - Spike Recovery outside accepted recovery limits

R - RPD outside accepted recovery limits

E - Value above quantitation range

American Analytical Laboratories, Inc.

Date: *28-Jul-03*

CLIENT:	AKRF, Inc	**Client Sample ID:**	Field Blank #1
Lab Order:	0306118	**Tag Number:**	
Project:	Greenpoint Lumber Yard Brooklyn, NY	**Collection Date:**	6/26/2003
Lab ID:	0306118-04B	**Matrix:**	LIQUID

Analyses	Result	Limit	Qual	Units	DF	Date Analyzed
SEMIVOLATILES SW-846 8270		**SW8270D**		**(SW3510)**		Analyst: **RN**
1,2,4-Trichlorobenzene	U	5.0		µg/L	1	6/30/2003 8:07:00 PM
1,2-Dichlorobenzene	U	5.0		µg/L	1	6/30/2003 8:07:00 PM
1,3-Dichlorobenzene	U	5.0		µg/L	1	6/30/2003 8:07:00 PM
1,4-Dichlorobenzene	U	5.0		µg/L	1	6/30/2003 8:07:00 PM
2,4,5-Trichlorophenol	U	5.0		µg/L	1	6/30/2003 8:07:00 PM
2,4,6-Trichlorophenol	U	5.0		µg/L	1	6/30/2003 8:07:00 PM
2,4-Dichlorophenol	U	5.0		µg/L	1	6/30/2003 8:07:00 PM
2,4-Dimethylphenol	U	5.0		µg/L	1	6/30/2003 8:07:00 PM
2,4-Dinitrophenol	U	5.0		µg/L	1	6/30/2003 8:07:00 PM
2,4-Dinitrotoluene	U	5.0		µg/L	1	6/30/2003 8:07:00 PM
2,6-Dinitrotoluene	U	5.0		µg/L	1	6/30/2003 8:07:00 PM
2-Chloronaphthalene	U	5.0		µg/L	1	6/30/2003 8:07:00 PM
2-Chlorophenol	U	5.0		µg/L	1	6/30/2003 8:07:00 PM
2-Methylnaphthalene	U	5.0		µg/L	1	6/30/2003 8:07:00 PM
2-Methylphenol	U	5.0		µg/L	1	6/30/2003 8:07:00 PM
2-Nitroaniline	U	5.0		µg/L	1	6/30/2003 8:07:00 PM
2-Nitrophenol	U	5.0		µg/L	1	6/30/2003 8:07:00 PM
3,3'-Dichlorobenzidine	U	5.0		µg/L	1	6/30/2003 8:07:00 PM
3+4-Methylphenol	U	5.0		µg/L	1	6/30/2003 8:07:00 PM
3-Nitroaniline	U	5.0		µg/L	1	6/30/2003 8:07:00 PM
4,6-Dinitro-2-methylphenol	U	5.0		µg/L	1	6/30/2003 8:07:00 PM
4-Bromophenyl phenyl ether	U	5.0		µg/L	1	6/30/2003 8:07:00 PM
4-Chloro-3-methylphenol	U	5.0		µg/L	1	6/30/2003 8:07:00 PM
4-Chloroaniline	U	5.0		µg/L	1	6/30/2003 8:07:00 PM
4-Chlorophenyl phenyl ether	U	5.0		µg/L	1	6/30/2003 8:07:00 PM
4-Nitroaniline	U	5.0		µg/L	1	6/30/2003 8:07:00 PM
4-Nitrophenol	U	5.0		µg/L	1	6/30/2003 8:07:00 PM
Acenaphthene	U	5.0		µg/L	1	6/30/2003 8:07:00 PM
Acenaphthylene	U	5.0		µg/L	1	6/30/2003 8:07:00 PM
Aniline	U	5.0		µg/L	1	6/30/2003 8:07:00 PM
Anthracene	U	5.0		µg/L	1	6/30/2003 8:07:00 PM
Azobenzene	U	5.0		µg/L	1	6/30/2003 8:07:00 PM
Benzidine	U	5.0		µg/L	1	6/30/2003 8:07:00 PM
Benzo(a)anthracene	U	5.0		µg/L	1	6/30/2003 8:07:00 PM
Benzo(a)pyrene	U	5.0		µg/L	1	6/30/2003 8:07:00 PM
Benzo(b)fluoranthene	U	5.0		µg/L	1	6/30/2003 8:07:00 PM
Benzo(g,h,i)perylene	U	5.0		µg/L	1	6/30/2003 8:07:00 PM
Benzo(k)fluoranthene	U	5.0		µg/L	1	6/30/2003 8:07:00 PM
Benzoic acid	U	5.0		µg/L	1	6/30/2003 8:07:00 PM
Benzyl alcohol	U	5.0		µg/L	1	6/30/2003 8:07:00 PM

Qualifiers:

ND - Not Detected at the Reporting Limit

J - Analyte detected below quantitation limits

B - Analyte detected in the associated Method Blank

* - Value exceeds Maximum Contaminant Level

S - Spike Recovery outside accepted recovery limits

R - RPD outside accepted recovery limits

E - Value above quantitation range

American Analytical Laboratories, Inc.

Date: *28-Jul-03*

CLIENT:	AKRF, Inc	**Client Sample ID:**	Field Blank #1
Lab Order:	0306118	**Tag Number:**	
Project:	Greenpoint Lumber Yard Brooklyn, NY	**Collection Date:**	6/26/2003
Lab ID:	0306118-04B	**Matrix:**	LIQUID

Analyses	Result	Limit	Qual	Units	DF	Date Analyzed
SEMIVOLATILES SW-846 8270		**SW8270D**		**(SW3510)**		Analyst: **RN**
Bis(2-chloroethoxy)methane	U	5.0		µg/L	1	6/30/2003 8:07:00 PM
Bis(2-chloroethyl)ether	U	5.0		µg/L	1	6/30/2003 8:07:00 PM
Bis(2-chloroisopropyl)ether	U	5.0		µg/L	1	6/30/2003 8:07:00 PM
Bis(2-ethylhexyl)phthalate	U	5.0		µg/L	1	6/30/2003 8:07:00 PM
Butyl benzyl phthalate	U	5.0		µg/L	1	6/30/2003 8:07:00 PM
Carbazole	U	5.0		µg/L	1	6/30/2003 8:07:00 PM
Chrysene	U	5.0		µg/L	1	6/30/2003 8:07:00 PM
Dibenzo(a,h)anthracene	U	5.0		µg/L	1	6/30/2003 8:07:00 PM
Dibenzofuran	U	5.0		µg/L	1	6/30/2003 8:07:00 PM
Diethyl phthalate	U	5.0		µg/L	1	6/30/2003 8:07:00 PM
Dimethyl phthalate	U	5.0		µg/L	1	6/30/2003 8:07:00 PM
Di-n-butyl phthalate	U	5.0		µg/L	1	6/30/2003 8:07:00 PM
Di-n-octyl phthalate	U	5.0		µg/L	1	6/30/2003 8:07:00 PM
Fluoranthene	U	5.0		µg/L	1	6/30/2003 8:07:00 PM
Fluorene	U	5.0		µg/L	1	6/30/2003 8:07:00 PM
Hexachlorobenzene	U	5.0		µg/L	1	6/30/2003 8:07:00 PM
Hexachlorobutadiene	U	5.0		µg/L	1	6/30/2003 8:07:00 PM
Hexachlorocyclopentadiene	U	5.0		µg/L	1	6/30/2003 8:07:00 PM
Hexachloroethane	U	5.0		µg/L	1	6/30/2003 8:07:00 PM
Indeno(1,2,3-c,d)pyrene	U	5.0		µg/L	1	6/30/2003 8:07:00 PM
Isophorone	U	5.0		µg/L	1	6/30/2003 8:07:00 PM
Naphthalene	U	5.0		µg/L	1	6/30/2003 8:07:00 PM
Nitrobenzene	U	5.0		µg/L	1	6/30/2003 8:07:00 PM
N-Nitrosodimethylamine	U	5.0		µg/L	1	6/30/2003 8:07:00 PM
N-Nitrosodi-n-propylamine	U	5.0		µg/L	1	6/30/2003 8:07:00 PM
N-Nitrosodiphenylamine	U	5.0		µg/L	1	6/30/2003 8:07:00 PM
Pentachlorophenol	U	5.0		µg/L	1	6/30/2003 8:07:00 PM
Phenanthrene	U	5.0		µg/L	1	6/30/2003 8:07:00 PM
Phenol	U	5.0		µg/L	1	6/30/2003 8:07:00 PM
Pyrene	U	5.0		µg/L	1	6/30/2003 8:07:00 PM
Pyridine	U	5.0		µg/L	1	6/30/2003 8:07:00 PM

Qualifiers:

ND - Not Detected at the Reporting Limit

J - Analyte detected below quantitation limits

B - Analyte detected in the associated Method Blank

* - Value exceeds Maximum Contaminant Level

S - Spike Recovery outside accepted recovery limits

R - RPD outside accepted recovery limits

E - Value above quantitation range

American Analytical Laboratories, Inc.

Date: *28-Jul-03*

CLIENT:	AKRF, Inc	**Client Sample ID:**	Field Blank #2
Lab Order:	0306118	**Tag Number:**	
Project:	Greenpoint Lumber Yard Brooklyn, NY	**Collection Date:**	6/26/2003
Lab ID:	0306118-05B	**Matrix:**	LIQUID

Analyses	Result	Limit	Qual	Units	DF	Date Analyzed
SEMIVOLATILES SW-846 8270		**SW8270D**		**(SW3510)**		Analyst: **RN**
1,2,4-Trichlorobenzene	U	5.0		µg/L	1	6/30/2003 8:56:00 PM
1,2-Dichlorobenzene	U	5.0		µg/L	1	6/30/2003 8:56:00 PM
1,3-Dichlorobenzene	U	5.0		µg/L	1	6/30/2003 8:56:00 PM
1,4-Dichlorobenzene	U	5.0		µg/L	1	6/30/2003 8:56:00 PM
2,4,5-Trichlorophenol	U	5.0		µg/L	1	6/30/2003 8:56:00 PM
2,4,6-Trichlorophenol	U	5.0		µg/L	1	6/30/2003 8:56:00 PM
2,4-Dichlorophenol	U	5.0		µg/L	1	6/30/2003 8:56:00 PM
2,4-Dimethylphenol	U	5.0		µg/L	1	6/30/2003 8:56:00 PM
2,4-Dinitrophenol	U	5.0		µg/L	1	6/30/2003 8:56:00 PM
2,4-Dinitrotoluene	U	5.0		µg/L	1	6/30/2003 8:56:00 PM
2,6-Dinitrotoluene	U	5.0		µg/L	1	6/30/2003 8:56:00 PM
2-Chloronaphthalene	U	5.0		µg/L	1	6/30/2003 8:56:00 PM
2-Chlorophenol	U	5.0		µg/L	1	6/30/2003 8:56:00 PM
2-Methylnaphthalene	U	5.0		µg/L	1	6/30/2003 8:56:00 PM
2-Methylphenol	U	5.0		µg/L	1	6/30/2003 8:56:00 PM
2-Nitroaniline	U	5.0		µg/L	1	6/30/2003 8:56:00 PM
2-Nitrophenol	U	5.0		µg/L	1	6/30/2003 8:56:00 PM
3,3´-Dichlorobenzidine	U	5.0		µg/L	1	6/30/2003 8:56:00 PM
3+4-Methylphenol	U	5.0		µg/L	1	6/30/2003 8:56:00 PM
3-Nitroaniline	U	5.0		µg/L	1	6/30/2003 8:56:00 PM
4,6-Dinitro-2-methylphenol	U	5.0		µg/L	1	6/30/2003 8:56:00 PM
4-Bromophenyl phenyl ether	U	5.0		µg/L	1	6/30/2003 8:56:00 PM
4-Chloro-3-methylphenol	U	5.0		µg/L	1	6/30/2003 8:56:00 PM
4-Chloroaniline	U	5.0		µg/L	1	6/30/2003 8:56:00 PM
4-Chlorophenyl phenyl ether	U	5.0		µg/L	1	6/30/2003 8:56:00 PM
4-Nitroaniline	U	5.0		µg/L	1	6/30/2003 8:56:00 PM
4-Nitrophenol	U	5.0		µg/L	1	6/30/2003 8:56:00 PM
Acenaphthene	U	5.0		µg/L	1	6/30/2003 8:56:00 PM
Acenaphthylene	U	5.0		µg/L	1	6/30/2003 8:56:00 PM
Aniline	U	5.0		µg/L	1	6/30/2003 8:56:00 PM
Anthracene	U	5.0		µg/L	1	6/30/2003 8:56:00 PM
Azobenzene	U	5.0		µg/L	1	6/30/2003 8:56:00 PM
Benzidine	U	5.0		µg/L	1	6/30/2003 8:56:00 PM
Benzo(a)anthracene	U	5.0		µg/L	1	6/30/2003 8:56:00 PM
Benzo(a)pyrene	U	5.0		µg/L	1	6/30/2003 8:56:00 PM
Benzo(b)fluoranthene	U	5.0		µg/L	1	6/30/2003 8:56:00 PM
Benzo(g,h,i)perylene	U	5.0		µg/L	1	6/30/2003 8:56:00 PM
Benzo(k)fluoranthene	U	5.0		µg/L	1	6/30/2003 8:56:00 PM
Benzoic acid	U	5.0		µg/L	1	6/30/2003 8:56:00 PM
Benzyl alcohol	U	5.0		µg/L	1	6/30/2003 8:56:00 PM

Qualifiers:

ND - Not Detected at the Reporting Limit

J - Analyte detected below quantitation limits

B - Analyte detected in the associated Method Blank

* - Value exceeds Maximum Contaminant Level

S - Spike Recovery outside accepted recovery limits

R - RPD outside accepted recovery limits

E - Value above quantitation range

American Analytical Laboratories, Inc.

Date: *28-Jul-03*

CLIENT:	AKRF, Inc	**Client Sample ID:**	Field Blank #2
Lab Order:	0306118	**Tag Number:**	
Project:	Greenpoint Lumber Yard Brooklyn, NY	**Collection Date:**	6/26/2003
Lab ID:	0306118-05B	**Matrix:**	LIQUID

Analyses	Result	Limit	Qual	Units	DF	Date Analyzed
SEMIVOLATILES SW-846 8270		**SW8270D**		**(SW3510)**		Analyst: **RN**
Bis(2-chloroethoxy)methane	U	5.0		µg/L	1	6/30/2003 8:56:00 PM
Bis(2-chloroethyl)ether	U	5.0		µg/L	1	6/30/2003 8:56:00 PM
Bis(2-chloroisopropyl)ether	U	5.0		µg/L	1	6/30/2003 8:56:00 PM
Bis(2-ethylhexyl)phthalate	U	5.0		µg/L	1	6/30/2003 8:56:00 PM
Butyl benzyl phthalate	U	5.0		µg/L	1	6/30/2003 8:56:00 PM
Carbazole	U	5.0		µg/L	1	6/30/2003 8:56:00 PM
Chrysene	U	5.0		µg/L	1	6/30/2003 8:56:00 PM
Dibenzo(a,h)anthracene	U	5.0		µg/L	1	6/30/2003 8:56:00 PM
Dibenzofuran	U	5.0		µg/L	1	6/30/2003 8:56:00 PM
Diethyl phthalate	U	5.0		µg/L	1	6/30/2003 8:56:00 PM
Dimethyl phthalate	U	5.0		µg/L	1	6/30/2003 8:56:00 PM
Di-n-butyl phthalate	U	5.0		µg/L	1	6/30/2003 8:56:00 PM
Di-n-octyl phthalate	U	5.0		µg/L	1	6/30/2003 8:56:00 PM
Fluoranthene	U	5.0		µg/L	1	6/30/2003 8:56:00 PM
Fluorene	U	5.0		µg/L	1	6/30/2003 8:56:00 PM
Hexachlorobenzene	U	5.0		µg/L	1	6/30/2003 8:56:00 PM
Hexachlorobutadiene	U	5.0		µg/L	1	6/30/2003 8:56:00 PM
Hexachlorocyclopentadiene	U	5.0		µg/L	1	6/30/2003 8:56:00 PM
Hexachloroethane	U	5.0		µg/L	1	6/30/2003 8:56:00 PM
Indeno(1,2,3-c,d)pyrene	U	5.0		µg/L	1	6/30/2003 8:56:00 PM
Isophorone	U	5.0		µg/L	1	6/30/2003 8:56:00 PM
Naphthalene	U	5.0		µg/L	1	6/30/2003 8:56:00 PM
Nitrobenzene	U	5.0		µg/L	1	6/30/2003 8:56:00 PM
N-Nitrosodimethylamine	U	5.0		µg/L	1	6/30/2003 8:56:00 PM
N-Nitrosodi-n-propylamine	U	5.0		µg/L	1	6/30/2003 8:56:00 PM
N-Nitrosodiphenylamine	U	5.0		µg/L	1	6/30/2003 8:56:00 PM
Pentachlorophenol	U	5.0		µg/L	1	6/30/2003 8:56:00 PM
Phenanthrene	U	5.0		µg/L	1	6/30/2003 8:56:00 PM
Phenol	U	5.0		µg/L	1	6/30/2003 8:56:00 PM
Pyrene	U	5.0		µg/L	1	6/30/2003 8:56:00 PM
Pyridine	U	5.0		µg/L	1	6/30/2003 8:56:00 PM

Qualifiers:

ND - Not Detected at the Reporting Limit

J - Analyte detected below quantitation limits

B - Analyte detected in the associated Method Blank

* - Value exceeds Maximum Contaminant Level

S - Spike Recovery outside accepted recovery limits

R - RPD outside accepted recovery limits

E - Value above quantitation range

American Analytical Laboratories, Inc.

Date: *28-Jul-03*

CLIENT:	AKRF, Inc	**Client Sample ID:**	Field Blank #3
Lab Order:	0306118	**Tag Number:**	
Project:	Greenpoint Lumber Yard Brooklyn, NY	**Collection Date:**	6/26/2003
Lab ID:	0306118-06B	**Matrix:**	LIQUID

Analyses	Result	Limit	Qual	Units	DF	Date Analyzed
SEMIVOLATILES SW-846 8270		**SW8270D**		**(SW3510)**		Analyst: **RN**
1,2,4-Trichlorobenzene	U	5.0		µg/L	1	6/30/2003 9:44:00 PM
1,2-Dichlorobenzene	U	5.0		µg/L	1	6/30/2003 9:44:00 PM
1,3-Dichlorobenzene	U	5.0		µg/L	1	6/30/2003 9:44:00 PM
1,4-Dichlorobenzene	U	5.0		µg/L	1	6/30/2003 9:44:00 PM
2,4,5-Trichlorophenol	U	5.0		µg/L	1	6/30/2003 9:44:00 PM
2,4,6-Trichlorophenol	U	5.0		µg/L	1	6/30/2003 9:44:00 PM
2,4-Dichlorophenol	U	5.0		µg/L	1	6/30/2003 9:44:00 PM
2,4-Dimethylphenol	U	5.0		µg/L	1	6/30/2003 9:44:00 PM
2,4-Dinitrophenol	U	5.0		µg/L	1	6/30/2003 9:44:00 PM
2,4-Dinitrotoluene	U	5.0		µg/L	1	6/30/2003 9:44:00 PM
2,6-Dinitrotoluene	U	5.0		µg/L	1	6/30/2003 9:44:00 PM
2-Chloronaphthalene	U	5.0		µg/L	1	6/30/2003 9:44:00 PM
2-Chlorophenol	U	5.0		µg/L	1	6/30/2003 9:44:00 PM
2-Methylnaphthalene	U	5.0		µg/L	1	6/30/2003 9:44:00 PM
2-Methylphenol	U	5.0		µg/L	1	6/30/2003 9:44:00 PM
2-Nitroaniline	U	5.0		µg/L	1	6/30/2003 9:44:00 PM
2-Nitrophenol	U	5.0		µg/L	1	6/30/2003 9:44:00 PM
3,3´-Dichlorobenzidine	U	5.0		µg/L	1	6/30/2003 9:44:00 PM
3+4-Methylphenol	U	5.0		µg/L	1	6/30/2003 9:44:00 PM
3-Nitroaniline	U	5.0		µg/L	1	6/30/2003 9:44:00 PM
4,6-Dinitro-2-methylphenol	U	5.0		µg/L	1	6/30/2003 9:44:00 PM
4-Bromophenyl phenyl ether	U	5.0		µg/L	1	6/30/2003 9:44:00 PM
4-Chloro-3-methylphenol	U	5.0		µg/L	1	6/30/2003 9:44:00 PM
4-Chloroaniline	U	5.0		µg/L	1	6/30/2003 9:44:00 PM
4-Chlorophenyl phenyl ether	U	5.0		µg/L	1	6/30/2003 9:44:00 PM
4-Nitroaniline	U	5.0		µg/L	1	6/30/2003 9:44:00 PM
4-Nitrophenol	U	5.0		µg/L	1	6/30/2003 9:44:00 PM
Acenaphthene	U	5.0		µg/L	1	6/30/2003 9:44:00 PM
Acenaphthylene	U	5.0		µg/L	1	6/30/2003 9:44:00 PM
Aniline	U	5.0		µg/L	1	6/30/2003 9:44:00 PM
Anthracene	U	5.0		µg/L	1	6/30/2003 9:44:00 PM
Azobenzene	U	5.0		µg/L	1	6/30/2003 9:44:00 PM
Benzidine	U	5.0		µg/L	1	6/30/2003 9:44:00 PM
Benzo(a)anthracene	U	5.0		µg/L	1	6/30/2003 9:44:00 PM
Benzo(a)pyrene	U	5.0		µg/L	1	6/30/2003 9:44:00 PM
Benzo(b)fluoranthene	U	5.0		µg/L	1	6/30/2003 9:44:00 PM
Benzo(g,h,i)perylene	U	5.0		µg/L	1	6/30/2003 9:44:00 PM
Benzo(k)fluoranthene	U	5.0		µg/L	1	6/30/2003 9:44:00 PM
Benzoic acid	U	5.0		µg/L	1	6/30/2003 9:44:00 PM
Benzyl alcohol	U	5.0		µg/L	1	6/30/2003 9:44:00 PM

Qualifiers:

ND - Not Detected at the Reporting Limit

J - Analyte detected below quantitation limits

B - Analyte detected in the associated Method Blank

* - Value exceeds Maximum Contaminant Level

S - Spike Recovery outside accepted recovery limits

R - RPD outside accepted recovery limits

E - Value above quantitation range

American Analytical Laboratories, Inc.

Date: *28-Jul-03*

CLIENT:	AKRF, Inc	**Client Sample ID:**	Field Blank #3
Lab Order:	0306118	**Tag Number:**	
Project:	Greenpoint Lumber Yard Brooklyn, NY	**Collection Date:**	6/26/2003
Lab ID:	0306118-06B	**Matrix:**	LIQUID

Analyses	Result	Limit	Qual	Units	DF	Date Analyzed
SEMIVOLATILES SW-846 8270		**SW8270D**		**(SW3510)**		Analyst: **RN**
Bis(2-chloroethoxy)methane	U	5.0		µg/L	1	6/30/2003 9:44:00 PM
Bis(2-chloroethyl)ether	U	5.0		µg/L	1	6/30/2003 9:44:00 PM
Bis(2-chloroisopropyl)ether	U	5.0		µg/L	1	6/30/2003 9:44:00 PM
Bis(2-ethylhexyl)phthalate	U	5.0		µg/L	1	6/30/2003 9:44:00 PM
Butyl benzyl phthalate	U	5.0		µg/L	1	6/30/2003 9:44:00 PM
Carbazole	U	5.0		µg/L	1	6/30/2003 9:44:00 PM
Chrysene	U	5.0		µg/L	1	6/30/2003 9:44:00 PM
Dibenzo(a,h)anthracene	U	5.0		µg/L	1	6/30/2003 9:44:00 PM
Dibenzofuran	U	5.0		µg/L	1	6/30/2003 9:44:00 PM
Diethyl phthalate	U	5.0		µg/L	1	6/30/2003 9:44:00 PM
Dimethyl phthalate	U	5.0		µg/L	1	6/30/2003 9:44:00 PM
Di-n-butyl phthalate	U	5.0		µg/L	1	6/30/2003 9:44:00 PM
Di-n-octyl phthalate	U	5.0		µg/L	1	6/30/2003 9:44:00 PM
Fluoranthene	U	5.0		µg/L	1	6/30/2003 9:44:00 PM
Fluorene	U	5.0		µg/L	1	6/30/2003 9:44:00 PM
Hexachlorobenzene	U	5.0		µg/L	1	6/30/2003 9:44:00 PM
Hexachlorobutadiene	U	5.0		µg/L	1	6/30/2003 9:44:00 PM
Hexachlorocyclopentadiene	U	5.0		µg/L	1	6/30/2003 9:44:00 PM
Hexachloroethane	U	5.0		µg/L	1	6/30/2003 9:44:00 PM
Indeno(1,2,3-c,d)pyrene	U	5.0		µg/L	1	6/30/2003 9:44:00 PM
Isophorone	U	5.0		µg/L	1	6/30/2003 9:44:00 PM
Naphthalene	U	5.0		µg/L	1	6/30/2003 9:44:00 PM
Nitrobenzene	U	5.0		µg/L	1	6/30/2003 9:44:00 PM
N-Nitrosodimethylamine	U	5.0		µg/L	1	6/30/2003 9:44:00 PM
N-Nitrosodi-n-propylamine	U	5.0		µg/L	1	6/30/2003 9:44:00 PM
N-Nitrosodiphenylamine	U	5.0		µg/L	1	6/30/2003 9:44:00 PM
Pentachlorophenol	U	5.0		µg/L	1	6/30/2003 9:44:00 PM
Phenanthrene	U	5.0		µg/L	1	6/30/2003 9:44:00 PM
Phenol	U	5.0		µg/L	1	6/30/2003 9:44:00 PM
Pyrene	U	5.0		µg/L	1	6/30/2003 9:44:00 PM
Pyridine	U	5.0		µg/L	1	6/30/2003 9:44:00 PM

Qualifiers:

ND - Not Detected at the Reporting Limit

J - Analyte detected below quantitation limits

B - Analyte detected in the associated Method Blank

* - Value exceeds Maximum Contaminant Level

S - Spike Recovery outside accepted recovery limits

R - RPD outside accepted recovery limits

E - Value above quantitation range

GC PESTICIDE/PCB DATA

RESULTS – ORGANIC ANALYSIS DATA SHEET

American Analytical Laboratories, Inc.

Date: *28-Jul-03*

CLIENT:	AKRF, Inc	**Client Sample ID:**	MW16 (0.5-2')
Lab Order:	0306118	**Tag Number:**	
Project:	Greenpoint Lumber Yard Brooklyn, NY	**Collection Date:**	6/26/2003
Lab ID:	0306118-01B	**Matrix:**	SOIL

Analyses	Result	Limit	Qual	Units	DF	Date Analyzed
PESTICIDES SW-846 8081		**SW8081B**		**(SW3550)**		Analyst: **KB**
4,4'-DDD	U	5.0		µg/Kg	1	7/10/2003 9:45:00 PM
4,4'-DDE	14	5.0		µg/Kg	1	7/10/2003 9:45:00 PM
4,4'-DDT	6.4	5.0		µg/Kg	1	7/10/2003 9:45:00 PM
Aldrin	U	5.0		µg/Kg	1	7/10/2003 9:45:00 PM
alpha-BHC	U	5.0		µg/Kg	1	7/10/2003 9:45:00 PM
beta-BHC	U	5.0		µg/Kg	1	7/10/2003 9:45:00 PM
Chlordane	7.9	5.0		µg/Kg	1	7/10/2003 9:45:00 PM
Chlorobenzilate	U	5.0		µg/Kg	1	7/10/2003 9:45:00 PM
DBCP	U	5.0		µg/Kg	1	7/10/2003 9:45:00 PM
delta-BHC	U	5.0		µg/Kg	1	7/10/2003 9:45:00 PM
Dieldrin	U	5.0		µg/Kg	1	7/10/2003 9:45:00 PM
Endosulfan I	U	5.0		µg/Kg	1	7/10/2003 9:45:00 PM
Endosulfan II	U	5.0		µg/Kg	1	7/10/2003 9:45:00 PM
Endosulfan sulfate	U	5.0		µg/Kg	1	7/10/2003 9:45:00 PM
Endrin	U	5.0		µg/Kg	1	7/10/2003 9:45:00 PM
Endrin aldehyde	U	5.0		µg/Kg	1	7/10/2003 9:45:00 PM
Endrin ketone	U	5.0		µg/Kg	1	7/10/2003 9:45:00 PM
gamma-BHC	U	5.0		µg/Kg	1	7/10/2003 9:45:00 PM
Heptachlor	U	5.0		µg/Kg	1	7/10/2003 9:45:00 PM
Heptachlor epoxide	U	5.0		µg/Kg	1	7/10/2003 9:45:00 PM
Hexachlorobenzene	U	5.0		µg/Kg	1	7/10/2003 9:45:00 PM
Hexachlorocyclopentadiene	U	5.0		µg/Kg	1	7/10/2003 9:45:00 PM
Isodrin	U	5.0		µg/Kg	1	7/10/2003 9:45:00 PM
Methoxychlor	U	5.0		µg/Kg	1	7/10/2003 9:45:00 PM
Toxaphene	U	300		µg/Kg	1	7/10/2003 9:45:00 PM

Qualifiers:

ND - Not Detected at the Reporting Limit

J - Analyte detected below quantitation limits

B - Analyte detected in the associated Method Blank

* - Value exceeds Maximum Contaminant Level

S - Spike Recovery outside accepted recovery limits

R - RPD outside accepted recovery limits

E - Value above quantitation range

American Analytical Laboratories, Inc.

Date: *28-Jul-03*

CLIENT:	AKRF, Inc	**Client Sample ID:**	MW16 (8.5-9.5)
Lab Order:	0306118	**Tag Number:**	
Project:	Greenpoint Lumber Yard Brooklyn, NY	**Collection Date:**	6/26/2003
Lab ID:	0306118-02B	**Matrix:**	SOIL

Analyses	Result	Limit	Qual	Units	DF	Date Analyzed
PESTICIDES SW-846 8081		**SW8081B**		**(SW3550)**		Analyst: **KB**
4,4'-DDD	U	5.0		µg/Kg	1	7/10/2003 10:28:00 PM
4,4'-DDE	U	5.0		µg/Kg	1	7/10/2003 10:28:00 PM
4,4'-DDT	U	5.0		µg/Kg	1	7/10/2003 10:28:00 PM
Aldrin	U	5.0		µg/Kg	1	7/10/2003 10:28:00 PM
alpha-BHC	U	5.0		µg/Kg	1	7/10/2003 10:28:00 PM
beta-BHC	U	5.0		µg/Kg	1	7/10/2003 10:28:00 PM
Chlordane	U	5.0		µg/Kg	1	7/10/2003 10:28:00 PM
Chlorobenzilate	U	5.0		µg/Kg	1	7/10/2003 10:28:00 PM
DBCP	U	5.0		µg/Kg	1	7/10/2003 10:28:00 PM
delta-BHC	U	5.0		µg/Kg	1	7/10/2003 10:28:00 PM
Dieldrin	U	5.0		µg/Kg	1	7/10/2003 10:28:00 PM
Endosulfan I	U	5.0		µg/Kg	1	7/10/2003 10:28:00 PM
Endosulfan II	U	5.0		µg/Kg	1	7/10/2003 10:28:00 PM
Endosulfan sulfate	U	5.0		µg/Kg	1	7/10/2003 10:28:00 PM
Endrin	U	5.0		µg/Kg	1	7/10/2003 10:28:00 PM
Endrin aldehyde	U	5.0		µg/Kg	1	7/10/2003 10:28:00 PM
Endrin ketone	U	5.0		µg/Kg	1	7/10/2003 10:28:00 PM
gamma-BHC	U	5.0		µg/Kg	1	7/10/2003 10:28:00 PM
Heptachlor	U	5.0		µg/Kg	1	7/10/2003 10:28:00 PM
Heptachlor epoxide	U	5.0		µg/Kg	1	7/10/2003 10:28:00 PM
Hexachlorobenzene	U	5.0		µg/Kg	1	7/10/2003 10:28:00 PM
Hexachlorocyclopentadiene	U	5.0		µg/Kg	1	7/10/2003 10:28:00 PM
Isodrin	U	5.0		µg/Kg	1	7/10/2003 10:28:00 PM
Methoxychlor	U	5.0		µg/Kg	1	7/10/2003 10:28:00 PM
Toxaphene	U	300		µg/Kg	1	7/10/2003 10:28:00 PM

Qualifiers:

ND - Not Detected at the Reporting Limit

J - Analyte detected below quantitation limits

B - Analyte detected in the associated Method Blank

* - Value exceeds Maximum Contaminant Level

S - Spike Recovery outside accepted recovery limits

R - RPD outside accepted recovery limits

E - Value above quantitation range

American Analytical Laboratories, Inc.

Date: *28-Jul-03*

CLIENT:	AKRF, Inc	**Client Sample ID:**	Field Blank #1
Lab Order:	0306118	**Tag Number:**	
Project:	Greenpoint Lumber Yard Brooklyn, NY	**Collection Date:**	6/26/2003
Lab ID:	0306118-04B	**Matrix:**	LIQUID

Analyses	Result	Limit	Qual	Units	DF	Date Analyzed
PESTICIDES SW-846 8081		**SW8081B**		**(SW3510B)**		Analyst: **KB**
4,4'-DDD	U	0.10		µg/L	1	7/1/2003 4:59:00 PM
4,4'-DDE	U	0.10		µg/L	1	7/1/2003 4:59:00 PM
4,4'-DDT	U	0.10		µg/L	1	7/1/2003 4:59:00 PM
Aldrin	U	0.10		µg/L	1	7/1/2003 4:59:00 PM
alpha-BHC	U	0.10		µg/L	1	7/1/2003 4:59:00 PM
beta-BHC	U	0.10		µg/L	1	7/1/2003 4:59:00 PM
Chlordane	U	0.10		µg/L	1	7/1/2003 4:59:00 PM
Chlorobenzilate	U	0.10		µg/L	1	7/1/2003 4:59:00 PM
DBCP	U	0.10		µg/L	1	7/1/2003 4:59:00 PM
delta-BHC	U	0.10		µg/L	1	7/1/2003 4:59:00 PM
Dieldrin	U	0.10		µg/L	1	7/1/2003 4:59:00 PM
Endosulfan I	U	0.10		µg/L	1	7/1/2003 4:59:00 PM
Endosulfan II	U	0.10		µg/L	1	7/1/2003 4:59:00 PM
Endosulfan sulfate	U	0.10		µg/L	1	7/1/2003 4:59:00 PM
Endrin	U	0.10		µg/L	1	7/1/2003 4:59:00 PM
Endrin aldehyde	U	0.10		µg/L	1	7/1/2003 4:59:00 PM
Endrin ketone	U	0.10		µg/L	1	7/1/2003 4:59:00 PM
gamma-BHC	U	0.10		µg/L	1	7/1/2003 4:59:00 PM
Heptachlor	U	0.10		µg/L	1	7/1/2003 4:59:00 PM
Heptachlor epoxide	U	0.10		µg/L	1	7/1/2003 4:59:00 PM
Hexachlorobenzene	U	0.10		µg/L	1	7/1/2003 4:59:00 PM
Hexachlorocyclopentadiene	U	0.10		µg/L	1	7/1/2003 4:59:00 PM
Isodrin	U	0.10		µg/L	1	7/1/2003 4:59:00 PM
Methoxychlor	U	0.10		µg/L	1	7/1/2003 4:59:00 PM
Toxaphene	U	1.0		µg/L	1	7/1/2003 4:59:00 PM

Qualifiers:

ND - Not Detected at the Reporting Limit

J - Analyte detected below quantitation limits

B - Analyte detected in the associated Method Blank

* - Value exceeds Maximum Contaminant Level

S - Spike Recovery outside accepted recovery limits

R - RPD outside accepted recovery limits

E - Value above quantitation range

American Analytical Laboratories, Inc.

Date: *28-Jul-03*

CLIENT:	AKRF, Inc	**Client Sample ID:**	Field Blank #2
Lab Order:	0306118	**Tag Number:**	
Project:	Greenpoint Lumber Yard Brooklyn, NY	**Collection Date:**	6/26/2003
Lab ID:	0306118-05B	**Matrix:**	LIQUID

Analyses	Result	Limit	Qual	Units	DF	Date Analyzed
PESTICIDES SW-846 8081		**SW8081B**		**(SW3510B)**		Analyst: **KB**
4,4'-DDD	U	0.10		µg/L	1	7/1/2003 5:42:00 PM
4,4'-DDE	U	0.10		µg/L	1	7/1/2003 5:42:00 PM
4,4'-DDT	U	0.10		µg/L	1	7/1/2003 5:42:00 PM
Aldrin	U	0.10		µg/L	1	7/1/2003 5:42:00 PM
alpha-BHC	U	0.10		µg/L	1	7/1/2003 5:42:00 PM
beta-BHC	U	0.10		µg/L	1	7/1/2003 5:42:00 PM
Chlordane	U	0.10		µg/L	1	7/1/2003 5:42:00 PM
Chlorobenzilate	U	0.10		µg/L	1	7/1/2003 5:42:00 PM
DBCP	U	0.10		µg/L	1	7/1/2003 5:42:00 PM
delta-BHC	U	0.10		µg/L	1	7/1/2003 5:42:00 PM
Dieldrin	U	0.10		µg/L	1	7/1/2003 5:42:00 PM
Endosulfan I	U	0.10		µg/L	1	7/1/2003 5:42:00 PM
Endosulfan II	U	0.10		µg/L	1	7/1/2003 5:42:00 PM
Endosulfan sulfate	U	0.10		µg/L	1	7/1/2003 5:42:00 PM
Endrin	U	0.10		µg/L	1	7/1/2003 5:42:00 PM
Endrin aldehyde	U	0.10		µg/L	1	7/1/2003 5:42:00 PM
Endrin ketone	U	0.10		µg/L	1	7/1/2003 5:42:00 PM
gamma-BHC	U	0.10		µg/L	1	7/1/2003 5:42:00 PM
Heptachlor	U	0.10		µg/L	1	7/1/2003 5:42:00 PM
Heptachlor epoxide	U	0.10		µg/L	1	7/1/2003 5:42:00 PM
Hexachlorobenzene	U	0.10		µg/L	1	7/1/2003 5:42:00 PM
Hexachlorocyclopentadiene	U	0.10		µg/L	1	7/1/2003 5:42:00 PM
Isodrin	U	0.10		µg/L	1	7/1/2003 5:42:00 PM
Methoxychlor	U	0.10		µg/L	1	7/1/2003 5:42:00 PM
Toxaphene	U	1.0		µg/L	1	7/1/2003 5:42:00 PM

Qualifiers:

ND - Not Detected at the Reporting Limit

J - Analyte detected below quantitation limits

B - Analyte detected in the associated Method Blank

* - Value exceeds Maximum Contaminant Level

S - Spike Recovery outside accepted recovery limits

R - RPD outside accepted recovery limits

E - Value above quantitation range

American Analytical Laboratories, Inc.

Date: *28-Jul-03*

CLIENT:	AKRF, Inc	**Client Sample ID:**	Field Blank #3
Lab Order:	0306118	**Tag Number:**	
Project:	Greenpoint Lumber Yard Brooklyn, NY	**Collection Date:**	6/26/2003
Lab ID:	0306118-06B	**Matrix:**	LIQUID

Analyses	Result	Limit	Qual	Units	DF	Date Analyzed
PESTICIDES SW-846 8081		**SW8081B**		**(SW3510B)**		Analyst: **KB**
4,4'-DDD	U	0.10		µg/L	1	7/1/2003 6:25:00 PM
4,4'-DDE	U	0.10		µg/L	1	7/1/2003 6:25:00 PM
4,4'-DDT	U	0.10		µg/L	1	7/1/2003 6:25:00 PM
Aldrin	U	0.10		µg/L	1	7/1/2003 6:25:00 PM
alpha-BHC	U	0.10		µg/L	1	7/1/2003 6:25:00 PM
beta-BHC	U	0.10		µg/L	1	7/1/2003 6:25:00 PM
Chlordane	U	0.10		µg/L	1	7/1/2003 6:25:00 PM
Chlorobenzilate	U	0.10		µg/L	1	7/1/2003 6:25:00 PM
DBCP	U	0.10		µg/L	1	7/1/2003 6:25:00 PM
delta-BHC	U	0.10		µg/L	1	7/1/2003 6:25:00 PM
Dieldrin	U	0.10		µg/L	1	7/1/2003 6:25:00 PM
Endosulfan I	U	0.10		µg/L	1	7/1/2003 6:25:00 PM
Endosulfan II	U	0.10		µg/L	1	7/1/2003 6:25:00 PM
Endosulfan sulfate	U	0.10		µg/L	1	7/1/2003 6:25:00 PM
Endrin	U	0.10		µg/L	1	7/1/2003 6:25:00 PM
Endrin aldehyde	U	0.10		µg/L	1	7/1/2003 6:25:00 PM
Endrin ketone	U	0.10		µg/L	1	7/1/2003 6:25:00 PM
gamma-BHC	U	0.10		µg/L	1	7/1/2003 6:25:00 PM
Heptachlor	U	0.10		µg/L	1	7/1/2003 6:25:00 PM
Heptachlor epoxide	U	0.10		µg/L	1	7/1/2003 6:25:00 PM
Hexachlorobenzene	U	0.10		µg/L	1	7/1/2003 6:25:00 PM
Hexachlorocyclopentadiene	U	0.10		µg/L	1	7/1/2003 6:25:00 PM
Isodrin	U	0.10		µg/L	1	7/1/2003 6:25:00 PM
Methoxychlor	U	0.10		µg/L	1	7/1/2003 6:25:00 PM
Toxaphene	U	1.0		µg/L	1	7/1/2003 6:25:00 PM

Qualifiers:

ND - Not Detected at the Reporting Limit

J - Analyte detected below quantitation limits

B - Analyte detected in the associated Method Blank

* - Value exceeds Maximum Contaminant Level

S - Spike Recovery outside accepted recovery limits

R - RPD outside accepted recovery limits

E - Value above quantitation range

American Analytical Laboratories, Inc.

Date: *28-Jul-03*

CLIENT:	AKRF, Inc	**Client Sample ID:**	MW16 (0.5-2')
Lab Order:	0306118	**Tag Number:**	
Project:	Greenpoint Lumber Yard Brooklyn, NY	**Collection Date:**	6/26/2003
Lab ID:	0306118-01B	**Matrix:**	SOIL

Analyses	Result	Limit	Qual	Units	DF	Date Analyzed
PCB'S AS AROCLORS SW-846 8082		**SW8082A**		**(SW3550)**		Analyst: **KB**
Aroclor 1016	U	80		µg/Kg	1	7/12/2003 4:52:00 AM
Aroclor 1221	U	80		µg/Kg	1	7/12/2003 4:52:00 AM
Aroclor 1232	U	80		µg/Kg	1	7/12/2003 4:52:00 AM
Aroclor 1242	U	80		µg/Kg	1	7/12/2003 4:52:00 AM
Aroclor 1248	U	80		µg/Kg	1	7/12/2003 4:52:00 AM
Aroclor 1254	U	80		µg/Kg	1	7/12/2003 4:52:00 AM
Aroclor 1260	U	80		µg/Kg	1	7/12/2003 4:52:00 AM

Qualifiers:

ND - Not Detected at the Reporting Limit

J - Analyte detected below quantitation limits

B - Analyte detected in the associated Method Blank

* - Value exceeds Maximum Contaminant Level

S - Spike Recovery outside accepted recovery limits

R - RPD outside accepted recovery limits

E - Value above quantitation range

American Analytical Laboratories, Inc.

Date: *28-Jul-03*

CLIENT:	AKRF, Inc	**Client Sample ID:**	MW16 (8.5-9.5)
Lab Order:	0306118	**Tag Number:**	
Project:	Greenpoint Lumber Yard Brooklyn, NY	**Collection Date:**	6/26/2003
Lab ID:	0306118-02B	**Matrix:**	SOIL

Analyses	Result	Limit	Qual	Units	DF	Date Analyzed
PCB'S AS AROCLORS SW-846 8082		**SW8082A**		**(SW3550)**		Analyst: **KB**
Aroclor 1016	U	80		µg/Kg	1	7/12/2003 5:35:00 AM
Aroclor 1221	U	80		µg/Kg	1	7/12/2003 5:35:00 AM
Aroclor 1232	U	80		µg/Kg	1	7/12/2003 5:35:00 AM
Aroclor 1242	U	80		µg/Kg	1	7/12/2003 5:35:00 AM
Aroclor 1248	U	80		µg/Kg	1	7/12/2003 5:35:00 AM
Aroclor 1254	U	80		µg/Kg	1	7/12/2003 5:35:00 AM
Aroclor 1260	U	80		µg/Kg	1	7/12/2003 5:35:00 AM

Qualifiers:

ND - Not Detected at the Reporting Limit

J - Analyte detected below quantitation limits

B - Analyte detected in the associated Method Blank

* - Value exceeds Maximum Contaminant Level

S - Spike Recovery outside accepted recovery limits

R - RPD outside accepted recovery limits

E - Value above quantitation range

American Analytical Laboratories, Inc.

Date: *28-Jul-03*

CLIENT:	AKRF, Inc	**Client Sample ID:**	Field Blank #1
Lab Order:	0306118	**Tag Number:**	
Project:	Greenpoint Lumber Yard Brooklyn, NY	**Collection Date:**	6/26/2003
Lab ID:	0306118-04B	**Matrix:**	LIQUID

Analyses	Result	Limit	Qual	Units	DF	Date Analyzed
PCB'S AS AROCLORS SW-846 8082		**SW8082A**		**(SW3510B)**		Analyst: **KB**
Aroclor 1016	U	1.0		µg/L	1	7/1/2003 4:13:00 PM
Aroclor 1221	U	1.0		µg/L	1	7/1/2003 4:13:00 PM
Aroclor 1232	U	1.0		µg/L	1	7/1/2003 4:13:00 PM
Aroclor 1242	U	1.0		µg/L	1	7/1/2003 4:13:00 PM
Aroclor 1248	U	1.0		µg/L	1	7/1/2003 4:13:00 PM
Aroclor 1254	U	1.0		µg/L	1	7/1/2003 4:13:00 PM
Aroclor 1260	U	1.0		µg/L	1	7/1/2003 4:13:00 PM

Qualifiers:

ND - Not Detected at the Reporting Limit

J - Analyte detected below quantitation limits

B - Analyte detected in the associated Method Blank

* - Value exceeds Maximum Contaminant Level

S - Spike Recovery outside accepted recovery limits

R - RPD outside accepted recovery limits

E - Value above quantitation range

American Analytical Laboratories, Inc.

Date: *28-Jul-03*

CLIENT:	AKRF, Inc	**Client Sample ID:**	Field Blank #2
Lab Order:	0306118	**Tag Number:**	
Project:	Greenpoint Lumber Yard Brooklyn, NY	**Collection Date:**	6/26/2003
Lab ID:	0306118-05B	**Matrix:**	LIQUID

Analyses	Result	Limit	Qual	Units	DF	Date Analyzed
PCB'S AS AROCLORS SW-846 8082		**SW8082A**		**(SW3510B)**		Analyst: **KB**
Aroclor 1016	U	1.0		µg/L	1	7/1/2003 5:00:00 PM
Aroclor 1221	U	1.0		µg/L	1	7/1/2003 5:00:00 PM
Aroclor 1232	U	1.0		µg/L	1	7/1/2003 5:00:00 PM
Aroclor 1242	U	1.0		µg/L	1	7/1/2003 5:00:00 PM
Aroclor 1248	U	1.0		µg/L	1	7/1/2003 5:00:00 PM
Aroclor 1254	U	1.0		µg/L	1	7/1/2003 5:00:00 PM
Aroclor 1260	U	1.0		µg/L	1	7/1/2003 5:00:00 PM

Qualifiers:

ND - Not Detected at the Reporting Limit

J - Analyte detected below quantitation limits

B - Analyte detected in the associated Method Blank

* - Value exceeds Maximum Contaminant Level

S - Spike Recovery outside accepted recovery limits

R - RPD outside accepted recovery limits

E - Value above quantitation range

American Analytical Laboratories, Inc.

Date: *28-Jul-03*

CLIENT:	AKRF, Inc	**Client Sample ID:**	Field Blank #3
Lab Order:	0306118	**Tag Number:**	
Project:	Greenpoint Lumber Yard Brooklyn, NY	**Collection Date:**	6/26/2003
Lab ID:	0306118-06B	**Matrix:**	LIQUID

Analyses	Result	Limit	Qual	Units	DF	Date Analyzed
PCB'S AS AROCLORS SW-846 8082		**SW8082A**		**(SW3510B)**		Analyst: **KB**
Aroclor 1016	U	1.0		µg/L	1	7/1/2003 5:47:00 PM
Aroclor 1221	U	1.0		µg/L	1	7/1/2003 5:47:00 PM
Aroclor 1232	U	1.0		µg/L	1	7/1/2003 5:47:00 PM
Aroclor 1242	U	1.0		µg/L	1	7/1/2003 5:47:00 PM
Aroclor 1248	U	1.0		µg/L	1	7/1/2003 5:47:00 PM
Aroclor 1254	U	1.0		µg/L	1	7/1/2003 5:47:00 PM
Aroclor 1260	U	1.0		µg/L	1	7/1/2003 5:47:00 PM

Qualifiers:

ND - Not Detected at the Reporting Limit

J - Analyte detected below quantitation limits

B - Analyte detected in the associated Method Blank

* - Value exceeds Maximum Contaminant Level

S - Spike Recovery outside accepted recovery limits

R - RPD outside accepted recovery limits

E - Value above quantitation range

INORGANIC DATA

RESULTS - INORGANIC ANALYSIS DATA SHEET

American Analytical Laboratories, Inc.

Date: *28-Jul-03*

CLIENT:	AKRF, Inc	**Client Sample ID:**	MW16 (0.5-2')
Lab Order:	0306118	**Tag Number:**	
Project:	Greenpoint Lumber Yard Brooklyn, NY	**Collection Date:**	6/26/2003
Lab ID:	0306118-01B	**Matrix:**	SOIL

Analyses	Result	Limit	Qual	Units	DF	Date Analyzed
MERCURY SW-846 7471		**SW7471B**				Analyst: **JP**
Mercury	0.131	0.0500		mg/Kg	1	7/7/2003
TARGET ANALYTE LIST		**SW6010B**		**(SW3050A)**		Analyst: **JP**
Aluminum	5390	0.382		mg/Kg	1	7/7/2003 3:33:24 PM
Antimony	U	0.477		mg/Kg	1	7/7/2003 3:33:24 PM
Arsenic	6.60	0.477		mg/Kg	1	7/7/2003 3:33:24 PM
Barium	136	0.382		mg/Kg	1	7/7/2003 3:33:24 PM
Beryllium	1.84	0.382		mg/Kg	1	7/7/2003 3:33:24 PM
Cadmium	0.13	0.191	J	mg/Kg	1	7/7/2003 3:33:24 PM
Calcium	6850	0.382		mg/Kg	1	7/7/2003 3:33:24 PM
Chromium	49.3	0.382		mg/Kg	1	7/7/2003 3:33:24 PM
Cobalt	34.2	0.382		mg/Kg	1	7/7/2003 3:33:24 PM
Copper	351	0.382		mg/Kg	1	7/7/2003 3:33:24 PM
Iron	7660	0.382		mg/Kg	1	7/7/2003 3:33:24 PM
Lead	255	0.286		mg/Kg	1	7/7/2003 3:33:24 PM
Magnesium	381	0.382		mg/Kg	1	7/7/2003 3:33:24 PM
Manganese	176	0.382		mg/Kg	1	7/7/2003 3:33:24 PM
Nickel	45.6	0.382		mg/Kg	1	7/7/2003 3:33:24 PM
Potassium	903	1.34		mg/Kg	1	7/7/2003 3:33:24 PM
Selenium	U	0.477		mg/Kg	1	7/7/2003 3:33:24 PM
Silver	U	0.382		mg/Kg	1	7/7/2003 3:33:24 PM
Sodium	498	0.573		mg/Kg	1	7/7/2003 3:33:24 PM
Thallium	0.750	0.286		mg/Kg	1	7/7/2003 3:33:24 PM
Vanadium	18.6	0.382		mg/Kg	1	7/7/2003 3:33:24 PM
Zinc	1100	0.382		mg/Kg	1	7/7/2003 3:33:24 PM

Qualifiers:

ND - Not Detected at the Reporting Limit

J - Analyte detected below quantitation limits

B - Analyte detected in the associated Method Blank

* - Value exceeds Maximum Contaminant Level

S - Spike Recovery outside accepted recovery limits

R - RPD outside accepted recovery limits

E - Value above quantitation range

American Analytical Laboratories, Inc.

Date: *28-Jul-03*

CLIENT:	AKRF, Inc	**Client Sample ID:**	MW16 (8.5-9.5)
Lab Order:	0306118	**Tag Number:**	
Project:	Greenpoint Lumber Yard Brooklyn, NY	**Collection Date:**	6/26/2003
Lab ID:	0306118-02B	**Matrix:**	SOIL

Analyses	Result	Limit	Qual	Units	DF	Date Analyzed
MERCURY SW-846 7471		**SW7471B**				Analyst: **JP**
Mercury	U	0.0500		mg/Kg	1	7/7/2003
TARGET ANALYTE LIST		**SW6010B**		**(SW3050A)**		Analyst: **JP**
Aluminum	1450	0.370		mg/Kg	1	7/7/2003 3:35:35 PM
Antimony	U	0.463		mg/Kg	1	7/7/2003 3:35:35 PM
Arsenic	2.08	0.463		mg/Kg	1	7/7/2003 3:35:35 PM
Barium	18.7	0.370		mg/Kg	1	7/7/2003 3:35:35 PM
Beryllium	U	0.370		mg/Kg	1	7/7/2003 3:35:35 PM
Cadmium	U	0.185		mg/Kg	1	7/7/2003 3:35:35 PM
Calcium	2020	0.370		mg/Kg	1	7/7/2003 3:35:35 PM
Chromium	2.36	0.370		mg/Kg	1	7/7/2003 3:35:35 PM
Cobalt	13.0	0.370		mg/Kg	1	7/7/2003 3:35:35 PM
Copper	87.1	0.370		mg/Kg	1	7/7/2003 3:35:35 PM
Iron	6660	0.370		mg/Kg	1	7/7/2003 3:35:35 PM
Lead	25.4	0.278		mg/Kg	1	7/7/2003 3:35:35 PM
Magnesium	221	0.370		mg/Kg	1	7/7/2003 3:35:35 PM
Manganese	310	0.370		mg/Kg	1	7/7/2003 3:35:35 PM
Nickel	7.59	0.370		mg/Kg	1	7/7/2003 3:35:35 PM
Potassium	166	1.30		mg/Kg	1	7/7/2003 3:35:35 PM
Selenium	U	0.463		mg/Kg	1	7/7/2003 3:35:35 PM
Silver	U	0.370		mg/Kg	1	7/7/2003 3:35:35 PM
Sodium	179	0.556		mg/Kg	1	7/7/2003 3:35:35 PM
Thallium	U	0.278		mg/Kg	1	7/7/2003 3:35:35 PM
Vanadium	6.74	0.370		mg/Kg	1	7/7/2003 3:35:35 PM
Zinc	29.2	0.370		mg/Kg	1	7/7/2003 3:35:35 PM

Qualifiers:

ND - Not Detected at the Reporting Limit

J - Analyte detected below quantitation limits

B - Analyte detected in the associated Method Blank

* - Value exceeds Maximum Contaminant Level

S - Spike Recovery outside accepted recovery limits

R - RPD outside accepted recovery limits

E - Value above quantitation range

American Analytical Laboratories, Inc.

Date: *28-Jul-03*

CLIENT:	AKRF, Inc	**Client Sample ID:**	Field Blank #1
Lab Order:	0306118	**Tag Number:**	
Project:	Greenpoint Lumber Yard Brooklyn, NY	**Collection Date:**	6/26/2003
Lab ID:	0306118-04B	**Matrix:**	LIQUID

Analyses	Result	Limit	Qual	Units	DF	Date Analyzed
MERCURY SW-846 7470		**SW7470A**				Analyst: **JP**
Mercury	U	0.00200		mg/L	1	7/7/2003
TARGET ANALYTE LIST METALS		**SW6010B**		**(SW3010A)**		Analyst: **JP**
Aluminum	U	0.0200		mg/L	1	7/7/2003 2:29:21 PM
Antimony	U	0.0250		mg/L	1	7/7/2003 2:29:21 PM
Arsenic	U	0.0250		mg/L	1	7/7/2003 2:29:21 PM
Barium	U	0.0200		mg/L	1	7/7/2003 2:29:21 PM
Beryllium	U	0.0200		mg/L	1	7/7/2003 2:29:21 PM
Cadmium	U	0.0100		mg/L	1	7/7/2003 2:29:21 PM
Calcium	0.158	0.0200		mg/L	1	7/7/2003 2:29:21 PM
Chromium	U	0.0200		mg/L	1	7/7/2003 2:29:21 PM
Cobalt	U	0.0200		mg/L	1	7/7/2003 2:29:21 PM
Copper	U	0.0200		mg/L	1	7/7/2003 2:29:21 PM
Iron	0.0069	0.0200	J	mg/L	1	7/7/2003 2:29:21 PM
Lead	U	0.0150		mg/L	1	7/7/2003 2:29:21 PM
Magnesium	0.0246	0.0200		mg/L	1	7/7/2003 2:29:21 PM
Manganese	U	0.0200		mg/L	1	7/7/2003 2:29:21 PM
Nickel	U	0.0200		mg/L	1	7/7/2003 2:29:21 PM
Potassium	U	0.0700		mg/L	1	7/7/2003 2:29:21 PM
Selenium	U	0.0250		mg/L	1	7/7/2003 2:29:21 PM
Silver	U	0.0200		mg/L	1	7/7/2003 2:29:21 PM
Sodium	0.022	0.0300	J	mg/L	1	7/7/2003 2:29:21 PM
Thallium	U	0.0150		mg/L	1	7/7/2003 2:29:21 PM
Vanadium	U	0.0200		mg/L	1	7/7/2003 2:29:21 PM
Zinc	0.0200	0.0200		mg/L	1	7/7/2003 2:29:21 PM

Qualifiers:

ND - Not Detected at the Reporting Limit

J - Analyte detected below quantitation limits

B - Analyte detected in the associated Method Blank

* - Value exceeds Maximum Contaminant Level

S - Spike Recovery outside accepted recovery limits

R - RPD outside accepted recovery limits

E - Value above quantitation range

American Analytical Laboratories, Inc.

Date: *28-Jul-03*

CLIENT:	AKRF, Inc	**Client Sample ID:**	Field Blank #2
Lab Order:	0306118	**Tag Number:**	
Project:	Greenpoint Lumber Yard Brooklyn, NY	**Collection Date:**	6/26/2003
Lab ID:	0306118-05B	**Matrix:**	LIQUID

Analyses	Result	Limit	Qual	Units	DF	Date Analyzed
MERCURY SW-846 7470		**SW7470A**				Analyst: **JP**
Mercury	U	0.00200		mg/L	1	7/7/2003
TARGET ANALYTE LIST METALS		**SW6010B**		**(SW3010A)**		Analyst: **JP**
Aluminum	U	0.0200		mg/L	1	7/7/2003 2:37:13 PM
Antimony	U	0.0250		mg/L	1	7/7/2003 2:37:13 PM
Arsenic	U	0.0250		mg/L	1	7/7/2003 2:37:13 PM
Barium	U	0.0200		mg/L	1	7/7/2003 2:37:13 PM
Beryllium	U	0.0200		mg/L	1	7/7/2003 2:37:13 PM
Cadmium	U	0.0100		mg/L	1	7/7/2003 2:37:13 PM
Calcium	0.145	0.0200		mg/L	1	7/7/2003 2:37:13 PM
Chromium	U	0.0200		mg/L	1	7/7/2003 2:37:13 PM
Cobalt	U	0.0200		mg/L	1	7/7/2003 2:37:13 PM
Copper	U	0.0200		mg/L	1	7/7/2003 2:37:13 PM
Iron	0.0065	0.0200	J	mg/L	1	7/7/2003 2:37:13 PM
Lead	U	0.0150		mg/L	1	7/7/2003 2:37:13 PM
Magnesium	0.0280	0.0200		mg/L	1	7/7/2003 2:37:13 PM
Manganese	U	0.0200		mg/L	1	7/7/2003 2:37:13 PM
Nickel	U	0.0200		mg/L	1	7/7/2003 2:37:13 PM
Potassium	U	0.0700		mg/L	1	7/7/2003 2:37:13 PM
Selenium	U	0.0250		mg/L	1	7/7/2003 2:37:13 PM
Silver	U	0.0200		mg/L	1	7/7/2003 2:37:13 PM
Sodium	0.011	0.0300	J	mg/L	1	7/7/2003 2:37:13 PM
Thallium	U	0.0150		mg/L	1	7/7/2003 2:37:13 PM
Vanadium	U	0.0200		mg/L	1	7/7/2003 2:37:13 PM
Zinc	0.0221	0.0200		mg/L	1	7/7/2003 2:37:13 PM

Qualifiers:

ND - Not Detected at the Reporting Limit

J - Analyte detected below quantitation limits

B - Analyte detected in the associated Method Blank

* - Value exceeds Maximum Contaminant Level

S - Spike Recovery outside accepted recovery limits

R - RPD outside accepted recovery limits

E - Value above quantitation range

American Analytical Laboratories, Inc.

Date: *28-Jul-03*

CLIENT:	AKRF, Inc	**Client Sample ID:**	Field Blank #3
Lab Order:	0306118	**Tag Number:**	
Project:	Greenpoint Lumber Yard Brooklyn, NY	**Collection Date:**	6/26/2003
Lab ID:	0306118-06B	**Matrix:**	LIQUID

Analyses	Result	Limit	Qual	Units	DF	Date Analyzed
MERCURY SW-846 7470		**SW7470A**				Analyst: **JP**
Mercury	U	0.00200		mg/L	1	7/7/2003
TARGET ANALYTE LIST METALS		**SW6010B**		**(SW3010A)**		Analyst: **JP**
Aluminum	U	0.0200		mg/L	1	7/7/2003 2:39:35 PM
Antimony	U	0.0250		mg/L	1	7/7/2003 2:39:35 PM
Arsenic	U	0.0250		mg/L	1	7/7/2003 2:39:35 PM
Barium	U	0.0200		mg/L	1	7/7/2003 2:39:35 PM
Beryllium	U	0.0200		mg/L	1	7/7/2003 2:39:35 PM
Cadmium	U	0.0100		mg/L	1	7/7/2003 2:39:35 PM
Calcium	0.0942	0.0200		mg/L	1	7/7/2003 2:39:35 PM
Chromium	U	0.0200		mg/L	1	7/7/2003 2:39:35 PM
Cobalt	U	0.0200		mg/L	1	7/7/2003 2:39:35 PM
Copper	U	0.0200		mg/L	1	7/7/2003 2:39:35 PM
Iron	U	0.0200		mg/L	1	7/7/2003 2:39:35 PM
Lead	U	0.0150		mg/L	1	7/7/2003 2:39:35 PM
Magnesium	0.0088	0.0200	J	mg/L	1	7/7/2003 2:39:35 PM
Manganese	U	0.0200		mg/L	1	7/7/2003 2:39:35 PM
Nickel	U	0.0200		mg/L	1	7/7/2003 2:39:35 PM
Potassium	U	0.0700		mg/L	1	7/7/2003 2:39:35 PM
Selenium	U	0.0250		mg/L	1	7/7/2003 2:39:35 PM
Silver	U	0.0200		mg/L	1	7/7/2003 2:39:35 PM
Sodium	0.011	0.0300	J	mg/L	1	7/7/2003 2:39:35 PM
Thallium	U	0.0150		mg/L	1	7/7/2003 2:39:35 PM
Vanadium	U	0.0200		mg/L	1	7/7/2003 2:39:35 PM
Zinc	0.0223	0.0200		mg/L	1	7/7/2003 2:39:35 PM

Qualifiers:

ND - Not Detected at the Reporting Limit

J - Analyte detected below quantitation limits

B - Analyte detected in the associated Method Blank

* - Value exceeds Maximum Contaminant Level

S - Spike Recovery outside accepted recovery limits

R - RPD outside accepted recovery limits

E - Value above quantitation range

Appendix

CLIENT: AKRF, Inc
Work Order: 0306118
Project: Greenpoint Lumber Yard Brooklyn, NY

ANALYTICAL QC SUMMARY REPORT

TestCode: 8081_Soil

Sample ID: **PSB070303**	SampType: **MBLK**	TestCode: **8081_Soil**	Units: **µg/Kg**	Prep Date: **7/3/2003**	Run ID: **SYSTEM QU_030709E**
Client ID: **ZZZZZ**	Batch ID: **1446**	TestNo: **SW8081B**	**(SW3550)**	Analysis Date: **7/9/2003**	SeqNo: **25527**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
4,4´-DDD	U	5.0									
4,4´-DDE	U	5.0									
4,4´-DDT	U	5.0									
Aldrin	U	5.0									
alpha-BHC	U	5.0									
beta-BHC	U	5.0									
Chlordane	U	5.0									
Chlorobenzilate	U	5.0									
DBCP	U	5.0									
delta-BHC	U	5.0									
Dieldrin	U	5.0									
Endosulfan I	U	5.0									
Endosulfan II	U	5.0									
Endosulfan sulfate	U	5.0									
Endrin	U	5.0									
Endrin aldehyde	U	5.0									
Endrin ketone	U	5.0									
gamma-BHC	U	5.0									
Heptachlor	U	5.0									
Heptachlor epoxide	U	5.0									
Hexachlorobenzene	U	5.0									
Hexachlorocyclopentadiene	U	5.0									
Isodrin	U	5.0									
Methoxychlor	U	5.0									
Toxaphene	U	300									

Sample ID: **PSB070303**	SampType: **MBLK**	TestCode: **8081_Soil**	Units: **µg/Kg**	Prep Date: **7/3/2003**	Run ID: **SYSTEM QU_030703B**
Client ID: **ZZZZZ**	Batch ID: **1446**	TestNo: **SW8081B**	**(SW3550)**	Analysis Date: **7/9/2003**	SeqNo: **25660**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual

Qualifiers:
ND - Not Detected at the Reporting Limit
J - Analyte detected below quantitation limits
S - Spike Recovery outside accepted recovery limits
R - RPD outside accepted recovery limits
B - Analyte detected in the associated Method Blank

CLIENT: AKRF, Inc
Work Order: 0306118
Project: Greenpoint Lumber Yard Brooklyn, NY

ANALYTICAL QC SUMMARY REPORT

TestCode: 8081_Soil

Sample ID: **PSB070303**	SampType: **MBLK**	TestCode: **8081_Soil**	Units: **µg/Kg**	Prep Date: **7/3/2003**	Run ID: **SYSTEM QU_030703B**
Client ID: **ZZZZZ**	Batch ID: **1446**	TestNo: **SW8081B**	**(SW3550)**	Analysis Date: **7/9/2003**	SeqNo: **25660**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
4,4´-DDD	U	5.0									
4,4´-DDE	U	5.0									
4,4´-DDT	U	5.0									
Aldrin	U	5.0									
alpha-BHC	U	5.0									
beta-BHC	U	5.0									
Chlordane	U	5.0									
Chlorobenzilate	U	5.0									
DBCP	U	5.0									
delta-BHC	U	5.0									
Dieldrin	U	5.0									
Endosulfan I	U	5.0									
Endosulfan II	U	5.0									
Endosulfan sulfate	U	5.0									
Endrin	U	5.0									
Endrin aldehyde	U	5.0									
Endrin ketone	U	5.0									
gamma-BHC	U	5.0									
Heptachlor	U	5.0									
Heptachlor epoxide	U	5.0									
Hexachlorobenzene	U	5.0									
Hexachlorocyclopentadiene	U	5.0									
Isodrin	U	5.0									
Methoxychlor	U	5.0									
Toxaphene	U	300									

Sample ID: **MSB070303**	SampType: **LCS**	TestCode: **8081_Soil**	Units: **µg/Kg**	Prep Date: **7/3/2003**	Run ID: **SYSTEM QU_030703B**
Client ID: **ZZZZZ**	Batch ID: **1446**	TestNo: **SW8081B**	**(SW3550)**	Analysis Date: **7/10/2003**	SeqNo: **25671**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
4,4´-DDT	21.42	5.0	16.65	0	129	69	130	0	0		

Qualifiers:
ND - Not Detected at the Reporting Limit
J - Analyte detected below quantitation limits
S - Spike Recovery outside accepted recovery limits
R - RPD outside accepted recovery limits
B - Analyte detected in the associated Method Blank

CLIENT: AKRF, Inc
Work Order: 0306118
Project: Greenpoint Lumber Yard Brooklyn, NY

ANALYTICAL QC SUMMARY REPORT

TestCode: 8081_Soil

Sample ID: **MSB070303** SampType: **LCS** TestCode: **8081_Soil** Units: **µg/Kg** Prep Date: **7/3/2003** Run ID: **SYSTEM QU_030703B**
Client ID: **ZZZZZ** Batch ID: **1446** TestNo: **SW8081B** **(SW3550)** Analysis Date: **7/10/2003** SeqNo: **25671**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Aldrin	6.377	5.0	6.66	0	95.8	66	128	0	0		
Dieldrin	21.88	5.0	16.65	0	131	67	126	0	0		S
Endrin	26.44	5.0	16.65	0	159	72	124	0	0		S
gamma-BHC	6.707	5.0	6.66	0	101	68	122	0	0		
Heptachlor	6.757	5.0	6.66	0	101	64	130	0	0		

Sample ID: **0306117-16BMS** SampType: **MS** TestCode: **8081_Soil** Units: **µg/Kg** Prep Date: **7/3/2003** Run ID: **SYSTEM QU_030703B**
Client ID: **ZZZZZ** Batch ID: **1446** TestNo: **SW8081B** **(SW3550)** Analysis Date: **7/11/2003** SeqNo: **25672**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
4,4´-DDT	14.93	5.0	16.65	0	89.7	69	130	0	0		
Aldrin	5.565	5.0	6.66	0	83.6	66	128	0	0		
Dieldrin	14.93	5.0	16.65	0	89.7	67	126	0	0		
Endrin	17.82	5.0	16.65	0	107	72	124	0	0		
gamma-BHC	5.166	5.0	6.66	0	77.6	68	122	0	0		
Heptachlor	6.34	5.0	6.66	0	95.2	64	130	0	0		

Sample ID: **0306117-16BMSD** SampType: **MSD** TestCode: **8081_Soil** Units: **µg/Kg** Prep Date: **7/3/2003** Run ID: **SYSTEM QU_030703B**
Client ID: **ZZZZZ** Batch ID: **1446** TestNo: **SW8081B** **(SW3550)** Analysis Date: **7/11/2003** SeqNo: **25673**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
4,4´-DDT	19.66	5.0	16.65	0	118	69	130	14.93	27.3	20	R
Aldrin	6.82	5.0	6.66	0	102	66	128	5.565	20.3	20	R
Dieldrin	19.76	5.0	16.65	0	119	67	126	14.93	27.9	20	R
Endrin	23.73	5.0	16.65	0	143	72	124	17.82	28.4	20	SR
gamma-BHC	6.284	5.0	6.66	0	94.4	68	122	5.166	19.5	20	
Heptachlor	7.451	5.0	6.66	0	112	64	130	6.34	16.1	20	

Qualifiers:
ND - Not Detected at the Reporting Limit
J - Analyte detected below quantitation limits
S - Spike Recovery outside accepted recovery limits
R - RPD outside accepted recovery limits
B - Analyte detected in the associated Method Blank

CLIENT: AKRF, Inc
Work Order: 0306118
Project: Greenpoint Lumber Yard Brooklyn, NY

ANALYTICAL QC SUMMARY REPORT

TestCode: 8081_W

Sample ID: **PWB063003** SampType: **MBLK** TestCode: **8081_W** Units: **µg/L** Prep Date: **6/30/2003** Run ID: **SYSTEM QU_030630A**
Client ID: **ZZZZZ** Batch ID: **1423** TestNo: **SW8081B** **(SW3510B)** Analysis Date: **7/1/2003** SeqNo: **24725**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
4,4´-DDD	U	0.10									
4,4´-DDE	U	0.10									
4,4´-DDT	U	0.10									
Aldrin	U	0.10									
alpha-BHC	U	0.10									
beta-BHC	U	0.10									
Chlordane	U	0.10									
Chlorobenzilate	U	0.10									
DBCP	U	0.10									
delta-BHC	U	0.10									
Dieldrin	U	0.10									
Endosulfan I	U	0.10									
Endosulfan II	U	0.10									
Endosulfan sulfate	U	0.10									
Endrin	U	0.10									
Endrin aldehyde	U	0.10									
Endrin ketone	U	0.10									
gamma-BHC	U	0.10									
Heptachlor	U	0.10									
Heptachlor epoxide	U	0.10									
Hexachlorobenzene	U	0.10									
Hexachlorocyclopentadiene	U	0.10									
Isodrin	U	0.10									
Methoxychlor	U	0.10									
Toxaphene	U	1.0									

Sample ID: **PWB063003** SampType: **MBLK** TestCode: **8081_W** Units: **µg/L** Prep Date: **6/30/2003** Run ID: **SYSTEM QU_030701A**
Client ID: **ZZZZZ** Batch ID: **1423** TestNo: **SW8081B** **(SW3510B)** Analysis Date: **7/1/2003** SeqNo: **25086**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
4,4´-DDD	U	0.10									

Qualifiers:
ND - Not Detected at the Reporting Limit
J - Analyte detected below quantitation limits
S - Spike Recovery outside accepted recovery limits
R - RPD outside accepted recovery limits
B - Analyte detected in the associated Method Blank

CLIENT: AKRF, Inc
Work Order: 0306118
Project: Greenpoint Lumber Yard Brooklyn, NY

ANALYTICAL QC SUMMARY REPORT

TestCode: 8081_W

Sample ID: **PWB063003** SampType: **MBLK** TestCode: **8081_W** Units: **µg/L** Prep Date: **6/30/2003** Run ID: **SYSTEM QU_030701A**
Client ID: **ZZZZZ** Batch ID: **1423** TestNo: **SW8081B** **(SW3510B)** Analysis Date: **7/1/2003** SeqNo: **25086**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
4,4´-DDE	U	0.10									
4,4´-DDT	U	0.10									
Aldrin	U	0.10									
alpha-BHC	U	0.10									
beta-BHC	U	0.10									
Chlordane	U	0.10									
Chlorobenzilate	U	0.10									
DBCP	U	0.10									
delta-BHC	U	0.10									
Dieldrin	U	0.10									
Endosulfan I	U	0.10									
Endosulfan II	U	0.10									
Endosulfan sulfate	U	0.10									
Endrin	U	0.10									
Endrin aldehyde	U	0.10									
Endrin ketone	U	0.10									
gamma-BHC	U	0.10									
Heptachlor	U	0.10									
Heptachlor epoxide	U	0.10									
Hexachlorobenzene	U	0.10									
Hexachlorocyclopentadiene	U	0.10									
Isodrin	U	0.10									
Methoxychlor	U	0.10									
Toxaphene	U	1.0									

Sample ID: **MSB063003** SampType: **LCS** TestCode: **8081_W** Units: **µg/L** Prep Date: **6/30/2003** Run ID: **SYSTEM QU_030701A**
Client ID: **ZZZZZ** Batch ID: **1423** TestNo: **SW8081B** **(SW3510B)** Analysis Date: **7/1/2003** SeqNo: **25090**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
4,4´-DDT	0.574	0.10	0.5	0	115	69	130	0	0		
Aldrin	0.144	0.10	0.2	0	72	66	128	0	0		

Qualifiers: ND - Not Detected at the Reporting Limit
J - Analyte detected below quantitation limits
S - Spike Recovery outside accepted recovery limits
R - RPD outside accepted recovery limits
B - Analyte detected in the associated Method Blank

CLIENT: AKRF, Inc
Work Order: 0306118
Project: Greenpoint Lumber Yard Brooklyn, NY

ANALYTICAL QC SUMMARY REPORT

TestCode: 8081_W

Sample ID: MSB063003	SampType: LCS	TestCode: 8081_W	Units: µg/L	Prep Date: 6/30/2003	Run ID: SYSTEM QU_030701A
Client ID: ZZZZZ	Batch ID: 1423	TestNo: SW8081B	(SW3510B)	Analysis Date: 7/1/2003	SeqNo: 25090

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Dieldrin	0.542	0.10	0.5	0	108	67	126	0	0		
Endrin	0.595	0.10	0.5	0	119	72	124	0	0		
gamma-BHC	0.247	0.10	0.2	0	124	68	122	0	0		S
Heptachlor	0.247	0.10	0.2	0	124	64	130	0	0		

Sample ID: MSBDUP063003	SampType: LCS	TestCode: 8081_W	Units: µg/L	Prep Date: 6/30/2003	Run ID: SYSTEM QU_030701A
Client ID: ZZZZZ	Batch ID: 1423	TestNo: SW8081B	(SW3510B)	Analysis Date: 7/1/2003	SeqNo: 25091

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
4,4´-DDT	0.591	0.10	0.5	0	118	69	130	0	0		
Aldrin	0.158	0.10	0.2	0	79	66	128	0	0		
Dieldrin	0.542	0.10	0.5	0	108	67	126	0	0		
Endrin	0.6	0.10	0.5	0	120	72	124	0	0		
gamma-BHC	0.242	0.10	0.2	0	121	68	122	0	0		
Heptachlor	0.247	0.10	0.2	0	124	64	130	0	0		

Qualifiers:
ND - Not Detected at the Reporting Limit
J - Analyte detected below quantitation limits
S - Spike Recovery outside accepted recovery limits
R - RPD outside accepted recovery limits
B - Analyte detected in the associated Method Blank

CLIENT: AKRF, Inc
Work Order: 0306118
Project: Greenpoint Lumber Yard Brooklyn, NY

ANALYTICAL QC SUMMARY REPORT

TestCode: 8082_Soil

Sample ID: **PSB070303**	SampType: **MBLK**	TestCode: **8082_Soil**	Units: **µg/Kg**	Prep Date: **7/3/2003**	Run ID: **SYSTEM QU_030707A**
Client ID: **ZZZZZ**	Batch ID: **1445**	TestNo: **SW8082A**	**(SW3550)**	Analysis Date: **7/8/2003**	SeqNo: **25043**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Aroclor 1016	U	80									
Aroclor 1221	U	80									
Aroclor 1232	U	80									
Aroclor 1242	U	80									
Aroclor 1248	U	80									
Aroclor 1254	U	80									
Aroclor 1260	U	80									

Sample ID: **PSB070303**	SampType: **MBLK**	TestCode: **8082_Soil**	Units: **µg/Kg**	Prep Date: **7/3/2003**	Run ID: **SYSTEM QU_030709F**
Client ID: **ZZZZZ**	Batch ID: **1445**	TestNo: **SW8082A**	**(SW3550)**	Analysis Date: **7/11/2003**	SeqNo: **25530**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Aroclor 1016	U	80									
Aroclor 1221	U	80									
Aroclor 1232	U	80									
Aroclor 1242	U	80									
Aroclor 1248	U	80									
Aroclor 1254	U	80									
Aroclor 1260	U	80									

Sample ID: **PSB070303**	SampType: **MBLK**	TestCode: **8082_Soil**	Units: **µg/Kg**	Prep Date: **7/3/2003**	Run ID: **SYSTEM QU_030707C**
Client ID: **ZZZZZ**	Batch ID: **1445**	TestNo: **SW8082A**	**(SW3550)**	Analysis Date: **7/11/2003**	SeqNo: **25746**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Aroclor 1016	U	80									
Aroclor 1221	U	80									
Aroclor 1232	U	80									
Aroclor 1242	U	80									
Aroclor 1248	U	80									
Aroclor 1254	U	80									
Aroclor 1260	U	80									

Qualifiers: ND - Not Detected at the Reporting Limit; J - Analyte detected below quantitation limits; S - Spike Recovery outside accepted recovery limits; R - RPD outside accepted recovery limits; B - Analyte detected in the associated Method Blank

CLIENT: AKRF, Inc
Work Order: 0306118
Project: Greenpoint Lumber Yard Brooklyn, NY

ANALYTICAL QC SUMMARY REPORT

TestCode: 8082_Soil

Sample ID: **MSB070303**	SampType: **LCS**	TestCode: **8082_Soil**	Units: **µg/Kg**	Prep Date: **7/3/2003**	Run ID: **SYSTEM QU_030707C**
Client ID: **ZZZZZ**	Batch ID: **1445**	TestNo: **SW8082A**	**(SW3550)**	Analysis Date: **7/12/2003**	SeqNo: **25755**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Aroclor 1016	131.4	80	166.5	0	78.9	59	122	0	0		
Aroclor 1260	141.4	80	166.5	0	84.9	57	121	0	0		

Sample ID: **0306117-17BMS**	SampType: **MS**	TestCode: **8082_Soil**	Units: **µg/Kg**	Prep Date: **7/3/2003**	Run ID: **SYSTEM QU_030707C**
Client ID: **ZZZZZ**	Batch ID: **1445**	TestNo: **SW8082A**	**(SW3550)**	Analysis Date: **7/12/2003**	SeqNo: **25756**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Aroclor 1016	228.2	80	166.5	0	137	59	122	0	0		S
Aroclor 1260	254.3	80	166.5	0	153	57	121	0	0		S

Sample ID: **0306117-17BMSD**	SampType: **MSD**	TestCode: **8082_Soil**	Units: **µg/Kg**	Prep Date: **7/3/2003**	Run ID: **SYSTEM QU_030707C**
Client ID: **ZZZZZ**	Batch ID: **1445**	TestNo: **SW8082A**	**(SW3550)**	Analysis Date: **7/12/2003**	SeqNo: **25757**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Aroclor 1016	367.2	80	166.5	0	221	59	122	228.2	46.7	20	SR
Aroclor 1260	401.1	80	166.5	0	241	57	121	254.3	44.8	20	SR

Qualifiers:
ND - Not Detected at the Reporting Limit
J - Analyte detected below quantitation limits
S - Spike Recovery outside accepted recovery limits
R - RPD outside accepted recovery limits
B - Analyte detected in the associated Method Blank

CLIENT: AKRF, Inc
Work Order: 0306118
Project: Greenpoint Lumber Yard Brooklyn, NY

ANALYTICAL QC SUMMARY REPORT

TestCode: 8082_W

Sample ID: PWB063003	SampType: MBLK	TestCode: 8082_W	Units: µg/L	Prep Date: 6/30/2003	Run ID: SYSTEM XY_030630A
Client ID: ZZZZZ	Batch ID: 1422	TestNo: SW8082A	(SW3510B)	Analysis Date: 7/1/2003	SeqNo: 24645

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Aroclor 1016	U	1.0									
Aroclor 1221	U	1.0									
Aroclor 1232	U	1.0									
Aroclor 1242	U	1.0									
Aroclor 1248	U	1.0									
Aroclor 1254	U	1.0									
Aroclor 1260	U	1.0									

Sample ID: PWB063003	SampType: MBLK	TestCode: 8082_W	Units: µg/L	Prep Date: 6/30/2003	Run ID: SYSTEM XY_030701A
Client ID: ZZZZZ	Batch ID: 1422	TestNo: SW8082A	(SW3510B)	Analysis Date: 7/1/2003	SeqNo: 25092

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Aroclor 1016	U	1.0									
Aroclor 1221	U	1.0									
Aroclor 1232	U	1.0									
Aroclor 1242	U	1.0									
Aroclor 1248	U	1.0									
Aroclor 1254	U	1.0									
Aroclor 1260	U	1.0									

Qualifiers:
ND - Not Detected at the Reporting Limit
J - Analyte detected below quantitation limits
S - Spike Recovery outside accepted recovery limits
R - RPD outside accepted recovery limits
B - Analyte detected in the associated Method Blank

CLIENT: AKRF, Inc
Work Order: 0306118
Project: Greenpoint Lumber Yard Brooklyn, NY

ANALYTICAL QC SUMMARY REPORT

TestCode: 8270_Soil

Sample ID: SSB070803 A	SampType: MBLK	TestCode: 8270_Soil	Units: µg/Kg	Prep Date: 7/8/2003	Run ID: SYSTEM T_030630C
Client ID: ZZZZZ	Batch ID: 1447	TestNo: SW8270D	(SW3550A)	Analysis Date: 7/8/2003	SeqNo: 25397

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
1,2,4-Trichlorobenzene	U	40	0	0	0	0	0	0	0		
1,2-Dichlorobenzene	U	40	0	0	0	0	0	0	0		
1,3-Dichlorobenzene	U	40	0	0	0	0	0	0	0		
1,4-Dichlorobenzene	U	40	0	0	0	0	0	0	0		
2,4,5-Trichlorophenol	U	40	0	0	0	0	0	0	0		
2,4,6-Trichlorophenol	U	40	0	0	0	0	0	0	0		
2,4-Dichlorophenol	U	40	0	0	0	0	0	0	0		
2,4-Dimethylphenol	U	40	0	0	0	0	0	0	0		
2,4-Dinitrophenol	U	40	0	0	0	0	0	0	0		
2,4-Dinitrotoluene	U	40	0	0	0	0	0	0	0		
2,6-Dinitrotoluene	U	40	0	0	0	0	0	0	0		
2-Chloronaphthalene	U	40	0	0	0	0	0	0	0		
2-Chlorophenol	U	40	0	0	0	0	0	0	0		
2-Methylnaphthalene	U	40	0	0	0	0	0	0	0		
2-Methylphenol	U	40	0	0	0	0	0	0	0		
2-Nitroaniline	U	40	0	0	0	0	0	0	0		
2-Nitrophenol	U	40	0	0	0	0	0	0	0		
3,3´-Dichlorobenzidine	U	40	0	0	0	0	0	0	0		
3+4-Methylphenol	U	40	0	0	0	0	0	0	0		
3-Nitroaniline	U	40	0	0	0	0	0	0	0		
4,6-Dinitro-2-methylphenol	U	40	0	0	0	0	0	0	0		
4-Bromophenyl phenyl ether	U	40	0	0	0	0	0	0	0		
4-Chloro-3-methylphenol	U	40	0	0	0	0	0	0	0		
4-Chloroaniline	U	40	0	0	0	0	0	0	0		
4-Chlorophenyl phenyl ether	U	40	0	0	0	0	0	0	0		
4-Nitroaniline	U	40	0	0	0	0	0	0	0		
4-Nitrophenol	U	40	0	0	0	0	0	0	0		
Acenaphthene	U	40	0	0	0	0	0	0	0		
Acenaphthylene	U	40	0	0	0	0	0	0	0		
Aniline	U	40	0	0	0	0	0	0	0		
Anthracene	U	40	0	0	0	0	0	0	0		

Qualifiers:
ND - Not Detected at the Reporting Limit
J - Analyte detected below quantitation limits
S - Spike Recovery outside accepted recovery limits
R - RPD outside accepted recovery limits
B - Analyte detected in the associated Method Blank

CLIENT: AKRF, Inc
Work Order: 0306118
Project: Greenpoint Lumber Yard Brooklyn, NY

ANALYTICAL QC SUMMARY REPORT

TestCode: 8270_Soil

Sample ID: **SSB070803 A** SampType: **MBLK** TestCode: **8270_Soil** Units: **µg/Kg** Prep Date: **7/8/2003** Run ID: **SYSTEM T_030630C**
Client ID: **ZZZZZ** Batch ID: **1447** TestNo: **SW8270D** **(SW3550A)** Analysis Date: **7/8/2003** SeqNo: **25397**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Azobenzene	U	40	0	0	0	0	0	0	0		
Benzidine	U	40	0	0	0	0	0	0	0		
Benzo(a)anthracene	U	40	0	0	0	0	0	0	0		
Benzo(a)pyrene	U	40	0	0	0	0	0	0	0		
Benzo(b)fluoranthene	U	40	0	0	0	0	0	0	0		
Benzo(g,h,i)perylene	U	40	0	0	0	0	0	0	0		
Benzo(k)fluoranthene	U	40	0	0	0	0	0	0	0		
Benzoic acid	U	40	0	0	0	0	0	0	0		
Benzyl alcohol	U	40	0	0	0	0	0	0	0		
Bis(2-chloroethoxy)methane	U	40	0	0	0	0	0	0	0		
Bis(2-chloroethyl)ether	U	40	0	0	0	0	0	0	0		
Bis(2-chloroisopropyl)ether	U	40	0	0	0	0	0	0	0		
Bis(2-ethylhexyl)phthalate	U	40	0	0	0	0	0	0	0		
Butyl benzyl phthalate	U	40	0	0	0	0	0	0	0		
Carbazole	U	40	0	0	0	0	0	0	0		
Chrysene	U	40	0	0	0	0	0	0	0		
Dibenzo(a,h)anthracene	U	40	0	0	0	0	0	0	0		
Dibenzofuran	U	40	0	0	0	0	0	0	0		
Diethyl phthalate	U	40	0	0	0	0	0	0	0		
Dimethyl phthalate	U	40	0	0	0	0	0	0	0		
Di-n-butyl phthalate	U	40	0	0	0	0	0	0	0		
Di-n-octyl phthalate	U	40	0	0	0	0	0	0	0		
Fluoranthene	U	40	0	0	0	0	0	0	0		
Fluorene	U	40	0	0	0	0	0	0	0		
Hexachlorobenzene	U	40	0	0	0	0	0	0	0		
Hexachlorobutadiene	U	40	0	0	0	0	0	0	0		
Hexachlorocyclopentadiene	U	40	0	0	0	0	0	0	0		
Hexachloroethane	U	40	0	0	0	0	0	0	0		
Indeno(1,2,3-c,d)pyrene	U	40	0	0	0	0	0	0	0		
Isophorone	U	40	0	0	0	0	0	0	0		
Naphthalene	U	40	0	0	0	0	0	0	0		

Qualifiers: ND - Not Detected at the Reporting Limit
J - Analyte detected below quantitation limits
S - Spike Recovery outside accepted recovery limits
R - RPD outside accepted recovery limits
B - Analyte detected in the associated Method Blank

CLIENT: AKRF, Inc
Work Order: 0306118
Project: Greenpoint Lumber Yard Brooklyn, NY

ANALYTICAL QC SUMMARY REPORT

TestCode: 8270_Soil

Sample ID: SSB070803 A	SampType: MBLK	TestCode: 8270_Soil	Units: µg/Kg	Prep Date: 7/8/2003	Run ID: SYSTEM T_030630C
Client ID: ZZZZZ	Batch ID: 1447	TestNo: SW8270D	(SW3550A)	Analysis Date: 7/8/2003	SeqNo: 25397

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Nitrobenzene	U	40	0	0	0	0	0	0	0		
N-Nitrosodimethylamine	U	40	0	0	0	0	0	0	0		
N-Nitrosodi-n-propylamine	U	40	0	0	0	0	0	0	0		
N-Nitrosodiphenylamine	U	40	0	0	0	0	0	0	0		
Pentachlorophenol	U	40	0	0	0	0	0	0	0		
Phenanthrene	U	40	0	0	0	0	0	0	0		
Phenol	U	40	0	0	0	0	0	0	0		
Pyrene	U	40	0	0	0	0	0	0	0		
Pyridine	U	40	0	0	0	0	0	0	0		

Sample ID: SSB070803B	SampType: MBLK	TestCode: 8270_Soil	Units: µg/Kg	Prep Date: 7/8/2003	Run ID: SYSTEM T_030702A
Client ID: ZZZZZ	Batch ID: 1447	TestNo: SW8270D	(SW3550A)	Analysis Date: 7/9/2003	SeqNo: 25556

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
1,2,4-Trichlorobenzene	U	40	0	0	0	0	0	0	0		
1,2-Dichlorobenzene	U	40	0	0	0	0	0	0	0		
1,3-Dichlorobenzene	U	40	0	0	0	0	0	0	0		
1,4-Dichlorobenzene	U	40	0	0	0	0	0	0	0		
2,4,5-Trichlorophenol	U	40	0	0	0	0	0	0	0		
2,4,6-Trichlorophenol	U	40	0	0	0	0	0	0	0		
2,4-Dichlorophenol	U	40	0	0	0	0	0	0	0		
2,4-Dimethylphenol	U	40	0	0	0	0	0	0	0		
2,4-Dinitrophenol	U	40	0	0	0	0	0	0	0		
2,4-Dinitrotoluene	U	40	0	0	0	0	0	0	0		
2,6-Dinitrotoluene	U	40	0	0	0	0	0	0	0		
2-Chloronaphthalene	U	40	0	0	0	0	0	0	0		
2-Chlorophenol	U	40	0	0	0	0	0	0	0		
2-Methylnaphthalene	U	40	0	0	0	0	0	0	0		
2-Methylphenol	U	40	0	0	0	0	0	0	0		
2-Nitroaniline	U	40	0	0	0	0	0	0	0		
2-Nitrophenol	U	40	0	0	0	0	0	0	0		

Qualifiers: ND - Not Detected at the Reporting Limit
J - Analyte detected below quantitation limits
S - Spike Recovery outside accepted recovery limits
R - RPD outside accepted recovery limits
B - Analyte detected in the associated Method Blank

CLIENT: AKRF, Inc
Work Order: 0306118
Project: Greenpoint Lumber Yard Brooklyn, NY

ANALYTICAL QC SUMMARY REPORT

TestCode: 8270_Soil

Sample ID: SSB070803B	SampType: MBLK	TestCode: 8270_Soil	Units: µg/Kg	Prep Date: 7/8/2003	Run ID: SYSTEM T_030702A
Client ID: ZZZZZ	Batch ID: 1447	TestNo: SW8270D	(SW3550A)	Analysis Date: 7/9/2003	SeqNo: 25556

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
3,3´-Dichlorobenzidine	U	40	0	0	0	0	0	0	0		
3+4-Methylphenol	U	40	0	0	0	0	0	0	0		
3-Nitroaniline	U	40	0	0	0	0	0	0	0		
4,6-Dinitro-2-methylphenol	U	40	0	0	0	0	0	0	0		
4-Bromophenyl phenyl ether	U	40	0	0	0	0	0	0	0		
4-Chloro-3-methylphenol	U	40	0	0	0	0	0	0	0		
4-Chloroaniline	U	40	0	0	0	0	0	0	0		
4-Chlorophenyl phenyl ether	U	40	0	0	0	0	0	0	0		
4-Nitroaniline	U	40	0	0	0	0	0	0	0		
4-Nitrophenol	U	40	0	0	0	0	0	0	0		
Acenaphthene	U	40	0	0	0	0	0	0	0		
Acenaphthylene	U	40	0	0	0	0	0	0	0		
Aniline	U	40	0	0	0	0	0	0	0		
Anthracene	U	40	0	0	0	0	0	0	0		
Azobenzene	U	40	0	0	0	0	0	0	0		
Benzidine	U	40	0	0	0	0	0	0	0		
Benzo(a)anthracene	U	40	0	0	0	0	0	0	0		
Benzo(a)pyrene	U	40	0	0	0	0	0	0	0		
Benzo(b)fluoranthene	U	40	0	0	0	0	0	0	0		
Benzo(g,h,i)perylene	U	40	0	0	0	0	0	0	0		
Benzo(k)fluoranthene	U	40	0	0	0	0	0	0	0		
Benzoic acid	U	40	0	0	0	0	0	0	0		
Benzyl alcohol	U	40	0	0	0	0	0	0	0		
Bis(2-chloroethoxy)methane	U	40	0	0	0	0	0	0	0		
Bis(2-chloroethyl)ether	U	40	0	0	0	0	0	0	0		
Bis(2-chloroisopropyl)ether	U	40	0	0	0	0	0	0	0		
Bis(2-ethylhexyl)phthalate	U	40	0	0	0	0	0	0	0		
Butyl benzyl phthalate	U	40	0	0	0	0	0	0	0		
Carbazole	U	40	0	0	0	0	0	0	0		
Chrysene	U	40	0	0	0	0	0	0	0		
Dibenzo(a,h)anthracene	U	40	0	0	0	0	0	0	0		

Qualifiers:
ND - Not Detected at the Reporting Limit
J - Analyte detected below quantitation limits
S - Spike Recovery outside accepted recovery limits
R - RPD outside accepted recovery limits
B - Analyte detected in the associated Method Blank

CLIENT: AKRF, Inc
Work Order: 0306118
Project: Greenpoint Lumber Yard Brooklyn, NY

ANALYTICAL QC SUMMARY REPORT

TestCode: 8270_Soil

Sample ID: SSB070803B	SampType: MBLK	TestCode: 8270_Soil	Units: µg/Kg	Prep Date: 7/8/2003	Run ID: SYSTEM T_030702A
Client ID: ZZZZZ	Batch ID: 1447	TestNo: SW8270D	(SW3550A)	Analysis Date: 7/9/2003	SeqNo: 25556

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Dibenzofuran	U	40	0	0	0	0	0	0	0		
Diethyl phthalate	U	40	0	0	0	0	0	0	0		
Dimethyl phthalate	U	40	0	0	0	0	0	0	0		
Di-n-butyl phthalate	U	40	0	0	0	0	0	0	0		
Di-n-octyl phthalate	U	40	0	0	0	0	0	0	0		
Fluoranthene	U	40	0	0	0	0	0	0	0		
Fluorene	U	40	0	0	0	0	0	0	0		
Hexachlorobenzene	U	40	0	0	0	0	0	0	0		
Hexachlorobutadiene	U	40	0	0	0	0	0	0	0		
Hexachlorocyclopentadiene	U	40	0	0	0	0	0	0	0		
Hexachloroethane	U	40	0	0	0	0	0	0	0		
Indeno(1,2,3-c,d)pyrene	U	40	0	0	0	0	0	0	0		
Isophorone	U	40	0	0	0	0	0	0	0		
Naphthalene	U	40	0	0	0	0	0	0	0		
Nitrobenzene	U	40	0	0	0	0	0	0	0		
N-Nitrosodimethylamine	U	40	0	0	0	0	0	0	0		
N-Nitrosodi-n-propylamine	U	40	0	0	0	0	0	0	0		
N-Nitrosodiphenylamine	U	40	0	0	0	0	0	0	0		
Pentachlorophenol	U	40	0	0	0	0	0	0	0		
Phenanthrene	U	40	0	0	0	0	0	0	0		
Phenol	U	40	0	0	0	0	0	0	0		
Pyrene	U	40	0	0	0	0	0	0	0		
Pyridine	U	40	0	0	0	0	0	0	0		

Sample ID: LCS070803	SampType: LCS	TestCode: 8270_Soil	Units: µg/Kg	Prep Date: 7/8/2003	Run ID: SYSTEM T_030702A
Client ID: ZZZZZ	Batch ID: 1447	TestNo: SW8270D	(SW3550A)	Analysis Date: 7/10/2003	SeqNo: 25557

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
1,2,4-Trichlorobenzene	452.7	40	666	0	68	53	123	0	0		
1,4-Dichlorobenzene	445.3	40	666	0	66.9	41.5	114	0	0		
2,4-Dinitrotoluene	328.4	40	666	0	49.3	48	85.2	0	0		

Qualifiers:
ND - Not Detected at the Reporting Limit
J - Analyte detected below quantitation limits
S - Spike Recovery outside accepted recovery limits
R - RPD outside accepted recovery limits
B - Analyte detected in the associated Method Blank

CLIENT: AKRF, Inc
Work Order: 0306118
Project: Greenpoint Lumber Yard Brooklyn, NY

ANALYTICAL QC SUMMARY REPORT

TestCode: 8270_Soil

Sample ID: LCS070803	SampType: LCS	TestCode: 8270_Soil	Units: µg/Kg	Prep Date: 7/8/2003	Run ID: SYSTEM T_030702A
Client ID: ZZZZZ	Batch ID: 1447	TestNo: SW8270D	(SW3550A)	Analysis Date: 7/10/2003	SeqNo: 25557

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
2-Chlorophenol	449.8	40	666	0	67.5	52	113	0	0		
4-Chloro-3-methylphenol	440.4	40	666	0	66.1	50.3	111	0	0		
4-Nitrophenol	379.2	40	666	0	56.9	41.6	108	0	0		
Acenaphthene	455.6	40	666	0	68.4	43.6	113	0	0		
N-Nitrosodi-n-propylamine	443.4	40	666	0	66.6	42	120	0	0		
Pentachlorophenol	404.1	40	666	0	60.7	38.6	109	0	0		
Phenol	462.4	40	666	0	69.4	44.8	113	0	0		
Pyrene	510.9	40	666	0	76.7	46.2	104	0	0		

Sample ID: 0306117-17B MS	SampType: MS	TestCode: 8270_Soil	Units: µg/Kg	Prep Date: 7/8/2003	Run ID: SYSTEM T_030702A
Client ID: ZZZZZ	Batch ID: 1447	TestNo: SW8270D	(SW3550A)	Analysis Date: 7/10/2003	SeqNo: 25558

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
1,2,4-Trichlorobenzene	473.8	40	666	0	71.1	53	123	0	0		
1,4-Dichlorobenzene	414.4	40	666	0	62.2	41.5	114	0	0		
2,4-Dinitrotoluene	387.7	40	666	0	58.2	48	85.2	0	0		
2-Chlorophenol	423.4	40	666	0	63.6	52	113	0	0		
4-Chloro-3-methylphenol	478.8	40	666	0	71.9	50.3	111	0	0		
4-Nitrophenol	411.7	40	666	0	61.8	41.6	108	0	0		
Acenaphthene	441.2	40	666	0	66.2	43.6	113	0	0		
N-Nitrosodi-n-propylamine	421.5	40	666	0	63.3	42	120	0	0		
Pentachlorophenol	461.6	40	666	0	69.3	38.6	109	0	0		
Phenol	454.2	40	666	0	68.2	44.8	113	0	0		
Pyrene	688.5	40	666	0	103	46.2	104	0	0		

Sample ID: 0306117-17B MSD	SampType: MSD	TestCode: 8270_Soil	Units: µg/Kg	Prep Date: 7/8/2003	Run ID: SYSTEM T_030702A
Client ID: ZZZZZ	Batch ID: 1447	TestNo: SW8270D	(SW3550A)	Analysis Date: 7/10/2003	SeqNo: 25559

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
1,2,4-Trichlorobenzene	411.1	40	666	0	61.7	53	123	0	0		
1,4-Dichlorobenzene	409.2	40	666	0	61.4	41.5	114	0	0		

Qualifiers:
ND - Not Detected at the Reporting Limit
J - Analyte detected below quantitation limits
S - Spike Recovery outside accepted recovery limits
R - RPD outside accepted recovery limits
B - Analyte detected in the associated Method Blank

CLIENT: AKRF, Inc
Work Order: 0306118
Project: Greenpoint Lumber Yard Brooklyn, NY

ANALYTICAL QC SUMMARY REPORT

TestCode: 8270_Soil

Sample ID: **0306117-17B MSD**	SampType: **MSD**	TestCode: **8270_Soil**	Units: **µg/Kg**	Prep Date: **7/8/2003**	Run ID: **SYSTEM T_030702A**	
Client ID: **ZZZZZ**	Batch ID: **1447**	TestNo: **SW8270D**	**(SW3550A)**	Analysis Date: **7/10/2003**	SeqNo: **25559**	

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
2,4-Dinitrotoluene	406.4	40	666	0	61	48	85.2	0	0		
2-Chlorophenol	493.4	40	666	0	74.1	52	113	0	0		
4-Chloro-3-methylphenol	499.3	40	666	0	75	50.3	111	0	0		
4-Nitrophenol	417	40	666	0	62.6	41.6	108	0	0		
Acenaphthene	461.5	40	666	0	69.3	43.6	113	0	0		
N-Nitrosodi-n-propylamine	485.3	40	666	0	72.9	42	120	0	0		
Pentachlorophenol	458.7	40	666	0	68.9	38.6	109	0	0		
Phenol	443.8	40	666	0	66.6	44.8	113	0	0		
Pyrene	698.9	40	666	0	105	46.2	104	0	0		S

Qualifiers:
ND - Not Detected at the Reporting Limit
J - Analyte detected below quantitation limits
S - Spike Recovery outside accepted recovery limits
R - RPD outside accepted recovery limits
B - Analyte detected in the associated Method Blank

CLIENT: AKRF, Inc
Work Order: 0306118
Project: Greenpoint Lumber Yard Brooklyn, NY

ANALYTICAL QC SUMMARY REPORT

TestCode: 8270_w

Sample ID: SWB063003	SampType: MBLK	TestCode: 8270_w	Units: µg/L	Prep Date: 6/30/2003	Run ID: SYSTEM T_030630A
Client ID: ZZZZZ	Batch ID: 1419	TestNo: SW8270D	(SW3510)	Analysis Date: 6/30/2003	SeqNo: 24728

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
1,2,4-Trichlorobenzene	U	5.0	0	0	0	0	0	0	0		
1,2-Dichlorobenzene	U	5.0	0	0	0	0	0	0	0		
1,3-Dichlorobenzene	U	5.0	0	0	0	0	0	0	0		
1,4-Dichlorobenzene	U	5.0	0	0	0	0	0	0	0		
2,4,5-Trichlorophenol	U	5.0	0	0	0	0	0	0	0		
2,4,6-Trichlorophenol	U	5.0	0	0	0	0	0	0	0		
2,4-Dichlorophenol	U	5.0	0	0	0	0	0	0	0		
2,4-Dimethylphenol	U	5.0	0	0	0	0	0	0	0		
2,4-Dinitrophenol	U	5.0	0	0	0	0	0	0	0		
2,4-Dinitrotoluene	U	5.0	0	0	0	0	0	0	0		
2,6-Dinitrotoluene	U	5.0	0	0	0	0	0	0	0		
2-Chloronaphthalene	U	5.0	0	0	0	0	0	0	0		
2-Chlorophenol	U	5.0	0	0	0	0	0	0	0		
2-Methylnaphthalene	U	5.0	0	0	0	0	0	0	0		
2-Methylphenol	U	5.0	0	0	0	0	0	0	0		
2-Nitroaniline	U	5.0	0	0	0	0	0	0	0		
2-Nitrophenol	U	5.0	0	0	0	0	0	0	0		
3,3´-Dichlorobenzidine	U	5.0	0	0	0	0	0	0	0		
3+4-Methylphenol	U	5.0	0	0	0	0	0	0	0		
3-Nitroaniline	U	5.0	0	0	0	0	0	0	0		
4,6-Dinitro-2-methylphenol	U	5.0	0	0	0	0	0	0	0		
4-Bromophenyl phenyl ether	U	5.0	0	0	0	0	0	0	0		
4-Chloro-3-methylphenol	U	5.0	0	0	0	0	0	0	0		
4-Chloroaniline	U	5.0	0	0	0	0	0	0	0		
4-Chlorophenyl phenyl ether	U	5.0	0	0	0	0	0	0	0		
4-Nitroaniline	U	5.0	0	0	0	0	0	0	0		
4-Nitrophenol	U	5.0	0	0	0	0	0	0	0		
Acenaphthene	U	5.0	0	0	0	0	0	0	0		
Acenaphthylene	U	5.0	0	0	0	0	0	0	0		
Aniline	U	5.0	0	0	0	0	0	0	0		
Anthracene	U	5.0	0	0	0	0	0	0	0		

Qualifiers:
ND - Not Detected at the Reporting Limit
J - Analyte detected below quantitation limits
S - Spike Recovery outside accepted recovery limits
R - RPD outside accepted recovery limits
B - Analyte detected in the associated Method Blank

CLIENT: AKRF, Inc
Work Order: 0306118
Project: Greenpoint Lumber Yard Brooklyn, NY

ANALYTICAL QC SUMMARY REPORT

TestCode: 8270_w

Sample ID: SWB063003	SampType: MBLK	TestCode: 8270_w	Units: µg/L	Prep Date: 6/30/2003	Run ID: SYSTEM T_030630A
Client ID: ZZZZZ	Batch ID: 1419	TestNo: SW8270D	(SW3510)	Analysis Date: 6/30/2003	SeqNo: 24728

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Azobenzene	U	5.0	0	0	0	0	0	0	0		
Benzidine	U	5.0	0	0	0	0	0	0	0		
Benzo(a)anthracene	U	5.0	0	0	0	0	0	0	0		
Benzo(a)pyrene	U	5.0	0	0	0	0	0	0	0		
Benzo(b)fluoranthene	U	5.0	0	0	0	0	0	0	0		
Benzo(g,h,i)perylene	U	5.0	0	0	0	0	0	0	0		
Benzo(k)fluoranthene	U	5.0	0	0	0	0	0	0	0		
Benzoic acid	U	5.0	0	0	0	0	0	0	0		
Benzyl alcohol	U	5.0	0	0	0	0	0	0	0		
Bis(2-chloroethoxy)methane	U	5.0	0	0	0	0	0	0	0		
Bis(2-chloroethyl)ether	U	5.0	0	0	0	0	0	0	0		
Bis(2-chloroisopropyl)ether	U	5.0	0	0	0	0	0	0	0		
Bis(2-ethylhexyl)phthalate	U	5.0	0	0	0	0	0	0	0		
Butyl benzyl phthalate	U	5.0	0	0	0	0	0	0	0		
Carbazole	U	5.0	0	0	0	0	0	0	0		
Chrysene	U	5.0	0	0	0	0	0	0	0		
Dibenzo(a,h)anthracene	U	5.0	0	0	0	0	0	0	0		
Dibenzofuran	U	5.0	0	0	0	0	0	0	0		
Diethyl phthalate	U	5.0	0	0	0	0	0	0	0		
Dimethyl phthalate	U	5.0	0	0	0	0	0	0	0		
Di-n-butyl phthalate	U	5.0	0	0	0	0	0	0	0		
Di-n-octyl phthalate	U	5.0	0	0	0	0	0	0	0		
Fluoranthene	U	5.0	0	0	0	0	0	0	0		
Fluorene	U	5.0	0	0	0	0	0	0	0		
Hexachlorobenzene	U	5.0	0	0	0	0	0	0	0		
Hexachlorobutadiene	U	5.0	0	0	0	0	0	0	0		
Hexachlorocyclopentadiene	U	5.0	0	0	0	0	0	0	0		
Hexachloroethane	U	5.0	0	0	0	0	0	0	0		
Indeno(1,2,3-c,d)pyrene	U	5.0	0	0	0	0	0	0	0		
Isophorone	U	5.0	0	0	0	0	0	0	0		
Naphthalene	U	5.0	0	0	0	0	0	0	0		

Qualifiers: ND - Not Detected at the Reporting Limit
J - Analyte detected below quantitation limits
S - Spike Recovery outside accepted recovery limits
R - RPD outside accepted recovery limits
B - Analyte detected in the associated Method Blank

CLIENT: AKRF, Inc
Work Order: 0306118
Project: Greenpoint Lumber Yard Brooklyn, NY

ANALYTICAL QC SUMMARY REPORT

TestCode: 8270_w

Sample ID: SWB063003	SampType: MBLK	TestCode: 8270_w	Units: µg/L	Prep Date: 6/30/2003	Run ID: SYSTEM T_030630A
Client ID: ZZZZZ	Batch ID: 1419	TestNo: SW8270D	(SW3510)	Analysis Date: 6/30/2003	SeqNo: 24728

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Nitrobenzene	U	5.0	0	0	0	0	0	0	0		
N-Nitrosodimethylamine	U	5.0	0	0	0	0	0	0	0		
N-Nitrosodi-n-propylamine	U	5.0	0	0	0	0	0	0	0		
N-Nitrosodiphenylamine	U	5.0	0	0	0	0	0	0	0		
Pentachlorophenol	U	5.0	0	0	0	0	0	0	0		
Phenanthrene	U	5.0	0	0	0	0	0	0	0		
Phenol	U	5.0	0	0	0	0	0	0	0		
Pyrene	U	5.0	0	0	0	0	0	0	0		
Pyridine	U	5.0	0	0	0	0	0	0	0		

Sample ID: SWB063003	SampType: MBLK	TestCode: 8270_w	Units: µg/L	Prep Date: 6/30/2003	Run ID: SYSTEM T_030630C
Client ID: ZZZZZ	Batch ID: 1419	TestNo: SW8270D	(SW3510)	Analysis Date: 6/30/2003	SeqNo: 25121

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
1,2,4-Trichlorobenzene	U	5.0									
1,2-Dichlorobenzene	U	5.0									
1,3-Dichlorobenzene	U	5.0									
1,4-Dichlorobenzene	U	5.0									
2,4,5-Trichlorophenol	U	5.0									
2,4,6-Trichlorophenol	U	5.0									
2,4-Dichlorophenol	U	5.0									
2,4-Dimethylphenol	U	5.0									
2,4-Dinitrophenol	U	5.0									
2,4-Dinitrotoluene	U	5.0									
2,6-Dinitrotoluene	U	5.0									
2-Chloronaphthalene	U	5.0									
2-Chlorophenol	U	5.0									
2-Methylnaphthalene	U	5.0									
2-Methylphenol	U	5.0									
2-Nitroaniline	U	5.0									
2-Nitrophenol	U	5.0									

Qualifiers:
ND - Not Detected at the Reporting Limit
J - Analyte detected below quantitation limits
S - Spike Recovery outside accepted recovery limits
R - RPD outside accepted recovery limits
B - Analyte detected in the associated Method Blank

CLIENT: AKRF, Inc
Work Order: 0306118
Project: Greenpoint Lumber Yard Brooklyn, NY

ANALYTICAL QC SUMMARY REPORT

TestCode: 8270_w

Sample ID: SWB063003	SampType: MBLK	TestCode: 8270_w	Units: µg/L	Prep Date: 6/30/2003	Run ID: SYSTEM T_030630C
Client ID: ZZZZZ	Batch ID: 1419	TestNo: SW8270D	(SW3510)	Analysis Date: 6/30/2003	SeqNo: 25121

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
3,3´-Dichlorobenzidine	U	5.0									
3+4-Methylphenol	U	5.0									
3-Nitroaniline	U	5.0									
4,6-Dinitro-2-methylphenol	U	5.0									
4-Bromophenyl phenyl ether	U	5.0									
4-Chloro-3-methylphenol	U	5.0									
4-Chloroaniline	U	5.0									
4-Chlorophenyl phenyl ether	U	5.0									
4-Nitroaniline	U	5.0									
4-Nitrophenol	U	5.0									
Acenaphthene	U	5.0									
Acenaphthylene	U	5.0									
Aniline	U	5.0									
Anthracene	U	5.0									
Azobenzene	U	5.0									
Benzidine	U	5.0									
Benzo(a)anthracene	U	5.0									
Benzo(a)pyrene	U	5.0									
Benzo(b)fluoranthene	U	5.0									
Benzo(g,h,i)perylene	U	5.0									
Benzo(k)fluoranthene	U	5.0									
Benzoic acid	U	5.0									
Benzyl alcohol	U	5.0									
Bis(2-chloroethoxy)methane	U	5.0									
Bis(2-chloroethyl)ether	U	5.0									
Bis(2-chloroisopropyl)ether	U	5.0									
Bis(2-ethylhexyl)phthalate	U	5.0									
Butyl benzyl phthalate	U	5.0									
Carbazole	U	5.0									
Chrysene	U	5.0									
Dibenzo(a,h)anthracene	U	5.0									

Qualifiers:
ND - Not Detected at the Reporting Limit
J - Analyte detected below quantitation limits
S - Spike Recovery outside accepted recovery limits
R - RPD outside accepted recovery limits
B - Analyte detected in the associated Method Blank

CLIENT: AKRF, Inc
Work Order: 0306118
Project: Greenpoint Lumber Yard Brooklyn, NY

ANALYTICAL QC SUMMARY REPORT

TestCode: 8270_w

Sample ID: **SWB063003** SampType: **MBLK** TestCode: **8270_w** Units: **µg/L** Prep Date: **6/30/2003** Run ID: **SYSTEM T_030630C**
Client ID: **ZZZZZ** Batch ID: **1419** TestNo: **SW8270D** **(SW3510)** Analysis Date: **6/30/2003** SeqNo: **25121**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Dibenzofuran	U	5.0									
Diethyl phthalate	U	5.0									
Dimethyl phthalate	U	5.0									
Di-n-butyl phthalate	U	5.0									
Di-n-octyl phthalate	U	5.0									
Fluoranthene	U	5.0									
Fluorene	U	5.0									
Hexachlorobenzene	U	5.0									
Hexachlorobutadiene	U	5.0									
Hexachlorocyclopentadiene	U	5.0									
Hexachloroethane	U	5.0									
Indeno(1,2,3-c,d)pyrene	U	5.0									
Isophorone	U	5.0									
Naphthalene	U	5.0									
Nitrobenzene	U	5.0									
N-Nitrosodimethylamine	U	5.0									
N-Nitrosodi-n-propylamine	U	5.0									
N-Nitrosodiphenylamine	U	5.0									
Pentachlorophenol	U	5.0									
Phenanthrene	U	5.0									
Phenol	U	5.0									
Pyrene	U	5.0									
Pyridine	U	5.0									

Sample ID: **LCS063003** SampType: **LCS** TestCode: **8270_w** Units: **µg/L** Prep Date: **6/30/2003** Run ID: **SYSTEM T_030630C**
Client ID: **ZZZZZ** Batch ID: **1419** TestNo: **SW8270D** **(SW3510)** Analysis Date: **6/30/2003** SeqNo: **25122**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
1,2,4-Trichlorobenzene	14.74	5.0	20	0	73.7	53	123	0	0		
1,4-Dichlorobenzene	13.64	5.0	20	0	68.2	38	136	0	0		
2,4-Dinitrotoluene	11.29	5.0	20	0	56.4	40	119	0	0		

Qualifiers: ND - Not Detected at the Reporting Limit
J - Analyte detected below quantitation limits
S - Spike Recovery outside accepted recovery limits
R - RPD outside accepted recovery limits
B - Analyte detected in the associated Method Blank

CLIENT: AKRF, Inc
Work Order: 0306118
Project: Greenpoint Lumber Yard Brooklyn, NY

ANALYTICAL QC SUMMARY REPORT

TestCode: 8270_w

Sample ID: LCS063003	SampType: LCS	TestCode: 8270_w	Units: µg/L	Prep Date: 6/30/2003	Run ID: SYSTEM T_030630C
Client ID: ZZZZZ	Batch ID: 1419	TestNo: SW8270D	(SW3510)	Analysis Date: 6/30/2003	SeqNo: 25122

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
2-Chlorophenol	14.04	5.0	20	0	70.2	46	128	0	0		
4-Chloro-3-methylphenol	15.77	5.0	20	0	78.8	30.8	107	0	0		
4-Nitrophenol	5.65	5.0	20	0	28.2	5	107	0	0		
Acenaphthene	15.11	5.0	20	0	75.6	52	125	0	0		
N-Nitrosodi-n-propylamine	14.48	5.0	20	0	72.4	35	142	0	0		
Pentachlorophenol	9.82	5.0	20	0	49.1	18	126	0	0		
Phenol	7.18	5.0	20	0	35.9	5	110	0	0		
Pyrene	16.99	5.0	20	0	85	42	134	0	0		

Sample ID: LCSD063003	SampType: LCS	TestCode: 8270_w	Units: µg/L	Prep Date: 6/30/2003	Run ID: SYSTEM T_030630C
Client ID: ZZZZZ	Batch ID: 1419	TestNo: SW8270D	(SW3510)	Analysis Date: 6/30/2003	SeqNo: 25123

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
1,2,4-Trichlorobenzene	14.76	5.0	20	0	73.8	53	123	0	0		
1,4-Dichlorobenzene	13.33	5.0	20	0	66.7	38	136	0	0		
2,4-Dinitrotoluene	10.54	5.0	20	0	52.7	40	119	0	0		
2-Chlorophenol	14.73	5.0	20	0	73.6	46	128	0	0		
4-Chloro-3-methylphenol	14.67	5.0	20	0	73.4	30.8	107	0	0		
4-Nitrophenol	4.62	5.0	20	0	23.1	5	107	0	0		J
Acenaphthene	15.02	5.0	20	0	75.1	52	125	0	0		
N-Nitrosodi-n-propylamine	13.75	5.0	20	0	68.8	35	142	0	0		
Pentachlorophenol	8.89	5.0	20	0	44.4	18	126	0	0		
Phenol	7.03	5.0	20	0	35.2	5	110	0	0		
Pyrene	17.61	5.0	20	0	88	42	134	0	0		

Qualifiers:
ND - Not Detected at the Reporting Limit
J - Analyte detected below quantitation limits
S - Spike Recovery outside accepted recovery limits
R - RPD outside accepted recovery limits
B - Analyte detected in the associated Method Blank

CLIENT: AKRF, Inc
Work Order: 0306118
Project: Greenpoint Lumber Yard Brooklyn, NY

ANALYTICAL QC SUMMARY REPORT

TestCode: Full8260_Soil

Sample ID: **VBLK070103B** SampType: **MBLK** TestCode: **Full8260_Soil** Units: **µg/Kg** Prep Date: Run ID: **SYSTEM Y_030701B**
Client ID: **ZZZZZ** Batch ID: **R3171** TestNo: **SW8260B** Analysis Date: **7/1/2003** SeqNo: **24774**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
1,1,1,2-Tetrachloroethane	U	5.0									
1,1,1-Trichloroethane	U	5.0									
1,1,2,2-Tetrachloroethane	U	5.0									
1,1,2-Trichloro-1,2,2-trifluoroethane	U	5.0									
1,1,2-Trichloroethane	U	5.0									
1,1-Dichloroethane	U	5.0									
1,1-Dichloroethene	U	5.0									
1,1-Dichloropropene	U	5.0									
1,2,3-Trichlorobenzene	U	5.0									
1,2,3-Trichloropropane	U	5.0									
1,2,4,5-Tetramethylbenzene	U	5.0									
1,2,4-Trichlorobenzene	U	5.0									
1,2,4-Trimethylbenzene	U	5.0									
1,2-Dibromo-3-chloropropane	U	5.0									
1,2-Dibromoethane	U	5.0									
1,2-Dichlorobenzene	U	5.0									
1,2-Dichloroethane	U	5.0									
1,2-Dichloropropane	U	5.0									
1,3,5-Trimethylbenzene	U	5.0									
1,3-Dichlorobenzene	U	5.0									
1,3-dichloropropane	U	5.0									
1,4-Dichlorobenzene	U	5.0									
2,2-Dichloropropane	U	5.0									
2-Butanone	U	5.0									
2-Chloroethyl vinyl ether	U	5.0									
2-Chlorotoluene	U	5.0									
2-Hexanone	U	5.0									
4-Chlorotoluene	U	5.0									
4-Isopropyltoluene	U	5.0									
4-Methyl-2-pentanone	U	5.0									
Acetone	U	5.0									

Qualifiers:
ND - Not Detected at the Reporting Limit
J - Analyte detected below quantitation limits
S - Spike Recovery outside accepted recovery limits
R - RPD outside accepted recovery limits
B - Analyte detected in the associated Method Blank

CLIENT: AKRF, Inc
Work Order: 0306118
Project: Greenpoint Lumber Yard Brooklyn, NY

ANALYTICAL QC SUMMARY REPORT

TestCode: Full8260_Soil

Sample ID: **VBLK070103B**	SampType: **MBLK**	TestCode: **Full8260_Soil**	Units: **µg/Kg**	Prep Date:	Run ID: **SYSTEM Y_030701B**
Client ID: **ZZZZZ**	Batch ID: **R3171**	TestNo: **SW8260B**		Analysis Date: **7/1/2003**	SeqNo: **24774**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Acrolein	U	25									
Acrylonitrile	U	5.0									
Benzene	U	5.0									
Bromobenzene	U	5.0									
Bromochloromethane	U	5.0									
Bromodichloromethane	U	5.0									
Bromoform	U	5.0									
Bromomethane	U	5.0									
Carbon disulfide	U	5.0									
Carbon tetrachloride	U	5.0									
Chlorobenzene	U	5.0									
Chlorodifluoromethane	U	5.0									
Chloroethane	U	5.0									
Chloroform	U	5.0									
Chloromethane	U	5.0									
cis-1,2-Dichloroethene	U	5.0									
cis-1,3-Dichloropropene	U	5.0									
Dibromochloromethane	U	5.0									
Dibromomethane	U	5.0									
Dichlorodifluoromethane	U	5.0									
Diisopropyl ether	U	5.0									
Ethanol	U	25									
Ethyl acetate	U	5.0									
Ethylbenzene	U	5.0									
Freon-114	U	5.0									
Hexachlorobutadiene	U	5.0									
Isopropyl acetate	U	5.0									
Isopropylbenzene	U	5.0									
m,p-Xylene	U	10									
Methyl tert-butyl ether	U	5.0									
Methylene chloride	U	5.0									

Qualifiers:
ND - Not Detected at the Reporting Limit
J - Analyte detected below quantitation limits
S - Spike Recovery outside accepted recovery limits
R - RPD outside accepted recovery limits
B - Analyte detected in the associated Method Blank

CLIENT: AKRF, Inc
Work Order: 0306118
Project: Greenpoint Lumber Yard Brooklyn, NY

ANALYTICAL QC SUMMARY REPORT

TestCode: Full8260_Soil

Sample ID: **VBLK070103B** SampType: **MBLK** TestCode: **Full8260_Soil** Units: **µg/Kg** Prep Date: Run ID: **SYSTEM Y_030701B**
Client ID: **ZZZZZ** Batch ID: **R3171** TestNo: **SW8260B** Analysis Date: **7/1/2003** SeqNo: **24774**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Naphthalene	U	5.0									
n-Butyl acetate	U	5.0									
n-Butylbenzene	U	5.0									
n-Propyl acetate	U	5.0									
n-Propylbenzene	U	5.0									
o-Xylene	U	5.0									
p-Diethylbenzene	U	5.0									
p-Ethyltoluene	U	5.0									
sec-Butylbenzene	U	5.0									
Styrene	U	5.0									
t-Butyl alcohol	U	5.0									
tert-Butylbenzene	U	5.0									
Tetrachloroethene	U	5.0									
Toluene	U	5.0									
trans-1,2-Dichloroethene	U	5.0									
trans-1,3-Dichloropropene	U	5.0									
Trichloroethene	U	5.0									
Trichlorofluoromethane	U	5.0									
Vinyl acetate	U	5.0									
Vinyl chloride	U	5.0									

Sample ID: **VBLK070203** SampType: **MBLK** TestCode: **Full8260_Soil** Units: **µg/Kg** Prep Date: Run ID: **SYSTEM Y_030701B**
Client ID: **ZZZZZ** Batch ID: **R3171** TestNo: **SW8260B** Analysis Date: **7/2/2003** SeqNo: **24779**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
1,1,1,2-Tetrachloroethane	U	5.0									
1,1,1-Trichloroethane	U	5.0									
1,1,2,2-Tetrachloroethane	U	5.0									
1,1,2-Trichloro-1,2,2-trifluoroethane	U	5.0									
1,1,2-Trichloroethane	U	5.0									
1,1-Dichloroethane	U	5.0									

Qualifiers: ND - Not Detected at the Reporting Limit
J - Analyte detected below quantitation limits
S - Spike Recovery outside accepted recovery limits
R - RPD outside accepted recovery limits
B - Analyte detected in the associated Method Blank

CLIENT: AKRF, Inc
Work Order: 0306118
Project: Greenpoint Lumber Yard Brooklyn, NY

ANALYTICAL QC SUMMARY REPORT

TestCode: Full8260_Soil

Sample ID: **VBLK070203** SampType: **MBLK** TestCode: **Full8260_Soil** Units: **µg/Kg** Prep Date: Run ID: **SYSTEM Y_030701B**
Client ID: **ZZZZZ** Batch ID: **R3171** TestNo: **SW8260B** Analysis Date: **7/2/2003** SeqNo: **24779**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
1,1-Dichloroethene	U	5.0									
1,1-Dichloropropene	U	5.0									
1,2,3-Trichlorobenzene	U	5.0									
1,2,3-Trichloropropane	U	5.0									
1,2,4,5-Tetramethylbenzene	U	5.0									
1,2,4-Trichlorobenzene	U	5.0									
1,2,4-Trimethylbenzene	U	5.0									
1,2-Dibromo-3-chloropropane	U	5.0									
1,2-Dibromoethane	U	5.0									
1,2-Dichlorobenzene	U	5.0									
1,2-Dichloroethane	U	5.0									
1,2-Dichloropropane	U	5.0									
1,3,5-Trimethylbenzene	U	5.0									
1,3-Dichlorobenzene	U	5.0									
1,3-dichloropropane	U	5.0									
1,4-Dichlorobenzene	U	5.0									
2,2-Dichloropropane	U	5.0									
2-Butanone	U	5.0									
2-Chloroethyl vinyl ether	U	5.0									
2-Chlorotoluene	U	5.0									
2-Hexanone	U	5.0									
4-Chlorotoluene	U	5.0									
4-Isopropyltoluene	U	5.0									
4-Methyl-2-pentanone	U	5.0									
Acetone	U	5.0									
Acrolein	U	25									
Acrylonitrile	U	5.0									
Benzene	U	5.0									
Bromobenzene	U	5.0									
Bromochloromethane	U	5.0									
Bromodichloromethane	U	5.0									

Qualifiers:
ND - Not Detected at the Reporting Limit
J - Analyte detected below quantitation limits
S - Spike Recovery outside accepted recovery limits
R - RPD outside accepted recovery limits
B - Analyte detected in the associated Method Blank

CLIENT: AKRF, Inc
Work Order: 0306118
Project: Greenpoint Lumber Yard Brooklyn, NY

ANALYTICAL QC SUMMARY REPORT

TestCode: Full8260_Soil

Sample ID: **VBLK070203** SampType: **MBLK** TestCode: **Full8260_Soil** Units: **µg/Kg** Prep Date: Run ID: **SYSTEM Y_030701B**
Client ID: **ZZZZZ** Batch ID: **R3171** TestNo: **SW8260B** Analysis Date: **7/2/2003** SeqNo: **24779**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Bromoform	U	5.0									
Bromomethane	U	5.0									
Carbon disulfide	U	5.0									
Carbon tetrachloride	U	5.0									
Chlorobenzene	U	5.0									
Chlorodifluoromethane	U	5.0									
Chloroethane	U	5.0									
Chloroform	U	5.0									
Chloromethane	U	5.0									
cis-1,2-Dichloroethene	U	5.0									
cis-1,3-Dichloropropene	U	5.0									
Dibromochloromethane	U	5.0									
Dibromomethane	U	5.0									
Dichlorodifluoromethane	U	5.0									
Diisopropyl ether	U	5.0									
Ethanol	U	25									
Ethyl acetate	U	5.0									
Ethylbenzene	U	5.0									
Freon-114	U	5.0									
Hexachlorobutadiene	U	5.0									
Isopropyl acetate	U	5.0									
Isopropylbenzene	U	5.0									
m,p-Xylene	U	10									
Methyl tert-butyl ether	U	5.0									
Methylene chloride	U	5.0									
Naphthalene	U	5.0									
n-Butyl acetate	U	5.0									
n-Butylbenzene	U	5.0									
n-Propyl acetate	U	5.0									
n-Propylbenzene	U	5.0									
o-Xylene	U	5.0									

Qualifiers:
ND - Not Detected at the Reporting Limit
J - Analyte detected below quantitation limits
S - Spike Recovery outside accepted recovery limits
R - RPD outside accepted recovery limits
B - Analyte detected in the associated Method Blank

CLIENT: AKRF, Inc
Work Order: 0306118
Project: Greenpoint Lumber Yard Brooklyn, NY

ANALYTICAL QC SUMMARY REPORT

TestCode: Full8260_Soil

Sample ID: VBLK070203	SampType: MBLK	TestCode: Full8260_Soil	Units: µg/Kg	Prep Date:	Run ID: SYSTEM Y_030701B
Client ID: ZZZZZ	Batch ID: R3171	TestNo: SW8260B		Analysis Date: 7/2/2003	SeqNo: 24779

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
p-Diethylbenzene	U	5.0									
p-Ethyltoluene	U	5.0									
sec-Butylbenzene	U	5.0									
Styrene	U	5.0									
t-Butyl alcohol	U	5.0									
tert-Butylbenzene	U	5.0									
Tetrachloroethene	U	5.0									
Toluene	U	5.0									
trans-1,2-Dichloroethene	U	5.0									
trans-1,3-Dichloropropene	U	5.0									
Trichloroethene	U	5.0									
Trichlorofluoromethane	U	5.0									
Vinyl acetate	U	5.0									
Vinyl chloride	U	5.0									

Sample ID: LCS070103B	SampType: LCS	TestCode: Full8260_Soil	Units: µg/Kg	Prep Date:	Run ID: SYSTEM Y_030701B
Client ID: ZZZZZ	Batch ID: R3171	TestNo: SW8260B		Analysis Date: 7/1/2003	SeqNo: 24775

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
1,1-Dichloroethene	48.58	5.0	50	0	97.2	67.3	124	0	0		
Benzene	50.21	5.0	50	0	100	65.1	126	0	0		
Chlorobenzene	56.46	5.0	50	0	113	63.7	127	0	0		
Toluene	50.99	5.0	50	0	102	68.7	124	0	0		
Trichloroethene	51.1	5.0	50	0	102	63.4	123	0	0		

Sample ID: 0306118-01AMS	SampType: MS	TestCode: Full8260_Soil	Units: µg/Kg	Prep Date:	Run ID: SYSTEM Y_030701B
Client ID: MW16 (0.5-2')	Batch ID: R3171	TestNo: SW8260B		Analysis Date: 7/2/2003	SeqNo: 24777

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
1,1-Dichloroethene	31.35	5.0	50	0	62.7	67.3	124	0	0		S
Benzene	27.38	5.0	50	0	54.8	65.1	126	0	0		S

Qualifiers: ND - Not Detected at the Reporting Limit; J - Analyte detected below quantitation limits; S - Spike Recovery outside accepted recovery limits; R - RPD outside accepted recovery limits; B - Analyte detected in the associated Method Blank

CLIENT: AKRF, Inc
Work Order: 0306118
Project: Greenpoint Lumber Yard Brooklyn, NY

ANALYTICAL QC SUMMARY REPORT

TestCode: Full8260_Soil

Sample ID: **0306118-01AMS** SampType: **MS** TestCode: **Full8260_Soil** Units: **µg/Kg** Prep Date: Run ID: **SYSTEM Y_030701B**
Client ID: **MW16 (0.5-2')** Batch ID: **R3171** TestNo: **SW8260B** Analysis Date: **7/2/2003** SeqNo: **24777**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Chlorobenzene	13.38	5.0	50	0	26.8	63.7	127	0	0		S
Toluene	21.39	5.0	50	0	42.8	68.7	124	0	0		S
Trichloroethene	21.94	5.0	50	0	43.9	63.4	123	0	0		S

Sample ID: **0306118-01AMSD** SampType: **MSD** TestCode: **Full8260_Soil** Units: **µg/Kg** Prep Date: Run ID: **SYSTEM Y_030701B**
Client ID: **MW16 (0.5-2')** Batch ID: **R3171** TestNo: **SW8260B** Analysis Date: **7/2/2003** SeqNo: **24778**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
1,1-Dichloroethene	33.2	5.0	50	0	66.4	67.3	124	31.35	5.73	20	S
Benzene	29.18	5.0	50	0	58.4	65.1	126	27.38	6.36	20	S
Chlorobenzene	15.34	5.0	50	0	30.7	63.7	127	13.38	13.6	20	S
Toluene	23.91	5.0	50	0	47.8	68.7	124	21.39	11.1	20	S
Trichloroethene	26.03	5.0	50	0	52.1	63.4	123	21.94	17.1	20	S

Qualifiers:
ND - Not Detected at the Reporting Limit
J - Analyte detected below quantitation limits
S - Spike Recovery outside accepted recovery limits
R - RPD outside accepted recovery limits
B - Analyte detected in the associated Method Blank

CLIENT: AKRF, Inc
Work Order: 0306118
Project: Greenpoint Lumber Yard Brooklyn, NY

ANALYTICAL QC SUMMARY REPORT

TestCode: Full8260_W

Sample ID: **VBLK070203W** SampType: **MBLK** TestCode: **Full8260_W** Units: **µg/L** Prep Date: Run ID: **SYSTEM Y_030701B**
Client ID: **ZZZZZ** Batch ID: **R3171** TestNo: **SW8260B** Analysis Date: **7/2/2003** SeqNo: **24781**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
1,1,1,2-Tetrachloroethane	U	1.0									
1,1,1-Trichloroethane	U	1.0									
1,1,2,2-Tetrachloroethane	U	1.0									
1,1,2-Trichloro-1,2,2-trifluoroethane	U	1.0									
1,1,2-Trichloroethane	U	1.0									
1,1-Dichloroethane	U	1.0									
1,1-Dichloroethene	U	1.0									
1,1-Dichloropropene	U	1.0									
1,2,3-Trichlorobenzene	U	1.0									
1,2,3-Trichloropropane	U	1.0									
1,2,4,5-Tetramethylbenzene	U	1.0									
1,2,4-Trichlorobenzene	U	1.0									
1,2,4-Trimethylbenzene	U	1.0									
1,2-Dibromo-3-chloropropane	U	1.0									
1,2-Dibromoethane	U	1.0									
1,2-Dichlorobenzene	U	1.0									
1,2-Dichloroethane	U	1.0									
1,2-Dichloropropane	U	1.0									
1,3,5-Trimethylbenzene	U	1.0									
1,3-Dichlorobenzene	U	1.0									
1,3-dichloropropane	U	1.0									
1,4-Dichlorobenzene	U	1.0									
2,2-Dichloropropane	U	1.0									
2-Butanone	U	1.0									
2-Chloroethyl vinyl ether	U	1.0									
2-Chlorotoluene	U	1.0									
2-Hexanone	U	1.0									
4-Chlorotoluene	U	1.0									
4-Isopropyltoluene	U	1.0									
4-Methyl-2-pentanone	U	1.0									
Acetone	U	1.0									

Qualifiers:
ND - Not Detected at the Reporting Limit
J - Analyte detected below quantitation limits
S - Spike Recovery outside accepted recovery limits
R - RPD outside accepted recovery limits
B - Analyte detected in the associated Method Blank

CLIENT: AKRF, Inc
Work Order: 0306118
Project: Greenpoint Lumber Yard Brooklyn, NY

ANALYTICAL QC SUMMARY REPORT

TestCode: Full8260_W

Sample ID: VBLK070203W	SampType: MBLK	TestCode: Full8260_W	Units: µg/L	Prep Date:	Run ID: SYSTEM Y_030701B
Client ID: ZZZZZ	Batch ID: R3171	TestNo: SW8260B		Analysis Date: 7/2/2003	SeqNo: 24781

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Acrolein	U	1.0									
Acrylonitrile	U	1.0									
Benzene	U	1.0									
Bromobenzene	U	1.0									
Bromochloromethane	U	1.0									
Bromodichloromethane	U	1.0									
Bromoform	U	1.0									
Bromomethane	U	1.0									
Carbon disulfide	U	1.0									
Carbon tetrachloride	U	1.0									
Chlorobenzene	U	1.0									
Chlorodifluoromethane	U	1.0									
Chloroethane	U	1.0									
Chloroform	U	1.0									
Chloromethane	U	1.0									
cis-1,2-Dichloroethene	U	1.0									
cis-1,3-Dichloropropene	U	1.0									
Dibromochloromethane	U	1.0									
Dibromomethane	U	1.0									
Dichlorodifluoromethane	U	1.0									
Diisopropyl ether	U	1.0									
Ethanol	U	1.0									
Ethyl acetate	U	1.0									
Ethylbenzene	U	1.0									
Freon-114	U	1.0									
Hexachlorobutadiene	U	1.0									
Isopropyl acetate	U	1.0									
Isopropylbenzene	U	1.0									
m,p-Xylene	U	2.0									
Methyl tert-butyl ether	U	1.0									
Methylene chloride	U	1.0									

Qualifiers:
ND - Not Detected at the Reporting Limit
J - Analyte detected below quantitation limits
S - Spike Recovery outside accepted recovery limits
R - RPD outside accepted recovery limits
B - Analyte detected in the associated Method Blank

CLIENT: AKRF, Inc
Work Order: 0306118
Project: Greenpoint Lumber Yard Brooklyn, NY

ANALYTICAL QC SUMMARY REPORT

TestCode: Full8260_W

Sample ID: **VBLK070203W** SampType: **MBLK** TestCode: **Full8260_W** Units: **µg/L** Prep Date: Run ID: **SYSTEM Y_030701B**
Client ID: **ZZZZZ** Batch ID: **R3171** TestNo: **SW8260B** Analysis Date: **7/2/2003** SeqNo: **24781**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Naphthalene	U	1.0									
n-Butyl acetate	U	1.0									
n-Butylbenzene	U	1.0									
n-Propyl acetate	U	1.0									
n-Propylbenzene	U	1.0									
o-Xylene	U	1.0									
p-Diethylbenzene	U	1.0									
p-Ethyltoluene	U	1.0									
sec-Butylbenzene	U	1.0									
Styrene	U	1.0									
t-Butyl alcohol	U	1.0									
tert-Butylbenzene	U	1.0									
Tetrachloroethene	U	1.0									
Toluene	U	1.0									
trans-1,2-Dichloroethene	U	1.0									
trans-1,3-Dichloropropene	U	1.0									
Trichloroethene	U	1.0									
Trichlorofluoromethane	U	1.0									
Vinyl acetate	U	1.0									
Vinyl chloride	U	1.0									

Qualifiers:
ND - Not Detected at the Reporting Limit
J - Analyte detected below quantitation limits
S - Spike Recovery outside accepted recovery limits
R - RPD outside accepted recovery limits
B - Analyte detected in the associated Method Blank

American Analytical Laboratories, Inc.

Date: 30-Jul-03

CLIENT: AKRF, Inc
Work Order: 0306118
Project: Greenpoint Lumber Yard Brooklyn,
Test No: SW8081B **Matrix:** S

QC SUMMARY REPORT
SURROGATE RECOVERIES

Sample ID	CL10BZ2	XYL2456CLM						
0306117-16BMS	102	71.4						
0306117-16BMSD	126	85.4						
0306118-01B	121	87.5						
0306118-02B	96.2	94.2						
MSB070303	141	114						
PSB070303	121	111						

Acronym		Surrogate	QC Limits
CL10BZ2	=	DCB	61.4-149
XYL2456CLM	=	TCX	63.9-130

*** Surrogate recovery outside acceptance limits**

American Analytical Laboratories, Inc.

Date: 30-Jul-03

CLIENT: AKRF, Inc
Work Order: 0306118
Project: Greenpoint Lumber Yard Brooklyn,
Test No: SW8081B **Matrix:** W

QC SUMMARY REPORT
SURROGATE RECOVERIES

Sample ID	CL10BZ2	XYL2456CLM						
0306118-04B	78.0	55.6						
0306118-05B	96.0	81.8						
0306118-06B	105	84.2						
MSB063003	113	63.4						
MSBDUP063003	109	64.5						
PWB063003	98.8	60.8						

Acronym		Surrogate	QC Limits
CL10BZ2	=	DCB	53.4-139
XYL2456CLM	=	TCX	55.3-128

*** Surrogate recovery outside acceptance limits**

American Analytical Laboratories, Inc.

Date: 30-Jul-03

CLIENT: AKRF, Inc
Work Order: 0306118
Project: Greenpoint Lumber Yard Brooklyn,
Test No: SW8082A **Matrix:** S

QC SUMMARY REPORT
SURROGATE RECOVERIES

Sample ID	CL10BZ2	XYL2456CLM						
0306117-17BMS	123	109						
0306117-17BMSD	112	97.8						
0306118-01B	71.8	61.3						
0306118-02B	57.4	60.5						
MSB070303	77.7	68.6						
PSB070303	65.5	55.2						

Acronym		Surrogate	QC Limits
CL10BZ2	=	DCB	34.2-138
XYL2456CLM	=	TCX	31.2-128

*** Surrogate recovery outside acceptance limits**

American Analytical Laboratories, Inc.

Date: 30-Jul-03

CLIENT: AKRF, Inc
Work Order: 0306118
Project: Greenpoint Lumber Yard Brooklyn,
Test No: SW8082A **Matrix:** W

QC SUMMARY REPORT
SURROGATE RECOVERIES

Sample ID	CL10BZ2	XYL2456CLM						
0306118-04B	65.6	52.4						
0306118-05B	74.8	68.5						
0306118-06B	90.1	75.0						
PWB063003	78.7	55.1						

Acronym		Surrogate	QC Limits
CL10BZ2	=	DCB	52-142
XYL2456CLM	=	TCX	52-143

*** Surrogate recovery outside acceptance limits**

American Analytical Laboratories, Inc.

Date: 30-Jul-03

CLIENT: AKRF, Inc
Work Order: 0306118
Project: Greenpoint Lumber Yard Brooklyn,
Test No: SW8260B **Matrix:** S

QC SUMMARY REPORT
SURROGATE RECOVERIES

Sample ID	BR4FBZ	BZMED8	DBFM					
0306118-01A	95.3	97.8	96.3					
0306118-01AMS	95.8	98.1	98.6					
0306118-01AMSD	96.2	96.9	98.2					
0306118-02A	97.1	97.8	99.8					
LCS070103B	122	87.0	89.6					
VBLK070103B	95.9	98.0	94.7					
VBLK070203	98.5	99.7	102					

Acronym		Surrogate	QC Limits
BR4FBZ	=	4-Bromofluorobenzene	65.8-125
BZMED8	=	Toluene-d8	70.3-125
DBFM	=	Dibromofluoromethane	83.7-128

*** Surrogate recovery outside acceptance limits**

American Analytical Laboratories, Inc.

Date: 30-Jul-03

CLIENT: AKRF, Inc
Work Order: 0306118
Project: Greenpoint Lumber Yard Brooklyn,
Test No: SW8260B **Matrix:** W

QC SUMMARY REPORT
SURROGATE RECOVERIES

Sample ID	BR4FBZ	BZMED8	DBFM					
0306118-03A	95.2	99.7	101					
0306118-04A	119	86.8	88.1					
0306118-05A	117	85.6	91.2					
0306118-06A	115	84.6	85.6					
0306118-07A	120	85.8	88.3					
0306118-08A	119	86.7	92.4					
VBLK070203W	98.5	99.7	102					

Acronym		Surrogate	QC Limits
BR4FBZ	=	4-Bromofluorobenzene	69.2-122
BZMED8	=	Toluene-d8	75-122
DBFM	=	Dibromofluoromethane	85-121

*** Surrogate recovery outside acceptance limits**

American Analytical Laboratories, Inc.

Date: 30-Jul-03

CLIENT: AKRF, Inc
Work Order: 0306118
Project: Greenpoint Lumber Yard Brooklyn,
Test No: SW8270D **Matrix:** S

QC SUMMARY REPORT
SURROGATE RECOVERIES

Sample ID	NO2BZD5	PH246BR	PH2F	PHEN2F	PHEND14	PHENOLD6		
0306117-17B MS	82.4	77.6	74.4	75.5	101	77.1		
0306117-17B MSD	69.6	90.0	78.0	75.7	98.4	69.8		
0306118-01B	85.3	78.2	66.4	78.2	86.9	62.9		
0306118-02B	93.2	92.9	66.9	73.2	86.0	82.0		
LCS070803	80.3	79.4	74.2	76.6	81.5	77.2		
SSB070803 A	75.1	89.0	69.5	78.1	107	52.6		
SSB070803B	86.2	74.2	80.0	85.5	101	54.4		

Acronym		Surrogate	QC Limits
NO2BZD5	=	Nitrobenzene-d5	29.6-124.5
PH246BR	=	2,4,6-Tribromophenol	27.9-127.1
PH2F	=	2-Fluorophenol	32.3-123.3
PHEN2F	=	2-Fluorobiphenyl	31.5-113.1
PHEND14	=	4-Terphenyl-d14	29.8-129.9
PHENOLD6	=	Phenol-d6	27.1-126.2

*** Surrogate recovery outside acceptance limits**

American Analytical Laboratories, Inc.

Date: 30-Jul-03

CLIENT: AKRF, Inc
Work Order: 0306118
Project: Greenpoint Lumber Yard Brooklyn,
Test No: SW8270D **Matrix:** W

QC SUMMARY REPORT SURROGATE RECOVERIES

Sample ID	NO2BZD5	PH246BR	PH2F	PHEN2F	PHEND14	PHENOLD6		
0306118-04B	77.2	75.7	54.1	79.1	81.8	32.1		
0306118-05B	74.3	86.9	57.5	83.1	88.9	34.2		
0306118-06B	58.0	66.6	47.8	68.8	82.6	26.2		
LCS063003	84.4	85.9	59.9	87.6	93.6	37.8		
LCSD063003	80.1	85.6	57.7	82.3	96.4	35.1		
SWB063003	74.8	75.6	56.2	80.0	91.3	33.7		

Acronym		Surrogate	QC Limits
NO2BZD5	=	Nitrobenzene-d5	35.8-128
PH246BR	=	2,4,6-Tribromophenol	17.2-124.3
PH2F	=	2-Fluorophenol	26-112.5
PHEN2F	=	2-Fluorobiphenyl	37.9-119.5
PHEND14	=	4-Terphenyl-d14	33.2-135.5
PHENOLD6	=	Phenol-d6	11.1-103.6

*** Surrogate recovery outside acceptance limits**

2003 Groundwater Data

AMERICAN
ANALYTICAL
LABORATORIES, INC.

NYSDOH ELAP 11418
AIHA PAT, LPAT 102391
CTDOH PH-0205

ASP CATEGORY A
WORKORDER 0307061
AKRF, INC.
GREENPOINT LUMBER YARD
BROOKLYN, N.Y.

56 TOLEDO STREET • FARMINGDALE, NEW YORK 11735
(631) 454-6100 • FAX: (631) 454-8027

COVER PAGE

July 28, 2003

Mimi Sotiriou
AKRF, Inc
116 East 27th Street
7th Floor
New York, NY 10016

TEL: (646) 459-3528
FAX (212) 726-0942

RE: Greenpoint Lumber Yard Brooklyn, NY

Order No.: 0307061

Dear Mimi Sotiriou:

American Analytical Laboratories, Inc. received 14 samples on 7/16/2003 for the analyses presented in the following report.

There were no problems with the analyses and all data for associated QC met EPA or laboratory specifications.

If you have any questions regarding these tests results, please feel free to call.

Sincerely,

Lori Beyer

Lori Beyer
Lab Director

American Analytical Laboratories, Inc.

Date: *28-Jul-03*

CLIENT: AKRF, Inc
Project: Greenpoint Lumber Yard Brooklyn, NY
Lab Order: 0307061

Work Order Sample Summary

Lab Sample ID	Client Sample ID	Tag Number	Collection Date	Date Received
0307061-01A	MW6		7/16/2003	7/16/2003
0307061-01B	MW6		7/16/2003	7/16/2003
0307061-01C	MW6		7/16/2003	7/16/2003
0307061-01D	MW6		7/16/2003	7/16/2003
0307061-02A	MW7		7/16/2003	7/16/2003
0307061-02B	MW7		7/16/2003	7/16/2003
0307061-02C	MW7		7/16/2003	7/16/2003
0307061-02D	MW7		7/16/2003	7/16/2003
0307061-03A	MW8		7/16/2003	7/16/2003
0307061-03B	MW8		7/16/2003	7/16/2003
0307061-03C	MW8		7/16/2003	7/16/2003
0307061-03D	MW8		7/16/2003	7/16/2003
0307061-04A	MW9		7/16/2003	7/16/2003
0307061-04B	MW9		7/16/2003	7/16/2003
0307061-04C	MW9		7/16/2003	7/16/2003
0307061-04D	MW9		7/16/2003	7/16/2003
0307061-05A	MW10		7/16/2003	7/16/2003
0307061-05B	MW10		7/16/2003	7/16/2003
0307061-05C	MW10		7/16/2003	7/16/2003
0307061-05D	MW10		7/16/2003	7/16/2003
0307061-06A	MW11		7/16/2003	7/16/2003
0307061-06B	MW11		7/16/2003	7/16/2003
0307061-06C	MW11		7/16/2003	7/16/2003
0307061-06D	MW11		7/16/2003	7/16/2003
0307061-07A	MW12		7/16/2003	7/16/2003
0307061-07B	MW12		7/16/2003	7/16/2003
0307061-07C	MW12		7/16/2003	7/16/2003
0307061-07D	MW12		7/16/2003	7/16/2003
0307061-08A	MW13		7/16/2003	7/16/2003
0307061-08B	MW13		7/16/2003	7/16/2003
0307061-08C	MW13		7/16/2003	7/16/2003
0307061-08D	MW13		7/16/2003	7/16/2003
0307061-09A	MW14		7/16/2003	7/16/2003
0307061-09B	MW14		7/16/2003	7/16/2003
0307061-09C	MW14		7/16/2003	7/16/2003
0307061-09D	MW14		7/16/2003	7/16/2003
0307061-10A	MW15		7/16/2003	7/16/2003
0307061-10B	MW15		7/16/2003	7/16/2003

CLIENT:	AKRF, Inc
Project:	Greenpoint Lumber Yard Brooklyn, NY
Lab Order:	0307061

Work Order Sample Summary

Lab Sample ID	Client Sample ID	Tag Number	Collection Date	Date Received
0307061-10C	MW15		7/16/2003	7/16/2003
0307061-10D	MW15		7/16/2003	7/16/2003
0307061-11A	MW16		7/16/2003	7/16/2003
0307061-11B	MW16		7/16/2003	7/16/2003
0307061-11C	MW16		7/16/2003	7/16/2003
0307061-11D	MW16		7/16/2003	7/16/2003
0307061-12A	FOUND WELL		7/16/2003	7/16/2003
0307061-12B	FOUND WELL		7/16/2003	7/16/2003
0307061-12C	FOUND WELL		7/16/2003	7/16/2003
0307061-12D	FOUND WELL		7/16/2003	7/16/2003
0307061-13A	TRIP BLANK		7/16/2003	7/16/2003
0307061-14A	FIELD BLANK		7/16/2003	7/16/2003
0307061-14B	FIELD BLANK		7/16/2003	7/16/2003
0307061-14C	FIELD BLANK		7/16/2003	7/16/2003

SDG NARRATIVE

SDG Narrative

AAL Work Order: : 0307061
Sample Matrix : Groundwater
Project : Greenpoint

INTRODUCTION
This narrative covers the analysis of twelve (12) groundwater and the associated quality control samples (Field Blank and Trip Blank) in accordance with protocols based on SW846 Methods 8260, 8270, 8081, 8082, 6010 and 7470.

HOLDING TIMES
The analytical holding time for these analyses was met.

CALIBRATIONS
Initial Calibration: All required minimum RRFs and maximum %RSD requirements have been met in accordance with the method.

Continuing Calibration: All required minimum RRFs and maximum %D requirements have been met in accordance with the method.

TUNE PERFORMANCE
All Tune (BFB) specifications met QC requirements.

METHOD BLANKS
The method blanks associated with these samples did not contain any target compounds at or above QC limits with the exception of the volatile method blank analyzed on 7/19/03 [applicable to samples MW9, MW10, MW11, MW12, MW13, MW14, MW15, MW16 Found Well, Field Blank and the Trip Blank] which was determined to contain toluene within acceptable levels. Toluene was detected in sample MW13 and has been qualified, "B," as required. The level detected in MW13 (12 ppb) is consistent with lab contamination levels and therefore cannot be attributed to sample matrix constituents.

MATRIX SPIKE/MATRIX SPIKE DUPLICATE/DUPLICATES
MS/MSD/Dup analysis was performed as required. Results are submitted as an appendix to this report.
Spike recoveries and RPD fell within established ranges except where noted on the summary sheets. No laboratory action is required for MS/MSD outliers.

INTERNAL STANDARDS
All area responses and retention times fell within acceptable ranges.

SURROGATES (SYSTEM MONITORING COMPOUNDS)
Surrogate recoveries are summarized in the appendix to this reort.

SAMPLE COMMENTS
Samples were analyzed as per the required protocols.

Volatile and Semivolatile analysis of MW13 was initially analyzed undiluted. As a result of Napthalene concentrations exceeding the instruments linear calibration range for both analyses, a secondary (1:10) dilution was performed as required. Results have been hybridized on the Form I's.

I certify that this data package is in compliance with the terms and conditions of the contract, both technically and for completeness, for other than the conditions detailed above. Release of the data contained in this hardcopy data package and in the computer-readable data submitted on floppy diskette has been authorized by the Laboratory manager or his designee, as verified by the following signature." This statement shall be directly followed by signature of the Laboratory Manager or his designee with a typed line below it containing the signer's name and title, and the date of the signature.

Lori Beyer 07/29/03
LABORATORY DIRECTOR

AMERICAN ANALYTICAL LABORATORIES, INC.
56 TOLEDO STREET
FARMINGDALE, NEW YORK 11735
TELEPHONE: (631) 454-6100 FAX: (631) 454-8027

DATA REPORTING QUALIFERS

For reporting results, the following "Results Qualifers" are used:

Value	If the result is greater than or equal to the detection limit, report the value
U	Indicates the compound was analyzed for but was not detected. Report the minimum detection limit for the sample with the U, i.e. "10U". This is not necessarily the instrument detection limit attainable for this particular sample based on any concentration or dilution that may have been required.
J	Indicates an estimated value. The flag is used: (1) When estimating a concentration for a tentatively identified compound (library search hits, where a 1:1 response is assumed.) (2) When the mass spectral data indicated the identification, however the result was less than the specified detection limit greater than zero. If the detection limit was 10ug/L and a concentration of 3ug/L was calculated report as 3J. This flag is used when similar situations arise on any organic parameter i.e. Pesticide, PCBs and others.
B	Indicates the analyte was found in the blank as well as the sample report "10B".
E	Indicates the analytes concentration exceeds the calibrated range of the instrument for that specific analysis.
D	This flag identifies all compounds identified in an analysis at a secondary dilution factor.
P	This flag is used for Pesticide / PCB target analyte when there is >25% difference for detected concentrations between the two GC Columns. The higher of the two values is reported on Form I and flagged with a "P".
N	This flag indicates presumptive evidence of a compound. This is only used for tentatively identified compounds (TICs), where the identification is based on a mass spectral library search. It applies to all TIC results. For generic characterization of a TIC, such as chlorinated hydrocarbon, the flag is not used.

NYSDEC DATA PACKAGE SUMMARY FORMS

NEW YORK STATE DEPARTMENT OF ENVIRONMENTAL CONSERVATION

SAMPLE IDENTIFICATION AND ANALYTICAL REQUIREMENT SUMMARY

CUSTOMER SAMPLE CODE	LABORATORY SAMPLE CODE	ANALYTICAL REQUIREMENTS					
		*VOA GC/MS METHOD #	*BNA GC/MS METHOD #	*VOA GC METHOD #	*PEST PCBs METHOD #	*METALS (TAL)	*OTHER
MW6	0307061-01	8260	8270	NA	8081/8082	6010/7470	
MW7	0307061-02						
MW8	0307061-03						
MW9	0307061-04						
MW10	0307061-05						
MW11	0307061-06						
MW12	0307061-07						
MW13	0307061-08						
MW14	0307061-09						
MW15	0307061-10						
MW16	0307061-11						
Found Well	0307061-12						
Trip Blank	0307061-13		—	—	—	—	
Field Blank	0307061-14		8270	NA	8081/8082	6010/7470	

NA = Not Applicable

NEW YORK STATE DEPARTMENT OF ENVIRONMENTAL CONSERVATION

SAMPLE PREPARATION AND ANALYSIS SUMMARY
VOLATILE (VOA)
ANALYSES

LABORATORY SAMPLE ID	MATRIX	DATE COLLECTED	DATE RECEIVED AT LAB	DATE EXTRACTED	DATE ANALYZED
0307061-01	AQUEOUS	7/16/03	7/16/03	NA	7/18/03
0307061-02					7/18/03
0307061-03					7/18/03
0307061-04					7/19/03
0307061-05					7/19/03
0307061-06					7/19/03
0307061-07					7/19/03
0307061-08					7/19/03
0307061-09					7/19/03
0307061-10					7/19/03
0307061-11					7/19/03
0307061-12					7/19/03
0307061-14					7/19/03
0307061-13					7/19/03

NEW YORK STATE DEPARTMENT OF ENVIRONMENTAL CONSERVATION

SAMPLE PREPARATION AND ANALYSIS SUMMARY
SEMIVOLATILE (BNA)
ANALYSES

LABORATORY SAMPLE ID	MATRIX	DATE COLLECTED	DATE RECEIVED AT LAB	DATE EXTRACTED	DATE ANALYZED
0307061-01	AQUEOUS	07/16/03	07/16/03	07/17/03	07/17/03
0307061-02	↓	↓	↓	↓	07/18/03
0307061-03	↓	↓	↓	↓	↓
0307061-04	↓	↓	↓	↓	↓
0307061-05	↓	↓	↓	↓	↓
0307061-06	↓	↓	↓	↓	↓
0307061-07	↓	↓	↓	↓	↓
0307061-08	↓	↓	↓	↓	07/18/03, 07/22/03
0307061-09	↓	↓	↓	↓	07/18/03
0307061-10	↓	↓	↓	↓	07/19/03
0307061-11	↓	↓	↓	↓	07/21/03
0307061-12	↓	↓	↓	↓	↓
0307061-14	↓	↓	↓	↓	↓

NEW YORK STATE DEPARTMENT OF ENVIRONMENTAL CONSERVATION

SAMPLE PREPARATION AND ANALYSIS SUMMARY
SEMIVOLATILE (BNA)
ANALYSES

LABORATORY SAMPLE ID	MATRIX	ANALYTICAL PROTOCOL	EXTRACTION METHOD	AUXILLARY CLEAN UP	DIL / CONC. FACTOR
0307061-01	AQUEOUS	3510/8270	3570 Sepf	NA	1
0307061-02	↓	↓	↓	↓	1
0307061-03					1
0307061-04					1
0307061-05					1
0307061-06					1
0307061-07					1
0307061-08					1, 10
0307061-09					1
0307061-10					1
0307061-11					1
0307061-12					1
0307061-14	↓	↓	↓	↓	1

NEW YORK STATE DEPARTMENT OF ENVIRONMENTAL CONSERVATION

SAMPLE PREPARATION AND ANALYSIS SUMMARY
PESTICIDE / PCB
ANALYSES

LABORATORY SAMPLE ID	MATRIX	DATE COLLECTED	DATE RECEIVED AT LAB	DATE EXTRACTED	DATE ANALYZED
0307061-01	AQUEOUS	07/16/03	07/16/03	07/17/03	07/18/03
0307061-02					
0307061-03					
0307061-04					
0307061-05					
0307061-06					07/21/03
0307061-07					
0307061-08					
0307061-09					
0307061-10					
0307061-11					
0307061-12					
0307061-14					

NEW YORK STATE DEPARTMENT OF ENVIRONMENTAL CONSERVATION

SAMPLE PREPARATION AND ANALYSIS SUMMARY
INORGANIC ANALYSES

LABORATORY SAMPLE ID	MATRIX	METALS REQUESTED	DATE RECEIVED AT LAB	DATE ANALYZED
0307061-01	AQUEOUS	TAC (23)	07/16/03	7/18/03, 7/23/03
0307061-02				
0307061-03				
0307061-04				
0307061-05				
0307061-06				
0307061-07				
0307061-08				
0307061-09				
0307061-10				
0307061-11				
0307061-12				
0307061-14				

CHAIN OF CUSTODY FORMS

AMERICAN ANALYTICAL LABORATORIES
56 TOLEDO STREET • FARMINGDALE, NEW YORK 11735
(631) 454-6100 • FAX (631) 454-8027 • email: AAL20000@aol.com

Attn: Lori Beyer

NYSDOH ELAP 11418
AIHA PAT, LPAT 102391
CTDOH PH-0205

CHAIN OF CUSTODY / REQUEST FOR ANALYSIS DOCUMENT

CLIENT NAME/ADDRESS: Mimi Sotiriou, AKRF, Inc.
CONTACT: 646-459-3528, 917-612-7877

SAMPLER (SIGNATURE): MSotiriou DATE 7/17/03 TIME 10AM
SAMPLER NAME (PRINT): MSotiriou
SAMPLE(S) SEALED: YES / NO
CORRECT CONTAINER(S): YES / NO

PROJECT LOCATION: Greenpoint Lumber Yard - Brooklyn, NY 30260-0006

LABORATORY ID #	MATRIX	TYPE	PRES.	SAMPLE # - LOCATION	8260	8270	8082	TAL Metals Filtered	TAL Metals Unfiltered
0307061-01AB	L	C		MW6	X	X	X	X	X	X
-02AB		C		MW 7						
-03AB		C		MW 8						
-04AB		C		MW 9						
-05AB		C		MW 10						
-06AB		C		MW 11						
-07AB		C		MW 12						
-08AB		C		MW 13						
-09AB		C		MW 14						
-10AB		C		MW 15						
-11AB		C		MW 16						
-12AB		C		FOUND WELL	✓	✓	✓	✓	✓	✓
-13A				TRIP BLANK						
-14AB		C		FIELD BLANK	✓	X	X	X		X

P.O.# 30260-0006

MATRIX S=SOIL; L=LIQUID; SL=SLUDGE; A=AIR; W=WIPE; P=PAINT CHIPS; B=BULK MATERIAL
TYPE G=GRAB; C=COMPOSITE, SS=SPLIT SPOON

TURNAROUND REQUIRED: NORMAL ☒ STAT ☐ BY / /

COMMENTS / INSTRUCTIONS: 2nd Chain - Ignore 1st Chain

RELINQUISHED BY (SIGNATURE)	DATE / TIME	PRINTED NAME	RECEIVED BY LAB (SIGNATURE)	DATE / TIME	PRINTED NAME
MSotiriou	7/16/03 2PM	MSotiriou	Lori Bz	7/16/03 2:45 PM	LORI Beyer
RELINQUISHED BY (SIGNATURE)	DATE / TIME	PRINTED NAME	RECEIVED BY LAB (SIGNATURE)	DATE / TIME	PRINTED NAME

WHITE-OFFICE / CANARY-LAB / PINK-SAMPLE CUSTODIAN / GOLDENROD-CLIENT

07/17/2003 10:36 FAX 12127260942 AKRF, INC. 001

GC/MS VOLATILE DATA

RESULTS – ORGANIC ANALYSIS DATA SHEET

American Analytical Laboratories, Inc.

Date: *28-Jul-03*

CLIENT:	AKRF, Inc	**Client Sample ID:**	MW6
Lab Order:	0307061	**Tag Number:**	
Project:	Greenpoint Lumber Yard Brooklyn, NY	**Collection Date:**	7/16/2003
Lab ID:	0307061-01A	**Matrix:**	LIQUID

Analyses	Result	Limit	Qual	Units	DF	Date Analyzed
VOLATILES SW-846 METHOD 8260		**SW8260B**				Analyst: **LDS**
1,1,1,2-Tetrachloroethane	U	1.0		µg/L	1	7/18/2003 7:28:00 PM
1,1,1-Trichloroethane	U	1.0		µg/L	1	7/18/2003 7:28:00 PM
1,1,2,2-Tetrachloroethane	U	1.0		µg/L	1	7/18/2003 7:28:00 PM
1,1,2-Trichloro-1,2,2-trifluoroethane	U	1.0		µg/L	1	7/18/2003 7:28:00 PM
1,1,2-Trichloroethane	U	1.0		µg/L	1	7/18/2003 7:28:00 PM
1,1-Dichloroethane	U	1.0		µg/L	1	7/18/2003 7:28:00 PM
1,1-Dichloroethene	U	1.0		µg/L	1	7/18/2003 7:28:00 PM
1,1-Dichloropropene	U	1.0		µg/L	1	7/18/2003 7:28:00 PM
1,2,3-Trichlorobenzene	U	1.0		µg/L	1	7/18/2003 7:28:00 PM
1,2,3-Trichloropropane	U	1.0		µg/L	1	7/18/2003 7:28:00 PM
1,2,4,5-Tetramethylbenzene	U	1.0		µg/L	1	7/18/2003 7:28:00 PM
1,2,4-Trichlorobenzene	U	1.0		µg/L	1	7/18/2003 7:28:00 PM
1,2,4-Trimethylbenzene	3.7	1.0		µg/L	1	7/18/2003 7:28:00 PM
1,2-Dibromo-3-chloropropane	U	1.0		µg/L	1	7/18/2003 7:28:00 PM
1,2-Dibromoethane	U	1.0		µg/L	1	7/18/2003 7:28:00 PM
1,2-Dichlorobenzene	U	1.0		µg/L	1	7/18/2003 7:28:00 PM
1,2-Dichloroethane	U	1.0		µg/L	1	7/18/2003 7:28:00 PM
1,2-Dichloropropane	U	1.0		µg/L	1	7/18/2003 7:28:00 PM
1,3,5-Trimethylbenzene	2.6	1.0		µg/L	1	7/18/2003 7:28:00 PM
1,3-Dichlorobenzene	U	1.0		µg/L	1	7/18/2003 7:28:00 PM
1,3-dichloropropane	U	1.0		µg/L	1	7/18/2003 7:28:00 PM
1,4-Dichlorobenzene	U	1.0		µg/L	1	7/18/2003 7:28:00 PM
2,2-Dichloropropane	U	1.0		µg/L	1	7/18/2003 7:28:00 PM
2-Butanone	U	1.0		µg/L	1	7/18/2003 7:28:00 PM
2-Chloroethyl vinyl ether	U	1.0		µg/L	1	7/18/2003 7:28:00 PM
2-Chlorotoluene	U	1.0		µg/L	1	7/18/2003 7:28:00 PM
2-Hexanone	U	1.0		µg/L	1	7/18/2003 7:28:00 PM
4-Chlorotoluene	U	1.0		µg/L	1	7/18/2003 7:28:00 PM
4-Isopropyltoluene	U	1.0		µg/L	1	7/18/2003 7:28:00 PM
4-Methyl-2-pentanone	U	1.0		µg/L	1	7/18/2003 7:28:00 PM
Acetone	U	1.0		µg/L	1	7/18/2003 7:28:00 PM
Acrolein	U	1.0		µg/L	1	7/18/2003 7:28:00 PM
Acrylonitrile	U	1.0		µg/L	1	7/18/2003 7:28:00 PM
Benzene	U	1.0		µg/L	1	7/18/2003 7:28:00 PM
Bromobenzene	U	1.0		µg/L	1	7/18/2003 7:28:00 PM
Bromochloromethane	U	1.0		µg/L	1	7/18/2003 7:28:00 PM
Bromodichloromethane	U	1.0		µg/L	1	7/18/2003 7:28:00 PM
Bromoform	U	1.0		µg/L	1	7/18/2003 7:28:00 PM
Bromomethane	U	1.0		µg/L	1	7/18/2003 7:28:00 PM
Carbon disulfide	U	1.0		µg/L	1	7/18/2003 7:28:00 PM

Qualifiers:

ND - Not Detected at the Reporting Limit

J - Analyte detected below quantitation limits

B - Analyte detected in the associated Method Blank

* - Value exceeds Maximum Contaminant Level

S - Spike Recovery outside accepted recovery limits

R - RPD outside accepted recovery limits

E - Value above quantitation range

American Analytical Laboratories, Inc.

Date: *28-Jul-03*

CLIENT:	AKRF, Inc	**Client Sample ID:**	MW6
Lab Order:	0307061	**Tag Number:**	
Project:	Greenpoint Lumber Yard Brooklyn, NY	**Collection Date:**	7/16/2003
Lab ID:	0307061-01A	**Matrix:**	LIQUID

Analyses	Result	Limit	Qual	Units	DF	Date Analyzed
VOLATILES SW-846 METHOD 8260		**SW8260B**				Analyst: **LDS**
Carbon tetrachloride	U	1.0		µg/L	1	7/18/2003 7:28:00 PM
Chlorobenzene	U	1.0		µg/L	1	7/18/2003 7:28:00 PM
Chlorodifluoromethane	U	1.0		µg/L	1	7/18/2003 7:28:00 PM
Chloroethane	U	1.0		µg/L	1	7/18/2003 7:28:00 PM
Chloroform	U	1.0		µg/L	1	7/18/2003 7:28:00 PM
Chloromethane	U	1.0		µg/L	1	7/18/2003 7:28:00 PM
cis-1,2-Dichloroethene	U	1.0		µg/L	1	7/18/2003 7:28:00 PM
cis-1,3-Dichloropropene	U	1.0		µg/L	1	7/18/2003 7:28:00 PM
Dibromochloromethane	U	1.0		µg/L	1	7/18/2003 7:28:00 PM
Dibromomethane	U	1.0		µg/L	1	7/18/2003 7:28:00 PM
Dichlorodifluoromethane	U	1.0		µg/L	1	7/18/2003 7:28:00 PM
Diisopropyl ether	U	1.0		µg/L	1	7/18/2003 7:28:00 PM
Ethanol	U	1.0		µg/L	1	7/18/2003 7:28:00 PM
Ethyl acetate	U	1.0		µg/L	1	7/18/2003 7:28:00 PM
Ethylbenzene	U	1.0		µg/L	1	7/18/2003 7:28:00 PM
Freon-114	U	1.0		µg/L	1	7/18/2003 7:28:00 PM
Hexachlorobutadiene	U	1.0		µg/L	1	7/18/2003 7:28:00 PM
Isopropyl acetate	U	1.0		µg/L	1	7/18/2003 7:28:00 PM
Isopropylbenzene	U	1.0		µg/L	1	7/18/2003 7:28:00 PM
m,p-Xylene	4.2	2.0		µg/L	1	7/18/2003 7:28:00 PM
Methyl tert-butyl ether	U	1.0		µg/L	1	7/18/2003 7:28:00 PM
Methylene chloride	U	1.0		µg/L	1	7/18/2003 7:28:00 PM
Naphthalene	U	1.0		µg/L	1	7/18/2003 7:28:00 PM
n-Butyl acetate	U	1.0		µg/L	1	7/18/2003 7:28:00 PM
n-Butylbenzene	U	1.0		µg/L	1	7/18/2003 7:28:00 PM
n-Propyl acetate	U	1.0		µg/L	1	7/18/2003 7:28:00 PM
n-Propylbenzene	U	1.0		µg/L	1	7/18/2003 7:28:00 PM
o-Xylene	1.6	1.0		µg/L	1	7/18/2003 7:28:00 PM
p-Diethylbenzene	U	1.0		µg/L	1	7/18/2003 7:28:00 PM
p-Ethyltoluene	U	1.0		µg/L	1	7/18/2003 7:28:00 PM
sec-Butylbenzene	U	1.0		µg/L	1	7/18/2003 7:28:00 PM
Styrene	U	1.0		µg/L	1	7/18/2003 7:28:00 PM
t-Butyl alcohol	U	1.0		µg/L	1	7/18/2003 7:28:00 PM
tert-Butylbenzene	U	1.0		µg/L	1	7/18/2003 7:28:00 PM
Tetrachloroethene	U	1.0		µg/L	1	7/18/2003 7:28:00 PM
Toluene	U	1.0		µg/L	1	7/18/2003 7:28:00 PM
trans-1,2-Dichloroethene	U	1.0		µg/L	1	7/18/2003 7:28:00 PM
trans-1,3-Dichloropropene	U	1.0		µg/L	1	7/18/2003 7:28:00 PM
Trichloroethene	U	1.0		µg/L	1	7/18/2003 7:28:00 PM
Trichlorofluoromethane	U	1.0		µg/L	1	7/18/2003 7:28:00 PM

Qualifiers:

ND - Not Detected at the Reporting Limit

J - Analyte detected below quantitation limits

B - Analyte detected in the associated Method Blank

* - Value exceeds Maximum Contaminant Level

S - Spike Recovery outside accepted recovery limits

R - RPD outside accepted recovery limits

E - Value above quantitation range

American Analytical Laboratories, Inc.

Date: *28-Jul-03*

CLIENT:	AKRF, Inc	**Client Sample ID:**	MW6
Lab Order:	0307061	**Tag Number:**	
Project:	Greenpoint Lumber Yard Brooklyn, NY	**Collection Date:**	7/16/2003
Lab ID:	0307061-01A	**Matrix:**	LIQUID

Analyses	Result	Limit	Qual	Units	DF	Date Analyzed
VOLATILES SW-846 METHOD 8260		**SW8260B**				Analyst: **LDS**
Vinyl acetate	U	1.0		µg/L	1	7/18/2003 7:28:00 PM
Vinyl chloride	U	1.0		µg/L	1	7/18/2003 7:28:00 PM

Qualifiers:

ND - Not Detected at the Reporting Limit

J - Analyte detected below quantitation limits

B - Analyte detected in the associated Method Blank

* - Value exceeds Maximum Contaminant Level

S - Spike Recovery outside accepted recovery limits

R - RPD outside accepted recovery limits

E - Value above quantitation range

American Analytical Laboratories, Inc.

Date: *28-Jul-03*

CLIENT:	AKRF, Inc	**Client Sample ID:**	MW7
Lab Order:	0307061	**Tag Number:**	
Project:	Greenpoint Lumber Yard Brooklyn, NY	**Collection Date:**	7/16/2003
Lab ID:	0307061-02A	**Matrix:**	LIQUID

Analyses	Result	Limit	Qual	Units	DF	Date Analyzed
VOLATILES SW-846 METHOD 8260		**SW8260B**				Analyst: **LDS**
1,1,1,2-Tetrachloroethane	U	1.0		µg/L	1	7/18/2003 9:24:00 PM
1,1,1-Trichloroethane	U	1.0		µg/L	1	7/18/2003 9:24:00 PM
1,1,2,2-Tetrachloroethane	U	1.0		µg/L	1	7/18/2003 9:24:00 PM
1,1,2-Trichloro-1,2,2-trifluoroethane	U	1.0		µg/L	1	7/18/2003 9:24:00 PM
1,1,2-Trichloroethane	U	1.0		µg/L	1	7/18/2003 9:24:00 PM
1,1-Dichloroethane	U	1.0		µg/L	1	7/18/2003 9:24:00 PM
1,1-Dichloroethene	U	1.0		µg/L	1	7/18/2003 9:24:00 PM
1,1-Dichloropropene	U	1.0		µg/L	1	7/18/2003 9:24:00 PM
1,2,3-Trichlorobenzene	U	1.0		µg/L	1	7/18/2003 9:24:00 PM
1,2,3-Trichloropropane	U	1.0		µg/L	1	7/18/2003 9:24:00 PM
1,2,4,5-Tetramethylbenzene	U	1.0		µg/L	1	7/18/2003 9:24:00 PM
1,2,4-Trichlorobenzene	U	1.0		µg/L	1	7/18/2003 9:24:00 PM
1,2,4-Trimethylbenzene	1.6	1.0		µg/L	1	7/18/2003 9:24:00 PM
1,2-Dibromo-3-chloropropane	U	1.0		µg/L	1	7/18/2003 9:24:00 PM
1,2-Dibromoethane	U	1.0		µg/L	1	7/18/2003 9:24:00 PM
1,2-Dichlorobenzene	U	1.0		µg/L	1	7/18/2003 9:24:00 PM
1,2-Dichloroethane	U	1.0		µg/L	1	7/18/2003 9:24:00 PM
1,2-Dichloropropane	U	1.0		µg/L	1	7/18/2003 9:24:00 PM
1,3,5-Trimethylbenzene	U	1.0		µg/L	1	7/18/2003 9:24:00 PM
1,3-Dichlorobenzene	U	1.0		µg/L	1	7/18/2003 9:24:00 PM
1,3-dichloropropane	U	1.0		µg/L	1	7/18/2003 9:24:00 PM
1,4-Dichlorobenzene	U	1.0		µg/L	1	7/18/2003 9:24:00 PM
2,2-Dichloropropane	U	1.0		µg/L	1	7/18/2003 9:24:00 PM
2-Butanone	U	1.0		µg/L	1	7/18/2003 9:24:00 PM
2-Chloroethyl vinyl ether	U	1.0		µg/L	1	7/18/2003 9:24:00 PM
2-Chlorotoluene	U	1.0		µg/L	1	7/18/2003 9:24:00 PM
2-Hexanone	U	1.0		µg/L	1	7/18/2003 9:24:00 PM
4-Chlorotoluene	U	1.0		µg/L	1	7/18/2003 9:24:00 PM
4-Isopropyltoluene	7.2	1.0		µg/L	1	7/18/2003 9:24:00 PM
4-Methyl-2-pentanone	U	1.0		µg/L	1	7/18/2003 9:24:00 PM
Acetone	U	1.0		µg/L	1	7/18/2003 9:24:00 PM
Acrolein	U	1.0		µg/L	1	7/18/2003 9:24:00 PM
Acrylonitrile	U	1.0		µg/L	1	7/18/2003 9:24:00 PM
Benzene	2.0	1.0		µg/L	1	7/18/2003 9:24:00 PM
Bromobenzene	U	1.0		µg/L	1	7/18/2003 9:24:00 PM
Bromochloromethane	U	1.0		µg/L	1	7/18/2003 9:24:00 PM
Bromodichloromethane	U	1.0		µg/L	1	7/18/2003 9:24:00 PM
Bromoform	U	1.0		µg/L	1	7/18/2003 9:24:00 PM
Bromomethane	U	1.0		µg/L	1	7/18/2003 9:24:00 PM
Carbon disulfide	U	1.0		µg/L	1	7/18/2003 9:24:00 PM

Qualifiers:

ND - Not Detected at the Reporting Limit

J - Analyte detected below quantitation limits

B - Analyte detected in the associated Method Blank

* - Value exceeds Maximum Contaminant Level

S - Spike Recovery outside accepted recovery limits

R - RPD outside accepted recovery limits

E - Value above quantitation range

American Analytical Laboratories, Inc.

Date: *28-Jul-03*

CLIENT:	AKRF, Inc	**Client Sample ID:**	MW7
Lab Order:	0307061	**Tag Number:**	
Project:	Greenpoint Lumber Yard Brooklyn, NY	**Collection Date:**	7/16/2003
Lab ID:	0307061-02A	**Matrix:**	LIQUID

Analyses	Result	Limit	Qual	Units	DF	Date Analyzed
VOLATILES SW-846 METHOD 8260		**SW8260B**				Analyst: **LDS**
Carbon tetrachloride	U	1.0		µg/L	1	7/18/2003 9:24:00 PM
Chlorobenzene	U	1.0		µg/L	1	7/18/2003 9:24:00 PM
Chlorodifluoromethane	U	1.0		µg/L	1	7/18/2003 9:24:00 PM
Chloroethane	U	1.0		µg/L	1	7/18/2003 9:24:00 PM
Chloroform	U	1.0		µg/L	1	7/18/2003 9:24:00 PM
Chloromethane	U	1.0		µg/L	1	7/18/2003 9:24:00 PM
cis-1,2-Dichloroethene	U	1.0		µg/L	1	7/18/2003 9:24:00 PM
cis-1,3-Dichloropropene	U	1.0		µg/L	1	7/18/2003 9:24:00 PM
Dibromochloromethane	U	1.0		µg/L	1	7/18/2003 9:24:00 PM
Dibromomethane	U	1.0		µg/L	1	7/18/2003 9:24:00 PM
Dichlorodifluoromethane	U	1.0		µg/L	1	7/18/2003 9:24:00 PM
Diisopropyl ether	U	1.0		µg/L	1	7/18/2003 9:24:00 PM
Ethanol	U	1.0		µg/L	1	7/18/2003 9:24:00 PM
Ethyl acetate	U	1.0		µg/L	1	7/18/2003 9:24:00 PM
Ethylbenzene	U	1.0		µg/L	1	7/18/2003 9:24:00 PM
Freon-114	U	1.0		µg/L	1	7/18/2003 9:24:00 PM
Hexachlorobutadiene	U	1.0		µg/L	1	7/18/2003 9:24:00 PM
Isopropyl acetate	U	1.0		µg/L	1	7/18/2003 9:24:00 PM
Isopropylbenzene	U	1.0		µg/L	1	7/18/2003 9:24:00 PM
m,p-Xylene	U	2.0		µg/L	1	7/18/2003 9:24:00 PM
Methyl tert-butyl ether	U	1.0		µg/L	1	7/18/2003 9:24:00 PM
Methylene chloride	U	1.0		µg/L	1	7/18/2003 9:24:00 PM
Naphthalene	U	1.0		µg/L	1	7/18/2003 9:24:00 PM
n-Butyl acetate	U	1.0		µg/L	1	7/18/2003 9:24:00 PM
n-Butylbenzene	U	1.0		µg/L	1	7/18/2003 9:24:00 PM
n-Propyl acetate	U	1.0		µg/L	1	7/18/2003 9:24:00 PM
n-Propylbenzene	U	1.0		µg/L	1	7/18/2003 9:24:00 PM
o-Xylene	U	1.0		µg/L	1	7/18/2003 9:24:00 PM
p-Diethylbenzene	U	1.0		µg/L	1	7/18/2003 9:24:00 PM
p-Ethyltoluene	U	1.0		µg/L	1	7/18/2003 9:24:00 PM
sec-Butylbenzene	U	1.0		µg/L	1	7/18/2003 9:24:00 PM
Styrene	U	1.0		µg/L	1	7/18/2003 9:24:00 PM
t-Butyl alcohol	U	1.0		µg/L	1	7/18/2003 9:24:00 PM
tert-Butylbenzene	U	1.0		µg/L	1	7/18/2003 9:24:00 PM
Tetrachloroethene	U	1.0		µg/L	1	7/18/2003 9:24:00 PM
Toluene	2.2	1.0		µg/L	1	7/18/2003 9:24:00 PM
trans-1,2-Dichloroethene	U	1.0		µg/L	1	7/18/2003 9:24:00 PM
trans-1,3-Dichloropropene	U	1.0		µg/L	1	7/18/2003 9:24:00 PM
Trichloroethene	U	1.0		µg/L	1	7/18/2003 9:24:00 PM
Trichlorofluoromethane	U	1.0		µg/L	1	7/18/2003 9:24:00 PM

Qualifiers:

ND - Not Detected at the Reporting Limit

J - Analyte detected below quantitation limits

B - Analyte detected in the associated Method Blank

* - Value exceeds Maximum Contaminant Level

S - Spike Recovery outside accepted recovery limits

R - RPD outside accepted recovery limits

E - Value above quantitation range

American Analytical Laboratories, Inc.

Date: *28-Jul-03*

CLIENT:	AKRF, Inc	**Client Sample ID:**	MW7
Lab Order:	0307061	**Tag Number:**	
Project:	Greenpoint Lumber Yard Brooklyn, NY	**Collection Date:**	7/16/2003
Lab ID:	0307061-02A	**Matrix:**	LIQUID

Analyses	Result	Limit	Qual	Units	DF	Date Analyzed
VOLATILES SW-846 METHOD 8260		**SW8260B**				Analyst: **LDS**
Vinyl acetate	U	1.0		µg/L	1	7/18/2003 9:24:00 PM
Vinyl chloride	U	1.0		µg/L	1	7/18/2003 9:24:00 PM

Qualifiers:

ND - Not Detected at the Reporting Limit

J - Analyte detected below quantitation limits

B - Analyte detected in the associated Method Blank

* - Value exceeds Maximum Contaminant Level

S - Spike Recovery outside accepted recovery limits

R - RPD outside accepted recovery limits

E - Value above quantitation range

American Analytical Laboratories, Inc.

Date: *28-Jul-03*

CLIENT:	AKRF, Inc	**Client Sample ID:**	MW8
Lab Order:	0307061	**Tag Number:**	
Project:	Greenpoint Lumber Yard Brooklyn, NY	**Collection Date:**	7/16/2003
Lab ID:	0307061-03A	**Matrix:**	LIQUID

Analyses	Result	Limit	Qual	Units	DF	Date Analyzed
VOLATILES SW-846 METHOD 8260		**SW8260B**				Analyst: **LDS**
1,1,1,2-Tetrachloroethane	U	1.0		µg/L	1	7/18/2003 10:02:00 PM
1,1,1-Trichloroethane	U	1.0		µg/L	1	7/18/2003 10:02:00 PM
1,1,2,2-Tetrachloroethane	U	1.0		µg/L	1	7/18/2003 10:02:00 PM
1,1,2-Trichloro-1,2,2-trifluoroethane	U	1.0		µg/L	1	7/18/2003 10:02:00 PM
1,1,2-Trichloroethane	U	1.0		µg/L	1	7/18/2003 10:02:00 PM
1,1-Dichloroethane	U	1.0		µg/L	1	7/18/2003 10:02:00 PM
1,1-Dichloroethene	U	1.0		µg/L	1	7/18/2003 10:02:00 PM
1,1-Dichloropropene	U	1.0		µg/L	1	7/18/2003 10:02:00 PM
1,2,3-Trichlorobenzene	U	1.0		µg/L	1	7/18/2003 10:02:00 PM
1,2,3-Trichloropropane	U	1.0		µg/L	1	7/18/2003 10:02:00 PM
1,2,4,5-Tetramethylbenzene	U	1.0		µg/L	1	7/18/2003 10:02:00 PM
1,2,4-Trichlorobenzene	U	1.0		µg/L	1	7/18/2003 10:02:00 PM
1,2,4-Trimethylbenzene	U	1.0		µg/L	1	7/18/2003 10:02:00 PM
1,2-Dibromo-3-chloropropane	U	1.0		µg/L	1	7/18/2003 10:02:00 PM
1,2-Dibromoethane	U	1.0		µg/L	1	7/18/2003 10:02:00 PM
1,2-Dichlorobenzene	U	1.0		µg/L	1	7/18/2003 10:02:00 PM
1,2-Dichloroethane	U	1.0		µg/L	1	7/18/2003 10:02:00 PM
1,2-Dichloropropane	U	1.0		µg/L	1	7/18/2003 10:02:00 PM
1,3,5-Trimethylbenzene	U	1.0		µg/L	1	7/18/2003 10:02:00 PM
1,3-Dichlorobenzene	U	1.0		µg/L	1	7/18/2003 10:02:00 PM
1,3-dichloropropane	U	1.0		µg/L	1	7/18/2003 10:02:00 PM
1,4-Dichlorobenzene	U	1.0		µg/L	1	7/18/2003 10:02:00 PM
2,2-Dichloropropane	U	1.0		µg/L	1	7/18/2003 10:02:00 PM
2-Butanone	U	1.0		µg/L	1	7/18/2003 10:02:00 PM
2-Chloroethyl vinyl ether	U	1.0		µg/L	1	7/18/2003 10:02:00 PM
2-Chlorotoluene	U	1.0		µg/L	1	7/18/2003 10:02:00 PM
2-Hexanone	U	1.0		µg/L	1	7/18/2003 10:02:00 PM
4-Chlorotoluene	U	1.0		µg/L	1	7/18/2003 10:02:00 PM
4-Isopropyltoluene	U	1.0		µg/L	1	7/18/2003 10:02:00 PM
4-Methyl-2-pentanone	U	1.0		µg/L	1	7/18/2003 10:02:00 PM
Acetone	U	1.0		µg/L	1	7/18/2003 10:02:00 PM
Acrolein	U	1.0		µg/L	1	7/18/2003 10:02:00 PM
Acrylonitrile	U	1.0		µg/L	1	7/18/2003 10:02:00 PM
Benzene	U	1.0		µg/L	1	7/18/2003 10:02:00 PM
Bromobenzene	U	1.0		µg/L	1	7/18/2003 10:02:00 PM
Bromochloromethane	U	1.0		µg/L	1	7/18/2003 10:02:00 PM
Bromodichloromethane	U	1.0		µg/L	1	7/18/2003 10:02:00 PM
Bromoform	U	1.0		µg/L	1	7/18/2003 10:02:00 PM
Bromomethane	U	1.0		µg/L	1	7/18/2003 10:02:00 PM
Carbon disulfide	U	1.0		µg/L	1	7/18/2003 10:02:00 PM

Qualifiers:

ND - Not Detected at the Reporting Limit

J - Analyte detected below quantitation limits

B - Analyte detected in the associated Method Blank

* - Value exceeds Maximum Contaminant Level

S - Spike Recovery outside accepted recovery limits

R - RPD outside accepted recovery limits

E - Value above quantitation range

American Analytical Laboratories, Inc.

Date: *28-Jul-03*

CLIENT:	AKRF, Inc	**Client Sample ID:**	MW8
Lab Order:	0307061	**Tag Number:**	
Project:	Greenpoint Lumber Yard Brooklyn, NY	**Collection Date:**	7/16/2003
Lab ID:	0307061-03A	**Matrix:**	LIQUID

Analyses	Result	Limit	Qual	Units	DF	Date Analyzed
VOLATILES SW-846 METHOD 8260		**SW8260B**				Analyst: **LDS**
Carbon tetrachloride	U	1.0		µg/L	1	7/18/2003 10:02:00 PM
Chlorobenzene	U	1.0		µg/L	1	7/18/2003 10:02:00 PM
Chlorodifluoromethane	U	1.0		µg/L	1	7/18/2003 10:02:00 PM
Chloroethane	U	1.0		µg/L	1	7/18/2003 10:02:00 PM
Chloroform	U	1.0		µg/L	1	7/18/2003 10:02:00 PM
Chloromethane	U	1.0		µg/L	1	7/18/2003 10:02:00 PM
cis-1,2-Dichloroethene	U	1.0		µg/L	1	7/18/2003 10:02:00 PM
cis-1,3-Dichloropropene	U	1.0		µg/L	1	7/18/2003 10:02:00 PM
Dibromochloromethane	U	1.0		µg/L	1	7/18/2003 10:02:00 PM
Dibromomethane	U	1.0		µg/L	1	7/18/2003 10:02:00 PM
Dichlorodifluoromethane	U	1.0		µg/L	1	7/18/2003 10:02:00 PM
Diisopropyl ether	U	1.0		µg/L	1	7/18/2003 10:02:00 PM
Ethanol	U	1.0		µg/L	1	7/18/2003 10:02:00 PM
Ethyl acetate	U	1.0		µg/L	1	7/18/2003 10:02:00 PM
Ethylbenzene	U	1.0		µg/L	1	7/18/2003 10:02:00 PM
Freon-114	U	1.0		µg/L	1	7/18/2003 10:02:00 PM
Hexachlorobutadiene	U	1.0		µg/L	1	7/18/2003 10:02:00 PM
Isopropyl acetate	U	1.0		µg/L	1	7/18/2003 10:02:00 PM
Isopropylbenzene	U	1.0		µg/L	1	7/18/2003 10:02:00 PM
m,p-Xylene	U	2.0		µg/L	1	7/18/2003 10:02:00 PM
Methyl tert-butyl ether	U	1.0		µg/L	1	7/18/2003 10:02:00 PM
Methylene chloride	U	1.0		µg/L	1	7/18/2003 10:02:00 PM
Naphthalene	U	1.0		µg/L	1	7/18/2003 10:02:00 PM
n-Butyl acetate	U	1.0		µg/L	1	7/18/2003 10:02:00 PM
n-Butylbenzene	U	1.0		µg/L	1	7/18/2003 10:02:00 PM
n-Propyl acetate	U	1.0		µg/L	1	7/18/2003 10:02:00 PM
n-Propylbenzene	U	1.0		µg/L	1	7/18/2003 10:02:00 PM
o-Xylene	U	1.0		µg/L	1	7/18/2003 10:02:00 PM
p-Diethylbenzene	U	1.0		µg/L	1	7/18/2003 10:02:00 PM
p-Ethyltoluene	U	1.0		µg/L	1	7/18/2003 10:02:00 PM
sec-Butylbenzene	U	1.0		µg/L	1	7/18/2003 10:02:00 PM
Styrene	U	1.0		µg/L	1	7/18/2003 10:02:00 PM
t-Butyl alcohol	U	1.0		µg/L	1	7/18/2003 10:02:00 PM
tert-Butylbenzene	U	1.0		µg/L	1	7/18/2003 10:02:00 PM
Tetrachloroethene	U	1.0		µg/L	1	7/18/2003 10:02:00 PM
Toluene	U	1.0		µg/L	1	7/18/2003 10:02:00 PM
trans-1,2-Dichloroethene	U	1.0		µg/L	1	7/18/2003 10:02:00 PM
trans-1,3-Dichloropropene	U	1.0		µg/L	1	7/18/2003 10:02:00 PM
Trichloroethene	U	1.0		µg/L	1	7/18/2003 10:02:00 PM
Trichlorofluoromethane	U	1.0		µg/L	1	7/18/2003 10:02:00 PM

Qualifiers:

ND - Not Detected at the Reporting Limit

J - Analyte detected below quantitation limits

B - Analyte detected in the associated Method Blank

* - Value exceeds Maximum Contaminant Level

S - Spike Recovery outside accepted recovery limits

R - RPD outside accepted recovery limits

E - Value above quantitation range

American Analytical Laboratories, Inc.

Date: *28-Jul-03*

CLIENT:	AKRF, Inc	**Client Sample ID:**	MW8
Lab Order:	0307061	**Tag Number:**	
Project:	Greenpoint Lumber Yard Brooklyn, NY	**Collection Date:**	7/16/2003
Lab ID:	0307061-03A	**Matrix:**	LIQUID

Analyses	Result	Limit	Qual	Units	DF	Date Analyzed
VOLATILES SW-846 METHOD 8260		**SW8260B**				Analyst: **LDS**
Vinyl acetate	U	1.0		µg/L	1	7/18/2003 10:02:00 PM
Vinyl chloride	U	1.0		µg/L	1	7/18/2003 10:02:00 PM

Qualifiers:

ND - Not Detected at the Reporting Limit

J - Analyte detected below quantitation limits

B - Analyte detected in the associated Method Blank

* - Value exceeds Maximum Contaminant Level

S - Spike Recovery outside accepted recovery limits

R - RPD outside accepted recovery limits

E - Value above quantitation range

American Analytical Laboratories, Inc.

Date: *28-Jul-03*

CLIENT:	AKRF, Inc	**Client Sample ID:**	MW9
Lab Order:	0307061	**Tag Number:**	
Project:	Greenpoint Lumber Yard Brooklyn, NY	**Collection Date:**	7/16/2003
Lab ID:	0307061-04A	**Matrix:**	LIQUID

Analyses	Result	Limit	Qual	Units	DF	Date Analyzed
VOLATILES SW-846 METHOD 8260		**SW8260B**				Analyst: **LDS**
1,1,1,2-Tetrachloroethane	U	1.0		µg/L	1	7/19/2003 1:50:00 AM
1,1,1-Trichloroethane	U	1.0		µg/L	1	7/19/2003 1:50:00 AM
1,1,2,2-Tetrachloroethane	U	1.0		µg/L	1	7/19/2003 1:50:00 AM
1,1,2-Trichloro-1,2,2-trifluoroethane	U	1.0		µg/L	1	7/19/2003 1:50:00 AM
1,1,2-Trichloroethane	U	1.0		µg/L	1	7/19/2003 1:50:00 AM
1,1-Dichloroethane	U	1.0		µg/L	1	7/19/2003 1:50:00 AM
1,1-Dichloroethene	U	1.0		µg/L	1	7/19/2003 1:50:00 AM
1,1-Dichloropropene	U	1.0		µg/L	1	7/19/2003 1:50:00 AM
1,2,3-Trichlorobenzene	U	1.0		µg/L	1	7/19/2003 1:50:00 AM
1,2,3-Trichloropropane	U	1.0		µg/L	1	7/19/2003 1:50:00 AM
1,2,4,5-Tetramethylbenzene	U	1.0		µg/L	1	7/19/2003 1:50:00 AM
1,2,4-Trichlorobenzene	U	1.0		µg/L	1	7/19/2003 1:50:00 AM
1,2,4-Trimethylbenzene	U	1.0		µg/L	1	7/19/2003 1:50:00 AM
1,2-Dibromo-3-chloropropane	U	1.0		µg/L	1	7/19/2003 1:50:00 AM
1,2-Dibromoethane	U	1.0		µg/L	1	7/19/2003 1:50:00 AM
1,2-Dichlorobenzene	U	1.0		µg/L	1	7/19/2003 1:50:00 AM
1,2-Dichloroethane	U	1.0		µg/L	1	7/19/2003 1:50:00 AM
1,2-Dichloropropane	U	1.0		µg/L	1	7/19/2003 1:50:00 AM
1,3,5-Trimethylbenzene	U	1.0		µg/L	1	7/19/2003 1:50:00 AM
1,3-Dichlorobenzene	U	1.0		µg/L	1	7/19/2003 1:50:00 AM
1,3-dichloropropane	U	1.0		µg/L	1	7/19/2003 1:50:00 AM
1,4-Dichlorobenzene	U	1.0		µg/L	1	7/19/2003 1:50:00 AM
2,2-Dichloropropane	U	1.0		µg/L	1	7/19/2003 1:50:00 AM
2-Butanone	U	1.0		µg/L	1	7/19/2003 1:50:00 AM
2-Chloroethyl vinyl ether	U	1.0		µg/L	1	7/19/2003 1:50:00 AM
2-Chlorotoluene	U	1.0		µg/L	1	7/19/2003 1:50:00 AM
2-Hexanone	U	1.0		µg/L	1	7/19/2003 1:50:00 AM
4-Chlorotoluene	U	1.0		µg/L	1	7/19/2003 1:50:00 AM
4-Isopropyltoluene	U	1.0		µg/L	1	7/19/2003 1:50:00 AM
4-Methyl-2-pentanone	U	1.0		µg/L	1	7/19/2003 1:50:00 AM
Acetone	U	1.0		µg/L	1	7/19/2003 1:50:00 AM
Acrolein	U	1.0		µg/L	1	7/19/2003 1:50:00 AM
Acrylonitrile	U	1.0		µg/L	1	7/19/2003 1:50:00 AM
Benzene	U	1.0		µg/L	1	7/19/2003 1:50:00 AM
Bromobenzene	U	1.0		µg/L	1	7/19/2003 1:50:00 AM
Bromochloromethane	U	1.0		µg/L	1	7/19/2003 1:50:00 AM
Bromodichloromethane	U	1.0		µg/L	1	7/19/2003 1:50:00 AM
Bromoform	U	1.0		µg/L	1	7/19/2003 1:50:00 AM
Bromomethane	U	1.0		µg/L	1	7/19/2003 1:50:00 AM
Carbon disulfide	U	1.0		µg/L	1	7/19/2003 1:50:00 AM

Qualifiers:

ND - Not Detected at the Reporting Limit

J - Analyte detected below quantitation limits

B - Analyte detected in the associated Method Blank

* - Value exceeds Maximum Contaminant Level

S - Spike Recovery outside accepted recovery limits

R - RPD outside accepted recovery limits

E - Value above quantitation range

American Analytical Laboratories, Inc.

Date: *28-Jul-03*

CLIENT:	AKRF, Inc	**Client Sample ID:**	MW9
Lab Order:	0307061	**Tag Number:**	
Project:	Greenpoint Lumber Yard Brooklyn, NY	**Collection Date:**	7/16/2003
Lab ID:	0307061-04A	**Matrix:**	LIQUID

Analyses	Result	Limit	Qual	Units	DF	Date Analyzed
VOLATILES SW-846 METHOD 8260		**SW8260B**				Analyst: **LDS**
Carbon tetrachloride	U	1.0		µg/L	1	7/19/2003 1:50:00 AM
Chlorobenzene	U	1.0		µg/L	1	7/19/2003 1:50:00 AM
Chlorodifluoromethane	U	1.0		µg/L	1	7/19/2003 1:50:00 AM
Chloroethane	U	1.0		µg/L	1	7/19/2003 1:50:00 AM
Chloroform	U	1.0		µg/L	1	7/19/2003 1:50:00 AM
Chloromethane	U	1.0		µg/L	1	7/19/2003 1:50:00 AM
cis-1,2-Dichloroethene	U	1.0		µg/L	1	7/19/2003 1:50:00 AM
cis-1,3-Dichloropropene	U	1.0		µg/L	1	7/19/2003 1:50:00 AM
Dibromochloromethane	U	1.0		µg/L	1	7/19/2003 1:50:00 AM
Dibromomethane	U	1.0		µg/L	1	7/19/2003 1:50:00 AM
Dichlorodifluoromethane	U	1.0		µg/L	1	7/19/2003 1:50:00 AM
Diisopropyl ether	U	1.0		µg/L	1	7/19/2003 1:50:00 AM
Ethanol	U	1.0		µg/L	1	7/19/2003 1:50:00 AM
Ethyl acetate	U	1.0		µg/L	1	7/19/2003 1:50:00 AM
Ethylbenzene	U	1.0		µg/L	1	7/19/2003 1:50:00 AM
Freon-114	U	1.0		µg/L	1	7/19/2003 1:50:00 AM
Hexachlorobutadiene	U	1.0		µg/L	1	7/19/2003 1:50:00 AM
Isopropyl acetate	U	1.0		µg/L	1	7/19/2003 1:50:00 AM
Isopropylbenzene	U	1.0		µg/L	1	7/19/2003 1:50:00 AM
m,p-Xylene	U	2.0		µg/L	1	7/19/2003 1:50:00 AM
Methyl tert-butyl ether	U	1.0		µg/L	1	7/19/2003 1:50:00 AM
Methylene chloride	U	1.0		µg/L	1	7/19/2003 1:50:00 AM
Naphthalene	U	1.0		µg/L	1	7/19/2003 1:50:00 AM
n-Butyl acetate	U	1.0		µg/L	1	7/19/2003 1:50:00 AM
n-Butylbenzene	U	1.0		µg/L	1	7/19/2003 1:50:00 AM
n-Propyl acetate	U	1.0		µg/L	1	7/19/2003 1:50:00 AM
n-Propylbenzene	U	1.0		µg/L	1	7/19/2003 1:50:00 AM
o-Xylene	U	1.0		µg/L	1	7/19/2003 1:50:00 AM
p-Diethylbenzene	U	1.0		µg/L	1	7/19/2003 1:50:00 AM
p-Ethyltoluene	U	1.0		µg/L	1	7/19/2003 1:50:00 AM
sec-Butylbenzene	U	1.0		µg/L	1	7/19/2003 1:50:00 AM
Styrene	U	1.0		µg/L	1	7/19/2003 1:50:00 AM
t-Butyl alcohol	U	1.0		µg/L	1	7/19/2003 1:50:00 AM
tert-Butylbenzene	U	1.0		µg/L	1	7/19/2003 1:50:00 AM
Tetrachloroethene	U	1.0		µg/L	1	7/19/2003 1:50:00 AM
Toluene	U	1.0		µg/L	1	7/19/2003 1:50:00 AM
trans-1,2-Dichloroethene	U	1.0		µg/L	1	7/19/2003 1:50:00 AM
trans-1,3-Dichloropropene	U	1.0		µg/L	1	7/19/2003 1:50:00 AM
Trichloroethene	U	1.0		µg/L	1	7/19/2003 1:50:00 AM
Trichlorofluoromethane	U	1.0		µg/L	1	7/19/2003 1:50:00 AM

Qualifiers:

ND - Not Detected at the Reporting Limit

J - Analyte detected below quantitation limits

B - Analyte detected in the associated Method Blank

* - Value exceeds Maximum Contaminant Level

S - Spike Recovery outside accepted recovery limits

R - RPD outside accepted recovery limits

E - Value above quantitation range

American Analytical Laboratories, Inc.

Date: *28-Jul-03*

CLIENT:	AKRF, Inc	**Client Sample ID:**	MW9
Lab Order:	0307061	**Tag Number:**	
Project:	Greenpoint Lumber Yard Brooklyn, NY	**Collection Date:**	7/16/2003
Lab ID:	0307061-04A	**Matrix:**	LIQUID

Analyses	Result	Limit	Qual	Units	DF	Date Analyzed
VOLATILES SW-846 METHOD 8260		**SW8260B**				Analyst: **LDS**
Vinyl acetate	U	1.0		µg/L	1	7/19/2003 1:50:00 AM
Vinyl chloride	U	1.0		µg/L	1	7/19/2003 1:50:00 AM

Qualifiers:

ND - Not Detected at the Reporting Limit

J - Analyte detected below quantitation limits

B - Analyte detected in the associated Method Blank

* - Value exceeds Maximum Contaminant Level

S - Spike Recovery outside accepted recovery limits

R - RPD outside accepted recovery limits

E - Value above quantitation range

American Analytical Laboratories, Inc.

Date: *28-Jul-03*

CLIENT:	AKRF, Inc	**Client Sample ID:**	MW10
Lab Order:	0307061	**Tag Number:**	
Project:	Greenpoint Lumber Yard Brooklyn, NY	**Collection Date:**	7/16/2003
Lab ID:	0307061-05A	**Matrix:**	LIQUID

Analyses	Result	Limit	Qual	Units	DF	Date Analyzed
VOLATILES SW-846 METHOD 8260		**SW8260B**				Analyst: **LDS**
1,1,1,2-Tetrachloroethane	U	1.0		µg/L	1	7/19/2003 2:28:00 AM
1,1,1-Trichloroethane	U	1.0		µg/L	1	7/19/2003 2:28:00 AM
1,1,2,2-Tetrachloroethane	U	1.0		µg/L	1	7/19/2003 2:28:00 AM
1,1,2-Trichloro-1,2,2-trifluoroethane	U	1.0		µg/L	1	7/19/2003 2:28:00 AM
1,1,2-Trichloroethane	U	1.0		µg/L	1	7/19/2003 2:28:00 AM
1,1-Dichloroethane	U	1.0		µg/L	1	7/19/2003 2:28:00 AM
1,1-Dichloroethene	U	1.0		µg/L	1	7/19/2003 2:28:00 AM
1,1-Dichloropropene	U	1.0		µg/L	1	7/19/2003 2:28:00 AM
1,2,3-Trichlorobenzene	U	1.0		µg/L	1	7/19/2003 2:28:00 AM
1,2,3-Trichloropropane	U	1.0		µg/L	1	7/19/2003 2:28:00 AM
1,2,4,5-Tetramethylbenzene	U	1.0		µg/L	1	7/19/2003 2:28:00 AM
1,2,4-Trichlorobenzene	U	1.0		µg/L	1	7/19/2003 2:28:00 AM
1,2,4-Trimethylbenzene	U	1.0		µg/L	1	7/19/2003 2:28:00 AM
1,2-Dibromo-3-chloropropane	U	1.0		µg/L	1	7/19/2003 2:28:00 AM
1,2-Dibromoethane	U	1.0		µg/L	1	7/19/2003 2:28:00 AM
1,2-Dichlorobenzene	U	1.0		µg/L	1	7/19/2003 2:28:00 AM
1,2-Dichloroethane	U	1.0		µg/L	1	7/19/2003 2:28:00 AM
1,2-Dichloropropane	U	1.0		µg/L	1	7/19/2003 2:28:00 AM
1,3,5-Trimethylbenzene	U	1.0		µg/L	1	7/19/2003 2:28:00 AM
1,3-Dichlorobenzene	U	1.0		µg/L	1	7/19/2003 2:28:00 AM
1,3-dichloropropane	U	1.0		µg/L	1	7/19/2003 2:28:00 AM
1,4-Dichlorobenzene	U	1.0		µg/L	1	7/19/2003 2:28:00 AM
2,2-Dichloropropane	U	1.0		µg/L	1	7/19/2003 2:28:00 AM
2-Butanone	U	1.0		µg/L	1	7/19/2003 2:28:00 AM
2-Chloroethyl vinyl ether	U	1.0		µg/L	1	7/19/2003 2:28:00 AM
2-Chlorotoluene	U	1.0		µg/L	1	7/19/2003 2:28:00 AM
2-Hexanone	U	1.0		µg/L	1	7/19/2003 2:28:00 AM
4-Chlorotoluene	U	1.0		µg/L	1	7/19/2003 2:28:00 AM
4-Isopropyltoluene	U	1.0		µg/L	1	7/19/2003 2:28:00 AM
4-Methyl-2-pentanone	U	1.0		µg/L	1	7/19/2003 2:28:00 AM
Acetone	U	1.0		µg/L	1	7/19/2003 2:28:00 AM
Acrolein	U	1.0		µg/L	1	7/19/2003 2:28:00 AM
Acrylonitrile	U	1.0		µg/L	1	7/19/2003 2:28:00 AM
Benzene	U	1.0		µg/L	1	7/19/2003 2:28:00 AM
Bromobenzene	U	1.0		µg/L	1	7/19/2003 2:28:00 AM
Bromochloromethane	U	1.0		µg/L	1	7/19/2003 2:28:00 AM
Bromodichloromethane	U	1.0		µg/L	1	7/19/2003 2:28:00 AM
Bromoform	U	1.0		µg/L	1	7/19/2003 2:28:00 AM
Bromomethane	U	1.0		µg/L	1	7/19/2003 2:28:00 AM
Carbon disulfide	U	1.0		µg/L	1	7/19/2003 2:28:00 AM

Qualifiers:

ND - Not Detected at the Reporting Limit

J - Analyte detected below quantitation limits

B - Analyte detected in the associated Method Blank

* - Value exceeds Maximum Contaminant Level

S - Spike Recovery outside accepted recovery limits

R - RPD outside accepted recovery limits

E - Value above quantitation range

American Analytical Laboratories, Inc.

Date: *28-Jul-03*

CLIENT:	AKRF, Inc	**Client Sample ID:**	MW10
Lab Order:	0307061	**Tag Number:**	
Project:	Greenpoint Lumber Yard Brooklyn, NY	**Collection Date:**	7/16/2003
Lab ID:	0307061-05A	**Matrix:**	LIQUID

Analyses	Result	Limit	Qual	Units	DF	Date Analyzed
VOLATILES SW-846 METHOD 8260		**SW8260B**				Analyst: **LDS**
Carbon tetrachloride	U	1.0		µg/L	1	7/19/2003 2:28:00 AM
Chlorobenzene	U	1.0		µg/L	1	7/19/2003 2:28:00 AM
Chlorodifluoromethane	U	1.0		µg/L	1	7/19/2003 2:28:00 AM
Chloroethane	U	1.0		µg/L	1	7/19/2003 2:28:00 AM
Chloroform	U	1.0		µg/L	1	7/19/2003 2:28:00 AM
Chloromethane	U	1.0		µg/L	1	7/19/2003 2:28:00 AM
cis-1,2-Dichloroethene	U	1.0		µg/L	1	7/19/2003 2:28:00 AM
cis-1,3-Dichloropropene	U	1.0		µg/L	1	7/19/2003 2:28:00 AM
Dibromochloromethane	U	1.0		µg/L	1	7/19/2003 2:28:00 AM
Dibromomethane	U	1.0		µg/L	1	7/19/2003 2:28:00 AM
Dichlorodifluoromethane	U	1.0		µg/L	1	7/19/2003 2:28:00 AM
Diisopropyl ether	U	1.0		µg/L	1	7/19/2003 2:28:00 AM
Ethanol	U	1.0		µg/L	1	7/19/2003 2:28:00 AM
Ethyl acetate	U	1.0		µg/L	1	7/19/2003 2:28:00 AM
Ethylbenzene	U	1.0		µg/L	1	7/19/2003 2:28:00 AM
Freon-114	U	1.0		µg/L	1	7/19/2003 2:28:00 AM
Hexachlorobutadiene	U	1.0		µg/L	1	7/19/2003 2:28:00 AM
Isopropyl acetate	U	1.0		µg/L	1	7/19/2003 2:28:00 AM
Isopropylbenzene	U	1.0		µg/L	1	7/19/2003 2:28:00 AM
m,p-Xylene	U	2.0		µg/L	1	7/19/2003 2:28:00 AM
Methyl tert-butyl ether	U	1.0		µg/L	1	7/19/2003 2:28:00 AM
Methylene chloride	U	1.0		µg/L	1	7/19/2003 2:28:00 AM
Naphthalene	U	1.0		µg/L	1	7/19/2003 2:28:00 AM
n-Butyl acetate	U	1.0		µg/L	1	7/19/2003 2:28:00 AM
n-Butylbenzene	U	1.0		µg/L	1	7/19/2003 2:28:00 AM
n-Propyl acetate	U	1.0		µg/L	1	7/19/2003 2:28:00 AM
n-Propylbenzene	U	1.0		µg/L	1	7/19/2003 2:28:00 AM
o-Xylene	U	1.0		µg/L	1	7/19/2003 2:28:00 AM
p-Diethylbenzene	U	1.0		µg/L	1	7/19/2003 2:28:00 AM
p-Ethyltoluene	U	1.0		µg/L	1	7/19/2003 2:28:00 AM
sec-Butylbenzene	U	1.0		µg/L	1	7/19/2003 2:28:00 AM
Styrene	U	1.0		µg/L	1	7/19/2003 2:28:00 AM
t-Butyl alcohol	U	1.0		µg/L	1	7/19/2003 2:28:00 AM
tert-Butylbenzene	U	1.0		µg/L	1	7/19/2003 2:28:00 AM
Tetrachloroethene	U	1.0		µg/L	1	7/19/2003 2:28:00 AM
Toluene	U	1.0		µg/L	1	7/19/2003 2:28:00 AM
trans-1,2-Dichloroethene	U	1.0		µg/L	1	7/19/2003 2:28:00 AM
trans-1,3-Dichloropropene	U	1.0		µg/L	1	7/19/2003 2:28:00 AM
Trichloroethene	U	1.0		µg/L	1	7/19/2003 2:28:00 AM
Trichlorofluoromethane	U	1.0		µg/L	1	7/19/2003 2:28:00 AM

Qualifiers:

ND - Not Detected at the Reporting Limit

J - Analyte detected below quantitation limits

B - Analyte detected in the associated Method Blank

* - Value exceeds Maximum Contaminant Level

S - Spike Recovery outside accepted recovery limits

R - RPD outside accepted recovery limits

E - Value above quantitation range

American Analytical Laboratories, Inc.

Date: *28-Jul-03*

CLIENT:	AKRF, Inc	**Client Sample ID:**	MW10
Lab Order:	0307061	**Tag Number:**	
Project:	Greenpoint Lumber Yard Brooklyn, NY	**Collection Date:**	7/16/2003
Lab ID:	0307061-05A	**Matrix:**	LIQUID

Analyses	Result	Limit	Qual	Units	DF	Date Analyzed
VOLATILES SW-846 METHOD 8260		**SW8260B**				Analyst: **LDS**
Vinyl acetate	U	1.0		µg/L	1	7/19/2003 2:28:00 AM
Vinyl chloride	U	1.0		µg/L	1	7/19/2003 2:28:00 AM

Qualifiers:

ND - Not Detected at the Reporting Limit

J - Analyte detected below quantitation limits

B - Analyte detected in the associated Method Blank

* - Value exceeds Maximum Contaminant Level

S - Spike Recovery outside accepted recovery limits

R - RPD outside accepted recovery limits

E - Value above quantitation range

American Analytical Laboratories, Inc.

Date: *28-Jul-03*

CLIENT:	AKRF, Inc	**Client Sample ID:**	MW11
Lab Order:	0307061	**Tag Number:**	
Project:	Greenpoint Lumber Yard Brooklyn, NY	**Collection Date:**	7/16/2003
Lab ID:	0307061-06A	**Matrix:**	LIQUID

Analyses	Result	Limit	Qual	Units	DF	Date Analyzed
VOLATILES SW-846 METHOD 8260		**SW8260B**				Analyst: **LDS**
1,1,1,2-Tetrachloroethane	U	1.0		µg/L	1	7/19/2003 3:07:00 AM
1,1,1-Trichloroethane	U	1.0		µg/L	1	7/19/2003 3:07:00 AM
1,1,2,2-Tetrachloroethane	U	1.0		µg/L	1	7/19/2003 3:07:00 AM
1,1,2-Trichloro-1,2,2-trifluoroethane	U	1.0		µg/L	1	7/19/2003 3:07:00 AM
1,1,2-Trichloroethane	U	1.0		µg/L	1	7/19/2003 3:07:00 AM
1,1-Dichloroethane	U	1.0		µg/L	1	7/19/2003 3:07:00 AM
1,1-Dichloroethene	U	1.0		µg/L	1	7/19/2003 3:07:00 AM
1,1-Dichloropropene	U	1.0		µg/L	1	7/19/2003 3:07:00 AM
1,2,3-Trichlorobenzene	U	1.0		µg/L	1	7/19/2003 3:07:00 AM
1,2,3-Trichloropropane	U	1.0		µg/L	1	7/19/2003 3:07:00 AM
1,2,4,5-Tetramethylbenzene	U	1.0		µg/L	1	7/19/2003 3:07:00 AM
1,2,4-Trichlorobenzene	U	1.0		µg/L	1	7/19/2003 3:07:00 AM
1,2,4-Trimethylbenzene	U	1.0		µg/L	1	7/19/2003 3:07:00 AM
1,2-Dibromo-3-chloropropane	U	1.0		µg/L	1	7/19/2003 3:07:00 AM
1,2-Dibromoethane	U	1.0		µg/L	1	7/19/2003 3:07:00 AM
1,2-Dichlorobenzene	U	1.0		µg/L	1	7/19/2003 3:07:00 AM
1,2-Dichloroethane	U	1.0		µg/L	1	7/19/2003 3:07:00 AM
1,2-Dichloropropane	U	1.0		µg/L	1	7/19/2003 3:07:00 AM
1,3,5-Trimethylbenzene	U	1.0		µg/L	1	7/19/2003 3:07:00 AM
1,3-Dichlorobenzene	U	1.0		µg/L	1	7/19/2003 3:07:00 AM
1,3-dichloropropane	U	1.0		µg/L	1	7/19/2003 3:07:00 AM
1,4-Dichlorobenzene	U	1.0		µg/L	1	7/19/2003 3:07:00 AM
2,2-Dichloropropane	U	1.0		µg/L	1	7/19/2003 3:07:00 AM
2-Butanone	U	1.0		µg/L	1	7/19/2003 3:07:00 AM
2-Chloroethyl vinyl ether	U	1.0		µg/L	1	7/19/2003 3:07:00 AM
2-Chlorotoluene	U	1.0		µg/L	1	7/19/2003 3:07:00 AM
2-Hexanone	U	1.0		µg/L	1	7/19/2003 3:07:00 AM
4-Chlorotoluene	U	1.0		µg/L	1	7/19/2003 3:07:00 AM
4-Isopropyltoluene	U	1.0		µg/L	1	7/19/2003 3:07:00 AM
4-Methyl-2-pentanone	U	1.0		µg/L	1	7/19/2003 3:07:00 AM
Acetone	U	1.0		µg/L	1	7/19/2003 3:07:00 AM
Acrolein	U	1.0		µg/L	1	7/19/2003 3:07:00 AM
Acrylonitrile	U	1.0		µg/L	1	7/19/2003 3:07:00 AM
Benzene	U	1.0		µg/L	1	7/19/2003 3:07:00 AM
Bromobenzene	U	1.0		µg/L	1	7/19/2003 3:07:00 AM
Bromochloromethane	U	1.0		µg/L	1	7/19/2003 3:07:00 AM
Bromodichloromethane	U	1.0		µg/L	1	7/19/2003 3:07:00 AM
Bromoform	U	1.0		µg/L	1	7/19/2003 3:07:00 AM
Bromomethane	U	1.0		µg/L	1	7/19/2003 3:07:00 AM
Carbon disulfide	U	1.0		µg/L	1	7/19/2003 3:07:00 AM

Qualifiers:

ND - Not Detected at the Reporting Limit

J - Analyte detected below quantitation limits

B - Analyte detected in the associated Method Blank

* - Value exceeds Maximum Contaminant Level

S - Spike Recovery outside accepted recovery limits

R - RPD outside accepted recovery limits

E - Value above quantitation range

American Analytical Laboratories, Inc.

Date: *28-Jul-03*

CLIENT:	AKRF, Inc	**Client Sample ID:**	MW11
Lab Order:	0307061	**Tag Number:**	
Project:	Greenpoint Lumber Yard Brooklyn, NY	**Collection Date:**	7/16/2003
Lab ID:	0307061-06A	**Matrix:**	LIQUID

Analyses	Result	Limit	Qual	Units	DF	Date Analyzed
VOLATILES SW-846 METHOD 8260		**SW8260B**				Analyst: **LDS**
Carbon tetrachloride	U	1.0		µg/L	1	7/19/2003 3:07:00 AM
Chlorobenzene	U	1.0		µg/L	1	7/19/2003 3:07:00 AM
Chlorodifluoromethane	U	1.0		µg/L	1	7/19/2003 3:07:00 AM
Chloroethane	U	1.0		µg/L	1	7/19/2003 3:07:00 AM
Chloroform	U	1.0		µg/L	1	7/19/2003 3:07:00 AM
Chloromethane	U	1.0		µg/L	1	7/19/2003 3:07:00 AM
cis-1,2-Dichloroethene	U	1.0		µg/L	1	7/19/2003 3:07:00 AM
cis-1,3-Dichloropropene	U	1.0		µg/L	1	7/19/2003 3:07:00 AM
Dibromochloromethane	U	1.0		µg/L	1	7/19/2003 3:07:00 AM
Dibromomethane	U	1.0		µg/L	1	7/19/2003 3:07:00 AM
Dichlorodifluoromethane	U	1.0		µg/L	1	7/19/2003 3:07:00 AM
Diisopropyl ether	U	1.0		µg/L	1	7/19/2003 3:07:00 AM
Ethanol	U	1.0		µg/L	1	7/19/2003 3:07:00 AM
Ethyl acetate	U	1.0		µg/L	1	7/19/2003 3:07:00 AM
Ethylbenzene	U	1.0		µg/L	1	7/19/2003 3:07:00 AM
Freon-114	U	1.0		µg/L	1	7/19/2003 3:07:00 AM
Hexachlorobutadiene	U	1.0		µg/L	1	7/19/2003 3:07:00 AM
Isopropyl acetate	U	1.0		µg/L	1	7/19/2003 3:07:00 AM
Isopropylbenzene	U	1.0		µg/L	1	7/19/2003 3:07:00 AM
m,p-Xylene	U	2.0		µg/L	1	7/19/2003 3:07:00 AM
Methyl tert-butyl ether	U	1.0		µg/L	1	7/19/2003 3:07:00 AM
Methylene chloride	U	1.0		µg/L	1	7/19/2003 3:07:00 AM
Naphthalene	U	1.0		µg/L	1	7/19/2003 3:07:00 AM
n-Butyl acetate	U	1.0		µg/L	1	7/19/2003 3:07:00 AM
n-Butylbenzene	U	1.0		µg/L	1	7/19/2003 3:07:00 AM
n-Propyl acetate	U	1.0		µg/L	1	7/19/2003 3:07:00 AM
n-Propylbenzene	U	1.0		µg/L	1	7/19/2003 3:07:00 AM
o-Xylene	U	1.0		µg/L	1	7/19/2003 3:07:00 AM
p-Diethylbenzene	U	1.0		µg/L	1	7/19/2003 3:07:00 AM
p-Ethyltoluene	U	1.0		µg/L	1	7/19/2003 3:07:00 AM
sec-Butylbenzene	U	1.0		µg/L	1	7/19/2003 3:07:00 AM
Styrene	U	1.0		µg/L	1	7/19/2003 3:07:00 AM
t-Butyl alcohol	U	1.0		µg/L	1	7/19/2003 3:07:00 AM
tert-Butylbenzene	U	1.0		µg/L	1	7/19/2003 3:07:00 AM
Tetrachloroethene	5.6	1.0		µg/L	1	7/19/2003 3:07:00 AM
Toluene	U	1.0		µg/L	1	7/19/2003 3:07:00 AM
trans-1,2-Dichloroethene	U	1.0		µg/L	1	7/19/2003 3:07:00 AM
trans-1,3-Dichloropropene	U	1.0		µg/L	1	7/19/2003 3:07:00 AM
Trichloroethene	U	1.0		µg/L	1	7/19/2003 3:07:00 AM
Trichlorofluoromethane	U	1.0		µg/L	1	7/19/2003 3:07:00 AM

Qualifiers:

ND - Not Detected at the Reporting Limit

J - Analyte detected below quantitation limits

B - Analyte detected in the associated Method Blank

* - Value exceeds Maximum Contaminant Level

S - Spike Recovery outside accepted recovery limits

R - RPD outside accepted recovery limits

E - Value above quantitation range

American Analytical Laboratories, Inc.

Date: *28-Jul-03*

CLIENT:	AKRF, Inc	**Client Sample ID:**	MW11
Lab Order:	0307061	**Tag Number:**	
Project:	Greenpoint Lumber Yard Brooklyn, NY	**Collection Date:**	7/16/2003
Lab ID:	0307061-06A	**Matrix:**	LIQUID

Analyses	Result	Limit	Qual	Units	DF	Date Analyzed
VOLATILES SW-846 METHOD 8260		**SW8260B**				Analyst: **LDS**
Vinyl acetate	U	1.0		µg/L	1	7/19/2003 3:07:00 AM
Vinyl chloride	U	1.0		µg/L	1	7/19/2003 3:07:00 AM

Qualifiers:

ND - Not Detected at the Reporting Limit

J - Analyte detected below quantitation limits

B - Analyte detected in the associated Method Blank

* - Value exceeds Maximum Contaminant Level

S - Spike Recovery outside accepted recovery limits

R - RPD outside accepted recovery limits

E - Value above quantitation range

American Analytical Laboratories, Inc.

Date: *28-Jul-03*

CLIENT:	AKRF, Inc	**Client Sample ID:**	MW12
Lab Order:	0307061	**Tag Number:**	
Project:	Greenpoint Lumber Yard Brooklyn, NY	**Collection Date:**	7/16/2003
Lab ID:	0307061-07A	**Matrix:**	LIQUID

Analyses	Result	Limit	Qual	Units	DF	Date Analyzed
VOLATILES SW-846 METHOD 8260		**SW8260B**				Analyst: **LDS**
1,1,1,2-Tetrachloroethane	U	1.0		µg/L	1	7/19/2003 3:45:00 AM
1,1,1-Trichloroethane	U	1.0		µg/L	1	7/19/2003 3:45:00 AM
1,1,2,2-Tetrachloroethane	U	1.0		µg/L	1	7/19/2003 3:45:00 AM
1,1,2-Trichloro-1,2,2-trifluoroethane	U	1.0		µg/L	1	7/19/2003 3:45:00 AM
1,1,2-Trichloroethane	U	1.0		µg/L	1	7/19/2003 3:45:00 AM
1,1-Dichloroethane	U	1.0		µg/L	1	7/19/2003 3:45:00 AM
1,1-Dichloroethene	U	1.0		µg/L	1	7/19/2003 3:45:00 AM
1,1-Dichloropropene	U	1.0		µg/L	1	7/19/2003 3:45:00 AM
1,2,3-Trichlorobenzene	U	1.0		µg/L	1	7/19/2003 3:45:00 AM
1,2,3-Trichloropropane	U	1.0		µg/L	1	7/19/2003 3:45:00 AM
1,2,4,5-Tetramethylbenzene	U	1.0		µg/L	1	7/19/2003 3:45:00 AM
1,2,4-Trichlorobenzene	U	1.0		µg/L	1	7/19/2003 3:45:00 AM
1,2,4-Trimethylbenzene	U	1.0		µg/L	1	7/19/2003 3:45:00 AM
1,2-Dibromo-3-chloropropane	U	1.0		µg/L	1	7/19/2003 3:45:00 AM
1,2-Dibromoethane	U	1.0		µg/L	1	7/19/2003 3:45:00 AM
1,2-Dichlorobenzene	U	1.0		µg/L	1	7/19/2003 3:45:00 AM
1,2-Dichloroethane	U	1.0		µg/L	1	7/19/2003 3:45:00 AM
1,2-Dichloropropane	U	1.0		µg/L	1	7/19/2003 3:45:00 AM
1,3,5-Trimethylbenzene	U	1.0		µg/L	1	7/19/2003 3:45:00 AM
1,3-Dichlorobenzene	U	1.0		µg/L	1	7/19/2003 3:45:00 AM
1,3-dichloropropane	U	1.0		µg/L	1	7/19/2003 3:45:00 AM
1,4-Dichlorobenzene	U	1.0		µg/L	1	7/19/2003 3:45:00 AM
2,2-Dichloropropane	U	1.0		µg/L	1	7/19/2003 3:45:00 AM
2-Butanone	U	1.0		µg/L	1	7/19/2003 3:45:00 AM
2-Chloroethyl vinyl ether	U	1.0		µg/L	1	7/19/2003 3:45:00 AM
2-Chlorotoluene	U	1.0		µg/L	1	7/19/2003 3:45:00 AM
2-Hexanone	U	1.0		µg/L	1	7/19/2003 3:45:00 AM
4-Chlorotoluene	U	1.0		µg/L	1	7/19/2003 3:45:00 AM
4-Isopropyltoluene	U	1.0		µg/L	1	7/19/2003 3:45:00 AM
4-Methyl-2-pentanone	U	1.0		µg/L	1	7/19/2003 3:45:00 AM
Acetone	U	1.0		µg/L	1	7/19/2003 3:45:00 AM
Acrolein	U	1.0		µg/L	1	7/19/2003 3:45:00 AM
Acrylonitrile	U	1.0		µg/L	1	7/19/2003 3:45:00 AM
Benzene	U	1.0		µg/L	1	7/19/2003 3:45:00 AM
Bromobenzene	U	1.0		µg/L	1	7/19/2003 3:45:00 AM
Bromochloromethane	U	1.0		µg/L	1	7/19/2003 3:45:00 AM
Bromodichloromethane	U	1.0		µg/L	1	7/19/2003 3:45:00 AM
Bromoform	U	1.0		µg/L	1	7/19/2003 3:45:00 AM
Bromomethane	U	1.0		µg/L	1	7/19/2003 3:45:00 AM
Carbon disulfide	U	1.0		µg/L	1	7/19/2003 3:45:00 AM

Qualifiers:

ND - Not Detected at the Reporting Limit

J - Analyte detected below quantitation limits

B - Analyte detected in the associated Method Blank

* - Value exceeds Maximum Contaminant Level

S - Spike Recovery outside accepted recovery limits

R - RPD outside accepted recovery limits

E - Value above quantitation range

American Analytical Laboratories, Inc.

Date: *28-Jul-03*

CLIENT:	AKRF, Inc	**Client Sample ID:**	MW12
Lab Order:	0307061	**Tag Number:**	
Project:	Greenpoint Lumber Yard Brooklyn, NY	**Collection Date:**	7/16/2003
Lab ID:	0307061-07A	**Matrix:**	LIQUID

Analyses	Result	Limit	Qual	Units	DF	Date Analyzed
VOLATILES SW-846 METHOD 8260		**SW8260B**				Analyst: **LDS**
Carbon tetrachloride	U	1.0		µg/L	1	7/19/2003 3:45:00 AM
Chlorobenzene	U	1.0		µg/L	1	7/19/2003 3:45:00 AM
Chlorodifluoromethane	U	1.0		µg/L	1	7/19/2003 3:45:00 AM
Chloroethane	U	1.0		µg/L	1	7/19/2003 3:45:00 AM
Chloroform	U	1.0		µg/L	1	7/19/2003 3:45:00 AM
Chloromethane	U	1.0		µg/L	1	7/19/2003 3:45:00 AM
cis-1,2-Dichloroethene	U	1.0		µg/L	1	7/19/2003 3:45:00 AM
cis-1,3-Dichloropropene	U	1.0		µg/L	1	7/19/2003 3:45:00 AM
Dibromochloromethane	U	1.0		µg/L	1	7/19/2003 3:45:00 AM
Dibromomethane	U	1.0		µg/L	1	7/19/2003 3:45:00 AM
Dichlorodifluoromethane	U	1.0		µg/L	1	7/19/2003 3:45:00 AM
Diisopropyl ether	U	1.0		µg/L	1	7/19/2003 3:45:00 AM
Ethanol	U	1.0		µg/L	1	7/19/2003 3:45:00 AM
Ethyl acetate	U	1.0		µg/L	1	7/19/2003 3:45:00 AM
Ethylbenzene	U	1.0		µg/L	1	7/19/2003 3:45:00 AM
Freon-114	U	1.0		µg/L	1	7/19/2003 3:45:00 AM
Hexachlorobutadiene	U	1.0		µg/L	1	7/19/2003 3:45:00 AM
Isopropyl acetate	U	1.0		µg/L	1	7/19/2003 3:45:00 AM
Isopropylbenzene	U	1.0		µg/L	1	7/19/2003 3:45:00 AM
m,p-Xylene	U	2.0		µg/L	1	7/19/2003 3:45:00 AM
Methyl tert-butyl ether	U	1.0		µg/L	1	7/19/2003 3:45:00 AM
Methylene chloride	U	1.0		µg/L	1	7/19/2003 3:45:00 AM
Naphthalene	U	1.0		µg/L	1	7/19/2003 3:45:00 AM
n-Butyl acetate	U	1.0		µg/L	1	7/19/2003 3:45:00 AM
n-Butylbenzene	U	1.0		µg/L	1	7/19/2003 3:45:00 AM
n-Propyl acetate	U	1.0		µg/L	1	7/19/2003 3:45:00 AM
n-Propylbenzene	U	1.0		µg/L	1	7/19/2003 3:45:00 AM
o-Xylene	U	1.0		µg/L	1	7/19/2003 3:45:00 AM
p-Diethylbenzene	U	1.0		µg/L	1	7/19/2003 3:45:00 AM
p-Ethyltoluene	U	1.0		µg/L	1	7/19/2003 3:45:00 AM
sec-Butylbenzene	U	1.0		µg/L	1	7/19/2003 3:45:00 AM
Styrene	U	1.0		µg/L	1	7/19/2003 3:45:00 AM
t-Butyl alcohol	U	1.0		µg/L	1	7/19/2003 3:45:00 AM
tert-Butylbenzene	U	1.0		µg/L	1	7/19/2003 3:45:00 AM
Tetrachloroethene	U	1.0		µg/L	1	7/19/2003 3:45:00 AM
Toluene	U	1.0		µg/L	1	7/19/2003 3:45:00 AM
trans-1,2-Dichloroethene	U	1.0		µg/L	1	7/19/2003 3:45:00 AM
trans-1,3-Dichloropropene	U	1.0		µg/L	1	7/19/2003 3:45:00 AM
Trichloroethene	U	1.0		µg/L	1	7/19/2003 3:45:00 AM
Trichlorofluoromethane	U	1.0		µg/L	1	7/19/2003 3:45:00 AM

Qualifiers:

ND - Not Detected at the Reporting Limit

J - Analyte detected below quantitation limits

B - Analyte detected in the associated Method Blank

* - Value exceeds Maximum Contaminant Level

S - Spike Recovery outside accepted recovery limits

R - RPD outside accepted recovery limits

E - Value above quantitation range

American Analytical Laboratories, Inc.

Date: *28-Jul-03*

CLIENT:	AKRF, Inc	**Client Sample ID:**	MW12
Lab Order:	0307061	**Tag Number:**	
Project:	Greenpoint Lumber Yard Brooklyn, NY	**Collection Date:**	7/16/2003
Lab ID:	0307061-07A	**Matrix:**	LIQUID

Analyses	Result	Limit	Qual	Units	DF	Date Analyzed
VOLATILES SW-846 METHOD 8260		**SW8260B**				Analyst: **LDS**
Vinyl acetate	U	1.0		µg/L	1	7/19/2003 3:45:00 AM
Vinyl chloride	U	1.0		µg/L	1	7/19/2003 3:45:00 AM

Qualifiers:

ND - Not Detected at the Reporting Limit

J - Analyte detected below quantitation limits

B - Analyte detected in the associated Method Blank

* - Value exceeds Maximum Contaminant Level

S - Spike Recovery outside accepted recovery limits

R - RPD outside accepted recovery limits

E - Value above quantitation range

American Analytical Laboratories, Inc.

Date: *28-Jul-03*

CLIENT:	AKRF, Inc	**Client Sample ID:**	MW13
Lab Order:	0307061	**Tag Number:**	
Project:	Greenpoint Lumber Yard Brooklyn, NY	**Collection Date:**	7/16/2003
Lab ID:	0307061-08A	**Matrix:**	LIQUID

Analyses	Result	Limit	Qual	Units	DF	Date Analyzed
VOLATILES SW-846 METHOD 8260		**SW8260B**				Analyst: **LDS**
1,1,1,2-Tetrachloroethane	U	1.0		µg/L	1	7/19/2003 4:22:00 AM
1,1,1-Trichloroethane	U	1.0		µg/L	1	7/19/2003 4:22:00 AM
1,1,2,2-Tetrachloroethane	U	1.0		µg/L	1	7/19/2003 4:22:00 AM
1,1,2-Trichloro-1,2,2-trifluoroethane	U	1.0		µg/L	1	7/19/2003 4:22:00 AM
1,1,2-Trichloroethane	U	1.0		µg/L	1	7/19/2003 4:22:00 AM
1,1-Dichloroethane	U	1.0		µg/L	1	7/19/2003 4:22:00 AM
1,1-Dichloroethene	U	1.0		µg/L	1	7/19/2003 4:22:00 AM
1,1-Dichloropropene	U	1.0		µg/L	1	7/19/2003 4:22:00 AM
1,2,3-Trichlorobenzene	U	1.0		µg/L	1	7/19/2003 4:22:00 AM
1,2,3-Trichloropropane	U	1.0		µg/L	1	7/19/2003 4:22:00 AM
1,2,4,5-Tetramethylbenzene	U	1.0		µg/L	1	7/19/2003 4:22:00 AM
1,2,4-Trichlorobenzene	U	1.0		µg/L	1	7/19/2003 4:22:00 AM
1,2,4-Trimethylbenzene	15	1.0		µg/L	1	7/19/2003 4:22:00 AM
1,2-Dibromo-3-chloropropane	U	1.0		µg/L	1	7/19/2003 4:22:00 AM
1,2-Dibromoethane	U	1.0		µg/L	1	7/19/2003 4:22:00 AM
1,2-Dichlorobenzene	U	1.0		µg/L	1	7/19/2003 4:22:00 AM
1,2-Dichloroethane	U	1.0		µg/L	1	7/19/2003 4:22:00 AM
1,2-Dichloropropane	U	1.0		µg/L	1	7/19/2003 4:22:00 AM
1,3,5-Trimethylbenzene	10	1.0		µg/L	1	7/19/2003 4:22:00 AM
1,3-Dichlorobenzene	U	1.0		µg/L	1	7/19/2003 4:22:00 AM
1,3-dichloropropane	U	1.0		µg/L	1	7/19/2003 4:22:00 AM
1,4-Dichlorobenzene	U	1.0		µg/L	1	7/19/2003 4:22:00 AM
2,2-Dichloropropane	U	1.0		µg/L	1	7/19/2003 4:22:00 AM
2-Butanone	U	1.0		µg/L	1	7/19/2003 4:22:00 AM
2-Chloroethyl vinyl ether	U	1.0		µg/L	1	7/19/2003 4:22:00 AM
2-Chlorotoluene	U	1.0		µg/L	1	7/19/2003 4:22:00 AM
2-Hexanone	U	1.0		µg/L	1	7/19/2003 4:22:00 AM
4-Chlorotoluene	U	1.0		µg/L	1	7/19/2003 4:22:00 AM
4-Isopropyltoluene	8.8	1.0		µg/L	1	7/19/2003 4:22:00 AM
4-Methyl-2-pentanone	U	1.0		µg/L	1	7/19/2003 4:22:00 AM
Acetone	U	1.0		µg/L	1	7/19/2003 4:22:00 AM
Acrolein	U	1.0		µg/L	1	7/19/2003 4:22:00 AM
Acrylonitrile	U	1.0		µg/L	1	7/19/2003 4:22:00 AM
Benzene	1.4	1.0		µg/L	1	7/19/2003 4:22:00 AM
Bromobenzene	U	1.0		µg/L	1	7/19/2003 4:22:00 AM
Bromochloromethane	U	1.0		µg/L	1	7/19/2003 4:22:00 AM
Bromodichloromethane	U	1.0		µg/L	1	7/19/2003 4:22:00 AM
Bromoform	U	1.0		µg/L	1	7/19/2003 4:22:00 AM
Bromomethane	U	1.0		µg/L	1	7/19/2003 4:22:00 AM
Carbon disulfide	2.4	1.0		µg/L	1	7/19/2003 4:22:00 AM

Qualifiers:

ND - Not Detected at the Reporting Limit

J - Analyte detected below quantitation limits

B - Analyte detected in the associated Method Blank

* - Value exceeds Maximum Contaminant Level

S - Spike Recovery outside accepted recovery limits

R - RPD outside accepted recovery limits

E - Value above quantitation range

American Analytical Laboratories, Inc.

Date: *28-Jul-03*

CLIENT:	AKRF, Inc	**Client Sample ID:**	MW13
Lab Order:	0307061	**Tag Number:**	
Project:	Greenpoint Lumber Yard Brooklyn, NY	**Collection Date:**	7/16/2003
Lab ID:	0307061-08A	**Matrix:**	LIQUID

Analyses	Result	Limit	Qual	Units	DF	Date Analyzed
VOLATILES SW-846 METHOD 8260		**SW8260B**				Analyst: **LDS**
Carbon tetrachloride	U	1.0		µg/L	1	7/19/2003 4:22:00 AM
Chlorobenzene	U	1.0		µg/L	1	7/19/2003 4:22:00 AM
Chlorodifluoromethane	U	1.0		µg/L	1	7/19/2003 4:22:00 AM
Chloroethane	U	1.0		µg/L	1	7/19/2003 4:22:00 AM
Chloroform	U	1.0		µg/L	1	7/19/2003 4:22:00 AM
Chloromethane	U	1.0		µg/L	1	7/19/2003 4:22:00 AM
cis-1,2-Dichloroethene	U	1.0		µg/L	1	7/19/2003 4:22:00 AM
cis-1,3-Dichloropropene	U	1.0		µg/L	1	7/19/2003 4:22:00 AM
Dibromochloromethane	U	1.0		µg/L	1	7/19/2003 4:22:00 AM
Dibromomethane	U	1.0		µg/L	1	7/19/2003 4:22:00 AM
Dichlorodifluoromethane	U	1.0		µg/L	1	7/19/2003 4:22:00 AM
Diisopropyl ether	U	1.0		µg/L	1	7/19/2003 4:22:00 AM
Ethanol	U	1.0		µg/L	1	7/19/2003 4:22:00 AM
Ethyl acetate	U	1.0		µg/L	1	7/19/2003 4:22:00 AM
Ethylbenzene	9.7	1.0		µg/L	1	7/19/2003 4:22:00 AM
Freon-114	U	1.0		µg/L	1	7/19/2003 4:22:00 AM
Hexachlorobutadiene	U	1.0		µg/L	1	7/19/2003 4:22:00 AM
Isopropyl acetate	U	1.0		µg/L	1	7/19/2003 4:22:00 AM
Isopropylbenzene	1.2	1.0		µg/L	1	7/19/2003 4:22:00 AM
m,p-Xylene	33	2.0		µg/L	1	7/19/2003 4:22:00 AM
Methyl tert-butyl ether	U	1.0		µg/L	1	7/19/2003 4:22:00 AM
Methylene chloride	U	1.0		µg/L	1	7/19/2003 4:22:00 AM
Naphthalene	700	10		µg/L	10	7/22/2003 3:32:00 AM
n-Butyl acetate	U	1.0		µg/L	1	7/19/2003 4:22:00 AM
n-Butylbenzene	U	1.0		µg/L	1	7/19/2003 4:22:00 AM
n-Propyl acetate	U	1.0		µg/L	1	7/19/2003 4:22:00 AM
n-Propylbenzene	4.5	1.0		µg/L	1	7/19/2003 4:22:00 AM
o-Xylene	16	1.0		µg/L	1	7/19/2003 4:22:00 AM
p-Diethylbenzene	3.7	1.0		µg/L	1	7/19/2003 4:22:00 AM
p-Ethyltoluene	U	1.0		µg/L	1	7/19/2003 4:22:00 AM
sec-Butylbenzene	U	1.0		µg/L	1	7/19/2003 4:22:00 AM
Styrene	6.1	1.0		µg/L	1	7/19/2003 4:22:00 AM
t-Butyl alcohol	U	1.0		µg/L	1	7/19/2003 4:22:00 AM
tert-Butylbenzene	U	1.0		µg/L	1	7/19/2003 4:22:00 AM
Tetrachloroethene	U	1.0		µg/L	1	7/19/2003 4:22:00 AM
Toluene	12	1.0	B	µg/L	1	7/19/2003 4:22:00 AM
trans-1,2-Dichloroethene	U	1.0		µg/L	1	7/19/2003 4:22:00 AM
trans-1,3-Dichloropropene	U	1.0		µg/L	1	7/19/2003 4:22:00 AM
Trichloroethene	U	1.0		µg/L	1	7/19/2003 4:22:00 AM
Trichlorofluoromethane	U	1.0		µg/L	1	7/19/2003 4:22:00 AM

Qualifiers:

ND - Not Detected at the Reporting Limit

J - Analyte detected below quantitation limits

B - Analyte detected in the associated Method Blank

* - Value exceeds Maximum Contaminant Level

S - Spike Recovery outside accepted recovery limits

R - RPD outside accepted recovery limits

E - Value above quantitation range

American Analytical Laboratories, Inc.

Date: *28-Jul-03*

CLIENT:	AKRF, Inc	**Client Sample ID:**	MW13
Lab Order:	0307061	**Tag Number:**	
Project:	Greenpoint Lumber Yard Brooklyn, NY	**Collection Date:**	7/16/2003
Lab ID:	0307061-08A	**Matrix:**	LIQUID

Analyses	Result	Limit	Qual	Units	DF	Date Analyzed
VOLATILES SW-846 METHOD 8260		**SW8260B**				Analyst: **LDS**
Vinyl acetate	U	1.0		µg/L	1	7/19/2003 4:22:00 AM
Vinyl chloride	U	1.0		µg/L	1	7/19/2003 4:22:00 AM

Qualifiers:

ND - Not Detected at the Reporting Limit

J - Analyte detected below quantitation limits

B - Analyte detected in the associated Method Blank

* - Value exceeds Maximum Contaminant Level

S - Spike Recovery outside accepted recovery limits

R - RPD outside accepted recovery limits

E - Value above quantitation range

American Analytical Laboratories, Inc.

Date: *28-Jul-03*

CLIENT:	AKRF, Inc	**Client Sample ID:**	MW14
Lab Order:	0307061	**Tag Number:**	
Project:	Greenpoint Lumber Yard Brooklyn, NY	**Collection Date:**	7/16/2003
Lab ID:	0307061-09A	**Matrix:**	LIQUID

Analyses	Result	Limit	Qual	Units	DF	Date Analyzed
VOLATILES SW-846 METHOD 8260		**SW8260B**				Analyst: **LDS**
1,1,1,2-Tetrachloroethane	U	1.0		µg/L	1	7/19/2003 5:01:00 AM
1,1,1-Trichloroethane	U	1.0		µg/L	1	7/19/2003 5:01:00 AM
1,1,2,2-Tetrachloroethane	U	1.0		µg/L	1	7/19/2003 5:01:00 AM
1,1,2-Trichloro-1,2,2-trifluoroethane	U	1.0		µg/L	1	7/19/2003 5:01:00 AM
1,1,2-Trichloroethane	U	1.0		µg/L	1	7/19/2003 5:01:00 AM
1,1-Dichloroethane	U	1.0		µg/L	1	7/19/2003 5:01:00 AM
1,1-Dichloroethene	U	1.0		µg/L	1	7/19/2003 5:01:00 AM
1,1-Dichloropropene	U	1.0		µg/L	1	7/19/2003 5:01:00 AM
1,2,3-Trichlorobenzene	U	1.0		µg/L	1	7/19/2003 5:01:00 AM
1,2,3-Trichloropropane	U	1.0		µg/L	1	7/19/2003 5:01:00 AM
1,2,4,5-Tetramethylbenzene	U	1.0		µg/L	1	7/19/2003 5:01:00 AM
1,2,4-Trichlorobenzene	U	1.0		µg/L	1	7/19/2003 5:01:00 AM
1,2,4-Trimethylbenzene	U	1.0		µg/L	1	7/19/2003 5:01:00 AM
1,2-Dibromo-3-chloropropane	U	1.0		µg/L	1	7/19/2003 5:01:00 AM
1,2-Dibromoethane	U	1.0		µg/L	1	7/19/2003 5:01:00 AM
1,2-Dichlorobenzene	U	1.0		µg/L	1	7/19/2003 5:01:00 AM
1,2-Dichloroethane	U	1.0		µg/L	1	7/19/2003 5:01:00 AM
1,2-Dichloropropane	U	1.0		µg/L	1	7/19/2003 5:01:00 AM
1,3,5-Trimethylbenzene	U	1.0		µg/L	1	7/19/2003 5:01:00 AM
1,3-Dichlorobenzene	U	1.0		µg/L	1	7/19/2003 5:01:00 AM
1,3-dichloropropane	U	1.0		µg/L	1	7/19/2003 5:01:00 AM
1,4-Dichlorobenzene	U	1.0		µg/L	1	7/19/2003 5:01:00 AM
2,2-Dichloropropane	U	1.0		µg/L	1	7/19/2003 5:01:00 AM
2-Butanone	U	1.0		µg/L	1	7/19/2003 5:01:00 AM
2-Chloroethyl vinyl ether	U	1.0		µg/L	1	7/19/2003 5:01:00 AM
2-Chlorotoluene	U	1.0		µg/L	1	7/19/2003 5:01:00 AM
2-Hexanone	U	1.0		µg/L	1	7/19/2003 5:01:00 AM
4-Chlorotoluene	U	1.0		µg/L	1	7/19/2003 5:01:00 AM
4-Isopropyltoluene	U	1.0		µg/L	1	7/19/2003 5:01:00 AM
4-Methyl-2-pentanone	U	1.0		µg/L	1	7/19/2003 5:01:00 AM
Acetone	U	1.0		µg/L	1	7/19/2003 5:01:00 AM
Acrolein	U	1.0		µg/L	1	7/19/2003 5:01:00 AM
Acrylonitrile	U	1.0		µg/L	1	7/19/2003 5:01:00 AM
Benzene	U	1.0		µg/L	1	7/19/2003 5:01:00 AM
Bromobenzene	U	1.0		µg/L	1	7/19/2003 5:01:00 AM
Bromochloromethane	U	1.0		µg/L	1	7/19/2003 5:01:00 AM
Bromodichloromethane	U	1.0		µg/L	1	7/19/2003 5:01:00 AM
Bromoform	U	1.0		µg/L	1	7/19/2003 5:01:00 AM
Bromomethane	U	1.0		µg/L	1	7/19/2003 5:01:00 AM
Carbon disulfide	U	1.0		µg/L	1	7/19/2003 5:01:00 AM

Qualifiers:

ND - Not Detected at the Reporting Limit

J - Analyte detected below quantitation limits

B - Analyte detected in the associated Method Blank

* - Value exceeds Maximum Contaminant Level

S - Spike Recovery outside accepted recovery limits

R - RPD outside accepted recovery limits

E - Value above quantitation range

American Analytical Laboratories, Inc.

Date: *28-Jul-03*

CLIENT:	AKRF, Inc	**Client Sample ID:**	MW14
Lab Order:	0307061	**Tag Number:**	
Project:	Greenpoint Lumber Yard Brooklyn, NY	**Collection Date:**	7/16/2003
Lab ID:	0307061-09A	**Matrix:**	LIQUID

Analyses	Result	Limit	Qual	Units	DF	Date Analyzed
VOLATILES SW-846 METHOD 8260		**SW8260B**				Analyst: **LDS**
Carbon tetrachloride	U	1.0		µg/L	1	7/19/2003 5:01:00 AM
Chlorobenzene	U	1.0		µg/L	1	7/19/2003 5:01:00 AM
Chlorodifluoromethane	U	1.0		µg/L	1	7/19/2003 5:01:00 AM
Chloroethane	U	1.0		µg/L	1	7/19/2003 5:01:00 AM
Chloroform	U	1.0		µg/L	1	7/19/2003 5:01:00 AM
Chloromethane	U	1.0		µg/L	1	7/19/2003 5:01:00 AM
cis-1,2-Dichloroethene	U	1.0		µg/L	1	7/19/2003 5:01:00 AM
cis-1,3-Dichloropropene	U	1.0		µg/L	1	7/19/2003 5:01:00 AM
Dibromochloromethane	U	1.0		µg/L	1	7/19/2003 5:01:00 AM
Dibromomethane	U	1.0		µg/L	1	7/19/2003 5:01:00 AM
Dichlorodifluoromethane	U	1.0		µg/L	1	7/19/2003 5:01:00 AM
Diisopropyl ether	U	1.0		µg/L	1	7/19/2003 5:01:00 AM
Ethanol	U	1.0		µg/L	1	7/19/2003 5:01:00 AM
Ethyl acetate	U	1.0		µg/L	1	7/19/2003 5:01:00 AM
Ethylbenzene	U	1.0		µg/L	1	7/19/2003 5:01:00 AM
Freon-114	U	1.0		µg/L	1	7/19/2003 5:01:00 AM
Hexachlorobutadiene	U	1.0		µg/L	1	7/19/2003 5:01:00 AM
Isopropyl acetate	U	1.0		µg/L	1	7/19/2003 5:01:00 AM
Isopropylbenzene	U	1.0		µg/L	1	7/19/2003 5:01:00 AM
m,p-Xylene	U	2.0		µg/L	1	7/19/2003 5:01:00 AM
Methyl tert-butyl ether	8.0	1.0		µg/L	1	7/19/2003 5:01:00 AM
Methylene chloride	U	1.0		µg/L	1	7/19/2003 5:01:00 AM
Naphthalene	U	1.0		µg/L	1	7/19/2003 5:01:00 AM
n-Butyl acetate	U	1.0		µg/L	1	7/19/2003 5:01:00 AM
n-Butylbenzene	U	1.0		µg/L	1	7/19/2003 5:01:00 AM
n-Propyl acetate	U	1.0		µg/L	1	7/19/2003 5:01:00 AM
n-Propylbenzene	U	1.0		µg/L	1	7/19/2003 5:01:00 AM
o-Xylene	U	1.0		µg/L	1	7/19/2003 5:01:00 AM
p-Diethylbenzene	U	1.0		µg/L	1	7/19/2003 5:01:00 AM
p-Ethyltoluene	U	1.0		µg/L	1	7/19/2003 5:01:00 AM
sec-Butylbenzene	U	1.0		µg/L	1	7/19/2003 5:01:00 AM
Styrene	U	1.0		µg/L	1	7/19/2003 5:01:00 AM
t-Butyl alcohol	U	1.0		µg/L	1	7/19/2003 5:01:00 AM
tert-Butylbenzene	U	1.0		µg/L	1	7/19/2003 5:01:00 AM
Tetrachloroethene	U	1.0		µg/L	1	7/19/2003 5:01:00 AM
Toluene	U	1.0		µg/L	1	7/19/2003 5:01:00 AM
trans-1,2-Dichloroethene	U	1.0		µg/L	1	7/19/2003 5:01:00 AM
trans-1,3-Dichloropropene	U	1.0		µg/L	1	7/19/2003 5:01:00 AM
Trichloroethene	U	1.0		µg/L	1	7/19/2003 5:01:00 AM
Trichlorofluoromethane	U	1.0		µg/L	1	7/19/2003 5:01:00 AM

Qualifiers:

ND - Not Detected at the Reporting Limit

J - Analyte detected below quantitation limits

B - Analyte detected in the associated Method Blank

* - Value exceeds Maximum Contaminant Level

S - Spike Recovery outside accepted recovery limits

R - RPD outside accepted recovery limits

E - Value above quantitation range

American Analytical Laboratories, Inc.

Date: *28-Jul-03*

CLIENT:	AKRF, Inc	**Client Sample ID:**	MW14
Lab Order:	0307061	**Tag Number:**	
Project:	Greenpoint Lumber Yard Brooklyn, NY	**Collection Date:**	7/16/2003
Lab ID:	0307061-09A	**Matrix:**	LIQUID

Analyses	Result	Limit	Qual	Units	DF	Date Analyzed
VOLATILES SW-846 METHOD 8260		**SW8260B**				Analyst: **LDS**
Vinyl acetate	U	1.0		µg/L	1	7/19/2003 5:01:00 AM
Vinyl chloride	U	1.0		µg/L	1	7/19/2003 5:01:00 AM

Qualifiers:

ND - Not Detected at the Reporting Limit

J - Analyte detected below quantitation limits

B - Analyte detected in the associated Method Blank

* - Value exceeds Maximum Contaminant Level

S - Spike Recovery outside accepted recovery limits

R - RPD outside accepted recovery limits

E - Value above quantitation range

American Analytical Laboratories, Inc.

Date: *28-Jul-03*

CLIENT:	AKRF, Inc	**Client Sample ID:**	MW15
Lab Order:	0307061	**Tag Number:**	
Project:	Greenpoint Lumber Yard Brooklyn, NY	**Collection Date:**	7/16/2003
Lab ID:	0307061-10A	**Matrix:**	LIQUID

Analyses	Result	Limit	Qual	Units	DF	Date Analyzed
VOLATILES SW-846 METHOD 8260		**SW8260B**				Analyst: **LDS**
1,1,1,2-Tetrachloroethane	U	1.0		µg/L	1	7/19/2003 5:39:00 AM
1,1,1-Trichloroethane	U	1.0		µg/L	1	7/19/2003 5:39:00 AM
1,1,2,2-Tetrachloroethane	U	1.0		µg/L	1	7/19/2003 5:39:00 AM
1,1,2-Trichloro-1,2,2-trifluoroethane	U	1.0		µg/L	1	7/19/2003 5:39:00 AM
1,1,2-Trichloroethane	U	1.0		µg/L	1	7/19/2003 5:39:00 AM
1,1-Dichloroethane	U	1.0		µg/L	1	7/19/2003 5:39:00 AM
1,1-Dichloroethene	U	1.0		µg/L	1	7/19/2003 5:39:00 AM
1,1-Dichloropropene	U	1.0		µg/L	1	7/19/2003 5:39:00 AM
1,2,3-Trichlorobenzene	U	1.0		µg/L	1	7/19/2003 5:39:00 AM
1,2,3-Trichloropropane	U	1.0		µg/L	1	7/19/2003 5:39:00 AM
1,2,4,5-Tetramethylbenzene	U	1.0		µg/L	1	7/19/2003 5:39:00 AM
1,2,4-Trichlorobenzene	U	1.0		µg/L	1	7/19/2003 5:39:00 AM
1,2,4-Trimethylbenzene	U	1.0		µg/L	1	7/19/2003 5:39:00 AM
1,2-Dibromo-3-chloropropane	U	1.0		µg/L	1	7/19/2003 5:39:00 AM
1,2-Dibromoethane	U	1.0		µg/L	1	7/19/2003 5:39:00 AM
1,2-Dichlorobenzene	U	1.0		µg/L	1	7/19/2003 5:39:00 AM
1,2-Dichloroethane	U	1.0		µg/L	1	7/19/2003 5:39:00 AM
1,2-Dichloropropane	U	1.0		µg/L	1	7/19/2003 5:39:00 AM
1,3,5-Trimethylbenzene	U	1.0		µg/L	1	7/19/2003 5:39:00 AM
1,3-Dichlorobenzene	U	1.0		µg/L	1	7/19/2003 5:39:00 AM
1,3-dichloropropane	U	1.0		µg/L	1	7/19/2003 5:39:00 AM
1,4-Dichlorobenzene	U	1.0		µg/L	1	7/19/2003 5:39:00 AM
2,2-Dichloropropane	U	1.0		µg/L	1	7/19/2003 5:39:00 AM
2-Butanone	U	1.0		µg/L	1	7/19/2003 5:39:00 AM
2-Chloroethyl vinyl ether	U	1.0		µg/L	1	7/19/2003 5:39:00 AM
2-Chlorotoluene	U	1.0		µg/L	1	7/19/2003 5:39:00 AM
2-Hexanone	U	1.0		µg/L	1	7/19/2003 5:39:00 AM
4-Chlorotoluene	U	1.0		µg/L	1	7/19/2003 5:39:00 AM
4-Isopropyltoluene	U	1.0		µg/L	1	7/19/2003 5:39:00 AM
4-Methyl-2-pentanone	U	1.0		µg/L	1	7/19/2003 5:39:00 AM
Acetone	U	1.0		µg/L	1	7/19/2003 5:39:00 AM
Acrolein	U	1.0		µg/L	1	7/19/2003 5:39:00 AM
Acrylonitrile	U	1.0		µg/L	1	7/19/2003 5:39:00 AM
Benzene	U	1.0		µg/L	1	7/19/2003 5:39:00 AM
Bromobenzene	U	1.0		µg/L	1	7/19/2003 5:39:00 AM
Bromochloromethane	U	1.0		µg/L	1	7/19/2003 5:39:00 AM
Bromodichloromethane	U	1.0		µg/L	1	7/19/2003 5:39:00 AM
Bromoform	U	1.0		µg/L	1	7/19/2003 5:39:00 AM
Bromomethane	U	1.0		µg/L	1	7/19/2003 5:39:00 AM
Carbon disulfide	U	1.0		µg/L	1	7/19/2003 5:39:00 AM

Qualifiers:

ND - Not Detected at the Reporting Limit

J - Analyte detected below quantitation limits

B - Analyte detected in the associated Method Blank

* - Value exceeds Maximum Contaminant Level

S - Spike Recovery outside accepted recovery limits

R - RPD outside accepted recovery limits

E - Value above quantitation range

American Analytical Laboratories, Inc.

Date: *28-Jul-03*

CLIENT:	AKRF, Inc	**Client Sample ID:**	MW15
Lab Order:	0307061	**Tag Number:**	
Project:	Greenpoint Lumber Yard Brooklyn, NY	**Collection Date:**	7/16/2003
Lab ID:	0307061-10A	**Matrix:**	LIQUID

Analyses	Result	Limit	Qual	Units	DF	Date Analyzed
VOLATILES SW-846 METHOD 8260		**SW8260B**				Analyst: **LDS**
Carbon tetrachloride	U	1.0		µg/L	1	7/19/2003 5:39:00 AM
Chlorobenzene	U	1.0		µg/L	1	7/19/2003 5:39:00 AM
Chlorodifluoromethane	U	1.0		µg/L	1	7/19/2003 5:39:00 AM
Chloroethane	U	1.0		µg/L	1	7/19/2003 5:39:00 AM
Chloroform	U	1.0		µg/L	1	7/19/2003 5:39:00 AM
Chloromethane	U	1.0		µg/L	1	7/19/2003 5:39:00 AM
cis-1,2-Dichloroethene	U	1.0		µg/L	1	7/19/2003 5:39:00 AM
cis-1,3-Dichloropropene	U	1.0		µg/L	1	7/19/2003 5:39:00 AM
Dibromochloromethane	U	1.0		µg/L	1	7/19/2003 5:39:00 AM
Dibromomethane	U	1.0		µg/L	1	7/19/2003 5:39:00 AM
Dichlorodifluoromethane	U	1.0		µg/L	1	7/19/2003 5:39:00 AM
Diisopropyl ether	U	1.0		µg/L	1	7/19/2003 5:39:00 AM
Ethanol	U	1.0		µg/L	1	7/19/2003 5:39:00 AM
Ethyl acetate	U	1.0		µg/L	1	7/19/2003 5:39:00 AM
Ethylbenzene	U	1.0		µg/L	1	7/19/2003 5:39:00 AM
Freon-114	U	1.0		µg/L	1	7/19/2003 5:39:00 AM
Hexachlorobutadiene	U	1.0		µg/L	1	7/19/2003 5:39:00 AM
Isopropyl acetate	U	1.0		µg/L	1	7/19/2003 5:39:00 AM
Isopropylbenzene	U	1.0		µg/L	1	7/19/2003 5:39:00 AM
m,p-Xylene	U	2.0		µg/L	1	7/19/2003 5:39:00 AM
Methyl tert-butyl ether	U	1.0		µg/L	1	7/19/2003 5:39:00 AM
Methylene chloride	U	1.0		µg/L	1	7/19/2003 5:39:00 AM
Naphthalene	U	1.0		µg/L	1	7/19/2003 5:39:00 AM
n-Butyl acetate	U	1.0		µg/L	1	7/19/2003 5:39:00 AM
n-Butylbenzene	U	1.0		µg/L	1	7/19/2003 5:39:00 AM
n-Propyl acetate	U	1.0		µg/L	1	7/19/2003 5:39:00 AM
n-Propylbenzene	U	1.0		µg/L	1	7/19/2003 5:39:00 AM
o-Xylene	U	1.0		µg/L	1	7/19/2003 5:39:00 AM
p-Diethylbenzene	U	1.0		µg/L	1	7/19/2003 5:39:00 AM
p-Ethyltoluene	U	1.0		µg/L	1	7/19/2003 5:39:00 AM
sec-Butylbenzene	U	1.0		µg/L	1	7/19/2003 5:39:00 AM
Styrene	U	1.0		µg/L	1	7/19/2003 5:39:00 AM
t-Butyl alcohol	U	1.0		µg/L	1	7/19/2003 5:39:00 AM
tert-Butylbenzene	U	1.0		µg/L	1	7/19/2003 5:39:00 AM
Tetrachloroethene	U	1.0		µg/L	1	7/19/2003 5:39:00 AM
Toluene	U	1.0		µg/L	1	7/19/2003 5:39:00 AM
trans-1,2-Dichloroethene	U	1.0		µg/L	1	7/19/2003 5:39:00 AM
trans-1,3-Dichloropropene	U	1.0		µg/L	1	7/19/2003 5:39:00 AM
Trichloroethene	U	1.0		µg/L	1	7/19/2003 5:39:00 AM
Trichlorofluoromethane	U	1.0		µg/L	1	7/19/2003 5:39:00 AM

Qualifiers:

ND - Not Detected at the Reporting Limit

J - Analyte detected below quantitation limits

B - Analyte detected in the associated Method Blank

* - Value exceeds Maximum Contaminant Level

S - Spike Recovery outside accepted recovery limits

R - RPD outside accepted recovery limits

E - Value above quantitation range

American Analytical Laboratories, Inc.

Date: *28-Jul-03*

CLIENT:	AKRF, Inc	**Client Sample ID:**	MW15
Lab Order:	0307061	**Tag Number:**	
Project:	Greenpoint Lumber Yard Brooklyn, NY	**Collection Date:**	7/16/2003
Lab ID:	0307061-10A	**Matrix:**	LIQUID

Analyses	Result	Limit	Qual	Units	DF	Date Analyzed
VOLATILES SW-846 METHOD 8260		**SW8260B**				Analyst: **LDS**
Vinyl acetate	U	1.0		µg/L	1	7/19/2003 5:39:00 AM
Vinyl chloride	U	1.0		µg/L	1	7/19/2003 5:39:00 AM

Qualifiers:

ND - Not Detected at the Reporting Limit

J - Analyte detected below quantitation limits

B - Analyte detected in the associated Method Blank

* - Value exceeds Maximum Contaminant Level

S - Spike Recovery outside accepted recovery limits

R - RPD outside accepted recovery limits

E - Value above quantitation range

American Analytical Laboratories, Inc.

Date: *28-Jul-03*

CLIENT:	AKRF, Inc	**Client Sample ID:**	MW16
Lab Order:	0307061	**Tag Number:**	
Project:	Greenpoint Lumber Yard Brooklyn, NY	**Collection Date:**	7/16/2003
Lab ID:	0307061-11A	**Matrix:**	LIQUID

Analyses	Result	Limit	Qual	Units	DF	Date Analyzed
VOLATILES SW-846 METHOD 8260		**SW8260B**				Analyst: **LDS**
1,1,1,2-Tetrachloroethane	U	1.0		µg/L	1	7/19/2003 6:17:00 AM
1,1,1-Trichloroethane	U	1.0		µg/L	1	7/19/2003 6:17:00 AM
1,1,2,2-Tetrachloroethane	U	1.0		µg/L	1	7/19/2003 6:17:00 AM
1,1,2-Trichloro-1,2,2-trifluoroethane	U	1.0		µg/L	1	7/19/2003 6:17:00 AM
1,1,2-Trichloroethane	U	1.0		µg/L	1	7/19/2003 6:17:00 AM
1,1-Dichloroethane	U	1.0		µg/L	1	7/19/2003 6:17:00 AM
1,1-Dichloroethene	U	1.0		µg/L	1	7/19/2003 6:17:00 AM
1,1-Dichloropropene	U	1.0		µg/L	1	7/19/2003 6:17:00 AM
1,2,3-Trichlorobenzene	U	1.0		µg/L	1	7/19/2003 6:17:00 AM
1,2,3-Trichloropropane	U	1.0		µg/L	1	7/19/2003 6:17:00 AM
1,2,4,5-Tetramethylbenzene	U	1.0		µg/L	1	7/19/2003 6:17:00 AM
1,2,4-Trichlorobenzene	U	1.0		µg/L	1	7/19/2003 6:17:00 AM
1,2,4-Trimethylbenzene	U	1.0		µg/L	1	7/19/2003 6:17:00 AM
1,2-Dibromo-3-chloropropane	U	1.0		µg/L	1	7/19/2003 6:17:00 AM
1,2-Dibromoethane	U	1.0		µg/L	1	7/19/2003 6:17:00 AM
1,2-Dichlorobenzene	U	1.0		µg/L	1	7/19/2003 6:17:00 AM
1,2-Dichloroethane	U	1.0		µg/L	1	7/19/2003 6:17:00 AM
1,2-Dichloropropane	U	1.0		µg/L	1	7/19/2003 6:17:00 AM
1,3,5-Trimethylbenzene	U	1.0		µg/L	1	7/19/2003 6:17:00 AM
1,3-Dichlorobenzene	U	1.0		µg/L	1	7/19/2003 6:17:00 AM
1,3-dichloropropane	U	1.0		µg/L	1	7/19/2003 6:17:00 AM
1,4-Dichlorobenzene	U	1.0		µg/L	1	7/19/2003 6:17:00 AM
2,2-Dichloropropane	U	1.0		µg/L	1	7/19/2003 6:17:00 AM
2-Butanone	U	1.0		µg/L	1	7/19/2003 6:17:00 AM
2-Chloroethyl vinyl ether	U	1.0		µg/L	1	7/19/2003 6:17:00 AM
2-Chlorotoluene	U	1.0		µg/L	1	7/19/2003 6:17:00 AM
2-Hexanone	U	1.0		µg/L	1	7/19/2003 6:17:00 AM
4-Chlorotoluene	U	1.0		µg/L	1	7/19/2003 6:17:00 AM
4-Isopropyltoluene	U	1.0		µg/L	1	7/19/2003 6:17:00 AM
4-Methyl-2-pentanone	U	1.0		µg/L	1	7/19/2003 6:17:00 AM
Acetone	U	1.0		µg/L	1	7/19/2003 6:17:00 AM
Acrolein	U	1.0		µg/L	1	7/19/2003 6:17:00 AM
Acrylonitrile	U	1.0		µg/L	1	7/19/2003 6:17:00 AM
Benzene	U	1.0		µg/L	1	7/19/2003 6:17:00 AM
Bromobenzene	U	1.0		µg/L	1	7/19/2003 6:17:00 AM
Bromochloromethane	U	1.0		µg/L	1	7/19/2003 6:17:00 AM
Bromodichloromethane	U	1.0		µg/L	1	7/19/2003 6:17:00 AM
Bromoform	U	1.0		µg/L	1	7/19/2003 6:17:00 AM
Bromomethane	U	1.0		µg/L	1	7/19/2003 6:17:00 AM
Carbon disulfide	U	1.0		µg/L	1	7/19/2003 6:17:00 AM

Qualifiers:

ND - Not Detected at the Reporting Limit

J - Analyte detected below quantitation limits

B - Analyte detected in the associated Method Blank

* - Value exceeds Maximum Contaminant Level

S - Spike Recovery outside accepted recovery limits

R - RPD outside accepted recovery limits

E - Value above quantitation range

American Analytical Laboratories, Inc.

Date: *28-Jul-03*

CLIENT:	AKRF, Inc	**Client Sample ID:**	MW16
Lab Order:	0307061	**Tag Number:**	
Project:	Greenpoint Lumber Yard Brooklyn, NY	**Collection Date:**	7/16/2003
Lab ID:	0307061-11A	**Matrix:**	LIQUID

Analyses	Result	Limit	Qual	Units	DF	Date Analyzed
VOLATILES SW-846 METHOD 8260		**SW8260B**				Analyst: **LDS**
Carbon tetrachloride	U	1.0		µg/L	1	7/19/2003 6:17:00 AM
Chlorobenzene	U	1.0		µg/L	1	7/19/2003 6:17:00 AM
Chlorodifluoromethane	U	1.0		µg/L	1	7/19/2003 6:17:00 AM
Chloroethane	U	1.0		µg/L	1	7/19/2003 6:17:00 AM
Chloroform	U	1.0		µg/L	1	7/19/2003 6:17:00 AM
Chloromethane	U	1.0		µg/L	1	7/19/2003 6:17:00 AM
cis-1,2-Dichloroethene	U	1.0		µg/L	1	7/19/2003 6:17:00 AM
cis-1,3-Dichloropropene	U	1.0		µg/L	1	7/19/2003 6:17:00 AM
Dibromochloromethane	U	1.0		µg/L	1	7/19/2003 6:17:00 AM
Dibromomethane	U	1.0		µg/L	1	7/19/2003 6:17:00 AM
Dichlorodifluoromethane	U	1.0		µg/L	1	7/19/2003 6:17:00 AM
Diisopropyl ether	U	1.0		µg/L	1	7/19/2003 6:17:00 AM
Ethanol	U	1.0		µg/L	1	7/19/2003 6:17:00 AM
Ethyl acetate	U	1.0		µg/L	1	7/19/2003 6:17:00 AM
Ethylbenzene	U	1.0		µg/L	1	7/19/2003 6:17:00 AM
Freon-114	U	1.0		µg/L	1	7/19/2003 6:17:00 AM
Hexachlorobutadiene	U	1.0		µg/L	1	7/19/2003 6:17:00 AM
Isopropyl acetate	U	1.0		µg/L	1	7/19/2003 6:17:00 AM
Isopropylbenzene	U	1.0		µg/L	1	7/19/2003 6:17:00 AM
m,p-Xylene	U	2.0		µg/L	1	7/19/2003 6:17:00 AM
Methyl tert-butyl ether	U	1.0		µg/L	1	7/19/2003 6:17:00 AM
Methylene chloride	U	1.0		µg/L	1	7/19/2003 6:17:00 AM
Naphthalene	U	1.0		µg/L	1	7/19/2003 6:17:00 AM
n-Butyl acetate	U	1.0		µg/L	1	7/19/2003 6:17:00 AM
n-Butylbenzene	U	1.0		µg/L	1	7/19/2003 6:17:00 AM
n-Propyl acetate	U	1.0		µg/L	1	7/19/2003 6:17:00 AM
n-Propylbenzene	U	1.0		µg/L	1	7/19/2003 6:17:00 AM
o-Xylene	U	1.0		µg/L	1	7/19/2003 6:17:00 AM
p-Diethylbenzene	U	1.0		µg/L	1	7/19/2003 6:17:00 AM
p-Ethyltoluene	U	1.0		µg/L	1	7/19/2003 6:17:00 AM
sec-Butylbenzene	U	1.0		µg/L	1	7/19/2003 6:17:00 AM
Styrene	U	1.0		µg/L	1	7/19/2003 6:17:00 AM
t-Butyl alcohol	U	1.0		µg/L	1	7/19/2003 6:17:00 AM
tert-Butylbenzene	U	1.0		µg/L	1	7/19/2003 6:17:00 AM
Tetrachloroethene	U	1.0		µg/L	1	7/19/2003 6:17:00 AM
Toluene	U	1.0		µg/L	1	7/19/2003 6:17:00 AM
trans-1,2-Dichloroethene	U	1.0		µg/L	1	7/19/2003 6:17:00 AM
trans-1,3-Dichloropropene	U	1.0		µg/L	1	7/19/2003 6:17:00 AM
Trichloroethene	U	1.0		µg/L	1	7/19/2003 6:17:00 AM
Trichlorofluoromethane	U	1.0		µg/L	1	7/19/2003 6:17:00 AM

Qualifiers:

ND - Not Detected at the Reporting Limit

J - Analyte detected below quantitation limits

B - Analyte detected in the associated Method Blank

* - Value exceeds Maximum Contaminant Level

S - Spike Recovery outside accepted recovery limits

R - RPD outside accepted recovery limits

E - Value above quantitation range

American Analytical Laboratories, Inc.

Date: *28-Jul-03*

CLIENT:	AKRF, Inc	**Client Sample ID:**	MW16
Lab Order:	0307061	**Tag Number:**	
Project:	Greenpoint Lumber Yard Brooklyn, NY	**Collection Date:**	7/16/2003
Lab ID:	0307061-11A	**Matrix:**	LIQUID

Analyses	Result	Limit	Qual	Units	DF	Date Analyzed
VOLATILES SW-846 METHOD 8260		**SW8260B**				Analyst: **LDS**
Vinyl acetate	U	1.0		µg/L	1	7/19/2003 6:17:00 AM
Vinyl chloride	U	1.0		µg/L	1	7/19/2003 6:17:00 AM

Qualifiers:

ND - Not Detected at the Reporting Limit

J - Analyte detected below quantitation limits

B - Analyte detected in the associated Method Blank

* - Value exceeds Maximum Contaminant Level

S - Spike Recovery outside accepted recovery limits

R - RPD outside accepted recovery limits

E - Value above quantitation range

American Analytical Laboratories, Inc.

Date: *28-Jul-03*

CLIENT:	AKRF, Inc	**Client Sample ID:**	FOUND WELL
Lab Order:	0307061	**Tag Number:**	
Project:	Greenpoint Lumber Yard Brooklyn, NY	**Collection Date:**	7/16/2003
Lab ID:	0307061-12A	**Matrix:**	LIQUID

Analyses	Result	Limit	Qual	Units	DF	Date Analyzed
VOLATILES SW-846 METHOD 8260		**SW8260B**				Analyst: **LDS**
1,1,1,2-Tetrachloroethane	U	1.0		µg/L	1	7/19/2003 6:55:00 AM
1,1,1-Trichloroethane	U	1.0		µg/L	1	7/19/2003 6:55:00 AM
1,1,2,2-Tetrachloroethane	U	1.0		µg/L	1	7/19/2003 6:55:00 AM
1,1,2-Trichloro-1,2,2-trifluoroethane	U	1.0		µg/L	1	7/19/2003 6:55:00 AM
1,1,2-Trichloroethane	U	1.0		µg/L	1	7/19/2003 6:55:00 AM
1,1-Dichloroethane	U	1.0		µg/L	1	7/19/2003 6:55:00 AM
1,1-Dichloroethene	U	1.0		µg/L	1	7/19/2003 6:55:00 AM
1,1-Dichloropropene	U	1.0		µg/L	1	7/19/2003 6:55:00 AM
1,2,3-Trichlorobenzene	U	1.0		µg/L	1	7/19/2003 6:55:00 AM
1,2,3-Trichloropropane	U	1.0		µg/L	1	7/19/2003 6:55:00 AM
1,2,4,5-Tetramethylbenzene	U	1.0		µg/L	1	7/19/2003 6:55:00 AM
1,2,4-Trichlorobenzene	U	1.0		µg/L	1	7/19/2003 6:55:00 AM
1,2,4-Trimethylbenzene	U	1.0		µg/L	1	7/19/2003 6:55:00 AM
1,2-Dibromo-3-chloropropane	U	1.0		µg/L	1	7/19/2003 6:55:00 AM
1,2-Dibromoethane	U	1.0		µg/L	1	7/19/2003 6:55:00 AM
1,2-Dichlorobenzene	U	1.0		µg/L	1	7/19/2003 6:55:00 AM
1,2-Dichloroethane	U	1.0		µg/L	1	7/19/2003 6:55:00 AM
1,2-Dichloropropane	U	1.0		µg/L	1	7/19/2003 6:55:00 AM
1,3,5-Trimethylbenzene	U	1.0		µg/L	1	7/19/2003 6:55:00 AM
1,3-Dichlorobenzene	U	1.0		µg/L	1	7/19/2003 6:55:00 AM
1,3-dichloropropane	U	1.0		µg/L	1	7/19/2003 6:55:00 AM
1,4-Dichlorobenzene	U	1.0		µg/L	1	7/19/2003 6:55:00 AM
2,2-Dichloropropane	U	1.0		µg/L	1	7/19/2003 6:55:00 AM
2-Butanone	U	1.0		µg/L	1	7/19/2003 6:55:00 AM
2-Chloroethyl vinyl ether	U	1.0		µg/L	1	7/19/2003 6:55:00 AM
2-Chlorotoluene	U	1.0		µg/L	1	7/19/2003 6:55:00 AM
2-Hexanone	U	1.0		µg/L	1	7/19/2003 6:55:00 AM
4-Chlorotoluene	U	1.0		µg/L	1	7/19/2003 6:55:00 AM
4-Isopropyltoluene	U	1.0		µg/L	1	7/19/2003 6:55:00 AM
4-Methyl-2-pentanone	U	1.0		µg/L	1	7/19/2003 6:55:00 AM
Acetone	U	1.0		µg/L	1	7/19/2003 6:55:00 AM
Acrolein	U	1.0		µg/L	1	7/19/2003 6:55:00 AM
Acrylonitrile	U	1.0		µg/L	1	7/19/2003 6:55:00 AM
Benzene	U	1.0		µg/L	1	7/19/2003 6:55:00 AM
Bromobenzene	U	1.0		µg/L	1	7/19/2003 6:55:00 AM
Bromochloromethane	U	1.0		µg/L	1	7/19/2003 6:55:00 AM
Bromodichloromethane	U	1.0		µg/L	1	7/19/2003 6:55:00 AM
Bromoform	U	1.0		µg/L	1	7/19/2003 6:55:00 AM
Bromomethane	U	1.0		µg/L	1	7/19/2003 6:55:00 AM
Carbon disulfide	U	1.0		µg/L	1	7/19/2003 6:55:00 AM

Qualifiers:

ND - Not Detected at the Reporting Limit

J - Analyte detected below quantitation limits

B - Analyte detected in the associated Method Blank

* - Value exceeds Maximum Contaminant Level

S - Spike Recovery outside accepted recovery limits

R - RPD outside accepted recovery limits

E - Value above quantitation range

American Analytical Laboratories, Inc.

Date: *28-Jul-03*

CLIENT:	AKRF, Inc	**Client Sample ID:**	FOUND WELL
Lab Order:	0307061	**Tag Number:**	
Project:	Greenpoint Lumber Yard Brooklyn, NY	**Collection Date:**	7/16/2003
Lab ID:	0307061-12A	**Matrix:**	LIQUID

Analyses	Result	Limit	Qual	Units	DF	Date Analyzed
VOLATILES SW-846 METHOD 8260		**SW8260B**				Analyst: **LDS**
Carbon tetrachloride	U	1.0		µg/L	1	7/19/2003 6:55:00 AM
Chlorobenzene	U	1.0		µg/L	1	7/19/2003 6:55:00 AM
Chlorodifluoromethane	U	1.0		µg/L	1	7/19/2003 6:55:00 AM
Chloroethane	U	1.0		µg/L	1	7/19/2003 6:55:00 AM
Chloroform	U	1.0		µg/L	1	7/19/2003 6:55:00 AM
Chloromethane	U	1.0		µg/L	1	7/19/2003 6:55:00 AM
cis-1,2-Dichloroethene	U	1.0		µg/L	1	7/19/2003 6:55:00 AM
cis-1,3-Dichloropropene	U	1.0		µg/L	1	7/19/2003 6:55:00 AM
Dibromochloromethane	U	1.0		µg/L	1	7/19/2003 6:55:00 AM
Dibromomethane	U	1.0		µg/L	1	7/19/2003 6:55:00 AM
Dichlorodifluoromethane	U	1.0		µg/L	1	7/19/2003 6:55:00 AM
Diisopropyl ether	U	1.0		µg/L	1	7/19/2003 6:55:00 AM
Ethanol	U	1.0		µg/L	1	7/19/2003 6:55:00 AM
Ethyl acetate	U	1.0		µg/L	1	7/19/2003 6:55:00 AM
Ethylbenzene	U	1.0		µg/L	1	7/19/2003 6:55:00 AM
Freon-114	U	1.0		µg/L	1	7/19/2003 6:55:00 AM
Hexachlorobutadiene	U	1.0		µg/L	1	7/19/2003 6:55:00 AM
Isopropyl acetate	U	1.0		µg/L	1	7/19/2003 6:55:00 AM
Isopropylbenzene	U	1.0		µg/L	1	7/19/2003 6:55:00 AM
m,p-Xylene	U	2.0		µg/L	1	7/19/2003 6:55:00 AM
Methyl tert-butyl ether	U	1.0		µg/L	1	7/19/2003 6:55:00 AM
Methylene chloride	U	1.0		µg/L	1	7/19/2003 6:55:00 AM
Naphthalene	U	1.0		µg/L	1	7/19/2003 6:55:00 AM
n-Butyl acetate	U	1.0		µg/L	1	7/19/2003 6:55:00 AM
n-Butylbenzene	U	1.0		µg/L	1	7/19/2003 6:55:00 AM
n-Propyl acetate	U	1.0		µg/L	1	7/19/2003 6:55:00 AM
n-Propylbenzene	U	1.0		µg/L	1	7/19/2003 6:55:00 AM
o-Xylene	U	1.0		µg/L	1	7/19/2003 6:55:00 AM
p-Diethylbenzene	U	1.0		µg/L	1	7/19/2003 6:55:00 AM
p-Ethyltoluene	U	1.0		µg/L	1	7/19/2003 6:55:00 AM
sec-Butylbenzene	U	1.0		µg/L	1	7/19/2003 6:55:00 AM
Styrene	U	1.0		µg/L	1	7/19/2003 6:55:00 AM
t-Butyl alcohol	U	1.0		µg/L	1	7/19/2003 6:55:00 AM
tert-Butylbenzene	U	1.0		µg/L	1	7/19/2003 6:55:00 AM
Tetrachloroethene	U	1.0		µg/L	1	7/19/2003 6:55:00 AM
Toluene	U	1.0		µg/L	1	7/19/2003 6:55:00 AM
trans-1,2-Dichloroethene	U	1.0		µg/L	1	7/19/2003 6:55:00 AM
trans-1,3-Dichloropropene	U	1.0		µg/L	1	7/19/2003 6:55:00 AM
Trichloroethene	U	1.0		µg/L	1	7/19/2003 6:55:00 AM
Trichlorofluoromethane	U	1.0		µg/L	1	7/19/2003 6:55:00 AM

Qualifiers:

ND - Not Detected at the Reporting Limit

J - Analyte detected below quantitation limits

B - Analyte detected in the associated Method Blank

* - Value exceeds Maximum Contaminant Level

S - Spike Recovery outside accepted recovery limits

R - RPD outside accepted recovery limits

E - Value above quantitation range

American Analytical Laboratories, Inc.

Date: *28-Jul-03*

CLIENT:	AKRF, Inc	**Client Sample ID:**	FOUND WELL
Lab Order:	0307061	**Tag Number:**	
Project:	Greenpoint Lumber Yard Brooklyn, NY	**Collection Date:**	7/16/2003
Lab ID:	0307061-12A	**Matrix:**	LIQUID

Analyses	Result	Limit	Qual	Units	DF	Date Analyzed
VOLATILES SW-846 METHOD 8260		**SW8260B**				Analyst: **LDS**
Vinyl acetate	U	1.0		µg/L	1	7/19/2003 6:55:00 AM
Vinyl chloride	U	1.0		µg/L	1	7/19/2003 6:55:00 AM

Qualifiers:

ND - Not Detected at the Reporting Limit

J - Analyte detected below quantitation limits

B - Analyte detected in the associated Method Blank

* - Value exceeds Maximum Contaminant Level

S - Spike Recovery outside accepted recovery limits

R - RPD outside accepted recovery limits

E - Value above quantitation range

American Analytical Laboratories, Inc.

Date: *28-Jul-03*

CLIENT:	AKRF, Inc	**Client Sample ID:**	TRIP BLANK
Lab Order:	0307061	**Tag Number:**	
Project:	Greenpoint Lumber Yard Brooklyn, NY	**Collection Date:**	7/16/2003
Lab ID:	0307061-13A	**Matrix:**	LIQUID

Analyses	Result	Limit	Qual	Units	DF	Date Analyzed
VOLATILES SW-846 METHOD 8260		**SW8260B**				Analyst: **LDS**
1,1,1,2-Tetrachloroethane	U	1.0		µg/L	1	7/19/2003 7:33:00 AM
1,1,1-Trichloroethane	U	1.0		µg/L	1	7/19/2003 7:33:00 AM
1,1,2,2-Tetrachloroethane	U	1.0		µg/L	1	7/19/2003 7:33:00 AM
1,1,2-Trichloro-1,2,2-trifluoroethane	U	1.0		µg/L	1	7/19/2003 7:33:00 AM
1,1,2-Trichloroethane	U	1.0		µg/L	1	7/19/2003 7:33:00 AM
1,1-Dichloroethane	U	1.0		µg/L	1	7/19/2003 7:33:00 AM
1,1-Dichloroethene	U	1.0		µg/L	1	7/19/2003 7:33:00 AM
1,1-Dichloropropene	U	1.0		µg/L	1	7/19/2003 7:33:00 AM
1,2,3-Trichlorobenzene	U	1.0		µg/L	1	7/19/2003 7:33:00 AM
1,2,3-Trichloropropane	U	1.0		µg/L	1	7/19/2003 7:33:00 AM
1,2,4,5-Tetramethylbenzene	U	1.0		µg/L	1	7/19/2003 7:33:00 AM
1,2,4-Trichlorobenzene	U	1.0		µg/L	1	7/19/2003 7:33:00 AM
1,2,4-Trimethylbenzene	U	1.0		µg/L	1	7/19/2003 7:33:00 AM
1,2-Dibromo-3-chloropropane	U	1.0		µg/L	1	7/19/2003 7:33:00 AM
1,2-Dibromoethane	U	1.0		µg/L	1	7/19/2003 7:33:00 AM
1,2-Dichlorobenzene	U	1.0		µg/L	1	7/19/2003 7:33:00 AM
1,2-Dichloroethane	U	1.0		µg/L	1	7/19/2003 7:33:00 AM
1,2-Dichloropropane	U	1.0		µg/L	1	7/19/2003 7:33:00 AM
1,3,5-Trimethylbenzene	U	1.0		µg/L	1	7/19/2003 7:33:00 AM
1,3-Dichlorobenzene	U	1.0		µg/L	1	7/19/2003 7:33:00 AM
1,3-dichloropropane	U	1.0		µg/L	1	7/19/2003 7:33:00 AM
1,4-Dichlorobenzene	U	1.0		µg/L	1	7/19/2003 7:33:00 AM
2,2-Dichloropropane	U	1.0		µg/L	1	7/19/2003 7:33:00 AM
2-Butanone	U	1.0		µg/L	1	7/19/2003 7:33:00 AM
2-Chloroethyl vinyl ether	U	1.0		µg/L	1	7/19/2003 7:33:00 AM
2-Chlorotoluene	U	1.0		µg/L	1	7/19/2003 7:33:00 AM
2-Hexanone	U	1.0		µg/L	1	7/19/2003 7:33:00 AM
4-Chlorotoluene	U	1.0		µg/L	1	7/19/2003 7:33:00 AM
4-Isopropyltoluene	U	1.0		µg/L	1	7/19/2003 7:33:00 AM
4-Methyl-2-pentanone	U	1.0		µg/L	1	7/19/2003 7:33:00 AM
Acetone	U	1.0		µg/L	1	7/19/2003 7:33:00 AM
Acrolein	U	1.0		µg/L	1	7/19/2003 7:33:00 AM
Acrylonitrile	U	1.0		µg/L	1	7/19/2003 7:33:00 AM
Benzene	U	1.0		µg/L	1	7/19/2003 7:33:00 AM
Bromobenzene	U	1.0		µg/L	1	7/19/2003 7:33:00 AM
Bromochloromethane	U	1.0		µg/L	1	7/19/2003 7:33:00 AM
Bromodichloromethane	U	1.0		µg/L	1	7/19/2003 7:33:00 AM
Bromoform	U	1.0		µg/L	1	7/19/2003 7:33:00 AM
Bromomethane	U	1.0		µg/L	1	7/19/2003 7:33:00 AM
Carbon disulfide	U	1.0		µg/L	1	7/19/2003 7:33:00 AM

Qualifiers:

ND - Not Detected at the Reporting Limit

J - Analyte detected below quantitation limits

B - Analyte detected in the associated Method Blank

* - Value exceeds Maximum Contaminant Level

S - Spike Recovery outside accepted recovery limits

R - RPD outside accepted recovery limits

E - Value above quantitation range

American Analytical Laboratories, Inc.

Date: *28-Jul-03*

CLIENT:	AKRF, Inc	**Client Sample ID:**	TRIP BLANK
Lab Order:	0307061	**Tag Number:**	
Project:	Greenpoint Lumber Yard Brooklyn, NY	**Collection Date:**	7/16/2003
Lab ID:	0307061-13A	**Matrix:**	LIQUID

Analyses	Result	Limit	Qual	Units	DF	Date Analyzed
VOLATILES SW-846 METHOD 8260		**SW8260B**				Analyst: **LDS**
Carbon tetrachloride	U	1.0		µg/L	1	7/19/2003 7:33:00 AM
Chlorobenzene	U	1.0		µg/L	1	7/19/2003 7:33:00 AM
Chlorodifluoromethane	U	1.0		µg/L	1	7/19/2003 7:33:00 AM
Chloroethane	U	1.0		µg/L	1	7/19/2003 7:33:00 AM
Chloroform	U	1.0		µg/L	1	7/19/2003 7:33:00 AM
Chloromethane	U	1.0		µg/L	1	7/19/2003 7:33:00 AM
cis-1,2-Dichloroethene	U	1.0		µg/L	1	7/19/2003 7:33:00 AM
cis-1,3-Dichloropropene	U	1.0		µg/L	1	7/19/2003 7:33:00 AM
Dibromochloromethane	U	1.0		µg/L	1	7/19/2003 7:33:00 AM
Dibromomethane	U	1.0		µg/L	1	7/19/2003 7:33:00 AM
Dichlorodifluoromethane	U	1.0		µg/L	1	7/19/2003 7:33:00 AM
Diisopropyl ether	U	1.0		µg/L	1	7/19/2003 7:33:00 AM
Ethanol	U	1.0		µg/L	1	7/19/2003 7:33:00 AM
Ethyl acetate	U	1.0		µg/L	1	7/19/2003 7:33:00 AM
Ethylbenzene	U	1.0		µg/L	1	7/19/2003 7:33:00 AM
Freon-114	U	1.0		µg/L	1	7/19/2003 7:33:00 AM
Hexachlorobutadiene	U	1.0		µg/L	1	7/19/2003 7:33:00 AM
Isopropyl acetate	U	1.0		µg/L	1	7/19/2003 7:33:00 AM
Isopropylbenzene	U	1.0		µg/L	1	7/19/2003 7:33:00 AM
m,p-Xylene	U	2.0		µg/L	1	7/19/2003 7:33:00 AM
Methyl tert-butyl ether	U	1.0		µg/L	1	7/19/2003 7:33:00 AM
Methylene chloride	U	1.0		µg/L	1	7/19/2003 7:33:00 AM
Naphthalene	U	1.0		µg/L	1	7/19/2003 7:33:00 AM
n-Butyl acetate	U	1.0		µg/L	1	7/19/2003 7:33:00 AM
n-Butylbenzene	U	1.0		µg/L	1	7/19/2003 7:33:00 AM
n-Propyl acetate	U	1.0		µg/L	1	7/19/2003 7:33:00 AM
n-Propylbenzene	U	1.0		µg/L	1	7/19/2003 7:33:00 AM
o-Xylene	U	1.0		µg/L	1	7/19/2003 7:33:00 AM
p-Diethylbenzene	U	1.0		µg/L	1	7/19/2003 7:33:00 AM
p-Ethyltoluene	U	1.0		µg/L	1	7/19/2003 7:33:00 AM
sec-Butylbenzene	U	1.0		µg/L	1	7/19/2003 7:33:00 AM
Styrene	U	1.0		µg/L	1	7/19/2003 7:33:00 AM
t-Butyl alcohol	U	1.0		µg/L	1	7/19/2003 7:33:00 AM
tert-Butylbenzene	U	1.0		µg/L	1	7/19/2003 7:33:00 AM
Tetrachloroethene	U	1.0		µg/L	1	7/19/2003 7:33:00 AM
Toluene	U	1.0		µg/L	1	7/19/2003 7:33:00 AM
trans-1,2-Dichloroethene	U	1.0		µg/L	1	7/19/2003 7:33:00 AM
trans-1,3-Dichloropropene	U	1.0		µg/L	1	7/19/2003 7:33:00 AM
Trichloroethene	U	1.0		µg/L	1	7/19/2003 7:33:00 AM
Trichlorofluoromethane	U	1.0		µg/L	1	7/19/2003 7:33:00 AM

Qualifiers:

ND - Not Detected at the Reporting Limit

J - Analyte detected below quantitation limits

B - Analyte detected in the associated Method Blank

* - Value exceeds Maximum Contaminant Level

S - Spike Recovery outside accepted recovery limits

R - RPD outside accepted recovery limits

E - Value above quantitation range

American Analytical Laboratories, Inc.

Date: *28-Jul-03*

CLIENT:	AKRF, Inc	**Client Sample ID:**	TRIP BLANK
Lab Order:	0307061	**Tag Number:**	
Project:	Greenpoint Lumber Yard Brooklyn, NY	**Collection Date:**	7/16/2003
Lab ID:	0307061-13A	**Matrix:**	LIQUID

Analyses	Result	Limit	Qual	Units	DF	Date Analyzed
VOLATILES SW-846 METHOD 8260		**SW8260B**				Analyst: **LDS**
Vinyl acetate	U	1.0		µg/L	1	7/19/2003 7:33:00 AM
Vinyl chloride	U	1.0		µg/L	1	7/19/2003 7:33:00 AM

Qualifiers:

- ND - Not Detected at the Reporting Limit
- J - Analyte detected below quantitation limits
- B - Analyte detected in the associated Method Blank
- * - Value exceeds Maximum Contaminant Level
- S - Spike Recovery outside accepted recovery limits
- R - RPD outside accepted recovery limits
- E - Value above quantitation range

American Analytical Laboratories, Inc.

Date: *28-Jul-03*

CLIENT:	AKRF, Inc	**Client Sample ID:**	FIELD BLANK
Lab Order:	0307061	**Tag Number:**	
Project:	Greenpoint Lumber Yard Brooklyn, NY	**Collection Date:**	7/16/2003
Lab ID:	0307061-14A	**Matrix:**	LIQUID

Analyses	Result	Limit	Qual	Units	DF	Date Analyzed
VOLATILES SW-846 METHOD 8260		**SW8260B**				Analyst: **LDS**
1,1,1,2-Tetrachloroethane	U	1.0		µg/L	1	7/19/2003 8:11:00 AM
1,1,1-Trichloroethane	U	1.0		µg/L	1	7/19/2003 8:11:00 AM
1,1,2,2-Tetrachloroethane	U	1.0		µg/L	1	7/19/2003 8:11:00 AM
1,1,2-Trichloro-1,2,2-trifluoroethane	U	1.0		µg/L	1	7/19/2003 8:11:00 AM
1,1,2-Trichloroethane	U	1.0		µg/L	1	7/19/2003 8:11:00 AM
1,1-Dichloroethane	U	1.0		µg/L	1	7/19/2003 8:11:00 AM
1,1-Dichloroethene	U	1.0		µg/L	1	7/19/2003 8:11:00 AM
1,1-Dichloropropene	U	1.0		µg/L	1	7/19/2003 8:11:00 AM
1,2,3-Trichlorobenzene	U	1.0		µg/L	1	7/19/2003 8:11:00 AM
1,2,3-Trichloropropane	U	1.0		µg/L	1	7/19/2003 8:11:00 AM
1,2,4,5-Tetramethylbenzene	U	1.0		µg/L	1	7/19/2003 8:11:00 AM
1,2,4-Trichlorobenzene	U	1.0		µg/L	1	7/19/2003 8:11:00 AM
1,2,4-Trimethylbenzene	U	1.0		µg/L	1	7/19/2003 8:11:00 AM
1,2-Dibromo-3-chloropropane	U	1.0		µg/L	1	7/19/2003 8:11:00 AM
1,2-Dibromoethane	U	1.0		µg/L	1	7/19/2003 8:11:00 AM
1,2-Dichlorobenzene	U	1.0		µg/L	1	7/19/2003 8:11:00 AM
1,2-Dichloroethane	U	1.0		µg/L	1	7/19/2003 8:11:00 AM
1,2-Dichloropropane	U	1.0		µg/L	1	7/19/2003 8:11:00 AM
1,3,5-Trimethylbenzene	U	1.0		µg/L	1	7/19/2003 8:11:00 AM
1,3-Dichlorobenzene	U	1.0		µg/L	1	7/19/2003 8:11:00 AM
1,3-dichloropropane	U	1.0		µg/L	1	7/19/2003 8:11:00 AM
1,4-Dichlorobenzene	U	1.0		µg/L	1	7/19/2003 8:11:00 AM
2,2-Dichloropropane	U	1.0		µg/L	1	7/19/2003 8:11:00 AM
2-Butanone	U	1.0		µg/L	1	7/19/2003 8:11:00 AM
2-Chloroethyl vinyl ether	U	1.0		µg/L	1	7/19/2003 8:11:00 AM
2-Chlorotoluene	U	1.0		µg/L	1	7/19/2003 8:11:00 AM
2-Hexanone	U	1.0		µg/L	1	7/19/2003 8:11:00 AM
4-Chlorotoluene	U	1.0		µg/L	1	7/19/2003 8:11:00 AM
4-Isopropyltoluene	U	1.0		µg/L	1	7/19/2003 8:11:00 AM
4-Methyl-2-pentanone	U	1.0		µg/L	1	7/19/2003 8:11:00 AM
Acetone	U	1.0		µg/L	1	7/19/2003 8:11:00 AM
Acrolein	U	1.0		µg/L	1	7/19/2003 8:11:00 AM
Acrylonitrile	U	1.0		µg/L	1	7/19/2003 8:11:00 AM
Benzene	U	1.0		µg/L	1	7/19/2003 8:11:00 AM
Bromobenzene	U	1.0		µg/L	1	7/19/2003 8:11:00 AM
Bromochloromethane	U	1.0		µg/L	1	7/19/2003 8:11:00 AM
Bromodichloromethane	U	1.0		µg/L	1	7/19/2003 8:11:00 AM
Bromoform	U	1.0		µg/L	1	7/19/2003 8:11:00 AM
Bromomethane	U	1.0		µg/L	1	7/19/2003 8:11:00 AM
Carbon disulfide	U	1.0		µg/L	1	7/19/2003 8:11:00 AM

Qualifiers:

ND - Not Detected at the Reporting Limit

J - Analyte detected below quantitation limits

B - Analyte detected in the associated Method Blank

* - Value exceeds Maximum Contaminant Level

S - Spike Recovery outside accepted recovery limits

R - RPD outside accepted recovery limits

E - Value above quantitation range

American Analytical Laboratories, Inc.

Date: *28-Jul-03*

CLIENT:	AKRF, Inc	**Client Sample ID:**	FIELD BLANK
Lab Order:	0307061	**Tag Number:**	
Project:	Greenpoint Lumber Yard Brooklyn, NY	**Collection Date:**	7/16/2003
Lab ID:	0307061-14A	**Matrix:**	LIQUID

Analyses	Result	Limit	Qual	Units	DF	Date Analyzed
VOLATILES SW-846 METHOD 8260		**SW8260B**				Analyst: **LDS**
Carbon tetrachloride	U	1.0		µg/L	1	7/19/2003 8:11:00 AM
Chlorobenzene	U	1.0		µg/L	1	7/19/2003 8:11:00 AM
Chlorodifluoromethane	U	1.0		µg/L	1	7/19/2003 8:11:00 AM
Chloroethane	U	1.0		µg/L	1	7/19/2003 8:11:00 AM
Chloroform	U	1.0		µg/L	1	7/19/2003 8:11:00 AM
Chloromethane	U	1.0		µg/L	1	7/19/2003 8:11:00 AM
cis-1,2-Dichloroethene	U	1.0		µg/L	1	7/19/2003 8:11:00 AM
cis-1,3-Dichloropropene	U	1.0		µg/L	1	7/19/2003 8:11:00 AM
Dibromochloromethane	U	1.0		µg/L	1	7/19/2003 8:11:00 AM
Dibromomethane	U	1.0		µg/L	1	7/19/2003 8:11:00 AM
Dichlorodifluoromethane	U	1.0		µg/L	1	7/19/2003 8:11:00 AM
Diisopropyl ether	U	1.0		µg/L	1	7/19/2003 8:11:00 AM
Ethanol	U	1.0		µg/L	1	7/19/2003 8:11:00 AM
Ethyl acetate	U	1.0		µg/L	1	7/19/2003 8:11:00 AM
Ethylbenzene	U	1.0		µg/L	1	7/19/2003 8:11:00 AM
Freon-114	U	1.0		µg/L	1	7/19/2003 8:11:00 AM
Hexachlorobutadiene	U	1.0		µg/L	1	7/19/2003 8:11:00 AM
Isopropyl acetate	U	1.0		µg/L	1	7/19/2003 8:11:00 AM
Isopropylbenzene	U	1.0		µg/L	1	7/19/2003 8:11:00 AM
m,p-Xylene	U	2.0		µg/L	1	7/19/2003 8:11:00 AM
Methyl tert-butyl ether	U	1.0		µg/L	1	7/19/2003 8:11:00 AM
Methylene chloride	U	1.0		µg/L	1	7/19/2003 8:11:00 AM
Naphthalene	U	1.0		µg/L	1	7/19/2003 8:11:00 AM
n-Butyl acetate	U	1.0		µg/L	1	7/19/2003 8:11:00 AM
n-Butylbenzene	U	1.0		µg/L	1	7/19/2003 8:11:00 AM
n-Propyl acetate	U	1.0		µg/L	1	7/19/2003 8:11:00 AM
n-Propylbenzene	U	1.0		µg/L	1	7/19/2003 8:11:00 AM
o-Xylene	U	1.0		µg/L	1	7/19/2003 8:11:00 AM
p-Diethylbenzene	U	1.0		µg/L	1	7/19/2003 8:11:00 AM
p-Ethyltoluene	U	1.0		µg/L	1	7/19/2003 8:11:00 AM
sec-Butylbenzene	U	1.0		µg/L	1	7/19/2003 8:11:00 AM
Styrene	U	1.0		µg/L	1	7/19/2003 8:11:00 AM
t-Butyl alcohol	U	1.0		µg/L	1	7/19/2003 8:11:00 AM
tert-Butylbenzene	U	1.0		µg/L	1	7/19/2003 8:11:00 AM
Tetrachloroethene	U	1.0		µg/L	1	7/19/2003 8:11:00 AM
Toluene	U	1.0		µg/L	1	7/19/2003 8:11:00 AM
trans-1,2-Dichloroethene	U	1.0		µg/L	1	7/19/2003 8:11:00 AM
trans-1,3-Dichloropropene	U	1.0		µg/L	1	7/19/2003 8:11:00 AM
Trichloroethene	U	1.0		µg/L	1	7/19/2003 8:11:00 AM
Trichlorofluoromethane	U	1.0		µg/L	1	7/19/2003 8:11:00 AM

Qualifiers:

ND - Not Detected at the Reporting Limit

J - Analyte detected below quantitation limits

B - Analyte detected in the associated Method Blank

* - Value exceeds Maximum Contaminant Level

S - Spike Recovery outside accepted recovery limits

R - RPD outside accepted recovery limits

E - Value above quantitation range

American Analytical Laboratories, Inc.

Date: *28-Jul-03*

CLIENT:	AKRF, Inc	**Client Sample ID:**	FIELD BLANK
Lab Order:	0307061	**Tag Number:**	
Project:	Greenpoint Lumber Yard Brooklyn, NY	**Collection Date:**	7/16/2003
Lab ID:	0307061-14A	**Matrix:**	LIQUID

Analyses	Result	Limit	Qual	Units	DF	Date Analyzed
VOLATILES SW-846 METHOD 8260		**SW8260B**				Analyst: **LDS**
Vinyl acetate	U	1.0		µg/L	1	7/19/2003 8:11:00 AM
Vinyl chloride	U	1.0		µg/L	1	7/19/2003 8:11:00 AM

Qualifiers:

ND - Not Detected at the Reporting Limit

J - Analyte detected below quantitation limits

B - Analyte detected in the associated Method Blank

* - Value exceeds Maximum Contaminant Level

S - Spike Recovery outside accepted recovery limits

R - RPD outside accepted recovery limits

E - Value above quantitation range

GC/MS SEMIVOLATILE DATA

RESULTS – ORGANIC ANALYSIS DATA SHEET

American Analytical Laboratories, Inc.

Date: *28-Jul-03*

CLIENT:	AKRF, Inc	**Client Sample ID:**	MW6
Lab Order:	0307061	**Tag Number:**	
Project:	Greenpoint Lumber Yard Brooklyn, NY	**Collection Date:**	7/16/2003
Lab ID:	0307061-01B	**Matrix:**	LIQUID

Analyses	Result	Limit	Qual	Units	DF	Date Analyzed
SEMIVOLATILES SW-846 8270		**SW8270D**		**(SW3510)**		Analyst: **RN**
1,2,4-Trichlorobenzene	U	5.0		µg/L	1	7/17/2003 11:52:00 PM
1,2-Dichlorobenzene	U	5.0		µg/L	1	7/17/2003 11:52:00 PM
1,3-Dichlorobenzene	U	5.0		µg/L	1	7/17/2003 11:52:00 PM
1,4-Dichlorobenzene	U	5.0		µg/L	1	7/17/2003 11:52:00 PM
2,4,5-Trichlorophenol	U	5.0		µg/L	1	7/17/2003 11:52:00 PM
2,4,6-Trichlorophenol	U	5.0		µg/L	1	7/17/2003 11:52:00 PM
2,4-Dichlorophenol	U	5.0		µg/L	1	7/17/2003 11:52:00 PM
2,4-Dimethylphenol	U	5.0		µg/L	1	7/17/2003 11:52:00 PM
2,4-Dinitrophenol	U	5.0		µg/L	1	7/17/2003 11:52:00 PM
2,4-Dinitrotoluene	U	5.0		µg/L	1	7/17/2003 11:52:00 PM
2,6-Dinitrotoluene	U	5.0		µg/L	1	7/17/2003 11:52:00 PM
2-Chloronaphthalene	U	5.0		µg/L	1	7/17/2003 11:52:00 PM
2-Chlorophenol	U	5.0		µg/L	1	7/17/2003 11:52:00 PM
2-Methylnaphthalene	U	5.0		µg/L	1	7/17/2003 11:52:00 PM
2-Methylphenol	U	5.0		µg/L	1	7/17/2003 11:52:00 PM
2-Nitroaniline	U	5.0		µg/L	1	7/17/2003 11:52:00 PM
2-Nitrophenol	U	5.0		µg/L	1	7/17/2003 11:52:00 PM
3,3´-Dichlorobenzidine	U	5.0		µg/L	1	7/17/2003 11:52:00 PM
3+4-Methylphenol	U	5.0		µg/L	1	7/17/2003 11:52:00 PM
3-Nitroaniline	U	5.0		µg/L	1	7/17/2003 11:52:00 PM
4,6-Dinitro-2-methylphenol	U	5.0		µg/L	1	7/17/2003 11:52:00 PM
4-Bromophenyl phenyl ether	U	5.0		µg/L	1	7/17/2003 11:52:00 PM
4-Chloro-3-methylphenol	U	5.0		µg/L	1	7/17/2003 11:52:00 PM
4-Chloroaniline	U	5.0		µg/L	1	7/17/2003 11:52:00 PM
4-Chlorophenyl phenyl ether	U	5.0		µg/L	1	7/17/2003 11:52:00 PM
4-Nitroaniline	U	5.0		µg/L	1	7/17/2003 11:52:00 PM
4-Nitrophenol	U	5.0		µg/L	1	7/17/2003 11:52:00 PM
Acenaphthene	U	5.0		µg/L	1	7/17/2003 11:52:00 PM
Acenaphthylene	U	5.0		µg/L	1	7/17/2003 11:52:00 PM
Aniline	U	5.0		µg/L	1	7/17/2003 11:52:00 PM
Anthracene	U	5.0		µg/L	1	7/17/2003 11:52:00 PM
Azobenzene	U	5.0		µg/L	1	7/17/2003 11:52:00 PM
Benzidine	U	5.0		µg/L	1	7/17/2003 11:52:00 PM
Benzo(a)anthracene	U	5.0		µg/L	1	7/17/2003 11:52:00 PM
Benzo(a)pyrene	U	5.0		µg/L	1	7/17/2003 11:52:00 PM
Benzo(b)fluoranthene	U	5.0		µg/L	1	7/17/2003 11:52:00 PM
Benzo(g,h,i)perylene	U	5.0		µg/L	1	7/17/2003 11:52:00 PM
Benzo(k)fluoranthene	U	5.0		µg/L	1	7/17/2003 11:52:00 PM
Benzoic acid	U	5.0		µg/L	1	7/17/2003 11:52:00 PM
Benzyl alcohol	U	5.0		µg/L	1	7/17/2003 11:52:00 PM

Qualifiers:

ND - Not Detected at the Reporting Limit

J - Analyte detected below quantitation limits

B - Analyte detected in the associated Method Blank

* - Value exceeds Maximum Contaminant Level

S - Spike Recovery outside accepted recovery limits

R - RPD outside accepted recovery limits

E - Value above quantitation range

American Analytical Laboratories, Inc.

Date: *28-Jul-03*

CLIENT:	AKRF, Inc	**Client Sample ID:**	MW6
Lab Order:	0307061	**Tag Number:**	
Project:	Greenpoint Lumber Yard Brooklyn, NY	**Collection Date:**	7/16/2003
Lab ID:	0307061-01B	**Matrix:**	LIQUID

Analyses	Result	Limit	Qual	Units	DF	Date Analyzed
SEMIVOLATILES SW-846 8270		**SW8270D**		**(SW3510)**		Analyst: **RN**
Bis(2-chloroethoxy)methane	U	5.0		µg/L	1	7/17/2003 11:52:00 PM
Bis(2-chloroethyl)ether	U	5.0		µg/L	1	7/17/2003 11:52:00 PM
Bis(2-chloroisopropyl)ether	U	5.0		µg/L	1	7/17/2003 11:52:00 PM
Bis(2-ethylhexyl)phthalate	U	5.0		µg/L	1	7/17/2003 11:52:00 PM
Butyl benzyl phthalate	U	5.0		µg/L	1	7/17/2003 11:52:00 PM
Carbazole	U	5.0		µg/L	1	7/17/2003 11:52:00 PM
Chrysene	U	5.0		µg/L	1	7/17/2003 11:52:00 PM
Dibenzo(a,h)anthracene	U	5.0		µg/L	1	7/17/2003 11:52:00 PM
Dibenzofuran	U	5.0		µg/L	1	7/17/2003 11:52:00 PM
Diethyl phthalate	U	5.0		µg/L	1	7/17/2003 11:52:00 PM
Dimethyl phthalate	U	5.0		µg/L	1	7/17/2003 11:52:00 PM
Di-n-butyl phthalate	U	5.0		µg/L	1	7/17/2003 11:52:00 PM
Di-n-octyl phthalate	U	5.0		µg/L	1	7/17/2003 11:52:00 PM
Fluoranthene	U	5.0		µg/L	1	7/17/2003 11:52:00 PM
Fluorene	U	5.0		µg/L	1	7/17/2003 11:52:00 PM
Hexachlorobenzene	U	5.0		µg/L	1	7/17/2003 11:52:00 PM
Hexachlorobutadiene	U	5.0		µg/L	1	7/17/2003 11:52:00 PM
Hexachlorocyclopentadiene	U	5.0		µg/L	1	7/17/2003 11:52:00 PM
Hexachloroethane	U	5.0		µg/L	1	7/17/2003 11:52:00 PM
Indeno(1,2,3-c,d)pyrene	U	5.0		µg/L	1	7/17/2003 11:52:00 PM
Isophorone	U	5.0		µg/L	1	7/17/2003 11:52:00 PM
Naphthalene	U	5.0		µg/L	1	7/17/2003 11:52:00 PM
Nitrobenzene	U	5.0		µg/L	1	7/17/2003 11:52:00 PM
N-Nitrosodimethylamine	U	5.0		µg/L	1	7/17/2003 11:52:00 PM
N-Nitrosodi-n-propylamine	U	5.0		µg/L	1	7/17/2003 11:52:00 PM
N-Nitrosodiphenylamine	U	5.0		µg/L	1	7/17/2003 11:52:00 PM
Pentachlorophenol	U	5.0		µg/L	1	7/17/2003 11:52:00 PM
Phenanthrene	U	5.0		µg/L	1	7/17/2003 11:52:00 PM
Phenol	U	5.0		µg/L	1	7/17/2003 11:52:00 PM
Pyrene	U	5.0		µg/L	1	7/17/2003 11:52:00 PM
Pyridine	U	5.0		µg/L	1	7/17/2003 11:52:00 PM

Qualifiers:

ND - Not Detected at the Reporting Limit

J - Analyte detected below quantitation limits

B - Analyte detected in the associated Method Blank

* - Value exceeds Maximum Contaminant Level

S - Spike Recovery outside accepted recovery limits

R - RPD outside accepted recovery limits

E - Value above quantitation range

American Analytical Laboratories, Inc.

Date: *28-Jul-03*

CLIENT:	AKRF, Inc	**Client Sample ID:**	MW7
Lab Order:	0307061	**Tag Number:**	
Project:	Greenpoint Lumber Yard Brooklyn, NY	**Collection Date:**	7/16/2003
Lab ID:	0307061-02B	**Matrix:**	LIQUID

Analyses	Result	Limit	Qual	Units	DF	Date Analyzed
SEMIVOLATILES SW-846 8270		**SW8270D**		**(SW3510)**		Analyst: **RN**
1,2,4-Trichlorobenzene	U	5.0		µg/L	1	7/18/2003 2:41:00 PM
1,2-Dichlorobenzene	U	5.0		µg/L	1	7/18/2003 2:41:00 PM
1,3-Dichlorobenzene	U	5.0		µg/L	1	7/18/2003 2:41:00 PM
1,4-Dichlorobenzene	U	5.0		µg/L	1	7/18/2003 2:41:00 PM
2,4,5-Trichlorophenol	U	5.0		µg/L	1	7/18/2003 2:41:00 PM
2,4,6-Trichlorophenol	U	5.0		µg/L	1	7/18/2003 2:41:00 PM
2,4-Dichlorophenol	U	5.0		µg/L	1	7/18/2003 2:41:00 PM
2,4-Dimethylphenol	U	5.0		µg/L	1	7/18/2003 2:41:00 PM
2,4-Dinitrophenol	U	5.0		µg/L	1	7/18/2003 2:41:00 PM
2,4-Dinitrotoluene	U	5.0		µg/L	1	7/18/2003 2:41:00 PM
2,6-Dinitrotoluene	U	5.0		µg/L	1	7/18/2003 2:41:00 PM
2-Chloronaphthalene	U	5.0		µg/L	1	7/18/2003 2:41:00 PM
2-Chlorophenol	U	5.0		µg/L	1	7/18/2003 2:41:00 PM
2-Methylnaphthalene	U	5.0		µg/L	1	7/18/2003 2:41:00 PM
2-Methylphenol	U	5.0		µg/L	1	7/18/2003 2:41:00 PM
2-Nitroaniline	U	5.0		µg/L	1	7/18/2003 2:41:00 PM
2-Nitrophenol	U	5.0		µg/L	1	7/18/2003 2:41:00 PM
3,3´-Dichlorobenzidine	U	5.0		µg/L	1	7/18/2003 2:41:00 PM
3+4-Methylphenol	6.1	5.0		µg/L	1	7/18/2003 2:41:00 PM
3-Nitroaniline	U	5.0		µg/L	1	7/18/2003 2:41:00 PM
4,6-Dinitro-2-methylphenol	U	5.0		µg/L	1	7/18/2003 2:41:00 PM
4-Bromophenyl phenyl ether	U	5.0		µg/L	1	7/18/2003 2:41:00 PM
4-Chloro-3-methylphenol	U	5.0		µg/L	1	7/18/2003 2:41:00 PM
4-Chloroaniline	U	5.0		µg/L	1	7/18/2003 2:41:00 PM
4-Chlorophenyl phenyl ether	U	5.0		µg/L	1	7/18/2003 2:41:00 PM
4-Nitroaniline	U	5.0		µg/L	1	7/18/2003 2:41:00 PM
4-Nitrophenol	U	5.0		µg/L	1	7/18/2003 2:41:00 PM
Acenaphthene	U	5.0		µg/L	1	7/18/2003 2:41:00 PM
Acenaphthylene	U	5.0		µg/L	1	7/18/2003 2:41:00 PM
Aniline	U	5.0		µg/L	1	7/18/2003 2:41:00 PM
Anthracene	U	5.0		µg/L	1	7/18/2003 2:41:00 PM
Azobenzene	U	5.0		µg/L	1	7/18/2003 2:41:00 PM
Benzidine	U	5.0		µg/L	1	7/18/2003 2:41:00 PM
Benzo(a)anthracene	U	5.0		µg/L	1	7/18/2003 2:41:00 PM
Benzo(a)pyrene	U	5.0		µg/L	1	7/18/2003 2:41:00 PM
Benzo(b)fluoranthene	U	5.0		µg/L	1	7/18/2003 2:41:00 PM
Benzo(g,h,i)perylene	U	5.0		µg/L	1	7/18/2003 2:41:00 PM
Benzo(k)fluoranthene	U	5.0		µg/L	1	7/18/2003 2:41:00 PM
Benzoic acid	29	5.0		µg/L	1	7/18/2003 2:41:00 PM
Benzyl alcohol	U	5.0		µg/L	1	7/18/2003 2:41:00 PM

Qualifiers:

ND - Not Detected at the Reporting Limit

J - Analyte detected below quantitation limits

B - Analyte detected in the associated Method Blank

* - Value exceeds Maximum Contaminant Level

S - Spike Recovery outside accepted recovery limits

R - RPD outside accepted recovery limits

E - Value above quantitation range

American Analytical Laboratories, Inc.

Date: *28-Jul-03*

CLIENT:	AKRF, Inc	**Client Sample ID:**	MW7
Lab Order:	0307061	**Tag Number:**	
Project:	Greenpoint Lumber Yard Brooklyn, NY	**Collection Date:**	7/16/2003
Lab ID:	0307061-02B	**Matrix:**	LIQUID

Analyses	Result	Limit	Qual	Units	DF	Date Analyzed
SEMIVOLATILES SW-846 8270		**SW8270D**		**(SW3510)**		Analyst: **RN**
Bis(2-chloroethoxy)methane	U	5.0		µg/L	1	7/18/2003 2:41:00 PM
Bis(2-chloroethyl)ether	U	5.0		µg/L	1	7/18/2003 2:41:00 PM
Bis(2-chloroisopropyl)ether	U	5.0		µg/L	1	7/18/2003 2:41:00 PM
Bis(2-ethylhexyl)phthalate	U	5.0		µg/L	1	7/18/2003 2:41:00 PM
Butyl benzyl phthalate	U	5.0		µg/L	1	7/18/2003 2:41:00 PM
Carbazole	U	5.0		µg/L	1	7/18/2003 2:41:00 PM
Chrysene	U	5.0		µg/L	1	7/18/2003 2:41:00 PM
Dibenzo(a,h)anthracene	U	5.0		µg/L	1	7/18/2003 2:41:00 PM
Dibenzofuran	U	5.0		µg/L	1	7/18/2003 2:41:00 PM
Diethyl phthalate	U	5.0		µg/L	1	7/18/2003 2:41:00 PM
Dimethyl phthalate	U	5.0		µg/L	1	7/18/2003 2:41:00 PM
Di-n-butyl phthalate	U	5.0		µg/L	1	7/18/2003 2:41:00 PM
Di-n-octyl phthalate	U	5.0		µg/L	1	7/18/2003 2:41:00 PM
Fluoranthene	U	5.0		µg/L	1	7/18/2003 2:41:00 PM
Fluorene	U	5.0		µg/L	1	7/18/2003 2:41:00 PM
Hexachlorobenzene	U	5.0		µg/L	1	7/18/2003 2:41:00 PM
Hexachlorobutadiene	U	5.0		µg/L	1	7/18/2003 2:41:00 PM
Hexachlorocyclopentadiene	U	5.0		µg/L	1	7/18/2003 2:41:00 PM
Hexachloroethane	U	5.0		µg/L	1	7/18/2003 2:41:00 PM
Indeno(1,2,3-c,d)pyrene	U	5.0		µg/L	1	7/18/2003 2:41:00 PM
Isophorone	U	5.0		µg/L	1	7/18/2003 2:41:00 PM
Naphthalene	U	5.0		µg/L	1	7/18/2003 2:41:00 PM
Nitrobenzene	U	5.0		µg/L	1	7/18/2003 2:41:00 PM
N-Nitrosodimethylamine	U	5.0		µg/L	1	7/18/2003 2:41:00 PM
N-Nitrosodi-n-propylamine	U	5.0		µg/L	1	7/18/2003 2:41:00 PM
N-Nitrosodiphenylamine	U	5.0		µg/L	1	7/18/2003 2:41:00 PM
Pentachlorophenol	U	5.0		µg/L	1	7/18/2003 2:41:00 PM
Phenanthrene	7.1	5.0		µg/L	1	7/18/2003 2:41:00 PM
Phenol	7.4	5.0		µg/L	1	7/18/2003 2:41:00 PM
Pyrene	U	5.0		µg/L	1	7/18/2003 2:41:00 PM
Pyridine	U	5.0		µg/L	1	7/18/2003 2:41:00 PM

Qualifiers:

ND - Not Detected at the Reporting Limit

J - Analyte detected below quantitation limits

B - Analyte detected in the associated Method Blank

* - Value exceeds Maximum Contaminant Level

S - Spike Recovery outside accepted recovery limits

R - RPD outside accepted recovery limits

E - Value above quantitation range

American Analytical Laboratories, Inc.

Date: *28-Jul-03*

CLIENT:	AKRF, Inc	**Client Sample ID:**	MW8
Lab Order:	0307061	**Tag Number:**	
Project:	Greenpoint Lumber Yard Brooklyn, NY	**Collection Date:**	7/16/2003
Lab ID:	0307061-03B	**Matrix:**	LIQUID

Analyses	Result	Limit	Qual	Units	DF	Date Analyzed
SEMIVOLATILES SW-846 8270		**SW8270D**		**(SW3510)**		Analyst: **RN**
1,2,4-Trichlorobenzene	U	5.0		µg/L	1	7/18/2003 3:19:00 PM
1,2-Dichlorobenzene	U	5.0		µg/L	1	7/18/2003 3:19:00 PM
1,3-Dichlorobenzene	U	5.0		µg/L	1	7/18/2003 3:19:00 PM
1,4-Dichlorobenzene	U	5.0		µg/L	1	7/18/2003 3:19:00 PM
2,4,5-Trichlorophenol	U	5.0		µg/L	1	7/18/2003 3:19:00 PM
2,4,6-Trichlorophenol	U	5.0		µg/L	1	7/18/2003 3:19:00 PM
2,4-Dichlorophenol	U	5.0		µg/L	1	7/18/2003 3:19:00 PM
2,4-Dimethylphenol	U	5.0		µg/L	1	7/18/2003 3:19:00 PM
2,4-Dinitrophenol	U	5.0		µg/L	1	7/18/2003 3:19:00 PM
2,4-Dinitrotoluene	U	5.0		µg/L	1	7/18/2003 3:19:00 PM
2,6-Dinitrotoluene	U	5.0		µg/L	1	7/18/2003 3:19:00 PM
2-Chloronaphthalene	U	5.0		µg/L	1	7/18/2003 3:19:00 PM
2-Chlorophenol	U	5.0		µg/L	1	7/18/2003 3:19:00 PM
2-Methylnaphthalene	U	5.0		µg/L	1	7/18/2003 3:19:00 PM
2-Methylphenol	U	5.0		µg/L	1	7/18/2003 3:19:00 PM
2-Nitroaniline	U	5.0		µg/L	1	7/18/2003 3:19:00 PM
2-Nitrophenol	U	5.0		µg/L	1	7/18/2003 3:19:00 PM
3,3'-Dichlorobenzidine	U	5.0		µg/L	1	7/18/2003 3:19:00 PM
3+4-Methylphenol	U	5.0		µg/L	1	7/18/2003 3:19:00 PM
3-Nitroaniline	U	5.0		µg/L	1	7/18/2003 3:19:00 PM
4,6-Dinitro-2-methylphenol	U	5.0		µg/L	1	7/18/2003 3:19:00 PM
4-Bromophenyl phenyl ether	U	5.0		µg/L	1	7/18/2003 3:19:00 PM
4-Chloro-3-methylphenol	U	5.0		µg/L	1	7/18/2003 3:19:00 PM
4-Chloroaniline	U	5.0		µg/L	1	7/18/2003 3:19:00 PM
4-Chlorophenyl phenyl ether	U	5.0		µg/L	1	7/18/2003 3:19:00 PM
4-Nitroaniline	U	5.0		µg/L	1	7/18/2003 3:19:00 PM
4-Nitrophenol	U	5.0		µg/L	1	7/18/2003 3:19:00 PM
Acenaphthene	U	5.0		µg/L	1	7/18/2003 3:19:00 PM
Acenaphthylene	U	5.0		µg/L	1	7/18/2003 3:19:00 PM
Aniline	U	5.0		µg/L	1	7/18/2003 3:19:00 PM
Anthracene	U	5.0		µg/L	1	7/18/2003 3:19:00 PM
Azobenzene	U	5.0		µg/L	1	7/18/2003 3:19:00 PM
Benzidine	U	5.0		µg/L	1	7/18/2003 3:19:00 PM
Benzo(a)anthracene	U	5.0		µg/L	1	7/18/2003 3:19:00 PM
Benzo(a)pyrene	U	5.0		µg/L	1	7/18/2003 3:19:00 PM
Benzo(b)fluoranthene	U	5.0		µg/L	1	7/18/2003 3:19:00 PM
Benzo(g,h,i)perylene	U	5.0		µg/L	1	7/18/2003 3:19:00 PM
Benzo(k)fluoranthene	U	5.0		µg/L	1	7/18/2003 3:19:00 PM
Benzoic acid	U	5.0		µg/L	1	7/18/2003 3:19:00 PM
Benzyl alcohol	U	5.0		µg/L	1	7/18/2003 3:19:00 PM

Qualifiers:

ND - Not Detected at the Reporting Limit

J - Analyte detected below quantitation limits

B - Analyte detected in the associated Method Blank

* - Value exceeds Maximum Contaminant Level

S - Spike Recovery outside accepted recovery limits

R - RPD outside accepted recovery limits

E - Value above quantitation range

American Analytical Laboratories, Inc.

Date: *28-Jul-03*

CLIENT:	AKRF, Inc	**Client Sample ID:**	MW8
Lab Order:	0307061	**Tag Number:**	
Project:	Greenpoint Lumber Yard Brooklyn, NY	**Collection Date:**	7/16/2003
Lab ID:	0307061-03B	**Matrix:**	LIQUID

Analyses	Result	Limit	Qual	Units	DF	Date Analyzed
SEMIVOLATILES SW-846 8270		**SW8270D**		**(SW3510)**		Analyst: **RN**
Bis(2-chloroethoxy)methane	U	5.0		µg/L	1	7/18/2003 3:19:00 PM
Bis(2-chloroethyl)ether	U	5.0		µg/L	1	7/18/2003 3:19:00 PM
Bis(2-chloroisopropyl)ether	U	5.0		µg/L	1	7/18/2003 3:19:00 PM
Bis(2-ethylhexyl)phthalate	U	5.0		µg/L	1	7/18/2003 3:19:00 PM
Butyl benzyl phthalate	U	5.0		µg/L	1	7/18/2003 3:19:00 PM
Carbazole	U	5.0		µg/L	1	7/18/2003 3:19:00 PM
Chrysene	U	5.0		µg/L	1	7/18/2003 3:19:00 PM
Dibenzo(a,h)anthracene	U	5.0		µg/L	1	7/18/2003 3:19:00 PM
Dibenzofuran	U	5.0		µg/L	1	7/18/2003 3:19:00 PM
Diethyl phthalate	U	5.0		µg/L	1	7/18/2003 3:19:00 PM
Dimethyl phthalate	U	5.0		µg/L	1	7/18/2003 3:19:00 PM
Di-n-butyl phthalate	U	5.0		µg/L	1	7/18/2003 3:19:00 PM
Di-n-octyl phthalate	U	5.0		µg/L	1	7/18/2003 3:19:00 PM
Fluoranthene	U	5.0		µg/L	1	7/18/2003 3:19:00 PM
Fluorene	U	5.0		µg/L	1	7/18/2003 3:19:00 PM
Hexachlorobenzene	U	5.0		µg/L	1	7/18/2003 3:19:00 PM
Hexachlorobutadiene	U	5.0		µg/L	1	7/18/2003 3:19:00 PM
Hexachlorocyclopentadiene	U	5.0		µg/L	1	7/18/2003 3:19:00 PM
Hexachloroethane	U	5.0		µg/L	1	7/18/2003 3:19:00 PM
Indeno(1,2,3-c,d)pyrene	U	5.0		µg/L	1	7/18/2003 3:19:00 PM
Isophorone	U	5.0		µg/L	1	7/18/2003 3:19:00 PM
Naphthalene	U	5.0		µg/L	1	7/18/2003 3:19:00 PM
Nitrobenzene	U	5.0		µg/L	1	7/18/2003 3:19:00 PM
N-Nitrosodimethylamine	U	5.0		µg/L	1	7/18/2003 3:19:00 PM
N-Nitrosodi-n-propylamine	U	5.0		µg/L	1	7/18/2003 3:19:00 PM
N-Nitrosodiphenylamine	U	5.0		µg/L	1	7/18/2003 3:19:00 PM
Pentachlorophenol	U	5.0		µg/L	1	7/18/2003 3:19:00 PM
Phenanthrene	U	5.0		µg/L	1	7/18/2003 3:19:00 PM
Phenol	U	5.0		µg/L	1	7/18/2003 3:19:00 PM
Pyrene	U	5.0		µg/L	1	7/18/2003 3:19:00 PM
Pyridine	U	5.0		µg/L	1	7/18/2003 3:19:00 PM

Qualifiers:

ND - Not Detected at the Reporting Limit

J - Analyte detected below quantitation limits

B - Analyte detected in the associated Method Blank

* - Value exceeds Maximum Contaminant Level

S - Spike Recovery outside accepted recovery limits

R - RPD outside accepted recovery limits

E - Value above quantitation range

American Analytical Laboratories, Inc.

Date: *28-Jul-03*

CLIENT:	AKRF, Inc	**Client Sample ID:**	MW9
Lab Order:	0307061	**Tag Number:**	
Project:	Greenpoint Lumber Yard Brooklyn, NY	**Collection Date:**	7/16/2003
Lab ID:	0307061-04B	**Matrix:**	LIQUID

Analyses	Result	Limit	Qual	Units	DF	Date Analyzed
SEMIVOLATILES SW-846 8270		**SW8270D**		**(SW3510)**		Analyst: **RN**
1,2,4-Trichlorobenzene	U	5.0		µg/L	1	7/18/2003 3:58:00 PM
1,2-Dichlorobenzene	U	5.0		µg/L	1	7/18/2003 3:58:00 PM
1,3-Dichlorobenzene	U	5.0		µg/L	1	7/18/2003 3:58:00 PM
1,4-Dichlorobenzene	U	5.0		µg/L	1	7/18/2003 3:58:00 PM
2,4,5-Trichlorophenol	U	5.0		µg/L	1	7/18/2003 3:58:00 PM
2,4,6-Trichlorophenol	U	5.0		µg/L	1	7/18/2003 3:58:00 PM
2,4-Dichlorophenol	U	5.0		µg/L	1	7/18/2003 3:58:00 PM
2,4-Dimethylphenol	U	5.0		µg/L	1	7/18/2003 3:58:00 PM
2,4-Dinitrophenol	U	5.0		µg/L	1	7/18/2003 3:58:00 PM
2,4-Dinitrotoluene	U	5.0		µg/L	1	7/18/2003 3:58:00 PM
2,6-Dinitrotoluene	U	5.0		µg/L	1	7/18/2003 3:58:00 PM
2-Chloronaphthalene	U	5.0		µg/L	1	7/18/2003 3:58:00 PM
2-Chlorophenol	U	5.0		µg/L	1	7/18/2003 3:58:00 PM
2-Methylnaphthalene	U	5.0		µg/L	1	7/18/2003 3:58:00 PM
2-Methylphenol	U	5.0		µg/L	1	7/18/2003 3:58:00 PM
2-Nitroaniline	U	5.0		µg/L	1	7/18/2003 3:58:00 PM
2-Nitrophenol	U	5.0		µg/L	1	7/18/2003 3:58:00 PM
3,3'-Dichlorobenzidine	U	5.0		µg/L	1	7/18/2003 3:58:00 PM
3+4-Methylphenol	U	5.0		µg/L	1	7/18/2003 3:58:00 PM
3-Nitroaniline	U	5.0		µg/L	1	7/18/2003 3:58:00 PM
4,6-Dinitro-2-methylphenol	U	5.0		µg/L	1	7/18/2003 3:58:00 PM
4-Bromophenyl phenyl ether	U	5.0		µg/L	1	7/18/2003 3:58:00 PM
4-Chloro-3-methylphenol	U	5.0		µg/L	1	7/18/2003 3:58:00 PM
4-Chloroaniline	U	5.0		µg/L	1	7/18/2003 3:58:00 PM
4-Chlorophenyl phenyl ether	U	5.0		µg/L	1	7/18/2003 3:58:00 PM
4-Nitroaniline	U	5.0		µg/L	1	7/18/2003 3:58:00 PM
4-Nitrophenol	U	5.0		µg/L	1	7/18/2003 3:58:00 PM
Acenaphthene	U	5.0		µg/L	1	7/18/2003 3:58:00 PM
Acenaphthylene	U	5.0		µg/L	1	7/18/2003 3:58:00 PM
Aniline	U	5.0		µg/L	1	7/18/2003 3:58:00 PM
Anthracene	U	5.0		µg/L	1	7/18/2003 3:58:00 PM
Azobenzene	U	5.0		µg/L	1	7/18/2003 3:58:00 PM
Benzidine	U	5.0		µg/L	1	7/18/2003 3:58:00 PM
Benzo(a)anthracene	U	5.0		µg/L	1	7/18/2003 3:58:00 PM
Benzo(a)pyrene	U	5.0		µg/L	1	7/18/2003 3:58:00 PM
Benzo(b)fluoranthene	U	5.0		µg/L	1	7/18/2003 3:58:00 PM
Benzo(g,h,i)perylene	U	5.0		µg/L	1	7/18/2003 3:58:00 PM
Benzo(k)fluoranthene	U	5.0		µg/L	1	7/18/2003 3:58:00 PM
Benzoic acid	U	5.0		µg/L	1	7/18/2003 3:58:00 PM
Benzyl alcohol	U	5.0		µg/L	1	7/18/2003 3:58:00 PM

Qualifiers:

ND - Not Detected at the Reporting Limit

J - Analyte detected below quantitation limits

B - Analyte detected in the associated Method Blank

* - Value exceeds Maximum Contaminant Level

S - Spike Recovery outside accepted recovery limits

R - RPD outside accepted recovery limits

E - Value above quantitation range

American Analytical Laboratories, Inc.

Date: *28-Jul-03*

CLIENT:	AKRF, Inc	**Client Sample ID:**	MW9
Lab Order:	0307061	**Tag Number:**	
Project:	Greenpoint Lumber Yard Brooklyn, NY	**Collection Date:**	7/16/2003
Lab ID:	0307061-04B	**Matrix:**	LIQUID

Analyses	Result	Limit	Qual	Units	DF	Date Analyzed
SEMIVOLATILES SW-846 8270		**SW8270D**		**(SW3510)**		Analyst: **RN**
Bis(2-chloroethoxy)methane	U	5.0		µg/L	1	7/18/2003 3:58:00 PM
Bis(2-chloroethyl)ether	U	5.0		µg/L	1	7/18/2003 3:58:00 PM
Bis(2-chloroisopropyl)ether	U	5.0		µg/L	1	7/18/2003 3:58:00 PM
Bis(2-ethylhexyl)phthalate	U	5.0		µg/L	1	7/18/2003 3:58:00 PM
Butyl benzyl phthalate	U	5.0		µg/L	1	7/18/2003 3:58:00 PM
Carbazole	U	5.0		µg/L	1	7/18/2003 3:58:00 PM
Chrysene	U	5.0		µg/L	1	7/18/2003 3:58:00 PM
Dibenzo(a,h)anthracene	U	5.0		µg/L	1	7/18/2003 3:58:00 PM
Dibenzofuran	U	5.0		µg/L	1	7/18/2003 3:58:00 PM
Diethyl phthalate	U	5.0		µg/L	1	7/18/2003 3:58:00 PM
Dimethyl phthalate	U	5.0		µg/L	1	7/18/2003 3:58:00 PM
Di-n-butyl phthalate	U	5.0		µg/L	1	7/18/2003 3:58:00 PM
Di-n-octyl phthalate	U	5.0		µg/L	1	7/18/2003 3:58:00 PM
Fluoranthene	U	5.0		µg/L	1	7/18/2003 3:58:00 PM
Fluorene	U	5.0		µg/L	1	7/18/2003 3:58:00 PM
Hexachlorobenzene	U	5.0		µg/L	1	7/18/2003 3:58:00 PM
Hexachlorobutadiene	U	5.0		µg/L	1	7/18/2003 3:58:00 PM
Hexachlorocyclopentadiene	U	5.0		µg/L	1	7/18/2003 3:58:00 PM
Hexachloroethane	U	5.0		µg/L	1	7/18/2003 3:58:00 PM
Indeno(1,2,3-c,d)pyrene	U	5.0		µg/L	1	7/18/2003 3:58:00 PM
Isophorone	U	5.0		µg/L	1	7/18/2003 3:58:00 PM
Naphthalene	U	5.0		µg/L	1	7/18/2003 3:58:00 PM
Nitrobenzene	U	5.0		µg/L	1	7/18/2003 3:58:00 PM
N-Nitrosodimethylamine	U	5.0		µg/L	1	7/18/2003 3:58:00 PM
N-Nitrosodi-n-propylamine	U	5.0		µg/L	1	7/18/2003 3:58:00 PM
N-Nitrosodiphenylamine	U	5.0		µg/L	1	7/18/2003 3:58:00 PM
Pentachlorophenol	U	5.0		µg/L	1	7/18/2003 3:58:00 PM
Phenanthrene	U	5.0		µg/L	1	7/18/2003 3:58:00 PM
Phenol	U	5.0		µg/L	1	7/18/2003 3:58:00 PM
Pyrene	U	5.0		µg/L	1	7/18/2003 3:58:00 PM
Pyridine	U	5.0		µg/L	1	7/18/2003 3:58:00 PM

Qualifiers:

ND - Not Detected at the Reporting Limit

J - Analyte detected below quantitation limits

B - Analyte detected in the associated Method Blank

* - Value exceeds Maximum Contaminant Level

S - Spike Recovery outside accepted recovery limits

R - RPD outside accepted recovery limits

E - Value above quantitation range

American Analytical Laboratories, Inc.

Date: *28-Jul-03*

CLIENT:	AKRF, Inc	**Client Sample ID:**	MW10
Lab Order:	0307061	**Tag Number:**	
Project:	Greenpoint Lumber Yard Brooklyn, NY	**Collection Date:**	7/16/2003
Lab ID:	0307061-05B	**Matrix:**	LIQUID

Analyses	Result	Limit	Qual	Units	DF	Date Analyzed
SEMIVOLATILES SW-846 8270		**SW8270D**		**(SW3510)**		Analyst: **RN**
1,2,4-Trichlorobenzene	U	5.0		µg/L	1	7/18/2003 4:37:00 PM
1,2-Dichlorobenzene	U	5.0		µg/L	1	7/18/2003 4:37:00 PM
1,3-Dichlorobenzene	U	5.0		µg/L	1	7/18/2003 4:37:00 PM
1,4-Dichlorobenzene	U	5.0		µg/L	1	7/18/2003 4:37:00 PM
2,4,5-Trichlorophenol	U	5.0		µg/L	1	7/18/2003 4:37:00 PM
2,4,6-Trichlorophenol	U	5.0		µg/L	1	7/18/2003 4:37:00 PM
2,4-Dichlorophenol	U	5.0		µg/L	1	7/18/2003 4:37:00 PM
2,4-Dimethylphenol	U	5.0		µg/L	1	7/18/2003 4:37:00 PM
2,4-Dinitrophenol	U	5.0		µg/L	1	7/18/2003 4:37:00 PM
2,4-Dinitrotoluene	U	5.0		µg/L	1	7/18/2003 4:37:00 PM
2,6-Dinitrotoluene	U	5.0		µg/L	1	7/18/2003 4:37:00 PM
2-Chloronaphthalene	U	5.0		µg/L	1	7/18/2003 4:37:00 PM
2-Chlorophenol	U	5.0		µg/L	1	7/18/2003 4:37:00 PM
2-Methylnaphthalene	U	5.0		µg/L	1	7/18/2003 4:37:00 PM
2-Methylphenol	U	5.0		µg/L	1	7/18/2003 4:37:00 PM
2-Nitroaniline	U	5.0		µg/L	1	7/18/2003 4:37:00 PM
2-Nitrophenol	U	5.0		µg/L	1	7/18/2003 4:37:00 PM
3,3'-Dichlorobenzidine	U	5.0		µg/L	1	7/18/2003 4:37:00 PM
3+4-Methylphenol	U	5.0		µg/L	1	7/18/2003 4:37:00 PM
3-Nitroaniline	U	5.0		µg/L	1	7/18/2003 4:37:00 PM
4,6-Dinitro-2-methylphenol	U	5.0		µg/L	1	7/18/2003 4:37:00 PM
4-Bromophenyl phenyl ether	U	5.0		µg/L	1	7/18/2003 4:37:00 PM
4-Chloro-3-methylphenol	U	5.0		µg/L	1	7/18/2003 4:37:00 PM
4-Chloroaniline	U	5.0		µg/L	1	7/18/2003 4:37:00 PM
4-Chlorophenyl phenyl ether	U	5.0		µg/L	1	7/18/2003 4:37:00 PM
4-Nitroaniline	U	5.0		µg/L	1	7/18/2003 4:37:00 PM
4-Nitrophenol	U	5.0		µg/L	1	7/18/2003 4:37:00 PM
Acenaphthene	U	5.0		µg/L	1	7/18/2003 4:37:00 PM
Acenaphthylene	U	5.0		µg/L	1	7/18/2003 4:37:00 PM
Aniline	U	5.0		µg/L	1	7/18/2003 4:37:00 PM
Anthracene	U	5.0		µg/L	1	7/18/2003 4:37:00 PM
Azobenzene	U	5.0		µg/L	1	7/18/2003 4:37:00 PM
Benzidine	U	5.0		µg/L	1	7/18/2003 4:37:00 PM
Benzo(a)anthracene	U	5.0		µg/L	1	7/18/2003 4:37:00 PM
Benzo(a)pyrene	U	5.0		µg/L	1	7/18/2003 4:37:00 PM
Benzo(b)fluoranthene	U	5.0		µg/L	1	7/18/2003 4:37:00 PM
Benzo(g,h,i)perylene	U	5.0		µg/L	1	7/18/2003 4:37:00 PM
Benzo(k)fluoranthene	U	5.0		µg/L	1	7/18/2003 4:37:00 PM
Benzoic acid	U	5.0		µg/L	1	7/18/2003 4:37:00 PM
Benzyl alcohol	U	5.0		µg/L	1	7/18/2003 4:37:00 PM

Qualifiers:

ND - Not Detected at the Reporting Limit

J - Analyte detected below quantitation limits

B - Analyte detected in the associated Method Blank

* - Value exceeds Maximum Contaminant Level

S - Spike Recovery outside accepted recovery limits

R - RPD outside accepted recovery limits

E - Value above quantitation range

American Analytical Laboratories, Inc.

Date: *28-Jul-03*

CLIENT:	AKRF, Inc	**Client Sample ID:**	MW10
Lab Order:	0307061	**Tag Number:**	
Project:	Greenpoint Lumber Yard Brooklyn, NY	**Collection Date:**	7/16/2003
Lab ID:	0307061-05B	**Matrix:**	LIQUID

Analyses	Result	Limit	Qual	Units	DF	Date Analyzed
SEMIVOLATILES SW-846 8270		**SW8270D**		**(SW3510)**		Analyst: **RN**
Bis(2-chloroethoxy)methane	U	5.0		µg/L	1	7/18/2003 4:37:00 PM
Bis(2-chloroethyl)ether	U	5.0		µg/L	1	7/18/2003 4:37:00 PM
Bis(2-chloroisopropyl)ether	U	5.0		µg/L	1	7/18/2003 4:37:00 PM
Bis(2-ethylhexyl)phthalate	U	5.0		µg/L	1	7/18/2003 4:37:00 PM
Butyl benzyl phthalate	U	5.0		µg/L	1	7/18/2003 4:37:00 PM
Carbazole	U	5.0		µg/L	1	7/18/2003 4:37:00 PM
Chrysene	U	5.0		µg/L	1	7/18/2003 4:37:00 PM
Dibenzo(a,h)anthracene	U	5.0		µg/L	1	7/18/2003 4:37:00 PM
Dibenzofuran	U	5.0		µg/L	1	7/18/2003 4:37:00 PM
Diethyl phthalate	U	5.0		µg/L	1	7/18/2003 4:37:00 PM
Dimethyl phthalate	U	5.0		µg/L	1	7/18/2003 4:37:00 PM
Di-n-butyl phthalate	U	5.0		µg/L	1	7/18/2003 4:37:00 PM
Di-n-octyl phthalate	U	5.0		µg/L	1	7/18/2003 4:37:00 PM
Fluoranthene	U	5.0		µg/L	1	7/18/2003 4:37:00 PM
Fluorene	U	5.0		µg/L	1	7/18/2003 4:37:00 PM
Hexachlorobenzene	U	5.0		µg/L	1	7/18/2003 4:37:00 PM
Hexachlorobutadiene	U	5.0		µg/L	1	7/18/2003 4:37:00 PM
Hexachlorocyclopentadiene	U	5.0		µg/L	1	7/18/2003 4:37:00 PM
Hexachloroethane	U	5.0		µg/L	1	7/18/2003 4:37:00 PM
Indeno(1,2,3-c,d)pyrene	U	5.0		µg/L	1	7/18/2003 4:37:00 PM
Isophorone	U	5.0		µg/L	1	7/18/2003 4:37:00 PM
Naphthalene	8.6	5.0		µg/L	1	7/18/2003 4:37:00 PM
Nitrobenzene	U	5.0		µg/L	1	7/18/2003 4:37:00 PM
N-Nitrosodimethylamine	U	5.0		µg/L	1	7/18/2003 4:37:00 PM
N-Nitrosodi-n-propylamine	U	5.0		µg/L	1	7/18/2003 4:37:00 PM
N-Nitrosodiphenylamine	U	5.0		µg/L	1	7/18/2003 4:37:00 PM
Pentachlorophenol	U	5.0		µg/L	1	7/18/2003 4:37:00 PM
Phenanthrene	U	5.0		µg/L	1	7/18/2003 4:37:00 PM
Phenol	U	5.0		µg/L	1	7/18/2003 4:37:00 PM
Pyrene	U	5.0		µg/L	1	7/18/2003 4:37:00 PM
Pyridine	U	5.0		µg/L	1	7/18/2003 4:37:00 PM

Qualifiers:

ND - Not Detected at the Reporting Limit

J - Analyte detected below quantitation limits

B - Analyte detected in the associated Method Blank

* - Value exceeds Maximum Contaminant Level

S - Spike Recovery outside accepted recovery limits

R - RPD outside accepted recovery limits

E - Value above quantitation range

American Analytical Laboratories, Inc.

Date: *28-Jul-03*

CLIENT:	AKRF, Inc	**Client Sample ID:**	MW11
Lab Order:	0307061	**Tag Number:**	
Project:	Greenpoint Lumber Yard Brooklyn, NY	**Collection Date:**	7/16/2003
Lab ID:	0307061-06B	**Matrix:**	LIQUID

Analyses	Result	Limit	Qual	Units	DF	Date Analyzed
SEMIVOLATILES SW-846 8270		**SW8270D**		**(SW3510)**		Analyst: **RN**
1,2,4-Trichlorobenzene	U	5.0		µg/L	1	7/18/2003 5:56:00 PM
1,2-Dichlorobenzene	U	5.0		µg/L	1	7/18/2003 5:56:00 PM
1,3-Dichlorobenzene	U	5.0		µg/L	1	7/18/2003 5:56:00 PM
1,4-Dichlorobenzene	U	5.0		µg/L	1	7/18/2003 5:56:00 PM
2,4,5-Trichlorophenol	U	5.0		µg/L	1	7/18/2003 5:56:00 PM
2,4,6-Trichlorophenol	U	5.0		µg/L	1	7/18/2003 5:56:00 PM
2,4-Dichlorophenol	U	5.0		µg/L	1	7/18/2003 5:56:00 PM
2,4-Dimethylphenol	U	5.0		µg/L	1	7/18/2003 5:56:00 PM
2,4-Dinitrophenol	U	5.0		µg/L	1	7/18/2003 5:56:00 PM
2,4-Dinitrotoluene	U	5.0		µg/L	1	7/18/2003 5:56:00 PM
2,6-Dinitrotoluene	U	5.0		µg/L	1	7/18/2003 5:56:00 PM
2-Chloronaphthalene	U	5.0		µg/L	1	7/18/2003 5:56:00 PM
2-Chlorophenol	U	5.0		µg/L	1	7/18/2003 5:56:00 PM
2-Methylnaphthalene	U	5.0		µg/L	1	7/18/2003 5:56:00 PM
2-Methylphenol	U	5.0		µg/L	1	7/18/2003 5:56:00 PM
2-Nitroaniline	U	5.0		µg/L	1	7/18/2003 5:56:00 PM
2-Nitrophenol	U	5.0		µg/L	1	7/18/2003 5:56:00 PM
3,3'-Dichlorobenzidine	U	5.0		µg/L	1	7/18/2003 5:56:00 PM
3+4-Methylphenol	U	5.0		µg/L	1	7/18/2003 5:56:00 PM
3-Nitroaniline	U	5.0		µg/L	1	7/18/2003 5:56:00 PM
4,6-Dinitro-2-methylphenol	U	5.0		µg/L	1	7/18/2003 5:56:00 PM
4-Bromophenyl phenyl ether	U	5.0		µg/L	1	7/18/2003 5:56:00 PM
4-Chloro-3-methylphenol	U	5.0		µg/L	1	7/18/2003 5:56:00 PM
4-Chloroaniline	U	5.0		µg/L	1	7/18/2003 5:56:00 PM
4-Chlorophenyl phenyl ether	U	5.0		µg/L	1	7/18/2003 5:56:00 PM
4-Nitroaniline	U	5.0		µg/L	1	7/18/2003 5:56:00 PM
4-Nitrophenol	U	5.0		µg/L	1	7/18/2003 5:56:00 PM
Acenaphthene	U	5.0		µg/L	1	7/18/2003 5:56:00 PM
Acenaphthylene	U	5.0		µg/L	1	7/18/2003 5:56:00 PM
Aniline	U	5.0		µg/L	1	7/18/2003 5:56:00 PM
Anthracene	U	5.0		µg/L	1	7/18/2003 5:56:00 PM
Azobenzene	U	5.0		µg/L	1	7/18/2003 5:56:00 PM
Benzidine	U	5.0		µg/L	1	7/18/2003 5:56:00 PM
Benzo(a)anthracene	U	5.0		µg/L	1	7/18/2003 5:56:00 PM
Benzo(a)pyrene	U	5.0		µg/L	1	7/18/2003 5:56:00 PM
Benzo(b)fluoranthene	U	5.0		µg/L	1	7/18/2003 5:56:00 PM
Benzo(g,h,i)perylene	U	5.0		µg/L	1	7/18/2003 5:56:00 PM
Benzo(k)fluoranthene	U	5.0		µg/L	1	7/18/2003 5:56:00 PM
Benzoic acid	U	5.0		µg/L	1	7/18/2003 5:56:00 PM
Benzyl alcohol	U	5.0		µg/L	1	7/18/2003 5:56:00 PM

Qualifiers:

ND - Not Detected at the Reporting Limit

J - Analyte detected below quantitation limits

B - Analyte detected in the associated Method Blank

* - Value exceeds Maximum Contaminant Level

S - Spike Recovery outside accepted recovery limits

R - RPD outside accepted recovery limits

E - Value above quantitation range

American Analytical Laboratories, Inc.

Date: *28-Jul-03*

CLIENT:	AKRF, Inc	**Client Sample ID:**	MW11
Lab Order:	0307061	**Tag Number:**	
Project:	Greenpoint Lumber Yard Brooklyn, NY	**Collection Date:**	7/16/2003
Lab ID:	0307061-06B	**Matrix:**	LIQUID

Analyses	Result	Limit	Qual	Units	DF	Date Analyzed
SEMIVOLATILES SW-846 8270		**SW8270D**		**(SW3510)**		Analyst: **RN**
Bis(2-chloroethoxy)methane	U	5.0		µg/L	1	7/18/2003 5:56:00 PM
Bis(2-chloroethyl)ether	U	5.0		µg/L	1	7/18/2003 5:56:00 PM
Bis(2-chloroisopropyl)ether	U	5.0		µg/L	1	7/18/2003 5:56:00 PM
Bis(2-ethylhexyl)phthalate	U	5.0		µg/L	1	7/18/2003 5:56:00 PM
Butyl benzyl phthalate	U	5.0		µg/L	1	7/18/2003 5:56:00 PM
Carbazole	U	5.0		µg/L	1	7/18/2003 5:56:00 PM
Chrysene	U	5.0		µg/L	1	7/18/2003 5:56:00 PM
Dibenzo(a,h)anthracene	U	5.0		µg/L	1	7/18/2003 5:56:00 PM
Dibenzofuran	U	5.0		µg/L	1	7/18/2003 5:56:00 PM
Diethyl phthalate	U	5.0		µg/L	1	7/18/2003 5:56:00 PM
Dimethyl phthalate	U	5.0		µg/L	1	7/18/2003 5:56:00 PM
Di-n-butyl phthalate	U	5.0		µg/L	1	7/18/2003 5:56:00 PM
Di-n-octyl phthalate	U	5.0		µg/L	1	7/18/2003 5:56:00 PM
Fluoranthene	U	5.0		µg/L	1	7/18/2003 5:56:00 PM
Fluorene	U	5.0		µg/L	1	7/18/2003 5:56:00 PM
Hexachlorobenzene	U	5.0		µg/L	1	7/18/2003 5:56:00 PM
Hexachlorobutadiene	U	5.0		µg/L	1	7/18/2003 5:56:00 PM
Hexachlorocyclopentadiene	U	5.0		µg/L	1	7/18/2003 5:56:00 PM
Hexachloroethane	U	5.0		µg/L	1	7/18/2003 5:56:00 PM
Indeno(1,2,3-c,d)pyrene	U	5.0		µg/L	1	7/18/2003 5:56:00 PM
Isophorone	U	5.0		µg/L	1	7/18/2003 5:56:00 PM
Naphthalene	U	5.0		µg/L	1	7/18/2003 5:56:00 PM
Nitrobenzene	U	5.0		µg/L	1	7/18/2003 5:56:00 PM
N-Nitrosodimethylamine	U	5.0		µg/L	1	7/18/2003 5:56:00 PM
N-Nitrosodi-n-propylamine	U	5.0		µg/L	1	7/18/2003 5:56:00 PM
N-Nitrosodiphenylamine	U	5.0		µg/L	1	7/18/2003 5:56:00 PM
Pentachlorophenol	U	5.0		µg/L	1	7/18/2003 5:56:00 PM
Phenanthrene	U	5.0		µg/L	1	7/18/2003 5:56:00 PM
Phenol	U	5.0		µg/L	1	7/18/2003 5:56:00 PM
Pyrene	U	5.0		µg/L	1	7/18/2003 5:56:00 PM
Pyridine	U	5.0		µg/L	1	7/18/2003 5:56:00 PM

Qualifiers:

ND - Not Detected at the Reporting Limit

J - Analyte detected below quantitation limits

B - Analyte detected in the associated Method Blank

* - Value exceeds Maximum Contaminant Level

S - Spike Recovery outside accepted recovery limits

R - RPD outside accepted recovery limits

E - Value above quantitation range

American Analytical Laboratories, Inc.

Date: *28-Jul-03*

CLIENT:	AKRF, Inc	**Client Sample ID:**	MW12
Lab Order:	0307061	**Tag Number:**	
Project:	Greenpoint Lumber Yard Brooklyn, NY	**Collection Date:**	7/16/2003
Lab ID:	0307061-07B	**Matrix:**	LIQUID

Analyses	Result	Limit	Qual	Units	DF	Date Analyzed
SEMIVOLATILES SW-846 8270		**SW8270D**		**(SW3510)**		Analyst: **RN**
1,2,4-Trichlorobenzene	U	5.0		µg/L	1	7/18/2003 6:47:00 PM
1,2-Dichlorobenzene	U	5.0		µg/L	1	7/18/2003 6:47:00 PM
1,3-Dichlorobenzene	U	5.0		µg/L	1	7/18/2003 6:47:00 PM
1,4-Dichlorobenzene	U	5.0		µg/L	1	7/18/2003 6:47:00 PM
2,4,5-Trichlorophenol	U	5.0		µg/L	1	7/18/2003 6:47:00 PM
2,4,6-Trichlorophenol	U	5.0		µg/L	1	7/18/2003 6:47:00 PM
2,4-Dichlorophenol	U	5.0		µg/L	1	7/18/2003 6:47:00 PM
2,4-Dimethylphenol	U	5.0		µg/L	1	7/18/2003 6:47:00 PM
2,4-Dinitrophenol	U	5.0		µg/L	1	7/18/2003 6:47:00 PM
2,4-Dinitrotoluene	U	5.0		µg/L	1	7/18/2003 6:47:00 PM
2,6-Dinitrotoluene	U	5.0		µg/L	1	7/18/2003 6:47:00 PM
2-Chloronaphthalene	U	5.0		µg/L	1	7/18/2003 6:47:00 PM
2-Chlorophenol	U	5.0		µg/L	1	7/18/2003 6:47:00 PM
2-Methylnaphthalene	U	5.0		µg/L	1	7/18/2003 6:47:00 PM
2-Methylphenol	U	5.0		µg/L	1	7/18/2003 6:47:00 PM
2-Nitroaniline	U	5.0		µg/L	1	7/18/2003 6:47:00 PM
2-Nitrophenol	U	5.0		µg/L	1	7/18/2003 6:47:00 PM
3,3'-Dichlorobenzidine	U	5.0		µg/L	1	7/18/2003 6:47:00 PM
3+4-Methylphenol	U	5.0		µg/L	1	7/18/2003 6:47:00 PM
3-Nitroaniline	U	5.0		µg/L	1	7/18/2003 6:47:00 PM
4,6-Dinitro-2-methylphenol	U	5.0		µg/L	1	7/18/2003 6:47:00 PM
4-Bromophenyl phenyl ether	U	5.0		µg/L	1	7/18/2003 6:47:00 PM
4-Chloro-3-methylphenol	U	5.0		µg/L	1	7/18/2003 6:47:00 PM
4-Chloroaniline	U	5.0		µg/L	1	7/18/2003 6:47:00 PM
4-Chlorophenyl phenyl ether	U	5.0		µg/L	1	7/18/2003 6:47:00 PM
4-Nitroaniline	U	5.0		µg/L	1	7/18/2003 6:47:00 PM
4-Nitrophenol	U	5.0		µg/L	1	7/18/2003 6:47:00 PM
Acenaphthene	U	5.0		µg/L	1	7/18/2003 6:47:00 PM
Acenaphthylene	U	5.0		µg/L	1	7/18/2003 6:47:00 PM
Aniline	U	5.0		µg/L	1	7/18/2003 6:47:00 PM
Anthracene	U	5.0		µg/L	1	7/18/2003 6:47:00 PM
Azobenzene	U	5.0		µg/L	1	7/18/2003 6:47:00 PM
Benzidine	U	5.0		µg/L	1	7/18/2003 6:47:00 PM
Benzo(a)anthracene	U	5.0		µg/L	1	7/18/2003 6:47:00 PM
Benzo(a)pyrene	U	5.0		µg/L	1	7/18/2003 6:47:00 PM
Benzo(b)fluoranthene	U	5.0		µg/L	1	7/18/2003 6:47:00 PM
Benzo(g,h,i)perylene	U	5.0		µg/L	1	7/18/2003 6:47:00 PM
Benzo(k)fluoranthene	U	5.0		µg/L	1	7/18/2003 6:47:00 PM
Benzoic acid	U	5.0		µg/L	1	7/18/2003 6:47:00 PM
Benzyl alcohol	U	5.0		µg/L	1	7/18/2003 6:47:00 PM

Qualifiers:

ND - Not Detected at the Reporting Limit

J - Analyte detected below quantitation limits

B - Analyte detected in the associated Method Blank

* - Value exceeds Maximum Contaminant Level

S - Spike Recovery outside accepted recovery limits

R - RPD outside accepted recovery limits

E - Value above quantitation range

American Analytical Laboratories, Inc.

Date: *28-Jul-03*

CLIENT:	AKRF, Inc	**Client Sample ID:**	MW12
Lab Order:	0307061	**Tag Number:**	
Project:	Greenpoint Lumber Yard Brooklyn, NY	**Collection Date:**	7/16/2003
Lab ID:	0307061-07B	**Matrix:**	LIQUID

Analyses	Result	Limit	Qual	Units	DF	Date Analyzed
SEMIVOLATILES SW-846 8270		**SW8270D**		**(SW3510)**		Analyst: **RN**
Bis(2-chloroethoxy)methane	U	5.0		µg/L	1	7/18/2003 6:47:00 PM
Bis(2-chloroethyl)ether	U	5.0		µg/L	1	7/18/2003 6:47:00 PM
Bis(2-chloroisopropyl)ether	U	5.0		µg/L	1	7/18/2003 6:47:00 PM
Bis(2-ethylhexyl)phthalate	U	5.0		µg/L	1	7/18/2003 6:47:00 PM
Butyl benzyl phthalate	U	5.0		µg/L	1	7/18/2003 6:47:00 PM
Carbazole	U	5.0		µg/L	1	7/18/2003 6:47:00 PM
Chrysene	U	5.0		µg/L	1	7/18/2003 6:47:00 PM
Dibenzo(a,h)anthracene	U	5.0		µg/L	1	7/18/2003 6:47:00 PM
Dibenzofuran	U	5.0		µg/L	1	7/18/2003 6:47:00 PM
Diethyl phthalate	U	5.0		µg/L	1	7/18/2003 6:47:00 PM
Dimethyl phthalate	U	5.0		µg/L	1	7/18/2003 6:47:00 PM
Di-n-butyl phthalate	U	5.0		µg/L	1	7/18/2003 6:47:00 PM
Di-n-octyl phthalate	U	5.0		µg/L	1	7/18/2003 6:47:00 PM
Fluoranthene	U	5.0		µg/L	1	7/18/2003 6:47:00 PM
Fluorene	U	5.0		µg/L	1	7/18/2003 6:47:00 PM
Hexachlorobenzene	U	5.0		µg/L	1	7/18/2003 6:47:00 PM
Hexachlorobutadiene	U	5.0		µg/L	1	7/18/2003 6:47:00 PM
Hexachlorocyclopentadiene	U	5.0		µg/L	1	7/18/2003 6:47:00 PM
Hexachloroethane	U	5.0		µg/L	1	7/18/2003 6:47:00 PM
Indeno(1,2,3-c,d)pyrene	U	5.0		µg/L	1	7/18/2003 6:47:00 PM
Isophorone	U	5.0		µg/L	1	7/18/2003 6:47:00 PM
Naphthalene	U	5.0		µg/L	1	7/18/2003 6:47:00 PM
Nitrobenzene	U	5.0		µg/L	1	7/18/2003 6:47:00 PM
N-Nitrosodimethylamine	U	5.0		µg/L	1	7/18/2003 6:47:00 PM
N-Nitrosodi-n-propylamine	U	5.0		µg/L	1	7/18/2003 6:47:00 PM
N-Nitrosodiphenylamine	U	5.0		µg/L	1	7/18/2003 6:47:00 PM
Pentachlorophenol	U	5.0		µg/L	1	7/18/2003 6:47:00 PM
Phenanthrene	U	5.0		µg/L	1	7/18/2003 6:47:00 PM
Phenol	U	5.0		µg/L	1	7/18/2003 6:47:00 PM
Pyrene	U	5.0		µg/L	1	7/18/2003 6:47:00 PM
Pyridine	U	5.0		µg/L	1	7/18/2003 6:47:00 PM

Qualifiers:

ND - Not Detected at the Reporting Limit

J - Analyte detected below quantitation limits

B - Analyte detected in the associated Method Blank

* - Value exceeds Maximum Contaminant Level

S - Spike Recovery outside accepted recovery limits

R - RPD outside accepted recovery limits

E - Value above quantitation range

American Analytical Laboratories, Inc.

Date: *28-Jul-03*

CLIENT:	AKRF, Inc	**Client Sample ID:**	MW13
Lab Order:	0307061	**Tag Number:**	
Project:	Greenpoint Lumber Yard Brooklyn, NY	**Collection Date:**	7/16/2003
Lab ID:	0307061-08B	**Matrix:**	LIQUID

Analyses	Result	Limit	Qual	Units	DF	Date Analyzed
SEMIVOLATILES SW-846 8270		**SW8270D**		**(SW3510)**		Analyst: **RN**
1,2,4-Trichlorobenzene	U	5.0		µg/L	1	7/18/2003 7:49:00 PM
1,2-Dichlorobenzene	U	5.0		µg/L	1	7/18/2003 7:49:00 PM
1,3-Dichlorobenzene	U	5.0		µg/L	1	7/18/2003 7:49:00 PM
1,4-Dichlorobenzene	U	5.0		µg/L	1	7/18/2003 7:49:00 PM
2,4,5-Trichlorophenol	U	5.0		µg/L	1	7/18/2003 7:49:00 PM
2,4,6-Trichlorophenol	U	5.0		µg/L	1	7/18/2003 7:49:00 PM
2,4-Dichlorophenol	U	5.0		µg/L	1	7/18/2003 7:49:00 PM
2,4-Dimethylphenol	U	5.0		µg/L	1	7/18/2003 7:49:00 PM
2,4-Dinitrophenol	U	5.0		µg/L	1	7/18/2003 7:49:00 PM
2,4-Dinitrotoluene	U	5.0		µg/L	1	7/18/2003 7:49:00 PM
2,6-Dinitrotoluene	U	5.0		µg/L	1	7/18/2003 7:49:00 PM
2-Chloronaphthalene	U	5.0		µg/L	1	7/18/2003 7:49:00 PM
2-Chlorophenol	U	5.0		µg/L	1	7/18/2003 7:49:00 PM
2-Methylnaphthalene	68	5.0		µg/L	1	7/18/2003 7:49:00 PM
2-Methylphenol	U	5.0		µg/L	1	7/18/2003 7:49:00 PM
2-Nitroaniline	U	5.0		µg/L	1	7/18/2003 7:49:00 PM
2-Nitrophenol	U	5.0		µg/L	1	7/18/2003 7:49:00 PM
3,3´-Dichlorobenzidine	U	5.0		µg/L	1	7/18/2003 7:49:00 PM
3+4-Methylphenol	U	5.0		µg/L	1	7/18/2003 7:49:00 PM
3-Nitroaniline	U	5.0		µg/L	1	7/18/2003 7:49:00 PM
4,6-Dinitro-2-methylphenol	U	5.0		µg/L	1	7/18/2003 7:49:00 PM
4-Bromophenyl phenyl ether	U	5.0		µg/L	1	7/18/2003 7:49:00 PM
4-Chloro-3-methylphenol	U	5.0		µg/L	1	7/18/2003 7:49:00 PM
4-Chloroaniline	U	5.0		µg/L	1	7/18/2003 7:49:00 PM
4-Chlorophenyl phenyl ether	U	5.0		µg/L	1	7/18/2003 7:49:00 PM
4-Nitroaniline	U	5.0		µg/L	1	7/18/2003 7:49:00 PM
4-Nitrophenol	U	5.0		µg/L	1	7/18/2003 7:49:00 PM
Acenaphthene	18	5.0		µg/L	1	7/18/2003 7:49:00 PM
Acenaphthylene	18	5.0		µg/L	1	7/18/2003 7:49:00 PM
Aniline	U	5.0		µg/L	1	7/18/2003 7:49:00 PM
Anthracene	5.6	5.0		µg/L	1	7/18/2003 7:49:00 PM
Azobenzene	U	5.0		µg/L	1	7/18/2003 7:49:00 PM
Benzidine	U	5.0		µg/L	1	7/18/2003 7:49:00 PM
Benzo(a)anthracene	U	5.0		µg/L	1	7/18/2003 7:49:00 PM
Benzo(a)pyrene	U	5.0		µg/L	1	7/18/2003 7:49:00 PM
Benzo(b)fluoranthene	U	5.0		µg/L	1	7/18/2003 7:49:00 PM
Benzo(g,h,i)perylene	U	5.0		µg/L	1	7/18/2003 7:49:00 PM
Benzo(k)fluoranthene	U	5.0		µg/L	1	7/18/2003 7:49:00 PM
Benzoic acid	U	5.0		µg/L	1	7/18/2003 7:49:00 PM
Benzyl alcohol	U	5.0		µg/L	1	7/18/2003 7:49:00 PM

Qualifiers:

ND - Not Detected at the Reporting Limit

J - Analyte detected below quantitation limits

B - Analyte detected in the associated Method Blank

* - Value exceeds Maximum Contaminant Level

S - Spike Recovery outside accepted recovery limits

R - RPD outside accepted recovery limits

E - Value above quantitation range

American Analytical Laboratories, Inc.

Date: *28-Jul-03*

CLIENT:	AKRF, Inc	**Client Sample ID:**	MW13
Lab Order:	0307061	**Tag Number:**	
Project:	Greenpoint Lumber Yard Brooklyn, NY	**Collection Date:**	7/16/2003
Lab ID:	0307061-08B	**Matrix:**	LIQUID

Analyses	Result	Limit	Qual	Units	DF	Date Analyzed
SEMIVOLATILES SW-846 8270		**SW8270D**		**(SW3510)**		Analyst: **RN**
Bis(2-chloroethoxy)methane	U	5.0		µg/L	1	7/18/2003 7:49:00 PM
Bis(2-chloroethyl)ether	U	5.0		µg/L	1	7/18/2003 7:49:00 PM
Bis(2-chloroisopropyl)ether	U	5.0		µg/L	1	7/18/2003 7:49:00 PM
Bis(2-ethylhexyl)phthalate	U	5.0		µg/L	1	7/18/2003 7:49:00 PM
Butyl benzyl phthalate	U	5.0		µg/L	1	7/18/2003 7:49:00 PM
Carbazole	10	5.0		µg/L	1	7/18/2003 7:49:00 PM
Chrysene	U	5.0		µg/L	1	7/18/2003 7:49:00 PM
Dibenzo(a,h)anthracene	U	5.0		µg/L	1	7/18/2003 7:49:00 PM
Dibenzofuran	6.5	5.0		µg/L	1	7/18/2003 7:49:00 PM
Diethyl phthalate	U	5.0		µg/L	1	7/18/2003 7:49:00 PM
Dimethyl phthalate	U	5.0		µg/L	1	7/18/2003 7:49:00 PM
Di-n-butyl phthalate	U	5.0		µg/L	1	7/18/2003 7:49:00 PM
Di-n-octyl phthalate	U	5.0		µg/L	1	7/18/2003 7:49:00 PM
Fluoranthene	U	5.0		µg/L	1	7/18/2003 7:49:00 PM
Fluorene	18	5.0		µg/L	1	7/18/2003 7:49:00 PM
Hexachlorobenzene	U	5.0		µg/L	1	7/18/2003 7:49:00 PM
Hexachlorobutadiene	U	5.0		µg/L	1	7/18/2003 7:49:00 PM
Hexachlorocyclopentadiene	U	5.0		µg/L	1	7/18/2003 7:49:00 PM
Hexachloroethane	U	5.0		µg/L	1	7/18/2003 7:49:00 PM
Indeno(1,2,3-c,d)pyrene	U	5.0		µg/L	1	7/18/2003 7:49:00 PM
Isophorone	U	5.0		µg/L	1	7/18/2003 7:49:00 PM
Naphthalene	630	50		µg/L	10	7/22/2003 1:35:00 PM
Nitrobenzene	U	5.0		µg/L	1	7/18/2003 7:49:00 PM
N-Nitrosodimethylamine	U	5.0		µg/L	1	7/18/2003 7:49:00 PM
N-Nitrosodi-n-propylamine	U	5.0		µg/L	1	7/18/2003 7:49:00 PM
N-Nitrosodiphenylamine	U	5.0		µg/L	1	7/18/2003 7:49:00 PM
Pentachlorophenol	U	5.0		µg/L	1	7/18/2003 7:49:00 PM
Phenanthrene	39	5.0		µg/L	1	7/18/2003 7:49:00 PM
Phenol	U	5.0		µg/L	1	7/18/2003 7:49:00 PM
Pyrene	U	5.0		µg/L	1	7/18/2003 7:49:00 PM
Pyridine	U	5.0		µg/L	1	7/18/2003 7:49:00 PM

Qualifiers:

ND - Not Detected at the Reporting Limit

J - Analyte detected below quantitation limits

B - Analyte detected in the associated Method Blank

* - Value exceeds Maximum Contaminant Level

S - Spike Recovery outside accepted recovery limits

R - RPD outside accepted recovery limits

E - Value above quantitation range

American Analytical Laboratories, Inc.

Date: *28-Jul-03*

CLIENT:	AKRF, Inc	**Client Sample ID:**	MW14
Lab Order:	0307061	**Tag Number:**	
Project:	Greenpoint Lumber Yard Brooklyn, NY	**Collection Date:**	7/16/2003
Lab ID:	0307061-09B	**Matrix:**	LIQUID

Analyses	Result	Limit	Qual	Units	DF	Date Analyzed
SEMIVOLATILES SW-846 8270		**SW8270D**		**(SW3510)**		Analyst: **RN**
1,2,4-Trichlorobenzene	U	5.0		µg/L	1	7/18/2003 11:04:00 PM
1,2-Dichlorobenzene	U	5.0		µg/L	1	7/18/2003 11:04:00 PM
1,3-Dichlorobenzene	U	5.0		µg/L	1	7/18/2003 11:04:00 PM
1,4-Dichlorobenzene	U	5.0		µg/L	1	7/18/2003 11:04:00 PM
2,4,5-Trichlorophenol	U	5.0		µg/L	1	7/18/2003 11:04:00 PM
2,4,6-Trichlorophenol	U	5.0		µg/L	1	7/18/2003 11:04:00 PM
2,4-Dichlorophenol	U	5.0		µg/L	1	7/18/2003 11:04:00 PM
2,4-Dimethylphenol	U	5.0		µg/L	1	7/18/2003 11:04:00 PM
2,4-Dinitrophenol	U	5.0		µg/L	1	7/18/2003 11:04:00 PM
2,4-Dinitrotoluene	U	5.0		µg/L	1	7/18/2003 11:04:00 PM
2,6-Dinitrotoluene	U	5.0		µg/L	1	7/18/2003 11:04:00 PM
2-Chloronaphthalene	U	5.0		µg/L	1	7/18/2003 11:04:00 PM
2-Chlorophenol	U	5.0		µg/L	1	7/18/2003 11:04:00 PM
2-Methylnaphthalene	U	5.0		µg/L	1	7/18/2003 11:04:00 PM
2-Methylphenol	U	5.0		µg/L	1	7/18/2003 11:04:00 PM
2-Nitroaniline	U	5.0		µg/L	1	7/18/2003 11:04:00 PM
2-Nitrophenol	U	5.0		µg/L	1	7/18/2003 11:04:00 PM
3,3'-Dichlorobenzidine	U	5.0		µg/L	1	7/18/2003 11:04:00 PM
3+4-Methylphenol	U	5.0		µg/L	1	7/18/2003 11:04:00 PM
3-Nitroaniline	U	5.0		µg/L	1	7/18/2003 11:04:00 PM
4,6-Dinitro-2-methylphenol	U	5.0		µg/L	1	7/18/2003 11:04:00 PM
4-Bromophenyl phenyl ether	U	5.0		µg/L	1	7/18/2003 11:04:00 PM
4-Chloro-3-methylphenol	U	5.0		µg/L	1	7/18/2003 11:04:00 PM
4-Chloroaniline	U	5.0		µg/L	1	7/18/2003 11:04:00 PM
4-Chlorophenyl phenyl ether	U	5.0		µg/L	1	7/18/2003 11:04:00 PM
4-Nitroaniline	U	5.0		µg/L	1	7/18/2003 11:04:00 PM
4-Nitrophenol	U	5.0		µg/L	1	7/18/2003 11:04:00 PM
Acenaphthene	U	5.0		µg/L	1	7/18/2003 11:04:00 PM
Acenaphthylene	U	5.0		µg/L	1	7/18/2003 11:04:00 PM
Aniline	U	5.0		µg/L	1	7/18/2003 11:04:00 PM
Anthracene	U	5.0		µg/L	1	7/18/2003 11:04:00 PM
Azobenzene	U	5.0		µg/L	1	7/18/2003 11:04:00 PM
Benzidine	U	5.0		µg/L	1	7/18/2003 11:04:00 PM
Benzo(a)anthracene	U	5.0		µg/L	1	7/18/2003 11:04:00 PM
Benzo(a)pyrene	U	5.0		µg/L	1	7/18/2003 11:04:00 PM
Benzo(b)fluoranthene	U	5.0		µg/L	1	7/18/2003 11:04:00 PM
Benzo(g,h,i)perylene	U	5.0		µg/L	1	7/18/2003 11:04:00 PM
Benzo(k)fluoranthene	U	5.0		µg/L	1	7/18/2003 11:04:00 PM
Benzoic acid	U	5.0		µg/L	1	7/18/2003 11:04:00 PM
Benzyl alcohol	U	5.0		µg/L	1	7/18/2003 11:04:00 PM

Qualifiers:

ND - Not Detected at the Reporting Limit

J - Analyte detected below quantitation limits

B - Analyte detected in the associated Method Blank

* - Value exceeds Maximum Contaminant Level

S - Spike Recovery outside accepted recovery limits

R - RPD outside accepted recovery limits

E - Value above quantitation range

American Analytical Laboratories, Inc.

Date: *28-Jul-03*

CLIENT:	AKRF, Inc	**Client Sample ID:**	MW14
Lab Order:	0307061	**Tag Number:**	
Project:	Greenpoint Lumber Yard Brooklyn, NY	**Collection Date:**	7/16/2003
Lab ID:	0307061-09B	**Matrix:**	LIQUID

Analyses	Result	Limit	Qual	Units	DF	Date Analyzed
SEMIVOLATILES SW-846 8270		**SW8270D**		**(SW3510)**		Analyst: **RN**
Bis(2-chloroethoxy)methane	U	5.0		µg/L	1	7/18/2003 11:04:00 PM
Bis(2-chloroethyl)ether	U	5.0		µg/L	1	7/18/2003 11:04:00 PM
Bis(2-chloroisopropyl)ether	U	5.0		µg/L	1	7/18/2003 11:04:00 PM
Bis(2-ethylhexyl)phthalate	U	5.0		µg/L	1	7/18/2003 11:04:00 PM
Butyl benzyl phthalate	U	5.0		µg/L	1	7/18/2003 11:04:00 PM
Carbazole	U	5.0		µg/L	1	7/18/2003 11:04:00 PM
Chrysene	U	5.0		µg/L	1	7/18/2003 11:04:00 PM
Dibenzo(a,h)anthracene	U	5.0		µg/L	1	7/18/2003 11:04:00 PM
Dibenzofuran	U	5.0		µg/L	1	7/18/2003 11:04:00 PM
Diethyl phthalate	U	5.0		µg/L	1	7/18/2003 11:04:00 PM
Dimethyl phthalate	U	5.0		µg/L	1	7/18/2003 11:04:00 PM
Di-n-butyl phthalate	U	5.0		µg/L	1	7/18/2003 11:04:00 PM
Di-n-octyl phthalate	U	5.0		µg/L	1	7/18/2003 11:04:00 PM
Fluoranthene	U	5.0		µg/L	1	7/18/2003 11:04:00 PM
Fluorene	U	5.0		µg/L	1	7/18/2003 11:04:00 PM
Hexachlorobenzene	U	5.0		µg/L	1	7/18/2003 11:04:00 PM
Hexachlorobutadiene	U	5.0		µg/L	1	7/18/2003 11:04:00 PM
Hexachlorocyclopentadiene	U	5.0		µg/L	1	7/18/2003 11:04:00 PM
Hexachloroethane	U	5.0		µg/L	1	7/18/2003 11:04:00 PM
Indeno(1,2,3-c,d)pyrene	U	5.0		µg/L	1	7/18/2003 11:04:00 PM
Isophorone	U	5.0		µg/L	1	7/18/2003 11:04:00 PM
Naphthalene	U	5.0		µg/L	1	7/18/2003 11:04:00 PM
Nitrobenzene	U	5.0		µg/L	1	7/18/2003 11:04:00 PM
N-Nitrosodimethylamine	U	5.0		µg/L	1	7/18/2003 11:04:00 PM
N-Nitrosodi-n-propylamine	U	5.0		µg/L	1	7/18/2003 11:04:00 PM
N-Nitrosodiphenylamine	U	5.0		µg/L	1	7/18/2003 11:04:00 PM
Pentachlorophenol	U	5.0		µg/L	1	7/18/2003 11:04:00 PM
Phenanthrene	U	5.0		µg/L	1	7/18/2003 11:04:00 PM
Phenol	U	5.0		µg/L	1	7/18/2003 11:04:00 PM
Pyrene	U	5.0		µg/L	1	7/18/2003 11:04:00 PM
Pyridine	U	5.0		µg/L	1	7/18/2003 11:04:00 PM

Qualifiers:

ND - Not Detected at the Reporting Limit

J - Analyte detected below quantitation limits

B - Analyte detected in the associated Method Blank

* - Value exceeds Maximum Contaminant Level

S - Spike Recovery outside accepted recovery limits

R - RPD outside accepted recovery limits

E - Value above quantitation range

American Analytical Laboratories, Inc.

Date: *28-Jul-03*

CLIENT:	AKRF, Inc	**Client Sample ID:**	MW15
Lab Order:	0307061	**Tag Number:**	
Project:	Greenpoint Lumber Yard Brooklyn, NY	**Collection Date:**	7/16/2003
Lab ID:	0307061-10B	**Matrix:**	LIQUID

Analyses	Result	Limit	Qual	Units	DF	Date Analyzed
SEMIVOLATILES SW-846 8270		**SW8270D**		**(SW3510)**		Analyst: **RN**
1,2,4-Trichlorobenzene	U	5.0		µg/L	1	7/19/2003 12:04:00 AM
1,2-Dichlorobenzene	U	5.0		µg/L	1	7/19/2003 12:04:00 AM
1,3-Dichlorobenzene	U	5.0		µg/L	1	7/19/2003 12:04:00 AM
1,4-Dichlorobenzene	U	5.0		µg/L	1	7/19/2003 12:04:00 AM
2,4,5-Trichlorophenol	U	5.0		µg/L	1	7/19/2003 12:04:00 AM
2,4,6-Trichlorophenol	U	5.0		µg/L	1	7/19/2003 12:04:00 AM
2,4-Dichlorophenol	U	5.0		µg/L	1	7/19/2003 12:04:00 AM
2,4-Dimethylphenol	U	5.0		µg/L	1	7/19/2003 12:04:00 AM
2,4-Dinitrophenol	U	5.0		µg/L	1	7/19/2003 12:04:00 AM
2,4-Dinitrotoluene	U	5.0		µg/L	1	7/19/2003 12:04:00 AM
2,6-Dinitrotoluene	U	5.0		µg/L	1	7/19/2003 12:04:00 AM
2-Chloronaphthalene	U	5.0		µg/L	1	7/19/2003 12:04:00 AM
2-Chlorophenol	U	5.0		µg/L	1	7/19/2003 12:04:00 AM
2-Methylnaphthalene	U	5.0		µg/L	1	7/19/2003 12:04:00 AM
2-Methylphenol	U	5.0		µg/L	1	7/19/2003 12:04:00 AM
2-Nitroaniline	U	5.0		µg/L	1	7/19/2003 12:04:00 AM
2-Nitrophenol	U	5.0		µg/L	1	7/19/2003 12:04:00 AM
3,3'-Dichlorobenzidine	U	5.0		µg/L	1	7/19/2003 12:04:00 AM
3+4-Methylphenol	U	5.0		µg/L	1	7/19/2003 12:04:00 AM
3-Nitroaniline	U	5.0		µg/L	1	7/19/2003 12:04:00 AM
4,6-Dinitro-2-methylphenol	U	5.0		µg/L	1	7/19/2003 12:04:00 AM
4-Bromophenyl phenyl ether	U	5.0		µg/L	1	7/19/2003 12:04:00 AM
4-Chloro-3-methylphenol	U	5.0		µg/L	1	7/19/2003 12:04:00 AM
4-Chloroaniline	U	5.0		µg/L	1	7/19/2003 12:04:00 AM
4-Chlorophenyl phenyl ether	U	5.0		µg/L	1	7/19/2003 12:04:00 AM
4-Nitroaniline	U	5.0		µg/L	1	7/19/2003 12:04:00 AM
4-Nitrophenol	U	5.0		µg/L	1	7/19/2003 12:04:00 AM
Acenaphthene	U	5.0		µg/L	1	7/19/2003 12:04:00 AM
Acenaphthylene	U	5.0		µg/L	1	7/19/2003 12:04:00 AM
Aniline	U	5.0		µg/L	1	7/19/2003 12:04:00 AM
Anthracene	U	5.0		µg/L	1	7/19/2003 12:04:00 AM
Azobenzene	U	5.0		µg/L	1	7/19/2003 12:04:00 AM
Benzidine	U	5.0		µg/L	1	7/19/2003 12:04:00 AM
Benzo(a)anthracene	U	5.0		µg/L	1	7/19/2003 12:04:00 AM
Benzo(a)pyrene	U	5.0		µg/L	1	7/19/2003 12:04:00 AM
Benzo(b)fluoranthene	U	5.0		µg/L	1	7/19/2003 12:04:00 AM
Benzo(g,h,i)perylene	U	5.0		µg/L	1	7/19/2003 12:04:00 AM
Benzo(k)fluoranthene	U	5.0		µg/L	1	7/19/2003 12:04:00 AM
Benzoic acid	U	5.0		µg/L	1	7/19/2003 12:04:00 AM
Benzyl alcohol	U	5.0		µg/L	1	7/19/2003 12:04:00 AM

Qualifiers:

ND - Not Detected at the Reporting Limit

J - Analyte detected below quantitation limits

B - Analyte detected in the associated Method Blank

* - Value exceeds Maximum Contaminant Level

S - Spike Recovery outside accepted recovery limits

R - RPD outside accepted recovery limits

E - Value above quantitation range

American Analytical Laboratories, Inc.

Date: *28-Jul-03*

CLIENT:	AKRF, Inc	**Client Sample ID:**	MW15
Lab Order:	0307061	**Tag Number:**	
Project:	Greenpoint Lumber Yard Brooklyn, NY	**Collection Date:**	7/16/2003
Lab ID:	0307061-10B	**Matrix:**	LIQUID

Analyses	Result	Limit	Qual	Units	DF	Date Analyzed
SEMIVOLATILES SW-846 8270		**SW8270D**		**(SW3510)**		Analyst: **RN**
Bis(2-chloroethoxy)methane	U	5.0		µg/L	1	7/19/2003 12:04:00 AM
Bis(2-chloroethyl)ether	U	5.0		µg/L	1	7/19/2003 12:04:00 AM
Bis(2-chloroisopropyl)ether	U	5.0		µg/L	1	7/19/2003 12:04:00 AM
Bis(2-ethylhexyl)phthalate	U	5.0		µg/L	1	7/19/2003 12:04:00 AM
Butyl benzyl phthalate	U	5.0		µg/L	1	7/19/2003 12:04:00 AM
Carbazole	U	5.0		µg/L	1	7/19/2003 12:04:00 AM
Chrysene	U	5.0		µg/L	1	7/19/2003 12:04:00 AM
Dibenzo(a,h)anthracene	U	5.0		µg/L	1	7/19/2003 12:04:00 AM
Dibenzofuran	U	5.0		µg/L	1	7/19/2003 12:04:00 AM
Diethyl phthalate	U	5.0		µg/L	1	7/19/2003 12:04:00 AM
Dimethyl phthalate	U	5.0		µg/L	1	7/19/2003 12:04:00 AM
Di-n-butyl phthalate	U	5.0		µg/L	1	7/19/2003 12:04:00 AM
Di-n-octyl phthalate	U	5.0		µg/L	1	7/19/2003 12:04:00 AM
Fluoranthene	U	5.0		µg/L	1	7/19/2003 12:04:00 AM
Fluorene	U	5.0		µg/L	1	7/19/2003 12:04:00 AM
Hexachlorobenzene	U	5.0		µg/L	1	7/19/2003 12:04:00 AM
Hexachlorobutadiene	U	5.0		µg/L	1	7/19/2003 12:04:00 AM
Hexachlorocyclopentadiene	U	5.0		µg/L	1	7/19/2003 12:04:00 AM
Hexachloroethane	U	5.0		µg/L	1	7/19/2003 12:04:00 AM
Indeno(1,2,3-c,d)pyrene	U	5.0		µg/L	1	7/19/2003 12:04:00 AM
Isophorone	U	5.0		µg/L	1	7/19/2003 12:04:00 AM
Naphthalene	U	5.0		µg/L	1	7/19/2003 12:04:00 AM
Nitrobenzene	U	5.0		µg/L	1	7/19/2003 12:04:00 AM
N-Nitrosodimethylamine	U	5.0		µg/L	1	7/19/2003 12:04:00 AM
N-Nitrosodi-n-propylamine	U	5.0		µg/L	1	7/19/2003 12:04:00 AM
N-Nitrosodiphenylamine	U	5.0		µg/L	1	7/19/2003 12:04:00 AM
Pentachlorophenol	U	5.0		µg/L	1	7/19/2003 12:04:00 AM
Phenanthrene	U	5.0		µg/L	1	7/19/2003 12:04:00 AM
Phenol	U	5.0		µg/L	1	7/19/2003 12:04:00 AM
Pyrene	U	5.0		µg/L	1	7/19/2003 12:04:00 AM
Pyridine	U	5.0		µg/L	1	7/19/2003 12:04:00 AM

Qualifiers:

ND - Not Detected at the Reporting Limit

J - Analyte detected below quantitation limits

B - Analyte detected in the associated Method Blank

* - Value exceeds Maximum Contaminant Level

S - Spike Recovery outside accepted recovery limits

R - RPD outside accepted recovery limits

E - Value above quantitation range

American Analytical Laboratories, Inc.

Date: *28-Jul-03*

CLIENT:	AKRF, Inc	**Client Sample ID:**	MW16
Lab Order:	0307061	**Tag Number:**	
Project:	Greenpoint Lumber Yard Brooklyn, NY	**Collection Date:**	7/16/2003
Lab ID:	0307061-11B	**Matrix:**	LIQUID

Analyses	Result	Limit	Qual	Units	DF	Date Analyzed
SEMIVOLATILES SW-846 8270		**SW8270D**		**(SW3510)**		Analyst: **RN**
1,2,4-Trichlorobenzene	U	5.0		µg/L	1	7/21/2003 3:22:00 PM
1,2-Dichlorobenzene	U	5.0		µg/L	1	7/21/2003 3:22:00 PM
1,3-Dichlorobenzene	U	5.0		µg/L	1	7/21/2003 3:22:00 PM
1,4-Dichlorobenzene	U	5.0		µg/L	1	7/21/2003 3:22:00 PM
2,4,5-Trichlorophenol	U	5.0		µg/L	1	7/21/2003 3:22:00 PM
2,4,6-Trichlorophenol	U	5.0		µg/L	1	7/21/2003 3:22:00 PM
2,4-Dichlorophenol	U	5.0		µg/L	1	7/21/2003 3:22:00 PM
2,4-Dimethylphenol	U	5.0		µg/L	1	7/21/2003 3:22:00 PM
2,4-Dinitrophenol	U	5.0		µg/L	1	7/21/2003 3:22:00 PM
2,4-Dinitrotoluene	U	5.0		µg/L	1	7/21/2003 3:22:00 PM
2,6-Dinitrotoluene	U	5.0		µg/L	1	7/21/2003 3:22:00 PM
2-Chloronaphthalene	U	5.0		µg/L	1	7/21/2003 3:22:00 PM
2-Chlorophenol	U	5.0		µg/L	1	7/21/2003 3:22:00 PM
2-Methylnaphthalene	U	5.0		µg/L	1	7/21/2003 3:22:00 PM
2-Methylphenol	U	5.0		µg/L	1	7/21/2003 3:22:00 PM
2-Nitroaniline	U	5.0		µg/L	1	7/21/2003 3:22:00 PM
2-Nitrophenol	U	5.0		µg/L	1	7/21/2003 3:22:00 PM
3,3'-Dichlorobenzidine	U	5.0		µg/L	1	7/21/2003 3:22:00 PM
3+4-Methylphenol	U	5.0		µg/L	1	7/21/2003 3:22:00 PM
3-Nitroaniline	U	5.0		µg/L	1	7/21/2003 3:22:00 PM
4,6-Dinitro-2-methylphenol	U	5.0		µg/L	1	7/21/2003 3:22:00 PM
4-Bromophenyl phenyl ether	U	5.0		µg/L	1	7/21/2003 3:22:00 PM
4-Chloro-3-methylphenol	U	5.0		µg/L	1	7/21/2003 3:22:00 PM
4-Chloroaniline	U	5.0		µg/L	1	7/21/2003 3:22:00 PM
4-Chlorophenyl phenyl ether	U	5.0		µg/L	1	7/21/2003 3:22:00 PM
4-Nitroaniline	U	5.0		µg/L	1	7/21/2003 3:22:00 PM
4-Nitrophenol	U	5.0		µg/L	1	7/21/2003 3:22:00 PM
Acenaphthene	U	5.0		µg/L	1	7/21/2003 3:22:00 PM
Acenaphthylene	U	5.0		µg/L	1	7/21/2003 3:22:00 PM
Aniline	U	5.0		µg/L	1	7/21/2003 3:22:00 PM
Anthracene	U	5.0		µg/L	1	7/21/2003 3:22:00 PM
Azobenzene	U	5.0		µg/L	1	7/21/2003 3:22:00 PM
Benzidine	U	5.0		µg/L	1	7/21/2003 3:22:00 PM
Benzo(a)anthracene	U	5.0		µg/L	1	7/21/2003 3:22:00 PM
Benzo(a)pyrene	U	5.0		µg/L	1	7/21/2003 3:22:00 PM
Benzo(b)fluoranthene	U	5.0		µg/L	1	7/21/2003 3:22:00 PM
Benzo(g,h,i)perylene	U	5.0		µg/L	1	7/21/2003 3:22:00 PM
Benzo(k)fluoranthene	U	5.0		µg/L	1	7/21/2003 3:22:00 PM
Benzoic acid	U	5.0		µg/L	1	7/21/2003 3:22:00 PM
Benzyl alcohol	U	5.0		µg/L	1	7/21/2003 3:22:00 PM

Qualifiers:

ND - Not Detected at the Reporting Limit

J - Analyte detected below quantitation limits

B - Analyte detected in the associated Method Blank

* - Value exceeds Maximum Contaminant Level

S - Spike Recovery outside accepted recovery limits

R - RPD outside accepted recovery limits

E - Value above quantitation range

American Analytical Laboratories, Inc.

Date: *28-Jul-03*

CLIENT:	AKRF, Inc	**Client Sample ID:**	MW16
Lab Order:	0307061	**Tag Number:**	
Project:	Greenpoint Lumber Yard Brooklyn, NY	**Collection Date:**	7/16/2003
Lab ID:	0307061-11B	**Matrix:**	LIQUID

Analyses	Result	Limit	Qual	Units	DF	Date Analyzed
SEMIVOLATILES SW-846 8270		**SW8270D**		**(SW3510)**		Analyst: **RN**
Bis(2-chloroethoxy)methane	U	5.0		µg/L	1	7/21/2003 3:22:00 PM
Bis(2-chloroethyl)ether	U	5.0		µg/L	1	7/21/2003 3:22:00 PM
Bis(2-chloroisopropyl)ether	U	5.0		µg/L	1	7/21/2003 3:22:00 PM
Bis(2-ethylhexyl)phthalate	U	5.0		µg/L	1	7/21/2003 3:22:00 PM
Butyl benzyl phthalate	U	5.0		µg/L	1	7/21/2003 3:22:00 PM
Carbazole	U	5.0		µg/L	1	7/21/2003 3:22:00 PM
Chrysene	U	5.0		µg/L	1	7/21/2003 3:22:00 PM
Dibenzo(a,h)anthracene	U	5.0		µg/L	1	7/21/2003 3:22:00 PM
Dibenzofuran	U	5.0		µg/L	1	7/21/2003 3:22:00 PM
Diethyl phthalate	U	5.0		µg/L	1	7/21/2003 3:22:00 PM
Dimethyl phthalate	U	5.0		µg/L	1	7/21/2003 3:22:00 PM
Di-n-butyl phthalate	U	5.0		µg/L	1	7/21/2003 3:22:00 PM
Di-n-octyl phthalate	U	5.0		µg/L	1	7/21/2003 3:22:00 PM
Fluoranthene	U	5.0		µg/L	1	7/21/2003 3:22:00 PM
Fluorene	U	5.0		µg/L	1	7/21/2003 3:22:00 PM
Hexachlorobenzene	U	5.0		µg/L	1	7/21/2003 3:22:00 PM
Hexachlorobutadiene	U	5.0		µg/L	1	7/21/2003 3:22:00 PM
Hexachlorocyclopentadiene	U	5.0		µg/L	1	7/21/2003 3:22:00 PM
Hexachloroethane	U	5.0		µg/L	1	7/21/2003 3:22:00 PM
Indeno(1,2,3-c,d)pyrene	U	5.0		µg/L	1	7/21/2003 3:22:00 PM
Isophorone	U	5.0		µg/L	1	7/21/2003 3:22:00 PM
Naphthalene	U	5.0		µg/L	1	7/21/2003 3:22:00 PM
Nitrobenzene	U	5.0		µg/L	1	7/21/2003 3:22:00 PM
N-Nitrosodimethylamine	U	5.0		µg/L	1	7/21/2003 3:22:00 PM
N-Nitrosodi-n-propylamine	U	5.0		µg/L	1	7/21/2003 3:22:00 PM
N-Nitrosodiphenylamine	U	5.0		µg/L	1	7/21/2003 3:22:00 PM
Pentachlorophenol	U	5.0		µg/L	1	7/21/2003 3:22:00 PM
Phenanthrene	U	5.0		µg/L	1	7/21/2003 3:22:00 PM
Phenol	U	5.0		µg/L	1	7/21/2003 3:22:00 PM
Pyrene	U	5.0		µg/L	1	7/21/2003 3:22:00 PM
Pyridine	U	5.0		µg/L	1	7/21/2003 3:22:00 PM

Qualifiers:

ND - Not Detected at the Reporting Limit

J - Analyte detected below quantitation limits

B - Analyte detected in the associated Method Blank

* - Value exceeds Maximum Contaminant Level

S - Spike Recovery outside accepted recovery limits

R - RPD outside accepted recovery limits

E - Value above quantitation range

American Analytical Laboratories, Inc.

Date: *28-Jul-03*

CLIENT:	AKRF, Inc	**Client Sample ID:**	FOUND WELL
Lab Order:	0307061	**Tag Number:**	
Project:	Greenpoint Lumber Yard Brooklyn, NY	**Collection Date:**	7/16/2003
Lab ID:	0307061-12B	**Matrix:**	LIQUID

Analyses	Result	Limit	Qual	Units	DF	Date Analyzed
SEMIVOLATILES SW-846 8270		**SW8270D**		**(SW3510)**		Analyst: **RN**
1,2,4-Trichlorobenzene	U	5.0		µg/L	1	7/21/2003 4:01:00 PM
1,2-Dichlorobenzene	U	5.0		µg/L	1	7/21/2003 4:01:00 PM
1,3-Dichlorobenzene	U	5.0		µg/L	1	7/21/2003 4:01:00 PM
1,4-Dichlorobenzene	U	5.0		µg/L	1	7/21/2003 4:01:00 PM
2,4,5-Trichlorophenol	U	5.0		µg/L	1	7/21/2003 4:01:00 PM
2,4,6-Trichlorophenol	U	5.0		µg/L	1	7/21/2003 4:01:00 PM
2,4-Dichlorophenol	U	5.0		µg/L	1	7/21/2003 4:01:00 PM
2,4-Dimethylphenol	U	5.0		µg/L	1	7/21/2003 4:01:00 PM
2,4-Dinitrophenol	U	5.0		µg/L	1	7/21/2003 4:01:00 PM
2,4-Dinitrotoluene	U	5.0		µg/L	1	7/21/2003 4:01:00 PM
2,6-Dinitrotoluene	U	5.0		µg/L	1	7/21/2003 4:01:00 PM
2-Chloronaphthalene	U	5.0		µg/L	1	7/21/2003 4:01:00 PM
2-Chlorophenol	U	5.0		µg/L	1	7/21/2003 4:01:00 PM
2-Methylnaphthalene	U	5.0		µg/L	1	7/21/2003 4:01:00 PM
2-Methylphenol	U	5.0		µg/L	1	7/21/2003 4:01:00 PM
2-Nitroaniline	U	5.0		µg/L	1	7/21/2003 4:01:00 PM
2-Nitrophenol	U	5.0		µg/L	1	7/21/2003 4:01:00 PM
3,3'-Dichlorobenzidine	U	5.0		µg/L	1	7/21/2003 4:01:00 PM
3+4-Methylphenol	U	5.0		µg/L	1	7/21/2003 4:01:00 PM
3-Nitroaniline	U	5.0		µg/L	1	7/21/2003 4:01:00 PM
4,6-Dinitro-2-methylphenol	U	5.0		µg/L	1	7/21/2003 4:01:00 PM
4-Bromophenyl phenyl ether	U	5.0		µg/L	1	7/21/2003 4:01:00 PM
4-Chloro-3-methylphenol	U	5.0		µg/L	1	7/21/2003 4:01:00 PM
4-Chloroaniline	U	5.0		µg/L	1	7/21/2003 4:01:00 PM
4-Chlorophenyl phenyl ether	U	5.0		µg/L	1	7/21/2003 4:01:00 PM
4-Nitroaniline	U	5.0		µg/L	1	7/21/2003 4:01:00 PM
4-Nitrophenol	U	5.0		µg/L	1	7/21/2003 4:01:00 PM
Acenaphthene	U	5.0		µg/L	1	7/21/2003 4:01:00 PM
Acenaphthylene	U	5.0		µg/L	1	7/21/2003 4:01:00 PM
Aniline	U	5.0		µg/L	1	7/21/2003 4:01:00 PM
Anthracene	U	5.0		µg/L	1	7/21/2003 4:01:00 PM
Azobenzene	U	5.0		µg/L	1	7/21/2003 4:01:00 PM
Benzidine	U	5.0		µg/L	1	7/21/2003 4:01:00 PM
Benzo(a)anthracene	U	5.0		µg/L	1	7/21/2003 4:01:00 PM
Benzo(a)pyrene	U	5.0		µg/L	1	7/21/2003 4:01:00 PM
Benzo(b)fluoranthene	U	5.0		µg/L	1	7/21/2003 4:01:00 PM
Benzo(g,h,i)perylene	U	5.0		µg/L	1	7/21/2003 4:01:00 PM
Benzo(k)fluoranthene	U	5.0		µg/L	1	7/21/2003 4:01:00 PM
Benzoic acid	U	5.0		µg/L	1	7/21/2003 4:01:00 PM
Benzyl alcohol	U	5.0		µg/L	1	7/21/2003 4:01:00 PM

Qualifiers:

ND - Not Detected at the Reporting Limit

J - Analyte detected below quantitation limits

B - Analyte detected in the associated Method Blank

* - Value exceeds Maximum Contaminant Level

S - Spike Recovery outside accepted recovery limits

R - RPD outside accepted recovery limits

E - Value above quantitation range

American Analytical Laboratories, Inc.

Date: *28-Jul-03*

CLIENT:	AKRF, Inc	**Client Sample ID:**	FOUND WELL
Lab Order:	0307061	**Tag Number:**	
Project:	Greenpoint Lumber Yard Brooklyn, NY	**Collection Date:**	7/16/2003
Lab ID:	0307061-12B	**Matrix:**	LIQUID

Analyses	Result	Limit	Qual	Units	DF	Date Analyzed
SEMIVOLATILES SW-846 8270		**SW8270D**		**(SW3510)**		Analyst: **RN**
Bis(2-chloroethoxy)methane	U	5.0		µg/L	1	7/21/2003 4:01:00 PM
Bis(2-chloroethyl)ether	U	5.0		µg/L	1	7/21/2003 4:01:00 PM
Bis(2-chloroisopropyl)ether	U	5.0		µg/L	1	7/21/2003 4:01:00 PM
Bis(2-ethylhexyl)phthalate	U	5.0		µg/L	1	7/21/2003 4:01:00 PM
Butyl benzyl phthalate	U	5.0		µg/L	1	7/21/2003 4:01:00 PM
Carbazole	U	5.0		µg/L	1	7/21/2003 4:01:00 PM
Chrysene	U	5.0		µg/L	1	7/21/2003 4:01:00 PM
Dibenzo(a,h)anthracene	U	5.0		µg/L	1	7/21/2003 4:01:00 PM
Dibenzofuran	U	5.0		µg/L	1	7/21/2003 4:01:00 PM
Diethyl phthalate	U	5.0		µg/L	1	7/21/2003 4:01:00 PM
Dimethyl phthalate	U	5.0		µg/L	1	7/21/2003 4:01:00 PM
Di-n-butyl phthalate	U	5.0		µg/L	1	7/21/2003 4:01:00 PM
Di-n-octyl phthalate	U	5.0		µg/L	1	7/21/2003 4:01:00 PM
Fluoranthene	U	5.0		µg/L	1	7/21/2003 4:01:00 PM
Fluorene	U	5.0		µg/L	1	7/21/2003 4:01:00 PM
Hexachlorobenzene	U	5.0		µg/L	1	7/21/2003 4:01:00 PM
Hexachlorobutadiene	U	5.0		µg/L	1	7/21/2003 4:01:00 PM
Hexachlorocyclopentadiene	U	5.0		µg/L	1	7/21/2003 4:01:00 PM
Hexachloroethane	U	5.0		µg/L	1	7/21/2003 4:01:00 PM
Indeno(1,2,3-c,d)pyrene	U	5.0		µg/L	1	7/21/2003 4:01:00 PM
Isophorone	U	5.0		µg/L	1	7/21/2003 4:01:00 PM
Naphthalene	U	5.0		µg/L	1	7/21/2003 4:01:00 PM
Nitrobenzene	U	5.0		µg/L	1	7/21/2003 4:01:00 PM
N-Nitrosodimethylamine	U	5.0		µg/L	1	7/21/2003 4:01:00 PM
N-Nitrosodi-n-propylamine	U	5.0		µg/L	1	7/21/2003 4:01:00 PM
N-Nitrosodiphenylamine	U	5.0		µg/L	1	7/21/2003 4:01:00 PM
Pentachlorophenol	U	5.0		µg/L	1	7/21/2003 4:01:00 PM
Phenanthrene	U	5.0		µg/L	1	7/21/2003 4:01:00 PM
Phenol	U	5.0		µg/L	1	7/21/2003 4:01:00 PM
Pyrene	U	5.0		µg/L	1	7/21/2003 4:01:00 PM
Pyridine	U	5.0		µg/L	1	7/21/2003 4:01:00 PM

Qualifiers:

ND - Not Detected at the Reporting Limit

J - Analyte detected below quantitation limits

B - Analyte detected in the associated Method Blank

* - Value exceeds Maximum Contaminant Level

S - Spike Recovery outside accepted recovery limits

R - RPD outside accepted recovery limits

E - Value above quantitation range

American Analytical Laboratories, Inc.

Date: *28-Jul-03*

CLIENT:	AKRF, Inc	**Client Sample ID:**	FIELD BLANK
Lab Order:	0307061	**Tag Number:**	
Project:	Greenpoint Lumber Yard Brooklyn, NY	**Collection Date:**	7/16/2003
Lab ID:	0307061-14B	**Matrix:**	LIQUID

Analyses	Result	Limit	Qual	Units	DF	Date Analyzed
SEMIVOLATILES SW-846 8270		**SW8270D**		**(SW3510)**		Analyst: **RN**
1,2,4-Trichlorobenzene	U	5.0		µg/L	1	7/21/2003 4:39:00 PM
1,2-Dichlorobenzene	U	5.0		µg/L	1	7/21/2003 4:39:00 PM
1,3-Dichlorobenzene	U	5.0		µg/L	1	7/21/2003 4:39:00 PM
1,4-Dichlorobenzene	U	5.0		µg/L	1	7/21/2003 4:39:00 PM
2,4,5-Trichlorophenol	U	5.0		µg/L	1	7/21/2003 4:39:00 PM
2,4,6-Trichlorophenol	U	5.0		µg/L	1	7/21/2003 4:39:00 PM
2,4-Dichlorophenol	U	5.0		µg/L	1	7/21/2003 4:39:00 PM
2,4-Dimethylphenol	U	5.0		µg/L	1	7/21/2003 4:39:00 PM
2,4-Dinitrophenol	U	5.0		µg/L	1	7/21/2003 4:39:00 PM
2,4-Dinitrotoluene	U	5.0		µg/L	1	7/21/2003 4:39:00 PM
2,6-Dinitrotoluene	U	5.0		µg/L	1	7/21/2003 4:39:00 PM
2-Chloronaphthalene	U	5.0		µg/L	1	7/21/2003 4:39:00 PM
2-Chlorophenol	U	5.0		µg/L	1	7/21/2003 4:39:00 PM
2-Methylnaphthalene	U	5.0		µg/L	1	7/21/2003 4:39:00 PM
2-Methylphenol	U	5.0		µg/L	1	7/21/2003 4:39:00 PM
2-Nitroaniline	U	5.0		µg/L	1	7/21/2003 4:39:00 PM
2-Nitrophenol	U	5.0		µg/L	1	7/21/2003 4:39:00 PM
3,3'-Dichlorobenzidine	U	5.0		µg/L	1	7/21/2003 4:39:00 PM
3+4-Methylphenol	U	5.0		µg/L	1	7/21/2003 4:39:00 PM
3-Nitroaniline	U	5.0		µg/L	1	7/21/2003 4:39:00 PM
4,6-Dinitro-2-methylphenol	U	5.0		µg/L	1	7/21/2003 4:39:00 PM
4-Bromophenyl phenyl ether	U	5.0		µg/L	1	7/21/2003 4:39:00 PM
4-Chloro-3-methylphenol	U	5.0		µg/L	1	7/21/2003 4:39:00 PM
4-Chloroaniline	U	5.0		µg/L	1	7/21/2003 4:39:00 PM
4-Chlorophenyl phenyl ether	U	5.0		µg/L	1	7/21/2003 4:39:00 PM
4-Nitroaniline	U	5.0		µg/L	1	7/21/2003 4:39:00 PM
4-Nitrophenol	U	5.0		µg/L	1	7/21/2003 4:39:00 PM
Acenaphthene	U	5.0		µg/L	1	7/21/2003 4:39:00 PM
Acenaphthylene	U	5.0		µg/L	1	7/21/2003 4:39:00 PM
Aniline	U	5.0		µg/L	1	7/21/2003 4:39:00 PM
Anthracene	U	5.0		µg/L	1	7/21/2003 4:39:00 PM
Azobenzene	U	5.0		µg/L	1	7/21/2003 4:39:00 PM
Benzidine	U	5.0		µg/L	1	7/21/2003 4:39:00 PM
Benzo(a)anthracene	U	5.0		µg/L	1	7/21/2003 4:39:00 PM
Benzo(a)pyrene	U	5.0		µg/L	1	7/21/2003 4:39:00 PM
Benzo(b)fluoranthene	U	5.0		µg/L	1	7/21/2003 4:39:00 PM
Benzo(g,h,i)perylene	U	5.0		µg/L	1	7/21/2003 4:39:00 PM
Benzo(k)fluoranthene	U	5.0		µg/L	1	7/21/2003 4:39:00 PM
Benzoic acid	U	5.0		µg/L	1	7/21/2003 4:39:00 PM
Benzyl alcohol	U	5.0		µg/L	1	7/21/2003 4:39:00 PM

Qualifiers:

ND - Not Detected at the Reporting Limit

J - Analyte detected below quantitation limits

B - Analyte detected in the associated Method Blank

* - Value exceeds Maximum Contaminant Level

S - Spike Recovery outside accepted recovery limits

R - RPD outside accepted recovery limits

E - Value above quantitation range

American Analytical Laboratories, Inc.

Date: *28-Jul-03*

CLIENT:	AKRF, Inc	**Client Sample ID:**	FIELD BLANK
Lab Order:	0307061	**Tag Number:**	
Project:	Greenpoint Lumber Yard Brooklyn, NY	**Collection Date:**	7/16/2003
Lab ID:	0307061-14B	**Matrix:**	LIQUID

Analyses	Result	Limit	Qual	Units	DF	Date Analyzed
SEMIVOLATILES SW-846 8270		**SW8270D**		**(SW3510)**		Analyst: **RN**
Bis(2-chloroethoxy)methane	U	5.0		µg/L	1	7/21/2003 4:39:00 PM
Bis(2-chloroethyl)ether	U	5.0		µg/L	1	7/21/2003 4:39:00 PM
Bis(2-chloroisopropyl)ether	U	5.0		µg/L	1	7/21/2003 4:39:00 PM
Bis(2-ethylhexyl)phthalate	U	5.0		µg/L	1	7/21/2003 4:39:00 PM
Butyl benzyl phthalate	U	5.0		µg/L	1	7/21/2003 4:39:00 PM
Carbazole	U	5.0		µg/L	1	7/21/2003 4:39:00 PM
Chrysene	U	5.0		µg/L	1	7/21/2003 4:39:00 PM
Dibenzo(a,h)anthracene	U	5.0		µg/L	1	7/21/2003 4:39:00 PM
Dibenzofuran	U	5.0		µg/L	1	7/21/2003 4:39:00 PM
Diethyl phthalate	U	5.0		µg/L	1	7/21/2003 4:39:00 PM
Dimethyl phthalate	U	5.0		µg/L	1	7/21/2003 4:39:00 PM
Di-n-butyl phthalate	U	5.0		µg/L	1	7/21/2003 4:39:00 PM
Di-n-octyl phthalate	U	5.0		µg/L	1	7/21/2003 4:39:00 PM
Fluoranthene	U	5.0		µg/L	1	7/21/2003 4:39:00 PM
Fluorene	U	5.0		µg/L	1	7/21/2003 4:39:00 PM
Hexachlorobenzene	U	5.0		µg/L	1	7/21/2003 4:39:00 PM
Hexachlorobutadiene	U	5.0		µg/L	1	7/21/2003 4:39:00 PM
Hexachlorocyclopentadiene	U	5.0		µg/L	1	7/21/2003 4:39:00 PM
Hexachloroethane	U	5.0		µg/L	1	7/21/2003 4:39:00 PM
Indeno(1,2,3-c,d)pyrene	U	5.0		µg/L	1	7/21/2003 4:39:00 PM
Isophorone	U	5.0		µg/L	1	7/21/2003 4:39:00 PM
Naphthalene	U	5.0		µg/L	1	7/21/2003 4:39:00 PM
Nitrobenzene	U	5.0		µg/L	1	7/21/2003 4:39:00 PM
N-Nitrosodimethylamine	U	5.0		µg/L	1	7/21/2003 4:39:00 PM
N-Nitrosodi-n-propylamine	U	5.0		µg/L	1	7/21/2003 4:39:00 PM
N-Nitrosodiphenylamine	U	5.0		µg/L	1	7/21/2003 4:39:00 PM
Pentachlorophenol	U	5.0		µg/L	1	7/21/2003 4:39:00 PM
Phenanthrene	U	5.0		µg/L	1	7/21/2003 4:39:00 PM
Phenol	U	5.0		µg/L	1	7/21/2003 4:39:00 PM
Pyrene	U	5.0		µg/L	1	7/21/2003 4:39:00 PM
Pyridine	U	5.0		µg/L	1	7/21/2003 4:39:00 PM

Qualifiers:

ND - Not Detected at the Reporting Limit

J - Analyte detected below quantitation limits

B - Analyte detected in the associated Method Blank

* - Value exceeds Maximum Contaminant Level

S - Spike Recovery outside accepted recovery limits

R - RPD outside accepted recovery limits

E - Value above quantitation range

GC PESTICIDE/PCB DATA

RESULTS – ORGANIC ANALYSIS DATA SHEET

American Analytical Laboratories, Inc.

Date: *28-Jul-03*

CLIENT:	AKRF, Inc	**Client Sample ID:**	MW6
Lab Order:	0307061	**Tag Number:**	
Project:	Greenpoint Lumber Yard Brooklyn, NY	**Collection Date:**	7/16/2003
Lab ID:	0307061-01B	**Matrix:**	LIQUID

Analyses	Result	Limit	Qual	Units	DF	Date Analyzed
PESTICIDES SW-846 8081		**SW8081B**		**(SW3510B)**		Analyst: **KB**
4,4´-DDD	U	0.10		µg/L	1	7/18/2003 5:26:00 PM
4,4´-DDE	U	0.10		µg/L	1	7/18/2003 5:26:00 PM
4,4´-DDT	U	0.10		µg/L	1	7/18/2003 5:26:00 PM
Aldrin	U	0.10		µg/L	1	7/18/2003 5:26:00 PM
alpha-BHC	U	0.10		µg/L	1	7/18/2003 5:26:00 PM
beta-BHC	U	0.10		µg/L	1	7/18/2003 5:26:00 PM
Chlordane	U	0.10		µg/L	1	7/18/2003 5:26:00 PM
Chlorobenzilate	U	0.10		µg/L	1	7/18/2003 5:26:00 PM
DBCP	U	0.10		µg/L	1	7/18/2003 5:26:00 PM
delta-BHC	U	0.10		µg/L	1	7/18/2003 5:26:00 PM
Dieldrin	U	0.10		µg/L	1	7/18/2003 5:26:00 PM
Endosulfan I	U	0.10		µg/L	1	7/18/2003 5:26:00 PM
Endosulfan II	U	0.10		µg/L	1	7/18/2003 5:26:00 PM
Endosulfan sulfate	U	0.10		µg/L	1	7/18/2003 5:26:00 PM
Endrin	U	0.10		µg/L	1	7/18/2003 5:26:00 PM
Endrin aldehyde	U	0.10		µg/L	1	7/18/2003 5:26:00 PM
Endrin ketone	U	0.10		µg/L	1	7/18/2003 5:26:00 PM
gamma-BHC	U	0.10		µg/L	1	7/18/2003 5:26:00 PM
Heptachlor	U	0.10		µg/L	1	7/18/2003 5:26:00 PM
Heptachlor epoxide	U	0.10		µg/L	1	7/18/2003 5:26:00 PM
Hexachlorobenzene	U	0.10		µg/L	1	7/18/2003 5:26:00 PM
Hexachlorocyclopentadiene	U	0.10		µg/L	1	7/18/2003 5:26:00 PM
Isodrin	U	0.10		µg/L	1	7/18/2003 5:26:00 PM
Methoxychlor	U	0.10		µg/L	1	7/18/2003 5:26:00 PM
Toxaphene	U	1.0		µg/L	1	7/18/2003 5:26:00 PM

Qualifiers:

ND - Not Detected at the Reporting Limit

J - Analyte detected below quantitation limits

B - Analyte detected in the associated Method Blank

* - Value exceeds Maximum Contaminant Level

S - Spike Recovery outside accepted recovery limits

R - RPD outside accepted recovery limits

E - Value above quantitation range

American Analytical Laboratories, Inc.

Date: *28-Jul-03*

CLIENT:	AKRF, Inc	**Client Sample ID:**	MW7
Lab Order:	0307061	**Tag Number:**	
Project:	Greenpoint Lumber Yard Brooklyn, NY	**Collection Date:**	7/16/2003
Lab ID:	0307061-02B	**Matrix:**	LIQUID

Analyses	Result	Limit	Qual	Units	DF	Date Analyzed
PESTICIDES SW-846 8081		**SW8081B**		**(SW3510B)**		Analyst: **KB**
4,4'-DDD	U	0.10		µg/L	1	7/18/2003 6:09:00 PM
4,4'-DDE	U	0.10		µg/L	1	7/18/2003 6:09:00 PM
4,4'-DDT	U	0.10		µg/L	1	7/18/2003 6:09:00 PM
Aldrin	U	0.10		µg/L	1	7/18/2003 6:09:00 PM
alpha-BHC	U	0.10		µg/L	1	7/18/2003 6:09:00 PM
beta-BHC	U	0.10		µg/L	1	7/18/2003 6:09:00 PM
Chlordane	U	0.10		µg/L	1	7/18/2003 6:09:00 PM
Chlorobenzilate	U	0.10		µg/L	1	7/18/2003 6:09:00 PM
DBCP	U	0.10		µg/L	1	7/18/2003 6:09:00 PM
delta-BHC	U	0.10		µg/L	1	7/18/2003 6:09:00 PM
Dieldrin	U	0.10		µg/L	1	7/18/2003 6:09:00 PM
Endosulfan I	U	0.10		µg/L	1	7/18/2003 6:09:00 PM
Endosulfan II	U	0.10		µg/L	1	7/18/2003 6:09:00 PM
Endosulfan sulfate	U	0.10		µg/L	1	7/18/2003 6:09:00 PM
Endrin	U	0.10		µg/L	1	7/18/2003 6:09:00 PM
Endrin aldehyde	U	0.10		µg/L	1	7/18/2003 6:09:00 PM
Endrin ketone	U	0.10		µg/L	1	7/18/2003 6:09:00 PM
gamma-BHC	U	0.10		µg/L	1	7/18/2003 6:09:00 PM
Heptachlor	U	0.10		µg/L	1	7/18/2003 6:09:00 PM
Heptachlor epoxide	U	0.10		µg/L	1	7/18/2003 6:09:00 PM
Hexachlorobenzene	U	0.10		µg/L	1	7/18/2003 6:09:00 PM
Hexachlorocyclopentadiene	U	0.10		µg/L	1	7/18/2003 6:09:00 PM
Isodrin	U	0.10		µg/L	1	7/18/2003 6:09:00 PM
Methoxychlor	U	0.10		µg/L	1	7/18/2003 6:09:00 PM
Toxaphene	U	1.0		µg/L	1	7/18/2003 6:09:00 PM

Qualifiers:

ND - Not Detected at the Reporting Limit

J - Analyte detected below quantitation limits

B - Analyte detected in the associated Method Blank

* - Value exceeds Maximum Contaminant Level

S - Spike Recovery outside accepted recovery limits

R - RPD outside accepted recovery limits

E - Value above quantitation range

American Analytical Laboratories, Inc.

Date: *28-Jul-03*

CLIENT:	AKRF, Inc	**Client Sample ID:**	MW8
Lab Order:	0307061	**Tag Number:**	
Project:	Greenpoint Lumber Yard Brooklyn, NY	**Collection Date:**	7/16/2003
Lab ID:	0307061-03B	**Matrix:**	LIQUID

Analyses	Result	Limit	Qual	Units	DF	Date Analyzed
PESTICIDES SW-846 8081		**SW8081B**		**(SW3510B)**		Analyst: **KB**
4,4´-DDD	U	0.10		µg/L	1	7/18/2003 6:52:00 PM
4,4´-DDE	U	0.10		µg/L	1	7/18/2003 6:52:00 PM
4,4´-DDT	U	0.10		µg/L	1	7/18/2003 6:52:00 PM
Aldrin	U	0.10		µg/L	1	7/18/2003 6:52:00 PM
alpha-BHC	U	0.10		µg/L	1	7/18/2003 6:52:00 PM
beta-BHC	U	0.10		µg/L	1	7/18/2003 6:52:00 PM
Chlordane	U	0.10		µg/L	1	7/18/2003 6:52:00 PM
Chlorobenzilate	U	0.10		µg/L	1	7/18/2003 6:52:00 PM
DBCP	U	0.10		µg/L	1	7/18/2003 6:52:00 PM
delta-BHC	U	0.10		µg/L	1	7/18/2003 6:52:00 PM
Dieldrin	U	0.10		µg/L	1	7/18/2003 6:52:00 PM
Endosulfan I	U	0.10		µg/L	1	7/18/2003 6:52:00 PM
Endosulfan II	U	0.10		µg/L	1	7/18/2003 6:52:00 PM
Endosulfan sulfate	U	0.10		µg/L	1	7/18/2003 6:52:00 PM
Endrin	U	0.10		µg/L	1	7/18/2003 6:52:00 PM
Endrin aldehyde	U	0.10		µg/L	1	7/18/2003 6:52:00 PM
Endrin ketone	U	0.10		µg/L	1	7/18/2003 6:52:00 PM
gamma-BHC	U	0.10		µg/L	1	7/18/2003 6:52:00 PM
Heptachlor	U	0.10		µg/L	1	7/18/2003 6:52:00 PM
Heptachlor epoxide	U	0.10		µg/L	1	7/18/2003 6:52:00 PM
Hexachlorobenzene	U	0.10		µg/L	1	7/18/2003 6:52:00 PM
Hexachlorocyclopentadiene	U	0.10		µg/L	1	7/18/2003 6:52:00 PM
Isodrin	U	0.10		µg/L	1	7/18/2003 6:52:00 PM
Methoxychlor	U	0.10		µg/L	1	7/18/2003 6:52:00 PM
Toxaphene	U	1.0		µg/L	1	7/18/2003 6:52:00 PM

Qualifiers:

ND - Not Detected at the Reporting Limit

J - Analyte detected below quantitation limits

B - Analyte detected in the associated Method Blank

* - Value exceeds Maximum Contaminant Level

S - Spike Recovery outside accepted recovery limits

R - RPD outside accepted recovery limits

E - Value above quantitation range

American Analytical Laboratories, Inc.

Date: *28-Jul-03*

CLIENT:	AKRF, Inc	**Client Sample ID:**	MW9
Lab Order:	0307061	**Tag Number:**	
Project:	Greenpoint Lumber Yard Brooklyn, NY	**Collection Date:**	7/16/2003
Lab ID:	0307061-04B	**Matrix:**	LIQUID

Analyses	Result	Limit	Qual	Units	DF	Date Analyzed
PESTICIDES SW-846 8081		**SW8081B**		**(SW3510B)**		Analyst: **KB**
4,4'-DDD	U	0.10		µg/L	1	7/18/2003 7:35:00 PM
4,4'-DDE	U	0.10		µg/L	1	7/18/2003 7:35:00 PM
4,4'-DDT	U	0.10		µg/L	1	7/18/2003 7:35:00 PM
Aldrin	U	0.10		µg/L	1	7/18/2003 7:35:00 PM
alpha-BHC	U	0.10		µg/L	1	7/18/2003 7:35:00 PM
beta-BHC	U	0.10		µg/L	1	7/18/2003 7:35:00 PM
Chlordane	U	0.10		µg/L	1	7/18/2003 7:35:00 PM
Chlorobenzilate	U	0.10		µg/L	1	7/18/2003 7:35:00 PM
DBCP	U	0.10		µg/L	1	7/18/2003 7:35:00 PM
delta-BHC	U	0.10		µg/L	1	7/18/2003 7:35:00 PM
Dieldrin	U	0.10		µg/L	1	7/18/2003 7:35:00 PM
Endosulfan I	U	0.10		µg/L	1	7/18/2003 7:35:00 PM
Endosulfan II	U	0.10		µg/L	1	7/18/2003 7:35:00 PM
Endosulfan sulfate	U	0.10		µg/L	1	7/18/2003 7:35:00 PM
Endrin	U	0.10		µg/L	1	7/18/2003 7:35:00 PM
Endrin aldehyde	U	0.10		µg/L	1	7/18/2003 7:35:00 PM
Endrin ketone	U	0.10		µg/L	1	7/18/2003 7:35:00 PM
gamma-BHC	U	0.10		µg/L	1	7/18/2003 7:35:00 PM
Heptachlor	U	0.10		µg/L	1	7/18/2003 7:35:00 PM
Heptachlor epoxide	U	0.10		µg/L	1	7/18/2003 7:35:00 PM
Hexachlorobenzene	U	0.10		µg/L	1	7/18/2003 7:35:00 PM
Hexachlorocyclopentadiene	U	0.10		µg/L	1	7/18/2003 7:35:00 PM
Isodrin	U	0.10		µg/L	1	7/18/2003 7:35:00 PM
Methoxychlor	U	0.10		µg/L	1	7/18/2003 7:35:00 PM
Toxaphene	U	1.0		µg/L	1	7/18/2003 7:35:00 PM

Qualifiers:

ND - Not Detected at the Reporting Limit

J - Analyte detected below quantitation limits

B - Analyte detected in the associated Method Blank

* - Value exceeds Maximum Contaminant Level

S - Spike Recovery outside accepted recovery limits

R - RPD outside accepted recovery limits

E - Value above quantitation range

American Analytical Laboratories, Inc.

Date: *28-Jul-03*

CLIENT:	AKRF, Inc	**Client Sample ID:**	MW10
Lab Order:	0307061	**Tag Number:**	
Project:	Greenpoint Lumber Yard Brooklyn, NY	**Collection Date:**	7/16/2003
Lab ID:	0307061-05B	**Matrix:**	LIQUID

Analyses	Result	Limit	Qual	Units	DF	Date Analyzed
PESTICIDES SW-846 8081		**SW8081B**		**(SW3510B)**		Analyst: **KB**
4,4´-DDD	U	0.10		µg/L	1	7/18/2003 8:18:00 PM
4,4´-DDE	U	0.10		µg/L	1	7/18/2003 8:18:00 PM
4,4´-DDT	U	0.10		µg/L	1	7/18/2003 8:18:00 PM
Aldrin	U	0.10		µg/L	1	7/18/2003 8:18:00 PM
alpha-BHC	U	0.10		µg/L	1	7/18/2003 8:18:00 PM
beta-BHC	U	0.10		µg/L	1	7/18/2003 8:18:00 PM
Chlordane	U	0.10		µg/L	1	7/18/2003 8:18:00 PM
Chlorobenzilate	U	0.10		µg/L	1	7/18/2003 8:18:00 PM
DBCP	U	0.10		µg/L	1	7/18/2003 8:18:00 PM
delta-BHC	U	0.10		µg/L	1	7/18/2003 8:18:00 PM
Dieldrin	U	0.10		µg/L	1	7/18/2003 8:18:00 PM
Endosulfan I	U	0.10		µg/L	1	7/18/2003 8:18:00 PM
Endosulfan II	U	0.10		µg/L	1	7/18/2003 8:18:00 PM
Endosulfan sulfate	U	0.10		µg/L	1	7/18/2003 8:18:00 PM
Endrin	U	0.10		µg/L	1	7/18/2003 8:18:00 PM
Endrin aldehyde	U	0.10		µg/L	1	7/18/2003 8:18:00 PM
Endrin ketone	U	0.10		µg/L	1	7/18/2003 8:18:00 PM
gamma-BHC	U	0.10		µg/L	1	7/18/2003 8:18:00 PM
Heptachlor	U	0.10		µg/L	1	7/18/2003 8:18:00 PM
Heptachlor epoxide	U	0.10		µg/L	1	7/18/2003 8:18:00 PM
Hexachlorobenzene	U	0.10		µg/L	1	7/18/2003 8:18:00 PM
Hexachlorocyclopentadiene	U	0.10		µg/L	1	7/18/2003 8:18:00 PM
Isodrin	U	0.10		µg/L	1	7/18/2003 8:18:00 PM
Methoxychlor	U	0.10		µg/L	1	7/18/2003 8:18:00 PM
Toxaphene	U	1.0		µg/L	1	7/18/2003 8:18:00 PM

Qualifiers:

ND - Not Detected at the Reporting Limit

J - Analyte detected below quantitation limits

B - Analyte detected in the associated Method Blank

* - Value exceeds Maximum Contaminant Level

S - Spike Recovery outside accepted recovery limits

R - RPD outside accepted recovery limits

E - Value above quantitation range

American Analytical Laboratories, Inc.

Date: *28-Jul-03*

CLIENT:	AKRF, Inc	**Client Sample ID:**	MW11
Lab Order:	0307061	**Tag Number:**	
Project:	Greenpoint Lumber Yard Brooklyn, NY	**Collection Date:**	7/16/2003
Lab ID:	0307061-06B	**Matrix:**	LIQUID

Analyses	Result	Limit	Qual	Units	DF	Date Analyzed
PESTICIDES SW-846 8081		**SW8081B**		**(SW3510B)**		Analyst: **KB**
4,4'-DDD	U	0.10		µg/L	1	7/21/2003 6:53:00 PM
4,4'-DDE	U	0.10		µg/L	1	7/21/2003 6:53:00 PM
4,4'-DDT	U	0.10		µg/L	1	7/21/2003 6:53:00 PM
Aldrin	U	0.10		µg/L	1	7/21/2003 6:53:00 PM
alpha-BHC	U	0.10		µg/L	1	7/21/2003 6:53:00 PM
beta-BHC	U	0.10		µg/L	1	7/21/2003 6:53:00 PM
Chlordane	U	0.10		µg/L	1	7/21/2003 6:53:00 PM
Chlorobenzilate	U	0.10		µg/L	1	7/21/2003 6:53:00 PM
DBCP	U	0.10		µg/L	1	7/21/2003 6:53:00 PM
delta-BHC	U	0.10		µg/L	1	7/21/2003 6:53:00 PM
Dieldrin	U	0.10		µg/L	1	7/21/2003 6:53:00 PM
Endosulfan I	U	0.10		µg/L	1	7/21/2003 6:53:00 PM
Endosulfan II	U	0.10		µg/L	1	7/21/2003 6:53:00 PM
Endosulfan sulfate	U	0.10		µg/L	1	7/21/2003 6:53:00 PM
Endrin	U	0.10		µg/L	1	7/21/2003 6:53:00 PM
Endrin aldehyde	U	0.10		µg/L	1	7/21/2003 6:53:00 PM
Endrin ketone	U	0.10		µg/L	1	7/21/2003 6:53:00 PM
gamma-BHC	U	0.10		µg/L	1	7/21/2003 6:53:00 PM
Heptachlor	U	0.10		µg/L	1	7/21/2003 6:53:00 PM
Heptachlor epoxide	U	0.10		µg/L	1	7/21/2003 6:53:00 PM
Hexachlorobenzene	0.08	0.10	J	µg/L	1	7/21/2003 6:53:00 PM
Hexachlorocyclopentadiene	U	0.10		µg/L	1	7/21/2003 6:53:00 PM
Isodrin	U	0.10		µg/L	1	7/21/2003 6:53:00 PM
Methoxychlor	U	0.10		µg/L	1	7/21/2003 6:53:00 PM
Toxaphene	U	1.0		µg/L	1	7/21/2003 6:53:00 PM

Qualifiers:

ND - Not Detected at the Reporting Limit

J - Analyte detected below quantitation limits

B - Analyte detected in the associated Method Blank

* - Value exceeds Maximum Contaminant Level

S - Spike Recovery outside accepted recovery limits

R - RPD outside accepted recovery limits

E - Value above quantitation range

American Analytical Laboratories, Inc.

Date: *28-Jul-03*

CLIENT:	AKRF, Inc	**Client Sample ID:**	MW12
Lab Order:	0307061	**Tag Number:**	
Project:	Greenpoint Lumber Yard Brooklyn, NY	**Collection Date:**	7/16/2003
Lab ID:	0307061-07B	**Matrix:**	LIQUID

Analyses	Result	Limit	Qual	Units	DF	Date Analyzed
PESTICIDES SW-846 8081		**SW8081B**		**(SW3510B)**		Analyst: **KB**
4,4´-DDD	U	0.10		µg/L	1	7/21/2003 7:36:00 PM
4,4´-DDE	U	0.10		µg/L	1	7/21/2003 7:36:00 PM
4,4´-DDT	U	0.10		µg/L	1	7/21/2003 7:36:00 PM
Aldrin	U	0.10		µg/L	1	7/21/2003 7:36:00 PM
alpha-BHC	U	0.10		µg/L	1	7/21/2003 7:36:00 PM
beta-BHC	U	0.10		µg/L	1	7/21/2003 7:36:00 PM
Chlordane	U	0.10		µg/L	1	7/21/2003 7:36:00 PM
Chlorobenzilate	U	0.10		µg/L	1	7/21/2003 7:36:00 PM
DBCP	U	0.10		µg/L	1	7/21/2003 7:36:00 PM
delta-BHC	U	0.10		µg/L	1	7/21/2003 7:36:00 PM
Dieldrin	U	0.10		µg/L	1	7/21/2003 7:36:00 PM
Endosulfan I	U	0.10		µg/L	1	7/21/2003 7:36:00 PM
Endosulfan II	U	0.10		µg/L	1	7/21/2003 7:36:00 PM
Endosulfan sulfate	U	0.10		µg/L	1	7/21/2003 7:36:00 PM
Endrin	U	0.10		µg/L	1	7/21/2003 7:36:00 PM
Endrin aldehyde	U	0.10		µg/L	1	7/21/2003 7:36:00 PM
Endrin ketone	U	0.10		µg/L	1	7/21/2003 7:36:00 PM
gamma-BHC	U	0.10		µg/L	1	7/21/2003 7:36:00 PM
Heptachlor	U	0.10		µg/L	1	7/21/2003 7:36:00 PM
Heptachlor epoxide	U	0.10		µg/L	1	7/21/2003 7:36:00 PM
Hexachlorobenzene	U	0.10		µg/L	1	7/21/2003 7:36:00 PM
Hexachlorocyclopentadiene	U	0.10		µg/L	1	7/21/2003 7:36:00 PM
Isodrin	U	0.10		µg/L	1	7/21/2003 7:36:00 PM
Methoxychlor	U	0.10		µg/L	1	7/21/2003 7:36:00 PM
Toxaphene	U	1.0		µg/L	1	7/21/2003 7:36:00 PM

Qualifiers:

ND - Not Detected at the Reporting Limit

J - Analyte detected below quantitation limits

B - Analyte detected in the associated Method Blank

* - Value exceeds Maximum Contaminant Level

S - Spike Recovery outside accepted recovery limits

R - RPD outside accepted recovery limits

E - Value above quantitation range

American Analytical Laboratories, Inc.

Date: *28-Jul-03*

CLIENT:	AKRF, Inc	**Client Sample ID:**	MW13
Lab Order:	0307061	**Tag Number:**	
Project:	Greenpoint Lumber Yard Brooklyn, NY	**Collection Date:**	7/16/2003
Lab ID:	0307061-08B	**Matrix:**	LIQUID

Analyses	Result	Limit	Qual	Units	DF	Date Analyzed
PESTICIDES SW-846 8081		**SW8081B**		**(SW3510B)**		Analyst: **KB**
4,4'-DDD	U	0.10		µg/L	1	7/21/2003 8:19:00 PM
4,4'-DDE	U	0.10		µg/L	1	7/21/2003 8:19:00 PM
4,4'-DDT	U	0.10		µg/L	1	7/21/2003 8:19:00 PM
Aldrin	U	0.10		µg/L	1	7/21/2003 8:19:00 PM
alpha-BHC	U	0.10		µg/L	1	7/21/2003 8:19:00 PM
beta-BHC	U	0.10		µg/L	1	7/21/2003 8:19:00 PM
Chlordane	U	0.10		µg/L	1	7/21/2003 8:19:00 PM
Chlorobenzilate	U	0.10		µg/L	1	7/21/2003 8:19:00 PM
DBCP	U	0.10		µg/L	1	7/21/2003 8:19:00 PM
delta-BHC	U	0.10		µg/L	1	7/21/2003 8:19:00 PM
Dieldrin	U	0.10		µg/L	1	7/21/2003 8:19:00 PM
Endosulfan I	U	0.10		µg/L	1	7/21/2003 8:19:00 PM
Endosulfan II	U	0.10		µg/L	1	7/21/2003 8:19:00 PM
Endosulfan sulfate	U	0.10		µg/L	1	7/21/2003 8:19:00 PM
Endrin	U	0.10		µg/L	1	7/21/2003 8:19:00 PM
Endrin aldehyde	U	0.10		µg/L	1	7/21/2003 8:19:00 PM
Endrin ketone	U	0.10		µg/L	1	7/21/2003 8:19:00 PM
gamma-BHC	U	0.10		µg/L	1	7/21/2003 8:19:00 PM
Heptachlor	U	0.10		µg/L	1	7/21/2003 8:19:00 PM
Heptachlor epoxide	U	0.10		µg/L	1	7/21/2003 8:19:00 PM
Hexachlorobenzene	U	0.10		µg/L	1	7/21/2003 8:19:00 PM
Hexachlorocyclopentadiene	U	0.10		µg/L	1	7/21/2003 8:19:00 PM
Isodrin	U	0.10		µg/L	1	7/21/2003 8:19:00 PM
Methoxychlor	U	0.10		µg/L	1	7/21/2003 8:19:00 PM
Toxaphene	U	1.0		µg/L	1	7/21/2003 8:19:00 PM

Qualifiers:

ND - Not Detected at the Reporting Limit

J - Analyte detected below quantitation limits

B - Analyte detected in the associated Method Blank

* - Value exceeds Maximum Contaminant Level

S - Spike Recovery outside accepted recovery limits

R - RPD outside accepted recovery limits

E - Value above quantitation range

American Analytical Laboratories, Inc.

Date: *28-Jul-03*

CLIENT:	AKRF, Inc	**Client Sample ID:**	MW14
Lab Order:	0307061	**Tag Number:**	
Project:	Greenpoint Lumber Yard Brooklyn, NY	**Collection Date:**	7/16/2003
Lab ID:	0307061-09B	**Matrix:**	LIQUID

Analyses	Result	Limit	Qual	Units	DF	Date Analyzed
PESTICIDES SW-846 8081		**SW8081B**		**(SW3510B)**		Analyst: **KB**
4,4´-DDD	U	0.10		µg/L	1	7/21/2003 9:02:00 PM
4,4´-DDE	U	0.10		µg/L	1	7/21/2003 9:02:00 PM
4,4´-DDT	U	0.10		µg/L	1	7/21/2003 9:02:00 PM
Aldrin	U	0.10		µg/L	1	7/21/2003 9:02:00 PM
alpha-BHC	U	0.10		µg/L	1	7/21/2003 9:02:00 PM
beta-BHC	U	0.10		µg/L	1	7/21/2003 9:02:00 PM
Chlordane	U	0.10		µg/L	1	7/21/2003 9:02:00 PM
Chlorobenzilate	U	0.10		µg/L	1	7/21/2003 9:02:00 PM
DBCP	U	0.10		µg/L	1	7/21/2003 9:02:00 PM
delta-BHC	U	0.10		µg/L	1	7/21/2003 9:02:00 PM
Dieldrin	U	0.10		µg/L	1	7/21/2003 9:02:00 PM
Endosulfan I	U	0.10		µg/L	1	7/21/2003 9:02:00 PM
Endosulfan II	U	0.10		µg/L	1	7/21/2003 9:02:00 PM
Endosulfan sulfate	U	0.10		µg/L	1	7/21/2003 9:02:00 PM
Endrin	U	0.10		µg/L	1	7/21/2003 9:02:00 PM
Endrin aldehyde	U	0.10		µg/L	1	7/21/2003 9:02:00 PM
Endrin ketone	U	0.10		µg/L	1	7/21/2003 9:02:00 PM
gamma-BHC	U	0.10		µg/L	1	7/21/2003 9:02:00 PM
Heptachlor	U	0.10		µg/L	1	7/21/2003 9:02:00 PM
Heptachlor epoxide	U	0.10		µg/L	1	7/21/2003 9:02:00 PM
Hexachlorobenzene	U	0.10		µg/L	1	7/21/2003 9:02:00 PM
Hexachlorocyclopentadiene	U	0.10		µg/L	1	7/21/2003 9:02:00 PM
Isodrin	U	0.10		µg/L	1	7/21/2003 9:02:00 PM
Methoxychlor	U	0.10		µg/L	1	7/21/2003 9:02:00 PM
Toxaphene	U	1.0		µg/L	1	7/21/2003 9:02:00 PM

Qualifiers:

ND - Not Detected at the Reporting Limit

J - Analyte detected below quantitation limits

B - Analyte detected in the associated Method Blank

* - Value exceeds Maximum Contaminant Level

S - Spike Recovery outside accepted recovery limits

R - RPD outside accepted recovery limits

E - Value above quantitation range

American Analytical Laboratories, Inc.

Date: *28-Jul-03*

CLIENT:	AKRF, Inc	**Client Sample ID:**	MW15
Lab Order:	0307061	**Tag Number:**	
Project:	Greenpoint Lumber Yard Brooklyn, NY	**Collection Date:**	7/16/2003
Lab ID:	0307061-10B	**Matrix:**	LIQUID

Analyses	Result	Limit	Qual	Units	DF	Date Analyzed
PESTICIDES SW-846 8081		**SW8081B**		**(SW3510B)**		Analyst: **KB**
4,4'-DDD	U	0.10		µg/L	1	7/21/2003 9:45:00 PM
4,4'-DDE	U	0.10		µg/L	1	7/21/2003 9:45:00 PM
4,4'-DDT	U	0.10		µg/L	1	7/21/2003 9:45:00 PM
Aldrin	U	0.10		µg/L	1	7/21/2003 9:45:00 PM
alpha-BHC	U	0.10		µg/L	1	7/21/2003 9:45:00 PM
beta-BHC	U	0.10		µg/L	1	7/21/2003 9:45:00 PM
Chlordane	U	0.10		µg/L	1	7/21/2003 9:45:00 PM
Chlorobenzilate	U	0.10		µg/L	1	7/21/2003 9:45:00 PM
DBCP	U	0.10		µg/L	1	7/21/2003 9:45:00 PM
delta-BHC	U	0.10		µg/L	1	7/21/2003 9:45:00 PM
Dieldrin	U	0.10		µg/L	1	7/21/2003 9:45:00 PM
Endosulfan I	U	0.10		µg/L	1	7/21/2003 9:45:00 PM
Endosulfan II	U	0.10		µg/L	1	7/21/2003 9:45:00 PM
Endosulfan sulfate	U	0.10		µg/L	1	7/21/2003 9:45:00 PM
Endrin	U	0.10		µg/L	1	7/21/2003 9:45:00 PM
Endrin aldehyde	U	0.10		µg/L	1	7/21/2003 9:45:00 PM
Endrin ketone	U	0.10		µg/L	1	7/21/2003 9:45:00 PM
gamma-BHC	U	0.10		µg/L	1	7/21/2003 9:45:00 PM
Heptachlor	U	0.10		µg/L	1	7/21/2003 9:45:00 PM
Heptachlor epoxide	U	0.10		µg/L	1	7/21/2003 9:45:00 PM
Hexachlorobenzene	U	0.10		µg/L	1	7/21/2003 9:45:00 PM
Hexachlorocyclopentadiene	U	0.10		µg/L	1	7/21/2003 9:45:00 PM
Isodrin	U	0.10		µg/L	1	7/21/2003 9:45:00 PM
Methoxychlor	U	0.10		µg/L	1	7/21/2003 9:45:00 PM
Toxaphene	U	1.0		µg/L	1	7/21/2003 9:45:00 PM

Qualifiers:

ND - Not Detected at the Reporting Limit

J - Analyte detected below quantitation limits

B - Analyte detected in the associated Method Blank

* - Value exceeds Maximum Contaminant Level

S - Spike Recovery outside accepted recovery limits

R - RPD outside accepted recovery limits

E - Value above quantitation range

American Analytical Laboratories, Inc.

Date: *28-Jul-03*

CLIENT:	AKRF, Inc	**Client Sample ID:**	MW16
Lab Order:	0307061	**Tag Number:**	
Project:	Greenpoint Lumber Yard Brooklyn, NY	**Collection Date:**	7/16/2003
Lab ID:	0307061-11B	**Matrix:**	LIQUID

Analyses	Result	Limit	Qual	Units	DF	Date Analyzed
PESTICIDES SW-846 8081		**SW8081B**		**(SW3510B)**		Analyst: **KB**
4,4'-DDD	U	0.10		µg/L	1	7/21/2003 10:28:00 PM
4,4'-DDE	U	0.10		µg/L	1	7/21/2003 10:28:00 PM
4,4'-DDT	U	0.10		µg/L	1	7/21/2003 10:28:00 PM
Aldrin	U	0.10		µg/L	1	7/21/2003 10:28:00 PM
alpha-BHC	U	0.10		µg/L	1	7/21/2003 10:28:00 PM
beta-BHC	U	0.10		µg/L	1	7/21/2003 10:28:00 PM
Chlordane	U	0.10		µg/L	1	7/21/2003 10:28:00 PM
Chlorobenzilate	U	0.10		µg/L	1	7/21/2003 10:28:00 PM
DBCP	U	0.10		µg/L	1	7/21/2003 10:28:00 PM
delta-BHC	U	0.10		µg/L	1	7/21/2003 10:28:00 PM
Dieldrin	U	0.10		µg/L	1	7/21/2003 10:28:00 PM
Endosulfan I	U	0.10		µg/L	1	7/21/2003 10:28:00 PM
Endosulfan II	U	0.10		µg/L	1	7/21/2003 10:28:00 PM
Endosulfan sulfate	U	0.10		µg/L	1	7/21/2003 10:28:00 PM
Endrin	U	0.10		µg/L	1	7/21/2003 10:28:00 PM
Endrin aldehyde	U	0.10		µg/L	1	7/21/2003 10:28:00 PM
Endrin ketone	U	0.10		µg/L	1	7/21/2003 10:28:00 PM
gamma-BHC	U	0.10		µg/L	1	7/21/2003 10:28:00 PM
Heptachlor	U	0.10		µg/L	1	7/21/2003 10:28:00 PM
Heptachlor epoxide	U	0.10		µg/L	1	7/21/2003 10:28:00 PM
Hexachlorobenzene	U	0.10		µg/L	1	7/21/2003 10:28:00 PM
Hexachlorocyclopentadiene	U	0.10		µg/L	1	7/21/2003 10:28:00 PM
Isodrin	U	0.10		µg/L	1	7/21/2003 10:28:00 PM
Methoxychlor	U	0.10		µg/L	1	7/21/2003 10:28:00 PM
Toxaphene	U	1.0		µg/L	1	7/21/2003 10:28:00 PM

Qualifiers:

ND - Not Detected at the Reporting Limit

J - Analyte detected below quantitation limits

B - Analyte detected in the associated Method Blank

* - Value exceeds Maximum Contaminant Level

S - Spike Recovery outside accepted recovery limits

R - RPD outside accepted recovery limits

E - Value above quantitation range

American Analytical Laboratories, Inc.

Date: *28-Jul-03*

CLIENT:	AKRF, Inc	**Client Sample ID:**	FOUND WELL
Lab Order:	0307061	**Tag Number:**	
Project:	Greenpoint Lumber Yard Brooklyn, NY	**Collection Date:**	7/16/2003
Lab ID:	0307061-12B	**Matrix:**	LIQUID

Analyses	Result	Limit	Qual	Units	DF	Date Analyzed
PESTICIDES SW-846 8081		**SW8081B**		**(SW3510B)**		Analyst: **KB**
4,4'-DDD	U	0.10		µg/L	1	7/21/2003 11:11:00 PM
4,4'-DDE	U	0.10		µg/L	1	7/21/2003 11:11:00 PM
4,4'-DDT	U	0.10		µg/L	1	7/21/2003 11:11:00 PM
Aldrin	U	0.10		µg/L	1	7/21/2003 11:11:00 PM
alpha-BHC	U	0.10		µg/L	1	7/21/2003 11:11:00 PM
beta-BHC	U	0.10		µg/L	1	7/21/2003 11:11:00 PM
Chlordane	U	0.10		µg/L	1	7/21/2003 11:11:00 PM
Chlorobenzilate	U	0.10		µg/L	1	7/21/2003 11:11:00 PM
DBCP	U	0.10		µg/L	1	7/21/2003 11:11:00 PM
delta-BHC	U	0.10		µg/L	1	7/21/2003 11:11:00 PM
Dieldrin	U	0.10		µg/L	1	7/21/2003 11:11:00 PM
Endosulfan I	U	0.10		µg/L	1	7/21/2003 11:11:00 PM
Endosulfan II	U	0.10		µg/L	1	7/21/2003 11:11:00 PM
Endosulfan sulfate	U	0.10		µg/L	1	7/21/2003 11:11:00 PM
Endrin	U	0.10		µg/L	1	7/21/2003 11:11:00 PM
Endrin aldehyde	U	0.10		µg/L	1	7/21/2003 11:11:00 PM
Endrin ketone	U	0.10		µg/L	1	7/21/2003 11:11:00 PM
gamma-BHC	U	0.10		µg/L	1	7/21/2003 11:11:00 PM
Heptachlor	U	0.10		µg/L	1	7/21/2003 11:11:00 PM
Heptachlor epoxide	U	0.10		µg/L	1	7/21/2003 11:11:00 PM
Hexachlorobenzene	U	0.10		µg/L	1	7/21/2003 11:11:00 PM
Hexachlorocyclopentadiene	U	0.10		µg/L	1	7/21/2003 11:11:00 PM
Isodrin	U	0.10		µg/L	1	7/21/2003 11:11:00 PM
Methoxychlor	U	0.10		µg/L	1	7/21/2003 11:11:00 PM
Toxaphene	U	1.0		µg/L	1	7/21/2003 11:11:00 PM

Qualifiers:

ND - Not Detected at the Reporting Limit

J - Analyte detected below quantitation limits

B - Analyte detected in the associated Method Blank

* - Value exceeds Maximum Contaminant Level

S - Spike Recovery outside accepted recovery limits

R - RPD outside accepted recovery limits

E - Value above quantitation range

American Analytical Laboratories, Inc.

Date: *28-Jul-03*

CLIENT:	AKRF, Inc	**Client Sample ID:**	FIELD BLANK
Lab Order:	0307061	**Tag Number:**	
Project:	Greenpoint Lumber Yard Brooklyn, NY	**Collection Date:**	7/16/2003
Lab ID:	0307061-14B	**Matrix:**	LIQUID

Analyses	Result	Limit	Qual	Units	DF	Date Analyzed
PESTICIDES SW-846 8081		**SW8081B**		**(SW3510B)**		Analyst: **KB**
4,4'-DDD	U	0.10		µg/L	1	7/21/2003 11:54:00 PM
4,4'-DDE	U	0.10		µg/L	1	7/21/2003 11:54:00 PM
4,4'-DDT	U	0.10		µg/L	1	7/21/2003 11:54:00 PM
Aldrin	U	0.10		µg/L	1	7/21/2003 11:54:00 PM
alpha-BHC	U	0.10		µg/L	1	7/21/2003 11:54:00 PM
beta-BHC	U	0.10		µg/L	1	7/21/2003 11:54:00 PM
Chlordane	U	0.10		µg/L	1	7/21/2003 11:54:00 PM
Chlorobenzilate	U	0.10		µg/L	1	7/21/2003 11:54:00 PM
DBCP	U	0.10		µg/L	1	7/21/2003 11:54:00 PM
delta-BHC	U	0.10		µg/L	1	7/21/2003 11:54:00 PM
Dieldrin	U	0.10		µg/L	1	7/21/2003 11:54:00 PM
Endosulfan I	U	0.10		µg/L	1	7/21/2003 11:54:00 PM
Endosulfan II	U	0.10		µg/L	1	7/21/2003 11:54:00 PM
Endosulfan sulfate	U	0.10		µg/L	1	7/21/2003 11:54:00 PM
Endrin	U	0.10		µg/L	1	7/21/2003 11:54:00 PM
Endrin aldehyde	U	0.10		µg/L	1	7/21/2003 11:54:00 PM
Endrin ketone	U	0.10		µg/L	1	7/21/2003 11:54:00 PM
gamma-BHC	U	0.10		µg/L	1	7/21/2003 11:54:00 PM
Heptachlor	U	0.10		µg/L	1	7/21/2003 11:54:00 PM
Heptachlor epoxide	U	0.10		µg/L	1	7/21/2003 11:54:00 PM
Hexachlorobenzene	U	0.10		µg/L	1	7/21/2003 11:54:00 PM
Hexachlorocyclopentadiene	U	0.10		µg/L	1	7/21/2003 11:54:00 PM
Isodrin	U	0.10		µg/L	1	7/21/2003 11:54:00 PM
Methoxychlor	U	0.10		µg/L	1	7/21/2003 11:54:00 PM
Toxaphene	U	1.0		µg/L	1	7/21/2003 11:54:00 PM

Qualifiers:

ND - Not Detected at the Reporting Limit

J - Analyte detected below quantitation limits

B - Analyte detected in the associated Method Blank

* - Value exceeds Maximum Contaminant Level

S - Spike Recovery outside accepted recovery limits

R - RPD outside accepted recovery limits

E - Value above quantitation range

American Analytical Laboratories, Inc.

Date: *28-Jul-03*

CLIENT:	AKRF, Inc	**Client Sample ID:**	MW6
Lab Order:	0307061	**Tag Number:**	
Project:	Greenpoint Lumber Yard Brooklyn, NY	**Collection Date:**	7/16/2003
Lab ID:	0307061-01B	**Matrix:**	LIQUID

Analyses	Result	Limit	Qual	Units	DF	Date Analyzed
PCB'S AS AROCLORS SW-846 8082		**SW8082A**		**(SW3510B)**		Analyst: **KB**
Aroclor 1016	U	1.0		µg/L	1	7/18/2003 5:26:00 PM
Aroclor 1221	U	1.0		µg/L	1	7/18/2003 5:26:00 PM
Aroclor 1232	U	1.0		µg/L	1	7/18/2003 5:26:00 PM
Aroclor 1242	U	1.0		µg/L	1	7/18/2003 5:26:00 PM
Aroclor 1248	U	1.0		µg/L	1	7/18/2003 5:26:00 PM
Aroclor 1254	U	1.0		µg/L	1	7/18/2003 5:26:00 PM
Aroclor 1260	U	1.0		µg/L	1	7/18/2003 5:26:00 PM

Qualifiers:

ND - Not Detected at the Reporting Limit

J - Analyte detected below quantitation limits

B - Analyte detected in the associated Method Blank

* - Value exceeds Maximum Contaminant Level

S - Spike Recovery outside accepted recovery limits

R - RPD outside accepted recovery limits

E - Value above quantitation range

American Analytical Laboratories, Inc.

Date: *28-Jul-03*

CLIENT:	AKRF, Inc	**Client Sample ID:**	MW7
Lab Order:	0307061	**Tag Number:**	
Project:	Greenpoint Lumber Yard Brooklyn, NY	**Collection Date:**	7/16/2003
Lab ID:	0307061-02B	**Matrix:**	LIQUID

Analyses	Result	Limit	Qual	Units	DF	Date Analyzed
PCB'S AS AROCLORS SW-846 8082		**SW8082A**		**(SW3510B)**		Analyst: **KB**
Aroclor 1016	U	1.0		µg/L	1	7/18/2003 6:09:00 PM
Aroclor 1221	U	1.0		µg/L	1	7/18/2003 6:09:00 PM
Aroclor 1232	U	1.0		µg/L	1	7/18/2003 6:09:00 PM
Aroclor 1242	U	1.0		µg/L	1	7/18/2003 6:09:00 PM
Aroclor 1248	U	1.0		µg/L	1	7/18/2003 6:09:00 PM
Aroclor 1254	U	1.0		µg/L	1	7/18/2003 6:09:00 PM
Aroclor 1260	U	1.0		µg/L	1	7/18/2003 6:09:00 PM

Qualifiers:

ND - Not Detected at the Reporting Limit

J - Analyte detected below quantitation limits

B - Analyte detected in the associated Method Blank

* - Value exceeds Maximum Contaminant Level

S - Spike Recovery outside accepted recovery limits

R - RPD outside accepted recovery limits

E - Value above quantitation range

American Analytical Laboratories, Inc.

Date: *28-Jul-03*

CLIENT:	AKRF, Inc	**Client Sample ID:**	MW8
Lab Order:	0307061	**Tag Number:**	
Project:	Greenpoint Lumber Yard Brooklyn, NY	**Collection Date:**	7/16/2003
Lab ID:	0307061-03B	**Matrix:**	LIQUID

Analyses	Result	Limit	Qual	Units	DF	Date Analyzed
PCB'S AS AROCLORS SW-846 8082		**SW8082A**		**(SW3510B)**		Analyst: **KB**
Aroclor 1016	U	1.0		µg/L	1	7/18/2003 6:52:00 PM
Aroclor 1221	U	1.0		µg/L	1	7/18/2003 6:52:00 PM
Aroclor 1232	U	1.0		µg/L	1	7/18/2003 6:52:00 PM
Aroclor 1242	U	1.0		µg/L	1	7/18/2003 6:52:00 PM
Aroclor 1248	U	1.0		µg/L	1	7/18/2003 6:52:00 PM
Aroclor 1254	U	1.0		µg/L	1	7/18/2003 6:52:00 PM
Aroclor 1260	U	1.0		µg/L	1	7/18/2003 6:52:00 PM

Qualifiers:

ND - Not Detected at the Reporting Limit

J - Analyte detected below quantitation limits

B - Analyte detected in the associated Method Blank

* - Value exceeds Maximum Contaminant Level

S - Spike Recovery outside accepted recovery limits

R - RPD outside accepted recovery limits

E - Value above quantitation range

American Analytical Laboratories, Inc.

Date: *28-Jul-03*

CLIENT:	AKRF, Inc	**Client Sample ID:**	MW9
Lab Order:	0307061	**Tag Number:**	
Project:	Greenpoint Lumber Yard Brooklyn, NY	**Collection Date:**	7/16/2003
Lab ID:	0307061-04B	**Matrix:**	LIQUID

Analyses	Result	Limit	Qual	Units	DF	Date Analyzed
PCB'S AS AROCLORS SW-846 8082		**SW8082A**		**(SW3510B)**		Analyst: **KB**
Aroclor 1016	U	1.0		µg/L	1	7/18/2003 7:35:00 PM
Aroclor 1221	U	1.0		µg/L	1	7/18/2003 7:35:00 PM
Aroclor 1232	U	1.0		µg/L	1	7/18/2003 7:35:00 PM
Aroclor 1242	U	1.0		µg/L	1	7/18/2003 7:35:00 PM
Aroclor 1248	U	1.0		µg/L	1	7/18/2003 7:35:00 PM
Aroclor 1254	U	1.0		µg/L	1	7/18/2003 7:35:00 PM
Aroclor 1260	U	1.0		µg/L	1	7/18/2003 7:35:00 PM

Qualifiers:

ND - Not Detected at the Reporting Limit

J - Analyte detected below quantitation limits

B - Analyte detected in the associated Method Blank

* - Value exceeds Maximum Contaminant Level

S - Spike Recovery outside accepted recovery limits

R - RPD outside accepted recovery limits

E - Value above quantitation range

American Analytical Laboratories, Inc.

Date: *28-Jul-03*

CLIENT:	AKRF, Inc	**Client Sample ID:**	MW10
Lab Order:	0307061	**Tag Number:**	
Project:	Greenpoint Lumber Yard Brooklyn, NY	**Collection Date:**	7/16/2003
Lab ID:	0307061-05B	**Matrix:**	LIQUID

Analyses	Result	Limit	Qual	Units	DF	Date Analyzed
PCB'S AS AROCLORS SW-846 8082		**SW8082A**		**(SW3510B)**		Analyst: **KB**
Aroclor 1016	U	1.0		µg/L	1	7/18/2003 8:18:00 PM
Aroclor 1221	U	1.0		µg/L	1	7/18/2003 8:18:00 PM
Aroclor 1232	U	1.0		µg/L	1	7/18/2003 8:18:00 PM
Aroclor 1242	U	1.0		µg/L	1	7/18/2003 8:18:00 PM
Aroclor 1248	U	1.0		µg/L	1	7/18/2003 8:18:00 PM
Aroclor 1254	U	1.0		µg/L	1	7/18/2003 8:18:00 PM
Aroclor 1260	U	1.0		µg/L	1	7/18/2003 8:18:00 PM

Qualifiers:

ND - Not Detected at the Reporting Limit

J - Analyte detected below quantitation limits

B - Analyte detected in the associated Method Blank

* - Value exceeds Maximum Contaminant Level

S - Spike Recovery outside accepted recovery limits

R - RPD outside accepted recovery limits

E - Value above quantitation range

American Analytical Laboratories, Inc.

Date: *28-Jul-03*

CLIENT:	AKRF, Inc	**Client Sample ID:**	MW11
Lab Order:	0307061	**Tag Number:**	
Project:	Greenpoint Lumber Yard Brooklyn, NY	**Collection Date:**	7/16/2003
Lab ID:	0307061-06B	**Matrix:**	LIQUID

Analyses	Result	Limit	Qual	Units	DF	Date Analyzed
PCB'S AS AROCLORS SW-846 8082		**SW8082A**		**(SW3510B)**		Analyst: **KB**
Aroclor 1016	U	1.0		µg/L	1	7/21/2003 6:53:00 PM
Aroclor 1221	U	1.0		µg/L	1	7/21/2003 6:53:00 PM
Aroclor 1232	U	1.0		µg/L	1	7/21/2003 6:53:00 PM
Aroclor 1242	U	1.0		µg/L	1	7/21/2003 6:53:00 PM
Aroclor 1248	U	1.0		µg/L	1	7/21/2003 6:53:00 PM
Aroclor 1254	U	1.0		µg/L	1	7/21/2003 6:53:00 PM
Aroclor 1260	U	1.0		µg/L	1	7/21/2003 6:53:00 PM

Qualifiers:

ND - Not Detected at the Reporting Limit

J - Analyte detected below quantitation limits

B - Analyte detected in the associated Method Blank

* - Value exceeds Maximum Contaminant Level

S - Spike Recovery outside accepted recovery limits

R - RPD outside accepted recovery limits

E - Value above quantitation range

American Analytical Laboratories, Inc.

Date: *28-Jul-03*

CLIENT:	AKRF, Inc	**Client Sample ID:**	MW12
Lab Order:	0307061	**Tag Number:**	
Project:	Greenpoint Lumber Yard Brooklyn, NY	**Collection Date:**	7/16/2003
Lab ID:	0307061-07B	**Matrix:**	LIQUID

Analyses	Result	Limit	Qual	Units	DF	Date Analyzed
PCB'S AS AROCLORS SW-846 8082		**SW8082A**		**(SW3510B)**		Analyst: **KB**
Aroclor 1016	U	1.0		µg/L	1	7/21/2003 7:36:00 PM
Aroclor 1221	U	1.0		µg/L	1	7/21/2003 7:36:00 PM
Aroclor 1232	U	1.0		µg/L	1	7/21/2003 7:36:00 PM
Aroclor 1242	U	1.0		µg/L	1	7/21/2003 7:36:00 PM
Aroclor 1248	U	1.0		µg/L	1	7/21/2003 7:36:00 PM
Aroclor 1254	U	1.0		µg/L	1	7/21/2003 7:36:00 PM
Aroclor 1260	U	1.0		µg/L	1	7/21/2003 7:36:00 PM

Qualifiers:

ND - Not Detected at the Reporting Limit

J - Analyte detected below quantitation limits

B - Analyte detected in the associated Method Blank

* - Value exceeds Maximum Contaminant Level

S - Spike Recovery outside accepted recovery limits

R - RPD outside accepted recovery limits

E - Value above quantitation range

American Analytical Laboratories, Inc.

Date: *28-Jul-03*

CLIENT:	AKRF, Inc	**Client Sample ID:**	MW13
Lab Order:	0307061	**Tag Number:**	
Project:	Greenpoint Lumber Yard Brooklyn, NY	**Collection Date:**	7/16/2003
Lab ID:	0307061-08B	**Matrix:**	LIQUID

Analyses	Result	Limit	Qual	Units	DF	Date Analyzed
PCB'S AS AROCLORS SW-846 8082		**SW8082A**		**(SW3510B)**		Analyst: **KB**
Aroclor 1016	U	1.0		µg/L	1	7/21/2003 8:19:00 PM
Aroclor 1221	U	1.0		µg/L	1	7/21/2003 8:19:00 PM
Aroclor 1232	U	1.0		µg/L	1	7/21/2003 8:19:00 PM
Aroclor 1242	U	1.0		µg/L	1	7/21/2003 8:19:00 PM
Aroclor 1248	U	1.0		µg/L	1	7/21/2003 8:19:00 PM
Aroclor 1254	U	1.0		µg/L	1	7/21/2003 8:19:00 PM
Aroclor 1260	U	1.0		µg/L	1	7/21/2003 8:19:00 PM

Qualifiers:

ND - Not Detected at the Reporting Limit

J - Analyte detected below quantitation limits

B - Analyte detected in the associated Method Blank

* - Value exceeds Maximum Contaminant Level

S - Spike Recovery outside accepted recovery limits

R - RPD outside accepted recovery limits

E - Value above quantitation range

American Analytical Laboratories, Inc.

Date: *28-Jul-03*

CLIENT:	AKRF, Inc	**Client Sample ID:**	MW14
Lab Order:	0307061	**Tag Number:**	
Project:	Greenpoint Lumber Yard Brooklyn, NY	**Collection Date:**	7/16/2003
Lab ID:	0307061-09B	**Matrix:**	LIQUID

Analyses	Result	Limit	Qual	Units	DF	Date Analyzed
PCB'S AS AROCLORS SW-846 8082		**SW8082A**		**(SW3510B)**		Analyst: **KB**
Aroclor 1016	U	1.0		µg/L	1	7/21/2003 9:02:00 PM
Aroclor 1221	U	1.0		µg/L	1	7/21/2003 9:02:00 PM
Aroclor 1232	U	1.0		µg/L	1	7/21/2003 9:02:00 PM
Aroclor 1242	U	1.0		µg/L	1	7/21/2003 9:02:00 PM
Aroclor 1248	U	1.0		µg/L	1	7/21/2003 9:02:00 PM
Aroclor 1254	U	1.0		µg/L	1	7/21/2003 9:02:00 PM
Aroclor 1260	U	1.0		µg/L	1	7/21/2003 9:02:00 PM

Qualifiers:

ND - Not Detected at the Reporting Limit

J - Analyte detected below quantitation limits

B - Analyte detected in the associated Method Blank

* - Value exceeds Maximum Contaminant Level

S - Spike Recovery outside accepted recovery limits

R - RPD outside accepted recovery limits

E - Value above quantitation range

American Analytical Laboratories, Inc.

Date: *28-Jul-03*

CLIENT:	AKRF, Inc	**Client Sample ID:**	MW15
Lab Order:	0307061	**Tag Number:**	
Project:	Greenpoint Lumber Yard Brooklyn, NY	**Collection Date:**	7/16/2003
Lab ID:	0307061-10B	**Matrix:**	LIQUID

Analyses	Result	Limit	Qual	Units	DF	Date Analyzed
PCB'S AS AROCLORS SW-846 8082		**SW8082A**		**(SW3510B)**		Analyst: **KB**
Aroclor 1016	U	1.0		µg/L	1	7/21/2003 9:45:00 PM
Aroclor 1221	U	1.0		µg/L	1	7/21/2003 9:45:00 PM
Aroclor 1232	U	1.0		µg/L	1	7/21/2003 9:45:00 PM
Aroclor 1242	U	1.0		µg/L	1	7/21/2003 9:45:00 PM
Aroclor 1248	U	1.0		µg/L	1	7/21/2003 9:45:00 PM
Aroclor 1254	U	1.0		µg/L	1	7/21/2003 9:45:00 PM
Aroclor 1260	U	1.0		µg/L	1	7/21/2003 9:45:00 PM

Qualifiers:

ND - Not Detected at the Reporting Limit

J - Analyte detected below quantitation limits

B - Analyte detected in the associated Method Blank

* - Value exceeds Maximum Contaminant Level

S - Spike Recovery outside accepted recovery limits

R - RPD outside accepted recovery limits

E - Value above quantitation range

American Analytical Laboratories, Inc.

Date: *28-Jul-03*

CLIENT:	AKRF, Inc	**Client Sample ID:**	MW16
Lab Order:	0307061	**Tag Number:**	
Project:	Greenpoint Lumber Yard Brooklyn, NY	**Collection Date:**	7/16/2003
Lab ID:	0307061-11B	**Matrix:**	LIQUID

Analyses	Result	Limit	Qual	Units	DF	Date Analyzed
PCB'S AS AROCLORS SW-846 8082		**SW8082A**		**(SW3510B)**		Analyst: **KB**
Aroclor 1016	U	1.0		µg/L	1	7/21/2003 10:28:00 PM
Aroclor 1221	U	1.0		µg/L	1	7/21/2003 10:28:00 PM
Aroclor 1232	U	1.0		µg/L	1	7/21/2003 10:28:00 PM
Aroclor 1242	U	1.0		µg/L	1	7/21/2003 10:28:00 PM
Aroclor 1248	U	1.0		µg/L	1	7/21/2003 10:28:00 PM
Aroclor 1254	U	1.0		µg/L	1	7/21/2003 10:28:00 PM
Aroclor 1260	U	1.0		µg/L	1	7/21/2003 10:28:00 PM

Qualifiers:

ND - Not Detected at the Reporting Limit

J - Analyte detected below quantitation limits

B - Analyte detected in the associated Method Blank

* - Value exceeds Maximum Contaminant Level

S - Spike Recovery outside accepted recovery limits

R - RPD outside accepted recovery limits

E - Value above quantitation range

American Analytical Laboratories, Inc.

Date: *28-Jul-03*

CLIENT:	AKRF, Inc	**Client Sample ID:**	FOUND WELL
Lab Order:	0307061	**Tag Number:**	
Project:	Greenpoint Lumber Yard Brooklyn, NY	**Collection Date:**	7/16/2003
Lab ID:	0307061-12B	**Matrix:**	LIQUID

Analyses	Result	Limit	Qual	Units	DF	Date Analyzed
PCB'S AS AROCLORS SW-846 8082		**SW8082A**		**(SW3510B)**		Analyst: **KB**
Aroclor 1016	U	1.0		µg/L	1	7/21/2003 11:11:00 PM
Aroclor 1221	U	1.0		µg/L	1	7/21/2003 11:11:00 PM
Aroclor 1232	U	1.0		µg/L	1	7/21/2003 11:11:00 PM
Aroclor 1242	U	1.0		µg/L	1	7/21/2003 11:11:00 PM
Aroclor 1248	U	1.0		µg/L	1	7/21/2003 11:11:00 PM
Aroclor 1254	U	1.0		µg/L	1	7/21/2003 11:11:00 PM
Aroclor 1260	U	1.0		µg/L	1	7/21/2003 11:11:00 PM

Qualifiers:

ND - Not Detected at the Reporting Limit

J - Analyte detected below quantitation limits

B - Analyte detected in the associated Method Blank

* - Value exceeds Maximum Contaminant Level

S - Spike Recovery outside accepted recovery limits

R - RPD outside accepted recovery limits

E - Value above quantitation range

American Analytical Laboratories, Inc.

Date: *28-Jul-03*

CLIENT:	AKRF, Inc	**Client Sample ID:**	FIELD BLANK
Lab Order:	0307061	**Tag Number:**	
Project:	Greenpoint Lumber Yard Brooklyn, NY	**Collection Date:**	7/16/2003
Lab ID:	0307061-14B	**Matrix:**	LIQUID

Analyses	Result	Limit	Qual	Units	DF	Date Analyzed
PCB'S AS AROCLORS SW-846 8082		**SW8082A**		**(SW3510B)**		Analyst: **KB**
Aroclor 1016	U	1.0		µg/L	1	7/21/2003 11:54:00 PM
Aroclor 1221	U	1.0		µg/L	1	7/21/2003 11:54:00 PM
Aroclor 1232	U	1.0		µg/L	1	7/21/2003 11:54:00 PM
Aroclor 1242	U	1.0		µg/L	1	7/21/2003 11:54:00 PM
Aroclor 1248	U	1.0		µg/L	1	7/21/2003 11:54:00 PM
Aroclor 1254	U	1.0		µg/L	1	7/21/2003 11:54:00 PM
Aroclor 1260	U	1.0		µg/L	1	7/21/2003 11:54:00 PM

Qualifiers:

ND - Not Detected at the Reporting Limit

J - Analyte detected below quantitation limits

B - Analyte detected in the associated Method Blank

* - Value exceeds Maximum Contaminant Level

S - Spike Recovery outside accepted recovery limits

R - RPD outside accepted recovery limits

E - Value above quantitation range

INORGANIC DATA

RESULTS - INORGANIC ANALYSIS DATA SHEET

American Analytical Laboratories, Inc.

Date: *28-Jul-03*

CLIENT:	AKRF, Inc	**Client Sample ID:**	MW6
Lab Order:	0307061	**Tag Number:**	
Project:	Greenpoint Lumber Yard Brooklyn, NY	**Collection Date:**	7/16/2003
Lab ID:	0307061-01C	**Matrix:**	LIQUID

Analyses	Result	Limit	Qual	Units	DF	Date Analyzed
MERCURY SW-846 7470		**SW7470A**				Analyst: **JP**
Mercury	U	0.200		µg/L	1	7/23/2003
TARGET ANALYTE LIST METALS		**SW6010B**		**(SW3010A)**		Analyst: **JP**
Aluminum	0.104	0.0200		mg/L	1	7/18/2003 10:22:43 AM
Antimony	0.0836	0.0250		mg/L	1	7/18/2003 10:22:43 AM
Arsenic	U	0.0250		mg/L	1	7/18/2003 10:22:43 AM
Barium	0.218	0.0200		mg/L	1	7/18/2003 10:22:43 AM
Beryllium	U	0.0200		mg/L	1	7/18/2003 10:22:43 AM
Cadmium	U	0.0100		mg/L	1	7/18/2003 10:22:43 AM
Calcium	146	0.0200		mg/L	1	7/18/2003 10:22:43 AM
Chromium	U	0.0200		mg/L	1	7/18/2003 10:22:43 AM
Cobalt	0.013	0.0200	J	mg/L	1	7/18/2003 10:22:43 AM
Copper	0.015	0.0200	J	mg/L	1	7/18/2003 10:22:43 AM
Iron	29.2	0.0200		mg/L	1	7/18/2003 10:22:43 AM
Lead	U	0.0150		mg/L	1	7/18/2003 10:22:43 AM
Magnesium	7.07	0.0200		mg/L	1	7/18/2003 10:22:43 AM
Manganese	0.558	0.0200		mg/L	1	7/18/2003 10:22:43 AM
Nickel	0.0054	0.0200	J	mg/L	1	7/18/2003 10:22:43 AM
Potassium	15.5	0.0700		mg/L	1	7/18/2003 10:22:43 AM
Selenium	U	0.0250		mg/L	1	7/18/2003 10:22:43 AM
Silver	U	0.0200		mg/L	1	7/18/2003 10:22:43 AM
Sodium	21.7	0.0300		mg/L	1	7/18/2003 10:22:43 AM
Thallium	U	0.0150		mg/L	1	7/18/2003 10:22:43 AM
Vanadium	U	0.0200		mg/L	1	7/18/2003 10:22:43 AM
Zinc	0.0516	0.0200		mg/L	1	7/18/2003 10:22:43 AM

Qualifiers:

ND - Not Detected at the Reporting Limit

J - Analyte detected below quantitation limits

B - Analyte detected in the associated Method Blank

* - Value exceeds Maximum Contaminant Level

S - Spike Recovery outside accepted recovery limits

R - RPD outside accepted recovery limits

E - Value above quantitation range

American Analytical Laboratories, Inc.

Date: *28-Jul-03*

CLIENT:	AKRF, Inc	**Client Sample ID:**	MW6
Lab Order:	0307061	**Tag Number:**	
Project:	Greenpoint Lumber Yard Brooklyn, NY	**Collection Date:**	7/16/2003
Lab ID:	0307061-01D	**Matrix:**	LIQUID

Analyses	Result	Limit	Qual	Units	DF	Date Analyzed
MERCURY - DISSOLVED		**SW7470A**		**(SW3005A)**		Analyst: **JP**
Mercury	U	0.00200		mg/L	1	7/23/2003
TARGET ANALYTE LIST METALS-DISSOLVED		**SW6010B**		**(SW3005A)**		Analyst: **JP**
Aluminum	0.0562	0.0200		mg/L	1	7/18/2003 10:20:15 AM
Antimony	U	0.0250		mg/L	1	7/18/2003 10:20:15 AM
Arsenic	U	0.0250		mg/L	1	7/18/2003 10:20:15 AM
Barium	0.146	0.0200		mg/L	1	7/18/2003 10:20:15 AM
Beryllium	U	0.0200		mg/L	1	7/18/2003 10:20:15 AM
Cadmium	U	0.0100		mg/L	1	7/18/2003 10:20:15 AM
Calcium	160	0.0200		mg/L	1	7/18/2003 10:20:15 AM
Chromium	U	0.0200		mg/L	1	7/18/2003 10:20:15 AM
Cobalt	U	0.0200		mg/L	1	7/18/2003 10:20:15 AM
Copper	U	0.0200		mg/L	1	7/18/2003 10:20:15 AM
Iron	0.843	0.0200		mg/L	1	7/18/2003 10:20:15 AM
Lead	U	0.0150		mg/L	1	7/18/2003 10:20:15 AM
Magnesium	7.73	0.0200		mg/L	1	7/18/2003 10:20:15 AM
Manganese	0.537	0.0200		mg/L	1	7/18/2003 10:20:15 AM
Nickel	U	0.0200		mg/L	1	7/18/2003 10:20:15 AM
Potassium	18.1	0.0700		mg/L	1	7/18/2003 10:20:15 AM
Selenium	U	0.0250		mg/L	1	7/18/2003 10:20:15 AM
Silver	U	0.0200		mg/L	1	7/18/2003 10:20:15 AM
Sodium	17.1	0.0300		mg/L	1	7/18/2003 10:20:15 AM
Thallium	U	0.0150		mg/L	1	7/18/2003 10:20:15 AM
Vanadium	U	0.0200		mg/L	1	7/18/2003 10:20:15 AM
Zinc	0.0071	0.0200	J	mg/L	1	7/18/2003 10:20:15 AM

Qualifiers:

ND - Not Detected at the Reporting Limit

J - Analyte detected below quantitation limits

B - Analyte detected in the associated Method Blank

* - Value exceeds Maximum Contaminant Level

S - Spike Recovery outside accepted recovery limits

R - RPD outside accepted recovery limits

E - Value above quantitation range

American Analytical Laboratories, Inc.

Date: *28-Jul-03*

CLIENT:	AKRF, Inc	**Client Sample ID:**	MW7
Lab Order:	0307061	**Tag Number:**	
Project:	Greenpoint Lumber Yard Brooklyn, NY	**Collection Date:**	7/16/2003
Lab ID:	0307061-02C	**Matrix:**	LIQUID

Analyses	Result	Limit	Qual	Units	DF	Date Analyzed
MERCURY SW-846 7470		**SW7470A**				Analyst: **JP**
Mercury	U	0.200		µg/L	1	7/23/2003
TARGET ANALYTE LIST METALS		**SW6010B**		**(SW3010A)**		Analyst: **JP**
Aluminum	1.68	0.0200		mg/L	1	7/18/2003 10:28:23 AM
Antimony	0.0548	0.0250		mg/L	1	7/18/2003 10:28:23 AM
Arsenic	U	0.0250		mg/L	1	7/18/2003 10:28:23 AM
Barium	0.132	0.0200		mg/L	1	7/18/2003 10:28:23 AM
Beryllium	U	0.0200		mg/L	1	7/18/2003 10:28:23 AM
Cadmium	U	0.0100		mg/L	1	7/18/2003 10:28:23 AM
Calcium	39.2	0.0200		mg/L	1	7/18/2003 10:28:23 AM
Chromium	U	0.0200		mg/L	1	7/18/2003 10:28:23 AM
Cobalt	U	0.0200		mg/L	1	7/18/2003 10:28:23 AM
Copper	0.019	0.0200	J	mg/L	1	7/18/2003 10:28:23 AM
Iron	0.497	0.0200		mg/L	1	7/18/2003 10:28:23 AM
Lead	0.0197	0.0150		mg/L	1	7/18/2003 10:28:23 AM
Magnesium	0.166	0.0200		mg/L	1	7/18/2003 10:28:23 AM
Manganese	0.0082	0.0200	J	mg/L	1	7/18/2003 10:28:23 AM
Nickel	0.0058	0.0200	J	mg/L	1	7/18/2003 10:28:23 AM
Potassium	100	0.0700		mg/L	1	7/18/2003 10:28:23 AM
Selenium	U	0.0250		mg/L	1	7/18/2003 10:28:23 AM
Silver	U	0.0200		mg/L	1	7/18/2003 10:28:23 AM
Sodium	110	0.0300		mg/L	1	7/18/2003 10:28:23 AM
Thallium	0.0190	0.0150		mg/L	1	7/18/2003 10:28:23 AM
Vanadium	0.0083	0.0200	J	mg/L	1	7/18/2003 10:28:23 AM
Zinc	0.0392	0.0200		mg/L	1	7/18/2003 10:28:23 AM

Qualifiers:

ND - Not Detected at the Reporting Limit

J - Analyte detected below quantitation limits

B - Analyte detected in the associated Method Blank

* - Value exceeds Maximum Contaminant Level

S - Spike Recovery outside accepted recovery limits

R - RPD outside accepted recovery limits

E - Value above quantitation range

American Analytical Laboratories, Inc.

Date: *28-Jul-03*

CLIENT:	AKRF, Inc	**Client Sample ID:**	MW7
Lab Order:	0307061	**Tag Number:**	
Project:	Greenpoint Lumber Yard Brooklyn, NY	**Collection Date:**	7/16/2003
Lab ID:	0307061-02D	**Matrix:**	LIQUID

Analyses	Result	Limit	Qual	Units	DF	Date Analyzed
MERCURY - DISSOLVED		**SW7470A**		**(SW3005A)**		Analyst: **JP**
Mercury	U	0.00200		mg/L	1	7/23/2003
TARGET ANALYTE LIST METALS-DISSOLVED		**SW6010B**		**(SW3005A)**		Analyst: **JP**
Aluminum	1.69	0.0200		mg/L	1	7/18/2003 10:26:08 AM
Antimony	U	0.0250		mg/L	1	7/18/2003 10:26:08 AM
Arsenic	U	0.0250		mg/L	1	7/18/2003 10:26:08 AM
Barium	0.140	0.0200		mg/L	1	7/18/2003 10:26:08 AM
Beryllium	U	0.0200		mg/L	1	7/18/2003 10:26:08 AM
Cadmium	U	0.0100		mg/L	1	7/18/2003 10:26:08 AM
Calcium	41.9	0.0200		mg/L	1	7/18/2003 10:26:08 AM
Chromium	U	0.0200		mg/L	1	7/18/2003 10:26:08 AM
Cobalt	U	0.0200		mg/L	1	7/18/2003 10:26:08 AM
Copper	0.0052	0.0200	J	mg/L	1	7/18/2003 10:26:08 AM
Iron	0.157	0.0200		mg/L	1	7/18/2003 10:26:08 AM
Lead	0.0091	0.0150	J	mg/L	1	7/18/2003 10:26:08 AM
Magnesium	0.0633	0.0200		mg/L	1	7/18/2003 10:26:08 AM
Manganese	U	0.0200		mg/L	1	7/18/2003 10:26:08 AM
Nickel	0.0048	0.0200	J	mg/L	1	7/18/2003 10:26:08 AM
Potassium	114	0.0700		mg/L	1	7/18/2003 10:26:08 AM
Selenium	U	0.0250		mg/L	1	7/18/2003 10:26:08 AM
Silver	U	0.0200		mg/L	1	7/18/2003 10:26:08 AM
Sodium	116	0.0300		mg/L	1	7/18/2003 10:26:08 AM
Thallium	U	0.0150		mg/L	1	7/18/2003 10:26:08 AM
Vanadium	0.0081	0.0200	J	mg/L	1	7/18/2003 10:26:08 AM
Zinc	0.0062	0.0200	J	mg/L	1	7/18/2003 10:26:08 AM

Qualifiers:

ND - Not Detected at the Reporting Limit

J - Analyte detected below quantitation limits

B - Analyte detected in the associated Method Blank

* - Value exceeds Maximum Contaminant Level

S - Spike Recovery outside accepted recovery limits

R - RPD outside accepted recovery limits

E - Value above quantitation range

American Analytical Laboratories, Inc.

Date: *28-Jul-03*

CLIENT:	AKRF, Inc	**Client Sample ID:**	MW8
Lab Order:	0307061	**Tag Number:**	
Project:	Greenpoint Lumber Yard Brooklyn, NY	**Collection Date:**	7/16/2003
Lab ID:	0307061-03C	**Matrix:**	LIQUID

Analyses	Result	Limit	Qual	Units	DF	Date Analyzed
MERCURY SW-846 7470		**SW7470A**				Analyst: **JP**
Mercury	U	0.200		µg/L	1	7/23/2003
TARGET ANALYTE LIST METALS		**SW6010B**		**(SW3010A)**		Analyst: **JP**
Aluminum	0.334	0.0200		mg/L	1	7/18/2003 10:33:41 AM
Antimony	0.0443	0.0250		mg/L	1	7/18/2003 10:33:41 AM
Arsenic	U	0.0250		mg/L	1	7/18/2003 10:33:41 AM
Barium	0.486	0.0200		mg/L	1	7/18/2003 10:33:41 AM
Beryllium	U	0.0200		mg/L	1	7/18/2003 10:33:41 AM
Cadmium	U	0.0100		mg/L	1	7/18/2003 10:33:41 AM
Calcium	168	0.0200		mg/L	1	7/18/2003 10:33:41 AM
Chromium	U	0.0200		mg/L	1	7/18/2003 10:33:41 AM
Cobalt	U	0.0200		mg/L	1	7/18/2003 10:33:41 AM
Copper	0.010	0.0200	J	mg/L	1	7/18/2003 10:33:41 AM
Iron	0.106	0.0200		mg/L	1	7/18/2003 10:33:41 AM
Lead	U	0.0150		mg/L	1	7/18/2003 10:33:41 AM
Magnesium	495	0.0200		mg/L	1	7/18/2003 10:33:41 AM
Manganese	0.018	0.0200	J	mg/L	1	7/18/2003 10:33:41 AM
Nickel	U	0.0200		mg/L	1	7/18/2003 10:33:41 AM
Potassium	349	0.0700		mg/L	1	7/18/2003 10:33:41 AM
Selenium	U	0.0250		mg/L	1	7/18/2003 10:33:41 AM
Silver	U	0.0200		mg/L	1	7/18/2003 10:33:41 AM
Sodium	509	0.0300		mg/L	1	7/18/2003 10:33:41 AM
Thallium	U	0.0150		mg/L	1	7/18/2003 10:33:41 AM
Vanadium	U	0.0200		mg/L	1	7/18/2003 10:33:41 AM
Zinc	0.0520	0.0200		mg/L	1	7/18/2003 10:33:41 AM

Qualifiers:

ND - Not Detected at the Reporting Limit

J - Analyte detected below quantitation limits

B - Analyte detected in the associated Method Blank

* - Value exceeds Maximum Contaminant Level

S - Spike Recovery outside accepted recovery limits

R - RPD outside accepted recovery limits

E - Value above quantitation range

American Analytical Laboratories, Inc.

Date: *28-Jul-03*

CLIENT:	AKRF, Inc	**Client Sample ID:**	MW8
Lab Order:	0307061	**Tag Number:**	
Project:	Greenpoint Lumber Yard Brooklyn, NY	**Collection Date:**	7/16/2003
Lab ID:	0307061-03D	**Matrix:**	LIQUID

Analyses	Result	Limit	Qual	Units	DF	Date Analyzed
MERCURY - DISSOLVED		**SW7470A**		**(SW3005A)**		Analyst: **JP**
Mercury	U	0.00200		mg/L	1	7/23/2003
TARGET ANALYTE LIST METALS-DISSOLVED		**SW6010B**		**(SW3005A)**		Analyst: **JP**
Aluminum	0.0575	0.0200		mg/L	1	7/18/2003 10:31:20 AM
Antimony	U	0.0250		mg/L	1	7/18/2003 10:31:20 AM
Arsenic	U	0.0250		mg/L	1	7/18/2003 10:31:20 AM
Barium	0.468	0.0200		mg/L	1	7/18/2003 10:31:20 AM
Beryllium	U	0.0200		mg/L	1	7/18/2003 10:31:20 AM
Cadmium	U	0.0100		mg/L	1	7/18/2003 10:31:20 AM
Calcium	167	0.0200		mg/L	1	7/18/2003 10:31:20 AM
Chromium	U	0.0200		mg/L	1	7/18/2003 10:31:20 AM
Cobalt	U	0.0200		mg/L	1	7/18/2003 10:31:20 AM
Copper	U	0.0200		mg/L	1	7/18/2003 10:31:20 AM
Iron	0.0448	0.0200		mg/L	1	7/18/2003 10:31:20 AM
Lead	U	0.0150		mg/L	1	7/18/2003 10:31:20 AM
Magnesium	505	0.0200		mg/L	1	7/18/2003 10:31:20 AM
Manganese	0.018	0.0200	J	mg/L	1	7/18/2003 10:31:20 AM
Nickel	U	0.0200		mg/L	1	7/18/2003 10:31:20 AM
Potassium	368	0.0700		mg/L	1	7/18/2003 10:31:20 AM
Selenium	U	0.0250		mg/L	1	7/18/2003 10:31:20 AM
Silver	U	0.0200		mg/L	1	7/18/2003 10:31:20 AM
Sodium	517	0.0300		mg/L	1	7/18/2003 10:31:20 AM
Thallium	U	0.0150		mg/L	1	7/18/2003 10:31:20 AM
Vanadium	U	0.0200		mg/L	1	7/18/2003 10:31:20 AM
Zinc	0.0270	0.0200		mg/L	1	7/18/2003 10:31:20 AM

Qualifiers:

ND - Not Detected at the Reporting Limit

J - Analyte detected below quantitation limits

B - Analyte detected in the associated Method Blank

* - Value exceeds Maximum Contaminant Level

S - Spike Recovery outside accepted recovery limits

R - RPD outside accepted recovery limits

E - Value above quantitation range

American Analytical Laboratories, Inc.

Date: *28-Jul-03*

CLIENT:	AKRF, Inc	**Client Sample ID:**	MW9
Lab Order:	0307061	**Tag Number:**	
Project:	Greenpoint Lumber Yard Brooklyn, NY	**Collection Date:**	7/16/2003
Lab ID:	0307061-04C	**Matrix:**	LIQUID

Analyses	Result	Limit	Qual	Units	DF	Date Analyzed
MERCURY SW-846 7470		**SW7470A**				Analyst: **JP**
Mercury	U	0.200		µg/L	1	7/23/2003
TARGET ANALYTE LIST METALS		**SW6010B**		**(SW3010A)**		Analyst: **JP**
Aluminum	0.582	0.0200		mg/L	1	7/18/2003 10:50:46 AM
Antimony	0.0272	0.0250		mg/L	1	7/18/2003 10:50:46 AM
Arsenic	U	0.0250		mg/L	1	7/18/2003 10:50:46 AM
Barium	0.230	0.0200		mg/L	1	7/18/2003 10:50:46 AM
Beryllium	U	0.0200		mg/L	1	7/18/2003 10:50:46 AM
Cadmium	U	0.0100		mg/L	1	7/18/2003 10:50:46 AM
Calcium	223	0.0200		mg/L	1	7/18/2003 10:50:46 AM
Chromium	U	0.0200		mg/L	1	7/18/2003 10:50:46 AM
Cobalt	U	0.0200		mg/L	1	7/18/2003 10:50:46 AM
Copper	0.015	0.0200	J	mg/L	1	7/18/2003 10:50:46 AM
Iron	3.83	0.0200		mg/L	1	7/18/2003 10:50:46 AM
Lead	0.0173	0.0150		mg/L	1	7/18/2003 10:50:46 AM
Magnesium	38.7	0.0200		mg/L	1	7/18/2003 10:50:46 AM
Manganese	0.848	0.0200		mg/L	1	7/18/2003 10:50:46 AM
Nickel	0.0045	0.0200	J	mg/L	1	7/18/2003 10:50:46 AM
Potassium	38.8	0.0700		mg/L	1	7/18/2003 10:50:46 AM
Selenium	U	0.0250		mg/L	1	7/18/2003 10:50:46 AM
Silver	U	0.0200		mg/L	1	7/18/2003 10:50:46 AM
Sodium	101	0.0300		mg/L	1	7/18/2003 10:50:46 AM
Thallium	U	0.0150		mg/L	1	7/18/2003 10:50:46 AM
Vanadium	U	0.0200		mg/L	1	7/18/2003 10:50:46 AM
Zinc	0.146	0.0200		mg/L	1	7/18/2003 10:50:46 AM

Qualifiers:

ND - Not Detected at the Reporting Limit

J - Analyte detected below quantitation limits

B - Analyte detected in the associated Method Blank

* - Value exceeds Maximum Contaminant Level

S - Spike Recovery outside accepted recovery limits

R - RPD outside accepted recovery limits

E - Value above quantitation range

American Analytical Laboratories, Inc.

Date: *28-Jul-03*

CLIENT:	AKRF, Inc	**Client Sample ID:**	MW9
Lab Order:	0307061	**Tag Number:**	
Project:	Greenpoint Lumber Yard Brooklyn, NY	**Collection Date:**	7/16/2003
Lab ID:	0307061-04D	**Matrix:**	LIQUID

Analyses	Result	Limit	Qual	Units	DF	Date Analyzed
MERCURY - DISSOLVED		**SW7470A**		**(SW3005A)**		Analyst: **JP**
Mercury	U	0.00200		mg/L	1	7/23/2003
TARGET ANALYTE LIST METALS-DISSOLVED		**SW6010B**		**(SW3005A)**		Analyst: **JP**
Aluminum	0.0727	0.0200		mg/L	1	7/18/2003 10:47:48 AM
Antimony	U	0.0250		mg/L	1	7/18/2003 10:47:48 AM
Arsenic	U	0.0250		mg/L	1	7/18/2003 10:47:48 AM
Barium	0.235	0.0200		mg/L	1	7/18/2003 10:47:48 AM
Beryllium	U	0.0200		mg/L	1	7/18/2003 10:47:48 AM
Cadmium	U	0.0100		mg/L	1	7/18/2003 10:47:48 AM
Calcium	252	0.0200		mg/L	1	7/18/2003 10:47:48 AM
Chromium	U	0.0200		mg/L	1	7/18/2003 10:47:48 AM
Cobalt	U	0.0200		mg/L	1	7/18/2003 10:47:48 AM
Copper	U	0.0200		mg/L	1	7/18/2003 10:47:48 AM
Iron	0.695	0.0200		mg/L	1	7/18/2003 10:47:48 AM
Lead	U	0.0150		mg/L	1	7/18/2003 10:47:48 AM
Magnesium	42.2	0.0200		mg/L	1	7/18/2003 10:47:48 AM
Manganese	0.939	0.0200		mg/L	1	7/18/2003 10:47:48 AM
Nickel	U	0.0200		mg/L	1	7/18/2003 10:47:48 AM
Potassium	45.8	0.0700		mg/L	1	7/18/2003 10:47:48 AM
Selenium	U	0.0250		mg/L	1	7/18/2003 10:47:48 AM
Silver	U	0.0200		mg/L	1	7/18/2003 10:47:48 AM
Sodium	102	0.0300		mg/L	1	7/18/2003 10:47:48 AM
Thallium	U	0.0150		mg/L	1	7/18/2003 10:47:48 AM
Vanadium	U	0.0200		mg/L	1	7/18/2003 10:47:48 AM
Zinc	0.101	0.0200		mg/L	1	7/18/2003 10:47:48 AM

Qualifiers:

ND - Not Detected at the Reporting Limit

J - Analyte detected below quantitation limits

B - Analyte detected in the associated Method Blank

* - Value exceeds Maximum Contaminant Level

S - Spike Recovery outside accepted recovery limits

R - RPD outside accepted recovery limits

E - Value above quantitation range

American Analytical Laboratories, Inc.

Date: *28-Jul-03*

CLIENT:	AKRF, Inc	**Client Sample ID:**	MW10
Lab Order:	0307061	**Tag Number:**	
Project:	Greenpoint Lumber Yard Brooklyn, NY	**Collection Date:**	7/16/2003
Lab ID:	0307061-05C	**Matrix:**	LIQUID

Analyses	Result	Limit	Qual	Units	DF	Date Analyzed
MERCURY SW-846 7470		**SW7470A**				Analyst: **JP**
Mercury	U	0.200		µg/L	1	7/23/2003
TARGET ANALYTE LIST METALS		**SW6010B**		**(SW3010A)**		Analyst: **JP**
Aluminum	0.204	0.0200		mg/L	1	7/18/2003 10:56:05 AM
Antimony	0.018	0.0250	J	mg/L	1	7/18/2003 10:56:05 AM
Arsenic	U	0.0250		mg/L	1	7/18/2003 10:56:05 AM
Barium	0.130	0.0200		mg/L	1	7/18/2003 10:56:05 AM
Beryllium	U	0.0200		mg/L	1	7/18/2003 10:56:05 AM
Cadmium	U	0.0100		mg/L	1	7/18/2003 10:56:05 AM
Calcium	266	0.0200		mg/L	1	7/18/2003 10:56:05 AM
Chromium	U	0.0200		mg/L	1	7/18/2003 10:56:05 AM
Cobalt	U	0.0200		mg/L	1	7/18/2003 10:56:05 AM
Copper	0.013	0.0200	J	mg/L	1	7/18/2003 10:56:05 AM
Iron	6.98	0.0200		mg/L	1	7/18/2003 10:56:05 AM
Lead	0.010	0.0150	J	mg/L	1	7/18/2003 10:56:05 AM
Magnesium	52.2	0.0200		mg/L	1	7/18/2003 10:56:05 AM
Manganese	6.12	0.0200		mg/L	1	7/18/2003 10:56:05 AM
Nickel	U	0.0200		mg/L	1	7/18/2003 10:56:05 AM
Potassium	42.1	0.0700		mg/L	1	7/18/2003 10:56:05 AM
Selenium	U	0.0250		mg/L	1	7/18/2003 10:56:05 AM
Silver	U	0.0200		mg/L	1	7/18/2003 10:56:05 AM
Sodium	109	0.0300		mg/L	1	7/18/2003 10:56:05 AM
Thallium	U	0.0150		mg/L	1	7/18/2003 10:56:05 AM
Vanadium	U	0.0200		mg/L	1	7/18/2003 10:56:05 AM
Zinc	0.0829	0.0200		mg/L	1	7/18/2003 10:56:05 AM

Qualifiers:

ND - Not Detected at the Reporting Limit

J - Analyte detected below quantitation limits

B - Analyte detected in the associated Method Blank

* - Value exceeds Maximum Contaminant Level

S - Spike Recovery outside accepted recovery limits

R - RPD outside accepted recovery limits

E - Value above quantitation range

American Analytical Laboratories, Inc.

Date: *28-Jul-03*

CLIENT:	AKRF, Inc	**Client Sample ID:**	MW10
Lab Order:	0307061	**Tag Number:**	
Project:	Greenpoint Lumber Yard Brooklyn, NY	**Collection Date:**	7/16/2003
Lab ID:	0307061-05D	**Matrix:**	LIQUID

Analyses	Result	Limit	Qual	Units	DF	Date Analyzed
MERCURY - DISSOLVED		**SW7470A**		**(SW3005A)**		Analyst: **JP**
Mercury	U	0.00200		mg/L	1	7/23/2003
TARGET ANALYTE LIST METALS-DISSOLVED		**SW6010B**		**(SW3005A)**		Analyst: **JP**
Aluminum	0.0417	0.0200		mg/L	1	7/18/2003 10:53:44 AM
Antimony	U	0.0250		mg/L	1	7/18/2003 10:53:44 AM
Arsenic	U	0.0250		mg/L	1	7/18/2003 10:53:44 AM
Barium	0.112	0.0200		mg/L	1	7/18/2003 10:53:44 AM
Beryllium	U	0.0200		mg/L	1	7/18/2003 10:53:44 AM
Cadmium	U	0.0100		mg/L	1	7/18/2003 10:53:44 AM
Calcium	304	0.0200		mg/L	1	7/18/2003 10:53:44 AM
Chromium	U	0.0200		mg/L	1	7/18/2003 10:53:44 AM
Cobalt	U	0.0200		mg/L	1	7/18/2003 10:53:44 AM
Copper	U	0.0200		mg/L	1	7/18/2003 10:53:44 AM
Iron	0.399	0.0200		mg/L	1	7/18/2003 10:53:44 AM
Lead	U	0.0150		mg/L	1	7/18/2003 10:53:44 AM
Magnesium	58.1	0.0200		mg/L	1	7/18/2003 10:53:44 AM
Manganese	6.80	0.0200		mg/L	1	7/18/2003 10:53:44 AM
Nickel	U	0.0200		mg/L	1	7/18/2003 10:53:44 AM
Potassium	51.0	0.0700		mg/L	1	7/18/2003 10:53:44 AM
Selenium	U	0.0250		mg/L	1	7/18/2003 10:53:44 AM
Silver	U	0.0200		mg/L	1	7/18/2003 10:53:44 AM
Sodium	112	0.0300		mg/L	1	7/18/2003 10:53:44 AM
Thallium	U	0.0150		mg/L	1	7/18/2003 10:53:44 AM
Vanadium	U	0.0200		mg/L	1	7/18/2003 10:53:44 AM
Zinc	0.0051	0.0200	J	mg/L	1	7/18/2003 10:53:44 AM

Qualifiers:

ND - Not Detected at the Reporting Limit

J - Analyte detected below quantitation limits

B - Analyte detected in the associated Method Blank

* - Value exceeds Maximum Contaminant Level

S - Spike Recovery outside accepted recovery limits

R - RPD outside accepted recovery limits

E - Value above quantitation range

American Analytical Laboratories, Inc.

Date: *28-Jul-03*

CLIENT:	AKRF, Inc	**Client Sample ID:**	MW11
Lab Order:	0307061	**Tag Number:**	
Project:	Greenpoint Lumber Yard Brooklyn, NY	**Collection Date:**	7/16/2003
Lab ID:	0307061-06C	**Matrix:**	LIQUID

Analyses	Result	Limit	Qual	Units	DF	Date Analyzed
MERCURY SW-846 7470		**SW7470A**				Analyst: **JP**
Mercury	U	0.200		µg/L	1	7/23/2003
TARGET ANALYTE LIST METALS		**SW6010B**		**(SW3010A)**		Analyst: **JP**
Aluminum	0.110	0.0200		mg/L	1	7/18/2003 11:00:41 AM
Antimony	U	0.0250		mg/L	1	7/18/2003 11:00:41 AM
Arsenic	U	0.0250		mg/L	1	7/18/2003 11:00:41 AM
Barium	0.0496	0.0200		mg/L	1	7/18/2003 11:00:41 AM
Beryllium	U	0.0200		mg/L	1	7/18/2003 11:00:41 AM
Cadmium	U	0.0100		mg/L	1	7/18/2003 11:00:41 AM
Calcium	113	0.0200		mg/L	1	7/18/2003 11:00:41 AM
Chromium	U	0.0200		mg/L	1	7/18/2003 11:00:41 AM
Cobalt	U	0.0200		mg/L	1	7/18/2003 11:00:41 AM
Copper	0.0098	0.0200	J	mg/L	1	7/18/2003 11:00:41 AM
Iron	0.153	0.0200		mg/L	1	7/18/2003 11:00:41 AM
Lead	U	0.0150		mg/L	1	7/18/2003 11:00:41 AM
Magnesium	33.8	0.0200		mg/L	1	7/18/2003 11:00:41 AM
Manganese	0.184	0.0200		mg/L	1	7/18/2003 11:00:41 AM
Nickel	0.0054	0.0200	J	mg/L	1	7/18/2003 11:00:41 AM
Potassium	7.10	0.0700		mg/L	1	7/18/2003 11:00:41 AM
Selenium	U	0.0250		mg/L	1	7/18/2003 11:00:41 AM
Silver	U	0.0200		mg/L	1	7/18/2003 11:00:41 AM
Sodium	34.0	0.0300		mg/L	1	7/18/2003 11:00:41 AM
Thallium	U	0.0150		mg/L	1	7/18/2003 11:00:41 AM
Vanadium	U	0.0200		mg/L	1	7/18/2003 11:00:41 AM
Zinc	0.0414	0.0200		mg/L	1	7/18/2003 11:00:41 AM

Qualifiers:

ND - Not Detected at the Reporting Limit

J - Analyte detected below quantitation limits

B - Analyte detected in the associated Method Blank

* - Value exceeds Maximum Contaminant Level

S - Spike Recovery outside accepted recovery limits

R - RPD outside accepted recovery limits

E - Value above quantitation range

American Analytical Laboratories, Inc.

Date: *28-Jul-03*

CLIENT:	AKRF, Inc	**Client Sample ID:**	MW11
Lab Order:	0307061	**Tag Number:**	
Project:	Greenpoint Lumber Yard Brooklyn, NY	**Collection Date:**	7/16/2003
Lab ID:	0307061-06D	**Matrix:**	LIQUID

Analyses	Result	Limit	Qual	Units	DF	Date Analyzed
MERCURY - DISSOLVED		**SW7470A**		**(SW3005A)**		Analyst: **JP**
Mercury	U	0.00200		mg/L	1	7/23/2003
TARGET ANALYTE LIST METALS-DISSOLVED		**SW6010B**		**(SW3005A)**		Analyst: **JP**
Aluminum	0.0665	0.0200		mg/L	1	7/18/2003 10:58:22 AM
Antimony	U	0.0250		mg/L	1	7/18/2003 10:58:22 AM
Arsenic	U	0.0250		mg/L	1	7/18/2003 10:58:22 AM
Barium	0.0499	0.0200		mg/L	1	7/18/2003 10:58:22 AM
Beryllium	U	0.0200		mg/L	1	7/18/2003 10:58:22 AM
Cadmium	U	0.0100		mg/L	1	7/18/2003 10:58:22 AM
Calcium	123	0.0200		mg/L	1	7/18/2003 10:58:22 AM
Chromium	U	0.0200		mg/L	1	7/18/2003 10:58:22 AM
Cobalt	U	0.0200		mg/L	1	7/18/2003 10:58:22 AM
Copper	U	0.0200		mg/L	1	7/18/2003 10:58:22 AM
Iron	0.0584	0.0200		mg/L	1	7/18/2003 10:58:22 AM
Lead	U	0.0150		mg/L	1	7/18/2003 10:58:22 AM
Magnesium	36.7	0.0200		mg/L	1	7/18/2003 10:58:22 AM
Manganese	0.194	0.0200		mg/L	1	7/18/2003 10:58:22 AM
Nickel	0.0046	0.0200	J	mg/L	1	7/18/2003 10:58:22 AM
Potassium	8.25	0.0700		mg/L	1	7/18/2003 10:58:22 AM
Selenium	U	0.0250		mg/L	1	7/18/2003 10:58:22 AM
Silver	U	0.0200		mg/L	1	7/18/2003 10:58:22 AM
Sodium	32.1	0.0300		mg/L	1	7/18/2003 10:58:22 AM
Thallium	U	0.0150		mg/L	1	7/18/2003 10:58:22 AM
Vanadium	U	0.0200		mg/L	1	7/18/2003 10:58:22 AM
Zinc	0.018	0.0200	J	mg/L	1	7/18/2003 10:58:22 AM

Qualifiers:

ND - Not Detected at the Reporting Limit

J - Analyte detected below quantitation limits

B - Analyte detected in the associated Method Blank

* - Value exceeds Maximum Contaminant Level

S - Spike Recovery outside accepted recovery limits

R - RPD outside accepted recovery limits

E - Value above quantitation range

American Analytical Laboratories, Inc.

Date: *28-Jul-03*

CLIENT:	AKRF, Inc	**Client Sample ID:**	MW12
Lab Order:	0307061	**Tag Number:**	
Project:	Greenpoint Lumber Yard Brooklyn, NY	**Collection Date:**	7/16/2003
Lab ID:	0307061-07C	**Matrix:**	LIQUID

Analyses	Result	Limit	Qual	Units	DF	Date Analyzed
MERCURY SW-846 7470		**SW7470A**				Analyst: **JP**
Mercury	U	0.200		µg/L	1	7/23/2003
TARGET ANALYTE LIST METALS		**SW6010B**		**(SW3010A)**		Analyst: **JP**
Aluminum	0.211	0.0200		mg/L	1	7/18/2003 11:05:27 AM
Antimony	U	0.0250		mg/L	1	7/18/2003 11:05:27 AM
Arsenic	U	0.0250		mg/L	1	7/18/2003 11:05:27 AM
Barium	0.277	0.0200		mg/L	1	7/18/2003 11:05:27 AM
Beryllium	U	0.0200		mg/L	1	7/18/2003 11:05:27 AM
Cadmium	U	0.0100		mg/L	1	7/18/2003 11:05:27 AM
Calcium	113	0.0200		mg/L	1	7/18/2003 11:05:27 AM
Chromium	U	0.0200		mg/L	1	7/18/2003 11:05:27 AM
Cobalt	U	0.0200		mg/L	1	7/18/2003 11:05:27 AM
Copper	0.012	0.0200	J	mg/L	1	7/18/2003 11:05:27 AM
Iron	9.42	0.0200		mg/L	1	7/18/2003 11:05:27 AM
Lead	0.0236	0.0150		mg/L	1	7/18/2003 11:05:27 AM
Magnesium	27.8	0.0200		mg/L	1	7/18/2003 11:05:27 AM
Manganese	1.93	0.0200		mg/L	1	7/18/2003 11:05:27 AM
Nickel	U	0.0200		mg/L	1	7/18/2003 11:05:27 AM
Potassium	24.3	0.0700		mg/L	1	7/18/2003 11:05:27 AM
Selenium	U	0.0250		mg/L	1	7/18/2003 11:05:27 AM
Silver	U	0.0200		mg/L	1	7/18/2003 11:05:27 AM
Sodium	83.4	0.0300		mg/L	1	7/18/2003 11:05:27 AM
Thallium	U	0.0150		mg/L	1	7/18/2003 11:05:27 AM
Vanadium	U	0.0200		mg/L	1	7/18/2003 11:05:27 AM
Zinc	0.0538	0.0200		mg/L	1	7/18/2003 11:05:27 AM

Qualifiers:

ND - Not Detected at the Reporting Limit

J - Analyte detected below quantitation limits

B - Analyte detected in the associated Method Blank

* - Value exceeds Maximum Contaminant Level

S - Spike Recovery outside accepted recovery limits

R - RPD outside accepted recovery limits

E - Value above quantitation range

American Analytical Laboratories, Inc.

Date: *28-Jul-03*

CLIENT:	AKRF, Inc	**Client Sample ID:**	MW12
Lab Order:	0307061	**Tag Number:**	
Project:	Greenpoint Lumber Yard Brooklyn, NY	**Collection Date:**	7/16/2003
Lab ID:	0307061-07D	**Matrix:**	LIQUID

Analyses	Result	Limit	Qual	Units	DF	Date Analyzed
MERCURY - DISSOLVED		**SW7470A**		**(SW3005A)**		Analyst: **JP**
Mercury	U	0.00200		mg/L	1	7/23/2003
TARGET ANALYTE LIST METALS-DISSOLVED		**SW6010B**		**(SW3005A)**		Analyst: **JP**
Aluminum	0.0417	0.0200		mg/L	1	7/18/2003 11:03:03 AM
Antimony	U	0.0250		mg/L	1	7/18/2003 11:03:03 AM
Arsenic	U	0.0250		mg/L	1	7/18/2003 11:03:03 AM
Barium	0.240	0.0200		mg/L	1	7/18/2003 11:03:03 AM
Beryllium	U	0.0200		mg/L	1	7/18/2003 11:03:03 AM
Cadmium	U	0.0100		mg/L	1	7/18/2003 11:03:03 AM
Calcium	127	0.0200		mg/L	1	7/18/2003 11:03:03 AM
Chromium	U	0.0200		mg/L	1	7/18/2003 11:03:03 AM
Cobalt	U	0.0200		mg/L	1	7/18/2003 11:03:03 AM
Copper	U	0.0200		mg/L	1	7/18/2003 11:03:03 AM
Iron	0.395	0.0200		mg/L	1	7/18/2003 11:03:03 AM
Lead	U	0.0150		mg/L	1	7/18/2003 11:03:03 AM
Magnesium	31.2	0.0200		mg/L	1	7/18/2003 11:03:03 AM
Manganese	2.10	0.0200		mg/L	1	7/18/2003 11:03:03 AM
Nickel	U	0.0200		mg/L	1	7/18/2003 11:03:03 AM
Potassium	30.3	0.0700		mg/L	1	7/18/2003 11:03:03 AM
Selenium	U	0.0250		mg/L	1	7/18/2003 11:03:03 AM
Silver	U	0.0200		mg/L	1	7/18/2003 11:03:03 AM
Sodium	88.7	0.0300		mg/L	1	7/18/2003 11:03:03 AM
Thallium	U	0.0150		mg/L	1	7/18/2003 11:03:03 AM
Vanadium	U	0.0200		mg/L	1	7/18/2003 11:03:03 AM
Zinc	0.0056	0.0200	J	mg/L	1	7/18/2003 11:03:03 AM

Qualifiers:

ND - Not Detected at the Reporting Limit

J - Analyte detected below quantitation limits

B - Analyte detected in the associated Method Blank

* - Value exceeds Maximum Contaminant Level

S - Spike Recovery outside accepted recovery limits

R - RPD outside accepted recovery limits

E - Value above quantitation range

American Analytical Laboratories, Inc.

Date: *28-Jul-03*

CLIENT:	AKRF, Inc	**Client Sample ID:**	MW13
Lab Order:	0307061	**Tag Number:**	
Project:	Greenpoint Lumber Yard Brooklyn, NY	**Collection Date:**	7/16/2003
Lab ID:	0307061-08C	**Matrix:**	LIQUID

Analyses	Result	Limit	Qual	Units	DF	Date Analyzed
MERCURY SW-846 7470		**SW7470A**				Analyst: **JP**
Mercury	U	0.200		µg/L	1	7/23/2003
TARGET ANALYTE LIST METALS		**SW6010B**		**(SW3010A)**		Analyst: **JP**
Aluminum	0.164	0.0200		mg/L	1	7/18/2003 11:10:10 AM
Antimony	0.022	0.0250	J	mg/L	1	7/18/2003 11:10:10 AM
Arsenic	U	0.0250		mg/L	1	7/18/2003 11:10:10 AM
Barium	0.0681	0.0200		mg/L	1	7/18/2003 11:10:10 AM
Beryllium	U	0.0200		mg/L	1	7/18/2003 11:10:10 AM
Cadmium	U	0.0100		mg/L	1	7/18/2003 11:10:10 AM
Calcium	345	0.0200		mg/L	1	7/18/2003 11:10:10 AM
Chromium	U	0.0200		mg/L	1	7/18/2003 11:10:10 AM
Cobalt	U	0.0200		mg/L	1	7/18/2003 11:10:10 AM
Copper	0.011	0.0200	J	mg/L	1	7/18/2003 11:10:10 AM
Iron	3.05	0.0200		mg/L	1	7/18/2003 11:10:10 AM
Lead	U	0.0150		mg/L	1	7/18/2003 11:10:10 AM
Magnesium	27.0	0.0200		mg/L	1	7/18/2003 11:10:10 AM
Manganese	0.752	0.0200		mg/L	1	7/18/2003 11:10:10 AM
Nickel	0.0064	0.0200	J	mg/L	1	7/18/2003 11:10:10 AM
Potassium	22.1	0.0700		mg/L	1	7/18/2003 11:10:10 AM
Selenium	U	0.0250		mg/L	1	7/18/2003 11:10:10 AM
Silver	U	0.0200		mg/L	1	7/18/2003 11:10:10 AM
Sodium	57.1	0.0300		mg/L	1	7/18/2003 11:10:10 AM
Thallium	U	0.0150		mg/L	1	7/18/2003 11:10:10 AM
Vanadium	U	0.0200		mg/L	1	7/18/2003 11:10:10 AM
Zinc	0.0292	0.0200		mg/L	1	7/18/2003 11:10:10 AM

Qualifiers:

ND - Not Detected at the Reporting Limit

J - Analyte detected below quantitation limits

B - Analyte detected in the associated Method Blank

* - Value exceeds Maximum Contaminant Level

S - Spike Recovery outside accepted recovery limits

R - RPD outside accepted recovery limits

E - Value above quantitation range

American Analytical Laboratories, Inc.

Date: *28-Jul-03*

CLIENT:	AKRF, Inc	**Client Sample ID:**	MW13
Lab Order:	0307061	**Tag Number:**	
Project:	Greenpoint Lumber Yard Brooklyn, NY	**Collection Date:**	7/16/2003
Lab ID:	0307061-08D	**Matrix:**	LIQUID

Analyses	Result	Limit	Qual	Units	DF	Date Analyzed
MERCURY - DISSOLVED		**SW7470A**		**(SW3005A)**		Analyst: **JP**
Mercury	U	0.00200		mg/L	1	7/23/2003
TARGET ANALYTE LIST METALS-DISSOLVED		**SW6010B**		**(SW3005A)**		Analyst: **JP**
Aluminum	0.0573	0.0200		mg/L	1	7/18/2003 11:07:52 AM
Antimony	U	0.0250		mg/L	1	7/18/2003 11:07:52 AM
Arsenic	U	0.0250		mg/L	1	7/18/2003 11:07:52 AM
Barium	0.0656	0.0200		mg/L	1	7/18/2003 11:07:52 AM
Beryllium	U	0.0200		mg/L	1	7/18/2003 11:07:52 AM
Cadmium	U	0.0100		mg/L	1	7/18/2003 11:07:52 AM
Calcium	381	0.0200		mg/L	1	7/18/2003 11:07:52 AM
Chromium	U	0.0200		mg/L	1	7/18/2003 11:07:52 AM
Cobalt	U	0.0200		mg/L	1	7/18/2003 11:07:52 AM
Copper	U	0.0200		mg/L	1	7/18/2003 11:07:52 AM
Iron	0.332	0.0200		mg/L	1	7/18/2003 11:07:52 AM
Lead	U	0.0150		mg/L	1	7/18/2003 11:07:52 AM
Magnesium	29.4	0.0200		mg/L	1	7/18/2003 11:07:52 AM
Manganese	0.814	0.0200		mg/L	1	7/18/2003 11:07:52 AM
Nickel	U	0.0200		mg/L	1	7/18/2003 11:07:52 AM
Potassium	24.9	0.0700		mg/L	1	7/18/2003 11:07:52 AM
Selenium	U	0.0250		mg/L	1	7/18/2003 11:07:52 AM
Silver	U	0.0200		mg/L	1	7/18/2003 11:07:52 AM
Sodium	55.4	0.0300		mg/L	1	7/18/2003 11:07:52 AM
Thallium	U	0.0150		mg/L	1	7/18/2003 11:07:52 AM
Vanadium	U	0.0200		mg/L	1	7/18/2003 11:07:52 AM
Zinc	0.014	0.0200	J	mg/L	1	7/18/2003 11:07:52 AM

Qualifiers:

ND - Not Detected at the Reporting Limit

J - Analyte detected below quantitation limits

B - Analyte detected in the associated Method Blank

* - Value exceeds Maximum Contaminant Level

S - Spike Recovery outside accepted recovery limits

R - RPD outside accepted recovery limits

E - Value above quantitation range

American Analytical Laboratories, Inc.

Date: *28-Jul-03*

CLIENT:	AKRF, Inc	**Client Sample ID:**	MW14
Lab Order:	0307061	**Tag Number:**	
Project:	Greenpoint Lumber Yard Brooklyn, NY	**Collection Date:**	7/16/2003
Lab ID:	0307061-09C	**Matrix:**	LIQUID

Analyses	Result	Limit	Qual	Units	DF	Date Analyzed
MERCURY SW-846 7470		**SW7470A**				Analyst: **JP**
Mercury	U	0.200		µg/L	1	7/23/2003
TARGET ANALYTE LIST METALS		**SW6010B**		**(SW3010A)**		Analyst: **JP**
Aluminum	0.253	0.0200		mg/L	1	7/18/2003 11:21:49 AM
Antimony	0.024	0.0250	J	mg/L	1	7/18/2003 11:21:49 AM
Arsenic	U	0.0250		mg/L	1	7/18/2003 11:21:49 AM
Barium	0.214	0.0200		mg/L	1	7/18/2003 11:21:49 AM
Beryllium	U	0.0200		mg/L	1	7/18/2003 11:21:49 AM
Cadmium	U	0.0100		mg/L	1	7/18/2003 11:21:49 AM
Calcium	92.8	0.0200		mg/L	1	7/18/2003 11:21:49 AM
Chromium	U	0.0200		mg/L	1	7/18/2003 11:21:49 AM
Cobalt	U	0.0200		mg/L	1	7/18/2003 11:21:49 AM
Copper	0.0091	0.0200	J	mg/L	1	7/18/2003 11:21:49 AM
Iron	19.3	0.0200		mg/L	1	7/18/2003 11:21:49 AM
Lead	0.010	0.0150	J	mg/L	1	7/18/2003 11:21:49 AM
Magnesium	14.3	0.0200		mg/L	1	7/18/2003 11:21:49 AM
Manganese	2.69	0.0200		mg/L	1	7/18/2003 11:21:49 AM
Nickel	0.0048	0.0200	J	mg/L	1	7/18/2003 11:21:49 AM
Potassium	13.9	0.0700		mg/L	1	7/18/2003 11:21:49 AM
Selenium	U	0.0250		mg/L	1	7/18/2003 11:21:49 AM
Silver	U	0.0200		mg/L	1	7/18/2003 11:21:49 AM
Sodium	75.9	0.0300		mg/L	1	7/18/2003 11:21:49 AM
Thallium	U	0.0150		mg/L	1	7/18/2003 11:21:49 AM
Vanadium	U	0.0200		mg/L	1	7/18/2003 11:21:49 AM
Zinc	0.0422	0.0200		mg/L	1	7/18/2003 11:21:49 AM

Qualifiers:

ND - Not Detected at the Reporting Limit

J - Analyte detected below quantitation limits

B - Analyte detected in the associated Method Blank

* - Value exceeds Maximum Contaminant Level

S - Spike Recovery outside accepted recovery limits

R - RPD outside accepted recovery limits

E - Value above quantitation range

American Analytical Laboratories, Inc.

Date: *28-Jul-03*

CLIENT:	AKRF, Inc	**Client Sample ID:**	MW14
Lab Order:	0307061	**Tag Number:**	
Project:	Greenpoint Lumber Yard Brooklyn, NY	**Collection Date:**	7/16/2003
Lab ID:	0307061-09D	**Matrix:**	LIQUID

Analyses	Result	Limit	Qual	Units	DF	Date Analyzed
MERCURY - DISSOLVED		**SW7470A**		**(SW3005A)**		Analyst: **JP**
Mercury	U	0.00200		mg/L	1	7/23/2003
TARGET ANALYTE LIST METALS-DISSOLVED		**SW6010B**		**(SW3005A)**		Analyst: **JP**
Aluminum	0.0339	0.0200		mg/L	1	7/18/2003 11:19:18 AM
Antimony	U	0.0250		mg/L	1	7/18/2003 11:19:18 AM
Arsenic	U	0.0250		mg/L	1	7/18/2003 11:19:18 AM
Barium	0.171	0.0200		mg/L	1	7/18/2003 11:19:18 AM
Beryllium	U	0.0200		mg/L	1	7/18/2003 11:19:18 AM
Cadmium	U	0.0100		mg/L	1	7/18/2003 11:19:18 AM
Calcium	101	0.0200		mg/L	1	7/18/2003 11:19:18 AM
Chromium	U	0.0200		mg/L	1	7/18/2003 11:19:18 AM
Cobalt	U	0.0200		mg/L	1	7/18/2003 11:19:18 AM
Copper	U	0.0200		mg/L	1	7/18/2003 11:19:18 AM
Iron	1.55	0.0200		mg/L	1	7/18/2003 11:19:18 AM
Lead	U	0.0150		mg/L	1	7/18/2003 11:19:18 AM
Magnesium	12.3	0.0200		mg/L	1	7/18/2003 11:19:18 AM
Manganese	2.76	0.0200		mg/L	1	7/18/2003 11:19:18 AM
Nickel	U	0.0200		mg/L	1	7/18/2003 11:19:18 AM
Potassium	14.1	0.0700		mg/L	1	7/18/2003 11:19:18 AM
Selenium	U	0.0250		mg/L	1	7/18/2003 11:19:18 AM
Silver	U	0.0200		mg/L	1	7/18/2003 11:19:18 AM
Sodium	56.1	0.0300		mg/L	1	7/18/2003 11:19:18 AM
Thallium	U	0.0150		mg/L	1	7/18/2003 11:19:18 AM
Vanadium	U	0.0200		mg/L	1	7/18/2003 11:19:18 AM
Zinc	0.012	0.0200	J	mg/L	1	7/18/2003 11:19:18 AM

Qualifiers:

ND - Not Detected at the Reporting Limit

J - Analyte detected below quantitation limits

B - Analyte detected in the associated Method Blank

* - Value exceeds Maximum Contaminant Level

S - Spike Recovery outside accepted recovery limits

R - RPD outside accepted recovery limits

E - Value above quantitation range

American Analytical Laboratories, Inc.

Date: *28-Jul-03*

CLIENT:	AKRF, Inc	**Client Sample ID:**	MW15
Lab Order:	0307061	**Tag Number:**	
Project:	Greenpoint Lumber Yard Brooklyn, NY	**Collection Date:**	7/16/2003
Lab ID:	0307061-10C	**Matrix:**	LIQUID

Analyses	Result	Limit	Qual	Units	DF	Date Analyzed
MERCURY SW-846 7470		**SW7470A**				Analyst: **JP**
Mercury	U	0.200		µg/L	1	7/23/2003
TARGET ANALYTE LIST METALS		**SW6010B**		**(SW3010A)**		Analyst: **JP**
Aluminum	0.253	0.0200		mg/L	1	7/18/2003 11:26:28 AM
Antimony	U	0.0250		mg/L	1	7/18/2003 11:26:28 AM
Arsenic	U	0.0250		mg/L	1	7/18/2003 11:26:28 AM
Barium	0.137	0.0200		mg/L	1	7/18/2003 11:26:28 AM
Beryllium	U	0.0200		mg/L	1	7/18/2003 11:26:28 AM
Cadmium	U	0.0100		mg/L	1	7/18/2003 11:26:28 AM
Calcium	115	0.0200		mg/L	1	7/18/2003 11:26:28 AM
Chromium	U	0.0200		mg/L	1	7/18/2003 11:26:28 AM
Cobalt	U	0.0200		mg/L	1	7/18/2003 11:26:28 AM
Copper	0.0064	0.0200	J	mg/L	1	7/18/2003 11:26:28 AM
Iron	3.60	0.0200		mg/L	1	7/18/2003 11:26:28 AM
Lead	0.0093	0.0150	J	mg/L	1	7/18/2003 11:26:28 AM
Magnesium	25.3	0.0200		mg/L	1	7/18/2003 11:26:28 AM
Manganese	0.838	0.0200		mg/L	1	7/18/2003 11:26:28 AM
Nickel	0.0091	0.0200	J	mg/L	1	7/18/2003 11:26:28 AM
Potassium	6.20	0.0700		mg/L	1	7/18/2003 11:26:28 AM
Selenium	U	0.0250		mg/L	1	7/18/2003 11:26:28 AM
Silver	U	0.0200		mg/L	1	7/18/2003 11:26:28 AM
Sodium	29.9	0.0300		mg/L	1	7/18/2003 11:26:28 AM
Thallium	U	0.0150		mg/L	1	7/18/2003 11:26:28 AM
Vanadium	U	0.0200		mg/L	1	7/18/2003 11:26:28 AM
Zinc	0.0393	0.0200		mg/L	1	7/18/2003 11:26:28 AM

Qualifiers:

ND - Not Detected at the Reporting Limit

J - Analyte detected below quantitation limits

B - Analyte detected in the associated Method Blank

* - Value exceeds Maximum Contaminant Level

S - Spike Recovery outside accepted recovery limits

R - RPD outside accepted recovery limits

E - Value above quantitation range

American Analytical Laboratories, Inc.

Date: *28-Jul-03*

CLIENT:	AKRF, Inc	**Client Sample ID:**	MW15
Lab Order:	0307061	**Tag Number:**	
Project:	Greenpoint Lumber Yard Brooklyn, NY	**Collection Date:**	7/16/2003
Lab ID:	0307061-10D	**Matrix:**	LIQUID

Analyses	Result	Limit	Qual	Units	DF	Date Analyzed
MERCURY - DISSOLVED		**SW7470A**		**(SW3005A)**		Analyst: **JP**
Mercury	U	0.00200		mg/L	1	7/23/2003
TARGET ANALYTE LIST METALS-DISSOLVED		**SW6010B**		**(SW3005A)**		Analyst: **JP**
Aluminum	0.0403	0.0200		mg/L	1	7/18/2003 11:24:09 AM
Antimony	U	0.0250		mg/L	1	7/18/2003 11:24:09 AM
Arsenic	U	0.0250		mg/L	1	7/18/2003 11:24:09 AM
Barium	0.142	0.0200		mg/L	1	7/18/2003 11:24:09 AM
Beryllium	U	0.0200		mg/L	1	7/18/2003 11:24:09 AM
Cadmium	U	0.0100		mg/L	1	7/18/2003 11:24:09 AM
Calcium	130	0.0200		mg/L	1	7/18/2003 11:24:09 AM
Chromium	U	0.0200		mg/L	1	7/18/2003 11:24:09 AM
Cobalt	U	0.0200		mg/L	1	7/18/2003 11:24:09 AM
Copper	U	0.0200		mg/L	1	7/18/2003 11:24:09 AM
Iron	1.09	0.0200		mg/L	1	7/18/2003 11:24:09 AM
Lead	U	0.0150		mg/L	1	7/18/2003 11:24:09 AM
Magnesium	28.7	0.0200		mg/L	1	7/18/2003 11:24:09 AM
Manganese	0.924	0.0200		mg/L	1	7/18/2003 11:24:09 AM
Nickel	U	0.0200		mg/L	1	7/18/2003 11:24:09 AM
Potassium	7.43	0.0700		mg/L	1	7/18/2003 11:24:09 AM
Selenium	U	0.0250		mg/L	1	7/18/2003 11:24:09 AM
Silver	U	0.0200		mg/L	1	7/18/2003 11:24:09 AM
Sodium	28.7	0.0300		mg/L	1	7/18/2003 11:24:09 AM
Thallium	U	0.0150		mg/L	1	7/18/2003 11:24:09 AM
Vanadium	U	0.0200		mg/L	1	7/18/2003 11:24:09 AM
Zinc	0.014	0.0200	J	mg/L	1	7/18/2003 11:24:09 AM

Qualifiers:

ND - Not Detected at the Reporting Limit

J - Analyte detected below quantitation limits

B - Analyte detected in the associated Method Blank

* - Value exceeds Maximum Contaminant Level

S - Spike Recovery outside accepted recovery limits

R - RPD outside accepted recovery limits

E - Value above quantitation range

American Analytical Laboratories, Inc.

Date: *28-Jul-03*

CLIENT:	AKRF, Inc	**Client Sample ID:**	MW16
Lab Order:	0307061	**Tag Number:**	
Project:	Greenpoint Lumber Yard Brooklyn, NY	**Collection Date:**	7/16/2003
Lab ID:	0307061-11C	**Matrix:**	LIQUID

Analyses	Result	Limit	Qual	Units	DF	Date Analyzed
MERCURY SW-846 7470		**SW7470A**				Analyst: **JP**
Mercury	U	0.200		µg/L	1	7/23/2003
TARGET ANALYTE LIST METALS		**SW6010B**		**(SW3010A)**		Analyst: **JP**
Aluminum	0.139	0.0200		mg/L	1	7/18/2003 11:34:08 AM
Antimony	U	0.0250		mg/L	1	7/18/2003 11:34:08 AM
Arsenic	U	0.0250		mg/L	1	7/18/2003 11:34:08 AM
Barium	0.162	0.0200		mg/L	1	7/18/2003 11:34:08 AM
Beryllium	U	0.0200		mg/L	1	7/18/2003 11:34:08 AM
Cadmium	U	0.0100		mg/L	1	7/18/2003 11:34:08 AM
Calcium	158	0.0200		mg/L	1	7/18/2003 11:34:08 AM
Chromium	U	0.0200		mg/L	1	7/18/2003 11:34:08 AM
Cobalt	U	0.0200		mg/L	1	7/18/2003 11:34:08 AM
Copper	U	0.0200		mg/L	1	7/18/2003 11:34:08 AM
Iron	12.2	0.0200		mg/L	1	7/18/2003 11:34:08 AM
Lead	U	0.0150		mg/L	1	7/18/2003 11:34:08 AM
Magnesium	54.2	0.0200		mg/L	1	7/18/2003 11:34:08 AM
Manganese	0.494	0.0200		mg/L	1	7/18/2003 11:34:08 AM
Nickel	U	0.0200		mg/L	1	7/18/2003 11:34:08 AM
Potassium	23.4	0.0700		mg/L	1	7/18/2003 11:34:08 AM
Selenium	U	0.0250		mg/L	1	7/18/2003 11:34:08 AM
Silver	U	0.0200		mg/L	1	7/18/2003 11:34:08 AM
Sodium	77.9	0.0300		mg/L	1	7/18/2003 11:34:08 AM
Thallium	U	0.0150		mg/L	1	7/18/2003 11:34:08 AM
Vanadium	U	0.0200		mg/L	1	7/18/2003 11:34:08 AM
Zinc	0.0336	0.0200		mg/L	1	7/18/2003 11:34:08 AM

Qualifiers:

ND - Not Detected at the Reporting Limit

J - Analyte detected below quantitation limits

B - Analyte detected in the associated Method Blank

* - Value exceeds Maximum Contaminant Level

S - Spike Recovery outside accepted recovery limits

R - RPD outside accepted recovery limits

E - Value above quantitation range

American Analytical Laboratories, Inc.

Date: *28-Jul-03*

CLIENT:	AKRF, Inc	**Client Sample ID:**	MW16
Lab Order:	0307061	**Tag Number:**	
Project:	Greenpoint Lumber Yard Brooklyn, NY	**Collection Date:**	7/16/2003
Lab ID:	0307061-11D	**Matrix:**	LIQUID

Analyses	Result	Limit	Qual	Units	DF	Date Analyzed
MERCURY - DISSOLVED		**SW7470A**		**(SW3005A)**		Analyst: **JP**
Mercury	U	0.00200		mg/L	1	7/23/2003
TARGET ANALYTE LIST METALS-DISSOLVED		**SW6010B**		**(SW3005A)**		Analyst: **JP**
Aluminum	0.0377	0.0200		mg/L	1	7/18/2003 11:29:01 AM
Antimony	U	0.0250		mg/L	1	7/18/2003 11:29:01 AM
Arsenic	U	0.0250		mg/L	1	7/18/2003 11:29:01 AM
Barium	0.143	0.0200		mg/L	1	7/18/2003 11:29:01 AM
Beryllium	U	0.0200		mg/L	1	7/18/2003 11:29:01 AM
Cadmium	U	0.0100		mg/L	1	7/18/2003 11:29:01 AM
Calcium	176	0.0200		mg/L	1	7/18/2003 11:29:01 AM
Chromium	U	0.0200		mg/L	1	7/18/2003 11:29:01 AM
Cobalt	U	0.0200		mg/L	1	7/18/2003 11:29:01 AM
Copper	U	0.0200		mg/L	1	7/18/2003 11:29:01 AM
Iron	0.404	0.0200		mg/L	1	7/18/2003 11:29:01 AM
Lead	U	0.0150		mg/L	1	7/18/2003 11:29:01 AM
Magnesium	60.7	0.0200		mg/L	1	7/18/2003 11:29:01 AM
Manganese	0.476	0.0200		mg/L	1	7/18/2003 11:29:01 AM
Nickel	U	0.0200		mg/L	1	7/18/2003 11:29:01 AM
Potassium	28.2	0.0700		mg/L	1	7/18/2003 11:29:01 AM
Selenium	U	0.0250		mg/L	1	7/18/2003 11:29:01 AM
Silver	U	0.0200		mg/L	1	7/18/2003 11:29:01 AM
Sodium	80.2	0.0300		mg/L	1	7/18/2003 11:29:01 AM
Thallium	U	0.0150		mg/L	1	7/18/2003 11:29:01 AM
Vanadium	U	0.0200		mg/L	1	7/18/2003 11:29:01 AM
Zinc	0.0049	0.0200	J	mg/L	1	7/18/2003 11:29:01 AM

Qualifiers:

ND - Not Detected at the Reporting Limit

J - Analyte detected below quantitation limits

B - Analyte detected in the associated Method Blank

* - Value exceeds Maximum Contaminant Level

S - Spike Recovery outside accepted recovery limits

R - RPD outside accepted recovery limits

E - Value above quantitation range

American Analytical Laboratories, Inc.

Date: *28-Jul-03*

CLIENT:	AKRF, Inc	**Client Sample ID:**	FOUND WELL
Lab Order:	0307061	**Tag Number:**	
Project:	Greenpoint Lumber Yard Brooklyn, NY	**Collection Date:**	7/16/2003
Lab ID:	0307061-12C	**Matrix:**	LIQUID

Analyses	Result	Limit	Qual	Units	DF	Date Analyzed
MERCURY SW-846 7470		**SW7470A**				Analyst: **JP**
Mercury	U	0.200		µg/L	1	7/23/2003
TARGET ANALYTE LIST METALS		**SW6010B**		**(SW3010A)**		Analyst: **JP**
Aluminum	0.0947	0.0200		mg/L	1	7/18/2003 11:39:00 AM
Antimony	U	0.0250		mg/L	1	7/18/2003 11:39:00 AM
Arsenic	U	0.0250		mg/L	1	7/18/2003 11:39:00 AM
Barium	0.142	0.0200		mg/L	1	7/18/2003 11:39:00 AM
Beryllium	U	0.0200		mg/L	1	7/18/2003 11:39:00 AM
Cadmium	U	0.0100		mg/L	1	7/18/2003 11:39:00 AM
Calcium	101	0.0200		mg/L	1	7/18/2003 11:39:00 AM
Chromium	U	0.0200		mg/L	1	7/18/2003 11:39:00 AM
Cobalt	U	0.0200		mg/L	1	7/18/2003 11:39:00 AM
Copper	0.0076	0.0200	J	mg/L	1	7/18/2003 11:39:00 AM
Iron	3.15	0.0200		mg/L	1	7/18/2003 11:39:00 AM
Lead	U	0.0150		mg/L	1	7/18/2003 11:39:00 AM
Magnesium	34.1	0.0200		mg/L	1	7/18/2003 11:39:00 AM
Manganese	0.806	0.0200		mg/L	1	7/18/2003 11:39:00 AM
Nickel	U	0.0200		mg/L	1	7/18/2003 11:39:00 AM
Potassium	17.0	0.0700		mg/L	1	7/18/2003 11:39:00 AM
Selenium	U	0.0250		mg/L	1	7/18/2003 11:39:00 AM
Silver	U	0.0200		mg/L	1	7/18/2003 11:39:00 AM
Sodium	89.3	0.0300		mg/L	1	7/18/2003 11:39:00 AM
Thallium	U	0.0150		mg/L	1	7/18/2003 11:39:00 AM
Vanadium	U	0.0200		mg/L	1	7/18/2003 11:39:00 AM
Zinc	0.0339	0.0200		mg/L	1	7/18/2003 11:39:00 AM

Qualifiers:

ND - Not Detected at the Reporting Limit

J - Analyte detected below quantitation limits

B - Analyte detected in the associated Method Blank

* - Value exceeds Maximum Contaminant Level

S - Spike Recovery outside accepted recovery limits

R - RPD outside accepted recovery limits

E - Value above quantitation range

American Analytical Laboratories, Inc.

Date: *28-Jul-03*

CLIENT:	AKRF, Inc	**Client Sample ID:**	FOUND WELL
Lab Order:	0307061	**Tag Number:**	
Project:	Greenpoint Lumber Yard Brooklyn, NY	**Collection Date:**	7/16/2003
Lab ID:	0307061-12D	**Matrix:**	LIQUID

Analyses	Result	Limit	Qual	Units	DF	Date Analyzed
MERCURY - DISSOLVED		**SW7470A**		**(SW3005A)**		Analyst: **JP**
Mercury	U	0.00200		mg/L	1	7/23/2003
TARGET ANALYTE LIST METALS-DISSOLVED		**SW6010B**		**(SW3005A)**		Analyst: **JP**
Aluminum	0.0421	0.0200		mg/L	1	7/18/2003 11:36:41 AM
Antimony	U	0.0250		mg/L	1	7/18/2003 11:36:41 AM
Arsenic	U	0.0250		mg/L	1	7/18/2003 11:36:41 AM
Barium	0.141	0.0200		mg/L	1	7/18/2003 11:36:41 AM
Beryllium	U	0.0200		mg/L	1	7/18/2003 11:36:41 AM
Cadmium	U	0.0100		mg/L	1	7/18/2003 11:36:41 AM
Calcium	110	0.0200		mg/L	1	7/18/2003 11:36:41 AM
Chromium	U	0.0200		mg/L	1	7/18/2003 11:36:41 AM
Cobalt	U	0.0200		mg/L	1	7/18/2003 11:36:41 AM
Copper	U	0.0200		mg/L	1	7/18/2003 11:36:41 AM
Iron	0.565	0.0200		mg/L	1	7/18/2003 11:36:41 AM
Lead	U	0.0150		mg/L	1	7/18/2003 11:36:41 AM
Magnesium	37.5	0.0200		mg/L	1	7/18/2003 11:36:41 AM
Manganese	0.851	0.0200		mg/L	1	7/18/2003 11:36:41 AM
Nickel	U	0.0200		mg/L	1	7/18/2003 11:36:41 AM
Potassium	20.5	0.0700		mg/L	1	7/18/2003 11:36:41 AM
Selenium	U	0.0250		mg/L	1	7/18/2003 11:36:41 AM
Silver	U	0.0200		mg/L	1	7/18/2003 11:36:41 AM
Sodium	95.6	0.0300		mg/L	1	7/18/2003 11:36:41 AM
Thallium	U	0.0150		mg/L	1	7/18/2003 11:36:41 AM
Vanadium	U	0.0200		mg/L	1	7/18/2003 11:36:41 AM
Zinc	0.019	0.0200	J	mg/L	1	7/18/2003 11:36:41 AM

Qualifiers:

ND - Not Detected at the Reporting Limit

J - Analyte detected below quantitation limits

B - Analyte detected in the associated Method Blank

* - Value exceeds Maximum Contaminant Level

S - Spike Recovery outside accepted recovery limits

R - RPD outside accepted recovery limits

E - Value above quantitation range

American Analytical Laboratories, Inc.

Date: *28-Jul-03*

CLIENT:	AKRF, Inc	**Client Sample ID:**	FIELD BLANK
Lab Order:	0307061	**Tag Number:**	
Project:	Greenpoint Lumber Yard Brooklyn, NY	**Collection Date:**	7/16/2003
Lab ID:	0307061-14C	**Matrix:**	LIQUID

Analyses	Result	Limit	Qual	Units	DF	Date Analyzed
MERCURY SW-846 7470		**SW7470A**				Analyst: **JP**
Mercury	U	0.200		µg/L	1	7/23/2003
TARGET ANALYTE LIST METALS		**SW6010B**				Analyst: **JP**
Aluminum	0.018	0.0200	J	mg/L	1	7/23/2003 2:46:26 PM
Antimony	U	0.0250		mg/L	1	7/23/2003 2:46:26 PM
Arsenic	U	0.0250		mg/L	1	7/23/2003 2:46:26 PM
Barium	U	0.0200		mg/L	1	7/23/2003 2:46:26 PM
Beryllium	U	0.0200		mg/L	1	7/23/2003 2:46:26 PM
Cadmium	U	0.0100		mg/L	1	7/23/2003 2:46:26 PM
Calcium	0.128	0.0200		mg/L	1	7/23/2003 2:46:26 PM
Chromium	U	0.0200		mg/L	1	7/23/2003 2:46:26 PM
Cobalt	U	0.0200		mg/L	1	7/23/2003 2:46:26 PM
Copper	U	0.0200		mg/L	1	7/23/2003 2:46:26 PM
Iron	U	0.0200		mg/L	1	7/23/2003 2:46:26 PM
Lead	U	0.0150		mg/L	1	7/23/2003 2:46:26 PM
Magnesium	U	0.0200		mg/L	1	7/23/2003 2:46:26 PM
Manganese	U	0.0200		mg/L	1	7/23/2003 2:46:26 PM
Nickel	U	0.0200		mg/L	1	7/23/2003 2:46:26 PM
Potassium	0.026	0.0700	J	mg/L	1	7/23/2003 2:46:26 PM
Selenium	U	0.0250		mg/L	1	7/23/2003 2:46:26 PM
Silver	U	0.0200		mg/L	1	7/23/2003 2:46:26 PM
Sodium	0.479	0.0300		mg/L	1	7/23/2003 2:46:26 PM
Thallium	U	0.0150		mg/L	1	7/23/2003 2:46:26 PM
Vanadium	U	0.0200		mg/L	1	7/23/2003 2:46:26 PM
Zinc	U	0.0200		mg/L	1	7/23/2003 2:46:26 PM

Qualifiers:

ND - Not Detected at the Reporting Limit

J - Analyte detected below quantitation limits

B - Analyte detected in the associated Method Blank

* - Value exceeds Maximum Contaminant Level

S - Spike Recovery outside accepted recovery limits

R - RPD outside accepted recovery limits

E - Value above quantitation range

Appendix

American Analytical Laboratories, Inc.

Date: 29-Jul-03

CLIENT: AKRF, Inc
Work Order: 0307061
Project: Greenpoint Lumber Yard Brooklyn,
Test No: SW8081B **Matrix:** W

QC SUMMARY REPORT
SURROGATE RECOVERIES

Sample ID	CL10BZ2	XYL2456CLM						
0307061-01B	78.1	59.4						
0307061-02B	70.9	51.2 *						
0307061-03B	78.9	55.4						
0307061-04B	67.6	56.7						
0307061-05B	71.1	57.8						
0307061-06B	79.5	105						
0307061-07B	72.9	62.5						
0307061-08B	76.7	77.4						
0307061-09B	70.6	72.7						
0307061-09BMS	83.0	57.8						
0307061-09BMSD	80.2	56.1						
0307061-10B	87.1	50.4 *						
0307061-11B	130	112						
0307061-12B	94.5	81.7						
0307061-14B	119	85.3						
MSB071803	92.9	53.5 *						
PWB071703	67.8	59.1						
PWB071803	101	75.1						

Acronym		Surrogate	QC Limits
CL10BZ2	=	DCB	53.4-139
XYL2456CLM	=	TCX	55.3-128

*** Surrogate recovery outside acceptance limits**

American Analytical Laboratories, Inc.

Date: 29-Jul-03

CLIENT: AKRF, Inc
Work Order: 0307061
Project: Greenpoint Lumber Yard Brooklyn,
Test No: SW8082A **Matrix:** W

QC SUMMARY REPORT
SURROGATE RECOVERIES

Sample ID	CL10BZ2	XYL2456CLM						
0307061-01B	62.2	50.2 *						
0307061-02B	56.2	41.1 *						
0307061-03B	70.4	52.5						
0307061-04B	54.7	46.5 *						
0307061-05B	63.8	49.8 *						
0307061-06B	62.4	81.4						
0307061-07B	63.6	54.0						
0307061-07BMS	54.8	27.2 *						
0307061-07BMSD	64.7	40.3 *						
0307061-08B	62.8	63.8						
0307061-09B	55.8	56.5						
0307061-10B	66.9	39.2 *						
0307061-11B	93.1	79.2						
0307061-12B	76.1	65.2						
0307061-14B	96.6	68.4						
MSB071803	68.5	40.3 *						
PWB071703	53.0	50.4 *						
PWB071803	78.4	57.4						

Acronym		Surrogate	QC Limits
CL10BZ2	=	DCB	52-142
XYL2456CLM	=	TCX	52-143

*** Surrogate recovery outside acceptance limits**

American Analytical Laboratories, Inc.

Date: 29-Jul-03

CLIENT: AKRF, Inc
Work Order: 0307061
Project: Greenpoint Lumber Yard Brooklyn,
Test No: SW8260B **Matrix:** W

QC SUMMARY REPORT
SURROGATE RECOVERIES

Sample ID	BR4FBZ	BZMED8	DBFM					
0307061-01A	83.1	111	115					
0307061-01A MS	83.5	116	118					
0307061-01A MSD	83.5	114	120					
0307061-02A	79.8	114	116					
0307061-03A	80.9	114	118					
0307061-04A	82.3	109	118					
0307061-05A	79.2	110	118					
0307061-06A	80.8	110	112					
0307061-07A	82.4	113	96.0					
0307061-08A	76.8	112	106					
0307061-09A	81.9	114	121					
0307061-10A	80.4	117	120					
0307061-11A	77.9	112	124 *					
0307061-12A	79.4	111	112					
0307061-13A	78.1	112	102					
0307061-14A	77.0	112	111					
LCS071703	84.5	114	93.3					
VBLK071703	80.4	108	94.5					
VBLK071803B	80.4	112	119					
VBLK072103	82.4	110	109					

Acronym		Surrogate	QC Limits
BR4FBZ	=	4-Bromofluorobenzene	69.2-122
BZMED8	=	Toluene-d8	75-122
DBFM	=	Dibromofluoromethane	85-121

*** Surrogate recovery outside acceptance limits**

American Analytical Laboratories, Inc.

Date: 29-Jul-03

CLIENT: AKRF, Inc
Work Order: 0307061
Project: Greenpoint Lumber Yard Brooklyn,
Test No: SW8270D **Matrix:** W

QC SUMMARY REPORT SURROGATE RECOVERIES

Sample ID	NO2BZD5	PH246BR	PH2F	PHEN2F	PHEND14	PHENOLD6		
0307061-01B	77.6	81.1	56.6	73.1	86.7	31.7		
0307061-02B	102	92.8	41.8	74.7	89.0	33.6		
0307061-03B	62.5	76.4	47.8	61.4	79.9	27.5		
0307061-04B	55.8	83.8	44.2	65.8	89.0	29.2		
0307061-05B	66.5	83.6	47.9	72.1	95.6	31.8		
0307061-06B	63.8	83.4	42.5	66.6	82.9	28.2		
0307061-07B	76.4	91.4	55.6	76.9	94.0	33.2		
0307061-08B	70.6	91.6	48.2	74.1	90.9	30.5		
0307061-09B	84.0	91.2	62.2	80.3	90.7	37.2		
0307061-10B	82.2	81.8	60.4	78.0	88.9	36.2		
0307061-11B	74.7	97.5	50.7	77.5	83.7	32.0		
0307061-12B	73.4	93.0	56.5	74.3	87.2	34.1		
0307061-14B	66.8	76.7	46.6	66.2	89.7	28.4		
LCS071703	72.1	63.5	53.2	72.3	82.6	34.0		
LCSD071703	73.0	83.8	56.8	73.4	88.0	31.1		
SWB071703	72.9	72.5	53.5	69.1	80.7	30.4		
SWB071803	74.9	73.2	51.3	76.7	88.0	30.4		

Acronym		Surrogate	QC Limits
NO2BZD5	=	Nitrobenzene-d5	35.8-128
PH246BR	=	2,4,6-Tribromophenol	17.2-124.3
PH2F	=	2-Fluorophenol	26-112.5
PHEN2F	=	2-Fluorobiphenyl	37.9-119.5
PHEND14	=	4-Terphenyl-d14	33.2-135.5
PHENOLD6	=	Phenol-d6	11.1-103.6

*** Surrogate recovery outside acceptance limits**

CLIENT: AKRF, Inc
Work Order: 0307061
Project: Greenpoint Lumber Yard Brooklyn, NY

ANALYTICAL QC SUMMARY REPORT

TestCode: 8081_W

Sample ID: **PWB071703** SampType: **MBLK** TestCode: **8081_W** Units: **µg/L** Prep Date: **7/17/2003** Run ID: **SYSTEM QU_030718C**
Client ID: **ZZZZZ** Batch ID: **1492** TestNo: **SW8081B** **(SW3510B)** Analysis Date: **7/18/2003** SeqNo: **26703**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
4,4´-DDD	U	0.10									
4,4´-DDE	U	0.10									
4,4´-DDT	U	0.10									
Aldrin	U	0.10									
alpha-BHC	U	0.10									
beta-BHC	U	0.10									
Chlordane	U	0.10									
Chlorobenzilate	U	0.10									
DBCP	U	0.10									
delta-BHC	U	0.10									
Dieldrin	U	0.10									
Endosulfan I	U	0.10									
Endosulfan II	U	0.10									
Endosulfan sulfate	U	0.10									
Endrin	U	0.10									
Endrin aldehyde	U	0.10									
Endrin ketone	U	0.10									
gamma-BHC	U	0.10									
Heptachlor	U	0.10									
Heptachlor epoxide	U	0.10									
Hexachlorobenzene	U	0.10									
Hexachlorocyclopentadiene	U	0.10									
Isodrin	U	0.10									
Methoxychlor	U	0.10									
Toxaphene	U	1.0									

Sample ID: **PWB071803** SampType: **MBLK** TestCode: **8081_W** Units: **µg/L** Prep Date: **7/18/2003** Run ID: **SYSTEM QU_030718C**
Client ID: **ZZZZZ** Batch ID: **1507** TestNo: **SW8081B** **(SW3510B)** Analysis Date: **7/21/2003** SeqNo: **26709**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual

Qualifiers: ND - Not Detected at the Reporting Limit
J - Analyte detected below quantitation limits
S - Spike Recovery outside accepted recovery limits
R - RPD outside accepted recovery limits
B - Analyte detected in the associated Method Blank

CLIENT: AKRF, Inc
Work Order: 0307061
Project: Greenpoint Lumber Yard Brooklyn, NY

ANALYTICAL QC SUMMARY REPORT

TestCode: 8081_W

Sample ID: **PWB071803**	SampType: **MBLK**	TestCode: **8081_W**	Units: **µg/L**	Prep Date: **7/18/2003**	Run ID: **SYSTEM QU_030718C**
Client ID: **ZZZZZ**	Batch ID: **1507**	TestNo: **SW8081B**	**(SW3510B)**	Analysis Date: **7/21/2003**	SeqNo: **26709**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
4,4´-DDD	U	0.10									
4,4´-DDE	U	0.10									
4,4´-DDT	U	0.10									
Aldrin	U	0.10									
alpha-BHC	U	0.10									
beta-BHC	U	0.10									
Chlordane	U	0.10									
Chlorobenzilate	U	0.10									
DBCP	U	0.10									
delta-BHC	U	0.10									
Dieldrin	U	0.10									
Endosulfan I	U	0.10									
Endosulfan II	U	0.10									
Endosulfan sulfate	U	0.10									
Endrin	U	0.10									
Endrin aldehyde	U	0.10									
Endrin ketone	U	0.10									
gamma-BHC	U	0.10									
Heptachlor	U	0.10									
Heptachlor epoxide	U	0.10									
Hexachlorobenzene	U	0.10									
Hexachlorocyclopentadiene	U	0.10									
Isodrin	U	0.10									
Methoxychlor	U	0.10									
Toxaphene	U	1.0									

Sample ID: **MSB071803**	SampType: **LCS**	TestCode: **8081_W**	Units: **µg/L**	Prep Date: **7/18/2003**	Run ID: **SYSTEM QU_030718C**
Client ID: **ZZZZZ**	Batch ID: **1507**	TestNo: **SW8081B**	**(SW3510B)**	Analysis Date: **7/22/2003**	SeqNo: **26718**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
4,4´-DDT	0.487	0.10	0.5	0	97.4	69	130	0	0		

Qualifiers:
ND - Not Detected at the Reporting Limit
J - Analyte detected below quantitation limits
S - Spike Recovery outside accepted recovery limits
R - RPD outside accepted recovery limits
B - Analyte detected in the associated Method Blank

CLIENT: AKRF, Inc
Work Order: 0307061
Project: Greenpoint Lumber Yard Brooklyn, NY

ANALYTICAL QC SUMMARY REPORT

TestCode: 8081_W

Sample ID: MSB071803	SampType: LCS	TestCode: 8081_W	Units: µg/L	Prep Date: 7/18/2003	Run ID: SYSTEM QU_030718C
Client ID: ZZZZZ	Batch ID: 1507	TestNo: SW8081B	(SW3510B)	Analysis Date: 7/22/2003	SeqNo: 26718

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Aldrin	0.105	0.10	0.2	0	52.5	66	128	0	0		S
Dieldrin	0.469	0.10	0.5	0	93.8	67	126	0	0		
Endrin	0.502	0.10	0.5	0	100	72	124	0	0		
gamma-BHC	0.183	0.10	0.2	0	91.5	68	122	0	0		
Heptachlor	0.156	0.10	0.2	0	78	64	130	0	0		

Sample ID: 0307061-09BMS	SampType: MS	TestCode: 8081_W	Units: µg/L	Prep Date: 7/18/2003	Run ID: SYSTEM QU_030718C
Client ID: MW14	Batch ID: 1507	TestNo: SW8081B	(SW3510B)	Analysis Date: 7/22/2003	SeqNo: 26719

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
4,4´-DDT	0.454	0.10	0.5	0	90.8	69	130	0	0		
Aldrin	0.093	0.10	0.2	0	46.5	66	128	0	0		JS
Dieldrin	0.428	0.10	0.5	0	85.6	67	126	0	0		
Endrin	0.545	0.10	0.5	0	109	72	124	0	0		
gamma-BHC	0.169	0.10	0.2	0	84.5	68	122	0	0		
Heptachlor	0.148	0.10	0.2	0	74	64	130	0	0		

Sample ID: 0307061-09BMSD	SampType: MSD	TestCode: 8081_W	Units: µg/L	Prep Date: 7/18/2003	Run ID: SYSTEM QU_030718C
Client ID: MW14	Batch ID: 1507	TestNo: SW8081B	(SW3510B)	Analysis Date: 7/22/2003	SeqNo: 26720

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
4,4´-DDT	0.488	0.10	0.5	0	97.6	69	130	0.454	7.22	20	
Aldrin	0.097	0.10	0.2	0	48.5	66	128	0.093	0	20	JS
Dieldrin	0.46	0.10	0.5	0	92	67	126	0.428	7.21	20	
Endrin	0.573	0.10	0.5	0	115	72	124	0.545	5.01	20	
gamma-BHC	0.191	0.10	0.2	0	95.5	68	122	0.169	12.2	20	
Heptachlor	0.158	0.10	0.2	0	79	64	130	0.148	6.54	20	

Qualifiers:
ND - Not Detected at the Reporting Limit
J - Analyte detected below quantitation limits
S - Spike Recovery outside accepted recovery limits
R - RPD outside accepted recovery limits
B - Analyte detected in the associated Method Blank

CLIENT: AKRF, Inc
Work Order: 0307061
Project: Greenpoint Lumber Yard Brooklyn, NY

ANALYTICAL QC SUMMARY REPORT

TestCode: 8082_W

Sample ID: PWB071703	SampType: MBLK	TestCode: 8082_W	Units: µg/L	Prep Date: 7/17/2003	Run ID: SYSTEM QU_030718B
Client ID: ZZZZZ	Batch ID: 1491	TestNo: SW8082A	(SW3510B)	Analysis Date: 7/18/2003	SeqNo: 26568

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Aroclor 1016	U	1.0									
Aroclor 1221	U	1.0									
Aroclor 1232	U	1.0									
Aroclor 1242	U	1.0									
Aroclor 1248	U	1.0									
Aroclor 1254	U	1.0									
Aroclor 1260	U	1.0									

Sample ID: PWB071803	SampType: MBLK	TestCode: 8082_W	Units: µg/L	Prep Date: 7/18/2003	Run ID: SYSTEM QU_030718B
Client ID: ZZZZZ	Batch ID: 1506	TestNo: SW8082A	(SW3510B)	Analysis Date: 7/21/2003	SeqNo: 26574

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Aroclor 1016	U	1.0									
Aroclor 1221	U	1.0									
Aroclor 1232	U	1.0									
Aroclor 1242	U	1.0									
Aroclor 1248	U	1.0									
Aroclor 1254	U	1.0									
Aroclor 1260	U	1.0									

Sample ID: MSB071803	SampType: LCS	TestCode: 8082_W	Units: µg/L	Prep Date: 7/18/2003	Run ID: SYSTEM QU_030718B
Client ID: ZZZZZ	Batch ID: 1506	TestNo: SW8082A	(SW3510B)	Analysis Date: 7/22/2003	SeqNo: 26587

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Aroclor 1016	4.267	1.0	5	0	85.3	59	122	0	0		
Aroclor 1260	3.835	1.0	5	0	76.7	57	121	0	0		

Sample ID: 0307061-07BMS	SampType: MS	TestCode: 8082_W	Units: µg/L	Prep Date: 7/18/2003	Run ID: SYSTEM QU_030718B
Client ID: MW12	Batch ID: 1506	TestNo: SW8082A	(SW3510B)	Analysis Date: 7/22/2003	SeqNo: 26588

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual

Qualifiers: ND - Not Detected at the Reporting Limit; J - Analyte detected below quantitation limits; S - Spike Recovery outside accepted recovery limits; R - RPD outside accepted recovery limits; B - Analyte detected in the associated Method Blank

CLIENT: AKRF, Inc
Work Order: 0307061
Project: Greenpoint Lumber Yard Brooklyn, NY

ANALYTICAL QC SUMMARY REPORT

TestCode: 8082_W

Sample ID: 0307061-07BMS	SampType: MS	TestCode: 8082_W	Units: µg/L	Prep Date: 7/18/2003	Run ID: SYSTEM QU_030718B
Client ID: MW12	Batch ID: 1506	TestNo: SW8082A	(SW3510B)	Analysis Date: 7/22/2003	SeqNo: 26588

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Aroclor 1016	4.227	1.0	5	0	84.5	59	122	0	0		
Aroclor 1260	4.118	1.0	5	0	82.4	57	121	0	0		

Sample ID: 0307061-07BMSD	SampType: MSD	TestCode: 8082_W	Units: µg/L	Prep Date: 7/18/2003	Run ID: SYSTEM QU_030718B
Client ID: MW12	Batch ID: 1506	TestNo: SW8082A	(SW3510B)	Analysis Date: 7/22/2003	SeqNo: 26589

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Aroclor 1016	4.17	1.0	5	0	83.4	59	122	4.227	1.36	20	
Aroclor 1260	4.108	1.0	5	0	82.2	57	121	4.118	0.243	20	

Qualifiers:
ND - Not Detected at the Reporting Limit
J - Analyte detected below quantitation limits
S - Spike Recovery outside accepted recovery limits
R - RPD outside accepted recovery limits
B - Analyte detected in the associated Method Blank

CLIENT: AKRF, Inc
Work Order: 0307061
Project: Greenpoint Lumber Yard Brooklyn, NY

ANALYTICAL QC SUMMARY REPORT

TestCode: 8270_w

Sample ID: SWB071703	SampType: MBLK	TestCode: 8270_w	Units: µg/L	Prep Date: 7/17/2003	Run ID: SYSTEM T_030717C
Client ID: ZZZZZ	Batch ID: 1493	TestNo: SW8270D	(SW3510)	Analysis Date: 7/17/2003	SeqNo: 26213

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
1,2,4-Trichlorobenzene	U	5.0	0	0	0	0	0	0	0		
1,2-Dichlorobenzene	U	5.0	0	0	0	0	0	0	0		
1,3-Dichlorobenzene	U	5.0	0	0	0	0	0	0	0		
1,4-Dichlorobenzene	U	5.0	0	0	0	0	0	0	0		
2,4,5-Trichlorophenol	U	5.0	0	0	0	0	0	0	0		
2,4,6-Trichlorophenol	U	5.0	0	0	0	0	0	0	0		
2,4-Dichlorophenol	U	5.0	0	0	0	0	0	0	0		
2,4-Dimethylphenol	U	5.0	0	0	0	0	0	0	0		
2,4-Dinitrophenol	U	5.0	0	0	0	0	0	0	0		
2,4-Dinitrotoluene	U	5.0	0	0	0	0	0	0	0		
2,6-Dinitrotoluene	U	5.0	0	0	0	0	0	0	0		
2-Chloronaphthalene	U	5.0	0	0	0	0	0	0	0		
2-Chlorophenol	U	5.0	0	0	0	0	0	0	0		
2-Methylnaphthalene	U	5.0	0	0	0	0	0	0	0		
2-Methylphenol	U	5.0	0	0	0	0	0	0	0		
2-Nitroaniline	U	5.0	0	0	0	0	0	0	0		
2-Nitrophenol	U	5.0	0	0	0	0	0	0	0		
3,3´-Dichlorobenzidine	U	5.0	0	0	0	0	0	0	0		
3+4-Methylphenol	U	5.0	0	0	0	0	0	0	0		
3-Nitroaniline	U	5.0	0	0	0	0	0	0	0		
4,6-Dinitro-2-methylphenol	U	5.0	0	0	0	0	0	0	0		
4-Bromophenyl phenyl ether	U	5.0	0	0	0	0	0	0	0		
4-Chloro-3-methylphenol	U	5.0	0	0	0	0	0	0	0		
4-Chloroaniline	U	5.0	0	0	0	0	0	0	0		
4-Chlorophenyl phenyl ether	U	5.0	0	0	0	0	0	0	0		
4-Nitroaniline	U	5.0	0	0	0	0	0	0	0		
4-Nitrophenol	U	5.0	0	0	0	0	0	0	0		
Acenaphthene	U	5.0	0	0	0	0	0	0	0		
Acenaphthylene	U	5.0	0	0	0	0	0	0	0		
Aniline	U	5.0	0	0	0	0	0	0	0		
Anthracene	U	5.0	0	0	0	0	0	0	0		

Qualifiers: ND - Not Detected at the Reporting Limit
J - Analyte detected below quantitation limits
S - Spike Recovery outside accepted recovery limits
R - RPD outside accepted recovery limits
B - Analyte detected in the associated Method Blank

CLIENT: AKRF, Inc
Work Order: 0307061
Project: Greenpoint Lumber Yard Brooklyn, NY

ANALYTICAL QC SUMMARY REPORT

TestCode: 8270_w

Sample ID: SWB071703	SampType: MBLK	TestCode: 8270_w	Units: µg/L	Prep Date: 7/17/2003	Run ID: SYSTEM T_030717C
Client ID: ZZZZZ	Batch ID: 1493	TestNo: SW8270D	(SW3510)	Analysis Date: 7/17/2003	SeqNo: 26213

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Azobenzene	U	5.0	0	0	0	0	0	0	0		
Benzidine	U	5.0	0	0	0	0	0	0	0		
Benzo(a)anthracene	U	5.0	0	0	0	0	0	0	0		
Benzo(a)pyrene	U	5.0	0	0	0	0	0	0	0		
Benzo(b)fluoranthene	U	5.0	0	0	0	0	0	0	0		
Benzo(g,h,i)perylene	U	5.0	0	0	0	0	0	0	0		
Benzo(k)fluoranthene	U	5.0	0	0	0	0	0	0	0		
Benzoic acid	U	5.0	0	0	0	0	0	0	0		
Benzyl alcohol	U	5.0	0	0	0	0	0	0	0		
Bis(2-chloroethoxy)methane	U	5.0	0	0	0	0	0	0	0		
Bis(2-chloroethyl)ether	U	5.0	0	0	0	0	0	0	0		
Bis(2-chloroisopropyl)ether	U	5.0	0	0	0	0	0	0	0		
Bis(2-ethylhexyl)phthalate	U	5.0	0	0	0	0	0	0	0		
Butyl benzyl phthalate	U	5.0	0	0	0	0	0	0	0		
Carbazole	U	5.0	0	0	0	0	0	0	0		
Chrysene	U	5.0	0	0	0	0	0	0	0		
Dibenzo(a,h)anthracene	U	5.0	0	0	0	0	0	0	0		
Dibenzofuran	U	5.0	0	0	0	0	0	0	0		
Diethyl phthalate	U	5.0	0	0	0	0	0	0	0		
Dimethyl phthalate	U	5.0	0	0	0	0	0	0	0		
Di-n-butyl phthalate	U	5.0	0	0	0	0	0	0	0		
Di-n-octyl phthalate	U	5.0	0	0	0	0	0	0	0		
Fluoranthene	U	5.0	0	0	0	0	0	0	0		
Fluorene	U	5.0	0	0	0	0	0	0	0		
Hexachlorobenzene	U	5.0	0	0	0	0	0	0	0		
Hexachlorobutadiene	U	5.0	0	0	0	0	0	0	0		
Hexachlorocyclopentadiene	U	5.0	0	0	0	0	0	0	0		
Hexachloroethane	U	5.0	0	0	0	0	0	0	0		
Indeno(1,2,3-c,d)pyrene	U	5.0	0	0	0	0	0	0	0		
Isophorone	U	5.0	0	0	0	0	0	0	0		
Naphthalene	U	5.0	0	0	0	0	0	0	0		

Qualifiers: ND - Not Detected at the Reporting Limit
J - Analyte detected below quantitation limits
S - Spike Recovery outside accepted recovery limits
R - RPD outside accepted recovery limits
B - Analyte detected in the associated Method Blank

CLIENT: AKRF, Inc
Work Order: 0307061
Project: Greenpoint Lumber Yard Brooklyn, NY

ANALYTICAL QC SUMMARY REPORT

TestCode: 8270_w

Sample ID: SWB071703	SampType: MBLK	TestCode: 8270_w	Units: µg/L	Prep Date: 7/17/2003	Run ID: SYSTEM T_030717C
Client ID: ZZZZZ	Batch ID: 1493	TestNo: SW8270D	(SW3510)	Analysis Date: 7/17/2003	SeqNo: 26213

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Nitrobenzene	U	5.0	0	0	0	0	0	0	0		
N-Nitrosodimethylamine	U	5.0	0	0	0	0	0	0	0		
N-Nitrosodi-n-propylamine	U	5.0	0	0	0	0	0	0	0		
N-Nitrosodiphenylamine	U	5.0	0	0	0	0	0	0	0		
Pentachlorophenol	U	5.0	0	0	0	0	0	0	0		
Phenanthrene	U	5.0	0	0	0	0	0	0	0		
Phenol	U	5.0	0	0	0	0	0	0	0		
Pyrene	U	5.0	0	0	0	0	0	0	0		
Pyridine	U	5.0	0	0	0	0	0	0	0		

Sample ID: SWB071803	SampType: MBLK	TestCode: 8270_w	Units: µg/L	Prep Date: 7/18/2003	Run ID: SYSTEM T_030717C
Client ID: ZZZZZ	Batch ID: 1509	TestNo: SW8270D	(SW3510)	Analysis Date: 7/18/2003	SeqNo: 26221

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
1,2,4-Trichlorobenzene	U	5.0	0	0	0	0	0	0	0		
1,2-Dichlorobenzene	U	5.0	0	0	0	0	0	0	0		
1,3-Dichlorobenzene	U	5.0	0	0	0	0	0	0	0		
1,4-Dichlorobenzene	U	5.0	0	0	0	0	0	0	0		
2,4,5-Trichlorophenol	U	5.0	0	0	0	0	0	0	0		
2,4,6-Trichlorophenol	U	5.0	0	0	0	0	0	0	0		
2,4-Dichlorophenol	U	5.0	0	0	0	0	0	0	0		
2,4-Dimethylphenol	U	5.0	0	0	0	0	0	0	0		
2,4-Dinitrophenol	U	5.0	0	0	0	0	0	0	0		
2,4-Dinitrotoluene	U	5.0	0	0	0	0	0	0	0		
2,6-Dinitrotoluene	U	5.0	0	0	0	0	0	0	0		
2-Chloronaphthalene	U	5.0	0	0	0	0	0	0	0		
2-Chlorophenol	U	5.0	0	0	0	0	0	0	0		
2-Methylnaphthalene	U	5.0	0	0	0	0	0	0	0		
2-Methylphenol	U	5.0	0	0	0	0	0	0	0		
2-Nitroaniline	U	5.0	0	0	0	0	0	0	0		
2-Nitrophenol	U	5.0	0	0	0	0	0	0	0		

Qualifiers: ND - Not Detected at the Reporting Limit
J - Analyte detected below quantitation limits
S - Spike Recovery outside accepted recovery limits
R - RPD outside accepted recovery limits
B - Analyte detected in the associated Method Blank

CLIENT: AKRF, Inc
Work Order: 0307061
Project: Greenpoint Lumber Yard Brooklyn, NY

ANALYTICAL QC SUMMARY REPORT

TestCode: 8270_w

Sample ID: SWB071803	SampType: MBLK	TestCode: 8270_w	Units: µg/L	Prep Date: 7/18/2003	Run ID: SYSTEM T_030717C
Client ID: ZZZZZ	Batch ID: 1509	TestNo: SW8270D	(SW3510)	Analysis Date: 7/18/2003	SeqNo: 26221

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
3,3´-Dichlorobenzidine	U	5.0	0	0	0	0	0	0	0		
3+4-Methylphenol	U	5.0	0	0	0	0	0	0	0		
3-Nitroaniline	U	5.0	0	0	0	0	0	0	0		
4,6-Dinitro-2-methylphenol	U	5.0	0	0	0	0	0	0	0		
4-Bromophenyl phenyl ether	U	5.0	0	0	0	0	0	0	0		
4-Chloro-3-methylphenol	U	5.0	0	0	0	0	0	0	0		
4-Chloroaniline	U	5.0	0	0	0	0	0	0	0		
4-Chlorophenyl phenyl ether	U	5.0	0	0	0	0	0	0	0		
4-Nitroaniline	U	5.0	0	0	0	0	0	0	0		
4-Nitrophenol	U	5.0	0	0	0	0	0	0	0		
Acenaphthene	U	5.0	0	0	0	0	0	0	0		
Acenaphthylene	U	5.0	0	0	0	0	0	0	0		
Aniline	U	5.0	0	0	0	0	0	0	0		
Anthracene	U	5.0	0	0	0	0	0	0	0		
Azobenzene	U	5.0	0	0	0	0	0	0	0		
Benzidine	U	5.0	0	0	0	0	0	0	0		
Benzo(a)anthracene	U	5.0	0	0	0	0	0	0	0		
Benzo(a)pyrene	U	5.0	0	0	0	0	0	0	0		
Benzo(b)fluoranthene	U	5.0	0	0	0	0	0	0	0		
Benzo(g,h,i)perylene	U	5.0	0	0	0	0	0	0	0		
Benzo(k)fluoranthene	U	5.0	0	0	0	0	0	0	0		
Benzoic acid	U	5.0	0	0	0	0	0	0	0		
Benzyl alcohol	U	5.0	0	0	0	0	0	0	0		
Bis(2-chloroethoxy)methane	U	5.0	0	0	0	0	0	0	0		
Bis(2-chloroethyl)ether	U	5.0	0	0	0	0	0	0	0		
Bis(2-chloroisopropyl)ether	U	5.0	0	0	0	0	0	0	0		
Bis(2-ethylhexyl)phthalate	U	5.0	0	0	0	0	0	0	0		
Butyl benzyl phthalate	U	5.0	0	0	0	0	0	0	0		
Carbazole	U	5.0	0	0	0	0	0	0	0		
Chrysene	U	5.0	0	0	0	0	0	0	0		
Dibenzo(a,h)anthracene	U	5.0	0	0	0	0	0	0	0		

Qualifiers: ND - Not Detected at the Reporting Limit
J - Analyte detected below quantitation limits
S - Spike Recovery outside accepted recovery limits
R - RPD outside accepted recovery limits
B - Analyte detected in the associated Method Blank

CLIENT: AKRF, Inc
Work Order: 0307061
Project: Greenpoint Lumber Yard Brooklyn, NY

ANALYTICAL QC SUMMARY REPORT

TestCode: 8270_w

Sample ID: SWB071803	SampType: MBLK	TestCode: 8270_w	Units: µg/L	Prep Date: 7/18/2003	Run ID: SYSTEM T_030717C
Client ID: ZZZZZ	Batch ID: 1509	TestNo: SW8270D	(SW3510)	Analysis Date: 7/18/2003	SeqNo: 26221

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Dibenzofuran	U	5.0	0	0	0	0	0	0	0		
Diethyl phthalate	U	5.0	0	0	0	0	0	0	0		
Dimethyl phthalate	U	5.0	0	0	0	0	0	0	0		
Di-n-butyl phthalate	U	5.0	0	0	0	0	0	0	0		
Di-n-octyl phthalate	U	5.0	0	0	0	0	0	0	0		
Fluoranthene	U	5.0	0	0	0	0	0	0	0		
Fluorene	U	5.0	0	0	0	0	0	0	0		
Hexachlorobenzene	U	5.0	0	0	0	0	0	0	0		
Hexachlorobutadiene	U	5.0	0	0	0	0	0	0	0		
Hexachlorocyclopentadiene	U	5.0	0	0	0	0	0	0	0		
Hexachloroethane	U	5.0	0	0	0	0	0	0	0		
Indeno(1,2,3-c,d)pyrene	U	5.0	0	0	0	0	0	0	0		
Isophorone	U	5.0	0	0	0	0	0	0	0		
Naphthalene	U	5.0	0	0	0	0	0	0	0		
Nitrobenzene	U	5.0	0	0	0	0	0	0	0		
N-Nitrosodimethylamine	U	5.0	0	0	0	0	0	0	0		
N-Nitrosodi-n-propylamine	U	5.0	0	0	0	0	0	0	0		
N-Nitrosodiphenylamine	U	5.0	0	0	0	0	0	0	0		
Pentachlorophenol	U	5.0	0	0	0	0	0	0	0		
Phenanthrene	U	5.0	0	0	0	0	0	0	0		
Phenol	U	5.0	0	0	0	0	0	0	0		
Pyrene	U	5.0	0	0	0	0	0	0	0		
Pyridine	U	5.0	0	0	0	0	0	0	0		

Sample ID: LCS071703	SampType: LCS	TestCode: 8270_w	Units: µg/L	Prep Date: 7/17/2003	Run ID: SYSTEM T_030717C
Client ID: ZZZZZ	Batch ID: 1493	TestNo: SW8270D	(SW3510)	Analysis Date: 7/17/2003	SeqNo: 26214

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
1,2,4-Trichlorobenzene	12.67	5.0	20	0	63.4	53	123	0	0		
1,4-Dichlorobenzene	12.8	5.0	20	0	64	38	136	0	0		
2,4-Dinitrotoluene	9.31	5.0	20	0	46.6	40	119	0	0		

Qualifiers: ND - Not Detected at the Reporting Limit; J - Analyte detected below quantitation limits; S - Spike Recovery outside accepted recovery limits; R - RPD outside accepted recovery limits; B - Analyte detected in the associated Method Blank

CLIENT: AKRF, Inc
Work Order: 0307061
Project: Greenpoint Lumber Yard Brooklyn, NY

ANALYTICAL QC SUMMARY REPORT

TestCode: 8270_w

Sample ID: LCS071703	SampType: LCS	TestCode: 8270_w	Units: µg/L	Prep Date: 7/17/2003	Run ID: SYSTEM T_030717C
Client ID: ZZZZZ	Batch ID: 1493	TestNo: SW8270D	(SW3510)	Analysis Date: 7/17/2003	SeqNo: 26214

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
2-Chlorophenol	14.4	5.0	20	0	72	46	128	0	0		
4-Chloro-3-methylphenol	13.86	5.0	20	0	69.3	30.8	107	0	0		
4-Nitrophenol	4.2	5.0	20	0	21	5	107	0	0		J
Acenaphthene	13.22	5.0	20	0	66.1	52	125	0	0		
N-Nitrosodi-n-propylamine	14.76	5.0	20	0	73.8	35	142	0	0		
Pentachlorophenol	6.85	5.0	20	0	34.3	18	126	0	0		
Phenol	6.45	5.0	20	0	32.2	5	110	0	0		
Pyrene	16.95	5.0	20	0	84.8	42	134	0	0		

Sample ID: LCSD071703	SampType: LCSD	TestCode: 8270_w	Units: µg/L	Prep Date: 7/17/2003	Run ID: SYSTEM T_030717C
Client ID: ZZZZZ	Batch ID: 1493	TestNo: SW8270D	(SW3510)	Analysis Date: 7/17/2003	SeqNo: 26215

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
1,2,4-Trichlorobenzene	12.72	5.0	20	0	63.6	53	123	0	0		
1,4-Dichlorobenzene	11.3	5.0	20	0	56.5	38	136	0	0		
2,4-Dinitrotoluene	9.2	5.0	20	0	46	40	119	0	0		
2-Chlorophenol	12.99	5.0	20	0	65	46	128	0	0		
4-Chloro-3-methylphenol	14.44	5.0	20	0	72.2	30.8	107	0	0		
4-Nitrophenol	4.22	5.0	20	0	21.1	5	107	0	0		J
Acenaphthene	13.19	5.0	20	0	66	52	125	0	0		
N-Nitrosodi-n-propylamine	13.37	5.0	20	0	66.8	35	142	0	0		
Pentachlorophenol	4.54	5.0	20	0	22.7	18	126	0	0		J
Phenol	6.63	5.0	20	0	33.2	5	110	0	0		
Pyrene	17.33	5.0	20	0	86.7	42	134	0	0		

Qualifiers:
ND - Not Detected at the Reporting Limit
J - Analyte detected below quantitation limits
S - Spike Recovery outside accepted recovery limits
R - RPD outside accepted recovery limits
B - Analyte detected in the associated Method Blank

CLIENT: AKRF, Inc
Work Order: 0307061
Project: Greenpoint Lumber Yard Brooklyn, NY

ANALYTICAL QC SUMMARY REPORT

TestCode: Full8260_W

Sample ID: **VBLK071703** SampType: **MBLK** TestCode: **Full8260_W** Units: **µg/L** Prep Date: Run ID: **SYSTEM Y_030718A**
Client ID: **ZZZZZ** Batch ID: **R3303** TestNo: **SW8260B** Analysis Date: **7/18/2003** SeqNo: **26098**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
1,1,1,2-Tetrachloroethane	U	1.0									
1,1,1-Trichloroethane	U	1.0									
1,1,2,2-Tetrachloroethane	U	1.0									
1,1,2-Trichloro-1,2,2-trifluoroethane	U	1.0									
1,1,2-Trichloroethane	U	1.0									
1,1-Dichloroethane	U	1.0									
1,1-Dichloroethene	U	1.0									
1,1-Dichloropropene	U	1.0									
1,2,3-Trichlorobenzene	U	1.0									
1,2,3-Trichloropropane	U	1.0									
1,2,4,5-Tetramethylbenzene	U	1.0									
1,2,4-Trichlorobenzene	U	1.0									
1,2,4-Trimethylbenzene	U	1.0									
1,2-Dibromo-3-chloropropane	U	1.0									
1,2-Dibromoethane	U	1.0									
1,2-Dichlorobenzene	U	1.0									
1,2-Dichloroethane	U	1.0									
1,2-Dichloropropane	U	1.0									
1,3,5-Trimethylbenzene	U	1.0									
1,3-Dichlorobenzene	U	1.0									
1,3-dichloropropane	U	1.0									
1,4-Dichlorobenzene	U	1.0									
2,2-Dichloropropane	U	1.0									
2-Butanone	U	1.0									
2-Chloroethyl vinyl ether	U	1.0									
2-Chlorotoluene	U	1.0									
2-Hexanone	U	1.0									
4-Chlorotoluene	U	1.0									
4-Isopropyltoluene	U	1.0									
4-Methyl-2-pentanone	U	1.0									
Acetone	U	1.0									

Qualifiers:
ND - Not Detected at the Reporting Limit
J - Analyte detected below quantitation limits
S - Spike Recovery outside accepted recovery limits
R - RPD outside accepted recovery limits
B - Analyte detected in the associated Method Blank

CLIENT: AKRF, Inc
Work Order: 0307061
Project: Greenpoint Lumber Yard Brooklyn, NY

ANALYTICAL QC SUMMARY REPORT

TestCode: Full8260_W

Sample ID: **VBLK071703** SampType: **MBLK** TestCode: **Full8260_W** Units: **µg/L** Prep Date: Run ID: **SYSTEM Y_030718A**
Client ID: **ZZZZZ** Batch ID: **R3303** TestNo: **SW8260B** Analysis Date: **7/18/2003** SeqNo: **26098**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Acrolein	U	1.0									
Acrylonitrile	U	1.0									
Benzene	U	1.0									
Bromobenzene	U	1.0									
Bromochloromethane	U	1.0									
Bromodichloromethane	U	1.0									
Bromoform	U	1.0									
Bromomethane	U	1.0									
Carbon disulfide	U	1.0									
Carbon tetrachloride	U	1.0									
Chlorobenzene	U	1.0									
Chlorodifluoromethane	U	1.0									
Chloroethane	U	1.0									
Chloroform	U	1.0									
Chloromethane	U	1.0									
cis-1,2-Dichloroethene	U	1.0									
cis-1,3-Dichloropropene	U	1.0									
Dibromochloromethane	U	1.0									
Dibromomethane	U	1.0									
Dichlorodifluoromethane	U	1.0									
Diisopropyl ether	U	1.0									
Ethanol	U	1.0									
Ethyl acetate	U	1.0									
Ethylbenzene	U	1.0									
Freon-114	U	1.0									
Hexachlorobutadiene	U	1.0									
Isopropyl acetate	U	1.0									
Isopropylbenzene	U	1.0									
m,p-Xylene	U	2.0									
Methyl tert-butyl ether	U	1.0									
Methylene chloride	U	1.0									

Qualifiers:
ND - Not Detected at the Reporting Limit
J - Analyte detected below quantitation limits
S - Spike Recovery outside accepted recovery limits
R - RPD outside accepted recovery limits
B - Analyte detected in the associated Method Blank

CLIENT: AKRF, Inc
Work Order: 0307061
Project: Greenpoint Lumber Yard Brooklyn, NY

ANALYTICAL QC SUMMARY REPORT

TestCode: Full8260_W

Sample ID: **VBLK071703** SampType: **MBLK** TestCode: **Full8260_W** Units: **µg/L** Prep Date: Run ID: **SYSTEM Y_030718A**
Client ID: **ZZZZZ** Batch ID: **R3303** TestNo: **SW8260B** Analysis Date: **7/18/2003** SeqNo: **26098**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Naphthalene	U	1.0									
n-Butyl acetate	U	1.0									
n-Butylbenzene	U	1.0									
n-Propyl acetate	U	1.0									
n-Propylbenzene	U	1.0									
o-Xylene	U	1.0									
p-Diethylbenzene	U	1.0									
p-Ethyltoluene	U	1.0									
sec-Butylbenzene	U	1.0									
Styrene	U	1.0									
t-Butyl alcohol	U	1.0									
tert-Butylbenzene	U	1.0									
Tetrachloroethene	U	1.0									
Toluene	U	1.0									
trans-1,2-Dichloroethene	U	1.0									
trans-1,3-Dichloropropene	U	1.0									
Trichloroethene	U	1.0									
Trichlorofluoromethane	U	1.0									
Vinyl acetate	U	1.0									
Vinyl chloride	U	1.0									

Sample ID: **VBLK071803B** SampType: **MBLK** TestCode: **Full8260_W** Units: **µg/L** Prep Date: Run ID: **SYSTEM Y_030718A**
Client ID: **ZZZZZ** Batch ID: **R3303** TestNo: **SW8260B** Analysis Date: **7/19/2003** SeqNo: **26105**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
1,1,1,2-Tetrachloroethane	U	1.0									
1,1,1-Trichloroethane	U	1.0									
1,1,2,2-Tetrachloroethane	U	1.0									
1,1,2-Trichloro-1,2,2-trifluoroethane	U	1.0									
1,1,2-Trichloroethane	U	1.0									
1,1-Dichloroethane	U	1.0									

Qualifiers: ND - Not Detected at the Reporting Limit
J - Analyte detected below quantitation limits
S - Spike Recovery outside accepted recovery limits
R - RPD outside accepted recovery limits
B - Analyte detected in the associated Method Blank

CLIENT: AKRF, Inc
Work Order: 0307061
Project: Greenpoint Lumber Yard Brooklyn, NY

ANALYTICAL QC SUMMARY REPORT

TestCode: Full8260_W

Sample ID: **VBLK071803B** SampType: **MBLK** TestCode: **Full8260_W** Units: **µg/L** Prep Date: Run ID: **SYSTEM Y_030718A**
Client ID: **ZZZZZ** Batch ID: **R3303** TestNo: **SW8260B** Analysis Date: **7/19/2003** SeqNo: **26105**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
1,1-Dichloroethene	U	1.0									
1,1-Dichloropropene	U	1.0									
1,2,3-Trichlorobenzene	U	1.0									
1,2,3-Trichloropropane	U	1.0									
1,2,4,5-Tetramethylbenzene	U	1.0									
1,2,4-Trichlorobenzene	U	1.0									
1,2,4-Trimethylbenzene	U	1.0									
1,2-Dibromo-3-chloropropane	U	1.0									
1,2-Dibromoethane	U	1.0									
1,2-Dichlorobenzene	U	1.0									
1,2-Dichloroethane	U	1.0									
1,2-Dichloropropane	U	1.0									
1,3,5-Trimethylbenzene	U	1.0									
1,3-Dichlorobenzene	U	1.0									
1,3-dichloropropane	U	1.0									
1,4-Dichlorobenzene	U	1.0									
2,2-Dichloropropane	U	1.0									
2-Butanone	U	1.0									
2-Chloroethyl vinyl ether	U	1.0									
2-Chlorotoluene	U	1.0									
2-Hexanone	U	1.0									
4-Chlorotoluene	U	1.0									
4-Isopropyltoluene	U	1.0									
4-Methyl-2-pentanone	U	1.0									
Acetone	U	1.0									
Acrolein	U	1.0									
Acrylonitrile	U	1.0									
Benzene	U	1.0									
Bromobenzene	U	1.0									
Bromochloromethane	U	1.0									
Bromodichloromethane	U	1.0									

Qualifiers:
ND - Not Detected at the Reporting Limit
J - Analyte detected below quantitation limits
S - Spike Recovery outside accepted recovery limits
R - RPD outside accepted recovery limits
B - Analyte detected in the associated Method Blank

CLIENT: AKRF, Inc
Work Order: 0307061
Project: Greenpoint Lumber Yard Brooklyn, NY

ANALYTICAL QC SUMMARY REPORT

TestCode: Full8260_W

Sample ID: **VBLK071803B**	SampType: **MBLK**	TestCode: **Full8260_W**	Units: **µg/L**	Prep Date:	Run ID: **SYSTEM Y_030718A**
Client ID: **ZZZZZ**	Batch ID: **R3303**	TestNo: **SW8260B**		Analysis Date: **7/19/2003**	SeqNo: **26105**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Bromoform	U	1.0									
Bromomethane	U	1.0									
Carbon disulfide	U	1.0									
Carbon tetrachloride	U	1.0									
Chlorobenzene	U	1.0									
Chlorodifluoromethane	U	1.0									
Chloroethane	U	1.0									
Chloroform	U	1.0									
Chloromethane	U	1.0									
cis-1,2-Dichloroethene	U	1.0									
cis-1,3-Dichloropropene	U	1.0									
Dibromochloromethane	U	1.0									
Dibromomethane	U	1.0									
Dichlorodifluoromethane	U	1.0									
Diisopropyl ether	U	1.0									
Ethanol	U	1.0									
Ethyl acetate	U	1.0									
Ethylbenzene	U	1.0									
Freon-114	U	1.0									
Hexachlorobutadiene	U	1.0									
Isopropyl acetate	U	1.0									
Isopropylbenzene	U	1.0									
m,p-Xylene	U	2.0									
Methyl tert-butyl ether	U	1.0									
Methylene chloride	U	1.0									
Naphthalene	U	1.0									
n-Butyl acetate	U	1.0									
n-Butylbenzene	U	1.0									
n-Propyl acetate	U	1.0									
n-Propylbenzene	U	1.0									
o-Xylene	U	1.0									

Qualifiers:
ND - Not Detected at the Reporting Limit
J - Analyte detected below quantitation limits
S - Spike Recovery outside accepted recovery limits
R - RPD outside accepted recovery limits
B - Analyte detected in the associated Method Blank

CLIENT: AKRF, Inc
Work Order: 0307061
Project: Greenpoint Lumber Yard Brooklyn, NY

ANALYTICAL QC SUMMARY REPORT

TestCode: Full8260_W

Sample ID: **VBLK071803B** SampType: **MBLK** TestCode: **Full8260_W** Units: **µg/L** Prep Date: Run ID: **SYSTEM Y_030718A**
Client ID: **ZZZZZ** Batch ID: **R3303** TestNo: **SW8260B** Analysis Date: **7/19/2003** SeqNo: **26105**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
p-Diethylbenzene	U	1.0									
p-Ethyltoluene	U	1.0									
sec-Butylbenzene	U	1.0									
Styrene	U	1.0									
t-Butyl alcohol	U	1.0									
tert-Butylbenzene	U	1.0									
Tetrachloroethene	U	1.0									
Toluene	19.46	1.0									
trans-1,2-Dichloroethene	U	1.0									
trans-1,3-Dichloropropene	U	1.0									
Trichloroethene	U	1.0									
Trichlorofluoromethane	U	1.0									
Vinyl acetate	U	1.0									
Vinyl chloride	U	1.0									

Sample ID: **VBLK072103** SampType: **MBLK** TestCode: **Full8260_W** Units: **µg/L** Prep Date: Run ID: **SYSTEM Y_030718A**
Client ID: **ZZZZZ** Batch ID: **R3303** TestNo: **SW8260B** Analysis Date: **7/21/2003** SeqNo: **26117**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
1,1,1,2-Tetrachloroethane	U	1.0									
1,1,1-Trichloroethane	U	1.0									
1,1,2,2-Tetrachloroethane	U	1.0									
1,1,2-Trichloro-1,2,2-trifluoroethane	U	1.0									
1,1,2-Trichloroethane	U	1.0									
1,1-Dichloroethane	U	1.0									
1,1-Dichloroethene	U	1.0									
1,1-Dichloropropene	U	1.0									
1,2,3-Trichlorobenzene	U	1.0									
1,2,3-Trichloropropane	U	1.0									
1,2,4,5-Tetramethylbenzene	U	1.0									
1,2,4-Trichlorobenzene	U	1.0									

Qualifiers:
ND - Not Detected at the Reporting Limit
J - Analyte detected below quantitation limits
S - Spike Recovery outside accepted recovery limits
R - RPD outside accepted recovery limits
B - Analyte detected in the associated Method Blank

CLIENT: AKRF, Inc
Work Order: 0307061
Project: Greenpoint Lumber Yard Brooklyn, NY

ANALYTICAL QC SUMMARY REPORT

TestCode: Full8260_W

Sample ID: **VBLK072103** SampType: **MBLK** TestCode: **Full8260_W** Units: **µg/L** Prep Date: Run ID: **SYSTEM Y_030718A**
Client ID: **ZZZZZ** Batch ID: **R3303** TestNo: **SW8260B** Analysis Date: **7/21/2003** SeqNo: **26117**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
1,2,4-Trimethylbenzene	U	1.0									
1,2-Dibromo-3-chloropropane	U	1.0									
1,2-Dibromoethane	U	1.0									
1,2-Dichlorobenzene	U	1.0									
1,2-Dichloroethane	U	1.0									
1,2-Dichloropropane	U	1.0									
1,3,5-Trimethylbenzene	U	1.0									
1,3-Dichlorobenzene	U	1.0									
1,3-dichloropropane	U	1.0									
1,4-Dichlorobenzene	U	1.0									
2,2-Dichloropropane	U	1.0									
2-Butanone	U	1.0									
2-Chloroethyl vinyl ether	U	1.0									
2-Chlorotoluene	U	1.0									
2-Hexanone	U	1.0									
4-Chlorotoluene	U	1.0									
4-Isopropyltoluene	U	1.0									
4-Methyl-2-pentanone	U	1.0									
Acetone	U	1.0									
Acrolein	U	1.0									
Acrylonitrile	U	1.0									
Benzene	U	1.0									
Bromobenzene	U	1.0									
Bromochloromethane	U	1.0									
Bromodichloromethane	U	1.0									
Bromoform	U	1.0									
Bromomethane	U	1.0									
Carbon disulfide	U	1.0									
Carbon tetrachloride	U	1.0									
Chlorobenzene	U	1.0									
Chlorodifluoromethane	U	1.0									

Qualifiers: ND - Not Detected at the Reporting Limit
J - Analyte detected below quantitation limits
S - Spike Recovery outside accepted recovery limits
R - RPD outside accepted recovery limits
B - Analyte detected in the associated Method Blank

CLIENT: AKRF, Inc
Work Order: 0307061
Project: Greenpoint Lumber Yard Brooklyn, NY

ANALYTICAL QC SUMMARY REPORT

TestCode: Full8260_W

Sample ID: **VBLK072103**	SampType: **MBLK**	TestCode: **Full8260_W**	Units: **µg/L**	Prep Date:	Run ID: **SYSTEM Y_030718A**
Client ID: **ZZZZZ**	Batch ID: **R3303**	TestNo: **SW8260B**		Analysis Date: **7/21/2003**	SeqNo: **26117**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Chloroethane	U	1.0									
Chloroform	U	1.0									
Chloromethane	U	1.0									
cis-1,2-Dichloroethene	U	1.0									
cis-1,3-Dichloropropene	U	1.0									
Dibromochloromethane	U	1.0									
Dibromomethane	U	1.0									
Dichlorodifluoromethane	U	1.0									
Diisopropyl ether	U	1.0									
Ethanol	U	1.0									
Ethyl acetate	U	1.0									
Ethylbenzene	U	1.0									
Freon-114	U	1.0									
Hexachlorobutadiene	U	1.0									
Isopropyl acetate	U	1.0									
Isopropylbenzene	U	1.0									
m,p-Xylene	U	2.0									
Methyl tert-butyl ether	U	1.0									
Methylene chloride	U	1.0									
Naphthalene	U	1.0									
n-Butyl acetate	U	1.0									
n-Butylbenzene	U	1.0									
n-Propyl acetate	U	1.0									
n-Propylbenzene	U	1.0									
o-Xylene	U	1.0									
p-Diethylbenzene	U	1.0									
p-Ethyltoluene	U	1.0									
sec-Butylbenzene	U	1.0									
Styrene	U	1.0									
t-Butyl alcohol	U	1.0									
tert-Butylbenzene	U	1.0									

Qualifiers:
ND - Not Detected at the Reporting Limit
J - Analyte detected below quantitation limits
S - Spike Recovery outside accepted recovery limits
R - RPD outside accepted recovery limits
B - Analyte detected in the associated Method Blank

CLIENT: AKRF, Inc
Work Order: 0307061
Project: Greenpoint Lumber Yard Brooklyn, NY

ANALYTICAL QC SUMMARY REPORT

TestCode: Full8260_W

Sample ID: **VBLK072103** SampType: **MBLK** TestCode: **Full8260_W** Units: **µg/L** Prep Date: Run ID: **SYSTEM Y_030718A**
Client ID: **ZZZZZ** Batch ID: **R3303** TestNo: **SW8260B** Analysis Date: **7/21/2003** SeqNo: **26117**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Tetrachloroethene	U	1.0									
Toluene	29.16	1.0									
trans-1,2-Dichloroethene	U	1.0									
trans-1,3-Dichloropropene	U	1.0									
Trichloroethene	U	1.0									
Trichlorofluoromethane	U	1.0									
Vinyl acetate	U	1.0									
Vinyl chloride	U	1.0									

Sample ID: **LCS071703** SampType: **LCS** TestCode: **Full8260_W** Units: **µg/L** Prep Date: Run ID: **SYSTEM Y_030718A**
Client ID: **ZZZZZ** Batch ID: **R3303** TestNo: **SW8260B** Analysis Date: **7/18/2003** SeqNo: **26099**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
1,1-Dichloroethene	56	1.0	50	0	112	64.1	129	0	0		
Benzene	58.88	1.0	50	0	118	60.3	135	0	0		
Chlorobenzene	51.5	1.0	50	0	103	75.1	136	0	0		
Toluene	54.54	1.0	50	29.16	50.8	69	129	0	0		S
Trichloroethene	51.35	1.0	50	0	103	65.6	131	0	0		

Sample ID: **0307061-01A MS** SampType: **MS** TestCode: **Full8260_W** Units: **µg/L** Prep Date: Run ID: **SYSTEM Y_030718A**
Client ID: **MW6** Batch ID: **R3303** TestNo: **SW8260B** Analysis Date: **7/18/2003** SeqNo: **26101**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
1,1-Dichloroethene	50.54	1.0	50	0	101	64.1	129	0	0		
Benzene	57.04	1.0	50	0	114	60.3	135	0	0		
Chlorobenzene	52.69	1.0	50	0	105	75.1	136	0	0		
Toluene	53.96	1.0	50	0	108	69	129	0	0		
Trichloroethene	51.84	1.0	50	0	104	65.6	131	0	0		

Qualifiers:
ND - Not Detected at the Reporting Limit
J - Analyte detected below quantitation limits
S - Spike Recovery outside accepted recovery limits
R - RPD outside accepted recovery limits
B - Analyte detected in the associated Method Blank

CLIENT: AKRF, Inc
Work Order: 0307061
Project: Greenpoint Lumber Yard Brooklyn, NY

ANALYTICAL QC SUMMARY REPORT

TestCode: Full8260_W

Sample ID: **0307061-01A MSD**	SampType: **MSD**	TestCode: **Full8260_W**	Units: **µg/L**	Prep Date:	Run ID: **SYSTEM Y_030718A**
Client ID: **MW6**	Batch ID: **R3303**	TestNo: **SW8260B**		Analysis Date: **7/18/2003**	SeqNo: **26102**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
1,1-Dichloroethene	47.85	1.0	50	0	95.7	64.1	129	50.54	5.47	20	
Benzene	55.09	1.0	50	0	110	60.3	135	57.04	3.48	20	
Chlorobenzene	51.16	1.0	50	0	102	75.1	136	52.69	2.95	20	
Toluene	51.79	1.0	50	0	104	69	129	53.96	4.10	20	
Trichloroethene	49.61	1.0	50	0	99.2	65.6	131	51.84	4.40	20	

Qualifiers:
ND - Not Detected at the Reporting Limit
J - Analyte detected below quantitation limits
S - Spike Recovery outside accepted recovery limits
R - RPD outside accepted recovery limits
B - Analyte detected in the associated Method Blank

CLIENT: AKRF, Inc
Work Order: 0307061
Project: Greenpoint Lumber Yard Brooklyn, NY

ANALYTICAL QC SUMMARY REPORT

TestCode: ICP_TAL_W

Sample ID: **MB072303C**	SampType: **MBLK**	TestCode: **ICP_TAL_W**	Units: **mg/L**	Prep Date:	Run ID: **ICP A_030723B**
Client ID: **ZZZZZ**	Batch ID: **R3336**	TestNo: **SW6010B**		Analysis Date: **7/23/2003**	SeqNo: **26470**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Aluminum	U	0.0200									
Antimony	U	0.0250									
Arsenic	U	0.0250									
Barium	U	0.0200									
Beryllium	U	0.0200									
Cadmium	U	0.0100									
Calcium	U	0.0200									
Chromium	U	0.0200									
Cobalt	U	0.0200									
Copper	U	0.0200									
Iron	U	0.0200									
Lead	U	0.0150									
Magnesium	U	0.0200									
Manganese	U	0.0200									
Nickel	U	0.0200									
Potassium	U	0.0700									
Selenium	U	0.0250									
Silver	U	0.0200									
Sodium	U	0.0300									
Thallium	U	0.0150									
Vanadium	U	0.0200									
Zinc	U	0.0200									

Qualifiers:
ND - Not Detected at the Reporting Limit
J - Analyte detected below quantitation limits
S - Spike Recovery outside accepted recovery limits
R - RPD outside accepted recovery limits
B - Analyte detected in the associated Method Blank

January 8, 2026

New York State Department of Environmental Conservation
Division of Environmental Remediation
47-20 21st Street
Long Island City, NY 11101

Re: Supplemental Remedial Investigation Work Plan No. 1
C Block
21 Freeman Street, 37 Freeman Street, and 209 West Street
Brooklyn, NY
NYSDEC BCP Site No.: C224435
Langan Project No. 170229030

To Whom It May Concern:

Langan Engineering, Environmental, Survey, Landscape Architecture and Geology, D.P.C. (Langan) presents this Supplemental Remedial Investigation Work Plan (SRIWP) on behalf of GPLC HoldCo LLC, GPLC Member LLC and GPLC Owner LLC (the Requestors) for the C Block site in the Greenpoint neighborhood of Brooklyn, New York (the site). This SRIWP is being submitted alongside the Requestors' application for the New York State Department of Environmental Conservation (NYSDEC) Brownfield Cleanup Program (BCP). The proposed BCP site is identified on the Brooklyn Borough Tax Map as Block 2502, part of (p/o) Lot 1 and p/o Lot 5, and Block 2510, p/o Lot 1 and p/o Lot 100.

Langan, on behalf of the Requestors, will perform a supplemental remedial investigation (SRI) to collect groundwater samples for additional per- and polyfluoroalkyl substance (PFAS) parameters. Groundwater samples will be collected at twelve existing groundwater monitoring wells that were installed during the 2022 Remedial Investigation.[1] The data collected during the SRI will be incorporated into the draft remedial investigation report (RIR) and will also be used to inform the remedial action at the site.

The proposed monitoring well sampling locations are illustrated on Figure 1.

Field Investigation

Twelve existing groundwater monitoring wells will be sampled using established low flow sampling methods. Quality assurance/ quality control samples (QA/QC), including field blanks, field duplicates, matrix strikes and matrix spike duplicate samples, will also be collected.

[1] Monitoring well MW07 could not be relocated and confirmed viable after a recent visit to the site.

Before sampling, headspace readings will be taken from each well using a handheld photoionization detector (PID). Monitoring wells will be gauged with an interface probe to determine the depth to groundwater and thickness of any non-aqueous phase liquid (NAPL) (not anticipated) before collecting groundwater samples.

One groundwater sample will be collected from each installed well in general accordance with NYSDEC DER-10 and United States Environmental Protection Agency (USEPA)'s Low Flow Purging and Sampling Procedures for the Collection of Groundwater Samples from Monitoring Wells (EQASOP-GW4 Revised Sep. 2017) and the NYSDEC guidance for Sampling, Analysis, and Assessment of PFAS under NYSDEC's Part 375 Remedial Programs (April 2023).

Before the groundwater samples are collected, wells will be continuously purged until groundwater quality parameters (pH, conductivity, turbidity, dissolved oxygen, temperature, and oxidation-reduction potential) stabilize, to the extent practical, in accordance with the USEPA low-flow guidance. A multi-parameter water-quality system will be used to monitor the groundwater-quality parameters during sampling. Samples will be collected with a peristaltic pump, submersible pump, and/or bladder pump (or equivalent) and dedicated polyethylene tubing. Groundwater samples will be collected at a maximum flow rate of 0.5 liters per minute. The pump will be decontaminated with Alconox® and water between each sample location. Development and purge water will be containerized into United Nations/Department of Transportation-approved 55-gallon drums, labeled, and staged for off-site disposal.

The groundwater samples will be collected in laboratory-supplied containers and will be sealed, labeled, and placed in a chilled cooler (to attempt to maintain a temperature of <4°C) for delivery to the laboratory. The groundwater samples will be analyzed for PFAS by USEPA Method 1633 at a New York State Department of Health (NYSDOH) Environmental Laboratory Approval Program (ELAP)-approved laboratory.

Field work will be conducted in accordance with the Health and Safety Plan (included as Attachment 1) and sampling will be conducted in accordance with the Quality Assurance Project Plan (included as Attachment 2). A summary of proposed groundwater samples is presented in Table 1.

Reporting

After completion of the SRI, the draft RIR will be revised to include observations, sampling logs, analytical results, and conclusions from the SRI. Validated, tabulated sampling results will be included in the revised draft RIR and submitted to NYSDEC electronically as electronic data deliverables (EDDs).

Schedule

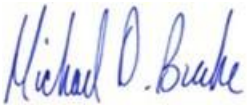
Mobilization for the SRI will commence after this SRI Work Plan No. 1 is approved by the NYSDEC. Once the SRI is complete and the analytical data is validated, an updated draft RIR will be revised and submitted to the NYSDEC.

Certification

I, Michael D. Burke, certify that I am currently a Qualified Environmental Professional [as defined in 6 NYCRR Part 375] and that this Report [SRI Work Plan No. 1] was prepared in accordance with all applicable statutes and regulations and in substantial conformance with the Division of Environmental Remediation Technical Guidance for Site Investigation and Remediation (DER-10).

Sincerely,

Langan Engineering, Environmental, Surveying
Landscape Architecture and Geology, D.P.C.



Michael D. Burke, PG, CHMM
Senior Principal

cc: M. Raygorodetsy, G. Wyka, E. Burgess, S. Simpson (Langan)

Enclosures: Table 1 – Proposed Sample Summary
Figure 1 – Proposed Sample Location Plan
Attachment 1 – Health and Safety Plan
Attachment 2 – Quality Assurance Project Plan

TABLE

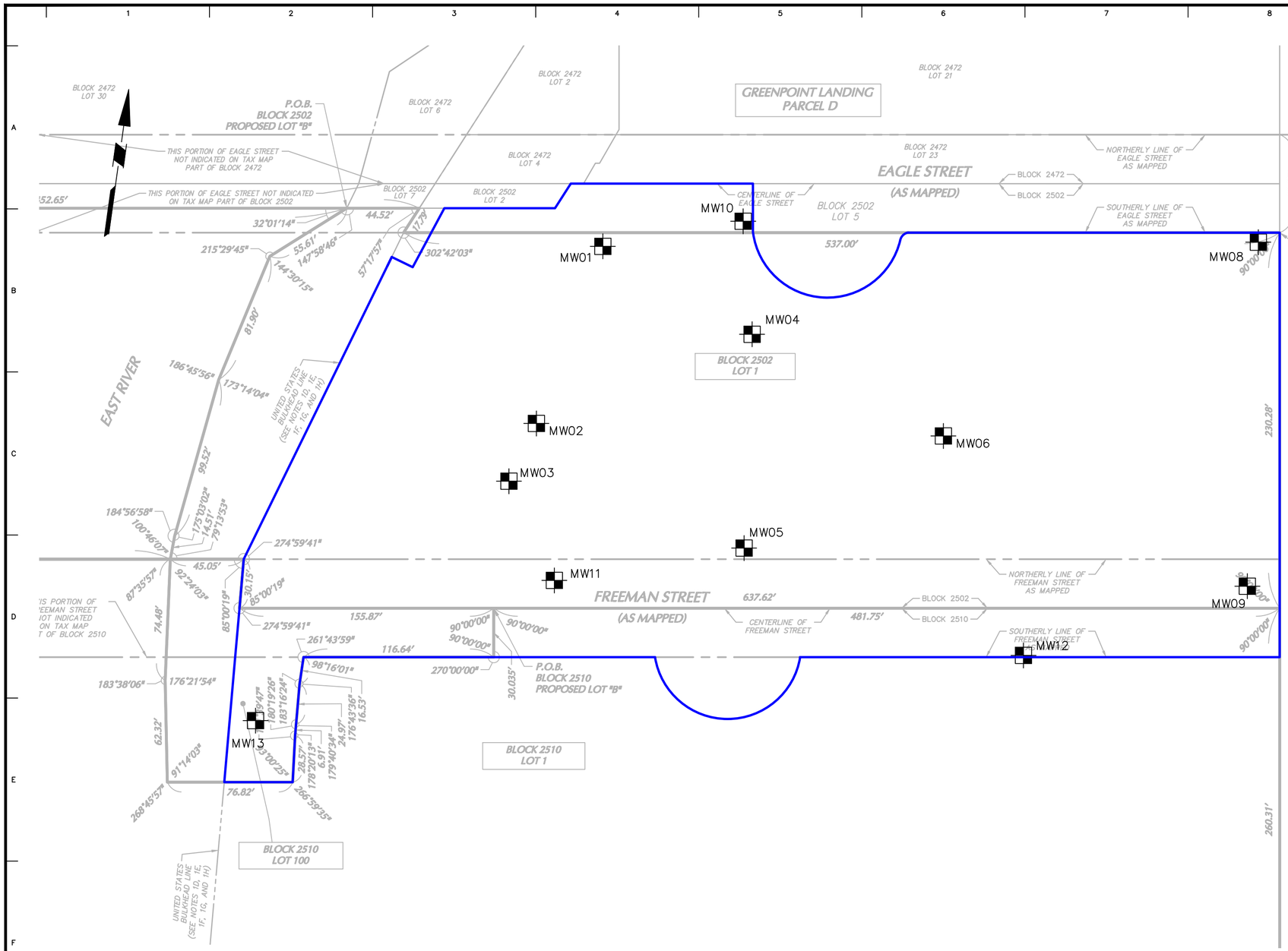
Table 1
Supplemental Remedial Investigation Work Plan No. 1
Proposed Sample Summary

C Block
Brooklyn, NY
Langan Project No. 170229030

No.	Location	Type	Proposed Sample ID	Sample Depth Interval (feet bgs)	Analysis
GROUNDWATER					
1	MW01	Groundwater	MW01_DATE	X'-X'	PFAS via USEPA Method 1633
2	MW02		MW02_DATE	X'-X'	
3	MW03		MW03_DATE	X'-X'	
4	MW04		MW04_DATE	X'-X'	
5	MW05		MW05_DATE	X'-X'	
6	MW06		MW06_DATE	X'-X'	
7	MW08		MW08_DATE	X'-X'	
8	MW09		MW09_DATE	X'-X'	
9	MW10		MW10_DATE	X'-X'	
10	MW11		MW11_DATE	X'-X'	
11	MW12		MW12_DATE	X'-X'	
12	MW13		MW13_DATE	X'-X'	
GROUNDWATER QA/QC					
1	MWXX	Duplicate	GWDUP01_DATE	X'-X'	PFAS via USEPA Method 1633
2	MWXX	MS/MSD	MWXX_DATE	X'-X'	
3	N/A	Field Blank	GWFB01_DATE	N/A	
4	N/A	PFAS Field Blank	GWFB01_DATE	N/A	PFAS
5	N/A		GWFB02_DATE	N/A	
6	N/A		GWFB03_DATE	N/A	
7	N/A		GWFB04_DATE	N/A	

Notes:
1. VOC = Volatile organic compounds
2. SVOC = Semivolatile organic compounds
3. PCB = Polychlorinated biphenyls
4. TCL = Target Compound List
5. TAL = Target Analyte List
6. PFAS = per- and poly-fluoroalkyl substances
7. QA/QC = Quality assurance/quality control
8. N/A = Not applicable
9. MS/MSD = matrix spike/matrix spike duplicate
10. bgs = below grade surface

FIGURE



LEGEND:

APPROXIMATE SITE BOUNDARY

MW01 APPROXIMATE LOCATION OF EXISTING GROUNDWATER MONITORING WELL (LANGAN, 2022)

NOTES:

1. BASE MAP IS TAKEN FROM "FINAL SURVEY', FIGURE FS103, PREPARED BY LANGAN, DATED FEBRUARY 26, 2025.
2. ALL LOCATIONS ARE APPROXIMATE.

SCALE: 1 INCH = 50 FEET

WARNING: IT IS A VIOLATION OF THE NYS EDUCATION LAW ARTICLE 145 FOR ANY PERSON, UNLESS HE IS ACTING UNDER THE DIRECTION OF A LICENSED PROFESSIONAL ENGINEER, LAND SURVEYOR OR GEOLOGIST, TO ALTER THIS ITEM IN ANY WAY.

LANGAN
Langan Engineering, Environmental, Surveying, Landscape Architecture and Geology, D.P.C.
368 Ninth Avenue, 8th Floor
New York, NY 10001
T: 212.479.5400 F: 212.479.5444 www.langan.com

Project
C BLOCK
BLOCK NO. 2502, p/o LOT NOs. 1 & 5, AND BLOCK NO. 2510, p/o LOT NOs. 1 & 100
KINGS NEW YORK

Figure Title
PROPOSED SAMPLE LOCATION MAP

Project No.	170229030
Date	05/13/2025
Drawn By	VK
Checked By	GW
Figure	1

PROJECT NO. 170229030 LANGAN

© 2024 Langan

Filename: \\Langan.com\data\NYC\data0\170229030\Project Data\CAD\Sheet Files\Environmental\RIR Figures\SRIWP - Proposed Sample Location Map.dwg Date: 5/14/2025 Time: 13:40 User: vkanagaratnam Style Table: Langan.stb Layout: SRIWP Figure 1

ATTACHMENT 1

HEALTH AND SAFETY PLAN

HEALTH AND SAFETY PLAN

FOR

C BLOCK
BUILDING C1 - 21 FREEMAN STREET
BUILDING C2 - 37 FREEMAN STREET
AND
BUILDING C3 - 209 WEST STREET
BROOKLYN, NEW YORK
Brooklyn Borough/Kings County Tax Map
Block 2502, Portions of Lot 1 and Lot 5
And
Block 2510, Portions of Lot 1 and Lot 100

Prepared for

GPLC HoldCo LLC, GPLC Member LLC and GPLC Owner LLC
535 Madison Avenue
New York, NY 10022

Prepared by:

Langan Engineering, Environmental, Surveying
Landscape Architecture and Geology
368 Ninth Avenue, 8th Floor
New York, New York 10001

LANGAN

May 2025
Langan Project No. 170229030

TABLE OF CONTENTS

Page No.

1.0 INTRODUCTION 1

1.1 GENERAL 1
1.2 SITE LOCATION AND BACKGROUND 1
1.3 SUMMARY OF WORK TASKS 2
1.3.1 Geophysical Investigation - Underground Utility Clearance Policy 2
1.3.2 "Soft-Dig" Clearance of Borehole Locations 2
1.3.3 Day Lighting Excavation and Soil Screening 2
1.3.4 Soil Investigation and Sampling 3
1.3.5 Groundwater Investigation and Sampling 3
1.3.6 Groundwater/Product Gauging 4
1.3.7 Product Bailing 4
1.3.8 Product Bailing Test 4
1.3.9 Sub Slab or Soil Vapor Point Installation and Sampling 4
1.3.10 QA/QC Sampling 6
1.3.11 Equipment Decontamination 6
1.3.12 Management of Investigative-Derived Waste 6
1.3.13 Drum Sampling 6
1.3.14 Surveying 6

2.0 IDENTIFICATION OF KEY PERSONNEL/HEALTH AND SAFETY PERSONNEL 7

2.1 LANGAN PROJECT MANAGER 7
2.2 LANGAN CORPORATE CONSTRUCTION HEALTH AND SAFETY MANAGER 7
2.3 LANGAN SITE HEALTH & SAFETY OFFICER 7
2.4 LANGAN FIELD TEAM LEADER RESPONSIBILITIES 8
2.5 CONTRACTOR RESPONSIBILITIES 8
2.5 CONTRACTOR RESPONSIBILITIES 8

3.0 TASK/OPERATION SAFETY AND HEALTH RISK ANALYSES 9

3.1 SPECIFIC TASK SAFETY ANALYSIS 9
3.1.1 Geophysical Survey 9
3.1.2 "Soft Dig" Clearance of Borehole Locations 9
3.1.3 Daylighting Test Pit 10
3.1.4 Indoor Drilling and Excavation 10
3.1.5 Soil Investigation Sampling 11
3.1.6 Groundwater Investigation and Sampling 11
1.3.7 Groundwater/Product Gauging 11
3.1.8 Product Recovery Well Bailing – Bail-down Test 12
3.1.9 Electrical Pumps 12
3.1.10 Vapor Investigation and Sampling 12
3.1.11 Additional Vapor Screening 13
3.1.12 Plugging and Abandonment of Observation/Monitoring Wells 13
3.1.13 Drum Sampling 13
3.2 RADIATION HAZARDS 13
3.3 PHYSICAL HAZARDS 13
3.3.1 Explosion 13
3.3.2 Heat Stress 14

3.3.3 Cold-Related Illness 15
3.3.4 Noise 16
3.3.5 Hand and Power Tools 16
3.3.6 Slips, Trips, and Fall Hazards 17
3.3.7 Utilities (Electrocution and Fire Hazards) 17
3.3.8 Adequate Lighting 18
3.3.9 Physical Hazard Considerations for Material Handling 18
3.3.10 Hearing Conservation 19
3.3.11 Open Water 19
3.4 BIOLOGICAL HAZARDS 20
3.4.1 Animals 20
3.4.2 Insects 20
3.4.3 Plants 21
3.4.4 Mold 21
3.5 ADDITIONAL SAFETY ANALYSIS 21
3.5.1 Presence of Non-Aqueous Phase Liquids (NAPL) 21
3.6 JOB SAFETY ANALYSIS 22

4.0 PERSONNEL TRAINING 22

4.1 BASIC TRAINING 22
4.2 INITIAL SITE-SPECIFIC TRAINING 22
4.3 TAILGATE SAFETY BRIEFINGS 23

5.0 MEDICAL SURVEILLANCE 23

5.1 MERCURY MONITORING 23
5.2 CORONAVIRUS 23

6.0 PERSONAL PROTECTIVE EQUIPMENT 25

6.1 LEVELS OF PROTECTION 25
6.2 RESPIRATOR FIT-TEST. 26
6.3 RESPIRATOR CARTRIDGE CHANGE-OUT SCHEDULE 27

7.0 AIR QUALITY MONITORING AND ACTIONS LEVELS 27

7.1 MONITORING DURING SITE OPERATIONS 27
7.1.1 Volatile Organic Compounds 28
7.1.2 Metals 28
7.1.3 Methane 28
7.2 MONITORING EQUIPMENT CALIBRATION AND MAINTENANCE 28
7.3 DETERMINATION OF BACKGROUND LEVELS 29

8.0 COMMUNITY AIR MONITORING PROGRAM 29

8.1 DUST SUPPRESSION TECHNIQUES 30

9.0 WORK ZONES AND DECONTAMINATION 31

9.1 SITE CONTROL 31
9.2 CONTAMINATION ZONE 31
9.2.1 Personnel Decontamination Station 31
9.2.2 Minimization of Contact with Contaminants 31
9.2.3 Personnel Decontamination Sequence 32
9.2.4 Emergency Decontamination 32
9.2.5 Hand-Held Equipment Decontamination 32

9.2.6 Heavy Equipment Decontamination 33
9.3 SUPPORT ZONE 33
9.4 COMMUNICATIONS 33
9.5 THE BUDDY SYSTEM 33
10.0 NEAREST MEDICAL ASSISTANCE 34
11.0 STANDING ORDERS/SAFE WORK PRACTICES 34
12.0 SITE SECURITY 34
13.0 UNDERGROUND UTILITIES 34
14.0 SITE SAFETY INSPECTION 35
15.0 HAND AND POWER TOOLS 35
16.0 EMERGENCY RESPONSE 35
16.1 GENERAL 35
16.2 RESPONSIBILITIES 36
16.2.1 Health and Safety Officer (HSO) 36
16.2.2 Emergency Coordinator 37
16.2.3 Site Personnel 37
16.3 COMMUNICATIONS 37
16.4 LOCAL EMERGENCY SUPPORT UNITS 37
16.5 PRE-EMERGENCY PLANNING 38
16.6 EMERGENCY MEDICAL TREATMENT 38
16.8 EMERGENCY SITE EVACUATION ROUTES AND PROCEDURES 38
16.8.1 Designated Assembly Locations 39
16.8.2 Accounting for Personnel 39
16.9 FIRE PREVENTION AND PROTECTION 39
16.9.1 Fire Prevention 40
16.10 SIGNIFICANT VAPOR RELEASE 40
16.11 OVERT CHEMICAL EXPOSURE 40
16.12 DECONTAMINATION DURING MEDICAL EMERGENCIES 41
16.13 ADVERSE WEATHER CONDITIONS 41
16.14 SPILL CONTROL AND RESPONSE 41
16.15 EMERGENCY EQUIPMENT 43
16.16 RESTORATION AND SALVAGE 43
16.17 DOCUMENTATION 43
17.0 SPECIAL CONDITIONS 43
17.1 SCOPE 43
17.2 RESPONSIBILITIES 44
17.3 PROCEDURES 44
17.3.1 Ladders 44
17.3.2 First Aid/Cardiopulmonary Resuscitation (CPR) 45
17.3.3 Hydrogen Sulfide 46
17.3.4 Fire Protection/Extinguishers 49
17.3.5 Overhead lines 49
17.3.6 Trade Secret 50
17.3.7 Bloodborne Pathogens 51
18.0 RECORDKEEPING 54

18.1 FIELD CHANGE AUTHORIZATION REQUEST 54
18.2 MEDICAL AND TRAINING RECORDS 54
18.3 ONSITE LOG 54
18.4 DAILY SAFETY MEETINGS ("TAILGATE TALKS") 54
18.5 EXPOSURE RECORDS 54
18.6 HAZARD COMMUNICATION PROGRAM - SDS 54
18.7 DOCUMENTATION 54
18.7.1 Accident and Injury Report Forms 55

19.0 CONFINED SPACE ENTRY 55

20.0 HASP ACKNOWLEDGEMENT FORM 56

LIST OF TABLES

Table 1 Task Hazard Analysis

Table 2 Contaminant Hazards of Concern

Table 3 Summary of Monitoring Equipment

Table 4 Instrumentation Action Levels

Table 5 Emergency Notification List*****

Table 6 Suggested Frequency of Physiological Monitoring For Fit and Acclimated Workers

Table 7 Heat Index

LIST OF FIGURES

Figure 1 Site Location Map

Figure 2 Route to Hospital (map with directions) *****

LIST OF APPENDICES

Attachment A Standing Orders*

Attachment B Decontamination Procedures

Attachment C Employee Exposure/Injury Incident Report

Attachment D Calibration Log

Attachment E Material Data Safety Sheets / Safety Data Sheets*

Attachment F Jobsite Safety Inspection Checklist

Attachment G Job Safety Analysis Forms

Attachment H Tailgate Safety Meeting Log

***** Items to be posted prominently on-site or made readily available to personnel.

1.0 INTRODUCTION

1.1 General

This HEALTH AND SAFETY PLAN (HASP) was developed to address disturbance of known and reasonably anticipated subsurface contaminants and comply with Occupational Safety and Health Administration (OSHA) Standard 29 Code of Federal Regulation (CFR) 1910.120(b)(4), Hazardous Waste Operations and Emergency Response during anticipated site work for the property defined as Block C and includes the following locations 21 Freeman St (Building C1), 37 Freeman St (Building C2), and 209 West St (Building C3) in the Greenpoint neighborhood of Brooklyn, New York (the Site). The site is identified on the Brooklyn Borough/Kings County Tax Map as portions of Lot 1 and Lot 5 in Block 2502 and portions of Lot 1 and Lot 100 in Block 2510.

This HASP provides the minimum requirements for implementing site operations during future remedial measures. All contractors performing work on this site must implement their own HASP that, at a minimum, adheres to this HASP. The contractor is responsible for their own health and safety and that of their subcontractors. Langan personnel will implement this HASP while onsite.

The content of this HASP may change or undergo revision based upon additional information made available to health and safety personnel, monitoring results, or changes in the work plan.

1.2 Site Location and Background

The site is defined as Block C and includes the 21 Freeman St (Building C1), 37 Freeman St (Building C2), and 209 West St (Building C3) in the Greenpoint neighborhood of Brooklyn, New York. The site is identified on the Brooklyn Borough/Kings County Tax Map as portions of Lot 1 and Lot 5 in Block 2502 and portions of Lot 1 and Lot 100 in Block 2510. The site was recently developed for residential and commercial purposes. A Site location map is provided as Figure 1.

Historically, the site was used for industrial activities including the transfer and storage of lumber, and construction materials and equipment. Lumber storage was the primary use for more than 100 years from the late 1800s until approximately 1980. The lumber yard operations were phased out during the 1980s when the owner (Lumber Exchange Terminal, Inc.) began to lease portions of the site to tenants for materials and heavy construction equipment and machinery storage.

1.3 Summary of Work Tasks

1.3.1 Geophysical Investigation - Underground Utility Clearance Policy

Prior to the commencement of intrusive field activities (i.e., all soil borings, test pits, or excavations); Langan field engineers will follow the Langan Underground Utility Clearance Policy including the retaining one or more geophysical consultants, if required, to conduct geophysical surveys using ground penetrating radar (GPR) and electromagnetic detection equipment. The application of the Langan Underground Utility Clearance policy is mandatory unless a site wide or a specific location exemption has been granted in writing by the principal-in-charge (PIC).

The objective of a geophysical survey is to identify any underground storage tank (UST) structures, drains, underground utilities, and other subsurface anomalies that may be encountered during an intrusive investigation. Langan personnel will observe the geophysical survey of each location and confirm the locations are both accessible and free of potential utility or other known or suspected subsurface structures. There will be no exemption to this section unless granted by written approval by the PIC.

1.3.2 "Soft-Dig" Clearance of Borehole Locations

In accordance with Langan's Underground Utility Clearance Policy, Langan will instruct the drilling or excavation contractor to "Soft-Dig" each target soil boring, test pit, or excavation location as specified in Section 1.3.1. Soft dig is defined as using a vacuum system (with or without an air knife) or hand auger to clear soil from the proposed soil boring location to a depth of 5-feet. When excavating a test pit or larger excavation, the exaction contractor will "peal" away thin layers of soil with their excavator or shovel to daylight potential underground structures until achieving the required 5-feet depth. If using an excavator, the contractor must have a worker observing the excavator bucket/shovel warning the excavator operator when the bucket/shovel encounters a possible underground structure. At which point, the potential structure must be hand shoveled until it is fully daylighted. Langan personnel will confirm that the "soft dig" activities are completed to these specifications.

1.3.3 Day Lighting Excavation and Soil Screening

Langan may retain one or more excavation contractors to daylight buried unidentified structures. The purpose of the daylighting is to confirm if these structures are subsurface structures of concern including USTs, utilities sewer lines, storm water drains, electrical, gas or other utility line as well as other artifacts pertinent to the work plan. The excavation contractors will contact the appropriate utility mark-out authority and make available to their staff the verification number

and effective dates.

The excavation contractor will employ "soft dig" methods as defined in Section 1.3.2. Langan may screen excavated soil for visual, olfactory, and instrumental indicators suggestive of a potential chemical or petroleum release. Instrument screening for the presence of volatile organic compounds (VOC) may be performed with a duly calibrated photoionization detector (PID). Contractors will notify Langan personnel if they identify indications suggestive of a potential chemical or petroleum release. Contaminated material shall be handled, and property disposed in accordance with federal, state and city regulations, criteria, and guidelines.

1.3.4 Soil Investigation and Sampling

Langan will retain a drilling contractor to advance soil borings to a depth below grade surface (bgs) specified in the work plan. Borings will be installed at the approximate locations indicated in Langan's work plan but may be moved in the field based on utility clearance and accessibility. The drilling contractor will contact the appropriate utility mark-out authority and make available to their drilling staff the verification number and effective dates. Langan will record the verification number and effective dates from the drillers. Langan will also note the location of marked out utilities on the site plan and scan the data into the project folder.

Langan personnel will screen soil for visual, olfactory, and instrumental indicators suggestive of a potential petroleum release. Instrument screening for the presence of VOC may be performed with a duly field calibrated PID (or equivalent). Langan personnel will collect soil samples from the proposed soil boring locations following the sampling plan outlined in the work plan. The borings will be filled with clean soil cuttings, clean sand or bentonite grout and capped at grade to match the surrounding surface after samples are collected.

Soil samples will be submitted to a specific lab per the work plan or to a New York State Department of Health (NYSDOH) Environmental Laboratory Approval Program (ELAP)-certified laboratory and analyzed in accordance with work plan specifications.

1.3.5 Groundwater Investigation and Sampling

Selected soil borings will be converted into groundwater monitoring wells and sampled to evaluate groundwater quality. Groundwater samples will be collected from one or more of the new and if available, pre-existing monitoring wells in accordance with the Langan Low Flow Groundwater Sampling SOP (SOP #12). Groundwater samples will be submitted to an approved laboratory and analyzed for constituents as specified in the work plan. Temporary monitoring wells will be plugged and abandoned during the investigation in the manner defined in Section 1.3.2 for soil boring. Permanent monitoring wells will be completed with a road box set in

concrete. Permanent monitoring wells will be eventually backfilled and abandoned in accordance with State and Local regulations.

Groundwater samples will be submitted to a NYSDOH ELAP-certified laboratory and analyzed in accordance with work plan specifications.

1.3.6 Groundwater/Product Gauging

Langan may gauge one or more of the observation/monitoring wells to collect synoptic head data or determine the presence of product. When gauging, Langan may also survey head space VOCs within the well using a duly calibrated PID. When collected, gauging data will be based on the northernmost point at top of casing (TOC) using an interface probe (IP) capable of determining the presence of free product in the monitoring well as light non-aqueous phase liquid (LNAPL) at the top of the water column. If gauging for dense non-aqueous phase liquid (DNAPL) at the base of the monitoring well, the IP may not be appropriate. The field engineer will coordinate with the project team to devise an alternative method to gauge the thickness of DNAPL at base of the well. Langan will decontaminate gauging equipment between wells as required by the work plan.

1.3.7 Product Bailing

Langan may remove free product from on-site monitoring wells as part of this HASP or subsequent SMP activities. Langan will may use a bailer, peristaltic pump or submersible as determined by the work plan. Langan will record the volume of product and groundwater recovered. Recovered product and groundwater will be drummed in accordance with procedures outlined in the work plan.

1.3.8 Product Bailing Test

Langan may complete a product bail down test to qualify the potential for recovery product from one or several of the current and proposed monitoring wells. Langan will may use a bailer, peristaltic pump or submersible as determined by the work plan. Langan will record the volume of product and groundwater recovered and other data as determined by the work scope. Recovered product and groundwater will be drummed in accordance with procedures outlined in the work plan.

1.3.9 Sub Slab or Soil Vapor Point Installation and Sampling

Langan (or its contractor) will install one or more sub-slab or soil vapor points at selected locations. If installed, the sub-slab points will be set at or just below the bottom of the slab in

accordance with the work plan. The sub-slab points may be installed using an electric hammer drill to advance small diameter borings through the concrete (or equivalent) slab as defined in the work plan. The borings will terminate in and sample from the gravel substrate below the slab. Conditions in the field may require adjustment of sampling locations.

Langan personnel (or contractor) may install VaporPin® vapor points (or equivalent) in accordance with the manufacturer's instructions. If no point is used, Langan (or contractor) will set a sampling tube defined as an open-ended Teflon™-lined polyethylene tubing (or equivalent tubing as approved by the project manager [PM]). The sampling tube will be set either within the base of the concrete slab or within the support gravel underlying the slab.

When using the VaporPin® or equivalent, the installation sleeve will provide the necessary annulus seal required for subsequent sampling. However, if a sampling tube as defined above is use, the annulus at the top of the concrete slab will be filled with bentonite or food grade clay to seal the slab. A sand pack is not required for sub-slab vapor sampling. Unless specified by the work plan, the sub slab points are temporary and will be pulled after the sampling event and the hole will be patched at grade with material similar to the surrounding surface.

Langan personnel will confirm that the soil vapor points (implants) are 2-inches in length constructed of polyethylene material and are connected to the surface by Teflon™-line polyethylene material (equivalent materials for the point and tubing are acceptable as approved by the PM). The annulus around the implant will be filled with clean sand to 6-inches above the implant. A 1-foot bentonite slurry will be applied to the top of the sand up to seal the sampling points. The remaining soil vapor point annulus may be backfilled with clean cuttings are sand to grade. Unless specified by the work plan, the vapor points are temporary and will be pulled after the sampling event and the hole will be patched at grade with material similar to the surrounding surface.

Vapor samples will be collected in accordance with following guidance including Final Guidance for Evaluating Soil Vapor Intrusion published by the New York State Department of Health (NYSDOH) in October 2006, Langan's Sub-Slab Vapor Sampling SOP (SOP #14) and as specified in the work plan. In addition, ambient air and indoor air samples may be collected for use as a comparison sample. As part of the indoor air sampling program, Langan personnel may complete a building inventory inspection. The inspection may take place prior to the commencement of actual field sampling. Vapor samples will be submitted to a specific lab per the work plan or to a New York State Department of Health (NYSDOH) Environmental Laboratory Approval Program (ELAP)-certified laboratory and analyzed in accordance with work plan specifications.

1.3.10 QA/QC Sampling

Samples for quality assurance/quality control [QA/QC] may also be collected and submitted to an approved laboratory and analyzed in accordance with work plan specifications. Information regarding the QA/QC samples including required method of analysis may be included in the same COC as the soil samples unless otherwise instructed by the work plan.

1.3.11 Equipment Decontamination

Before the start of the day's sampling and after sampling each run, sampling equipment will be decontaminated by the decontamination process outlined Attachment B - Decontamination Procedures. Decontamination wastes and purge water will be temporarily stored on site pending analytical results.

1.3.12 Management of Investigative-Derived Waste

The investigative-derived waste (IDW) generated during this investigation will be contained in DOT-approved 55-gallon drums. The drums will be temporarily stored on the site or as directed by the client representative. All drums will be filled between to two-thirds full to allow easy maneuvering during drum pickup and disposal. Drum labels are to be provided by Langan (Environmental Closet). All drums will be labeled as "IDW Pending Analysis" until sample data are reported from the laboratory. Drum labels will include date filled and locations where waste was generated along with the standard information required by the labels in accordance with the Langan SOP09, Drum Labeling.

Closed top drums are to be used to store liquids. Debris, including plastic sheeting, polyethylene tubing, personal protection equipment (PPE), decontamination debris, etc. will be segregated from and disposed in large heavy duty garbage bags and disposed of at the site. Excess unused glassware should be returned to the lab along with the last day of collection samples.

1.3.13 Drum Sampling

Langan personnel may collect drum samples, as required, prior to off-site drum disposal. Samples will be placed into laboratory-supplied batch-certified clean glassware and submitted to an approved laboratory and analyzed in accordance with work plan specifications, if required.

1.3.14 Surveying

Surveying activities may be completed by Langan. Surveying will be conducted by licensed surveyors.

2.0 IDENTIFICATION OF KEY PERSONNEL/HEALTH AND SAFETY PERSONNEL

The following briefly describes the health and safety (H&S) designations and general responsibilities that may be employed for this site. The titles have been established to accommodate the project needs and requirements and ensure the safe conduct of site activities. The H&S personnel requirements for a given work location are based on the proposed site activities.

2.1 Langan Project Manager

The Langan Environmental Project Manager (PM) is Elizabeth Burgess, her responsibilities include:

- Ensuring that this HASP is developed, current, and approved prior to on-site activities.
- Ensuring that the tasks in the project are performed in a manner consistent with Langan's comprehensive *Health and Safety Program for Hazardous Waste Operations* and this HASP.

2.2 Langan Corporate Construction Health and Safety Manager

The Langan Corporate Construction Health and Safety Manager is Tony Moffa. His responsibilities include:

- Updating the *Health and Safety Program for Hazardous Waste Operations*.
- Assisting the site Construction Health and Safety Officer (HSO) with the development of the HASP, updating HASP as dictated by changing conditions, job site inspection results, etc., and approving changes to this HASP.
- Assisting the HSO in the implementation of this HASP and conducting Jobsite Safety Inspections and assisting with communication of results and correction of shortcomings found.
- Maintaining records on personnel (medical evaluation results, training and certifications, accident investigation results, etc.).

2.3 Langan Site Health & Safety Officer

The Langan site HSO is William Bohrer. His responsibilities include:

- Participating in the development and implementation of this HASP.
- When on-site, assisting the Langan Field Team Leader in conducting Tailgate Safety Meetings and Jobsite Safety Inspections and correcting any shortcomings in a timely

manner.

- Ensuring that proper PPE is available, worn by employees, and properly stored and maintained.
- Controlling entry into and exit from the site contaminated areas or zones.
- Monitoring employees for signs of stress, such as heat stress, fatigue, and cold exposure.
- Monitoring site hazards and conditions.
- Knowing (and ensuring that all site personnel also know) emergency procedures, evacuation routes, and the telephone numbers of the ambulance, local hospital, poison control center, fire department, and police department.
- Resolving conflicts that may arise concerning safety requirements and working conditions.
- Reporting all incidents, injuries, and near misses to the Langan Incident/Injury Hotline immediately and the client representative.

2.4 Langan Field Team Leader Responsibilities

The Langan Field Team Leader (FTL) is to be determined prior to the start of field activities. The Field Team Leader's responsibilities include:

- The management of the day-to-day site activities and implementation of this HASP in the field.
- Participating in and/or conducting Tailgate Safety Meetings and Jobsite Safety Inspections and correcting any shortcomings in a timely manner.
- When a Community Air Monitoring Operating Program (CAMP) is part of the scope, the FTL will set up and maintain community air monitoring activities and instruct the responsible contractor to implement organic vapor or dust mitigation when necessary.

2.5 Contractor Responsibilities

2.5 Contractor Responsibilities

The contractor must develop and implement their own HASP for their employees, their subcontractors, and consultants. The contractor is responsible for their own health and safety and that of their subcontractors. Contractors operating on the site must designate their own FTL, HSO, and Health and Safety Manager (HSM). The contractor's HASP will be at least as stringent as this HASP. The contractor must be familiar with and abide by the requirements outlined in their own HASP. A contractor may elect to adopt Langan's HASP as its own if it has given written notification to Langan, but where Langan's HASP excludes provisions pertinent to the contractor's work (i.e., confined space entry); the contractor must provide written addendums to this HASP. Additionally, the contractor must:

- Ensure their employees are trained in the use of all appropriate PPE for the tasks involved.
- Notify Langan of any hazardous material brought onto the job site or site-related area, the hazards associated with the material and must provide a safety data sheet (SDS) for the material.
- Have knowledge of, understand, and abide by all current federal, state, and local health and safety regulations pertaining to the work.
- Ensure their employees handling hazardous materials, if identified at the Site, have received current training in the appropriate levels of 29 CFR 1910.120, *Hazardous Waste Operations and Emergency Response* (HAZWOPER) if hazardous waste is identified at the Site,
- Ensure their employees handling hazardous materials, if identified at the Site, have been fit-tested within the year on the type of respirator they will wear.
- Ensure all air monitoring is in place pertaining to the health and safety of their employees as required by OSHA 1910.120; and
- All contractors must adhere to all federal, state, and local regulatory requirements.

3.0 TASK/OPERATION SAFETY AND HEALTH RISK ANALYSES

A Task-Hazard Analysis (Table 1) was completed for general hazards that may be encountered at the Site. The potential contaminants that might be encountered during the field activities and the exposure limits are listed in Table 2. The Safety Data Sheets for each potential contaminant listed in Table 2 is included in Attachment E.

3.1 Specific Task Safety Analysis

3.1.1 Geophysical Survey

Langan personnel are not permitted to operate or otherwise handle the geophysical equipment including GPR/electromagnetic detection equipment used for surface utility clearance contractor. When conducting surface utility clearance surveys, the locations of the borings, test pits, and other excavations must be fully marked out. In addition, possible detections by the utility clearance contractor of utilities and other artifacts must also be marked-out. Markings should include paint, flags, or color tape (when marking indoor locations that the client has specifically requested not be marked with paint). This information must also be added to the site map.

3.1.2 "Soft Dig" Clearance of Borehole Locations

"Soft-Dig" clearance will be completed by the contractors. Langan personnel are not permitted to operate or otherwise handle the contractor's equipment. Langan will update the site map to

include the locations of the cleared borehole locations as well as utilities and other artifacts that may interfere with the subsurface investigation.

3.1.3 Daylighting Test Pit

Excavation daylighting must abide by OSHA excavation standards (Part 1926.651) and conform to the Langan Underground Utility Clearance Policy. Daily inspections of excavations, the adjacent areas, and protective systems shall be made by a competent person for evidence of a situation that could result in cave-ins, indications of failure of protective systems, hazardous atmospheres, or other hazardous conditions. An inspection shall be conducted by the competent person prior to the start of work and as needed throughout the shift. Inspections shall also be made after every rainstorm or other hazard increasing occurrence.

No one is to enter an excavation deeper than 5-feet unless the excavation walls are properly sloped in accordance with OSHA regulations. If sampling is required, the sample for excavations deeper than 5-feet without protective systems (sloping) as defined by OSHA are to be collect using suitable mechanical excavation equipment (backhoe or equivalent). When collecting soil samples, Langan will don chemical resistant gloves in addition to the standard PPE. Langan personnel are not to operate excavation equipment. This task is to be completed by an authorized excavation contractors approved by the contractor.

3.1.4 Indoor Drilling and Excavation

The work scope may require indoor excavation where there may not be adequate ventilation sufficient to safely operate any rig or excavation equipment powered by an internal combustion engine. Where possible, all such work should be done by equipment powered by electricity. If such equipment is used and must be directly wired to the buildings electrical system or to an independent system, this work must be completed by a licensed electrician in accordance with all electrical codes applicable to the work.

Indoor work which is to be completed with equipment powered by an internal combustion engine must incorporate air monitoring for carbon monoxide (CO) using calibrated air monitoring equipment (MultiRAE or equivalent). In addition, the work plan should incorporate mitigation for venting engine exhaust fumes directly to the outdoors and for circulating fresh air into the work area.

The OSHA Time Weighted Average (TWA) Permissible Exposure Limit (PEL) for CO from 50 to 35 parts per million (ppm). Langan will monitor CO with a suitable monitoring device. If CO levels exceed 5 ppm, Langan will instruct contractors to begin mitigation measures. These

measures are at a minimum:

- Increase air circulation using industrial size fans to bring additional fresh air into the building or vent exhaust to the outside.
- Modify the passive exhaust method being used to increase venting circulation by using wider diameter tubing or sealing tubing connections; or
- Modify the work schedule where the rig is turned off to allow time for CO levels to fall back to background.

All work must cease if CO levels reach 35 ppm. The Langan engineer is to report to the PM and H&S officer when an action level is reached.

3.1.5 Soil Investigation Sampling

Sampling the soil requires the donning of chemical resistant gloves in addition to the standard PPE. Langan personnel are not to operate drilling or excavation equipment nor open sampling devices (acetate liners, sonic sample bags, etc.). These tasks are to be completed by the driller or excavation contractor.

The contractor will perform all demolition work under their own HASP following their own work plan. If Langan is not contracted to execute the community air monitoring plan (CAMP), Langan will, at a minimum, visually monitor air borne dust and note conditions in the field log and report to the PM when conditions warrant. When Langan is contracted to execute CAMP, Langan will follow CAMP air-borne dust limits and mitigations as specified in the work plan and this HASP. When necessary or when working within areas of on-going demolition, Langan will don a 1/2 – face respirator with a P-100 particle filter or similar N95 respirator.

3.1.6 Groundwater Investigation and Sampling

Sampling groundwater requires the donning of chemical resistant gloves in addition to the standard PPE and cut resistant gloves when cutting sampling-tubing to length. Langan personnel are not to operate drilling equipment nor assemble or install monitoring well equipment. These tasks are to be completed by the driller contractor.

1.3.7 Groundwater/Product Gauging

Gauging product requires additional safety considerations including the presence of VOCs and protection of both field cloths and property. Langan will monitor air for VOCs using a duly calibrated PID. Langan will don protective clothing including Tyvek® over-cloths, as necessary. To protect property, Langan will work set a plastic barrier to protect floors or protect

landscaping and use absorbent pads as necessary to collect pooled product. If sampling for PFAS from the same well, Langan will complete the product check first, if the well can be sampled without including product, Langan will remove the Tyvek® material from the well head vicinity.

3.1.8 Product Recovery Well Bailing – Bail-down Test

Langan may bail free product from monitoring wells either as straight recovery or as bail down test. Free product bailing requires the donning of Tyvek™ suits, Tyvek™ boots and chemical resistant gloves in addition to the standard PPE and cut resistant gloves when cutting sampling-tubing to length. In addition, Langan will place plastic sheeting around the recovery well head to control spillage during product recovery. Langan will also keep on hand and readily available product absorbing pads to use as needed.

3.1.9 Electrical Pumps

Langan may use an electric pump to collect product from the recovery wells or to sample groundwater. Langan will inspect the electric pump and control box prior to use and specifically note the condition of the electrical connectors, pump, control box and the electrical cord. The electrical connection must be a grounded and connect to the power source using a functional three prong grounded plug. The power source must be a Ground Fault Circuit Interrupter (GFI or GFCI) receptacle.

Work activities will immediately cease, and the work area is to be evacuated if the MultiRAE returns a reading of 10% of the LEL (an alarm will sound). Langan personnel will contact the Langan PM. Instrument action levels for monitored gases are provided in Table 4.

3.1.10 Vapor Investigation and Sampling

Sampling vapor requires the donning of work gloves in addition to the standard PPE when assembling the Summa™ canister with the regulator and cut resistant gloves when cutting sampling- or silicone-tubing to length. Langan personnel are not to operate contractor equipment nor assemble or install the contractor vapor point sampling equipment unless instructed by the work plan. When not instructed by the work plan, these tasks are to be completed by the contractor. If Langan performs the test, Langan personnel will don the proper hand protection (leather gloves) when operating the tools in addition to the standard PPE. All electrical connections will be through a ground fault interrupt circuit (GFIC).

3.1.11 Additional Vapor Screening

Langan personnel may prescreen vapor samples for volatile organic compounds (VOCs), methane, hydrogen sulfide and lower explosion limit (LEL) conditions using duly calibrated devices design to screen vapor for these parameters. Langan personnel may also perform atmospheric screening for LEL. Results of the screening may be used in determining which soil vapor samples will be submitted for analysis.

Work activities will immediately cease, and the work area is to be evacuated if the MultiRAE returns a reading of 10% of the LEL (an alarm will sound). Langan personnel will contact the Langan PM. Instrument action levels for monitored gases are provided in Table 4.

3.1.12 Plugging and Abandonment of Observation/Monitoring Wells

Langan personnel are not to operate equipment nor assist in the plugging and abandonment of the observation/monitoring wells. These tasks are to be completed by the contractor.

3.1.13 Drum Sampling

Drilling fluid, rinse water, grossly contaminated soil samples, and cuttings will be containerized in 55-gallon drums for disposal off-site. Each drum must be labeled in accordance with the Langan Drum Labeling Standard Operating Procedure (SOP09). Sampling drums requires the donning of work gloves when opening the drums and chemical resistant gloves when sampling in addition to standard PPE.

3.2 Radiation Hazards

No radiation hazards are known or expected at the site.

3.3 Physical Hazards

Physical hazards, which may be encountered during site operations for this project, are detailed in Table 1.

3.3.1 Explosion

No explosion hazards are expected for the scope of work at this site.

3.3.2 Heat Stress

The use of Level C protective equipment, or greater, may create heat stress. Monitoring of personnel wearing personal protective clothing should commence when the ambient temperature is 72^{o}F or above. Table 6 presents the suggested frequency for such monitoring. Monitoring frequency should increase as ambient temperature increases or as slow recovery rates are observed. Refer to Table 7 to assist in assessing when the risk for heat-related illness is likely. To use this table, the ambient temperature and relative humidity must be obtained (a regional weather report should suffice). Heat stress monitoring should be performed by the HSO or the FTL, who must be able to recognize symptoms related to heat stress.

To monitor the workers, be familiar with the following heat-related disorders and their symptoms:

- **Heat Cramps:** Painful spasms of arm, leg, or abdominal muscles, during or after work
- **Heat Exhaustion:** Headache, nausea, dizziness; cool, clammy, moist skin; heavy sweating; weak, fast pulse; shallow respiration, normal temperature
- **Heat Stroke**: Headache, nausea, weakness, hot dry skin, fever, rapid strong pulse, rapid deep respirations, loss of consciousness, convulsions, coma. *This is a life-threatening condition***.**

Do not permit a worker to wear a semi-permeable or impermeable garment when they are showing signs or symptoms of heat-related illness.

To monitor the worker, measure:

- **Heart rate:** Count the radial pulse during a 30-second period as early as possible in the rest period. If the heart rate exceeds 100 beats per minute at the beginning of the rest period, shorten the next work cycle by one-third and keep the rest period the same. If the heart rate still exceeds 100 beats per minute at the next rest period, shorten the following work cycle by one-third. A worker cannot return to work after a rest period until their heart rate is below 100 beats per minute.
- **Oral temperature:** Use a clinical thermometer (3 minutes under the tongue) or a similar device to measure the oral temperature at the end of the work period (before drinking). If oral temperature exceeds 99.6^{o}F (37.6^{o}C), shorten the next work cycle by one-third without changing the rest period. A worker cannot return to work after a rest period until their oral temperature is below 99.6^{o}F. If oral temperature still exceeds 99.6^{o}F (37.6^{o}C) at the beginning of the next rest period, shorten the following cycle by one-third. Do not permit a worker to wear a semi-permeable or impermeable garment when oral temperature exceeds 100.6^{o}F (38.1^{o}C).

Prevention of Heat Stress - Proper training and preventative measures will aid in averting loss of worker productivity and serious illness. Heat stress prevention is particularly important because once a person suffers from heat stroke or heat exhaustion, that person may be predisposed to additional heat-related illnesses. To avoid heat-stress the following steps should be taken:

- Adjust work schedules.
- Mandate work slowdowns as needed.
- Perform work during cooler hours of the day if possible or at night if adequate lighting can be provided.
- Provide shelter (air-conditioned, if possible) or shaded areas to protect personnel during rest periods.
- Maintain worker's body fluids at normal levels. This is necessary to ensure that the cardiovascular system functions adequately. Daily fluid intake must equal the amount of water lost in sweat, i.e., eight fluid ounces (0.23 liters) of water must be ingested for every eight ounces (0.23 kilograms [kg]) of weight lost. The normal thirst mechanism is not sensitive enough to ensure that enough water will be drunk to replace lost sweat. When heavy sweating occurs, encourage the worker to drink more. The following strategies may be useful:
    - Maintain water temperature 50^{O} to 60^{O}F (10^{O} to 16.6^{O}C).
    - Provide small disposal cups that hold about four ounces (0.1 liters).
    - Have workers drink 16 ounces (0.5 liters) of fluid (preferably water or dilute drinks) before beginning work.
    - Urge workers to drink a cup or two every 15 to 20 minutes, or at each monitoring break. A total of 1 to 1.6 gallons (4 to 6 liters) of fluid per day are recommended, but more may be necessary to maintain body weight.
    - Train workers to recognize the symptoms of heat-related illness.

3.3.3 Cold-Related Illness

If work on this project begins in the winter months, thermal injury due to cold exposure can become a problem for field personnel. Systemic cold exposure is referred to as hypothermia. Local cold exposure is called frostbite.

- **Hypothermia -** Hypothermia is defined as a decrease in the patient core temperature below 96^{O}F. The body temperature is normally maintained by a combination of central (brain and spinal cord) and peripheral (skin and muscle) activity. Interference with any of these mechanisms can result in hypothermia, even in the absence of what normally is considered a "cold" ambient temperature. Symptoms of hypothermia include shivering, apathy, listlessness, sleepiness, and unconsciousness.

- **Frostbite -** Frostbite is both a general and medical term given to areas of local cold injury. Unlike systemic hypothermia, frostbite rarely occurs unless the ambient temperatures are less than freezing and usually less than 20^{O}F. Symptoms of frostbite are a sudden blanching or whitening of the skin; the skin has a waxy or white appearance and is firm to the touch; tissues are cold, pale, and solid.

Prevention of Cold-Related Illness - To prevent cold-related illness:

- Educate workers to recognize the symptoms of frostbite and hypothermia.
- Identify and limit known risk factors:
- Assure the availability of an enclosed, heated environment on or adjacent to the site.
- Assure the availability of dry changes of clothing.
- Assure the availability of warm drinks.
- Start (oral) temperature recording at the job site:
- At the FSO or Field Team Leader's discretion when suspicion is based on changes in a worker's performance or mental status.
- At a worker's request.
- As a screening measure, two times per shift, under unusually hazardous conditions (e.g., wind-chill less than 20^{O}F, or wind-chill less than 30^{O}F with precipitation).
- As a screening measure whenever anyone worker on the site develops hypothermia.

Any person developing moderate hypothermia (a core temperature of 92^{O}F) cannot return to work for 48 hours.

3.3.4 Noise

Work during the proposed activities may be conducted at locations with high noise levels from the operation of equipment. Hearing protection will be used, as necessary.

3.3.5 Hand and Power Tools

The use of hand and power tools can present a variety of hazards, including physical harm from being struck by flying objects, being cut, or struck by the tool, fire, and electrocution. All hand and power tools should be inspected for health and safety hazards prior to use. If deemed unserviceable/un-operable, notify the supervisor and tag and remove equipment out of service. Ground Fault Circuit Interrupters (GFCIs) are required for all power tools requiring direct electrical service.

3.3.6 Slips, Trips, and Fall Hazards

Care should be exercised when walking at the site, especially when carrying equipment. The presence of surface debris, uneven surfaces, pits, facility equipment, and soil piles contribute to tripping hazards and fall hazards. To the extent possible, all hazards should be identified and marked on the site, with hazards communicated to all workers in the area.

3.3.7 Utilities (Electrocution and Fire Hazards)

3.3.7.1 Utility Clearance

The possibility of encountering underground utilities poses fire, explosion, and electrocution hazards. All excavation work will be preceded by a review of available utility drawings and by notification of the subsurface work to N.Y. One –Call–Center.

3.3.7.2 Lockout-Tagout

The potential adverse effects of electrical hazards include burns, arc flashes, and electrocution, which could result in serious injury including death. Therefore, there is a procedure that establishes the requirements for the lockout/tag out (LOTO) of energy isolating devices in accordance with the OSHA electrical lockout and tagging requirements as specified in 29CFR1910.147 and 29 CFR 1926.417. This procedure will be used to ensure that all machines and equipment are isolated from potentially hazardous energy. If possible, equipment that could cause injury due to unexpected energizing, start-up, or release of stored energy will be locked/tagged, before field personnel performs work activities.

The facility owner/operator/representative is to be the authorized person that will initiate and perform the LOTO in accordance with applicable rules and practices. Inerting of electrical power sources is to be completed by an authorized and licensed electrician. Langan personnel will follow LOTO protocols and practices including adding a separate lock/signature to the LOTO chain in accordance with said protocols and practices.

SPECIAL NOTE: Project personnel will assume that all electrical equipment at the surface, subsurface, and overhead locations are energized until equipment has been designated and confirmed as de-energized by a utility company representative. Langan will notify the designated utility representative prior to working adjacent to this equipment and will verify that the equipment is energized or de-energized in the vicinity of the work location. No project work shall be performed by Langan personnel or subcontractors near energized electrical lines or equipment.

The FTL shall accompany the designated facility owner/operator/representative or authorized/licensed electrician in surveying to locate and identify all energy-isolating devices. Langan will note which switches, valves or other isolating devices are used for inerting the

equipment and how they are set assuring LOTO. The lockout/tagout procedure involves, but is not limited to, electricity, motors, steam, natural gas, compressed air, hydraulic systems, digesters, sewers, etc.

3.3.8 Adequate Lighting

Indoor or night activities must be done under adequate lighting conditions. The Langan field engineer must be able to clearly see the equipment, all controls and have sufficient lighting to detail color labels. Battery operated lights are sufficient provided they cast a wide enough field to provide the required lighting and there are back-up batteries and emergency flashlights available. Electrically powered lights are suitable provided the electrical source is equipped with a ground fault interrupt circuit (GFIC) and the extensions cords are visually inspected prior to each use, and not used if they show cracked, damaged, or missing insulation. If a generator is supplying the electricity, it must be located outdoors and properly grounded and vented.

3.3.9 Physical Hazard Considerations for Material Handling

There are moderate to severe risks associated with moving heavy objects at the Site. The best method of reducing back injuries is to reduce or eliminate manual lifting. Mechanical lifting devices should be used whenever possible.

- Size up the load before attempting to lift it. Heavy objects will be lifted and moved by mechanical devices rather than manual effort whenever possible. Never overexert when lifting.
    - When using a mechanical device, the devices should be appropriate for the lifting of moving tasks and operated only by trained and authorized personnel.
    - Objects that require special handling or rigging will only be moved under the guidance of a person who has been specifically trained to move such objects.
    - Lifting devices will be inspected, certified, and labeled to confirm their weight capacities. Defective equipment will be taken out of service immediately and repaired or destroyed.
    - The wheels of any trucks being loaded or unloaded will be choked to prevent movement. Outriggers will be fully extended on a flat, firm surface during operation.
    - Personnel will not pass under a raised load, nor will a suspended load be left unattended.
    - Personnel will not be carried on lifting equipment unless it is specifically designed to carry passengers.
    - All reciprocating, rotating, or other moving parts will be guarded at all times.
    - Accessible fire extinguishers, currently (monthly) inspected, will be available in all

mechanical lifting devices.
    - Verify all loads/materials are secure before transportation
- If manual lifting cannot be avoided the following lifting procedures are recommended.
    - If the load is thought to be more than one person can handle, get another person to help with the job.
    - Make sure you can carry the load where you need to go before attempting to lift it. Make sure your path is clear of equipment, materials, debris, holes, etc.
    - Place your feet close to the object, spread about 12 inches apart.
    - Bend your knees and get a good hand hold.
    - Lift straight up smoothly, allowing your legs not your back to do the work.
    - Keep the load close to the body with your elbows and arms tucked in.
    - Do not twist or turn your body once you have made the lift.
    - Set the load down properly:
        - Lower the load slowly by bending at your knees, letting your legs do most of the work.
        - Don't let go of the load until it's secure on the surface.

Material handling tasks that are unusual or require specific guidance will need a written addendum to this HASP. The addendum must identify the lifting protocols before the tasks are performed. Upon approval, the plan must be reviewed with all affected employees and documented. Any deviation from a written plan will require approval by the Langan HSM.

3.3.10 Hearing Conservation

Under the construction industry standard, the maximum permissible occupational noise exposure is 90 A-weighted decibels (dbA) (8-hour TWA), and noise levels in excess of 90 dbA must be reduced through feasible administrative and engineering controls (20 CFR 1926.52). Hearing protection is required when working within 15 feet of vacuum extraction equipment and drill rigs.

3.3.11 Open Water

Employees working over or near water, where the danger of drowning exists, must be provided with U.S. Coast Guard-approved life jackets or buoyant work vests. Prior to and after each use, the buoyant work vests or life preservers must be inspected for defects that would alter their strength or buoyancy. Defective units must not be used.

And should a worker fall into the water, OSHA requires (29 CFR 1926.106(c)) that ring buoys with at least 90 feet of the line must be provided and readily available for emergency rescue operations. The distance between ring buoys must not exceed 200 feet. Another remedial action required by OSHA (29 CFR 1926.106(d)) is the use of lifesaving skiffs.

OSHA requires that at least one lifesaving skiff must be immediately available at locations where employees are working over or adjacent to water and must include the following provisions.

- The skiff must be in the water or capable of being quickly launched by one person.
- At least one person must be present and specifically designated to respond to water emergencies and always operate the skiff when there are employees above water.
- When the operator is on break another operator must be designated to provide requisite coverage when there are employees above water.
- The designated operator must either have the skiff always staffed or have someone remain in the immediate area such that the operator can quickly reach the skiff and perform rescue services.
- The skiff operator may be assigned other tasks provided the tasks do not interfere with the operator's ability to quickly reach the skiff.
- A communication system, such as a walkie-talkie, must be used to inform the skiff operator of an emergency and to inform the skiff operator where the skiff is needed.
- The skiff must be equipped with both a motor and oars.

Regarding the number of skiffs required and the appropriate maximum response time, the following factors must be evaluated:

- The number of work locations where there is a danger of falling into water.
- The distance to each of those locations.
- Water temperature and currents.
- Other hazards such as, but not limited to, rapids, dams, and water intakes.

Other regulations that present H&S practices and PPE for work on or near water include: 29 CFR 1910, Subpart T (401 – 440)

3.4 Biological Hazards

3.4.1 Animals

There is a possibility of encountering wildlife including reptiles, rodents, and other small and medium-size mammals. Langan personnel are to avoid interacting with any wildlife.

3.4.2 Insects

Ticks and other biting or stinging insects may be encountered during site operations. Langan personnel should take necessary precautions including donning long sleeve shirts and insecticide to prevent bites and stings. After fieldwork, Langan personnel should perform a complete visual inspection of their clothing to insure they are not inadvertently harboring ticks. If they do observe a tick bite, they are to contact the HSM or HSO and report the event.

3.4.3 Plants

Poisonous plants may be encountered during site operations. Langan personnel should take necessary precautions including donning long sleeve shirts and applying preventative poison Ivy/Sumac lotion to prevent or limit the effects of exposure. If after fieldwork, Langan employees do observe a reaction to poisonous plant exposure, they are to contact the HSM or HSO and report the event.

3.4.4 Mold

This section is restricted to subsurface investigations where sampling soil, groundwater, soil or sub-slab vapor or ambient air in an indoor environment with slight to moderate mold impact. Mold exposure symptoms include nasal stuffiness, eye irritation, or wheezing.

The Langan field engineer is required to don a ½ face respirator with a minimum p-100 particulate filter and Tyvek™ type overclothing before entering mold impacted indoor work area. The Langan field engineer must be medically cleared and have been properly fitted for a respirator before donning one.

3.5 Additional Safety Analysis

3.5.1 Presence of Non-Aqueous Phase Liquids (NAPL)

Special care and PPE should be considered when NAPL is observed as NAPL is a typically flammable fluid and releases VOCs known to be toxic and/or carcinogenic. If NAPL is present in a monitoring well, vapors from the well casing may contaminate the work area breathing zone with concentrations of VOCs potentially exceeding health and safety action levels. In addition, all equipment used to monitor or sample NAPL (or ground water from wells containing NAPL) must be intrinsically safe. Equipment that directly contacts NAPL must also be resistant to organic solvents.

At a minimum, a PID should be used to monitor for VOCs when NAPL is observed. If NAPL is expected to be observed in an excavation or enclosed area, air monitoring must be started using calibrated air monitoring equipment designed to sound an audio alarm when atmospheric concentrations of VOC are within 10% of the LEL. In normal atmospheric oxygen concentrations, the LEL monitoring may be done with a Wheatstone bridge/catalytic bead type sensor (i.e., MultiRAE). However, in oxygen-depleted atmospheres (confined space), only an LEL designed to work in low-oxygen environments may be used. Best practices require that the LEL monitoring unit be equipped with a long sniffer tube to allow the LEL unit to remain outside the UST excavation.

When NAPL is present, Langan personnel are required to always use disposable nitrile gloves to prevent skin contact with contaminated materials. They should also consider having available a respirator and protective clothing (Tyvek® overalls), especially if NAPL is in abundance and there are high concentrations of VOCs.

All contaminated disposables including PPE and sampling equipment must be properly disposed of in labeled 55-gallon drums.

3.6 Job Safety Analysis

A Job Safety Analysis (JSA) is a process to identify existing and potential hazards associated with each job or task so these hazards can be eliminated, controlled, or minimized. A JSA will be performed at the beginning of each workday, and additionally whenever an employee begins a new task or moves to a new location. All JSAs must be developed and reviewed by all parties involved. A blank JSA form and documentation of completed JSAs are in Attachment G.

4.0 PERSONNEL TRAINING

4.1 Basic Training

Completion of an initial 40-hour HAZWOPER training program as detailed in OSHA's 29 CFR 1910.120(e) is required for all employees working on a site engaged in hazardous substance removal or other activities which expose or potentially expose workers to hazardous substances, health hazards, or safety hazards as defined by 29 CFR 1910.120(a). Annual 8-hour refresher training is also required to maintain competencies to ensure a safe work environment. In addition to these training requirements, all employees must complete the OSHA 10-hour Construction Safety and Health training, and supervisory personnel must also receive eight additional hours of specialized management training. Training records are maintained by the HSM.

4.2 Initial Site-Specific Training

Training will be provided to specifically address the activities, procedures, monitoring, and equipment for site operations at the beginning of each field mobilization and the beginning of each discrete phase of work. The training will include the site and facility layout, hazards, and emergency services at the site, and will detail all the provisions contained within this HASP. For a HAZWOPER operation, training on the site must be for a minimum of 3 days. Specific issues that will be addressed include the hazards described in Section 3.0.

4.3 Tailgate Safety Briefings

Before starting work each day or as needed, the Langan HSO will conduct a brief tailgate safety meeting to assist site personnel in conducting their activities safely. Tailgate meetings will be documented in Attachment H. Briefings will include at a minimum the following:

- Work plan for the day.
- Review of safety information relevant to planned tasks and environmental conditions.
- New activities/tasks being conducted.
- Driving conditions/hazards/designated parking areas.
- Results of Jobsite Safety Inspection Checklist.
- Changes in work practices.
- Safe work practices; and
- Discussion and remedies for noted or observed deficiencies.

5.0 MEDICAL SURVEILLANCE

All personnel who will be performing fieldwork involving potential exposure to toxic and hazardous substances (defined by 29 CFR 1910.120(a)) will be required to have passed an initial baseline medical examination, with follow-up medical exams thereafter, consistent with 29 CFR 1910.120(f). Medical evaluations will be performed by, or under the direction of, a physician board-certified in occupational medicine.

Additionally, personnel who may be required to perform work while wearing a respirator must receive medical clearance as required under CFR 1910.134(e), *Respiratory Protection*. Medical evaluations will be performed by, or under the direction of, a physician board-certified in occupational medicine. Results of medical evaluations are maintained by the HSM.

5.1 Mercury Monitoring

Langan includes medical monitoring for mercury during the initial baseline and annual physical.

5.2 Coronavirus

General Preventative Measures

Field personnel must follow general proper hygiene measures while in the field including:

- Avoid touching eyes, nose, and mouth.
- Cover coughs or sneezes with tissue and throw in the trash.
- Wash hands often with soap and water for 20 seconds after going to the bathroom, before

eating, after blowing nose, coughing, or sneezing.
- Use hand sanitizer with at least 60% alcohol if soap and water are not available.
- Avoid physical contact with other people (e.g., no handshakes).
- Maintain a safe distance of at least six feet from other people (social distancing).
- Wear face coverings when around other workers to minimize the spread of COVID-19. (May be required in certain states or locations.)

Construction Trailers

Employees should avoid the use of shared construction trailers or where employees cannot maintain a safe distance (minimum 6 feet) from other workers. If trailer use is needed, areas such as desks, phones, chairs, and other common areas, should be cleaned and disinfected before and after use. Protocols should be developed to minimize trailer use to essential personnel, restrict use from any workers who are ill or showing symptoms of being ill, use face coverings and ensure a safe distance of six feet can be established between workers.

Communication

Include Coronavirus topics and prevention topics in daily tailgate meetings to ensure Coronavirus awareness is communicated daily. Discussions can focus on general topics including social distancing, prevention measures for field personnel, signs and symptoms, and recent news on the Coronavirus. Site-specific topics should include minimizing face-to-face contact, disinfecting/sterilizing field equipment, use of PPE to reduce exposure, site security, use of face coverings, and other potential exposure issues/concerns.

Sick/Ill Workers

No Langan employee is permitted to be onsite when ill and/or showing potential symptoms of the Coronavirus. Symptoms of the Coronavirus may appear 2-14 days after exposure and can range from mild to severe. The most common symptoms include fever, fatigue, dry cough, shortness of breath chills, repeated shaking with chills, muscle pain, headache, sore throat, or new loss of taste or smell. If an employee or subcontractor is observed being ill or exhibiting symptoms of Coronavirus, employees must immediately utilize their Stop Work Authority and contact their project manager to address the situation. If an employee observes another worker onsite exhibiting symptoms of Coronavirus, immediately utilize Stop Work Authority, notify their project manager, and site manager or safety officer. Work should resume when the safety and health of Langan and subcontractors is adequately addressed.

6.0 PERSONAL PROTECTIVE EQUIPMENT

6.1 Levels of Protection

Langan will provide PPE to Langan employees to protect them from the specific hazards they are likely to encounter on-site. Directly hired contractors will provide their employees with equivalent PPE to protect them from the specific hazards likely to be encountered on-site. Selection of the appropriate PPE must take into consideration: (1) identification of the hazards or suspected hazards; (2) potential exposure routes; and (3) the performance of the PPE construction (materials and seams) in providing a barrier to these hazards.

Human exposure to contaminants found in the subsurface can occur through three primary routes:

- Inhalation of gases, vapors, dust, or mists is a common route of exposure. Chemicals can enter and irritate the airways and the lungs. They can become deposited in the airways or can be absorbed through the lungs into the bloodstream.
- Direct contact of contaminants with the skin or eyes is a common route of exposure. Some substances are absorbed through the skin and can enter the bloodstream. Broken, cut, or cracked skin will allow substances to enter the body more easily.
- Ingestion or swallowing of food, drink, or other substances is the third route of exposure. Chemicals that get in or on food, utensils, or hands can be ingested. Substances can be absorbed into the blood.

Based on anticipated site conditions and the proposed work activities to be performed at the site, Level D protection will be used. The upgrading/downgrading of the level of protection will be based on continuous air monitoring results as described in Section 6.0 (when applicable). The decision to modify standard PPE will be made by the site HSO or FTL after conferring with the PM. The levels of protection are described below.

Level D Protection (as needed)

- Safety glasses with side shields or chemical splash goggles
- Safety boots/shoes
- Coveralls (Tyvek® or equivalent)
- Hard hat
- Long sleeve work shirt and work pants
- Nitrile gloves
- Hearing protection

- Reflective safety vest

Level D Protection (Modified, as needed)

- Safety glasses with side shields or chemical splash goggles
- Safety boots/shoes (toe-protected)
- Disposable chemical-resistant boot covers.
- Coveralls (poly-coated Tyvek or equivalent to be worn when contact with wet contaminated soil, groundwater, or non-aqueous phase liquids is anticipated)
- Hard hat
- Long sleeve work shirt and work pants
- Nitrile gloves
- Hearing protection (as needed)
- Personal floatation device (for work within 5 ft of the water)
- Reflective traffic vest

Level C Protection (as needed)

- Full or Half face, air-purifying respirator, with NIOSH approved High-Efficiency Particulate Air (HEPA) filter.
- Inner (latex) and outer (nitrile) chemical-resistant gloves
- Safety glasses with side shields or chemical splash goggles
- Chemical-resistant safety boots/shoes
- Hard hat
- Long sleeve work shirt and work pants
- Coveralls (Tyvek® or equivalent)
- Hearing protection (as needed)
- Reflective safety vest

The action levels used in determining the necessary levels of respiratory protection and upgrading to Level C are summarized in Table 4. The written Respiratory Protection Program is maintained by the HSM and is available if needed. The monitoring procedures and equipment are outlined in Section 6.0 (when applicable).

6.2 Respirator Fit-Test.

All Langan employees who may be exposed to hazardous substances at the work site must be in possession of a full or half face piece air-purifying respirator and have been successfully fit-tested within the past year. Fit-test records are maintained by the HSM.

6.3 Respirator Cartridge Change-Out Schedule

Respiratory protection is required to be worn when certain action levels (Table 2) are reached. A respirator cartridge change-out schedule has been developed to comply with 29 CFR 1910.134. The respirator cartridge change-out schedule for this project is as follows:

- Cartridges must be removed and disposed of at the end of each shift when cartridges become wet or the wearer experiences a breakthrough, whichever occurs first.
- If the humidity exceeds 85%, then cartridges must be removed and disposed of after 4 hours of use.

Respirators must not be stored at the end of the shift with contaminated cartridges left on. Cartridges must not be worn on the second day, no matter how short the time period was the previous day they were used.

7.0 AIR QUALITY MONITORING AND ACTIONS LEVELS

7.1 Monitoring During Site Operations

Atmospheric air monitoring results may be collected and used to provide data to determine when exclusion zones need to be established and when certain levels of personal protective equipment are required. For all instruments, there are Site-specific action-level criteria that are used in making field health and safety determinations. Other data, such as the visible presence of contamination or the steady state nature of air contaminant concentration, are also used in making field health and safety decisions. Therefore, the HSO may establish an exclusion zone or require a person to wear a respirator even though atmospheric air contaminant concentrations are below established HASP action levels.

During site work involving disturbance of petroleum-impacted or fill material, real-time air monitoring may be conducted for methane and VOCs. A MultiRAE LEL/Oxygen (O2) meter and FID will be used to monitor the LEL of methane, and a PID and/or FID will be used to monitor concentrations of VOCs at personnel breathing-zone height. Air monitoring will be the responsibility of the HSO or designee. Air monitoring may be conducted during intrusive activities associated with the completion of excavation, debris removal, and soil grading. All manufacturers' instructions for instrumentation and calibration will be available onsite.

Subcontractors' air monitoring plans must be equal to or more stringent than the Langan plan.

An air monitoring calibration log is provided in Attachment D of this HASP.

7.1.1 Volatile Organic Compounds

Monitoring with a PID, such as a MiniRAE 2000 (10.6v) or equivalent may occur during intrusive work in the Areas of Concern (AOCs). Colorimetric Indicator Tubes for benzene may be used as a backup for the PID if measurements remain above background monitor every 2 hours. The HSO will monitor the employee's breathing zone at least every 30 minutes, or whenever there is any indication that concentrations may have changed (odors, visible gases, etc.) since the last measurement. If VOC levels are observed above 5 ppm for longer than 5 minutes or if the site PPE is upgraded to Level C, the HSO will begin monitoring the site perimeter at a location downwind of the AOC every 30 minutes in addition to the employee breathing zone. Instrument action levels for monitored gases are provided in Table 4.

7.1.2 Metals

Based upon the site historic fill, there is a potential for the soils to contain Polycyclic Aromatic Hydrocarbons (PAHs) and metals. During invasive procedures which have the potential for creating airborne dust, such as excavation of dry soils, a real-time airborne dust monitor such as a Mini-Ram may be used to monitor for air particulates. The HSO will monitor the employee's breathing zone at least every 30 minutes, or whenever there is any indication that concentrations may have changed (appearance of visible dust) since the last measurement. If dust levels are observed to be greater than 0.100 milligrams per cubic meter (mg/m^3) or visible dust is observed for longer than 15 minutes or if the site PPE is upgraded to Level C, the HSO will begin monitoring the site perimeter at a location downwind of the AOC every 30 minutes in addition to the employee breathing zone. Instrument action levels for dust monitoring are provided in Table 4.

7.1.3 Methane

During soil excavation or other intrusive activities, direct reading air monitoring may be performed in the excavation area to determine exposure to workers. Monitoring with an LEL/O2 meter and FID may occur during intrusive work in the AOCs. The HSO will monitor the employee's breathing zone at least hourly during intrusive activities. If LEL levels are observed above 20% the professional engineer (PE) or their designee will stop work and evacuate the area; warn others; and determine source of readings and take corrective actions. The Contractor will be responsible for mitigating explosive gas levels.

7.2 Monitoring Equipment Calibration and Maintenance

Instrument calibration must be documented and included in a dedicated safety and health logbook or on separate calibration pages of the field book. All instruments must be calibrated

before and after each shift. Calibration checks may be used during the day to confirm instrument accuracy. Duplicate readings may be taken to confirm individual instrument responses.

All instruments must be operated in accordance with the manufacturers' specifications. Manufacturers' literature, including an operation manual for each piece of monitoring equipment, will be maintained on-site by the HSO for reference.

7.3 Determination of Background Levels

Background (BKD) levels for VOCs, dust and methane will be established prior to intrusive activities within the AOC at an upwind location. A notation of BKD levels will be referenced in the daily monitoring log. BKD levels are a function of prevailing conditions. BKD levels will be taken in an appropriate upwind location as determined by the HSO.

Table 4 lists the instrument action levels.

8.0 COMMUNITY AIR MONITORING PROGRAM

Community air monitoring may be conducted in compliance with local standards. If conducted, Langan will implement the generic CAMP outlined below amended to comply with local conditions or standards:

Monitoring for dust and odors will be conducted during all ground intrusive activities by the FTL. Continuous monitoring of the perimeter of the work zones for odor, VOCs, and dust may be required for all ground intrusive activities such as soil excavation and handling activities. The work zone is defined as the general area in which machinery is operating in support of remediation activities. A portable PID will be used to monitor the work zone and for periodic monitoring for VOCs during activities such as soil and groundwater sampling and soil excavation. The site perimeter will be monitored for fugitive dust emissions by visual observations as well as instrumentation measurements (if required). When required, particulate or dust will be monitored continuously with real-time field instrumentation that will meet, at a minimum, the local standards or, default to the performance standards below:

If VOC monitoring is required, the following actions will be taken based on VOC levels measured:

- If total VOC levels exceed 5 ppm above background for the 15-minute average at the perimeter, work activities will be temporarily halted and monitoring continued. If levels readily decrease (per instantaneous readings) below 5 ppm above background, work activities will resume with continued monitoring.
- If total VOC levels at the downwind perimeter of the hot zone persist at levels in excess of 5 ppm above background but less than 25 ppm, work activities will be halted, the

source of vapors identified, corrective actions taken to abate emissions, and monitoring continued. After these steps work activities will resume provided that the total organic vapor level is 200 feet downwind of the hot zone or half the distance to the nearest potential receptor or residential/commercial structure, whichever is less – but in no case less than 20 feet, is below 5 ppm above background for the 15-minute average.

- If the total VOC level is above 25 ppm at the perimeter of the hot zone, activities will be shut down.

If dust monitoring with field instrumentation is required, the following actions will be taken based on instrumentation measurements:

- If the downwind particulate level is 100 micrograms per cubic meter (µg/m^3) greater than background (upwind perimeter) for the 15-minute period or if airborne dust is observed leaving the work area, then dust suppression must be employed. Work may continue with dust suppression techniques provided that downwind particulate matter less than 10 microns (PM10) levels do not exceed 150 µg/m^3 above the background level and provided that no visible dust is migrating from the work area.
- If, after implementation of dust suppression techniques, downwind PM10 levels are greater than 150 µg/m^3 above the background level, work must be stopped, and a re-evaluation of activities initiated. Work can resume if dust suppression measures and other controls are successful in reducing the downwind PM10 concentration to within 150 µg/m^3 of the upwind level and in preventing visible dust migration.

8.1 Dust Suppression Techniques

Preventative measures for dust generation may include wetting site fill and soil, construction of an engineered construction entrance with a gravel pad, a truck wash area, covering soils with tarps, and limiting vehicle speeds to five miles per hour.

Work practices to minimize odors and vapors include limiting the time that the excavations remain open, minimizing stockpiling of contaminated-source soil, and minimizing the handling of contaminated material. Offending odor and organic vapor controls may include the application of foam suppressants or tarps over the odor or VOC source areas. Foam suppressants may include biodegradable foams applied over the source material for short-term control of the odor and VOCs.

If odors develop and cannot be otherwise controlled, additional means to eliminate odor nuisances will include direct load-out of soils to trucks for off-site disposal; use of chemical odorants in spray or misting systems; and use of staff to monitor odors in surrounding

neighborhoods.

Where odor nuisances have developed during remedial work and cannot be corrected, or where the release of nuisance odors cannot otherwise be avoided due to on-site conditions or proximity to sensitive receptors, odor control will be achieved by sheltering excavation and handling areas under tented containment structures equipped with appropriate air venting/filtering systems.

9.0 WORK ZONES AND DECONTAMINATION

9.1 Site Control

Work zones are intended to control the potential spread of contamination throughout the site and to assure that only authorized individuals are permitted into potentially hazardous areas. Specific zones will be established on the work site by the Contractor when operations begin for each task requiring such delineation. Maps depicting the zones will be available at the Site.

Any person working in an area where the potential for exposure to site contaminants exists will only be allowed access after providing the HSO with proper training and medical documentation.

Exclusion Zone (EZ) - All activities which may involve exposure to site contaminants, hazardous materials, and/or conditions should be considered an EZ. Decontamination of field equipment will also be conducted in the Contaminant Reduction Zone (CRZ) which will be located on the perimeter of the EZ. The EZ and the CRZ will be delineated by cones, tapes, or other means. The HSO may establish more than one EZ where different levels of protection may be employed, or different hazards exist. The size of the EZ must be determined by the HSO allowing adequate space for the activity to be completed, field members, and emergency equipment.

9.2 Contamination Zone

9.2.1 Personnel Decontamination Station

Personal hygiene, coupled with diligent decontamination, will significantly reduce the potential for exposure.

9.2.2 Minimization of Contact with Contaminants

During the completion of all site activities, personnel should attempt to minimize the chance of contact with contaminated materials. This involves a conscientious effort to keep "clean" during site activities. All personnel should minimize kneeling, splash generation, and another physical contact with contamination as PPE is intended to minimize accidental contact. This may minimize

the degree of decontamination required and the generation of waste materials from site operations.

Field procedures will be developed to control spray and runoff and to ensure that unprotected personnel working nearby are not affected.

9.2.3 Personnel Decontamination Sequence

Decontamination may be performed by removing all PPE used in EZ and placing it in drums/trash cans at the CRZ. Baby wipes should be available for wiping hands and face. Drums/trash cans-will be labeled by the field crews in accordance with all local, state, and federal requirements. Management plans for contaminated PPE, and tools are provided below.

9.2.4 Emergency Decontamination

If circumstances dictate that contaminated clothing cannot be readily removed, then remove gross contamination and wrap injured personnel with clean garments/blankets to avoid contaminating other personnel or transporting equipment. If the injured person can be moved, he/she will be decontaminated by site personnel as described above before emergency responders handle the victim. If the person cannot be moved because of the extent of the injury (a back or neck injury), provisions must be made to ensure that emergency response personnel will be able to respond to the victim without being exposed to potentially hazardous atmospheric conditions. If the potential for inhalation hazards exists, such as with open excavation, this area will be covered with polyethylene sheeting to eliminate any potential inhalation hazards. All emergency personnel should be immediately informed of the injured person's condition, and potential contaminants, and provided with all pertinent data.

9.2.5 Hand-Held Equipment Decontamination

Hand-held equipment includes all monitoring instruments as stated earlier, samples, hand tools, and notebooks. The hand-held equipment is dropped at the first decontamination station to be decontaminated by one of the decontamination team members. These items must be decontaminated or discarded as waste prior to removal from the CRZ.

To aid in decontamination, monitoring instruments can be sealed in plastic bags or wrapped in polyethylene. This will also protect the instruments against contaminants. The instruments will be wiped clean using wipes or paper towels if contamination is visually evident. Sampling equipment, hand tools, etc. will be cleaned with non-phosphorous soap to remove any potentially contaminated soil and rinsed with deionized water. All decontamination fluids will be containerized and stored on-site pending waste characterization sampling and appropriate off-site disposal.

9.2.6 Heavy Equipment Decontamination

All heavy equipment and vehicles arriving at the work site will be free from contamination from offsite sources. Any vehicles arriving to work that are suspected of being impacted will not be permitted on the work site. Potentially contaminated heavy equipment will not be permitted to leave the EZ unless it has been thoroughly decontaminated and visually inspected by the HSO or his designee.

9.3 Support Zone

The support zone or cold zone will include the remaining areas of the job site. Break areas and support facilities (including equipment storage and maintenance areas) will be in this zone. No equipment or personnel will be permitted to enter the cold zone from the hot zone without passing through the decontamination station in the warm zone (if necessitated). Eating, smoking, and drinking will be allowed only in this area.

9.4 Communications

The following communications equipment will be utilized as appropriate.

- Telephones - A cellular telephone will be located with the HSO for communication with the HSM and emergency support services/facilities.
- Hand Signals - Hand signals must be used by field teams, along with the buddy system. The entire field team must know them before operations commence and their use covered during site-specific training. Typical hand signals are the following:

Hand Signal	Meaning
Hand gripping throat	Out of air, cannot breathe
Grip your partner's wrists or place both hands around the waist	Leave immediately without debate
Hands on top of head	Need assistance
Thumbs up	OK; I am all right; I understand
Thumbs down	No; negative
Simulated "stick" break with fists	Take a break; stop work

9.5 The Buddy System

When working in teams of two or more, workers will use the "buddy system" for all work activities to ensure that rapid assistance can be provided in the event of an emergency. This requires work groups to be organized such that workers can remain close together and maintain visual contact with one another. Workers using the "buddy system" have the following responsibilities:

- Provide his/her partner with assistance.
- Observe his/her partner for signs of chemical or heat exposure.
- Periodically check the integrity of his/her partner's PPE.
- Notify the HSO or other site personnel if emergency service is needed.

10.0 NEAREST MEDICAL ASSISTANCE

The address and telephone number of the nearest hospital:

New York University -Langone Medical Center
550 1st Avenue
New York, New York
212-263-7300

A map with directions to the hospital is shown in Figure 2. This information will either be posted prominently at the site or will be available to all personnel all the time. Further, all field personnel, including the HSO & FTL, will know the directions to the hospital.

11.0 STANDING ORDERS/SAFE WORK PRACTICES

The standing orders, which consist of a description of safe work practices that must always be followed while on-site by Langan employees and contractors, are shown in Attachment A. The site HSO and FTL each have the responsibility for enforcing these practices. The standing orders will be posted prominently at the site or are always made available to all personnel. Those who do not abide by these safe work practices will be removed from the site.

12.0 SITE SECURITY

No unauthorized personnel must be permitted access to the work areas.

13.0 UNDERGROUND UTILITIES

As provided in Langan's Underground Utility Clearance Guidelines, the following safe work practices should be followed by Langan personnel and the contractor before and during subsurface work in accordance with federal, state, and local regulations:

- Obtain available utility drawings from the property owner/client or operator.
- Provide utility drawings to the project team.
- In the field, mark the proposed area of subsurface disturbance (when possible).
- Ensure that the utility clearance system has been notified.
- Ensure that utilities are marked before beginning subsurface work.

- Discuss subsurface work locations with the owner/client and contractors.
- Obtain approval from the owner/client and operators for proposed subsurface work locations.
- Use safe digging procedures when applicable.
- Stay at least ten feet from all equipment performing subsurface work.
- Ensure that the one-call (811) system or state utility hotline in your area has been notified. Private mark-outs may require the use of ground penetrating radar (GPR).
- Attempt to stay at least 15 feet from subsurface electrical lines and at least 10 feet from all other utility lines or mark-outs. Minimum clearance distances may increase as per chart below.
- Hand auger subsurface boreholes and test pits to 5 feet below ground surface.

TABLE A—MINIMUM CLEARANCE DISTANCES

Voltage (nominal, kV, alternating current)	Minimum clearance distance (feet)
up to 50	10
over 50 to 200	15
over 200 to 350	20
over 350 to 500	25
over 500 to 750	35
over 750 to 1,000	45
over 1,000	(as established by the utility owner/operator or registered professional engineer who is a qualified person with respect to electrical power transmission and distribution).

14.0 SITE SAFETY INSPECTION

The Langan HSO or alternate will check the work area daily, at the beginning and end of each work shift, or more frequently to ensure safe work conditions. The HSO or alternate must complete the Jobsite Safety Inspection Checklist, found in Attachment F. Any deficiencies must be shared with the FTL, HSM, and PM and will be discussed at the daily tailgate meeting.

15.0 HAND AND POWER TOOLS

All hand- and electric-power tools and similar equipment must be maintained in a safe operating condition. All electric-power tools must be inspected before initial use. Damaged tools must be removed immediately from service or repaired. Tools must be used only for the purpose for which they were designed. All users must be properly trained in their safe operation.

16.0 EMERGENCY RESPONSE

16.1 General

This section establishes procedures and provides information for use during a project emergency. Emergencies happen unexpectedly and quickly, and require an immediate response; therefore,

contingency planning and advanced training of staff is essential. Specific elements of emergency support procedures that are addressed in the following subsections include communications, local emergency support units, and preparation for medical emergencies, first aid for injuries incurred on site, record keeping, and emergency site evacuation procedures. In case of emergency, in addition to 911, call *WorkCare - Incident Intervention®* at 1-888-479-7787 to report their injuries. For all other communications, contact the Langan Incident Hotline at **973-560-4699** as soon as possible.

Should outside assistance be needed for accidents, fire, or release of hazardous substances, the emergency numbers will be available and posted at the site (Table 5) where a readily accessible telephone is made available for emergency use.

Also, in the event of an incident where a team member becomes exposed or suffers from an acute symptom from contact with site materials and must be taken to a hospital, a short medical data sheet (Attachment C) for that individual will be made available to the attending physician. The medical data sheet will include the following:

- Name, address, home phone
- Age, height, weight
- Name of person to be notified in case of an accident.
- Allergies
- Sensitivities
- Does he/she wear contact lenses?
- Short checklist of previous illness
- Name of personal physician and phone
- Name of company physician and phone
- Prescription and non-prescription medications currently used.

An incident reporting form is included in Attachment C.

16.2 Responsibilities

16.2.1 Health and Safety Officer (HSO)

The HSO is responsible for ensuring that all personnel are evacuated safely, and that machinery and processes are shut down or stabilized in the event of a stop work order or evacuation. The HSO is responsible for ensuring the HSM is notified of all incidents, all injuries, near misses, fires, spills, releases, or equipment damage. The HSO is required to immediately notify the HSM of any fatalities or catastrophes (three or more workers injured and hospitalized) so that the HSM can notify OSHA within the required time limit.

16.2.2 Emergency Coordinator

The HSO or their designated alternate will serve as the Emergency Coordinator. The Emergency Coordinator is responsible for ensuring that all personnel are evacuated safely, and that machinery and processes are shut down or stabilized in the event of a stop work order or evacuation. They are also responsible for ensuring the HSM is notified of all incidents, all injuries, near misses, fires, spills, releases, or equipment damage. The Emergency Coordinator is required to immediately notify the HSM of any fatalities or catastrophes (three or more workers injured and hospitalized.

The Emergency Coordinator must locate emergency phone numbers and identify hospital routes prior to beginning work on the sites. The Emergency Coordinator must make necessary arrangements to be prepared for any emergencies that could occur.

The Emergency Coordinator is responsible for implementing the Emergency Response Plan.

16.2.3 Site Personnel

Project site personnel are responsible for knowing the Emergency Response Plan and the procedures contained herein. All personnel are expected to notify the Emergency Coordinator of situations that could constitute a site emergency. Project site personnel, including all subcontractors, will be trained in the Emergency Response Plan.

16.3 Communications

Once an emergency has been stabilized, the injured Langan personnel should contact *WorkCare - Incident Intervention®* at 1-888-479-7787 to report their injuries. For all other communications, contact the Langan Incident Hotline at **973-560-4699** as soon as possible.

16.4 Local Emergency Support Units

To be able to deal with any emergency that might occur during investigative activities at the site, the Emergency Notification Numbers (Table 5) will be posted and provided to all personnel conducting work within the EZ.

Figure 2 shows the hospital route map. Outside emergency number 911 and local ambulance should be relied on for response to medical emergencies and transport to emergency rooms. Always contact first responders when there are serious or life-threatening emergencies on the site. Project personnel are instructed not to drive injured personnel to the Hospital. In the event of an injury, provide first aid and keep the injured party calm and protected from the elements, and treat for shock when necessary.

16.5 Pre-Emergency Planning

Langan will communicate directly with administrative personnel from the emergency room at the hospital to determine whether the hospital has the facilities and personnel needed to treat cases of trauma resulting from any of the contaminants expected to be found on the site. Instructions for finding the hospital will be posted conspicuously in the site office and each site vehicle.

16.6 Emergency Medical Treatment

The procedures and rules in this HASP are designed to prevent employee injury. However, if an injury occurs, no matter how slight, it will be reported to the HSO immediately. First-aid equipment will be available on-site at the following locations:

- First Aid Kit: Contractor Vehicles
- Emergency Eye Wash: Contractor Vehicles

During the site safety briefing, project personnel will be informed of the location of the first aid station(s) that has been set up. Some injuries, such as severe cuts and lacerations or burns, may require immediate treatment. First-aid instructions provided from off-site doctors or paramedics, before an emergency-response squad arrives at the site or before the injured person can be transported to the hospital, will be followed closely. Only in non-emergency situations may an injured person be transported to an urgent care facility. Due to hazards that may be present at the site and the conditions under which operations are conducted, an emergency may develop. Emergencies can be characterized as injury or acute chemical exposure to personnel, fire or explosion, environmental release, or hazardous weather conditions.

16.8 Emergency Site Evacuation Routes and Procedures

All project personnel will be instructed on proper emergency response procedures and locations of emergency telephone numbers during the initial site safety meeting. If an emergency occurs as a result of the site investigation activities, including but not limited to fire, explosion, or significant release of toxic gas into the atmosphere, the Langan Project Manager will be verbally notified immediately. All heavy equipment will be shut down and all personnel will evacuate the work areas and assemble at the nearest intersection to be accounted for and to receive further instructions.

If an emergency arises, the FTL will implement an immediate evacuation of all project personnel due to immediate or impending danger. The FTL will also immediately communicate with the contractor to coordinate any needed evacuation of the property.

The FTL or Site Supervisor will give necessary instructions until the Designated Incident Commander (IC) assumes control. After the emergency has been resolved, the FTL or Site Supervisor will coordinate with the IC and indicate when staff should resume their normal duties. If dangers are present for those at the designated assembly point, another designated location of assembly will be established.

It will be the responsibility of the FTL or Site Supervisor to report a fire or emergency, assess the seriousness of the situation, and initiate emergency measures until the arrival of the local fire fighters or other first responders, should they be necessary. The FTL, working with emergency responders, may also order the closure of the Site for an indefinite period if it is deemed necessary.

Under no circumstances will incoming visitors be allowed to proceed to the area of concern once an emergency evacuation has been implemented. Visitors or other persons present in the emergency must be instructed to evacuate the area. The FTL will ensure that access roads are not obstructed and will remain on-site to provide stand-by assistance upon the arrival of emergency personnel.

If it is necessary to temporarily control traffic in the event of an emergency, those persons controlling traffic will wear proper reflection warning vests until the arrival of police or fire personnel.

16.8.1 Designated Assembly Locations

All personnel will evacuate the site and assemble at a designated assembly location. The assembly location will be designated by Langan personnel and discussed during each shift's pre-job safety briefing.

16.8.2 Accounting for Personnel

All contractor and subcontractor supervisors are responsible for the accounting of all personnel assembled at the designed assembly area. The Designated Incident Commander must be notified if personnel are not found.

16.9 Fire Prevention and Protection

In the event of a fire or explosion, procedures will include immediately evacuating the site and notification of the Langan Project Manager of the investigation activities. Portable fire extinguishers will be provided at the work zone. The extinguishers located in the various locations should also be identified prior to the start of work. No personnel will fight a fire beyond the stage where it can be put out with a portable extinguisher (incipient stage).

16.9.1 Fire Prevention

Fires will be prevented by adhering to the following precautions:

- Good housekeeping and storage of materials.
- Storage of flammable liquids and gases away from oxidizers.
- Shutting off engines to refuel.
- Grounding and bonding metal containers during transfer of flammable liquids.
- Use of UL approved flammable storage cans.
- Fire extinguishers rated at least 10 pounds ABC located on all heavy equipment, in all trailers and near all hot work activities.

The person responsible for the control of fuel source hazards and the maintenance of fire prevention and/or control equipment is the HSO.

16.10 Significant Vapor Release

Based on the proposed tasks, the potential for a significant vapor release is low. However, if a release occurs, the following steps will be taken:

- Move all personnel to an upwind location. All non-essential personnel must evacuate.
- Upgrade to Level C Respiratory Protection.
- Downwind perimeter locations must be monitored for volatile organics.
- If the release poses a potential threat to human health or the environment in the community, the Emergency Coordinator must notify the Langan Project Manager.
- Local emergency response coordinators will be notified.

16.11 Overt Chemical Exposure

The following are standard procedures to treat chemical exposures. Other, specific procedures detailed on the Material Safety Data Sheet (MSDS) will be followed, when necessary.

SKIN AND EYE: Use copious amounts of soap and water from eye-wash kits and portable hand-wash stations.

CONTACT: Wash/rinse affected areas thoroughly, then provide appropriate medical attention. Skin must also be rinsed for 15 minutes if contact with caustics, acids, or hydrogen peroxide occurs. Affected items of clothing must also be removed from contact with skin.

Providing wash water and soap will be the responsibility of each individual contractor or subcontractor on-site.

16.12 Decontamination during Medical Emergencies

If emergency lifesaving first aid and/or medical treatment is required, normal decontamination procedures may need to be abbreviated or omitted. The HSO or designee will accompany contaminated victims to the medical facility to advice on matters involving decontamination when necessary. The outer garments can be removed if they do not cause delays, interfere with treatment, or aggravate the problem. Respiratory equipment must always be removed. Protective clothing can be cut away. If the outer contaminated garments cannot be safely removed on site, a plastic barrier placed between the injured individual and clean surfaces should be used to help prevent contamination of the inside of ambulances and/or medical personnel. Outer garments may then be removed at the medical facility. No attempt will be made to wash or rinse the victim if his/her injuries are life threatening unless it is known that the individual has been contaminated with an extremely toxic or corrosive material which could also cause severe injury or loss of life to emergency response personnel. For minor medical problems or injuries, normal decontamination procedures will be followed.

16.13 Adverse Weather Conditions

In the event of adverse weather conditions, the HSO will determine if work continues without potentially risking the safety of all field workers. Some of the items to be considered prior to determining if work should continue are:

- Potential for heat stress and heat-related injuries.
- Potential for cold stress and cold-related injuries.
- Treacherous weather-related working conditions (hail, rain, snow, ice, high winds).
- Limited visibility (fog).
- Potential for electrical storms.
- Earthquakes.
- Other major incidents.

Site activities will be limited to daylight hours, or when suitable artificial light is provided, and acceptable weather conditions prevail. The HSO will determine the need to cease field operations or observe daily weather reports and evacuate, if necessary, in case of severe inclement weather conditions.

16.14 Spill Control and Response

All small spills/environmental releases must be contained as close to the source as possible. Whenever possible, the SDS will be consulted to assist in determining proper waste characterization and the best means of containment and cleanup. For small spills, sorbent

materials such as sand, sawdust, or commercial sorbents should be placed directly on the substance to contain the spill and aid recovery. Any acid spills should be diluted or neutralized carefully prior to attempting recovery. Berms of earthen or sorbent materials can be used to contain the leading edge of the spills. All spill containment materials will be properly disposed of. An exclusion zone of 50 to 100 feet around the spill area should be established depending on the size of the spill.

All contractor vehicles must have spill kits on them with enough material to contain and absorb the worst-case spill from that vehicle. All vehicles and equipment must be inspected prior to being admitted on-site. Any vehicle or piece of equipment that develops a leak will be taken out of service and removed from the job site.

The following seven steps must be taken by the Emergency Coordinator:

1. Determine the nature, identity, and amounts of major spills.
2. Make sure all unnecessary persons are removed from the spill area.
3. Notify the HSO immediately.
4. Use proper PPE in consultation with the HSO.
5. If a flammable liquid, gas, or vapor is involved, remove all ignition sources, and use non-sparking and/or explosion-proof equipment to contain or clean up the spill (diesel-only vehicles, air-operated pumps, etc.)
6. If possible, try to stop the leak with the appropriate material.
7. Remove all surrounding materials that can react or compound with the spill.

In addition to the spill control and response procedures described in this HASP, Langan personnel will coordinate with the designated project manager relative to spill response and control actions. Notification to the Project Manager must be immediate and, to the extent possible, include the following information:

- Time and location of the spill.
- Type and nature of the material spilled.
- Amount spilled.
- Whether the spill has affected or has a potential to affect a waterway or sewer.
- A brief description of affected areas/equipment.
- Whether the spill has been contained.
- Expected time of cleanup completion. If spill cleanup cannot be handled by Langan's on-site personnel alone, such fact must be conveyed to the Project Manager immediately.

Langan field personnel must notify the project manager when they observe a spill or encounter conditions suggesting one might have occurred.

16.15 Emergency Equipment

The following minimum emergency equipment must be kept and maintained on site:

- Industrial first aid kit.
- Fire extinguishers (one per site).

16.16 Restoration and Salvage

After an emergency, prompt restoration of utilities, fire protection equipment, medical supplies, and other equipment will reduce the possibility of further losses. Some of the items that may need to be addressed are:

- Refilling fire extinguishers.
- Refilling medical supplies.
- Recharging eyewashes and/or showers.
- Replenishing spill control supplies.

16.17 Documentation

Immediately following an incident or near miss, unless emergency medical treatment is required, either the employee or a coworker must contact the Langan Incident/Injury Hotline at 1-(800)-9-LANGAN (extension 4699) and the client representative to report the incident or near miss. For emergencies involving personnel injury and/or exposure, the HSO and affected employee will complete and submit an Employee Exposure/Injury Incident Report (Attachment C) to the Langan Corporate Construction Health and Safety Manager as soon as possible following the incident.

17.0 SPECIAL CONDITIONS

This guideline contains information and requirements for special conditions that may not be routinely encountered.

17.1 Scope

The guideline applies to the specific projects identified within this document. Additional provisions will be addressed in each Site-Specific Construction Health and Safety Plan (HASP), as needed.

17.2 Responsibilities

Site Personnel - All site personnel must be alert to safety hazards on work sites and take action to minimize such hazards. Personnel must utilize the buddy system, watch for inappropriate behavior, and be alerted to changes in site conditions.

Construction Health and Safety Officer (HSO) - The HSO is responsible for considering these procedures in the development of site-specific HASPs. The HSO must schedule frequent "tail gate" safety briefings to enhance safety awareness and discuss potential problems.

17.3 Procedures

The procedures outlined below must be followed when such conditions are encountered.

17.3.1 Ladders

Langan safety procedures must be used to ensure employee safety when using ladders in the office or work sites. All ladders must be coated or repaired to prevent injury to the employee from punctures or lacerations and to prevent snagging or clothing. Any wood ladders used must have an opaque covering except for identification or warning labels, which may be placed on one face only of a side rail.

17.3.1.1 Ladder Use

Employees must only use ladders for the purposes they were designed for and must not be used as scaffolding. Ladders will be maintained and inspected prior to use for slip hazards including oil and grease. Employees must use ladders only on stable and level surfaces unless the ladder is secured to prevent displacement. Ladders should not be used on slippery surfaces unless secured or provided with slip-resistant feet to prevent accidental displacement. Ladders should not be used in locations where they could be displaced by workplace activities or traffic. Ladder rungs, cleats and steps must be parallel, level and uniformly spaced when the ladder is in the use position.

Employees should not be carrying anything including equipment that could cause injury if there was a fall while utilizing the ladder. The top and bottom of the ladder area must remain clear while in use. When ascending and descending the ladder, employees must face the ladder.

Ladders must not be loaded beyond the maximum intended load for which they were built or the manufacturer’s rated capacity.

17.3.1.2 Portable Ladders

Rungs, cleats, and steps for portable ladders and fixed ladders must be spaced not less than 10 inches apart, nor more than 14 inches apart, as measured between center lines of the rungs, cleats, and steps. When used to access an upper landing surface, the ladder side rails must extend at least three feet above the upper landing surface to which the ladder is used to gain access. If this is not possible, due to the length of the ladder, then the top of the ladder must be secured at its top to a rigid support.

17.3.1.3 Step Stools

Rungs, cleats, and steps of step stools must not be less than 8 inches apart, nor more than 12 inches apart, as measured between center lines of the rungs, cleats, and steps.

17.3.1.4 Extension Ladders

Rungs, cleats, and steps of the base section of extension trestle ladders must be spaced not less than 8 inches apart, nor more than 18 inches apart, as measured between center lines of the rungs, cleats, and steps. The rung spacing on the extension section of the extension trestle ladder must not be less than 6 inches nor more than 12 inches, as measured between the center lines of the rungs, cleats and steps. Ladders must be used at an angle such that the horizontal distance from the top support to the foot of the ladder is approximately one-quarter of the working length of the ladder (the distance along the ladder between the foot and the top support).

17.3.1.5 Inspection

Ladders will be inspected for visible detects periodically, prior to utilization or after any occurrence that could have negatively affected the ladder. Portable ladders with defects including broken or missing rungs, cleats, or steps, broken or split rails, corroded components, or other faulty components must not be used. The ladder will be immediately marked as defective, tagged as "Do Not Use" or blocked from being used and removed from service until repaired.

17.3.2 First Aid/Cardiopulmonary Resuscitation (CPR)

Langan field and office personnel will be encouraged to be trained in First Aid and Cardiopulmonary Resuscitation (CPR). Training will be provided free of charge by Langan to all employees. Employees will receive a training certificate that will be kept on file with the Health & Safety Coordinator (HSC). Training and certification will be provided by a credited provider such as American Red Cross or equivalent.

17.3.2.1 Emergency Procedures

Prior to site work, the Langan employees certified in first aid and CPR will be identified in the site-specific HASP. Langan will endear to have at least one employee at a job site trained and able to render first aid and CPR. The site-specific HASP will contain first aid information on both potential chemical and physical hazards. Emergency procedures to be followed in case of injury or illnesses are provided in the HASP. The HASP will include emergency contact information including local police and fire departments, hospital emergency rooms, ambulance services, on-site medical personnel, and physicians. The HASP will also include directions and contact information for the nearest emergency facility in case immediate medical attention is required. The emergency contact information will be conspicuously posted at the worksite. Employees that are injured and require immediate medical attention must call either 911 or the local posted emergency contacts. Employees should use ambulatory services to transport injured workers to the nearest facility for emergency medical care. In areas where 911 is not available, the telephone numbers of physicians, hospitals, or ambulances must be conspicuously posted.

17.3.2.2 First Aid Supplies

First aid supplies are readily available to all Langan employees when required. First aid kits are in each Langan office. Portable first aid kits are available for employees to use at work sites. First aid kits should consist of items needed to treat employees for potential chemical and physical injuries. At a minimum, first aid kits should contain items to allow basic first aid to be rendered. Where the eyes or body of an employee may be exposed to corrosive materials, suitable facilities for quick drenching or flushing of the eyes and body must be provided within the work area for immediate emergency use including eye wash.

First aid kits will be weatherproof with individually sealed packages of each item. All portable first aid kits must be inspected by Langan employees before and after use to ensure all used items are replaced. When out in the field, employees must check first aid kits weekly to ensure used items are replaced.

17.3.3 Hydrogen Sulfide

Langan employees with the potential to be exposed to hydrogen sulfide while at work sites must have training in hydrogen sulfide awareness. The training will include the identification of areas where employees could be exposed to hydrogen sulfide, health effects, permissible exposure limits, first aid procedures, and personnel protective equipment. Langan employees could be exposed to hydrogen sulfide while at job sites including petroleum refineries, hazardous waste treatment, storage and disposal facilities, uncontrolled hazardous waste sites, and remediation projects.

17.3.3.1 Characteristics

Hydrogen sulfide is a colorless gas with a strong odor of rotten eggs that is soluble in water. Hydrogen sulfide is used to test and make other chemicals. It is also found as a by-product of chemical reactions, such as in sewer treatment. It is a highly flammable gas and a dangerous fire hazard. Poisonous gases are produced in fires including sulfur oxides. Hydrogen sulfide is not listed as a carcinogen.

17.3.3.2 Health Effects

Hydrogen Sulfide can affect employees if inhaled or through contact with skin or eyes. Acute (or short-term) health effects of hydrogen sulfide exposure include irritation of the nose and throat, dizziness, confusion, headache, and trouble sleeping. Inhalation of hydrogen sulfide can irritate the lungs causing coughing and/or shortness of breath. Higher levels of exposure can cause a build-up of fluid in the lungs (pulmonary edema), a medical emergency, with severe shortness of breath.

Chronic (or long-term) health effects of low levels of exposure to hydrogen sulfide can cause pain and redness of the eyes with blurred vision. Repeated exposure may cause bronchitis with cough, phlegm, and shortness of breath.

17.3.3.3 Protective Clothing and Equipment

Respirators are required for those operations in which employees will be exposed to hydrogen sulfide above OSHA permissible exposure level. The maximum OSHA permissible exposure limit (PEL) for hydrogen sulfide is 20 parts of hydrogen sulfide vapor per million parts of air (20 ppm) for an 8-hour workday and the maximum short-term exposure limit (STEL) is 10 ppm for any 10-minute period.

Where employees are exposed to levels up to 100 parts of hydrogen sulfide vapor per million parts of air (100 ppm), the following types of respiratory protection are allowed:

- Any powered, air-purifying respirator with cartridge(s).
- Any air-purifying, full-facepiece respirator (gas mask) with a chin style, front- or back-mounted canister.
- Any supplied air system with escape self-contained breathing apparatus, if applicable; and,
- Any self-contained breathing apparatus with a full facepiece.

Respirators used by employees must have joint Mine Safety and Health Administration and the National Institute for Occupational Safety and Health (NIOSH) seal of approval. Cartridges or

canisters must be replaced before the end of their service life, or the end of the shift, whichever occurs first. Langan employees that have the potential to be exposed to hydrogen sulfide will be trained in the proper use of respirators. Respirator training is discussed under– Langan's Respiratory Protection Program.

Employees with potential exposure to hydrogen sulfide, or when required by the client, will wear a portable hydrogen sulfide gas detector. The detector should have an audible, visual, and vibrating alarm. The detector may also provide detection for carbon monoxide, sulfur dioxide, and oxygen-deficient atmospheres. The hydrogen sulfide monitor will, at a minimum, be calibrated to detect hydrogen sulfide at a level of 20 parts of hydrogen sulfide vapor per million parts of air (20 ppm). Many portable gas detectors will have factory defaults with a low-level alarm at 10 ppm and a high-level alarm at 15 ppm. Langan employees must consult clients to determine if any site-specific threshold levels exist.

If the hydrogen sulfide gas detector sounds and employees are not wearing appropriate respiratory protection, employees must immediately vacate the area and meet at the assigned emergency location. Langan employees may not re- enter the site without proper respiratory protection and approval from the client or property owner if needed.

Employees must wear PPE to prevent eye and skin contact with hydrogen sulfide. Employees must wear appropriate protective clothing including boots, gloves, sleeves, and aprons, over any parts of their body that could be exposed to hydrogen sulfide. Non-vented, impact-resistant goggles should be worn when working with or exposed to hydrogen sulfide.

17.3.3.4 Emergency and First Aid Procedures

Eye and Face Exposure

If hydrogen sulfide comes in contact with eyes, it should be washed out immediately with large amounts of water for 30 minutes, occasionally lifting the lower and upper eye lids. Seek medical attention immediately.

Skin Exposure

If hydrogen sulfide contaminates clothing or skin, remove the contaminated clothing immediately and wash the exposed skin with large amounts of water and soap. Seek medical attention immediately. Contaminated clothing should either be disposed of or washed before wearing again.

Breathing

If a Langan employee or other personnel breathe in hydrogen sulfide, immediately get the exposed person to fresh air. If breathing has stopped, artificial respiration should be started. Call for medical assistance or a doctor as soon as possible.

Safety Precautions

Hydrogen sulfide is a highly flammable gas and a dangerous fire hazard. Containers of hydrogen sulfide may explode in a fire situation. Poisonous gases are produced during fires.

Langan employees should contact property owners and operators prior to conducting work onsite to be aware of any site-specific contingency plans, identify where hydrogen sulfide is used at the facility, and be informed about additional safety rules or procedures.

17.3.4 Fire Protection/Extinguishers

Langan field personnel that have been provided with portable fire extinguishers for use at worksites will be trained to familiarize employees with general principles of fire extinguisher use and hazards associated with the incipient stage of firefighting. Training will be provided prior to the initial assignment for field work and annually thereafter.

Portable fire extinguishers must be visually inspected monthly and subjected to an annual maintenance check. Langan will retain records of the annual maintenance date.

17.3.5 Overhead lines

When field work is performed near overhead lines, the lines must be de-energized and grounded, or other protective measures must be provided before the work commences. If overhead lines are to be de-energized, arrangements must be made with the client, property owner, or organization that operates or controls the electric circuits involved to de-energize and ground them. If protective measures, such as guarding, isolating, or insulating, are provided, these precautions must prevent employees from contacting such lines directly with any part of their body or indirectly through conductive materials, tools, or equipment.

When unqualified Langan personnel are working in an elevated position near overhead lines, the location must be such that the person and the longest conductive object they may contact cannot come closer to any unguarded, energized overhead line than the following distances:

1. For voltages to ground 50 kilovolts (kV) or below - 10 feet; and
2. For voltages to ground over 50kV - 10 feet, plus 4 inches for every 10kV over 50kV.

As previously indicated, Langan does not retain qualified employees to perform work on energized equipment.

17.3.5.1 Vehicle and Equipment Clearance

Any vehicle or mechanical equipment capable of having parts of its structure elevated near energized overhead lines must be operated so that a clearance of 10 feet is maintained. If the voltage of the overhead lines is higher than 50kV, the clearance must be increased by 4 inches for every 10kV over that voltage.

If any of the following discussed conditions occur, the clearance may be reduced.

- If the vehicle is in transit with its structure lowered, the clearance may be reduced to 4 ft. If the voltage is higher than 50kV, the clearance must be increased to 4 inches for every 10 kV over that voltage.
- If insulating barriers are installed to prevent contact with the lines, and if the barriers are rated for the voltage of the line being guarded and are not a part of or an attachment to the vehicle or its raised structure, the clearance may be reduced to a distance within the designed working dimensions of the insulating barrier.

Employees standing on the ground may not contact the vehicle or mechanical equipment or any of its attachments unless the employee is using protective equipment rated for the voltage, or the equipment is located so that no uninsulated part of its structure (that portion of the structure that provides a conductive path to employees on the ground) can come closer to the overhead line than permitted.

If any vehicle or mechanical equipment capable of having parts of its structure elevated near energized overhead lines is intentionally grounded, employees working on the ground near the point of grounding may not stand at the grounding location whenever there is a possibility of overhead line contact. Additional precautions, such as the use of barricades or insulation, must be taken to protect employees from hazardous ground potentials, depending on earth resistivity and fault currents, which can develop within the first few feet or more outward from the grounding point.

17.3.6 Trade Secret

Langan employees could potentially be provided trade secret information by the client or property owner when site-specific information is provided about highly hazardous chemicals. Trade secret means any confidential formula, pattern, process, device, information, or compilation of information that is used in an employer's business, and that allows the employer to obtain an advantage over competitors who do not know or use it. Langan employees understand that this

information should be kept confident and if required, may enter into a confidentiality agreement with the client.

17.3.7 Bloodborne Pathogens

Langan employees that can anticipate exposure to blood or other potentially infectious material while at work sites must have training in bloodborne pathogens. Applicable employees would include those trained in first aid and serving a designated role as an emergency medical care provider. Bloodborne pathogens are pathogenic microorganisms that are present in human blood and can cause disease in humans. These pathogens include but are not limited to, hepatitis B virus and human immunodeficiency virus.

17.3.7.1 Training

Langan employees with potential occupational exposure to blood or other potentially infectious material must participate in a training program. Training must be conducted prior to the initial assignment where there would be potential for exposure and annually thereafter within one year of previous training. The training program will be provided to Langan employees at no cost to them and during working hours.

Langan will ensure the training program must consist of the following:

- An accessible copy of the regulatory text of 29 CFR 1910.1030 and an explanation of its contents.
- A general explanation of the epidemiology and symptoms of bloodborne diseases.
- An explanation of the modes of transmission of bloodborne pathogens.
- An explanation of Langan's exposure control plan and how the employee can obtain a copy of the written plan.
- An explanation of the appropriate methods for recognizing tasks and other activities that may involve exposure to blood and other potentially infectious materials.
- An explanation of the use and limitations of personal protective equipment (PPE) to prevent and reduce exposure.
- Information on the types, proper use, location, removal, handling, and disposal of PPE.
- An explanation of the basis for the selection of PPE.
- Information on the hepatitis B vaccine, including information on its efficacy, safety, method of administration, the benefits of being vaccinated, and that the vaccine and vaccination will be offered free of charge.
- Information on the appropriate actions to take and persons to contact in an emergency involving blood or other potentially infectious materials.
- An explanation of the procedure to follow if an exposure incident occurs, including the

method of reporting the incident and the medical follow-up that will be made available.

- Information on the post-exposure evaluation and determining whether the employer is required to provide for the employee following an exposure incident.
- An explanation of the signs and labels and/or color coding required by paragraph 29 CFR 1910.1030(g)(1); and
- An opportunity for interactive questions and answers with the person conducting the training session.

Langan will develop and implement a written Exposure Control Plan, which will be designed to eliminate or minimize employee exposure to bloodborne pathogens. The Exposure Control Plan will contain the following elements:

- An exposure determination for employees.
- The schedule and method of implementation for Methods of Compliance (29 CFR 191.1030(d)), Hepatitis B Vaccination and Post-Exposure Evaluation and Follow-up (29 CFR 1910.1030(f)), Communication of Hazards to Employees (29 CFR 1910.1030(g)) and (h) Recordkeeping (29 CFR 1910.1030(h)).
- The procedure for the evaluation of circumstances surrounding exposure incidents.
- Ensure a copy of the Exposure Control Plan will be accessible to employees; and,
- The Exposure Control Plan must be reviewed and updated at least annually.

Langan employees with occupational exposure to bloodborne pathogens include any employees trained in first aid that would be expected to provide emergency medical care. This determination is made without regard to the use of PPE, which could eliminate or minimize exposure.

Universal precautions must be observed to prevent contact with blood or other potentially infectious materials. According to the concept of Universal Precautions, all human blood and certain human body fluids are treated as if known to be infectious for bloodborne pathogens. When differentiation between body fluid types is difficult or impossible, all body fluids must be considered potentially infectious materials.

Work practice controls must be used to eliminate or minimize employee exposure, if applicable. Since Langan employees will have occupational exposure only during the rendering of first aid, personnel protective equipment will be utilized to reduce or minimize exposure. PPE that could be available to Langan personnel when administering first aid includes safety glasses, gloves, and Tyvek suits or sleeves. PPE and first aid kits will be provided to employees at no cost to them.

Langan employees that render first aid in office areas will have access to hand-washing facilities or restrooms. For first aid rendered at field locations, first aid kits will contain an appropriate

antiseptic hand cleanser and clean cloth/paper towels or antiseptic towelettes. After using antiseptic hand cleansers or towelettes, employees must wash their hands with soap and running water as soon as feasible.

After administering first aid, potentially infectious materials, including towels, personnel protective equipment, clothes, and bandages, must be placed in a container, which prevents leakage during collection, handling, processing, storage, transport, or shipping. All PPE will be disposed of after use. Any equipment or working surfaces which was been exposed to blood or potentially infectious materials due to an injury will be decontaminated prior to reuse.

Langan will make available the hepatitis B vaccine and vaccination series to all employees who have occupational exposure, and post-exposure evaluation and follow-up to all employees who have had an exposure incident. These services will be available to the employee at no cost to them through a medical provider.

17.3.7.2 Recordkeeping

Langan will maintain training and medical records for each employee with occupational exposure to blood or potentially infectious materials. Medical and training records will be maintained by Langan's H&S Department.

Training records will include the following:

- Dates of the training sessions.
- Contents or a summary of the training sessions.
- Names and qualifications of persons conducting the training; and
- Names and job titles of all persons attending the training sessions.

Training records must be maintained for 3 years from the date on which the training occurred. Medical records will be preserved and maintained for the duration of employment plus 30 years.

All records will be made available upon request to employees, the Assistant Secretary of Labor for Occupational Safety and Health, and the Director of the National Institute for Occupational Safety and Health Director of OSHA for examination and copying. Medical records must have written consent from the employee before releasing.

If Langan ceases to do business, all records must be transferred to the successor employer. The successor employer must receive and maintain these records.

If there will not be a successor, Langan will notify current employees of their rights to access records at least three months prior to the cessation of business.

18.0 RECORDKEEPING

The following is a summary of required health and safety logs, reports, and recordkeeping.

18.1 Field Change Authorization Request

Any changes to the work to be performed that are not included in the HASP will require an addendum that is approved by the Langan project manager and Langan HSM to be prepared. Approved changes will be reviewed with all field personnel at a safety briefing.

18.2 Medical and Training Records

Copies or verification of training (40-hour, 8-hour, supervisor, site-specific training, documentation of three-day on-the-job training (OJT)), and respirator fit-test records) and medical clearance for site work and respirator use will be maintained in the office and available upon request. Records for all subcontractor employees must also be available upon request. All employee medical records will be maintained by the HSM.

18.3 Onsite Log

A log of personnel on-site each day will be kept by the HSO or designee.

18.4 Daily Safety Meetings ("Tailgate Talks")

Completed safety briefing forms (Attachment H) will be maintained by the HSO or FTL.

18.5 Exposure Records

All personal monitoring results, laboratory reports, calculations, and air sampling data sheets are part of an employee exposure record. These records will be maintained by the HSO during site work. At the end of the project, they will be maintained according to 29 CFR 1910.1020.

18.6 Hazard Communication Program - SDS

Safety Data Sheets (SDS) have been obtained for applicable substances and are included in this HASP (Attachment D). Langan's written hazard communication program, in compliance with 29 CFR 1910.1200, is maintained by the HSM.

18.7 Documentation

Immediately following an incident or near miss, unless emergency medical treatment is required, either the employee or a coworker must contact the Langan incident/injury hotline at 973-560-4699, and the Project Manager to report the incident or near miss. The Project Manager will

contact the client or client representative. A written report must be completed and submitted HSM within 24 hours of the incident. For emergencies involving personnel injury and/or exposure, the employee will complete and submit the Langan incident/injury report to the Langan corporate health and safety manager as soon as possible following the incident. Accidents will be investigated in-depth to identify all causes and to recommend hazard control measures.

18.7.1 Accident and Injury Report Forms

18.7.1.1 Accident/Incident Report

All injuries, no matter how slight, must be reported to the FTL and the PM immediately. The accident/incident report forms, attached in Attachment C, will be filled out on all accidents by the applicable contractor supervision personnel, the FTL, or the HSO. Copies of all accident/incident reports must be kept on-site and available for review. Project personnel will be instructed on the location of the first aid station, hospital, and doctor and ambulance service near the job. The emergency telephone numbers will be conspicuously posted in site vehicles near the work zone. First aid supplies will be centrally located and conspicuously posted between restricted and nonrestricted areas to be readily accessible to all on the site.

18.7.1.2 First Aid Treatment Record

The forms will be used for recording all non-lost time injuries treated by the project first-aid attendant, the local physician or hospital will be entered in detail on this record. "Minor" treatment of scratches, cuts, etc. will receive the same recording attention as treatment of more severe injuries.

18.7.1.3 OSHA Form 300

An OSHA Form 300 will be kept at the Langan Corporate Office in Parsippany, New Jersey. All recordable injuries or illnesses will be recorded on this form. Subcontractor employers must also meet the requirements of maintaining an OSHA 300 form. The Incident Report form used to capture the details of work-related injuries/illnesses meets the requirements of the OSHA Form 301 (supplemental record) and must be maintained with the OSHA Form 300 for all recordable injuries or illnesses. Forms for recording OSHA work-related injuries and illnesses are included in Attachment C.

19.0 CONFINED SPACE ENTRY

Confined spaces are not anticipated at the Site during planned activities. If confined spaces are identified, the contractor must implement their own confined space program that all applicable federal, state, and local regulations. Confined spaces **will not** be entered by Langan personnel.

20.0 HASP ACKNOWLEDGEMENT FORM

All Langan personnel and contractors will sign this HASP Compliance Agreement indicating that they have become familiar with this HASP and that they understand it and agree to abide by it.

Printed Name	Signature	Company	Date

TABLES

TABLE 1
TASK HAZARD ANALYSES

Task	Hazard	Description	Control Measures	First Aid
1.3.1 – 1.3.14	Contaminated Soil or Groundwater- Dermal Contact	Contaminated water spills on skin, splashes in eyes; contact with contaminated soil/fill during activities or sampling.	Wear proper PPE; follow safe practices, maintain safe distance from activities	See Table 2, seek medical attention as required
1.3.1 – 1.3.14	Lacerations, abrasions, punctures	Cutting bailer twine, pump tubing, acetate liners, etc. with knife; cuts from sharp site objects or previously cut piles, tanks, etc.; Using tools in tight spaces	Wear proper PPE; follow safe practices	Clean wound, apply pressure and/or bandages; seek medical attention as required.
1.3.1 – 1.3.14	Contaminated Media Inhalation	Opening drums, tanks, wells; vapors for non-aqueous phase liquids or other contaminated site media; dust inhalation during excavation; vapor accumulation in excavation	Follow air monitoring plan; have quick access to respirator, do not move or open unlabeled drums found at the site, maintain safe distance from activities	See Table 2, seek medical attention as required
1.3.1 – 1.3.14	Lifting	Improper lifting/carrying of equipment and materials causing strains	Follow safe lifting techniques. Langan employees are not to carry contractor equipment or materials	Rest, ice, compression, elevation; seek medical attention as required
1.3.1 – 1.3.14	Slips, trips, and falls	Slips, trips, and falls due to uneven surfaces, cords, steep slopes, debris, and equipment in work areas	Good housekeeping at site; constant awareness and focus on the task; avoid climbing on stockpiles; maintain safe distance from activities and excavations; avoid elevated areas over six feet unless fully accredited in fall protection and wearing an approved fall protection safety apparatus	Rest, ice, compression, elevation; seek medical attention as required
1.3.1 – 1.3.14	Noise	Excavation equipment, hand tools, drilling equipment.	Wear hearing protection; maintain safe distance from activities	Seek medical attention as required
1.3.1 – 1.3.14	Falling objects	Soil material, tools, etc. dropping from drill rigs, front-end loaders, etc.	Hard hats to be worn at all times while in work zones; maintain safe distance from activities and excavations	Seek medical attention as required
1.3.1 – 1.3.14	Underground/ overhead utilities	Excavation equipment, drill rig auger contacts underground object; boom touches overhead utility	"One Call" before dig; follow safe practices; confirm utility locations with contractor; wear proper PPE; maintain safe distance from activities and excavations	Seek medical attention as required
1.3.1 – 1.3.14	Insects (bees, wasps, hornet, mosquitoes, and spider)	Sings, bites	Insect Repellent; wear proper protective clothing (work boots, socks, and light-colored pants); field personnel who may have insect allergies (e.g., bee sting) should provide this information to the HSO or FSO prior to commencing work and will have allergy medication on site.	Seek medical attention as required
1.3.1 – 1.3.14	Vehicle traffic / Heavy Equipment Operation	Vehicles unable to see workers on site, operation of heavy equipment in tight spaces, equipment failure, malfunctioning alarms	Wear proper PPE, especially visibility vest; use a buddy system to look for traffic; rope off area of work with cones and caution tape or devices at points of hazard, maintain safe distance from activities and equipment	Seek medical attention as required

TABLE 2
CONTAMINANT HAZARDS OF CONCERN

Task	Contaminant	CAS Number	Monitoring Device	PEL/ IDLH	Source of Concentration on Site	Route of Exposure	Symptoms	First Aid
1.3.1 – 1.3.14	1,1'-Biphenyl 1,1-Biphenyl Biphenyl Phenyl benzene Diphenyl	92-52-4	None	1 mg/m3 100 mg/m3	Soil Vapor	inhalation, skin absorption, ingestion, skin, and/or eye contact	irritation to the eyes, throat; headache, nausea, lassitude (weakness, exhaustion), numb limbs; liver damage	Eye: Irrigate immediately Skin: Water flush immediately Breathing: Respiratory support Swallow: Medical attention immediately
1.3.1 – 1.3.14	1,1-Dichloroethane Asymmetrical dichloroethane Ethylidene chloride 1,1-Ethylidene dichloride 1,1-DCA	75-34-3	PID	100 ppm 3000 ppm	Groundwater Soil Vapor	inhalation, ingestion, skin, and/or eye contact	irritation to the skin; central nervous system depression; liver, kidney, lung damage	Eye: Irrigate immediately Skin: Soap flush promptly Breathing: Respiratory support Swallow: Medical attention immediately
1.3.1 – 1.3.14	1,2,4,5-Tetramethylbenzene Durene	95-93-2	NA	None None	Groundwater Soil	inhalation, skin absorption, ingestion, skin, and/or eye contact	irritation to the eyes, skin, nose, throat, respiratory system; bronchitis; hypochromic anemia; headache, drowsiness, lassitude (weakness, exhaustion), dizziness, nausea, incoordination; vomiting, confusion; chemical pneumonitis (aspiration liquid)	Eye: Irrigate immediately Skin: Soap flush immediately Breathing: Respiratory support Swallow: Medical attention immediately

Task	Contaminant	CAS Number	Monitoring Device	PEL/ IDLH	Source of Concentration on Site	Route of Exposure	Symptoms	First Aid
1.3.1 – 1.3.14	1,2,4-Trichlorobenzene Unsym-Trichlorobenzene 1,2,4-Trichlorobenzol	120-82-1	NA	None None	Groundwater Soil Vapor	inhalation, skin absorption, ingestion, skin, and/or eye contact	irritation eyes, skin, mucous membrane; In Animals: liver, kidney damage; possible teratogenic effects	Eye: Irrigate immediately Skin: Soap wash Breathing: Respiratory support Swallow: Medical attention immediately
1.3.1 – 1.3.14	1,2-Dichlorobenzene o-DCB	95-50-1	PID	50 ppm 200 ppm	Groundwater Soil Vapor	inhalation, skin absorption, ingestion, skin, and/or eye contact	irritation to the eye, swelling periorbital (situated around the eye); profuse rhinitis; headache, anorexia, nausea, vomiting; weight loss, jaundice, cirrhosis; in animals: liver, kidney injury; [potential occupational carcinogen]	Eye: Irrigate immediately Skin: Soap wash Breathing: Respiratory support Swallow: Medical attention immediately
1.3.1 – 1.3.14	1,2-Dichloroethane Ethylene dichloride 1,2-DCA DCE[1] Ethane dichloride Dutch liquid, Dutch oil Freon 150 Glycol dichloride	107-06-2	PID	1 ppm 50 ppm	Groundwater Soil Vapor	inhalation, ingestion, skin absorption, skin, and/or eye contact	irritation to the eyes, corneal opacity; central nervous system depression; nausea, vomiting; dermatitis; liver, kidney, cardiovascular system damage; [potential occupational carcinogen]	Eye: Irrigate immediately Skin: Soap wash promptly Breathing: Respiratory support Swallow: Medical attention immediately

Task	Contaminant	CAS Number	Monitoring Device	PEL/ IDLH	Source of Concentration on Site	Route of Exposure	Symptoms	First Aid
1.3.1 – 1.3.14	1,2-Dichloroethene 1,2-Dichloroethylene 1,2-DCE trans-1,2-Dichloroethylene Total 1,2-Dichloroethene cis-1,2-Dichloroethylene mixture of cis and trans Acetylene dichloride cis-Acetylene dichloride sym-Dichloroethylene cis-1,2-Dichloroethene cDCE 1,1-dimethyl-;dimethyl1,1-cyclohexane sym-Dichloroethylene Dichloroethylenes trans-1 2-Dichloroethene Total 1,2-Dichloroethene (Cis and Trans)	159-59-2 156-60-5 156-60-2 540-59-0	PID	200 ppm 4000 ppm	Groundwater Soil Vapor	inhalation, ingestion, skin, and/or eye contact	Irritant to eyes, skin, mucous membranes, and respiratory system. May be harmful by ingestion, skin absorption and inhalation	Eye: Irrigate immediately Skin: Soap wash promptly Breathing: Respiratory support Swallow: Medical attention immediately
1.3.1 – 1.3.14	1,3,5-Trimethylbenzene Mesitylene sym-Trimethylbenzene	108-67-8	PID	None None	Groundwater Soil Vapor	inhalation, ingestion, skin, and/or eye contact	irritation to the eyes, skin, nose, throat, respiratory system; bronchitis; hypochromic anemia; headache, drowsiness, lassitude (weakness, exhaustion), dizziness, nausea, incoordination; vomiting, confusion; chemical pneumonitis (aspiration liquid)	Eye: Irrigate immediately Skin: Soap wash Breathing: Respiratory support Swallow: Medical attention immediately
1.3.1 – 1.3.14	1,3-Butadiene Biethylene Bivinyl Butadiene Divinyl Erythrene Vinylethylene	106-99-0	PID	1 ppm 2000 ppm	Vapor	inhalation, skin, and/or eye contact (liquid)	irritation to the eyes, nose, throat; drowsiness, dizziness; liquid: frostbite; teratogenic, reproductive effects; [potential occupational carcinogen]	Eye: Frostbite Skin: Frostbite Breathing: Respiratory support

Task	Contaminant	CAS Number	Monitoring Device	PEL/ IDLH	Source of Concentration on Site	Route of Exposure	Symptoms	First Aid
1.3.1 – 1.3.14	1,3-Dichlorobenzene m-Dichlorobenzol; m-Phenylene dichloride m-dichlorobenzene m-DCB	541-73-1	PID	None None	Groundwater Soil Vapor	inhalation, skin absorption, ingestion, skin, and/or eye contact	irritation to the eyes, swelling periorbital (situated around the eye); profuse rhinitis; headache, anorexia, nausea, vomiting; weight loss, jaundice, cirrhosis; in animals: liver, kidney injury; [potential occupational carcinogen]	Eye: Irrigate immediately Skin: Soap wash Breathing: Respiratory support Swallow: Medical attention immediately
1.3.1 – 1.3.14	1,4-Dichlorobenzene para-Dichlorobenzene p-Dichlorobenzene 1,4-Dichlorobenzene 1,4-DCB para-Dichlorobenzene p-Dichlorobenzene p-DCB PDB Paramoth Para crystals Paracide Dichlorocide	106-46-7	PID	75 ppm 150 ppm	Groundwater Soil Vapor	inhalation, skin absorption, ingestion, skin, and/or eye contact	irritation to the eyes, swelling periorbital (situated around the eye); profuse rhinitis; headache, anorexia, nausea, vomiting; weight loss, jaundice, cirrhosis; in animals: liver, kidney injury; [potential occupational carcinogen]	Eye: Irrigate immediately Skin: Soap wash Breathing: Respiratory support Swallow: Medical attention immediately
1.3.1 – 1.3.14	1,4-Dioxane 1,4-Dioxacyclohexane [1,4]Dioxane p-Dioxane [6]-crown-2 Diethylene dioxide Diethylene ether Dioxan Dioxane 1,4-Dioxane	123-91-1	PID	100 ppm 500 ppm	Groundwater Soil Vapor	Inhalation, ingestion, skin, and/or eye contact	Irritant to eyes, skin, mucous membranes, and respiratory system. May be harmful by ingestion, skin absorption and inhalation	Eye: Irrigate immediately Skin: Water flush promptly Breathing: Respiratory support Swallow: Medical attention immediately

Task	Contaminant	CAS Number	Monitoring Device	PEL/ IDLH	Source of Concentration on Site	Route of Exposure	Symptoms	First Aid
1.3.1 – 1.3.14	1H,1H,2H,2H-Perfluorooctane Sulfonic Acid 1H,1H,2H,2H-Perfluorooctane Sulfonic Acid (6:2FTS) 1,1,2,2-Tetrahydroperfluorooctane sulfonate 1H,1H,2H,2H-Perfluorooctanesulfonic acid, 2-(Perfluorohexyl)ethane-1-sulfonic acid 2-(Perfluorohexyl)ethanesulfonic acid 3,3,4,4,5,5,6,6,7,7,8,8,8-Tridecafluorooctane-1-sulfonic acid 3,3,4,4,5,5,6,6,7,7,8,8,8-Tridecafluorooctanesulfonic acid THPFOS PFC 6:2 Fluorotelomer Sulfonic Acid, 6:2 FTS,H4PFOS 6:2 FTSA, 3,3,4,4,5,5,6,6,7,7,8,8,8-Tridecafluoro-1-octanesulfonic acid	27619-97-2	NA	None None	Groundwater Soil	inhalation, skin, or eye contact, ingestion	irritation to eyes with eye damage, skin, causing rash, redness or burning, irritation to nose, throat, and lungs	Eye: Irrigate immediately Skin: Water flush promptly Breathing: Respiratory support Swallow: Medical attention immediately

Task	Contaminant	CAS Number	Monitoring Device	PEL/ IDLH	Source of Concentration on Site	Route of Exposure	Symptoms	First Aid
1.3.1 – 1.3.14	2-(N-Methylperfluorooctanesulfonamido)acetic acid N-MeFOSAA N-methylperfluorooctane sulfonamidoacetic acid 2-(N-methyl-perfluorooctane sulfonamido) acetic acid Glycine N-[(heptadecafluorooctyl)sulfonyl]-N-methyl- N-methyl perfluorooctane-sulfonamidoacetic acid NMeFOSAA MeFOSAA	2355-31-9	NA	NA NA	Groundwater Soil	inhalation, skin, or eye contact, ingestion	irritation to eyes with eye damage, skin, causing rash, redness or burning, irritation to nose, throat, and lungs	Eye: Irrigate immediately Skin: Water flush promptly Breathing: Respiratory support Swallow: Medical attention immediately
1.3.1 – 1.3.14	2,2,4-Trimethylpentane 2,2-Dimethylbutane 2,3-Dimethylbutane Triptane Tetramethylbutane Tetraethylmethane 2,3,3-Trimethylpentane 2,3,4-Trimethylpentane Tetra-tert-butylmethane 2,3-Dimethylhexane 2,5-Dimethylhexane	540-84-1	PID	NA NA	Groundwater Soil Vapor	inhalation, skin absorption, ingestion, skin, and/or eye contact	irritation to the eyes, skin, throat; dizziness, headache, nausea, dyspnea (breathing difficulty);	Get Immediate Medical Attention Eye: Irrigate immediately Skin: Water flush promptly Breathing: Respiratory support Swallow: Do Not Induce Vomiting
1.3.1 – 1.3.14	2,4-Dimethylphenol 2,4-Xylenol m-Xylenol 1-Hydroxy-2,4-dimethylbenzene 2,4-Dimethylphenol 4-Hydroxy-1,3-dimethylbenzene 4,6-Dimethylphenol 1,3-Dimethyl-4-hydroxybenze	105-67-9	None	NA NA	Groundwater Soil Vapor	inhalation, ingestion, skin, and/or eye contact	irritation to the eyes, skin, mucous membrane; headache, narcosis, coma; dermatitis; in animals: liver, kidney damage	Eye: Irrigate immediately Skin: Water flush promptly Breathing: Respiratory support Swallow: Medical attention immediately

Task	Contaminant	CAS Number	Monitoring Device	PEL/ IDLH	Source of Concentration on Site	Route of Exposure	Symptoms	First Aid
1.3.1 – 1.3.14	2-Butanone Ethyl methyl ketone MEK Methyl acetone Methyl ethyl ketone	78-93-3	PID	200 ppm 3000 ppm	Soil Groundwater Vapor	inhalation, ingestion, skin, and/or eye contact	irritation to the eyes, skin, nose; headache; dizziness; vomiting; dermatitis	Eye: Irrigate immediately Skin: Water wash immediately Breathing: Fresh air Swallow: Medical attention immediately
1.3.1 – 1.3.14	2-Chloronaphthalene	91.58-7	NA	NA MA	Groundwater Soil	inhalation, skin absorption, ingestion, skin, and/or eye contact	irritation eyes, nose; skin	Eye: Irrigate immediately, Medical attention Skin: Soap wash promptly Breathing: Respiratory support Swallow: Medical attention
1.3.1 – 1.3.14	2-Hexanone Butyl methyl ketone MBK Methyl butyl ketone Methyl n-butyl ketone	591-78-6	PID	100 ppm 1600 ppm	Groundwater Soil Vapor	inhalation, skin absorption, ingestion, skin, and/or eye contact	irritation to the eyes, nose; peripheral neuropathy: lassitude (weakness, exhaustion), paresthesia; dermatitis; headache, drowsiness	Eye: Irrigate immediately Skin: Soap wash immediately Breathing: Respiratory support Swallow: Medical attention immediately
1.3.1 – 1.3.14	2-Methylnaphthalene β-methylnaphthalene	91-57-6	PID	NA NA	Groundwater Soil Vapor	inhalation, ingestion or skin, absorption, eye contact	irritation to the skin, eyes, mucous membranes, and upper respiratory tract. It may also cause headaches, nausea, vomiting, diarrhea, anemia, jaundice, euphoria, dermatitis, visual disturbances, convulsions and comatose	Eye: Irrigate immediately Skin: Water flush promptly Breathing: Respiratory support Swallow: Medical attention immediately

Task	Contaminant	CAS Number	Monitoring Device	PEL/ IDLH	Source of Concentration on Site	Route of Exposure	Symptoms	First Aid
1.3.1 – 1.3.14	4,4'-DDD Dichlorodiphenyldichloroethane 1,1'-(2,2-Dichloroethylidene)bis (4-chlorobenzene) p,p'-DDD	72-54-8	None	NA NA	Groundwater Soil	inhalation, skin absorption, ingestion, skin, and/or eye contact	irritation to the eyes, skin; paresthesia tongue, lips, face; tremor; anxiety, dizziness, confusion, malaise (vague feeling of discomfort), headache, lassitude (weakness, exhaustion); convulsions; paresis hands; vomiting; [potential occupational carcinogen]	Eye: Irrigate immediately Skin: Soap wash promptly Breathing: Respiratory support Swallow: Medical attention immediately
1.3.1 – 1.3.14	4-Isopropyltoulene 1-Methyl-4-(1-methylethyl)benzene 4-Isopropyltoluene; 4-Methylcumene; 1-Methyl-4-isopropylbenzene Dolcymene Camphogen Paracymene Cymene p-Cymene p-Isopropyltoluene	99-87-6	PID	NA NA	Soil Groundwater Vapor	inhalation, skin absorption, ingestion, skin, and/or eye contact	irritation to the eyes, skin, mucous membrane; dermatitis; headache, narcosis, coma	Eye: Irrigate immediately Skin: Water flush promptly Breathing: Respiratory support Swallow: Medical attention immediately
1.3.1 – 1.3.14	4-Methyl-2-pentanone Hexone Isobutyl methyl ketone Methyl isobutyl ketone MIBK	108-10-1	PID	100 ppm 500 ppm	Groundwater Soil Vapor	inhalation, ingestion, skin, and/or eye contact	irritation to the eyes, skin, mucous membrane; headache, narcosis, coma; dermatitis; in animals: liver, kidney damage	Eye: Irrigate immediately Skin: Water flush promptly Breathing: Respiratory support Swallow: Medical attention immediately

Task	Contaminant	CAS Number	Monitoring Device	PEL/ IDLH	Source of Concentration on Site	Route of Exposure	Symptoms	First Aid
1.3.1 – 1.3.14	Acenaphthene 1,2-Dihydroacenaphthylene 1,8-Ethylenenaphthalene peri-Ethylenenaphthalene Naphthyleneethylene Tricyclododecapentaene	83-32-9	PID	NA NA	Soil	inhalation, ingestion, skin, and/or eye contact,	irritation to the skin, eyes, mucous membranes, and upper respiratory tract; If ingested, it can cause vomiting	Eye: Irrigate immediately Skin: Soap wash immediately, if redness or irritation develop, seek medical attention immediately Breathing: Move to fresh air Swallow: do not induce vomiting, seek medical attention immediately
1.3.1 – 1.3.14	Acenaphthylene Cycopental(de)naphthalene, Acenaphthalene	208-96-8	PID	NA NA	Soil	inhalation, ingestion, skin, and/or eye contact	irritation to the skin, eyes, mucous membranes, and upper respiratory tract	Eye: Irrigate immediately, seek medical attention immediately, Skin: Soap wash immediately, if redness or irritation develop, seek medical attention immediately Breathing: Move to fresh air Swallow: do not induce vomiting, seek medical attention immediately

Task	Contaminant	CAS Number	Monitoring Device	PEL/ IDLH	Source of Concentration on Site	Route of Exposure	Symptoms	First Aid
1.3.1 – 1.3.14	Acetone Dimethyl ketone Ketone propane 2-Propanone 3-Hexen-2-one	67-64-1	PID	1000 ppm 2500 ppm	Groundwater Soil	inhalation, ingestion, skin, and/or eye contact	irritation to the eyes, nose, throat; headache, dizziness, central nervous system depression; dermatitis	Eye: Irrigate immediately Skin: Soap wash immediately Breathing: Respiratory support Swallow: Medical attention immediately
1.3.1 – 1.3.14	Acetophenone 1-phenylethanone Methyl phenyl ketone Phenylethanone	98-86-2	None	NA NA	Groundwater Soil	inhalation, ingestion, skin, and/or eye contact	irritation to the skin, eyes, mucous membranes, and upper respiratory tract	Eye: Irrigate immediately, seek medical attention immediately, Skin: Soap wash immediately, if redness or irritation develop, seek medical attention immediately Breathing: Move to fresh air Swallow: do not induce vomiting, seek medical attention immediately
1.3.1 – 1.3.14	Aldrin 1,2,3,4,10,10-Hexachloro-1,4,4a,5,8,8a-hexahydro-endo-1,4-exo-5,8-dimethanonaphthalene HHDN Octalene	309-00-2	PID	0.25 ppm 5 ppm	Groundwater Soil Vapor	inhalation, skin absorption, ingestion, skin, and/or eye contact	headache, dizziness; nausea, vomiting, malaise (vague feeling of discomfort); myoclonic jerks of limbs; colonic, tonic convulsions; coma; hematuria (blood in the urine), azotemia; [potential occupational carcinogen]	Eye: Irrigate immediately Skin: Soap wash immediately Breathing: Respiratory support Swallow: Medical attention immediately

Task	Contaminant	CAS Number	Monitoring Device	PEL/ IDLH	Source of Concentration on Site	Route of Exposure	Symptoms	First Aid
1.3.1 – 1.3.14	Alpha-BHC alpha-Hexachlorocyclohexane -alpha,2-alpha,3-beta,4-alpha,5-beta,6-beta-Hexachlorocyclohexane alpha-1,2,3,4,5,6-Hexachlorocyclohexane alpha-Benzenehexachloride α-1,2,3,4,5,6-hexachlorocyclohexane α-HCH α-Benzenehexachloride alpha-hexacloran(e) alpha-Lindane Alpha Hexachlorocyclohexane	319-84-6	PID	NA NA	Groundwater Soil Vapor	inhalation, skin absorption, ingestion, skin, and/or eye contact	irritation to the eyes, skin, mucous membrane possible carcinogenic, effects to liver, blood, and central nervous system	Eye: Irrigate immediately Skin: Soap wash promptly Breathing: Respiratory support Swallow: Medical attention immediately
1.3.1 – 1.3.14	Alpha-Chlordane Alpha Chlordane a-Chlordane	5103-71-9	None	0.5 mg/m3 100 mg/m3	Groundwater Soil	inhalation, skin absorption, ingestion, skin, and/or eye contact	Blurred vision; confusion; ataxia, delirium; cough; abdominal pain, nausea, vomiting, diarrhea; irritability, tremor, convulsions; anuria	Eye: Irrigate immediately Skin: Soap wash immediately Breathing: Respiratory support Swallow: Medical attention immediately
1.3.1 – 1.3.14	Aluminum	7429-90-5	None	0.5 mg/m3 50 mg/m3	Soil	inhalation, skin, and/or eye contact	irritation to the eyes, skin, respiratory system	Eye: Irrigate immediately Breathing: Fresh air
1.3.1 – 1.3.14	Anthracene	120-12-7	PID	0.2 mg/m3 80 mg/m3 (Coal Pitch Tar)	Soil	inhalation, skin, or eye contact, ingestion	irritation to the skin, eyes, mucous membranes, and upper respiratory tract, abdominal pain if ingested.	Eye: Irrigate immediately, seek medical attention immediately, Skin: Soap wash immediately, Breathing: Move to fresh air, refer to medical attention. Swallow: refer to medical attention

Task	Contaminant	CAS Number	Monitoring Device	PEL/ IDLH	Source of Concentration on Site	Route of Exposure	Symptoms	First Aid
1.3.1 – 1.3.14	Antimony	7440-36-0	None	0.5 mg/m3 50 mg/m3	Groundwater Soil	inhalation, ingestion, skin, and/or eye contact	irritation skin, dermatitis; resp distress; diarrhea; muscle tremor, convulsions; possible gastrointestinal tract	Eye: Irrigate immediately Skin: Soap wash immediately Breathing: Respiratory support Swallow: Medical attention immediately
1.3.1 – 1.3.14	Aroclor 1248	12672-26-6	None	0.5 mg/m3 5 mg/m3	Groundwater Soil	inhalation, skin absorption, ingestion, skin, and/or eye contact	irritation to the eyes, chloracne	Eye: Irrigate immediately Skin: Soap wash immediately Breathing: Respiratory support Swallow: Medical attention immediately
1.3.1 – 1.3.14	Aroclor 1254	11097-69-1	None	0.5 mg/m3 5 mg/m3	Groundwater Soil	inhalation, skin absorption, ingestion, skin, and/or eye contact	irritation to the eyes, chloracne	Eye: Irrigate immediately Skin: Soap wash immediately Breathing: Respiratory support Swallow: Medical attention immediately
1.3.1 – 1.3.14	Aroclor 1260	11096-82-5	None	0.5 mg/m3 5 mg/m3	Groundwater Soil	inhalation, skin absorption, ingestion, skin, and/or eye contact	irritation to the eyes, chloracne	Eye: Irrigate immediately Skin: Soap wash immediately Breathing: Respiratory support Swallow: Medical attention immediately

Task	Contaminant	CAS Number	Monitoring Device	PEL/ IDLH	Source of Concentration on Site	Route of Exposure	Symptoms	First Aid
1.3.1 – 1.3.14	Aroclor 1268	11100-14-4	None	0.5 mg/m3 5 mg/m3	Groundwater Soil	inhalation, skin absorption, ingestion, skin, and/or eye contact	irritation to the eyes, chloracne	Eye: Irrigate immediately Skin: Soap wash immediately Breathing: Respiratory support Swallow: Medical attention immediately
1.3.1 – 1.3.14	Arsenic	NA	None	0.5 mg/m3 NA	Groundwater Soil	inhalation, ingestion, skin, and/or eye contact	irritation skin, dermatitis; resp distress; diarrhea; muscle tremor, convulsions; possible gastrointestinal tract	Eye: Irrigate immediately Skin: Soap wash immediately Breathing: Respiratory support Swallow: Medical attention immediately
1.3.1 – 1.3.14	Barium	10022-31-8	None	0.5 mg/m3 50 mg/m3	Groundwater Soil	inhalation, ingestion, skin, and/or eye contact	irritation to the eyes, skin, upper respiratory system; skin, burns; gastroenteritis; muscle spasm; slow pulse	Eye: Irrigate immediately Skin: Water flush immediately Breathing: Respiratory support Swallow: Medical attention immediately
1.3.1 – 1.3.14	Benzene Benzol Phenyl hydride Alkyl benzene isomers	71-43-2	PID	3.19 mg/m3 1,595 mg/mg3	Groundwater Soil Vapor	inhalation, skin absorption, ingestion, skin, and/or eye contact	irritation to the eyes, skin, nose, respiratory system; dizziness; headache, nausea, staggered gait; lassitude (weakness, exhaustion) [potential occupational carcinogen]	Eye: Irrigate immediately Skin: Soap wash immediately Breathing: Respiratory support Swallow: Medical attention immediately

Task	Contaminant	CAS Number	Monitoring Device	PEL/ IDLH	Source of Concentration on Site	Route of Exposure	Symptoms	First Aid
1.3.1 – 1.3.14	Benzo(a)anthracene Benzanthracene Benzanthrene 1,2-Benzanthracene Benzo[b]phenanthrene Tetraphene	56-55-3	PID	0.2 mg/m3 80 mg/m3 (Coal Pitch Tar)	Groundwater Soil	inhalation, skin, or eye contact, ingestion	dermatitis, bronchitis, [potential occupational carcinogen]	Eye: Irrigate immediately Skin: Soap wash immediately Breathing: Respiratory support Swallow: Medical attention immediately
1.3.1 – 1.3.14	Benzo(a)pyrene	50-32-8	PID	0.2 mg/m3 80 mg/m3 (Coal Pitch Tar)	Soil	inhalation, skin, or eye contact, ingestion	dermatitis, bronchitis, [potential occupational carcinogen]	Eye: Irrigate immediately, seek medical attention Skin: Soap wash immediately. Breathing: move to fresh air. Swallow: Induce vomiting if conscious, seek medical attention immediately
1.3.1 – 1.3.14	Benzo(b)fluoranthene	205-99-2	PID	0.2 mg/m3 80 mg/m3 (Coal Pitch Tar)	Soil	inhalation, skin, or eye contact, ingestion	irritation to eyes and skin, respiratory irritation (dizziness, weakness, fatigue, nausea, headache)	Eye: Irrigate immediately, refer to medical attention Skin: Soap wash immediately Breathing: move to fresh air Swallow: Medical attention immediately

Task	Contaminant	CAS Number	Monitoring Device	PEL/ IDLH	Source of Concentration on Site	Route of Exposure	Symptoms	First Aid
1.3.1 – 1.3.14	Benzo(g,h,i)fluoranthene Benzo[ghi]fluoranthene 203-12-3 BENZO(GHI)FLUORANTHENE pentacyclo[8.8.0.02,7.03,17.013,18]octadeca-1(10),2(7),3,5,8,11,13(18),14,16-nonaene 2,13-Benzofuranthene 2,13-Benzofluoranthene	203-12-3	NA	NA NA	Soil	inhalation, skin, or eye contact, ingestion	dermatitis, bronchitis, [potential occupational carcinogen]	Eye: Irrigate immediately, seek medical attention Skin: Soap wash immediately. Breathing: move to fresh air. Swallow: Induce vomiting if conscious, seek medical attention immediately
1.3.1 – 1.3.14	Benzo(g,h,i)perylene Benzo(ghi)perylene	191-24-2	PID	0.2 mg/m3 80 mg/m3 (Coal Pitch Tar)	Soil	inhalation, skin, or eye contact, ingestion	irritation to eyes and skin, respiratory irritation (dizziness, weakness, fatigue, nausea, headache)	Eye: Irrigate immediately, refer to medical attention Skin: Soap wash immediately Breathing: move to fresh air Swallow: Medical attention immediately
1.3.1 – 1.3.14	Benzo(k)fluoranthene	207-08-9	PID	0.2 mg/m3 80 mg/m3 (Coal Pitch Tar)	Soil	inhalation, skin, or eye contact, ingestion	irritation to eyes and skin, respiratory irritation (dizziness, weakness, fatigue, nausea, headache)	Eye: Irrigate immediately, refer to medical attention Skin: Soap wash immediately Breathing: move to fresh air Swallow: Medical attention immediately
1.3.1 – 1.3.14	Benzoic acid Carboxybenzene E210 Dracylic acid Phenylmethanoic acid Benzenecarboxylic acid Benzoic acid isomer	65-85-0	None	NA NA	Groundwater Soil Vapor	inhalation, skin, or eye contact, ingestion	irritation to eyes with eye damage, skin, causing rash, redness or burning, irritation to nose, throat, and lungs	Eye: Irrigate immediately, refer to medical attention Skin: Soap wash immediately Breathing: move to fresh air

Task	Contaminant	CAS Number	Monitoring Device	PEL/ IDLH	Source of Concentration on Site	Route of Exposure	Symptoms	First Aid
1.3.1 – 1.3.14	Benzyl Alcohol Benzenemethanol Phenyl carbinol alpha-Hydroxytoluene Benzoyl alcohol Phenyl methanol	100-51-6	PID	NA NA	Groundwater Soil Vapor	inhalation, skin, or eye contact, ingestion	irritation to eyes and skin, respiratory irritation (dizziness, weakness, fatigue, nausea, headache	Eye: Irrigate immediately, refer to medical attention Skin: Soap wash immediately Breathing: move to fresh air Swallow: Medical attention immediately
1.3.1 – 1.3.14	Beryllium	7440-41-7	None	0.002 mg/m3 4 mg/m3	Soil	inhalation, skin, and/or eye contact	berylliosis (chronic exposure): anorexia, weight loss, lassitude (weakness, exhaustion), chest pain, cough, clubbing of fingers, cyanosis, pulmonary insufficiency; irritation to the eyes; dermatitis; [potential occupational carcinogen]	Eye: Irrigate immediately Breathing: Fresh air
1.3.1 – 1.3.14	Beta BHC Beta Hexachlorocyclohexane 1-alpha,2-beta,3-alpha,4-beta,5-alpha,6-beta-Hexachlorocyclohexane beta-1,2,3,4,5,6-Hexachlorocyclohexane Beta-BHC	319-85-7	None	NA NA	Groundwater Soil	inhalation, skin absorption, ingestion, skin, and/or eye contact	irritation to the eyes, skin; paresthesia tongue, lips, face; tremor; anxiety, dizziness, confusion, malaise (vague feeling of discomfort), headache, lassitude (weakness, exhaustion); convulsions; paresis hands; vomiting; [potential occupational carcinogen]	Eye: Irrigate immediately Skin: Soap wash promptly Breathing: Respiratory support Swallow: Medical attention immediately

Task	Contaminant	CAS Number	Monitoring Device	PEL/ IDLH	Source of Concentration on Site	Route of Exposure	Symptoms	First Aid
1.3.1 – 1.3.14	Beta-Endosulfan Beta Endosulfan Endosulfan II (beta) Endosulfan II	33213-65-9	None	None	NA NA	Groundwater Soil Vapor	inhalation, skin absorption, ingestion, skin, and/or eye contact	irritation skin; nausea, confusion, agitation, flushing, dry mouth, tremor, convulsions, headache; in animals: kidney, liver injury; decreased testis weight
1.3.1 – 1.3.14	Bis(2-chloroisopropyl)ether 2-chloro-2-(2-chloropropan-2-yloxy)propane) 2,2′-ocybis(1-chloropropane 2,2'-oxybis[1-chloro-; β,β'-Dichlorodiisopropyl ether; DCIP; DCIP (Nematocide); 2,2'-Dichlorodiisopropyl Ether; (2-Chloro-1-methylethyl) ether; Bis(β-chloroisopropyl) ether; Dichlorodiisopropyl ether; Dichloroisopropyl ether; NCI-C50044; 2,2-Dichloroisopropyl ether; Bis(1-chloro-2-propyl) ether; Bis(2-Chloroisopropyl)ether; 2,2'-oxybis(1-chloropropane) Bis(2-Chloroisopropyl) Ether	108-60-1	None	NA NA	Groundwater Soil	inhalation, ingestion, skin, and/or eye contact	Toxic by inhalation and ingestion; Strong irritation	Eye: Irrigate immediately Breathing: Respiratory support Swallow: Medical attention immediately
1.3.1 – 1.3.14	Bis(2-ethylhexyl)phthalate Bis(2-Ethylhexyl) Phthalate Di-sec octyl phthalate DEHP Di(2-ethylhexyl)phthalate Octyl phthalate bis(2-ethylexyl)phthalate	117-81-7	None	5 mg/m3 5000 mg/m3	Groundwater Soil Vapor	inhalation, ingestion, skin, and/or eye contact	irritation to the eyes, mucous membrane; in animals: liver damage; teratogenic effects; [potential occupational carcinogen	Eye: Irrigate immediately Breathing: Respiratory support Swallow: Medical attention immediately

Task	Contaminant	CAS Number	Monitoring Device	PEL/ IDLH	Source of Concentration on Site	Route of Exposure	Symptoms	First Aid
1.3.1 – 1.3.14	BTEX Benzene, Toluene, Ethylbenzene M-Xylene, O-Xylene And P-Xylene; BTEX I; BTEX II; BTEX Mixture I; BTEX Mixture II; BTEX Stock Standard Total BTEX	NA	PID	3.19 mg/m3 1,595 mg/mg3	Groundwater Soil Vapor	inhalation, skin absorption, ingestion, skin, and/or eye contact	irritation to the eyes, skin, nose, respiratory system; dizziness; headache, nausea, staggered gait; lassitude (weakness, exhaustion) [potential occupational carcinogen]	Eye: Irrigate immediately Skin: Soap wash immediately Breathing: Respiratory support Swallow: Medical attention immediately
1.3.1 – 1.3.14	Cadmium	7440-43-9	None	0.005 mg/m3 9 mg/m3	Soil	inhalation, ingestion	pulmonary edema, dyspnea (breathing difficulty), cough, chest tightness, substernal (occurring beneath the sternum) pain; headache; chills, muscle aches; nausea, vomiting, diarrhea; anosmia (loss of the sense of smell), emphysema, proteinuria, mild anemia; [potential occupational carcinogen]	Eye: Irrigate immediately Skin: Soap wash Breathing: Respiratory support Swallow: Medical attention immediately
1.3.1 – 1.3.14	Calcium	7440-70-2	None	NA	Groundwater Soil	inhalation, ingestion, skin, and/or eye contact	irritation to the eyes, skin, upper resp tract; ulcer, perforation nasal septum; pneumonitis; dermatitis	Eye: Irrigate immediately Skin: Water flush immediately Breathing: Respiratory support Swallow: Medical attention immediately

Task	Contaminant	CAS Number	Monitoring Device	PEL/ IDLH	Source of Concentration on Site	Route of Exposure	Symptoms	First Aid
1.3.1 – 1.3.14	Carbazole 9-azafluorene Dibenzopyrrole Diphenylenimine diphenyleneimide	86-74-8	None	NA NA	Soil	inhalation, skin absorption (liquid), skin, and/or eye contact	irritation to eyes and skin, respiratory irritation	Eye: Irrigate immediately, refer to medical attention Skin: Soap wash immediately Breathing: move to fresh air Swallow: Medical attention immediately
1.3.1 – 1.3.14	Carbon disulfide	75-15-0	PID	20 ppm 500 ppm	Soil Groundwater Vapor	inhalation, skin, or eye contact, ingestion	irritation to the eyes, skin, respiratory system	Eye: Irrigate immediately (liquid) Skin: Water flush immediately (liquid) Breathing: Respiratory support
1.3.1 – 1.3.14	Carbon tetrachloride Carbon chloride Carbon tet Freon® 10 Halon® 104 Tetrachloromethane	56-23-5	PID	10 ppm 200 ppm	Groundwater Soil Vapor	inhalation, skin absorption, ingestion, skin, and/or eye contact	irritation to the eyes, skin; central nervous system depression; nausea, vomiting; liver, kidney injury; drowsiness, dizziness, incoordination; [potential occupational carcinogen]	Eye: Irrigate immediately Skin: Soap wash immediately Breathing: Respiratory support Swallow: Medical attention immediately
1.3.1 – 1.3.14	Chlordane Chlordan Chlordano 1,2,4,5,6,7,8,8-Octachloro-3a,4,7,7a-tetrahydro-4,7-methanoindane Total Chlordane	57-74-9	None	0.5 mg/m3 100 mg/m3	Groundwater Soil	inhalation, skin absorption, ingestion, skin, and/or eye contact	Blurred vision; confusion; ataxia, delirium; cough; abdominal pain, nausea, vomiting, diarrhea; irritability, tremor, convulsions; anuria	Eye: Irrigate immediately Skin: Soap wash immediately Breathing: Respiratory support Swallow: Medical attention immediately

Task	Contaminant	CAS Number	Monitoring Device	PEL/ IDLH	Source of Concentration on Site	Route of Exposure	Symptoms	First Aid
1.3.1 – 1.3.14	Chlorobenzene benzene chloride monochlorobenzene Phenyl chloride Chlorobenzol MCB	108-90-7	PID	75 ppm 1000 ppm	Groundwater Soil Vapor	inhalation, skin, or eye contact, ingestion	irritation to the eyes, skin, nose; drowsiness, incoordination; central nervous system depression; in animals: liver, lung, kidney injury	Eye: Irrigate immediately Skin: Soap wash promptly Breathing: Respiratory support Swallow: Medical attention immediately
1.3.1 – 1.3.14	Chloroform Methane trichloride Trichloromethane Chloro-3-methyl phenol	67-66-3	None	50 ppm 500 ppm	Groundwater Soil	inhalation, skin absorption, ingestion, skin, and/or eye contact	irritation to the eyes, skin; dizziness, mental dullness, nausea, confusion; headache, lassitude (weakness, exhaustion); anesthesia; enlarged liver; [potential occupational carcinogen]	Eye: Irrigate immediately Skin: Soap wash promptly Breathing: Respiratory support Swallow: Medical attention immediately
1.3.1 – 1.3.14	Chromium Total Chromium Chromium, Total	7440-47-3	None	1.0 mg/m3 250 mg/m3	Groundwater Soil	inhalation absorption ingestion	irritation to eye, skin, and respiratory	Eye: Irrigate immediately Skin: Soap wash Breathing: Respiratory support Swallow: Medical attention immediately
1.3.1 – 1.3.14	Chrysene Benzo[a]phenanthrene 1,2-Benzphenanthrene	218-01-9	PID	0.2 mg/m3 80 mg/m3 (Coal Pitch Tar)	Groundwater Soil	inhalation, absorption, ingestion, consumption	irritation to eye, skin, and respiratory, gastrointestinal irritation nausea, vomit, diarrhea [potential occupational carcinogen]	Eyes: Irrigate immediately Skin: Soap wash promptly. Breath: Respiratory support Swallow: Medical attention immediately

Task	Contaminant	CAS Number	Monitoring Device	PEL/ IDLH	Source of Concentration on Site	Route of Exposure	Symptoms	First Aid
1.3.1 – 1.3.14	cis-1,2-Dichloroethylene cis-1,2-Dichloroethene	156-59-2	NA	NA NA	Groundwater Soil Vapor	inhalation, ingestion, skin, and/or eye contact	Irritant to eyes, skin, mucous membranes, and respiratory system. May be harmful by ingestion, skin absorption and inhalation	Eye: Irrigate immediately Skin: Water flush promptly Breathing: Respiratory support Swallow: Medical attention immediately
1.3.1 – 1.3.14	Cobalt	7440-48-4	None	0.1mg/m3 20 mg/m3	Soil	inhalation, ingestion, skin, and/or eye contact	Cough, dyspnea (breathing difficulty), wheezing, decreased pulmonary function; weight loss; dermatitis; diffuse nodular fibrosis; resp hypersensitivity, asthma	Eye: Irrigate immediately Skin: Soap wash Breathing: Respiratory support Swallow: Medical attention immediately
1.3.1 – 1.3.14	Copper	7440-50-8	None	1.0 mg/m3 100 mg/m3	Groundwater Soil	inhalation, ingestion, skin, and/or eye contact	irritation to the eyes, nose, metallic taste; dermatitis; anemia	Eye: Irrigate immediately Skin: Soap wash promptly Breathing: Respiratory support Swallow: Medical attention immediately
1.3.1 – 1.3.14	Cumene Cumol Isopropylbenzene 2-Phenyl propane 1-methylethy lbenzene Isopropyl Benzene	98-82-8	PID	50 ppm 900 ppm	Groundwater Soil	inhalation, skin absorption, ingestion, skin, and/or eye contact	irritation to the eyes, skin, mucous membrane; dermatitis; headache, narcosis, coma	Eye: Irrigate immediately Skin: Water flush promptly Breathing: Respiratory support Swallow: Medical attention immediately

Task	Contaminant	CAS Number	Monitoring Device	PEL/ IDLH	Source of Concentration on Site	Route of Exposure	Symptoms	First Aid
1.3.1 – 1.3.14	Cyanide	57-12-5	None	5 mg/m3 25 mg/m3	Groundwater Soil	inhalation, ingestion, skin, and/or eye contact	Exposure to cyanide can cause weakness, headaches, confusion, dizziness, fatigue, anxiety, sleepiness, nausea and vomiting. Breathing can speed up then become slow and gasping. Coma, and convulsions also occur. If copious amounts of cyanide have been absorbed by the body, the person usually collapses, and death can occur very quickly. Long-term exposure to lower levels of cyanide can cause skin, and nose irritation, itching, rashes and thyroid changes.	Eye: Irrigate immediately Skin: Soap wash Breathing: Respiratory support Swallow: Medical attention immediately
1.3.1 – 1.3.14	Cyclohexane Benzene hexahydride Hexahydrobenzene Hexamethylene Hexanaphthene	110-82-7	PID	300 ppm 1300 ppm	Soil Vapor	inhalation, ingestion, skin, and/or eye contact	irritation to the eyes, skin, respiratory system; drowsiness; dermatitis; narcosis, coma	Eye: Irrigate immediately Skin: Water flush promptly Breathing: Respiratory support Swallow: Medical attention immediately

Task	Contaminant	CAS Number	Monitoring Device	PEL/ IDLH	Source of Concentration on Site	Route of Exposure	Symptoms	First Aid
1.3.1 – 1.3.14	DDE 4,4-DDE 4,4′-DDE 1,1-bis-(4-chlorophenyl)-2,2-dichloroethene Dichlorodiphenyldichloroethylene p,p'-DDE	72-55-9	None	NA NA	Soil	inhalation, skin absorption, ingestion, skin, and/or eye contact	Oral ingestion of food is the primary source of exposure for the general population. Acute and chronic ingestion may cause nausea, vomiting, diarrhea, stomach pain, headache, dizziness, disorientation, tingling, sensation, kidney damage, liver damage, convulsions, coma, and death. 4,4' DDE may cross the placenta and can be excreted in breast milk	Eye: Irrigate immediately Skin: Soap wash promptly Breathing: Respiratory support Swallow: Medical attention immediately
1.3.1 – 1.3.14	DDT 4,4-DDT 4,4′-DDT p,p′-DDT Dichlorodiphenyltrichloroethane 1,1,1-Trichloro-2,2-bis(p-chlorophenyl)ethane	50-29-3	None	1 mg/m3 500 mg/m3	Groundwater Soil	inhalation, skin absorption, ingestion, skin, and/or eye contact	irritation to the eyes, skin; paresthesia tongue, lips, face; tremor; anxiety, dizziness, confusion, malaise (vague feeling of discomfort), headache, lassitude (weakness, exhaustion); convulsions; paresis hands; vomiting; [potential occupational carcinogen]	Eye: Irrigate immediately Skin: Soap wash promptly Breathing: Respiratory support Swallow: Medical attention immediately
1.3.1 – 1.3.14	Delta BHC Delta-BHC Delta-hexachlorocyclohexane Delta Hexachlorocyclohexane	319-86-8	None	0.5 mg/m3 50 mg/m3	Groundwater Soil Vapor	inhalation, skin absorption, ingestion, skin, and/or eye contact	irritation to the eyes, skin, nose, throat; headache; nausea; colonic convulsions; resp difficulty; cyanosis; aplastic anemia; muscle spasm; in animals: liver, kidney damage	Eye: Irrigate immediately Skin: Soap wash promptly Breathing: Respiratory support Swallow: Medical attention immediately

Task	Contaminant	CAS Number	Monitoring Device	PEL/ IDLH	Source of Concentration on Site	Route of Exposure	Symptoms	First Aid
1.3.1 – 1.3.14	Dibenz(a,h)anthracene Dibenzo(a,h)anthracene Dibenzo[a,h]anthracene	53-70-3	PID	0.2 mg/m3 80 mg/m3 (Coal Pitch Tar)	Groundwater Soil	inhalation, absorption, ingestion, consumption	irritation to eyes, skin, respiratory, and digestion [potential occupational carcinogen]	Eyes: Irrigate immediately Skin: Soap wash promptly. Breath: Respiratory support PID Swallow: Medical attention immediately
1.3.1 – 1.3.14	Dibenzofuran	132-64-9	None	NA NA	Soil	inhalation, absorption	irritation to eyes, and skin	Eyes: Irrigate immediately Skin: Soap wash promptly.
1.3.1 – 1.3.14	Dibutyl phthalate Di-n-butyl phthalate Butyl phthalate n-Butyl phthalate 1,2-Benzenedicarboxylic acid dibutyl ester o-Benzenedicarboxylic acid dibutyl ester DBP Palatinol C, Elaol Dibutyl-1,2-benzene-dicarboxylate Di-n-butylphthalate	84-74-2	None	5 mg/m3 4000 mg/m3	Groundwater Soil Vapor	inhalation, ingestion, skin, and/or eye contact	irritation to the eyes, upper respiratory system, stomach	Eye: Irrigate immediately Skin: Wash regularly Breathing: Respiratory support Swallow: Medical attention immediately
1.3.1 – 1.3.14	Dichlorodifluoromethane Difluorodichloromethane, Fluorocarbon 12 Freon 12 Freon® 12 Genetron® 12 Halon® 122 Propellant 12 Refrigerant 12 Dichlorodifluromethane	75-71-8	None	1000 pp, 15,000 ppm	Groundwater Soil Vapor	inhalation, skin, and/or eye contact (liquid)	dizziness, tremor, asphyxia, unconsciousness, cardiac arrhythmias, cardiac arrest; liquid: frostbite	Eye: Frostbite Skin: Frostbite Breathing: Respiratory support

Task	Contaminant	CAS Number	Monitoring Device	PEL/ IDLH	Source of Concentration on Site	Route of Exposure	Symptoms	First Aid
1.3.1 – 1.3.14	Dieldrin HEOD 1,2,3,4,10,10-Hexachloro-6,7-epoxy-1,4,4a,5,6,7,8,8a-octahydro-1,4-endo exo-5,8-dimethanonaphthalene	60-57-1	PID	0.25 mg/m3 50 mg/m3	Groundwater Soil Water	inhalation, skin absorption, ingestion, skin, and/or eye contact	headache, dizziness; nausea, vomiting, malaise (vague feeling of discomfort), sweating; myoclonic limb jerks; colonic, tonic convulsions; coma; [potential occupational carcinogen]; in animals: liver, kidney damage	Eye: Irrigate immediately Skin: Soap wash immediately Breathing: Respiratory support Swallow: Medical attention immediately
1.3.1 – 1.3.14	Diesel Fuel automotive diesel fuel oil No. 2 distillate diesoline diesel oil diesel oil light diesel oil No. 1-D summer diesel	68334-30-5	PID	NA NA	Groundwater Soil Vapor	inhalation, ingestion, skin, and/or eye contact	irritation to the eyes, skin, nose, throat; burning sensation in chest; headache, nausea, lassitude (weakness, exhaustion), restlessness, incoordination, confusion, drowsiness; vomiting, diarrhea; dermatitis; chemical pneumonitis (aspiration liquid)	Eye: Irrigate immediately Skin: Soap flush immediately Breathing: Respiratory support Swallow: Medical attention immediately
1.3.1 – 1.3.14	Endosulfan I Alpha Endosulfan	959-98-8	None	NA NA	Groundwater Soil Vapor	inhalation, skin absorption, ingestion, skin, and/or eye contact	irritation skin; nausea, confusion, agitation, flushing, dry mouth, tremor, convulsions, headache; in animals: kidney, liver injury; decreased testis weight	Eye: Irrigate immediately Skin: Soap flush immediately Breathing: Respiratory support Swallow: Medical attention immediately

Task	Contaminant	CAS Number	Monitoring Device	PEL/ IDLH	Source of Concentration on Site	Route of Exposure	Symptoms	First Aid
1.3.1 – 1.3.14	Endosulfan sulfate 1,4,5,6,7,7-Hexachloro-5-norbornene-2,3-dimethanol, cyclic sulfate 6,7,8,9,10,10-hexachloro01,5,5a,9,9a-hexahydro-6,9-methano-2,4,3-benzodioxathiepin-3,3-dioxide	1031-07-8	None	NA NA	Groundwater Soil Vapor	inhalation, ingestion, skin, and/or eye contact	Hypersensitive to stimulation, sensation of prickling, tingling, or creeping on skin. Headache, dizziness, nausea, vomiting, incoordination, tremor, mental confusion, hyperexcitable state. In severe cases: convulsions, seizures, coma, and respiratory depression.	Eye: Irrigate immediately Breathing: Respiratory support Swallow: Medical attention immediately
1.3.1 – 1.3.14	Endrin 1,2,3,4,10,10-Hexachloro-6,7-epoxy-1,4,4a,5,6,7,8,8a-octahydro-1,4-endo,endo-5,8-dimethanonaphthalene; Hexadrin	72-20-8	None	0.1 mg/m3 2 mg/m3	Soil	inhalation, skin absorption, ingestion, skin, and/or eye contact	epileptiform convulsions; stupor, headache, dizziness; abdominal discomfort, nausea, vomiting; insomnia; aggressiveness, confusion; drowsiness, lassitude (weakness, exhaustion); anorexia; in animals: liver damage	Eye: Irrigate immediately Skin: Soap wash immediately Breathing: Respiratory support Swallow: Medical attention immediately
1.3.1 – 1.3.14	Ethanol Absolute alcohol Alcohol cologne spirit drinking alcohol ethane monoxide ethylic alcohol EtOH ethyl alcohol ethyl hydrate ethyl hydroxide ethylol grain alcohol hydroxyethane methylcarbinol	64-17-5	PID	1000 ppm 3300 ppm	Groundwater Soil Vapor	inhalation, ingestion, skin, and/or eye contact	irritation to the eyes, skin, nose; headache, drowsiness, lassitude (weakness, exhaustion), narcosis; cough; liver damage; anemia; reproductive, teratogenic effects	Eye: Irrigate immediately Skin: Water flush promptly Breathing: Fresh air Swallow: Medical attention immediately

Task	Contaminant	CAS Number	Monitoring Device	PEL/ IDLH	Source of Concentration on Site	Route of Exposure	Symptoms	First Aid
1.3.1 – 1.3.14	Ethyl benzene Ethylbenzene Ethylbenzol Phenylethane	100-41-4	PID	435 mg/m3 3,472 mg/m3	Groundwater Soil Vapor	inhalation, ingestion, skin, and/or eye contact	irritation to the eyes, skin, mucous membrane; headache; dermatitis; narcosis, coma	Eye: Irrigate immediately Skin: Water flush promptly Breathing: Respiratory support Swallow: Medical attention immediately
1.3.1 – 1.3.14	Fluoranthene Benzo(j,k)fluorene	206-44-0	PID	0.2 mg/m3 80 mg/m3 (Coal Pitch Tar)	Groundwater Soil	inhalation, skin, or eye contact, ingestion	irritation to eyes and skin, respiratory irritation (dizziness, weakness, fatigue, nausea, headache)	Eye: Irrigate immediately, refer to medical attention Skin: Soap wash immediately Breathing: move to fresh air Swallow: Medical attention immediately
1.3.1 – 1.3.14	Fluorene	86-73-7	PID	0.2 mg/m3 80 mg/m3 (Coal Pitch Tar)	Soil	inhalation, skin, or eye contact, ingestion	irritation to eyes and skin, respiratory irritation (dizziness, weakness, fatigue, nausea, headache)	Eye: Irrigate immediately, refer to medical attention Skin: Soap wash immediately Breathing: move to fresh air Swallow: Medical attention

Task	Contaminant	CAS Number	Monitoring Device	PEL/ IDLH	Source of Concentration on Site	Route of Exposure	Symptoms	First Aid
1.3.1 – 1.3.14	Fuel Oil No. 2	68476-30-2	PID	NA NA	Groundwater Soil Vapor	inhalation, ingestion, skin, and/or eye contact	irritation to the eyes, skin, nose, throat; burning sensation in chest; headache, nausea, lassitude (weakness, exhaustion), restlessness, incoordination, confusion, drowsiness; vomiting, diarrhea; dermatitis; chemical pneumonitis (aspiration liquid)	Eye: Irrigate immediately Skin: Soap flush immediately Breathing: Respiratory support Swallow: Medical attention immediately
1.3.1 – 1.3.14	gamma-Chlordane Gamma Chlordane y-Chlordane	5566-34-7	None	0.5 mg/m3 100 mg/m3	Groundwater Soil	inhalation, skin absorption, ingestion, skin, and/or eye contact	Blurred vision; confusion; ataxia, delirium; cough; abdominal pain, nausea, vomiting, diarrhea; irritability, tremor, convulsions; anuria	Eye: Irrigate immediately Skin: Soap wash immediately Breathing: Respiratory support Swallow: Medical attention immediately
1.3.1 – 1.3.14	Gasoline	8006-61-9	PID	NA NA	Groundwater Soil Vapor	inhalation, skin absorption, ingestion, skin, and/or eye contact	irritation to the eyes, skin, mucous membrane; dermatitis; headache, lassitude (weakness, exhaustion), blurred vision, dizziness, slurred speech, confusion, convulsions; chemical pneumonitis (aspiration liquid)	Eye: Irrigate immediately Skin: Soap flush immediately Breathing: Respiratory support Swallow: Medical attention immediately
1.3.1 – 1.3.14	Helium	7440-59-7	Helium Detector	NA NA	NA	inhalation	dizziness, headache, and nausea	Breathing: Respiratory support

Task	Contaminant	CAS Number	Monitoring Device	PEL/ IDLH	Source of Concentration on Site	Route of Exposure	Symptoms	First Aid
1.3.1 – 1.3.14	Heptachlor	76-44-8	None	0.5 mg/m3 35 mg/m3	Groundwater Soil Vapor	inhalation, skin absorption, ingestion, skin, and/or eye contact	In animals: tremor, convulsions; liver damage; [potential occupational carcinogen]	Eye: Irrigate immediately Skin: Soap wash immediately Breathing: Respiratory support Swallow: Medical attention immediately
1.3.1 – 1.3.14	Heptane n-Heptane	142-82-5	PID	500 ppm 750 ppm	Goundwater Soil Vapor	inhalation, ingestion, skin, and/or eye contact	dizziness, stupor, incoordination; loss of appetite, nausea; dermatitis; chemical pneumonitis (aspiration liquid); unconsciousness	Eye: Irrigate immediately Skin: Soap wash promptly Breathing: Respiratory support Swallow: Medical attention immediately
1.3.1 – 1.3.14	Hexachlorobenzene Perchlorobenzene Pentachlorophenylchloride Benzene hexachloride Phenyl perchloryl HCB BHC	118-74-1	NA	NA NA	Groundwater Soil	inhalation, ingestion, skin, and/or eye contact	Irritating to eyes, skin, and mucous membranes. Prolonged periods of ingestion may cause cutaneous porphyria	Eye: Irrigate immediately Skin: Soap wash promptly Breathing: Respiratory support Swallow: Medical attention immediately
1.3.1 – 1.3.14	Hexavalent Chromium Chromium VI Chromium, Hexavalent	18540-29-9	None	1.0 mg/m3 250 mg/m3	Groundwater Soil	inhalation absorption ingestion	irritation to eye, skin, and respiratory	Eye: Irrigate immediately Skin: Soap wash Breathing: Respiratory support Swallow: Medical attention immediately

Task	Contaminant	CAS Number	Monitoring Device	PEL/ IDLH	Source of Concentration on Site	Route of Exposure	Symptoms	First Aid
1.3.1 – 1.3.14	Indeno(1,2,3-cd)pyrene Indeno(1,2,3-c,d)Pyrene Indeno[1,2,3-cd]Pyrene	193-39-5	None	0.2 mg/m3 80 mg/m3 (Coal Pitch Tar)	Groundwater Soil	inhalation, absorption, ingestion, consumption	irritation to eyes, skin, respiratory, and digestion [potential occupational carcinogen]	Eyes: Irrigate immediately Skin: Soap wash promptly. Breath: Respiratory support Swallow: Medical attention immediately, wash mouth with water
1.3.1 – 1.3.14	Iron	7439-89-6	None	10 mg/m3 NA	Groundwater Soil	inhalation, ingestion, skin, and/or eye contact	irritation to the eyes, skin, mucous membrane; abdominal pain, diarrhea, vomiting	Eye: Irrigate immediately Skin: Soap wash Breathing: Respiratory support Swallow: Medical attention immediately
1.3.1 – 1.3.14	Isopropyl alcohol Iso-Propyl Alcohol Carbinol IPA Isopropanol 2-Propanol sec-Propyl alcohol Rubbing alcohol Isopropylalcohol	67-63-0	PID	400 ppm 2000 ppm	Groundwater Soil Vapor	inhalation, ingestion, skin, and/or eye contact	irritation to the eyes, nose, throat; drowsiness, dizziness, headache; dry cracking skin; in animals: narcosis	Eye: Irrigate immediately Skin: Water flush Breathing: Respiratory support Swallow: Medical attention immediately

Task	Contaminant	CAS Number	Monitoring Device	PEL/ IDLH	Source of Concentration on Site	Route of Exposure	Symptoms	First Aid
1.3.1 – 1.3.14	Lead	7439-92-1	None	0.050 mg/m3 100 mg/m3	Groundwater Soil	inhalation, ingestion, skin, and/or eye contact	lassitude (weakness, exhaustion), insomnia; facial pallor; anorexia, weight loss, malnutrition; constipation, abdominal pain, colic; anemia; gingival lead line; tremor; paralysis wrist, ankles; encephalopathy; kidney disease; irritation to the eyes; hypertension	Eye: Irrigate immediately Skin: Soap flush promptly Breathing: Respiratory support Swallow: Medical attention immediately
1.3.1 – 1.3.14	Lindane Gamma BHC HCH ã-Hexachlorocyclohexane gamma isomer of 1,2,3,4,5,6-Hexachlorocyclohexane gamma-Hexachlorocyclohexane	58-89-9	None	0.5 mg/m3 50 mg/m3	Groundwater Soil Vapor	inhalation, skin absorption, ingestion, skin, and/or eye contact	irritation to the eyes, skin, nose, throat; headache; nausea; colonic convulsions; resp difficulty; cyanosis; aplastic anemia; muscle spasm; in animals: liver, kidney damage	Eye: Irrigate immediately Skin: Soap wash promptly Breathing: Respiratory support Swallow: Medical attention immediately
1.3.1 – 1.3.14	Magnesium	7439-95-4	None	15 mg/m3 NA	Soil	inhalation, skin, and/or eye contact	irritation to the eyes, skin, respiratory system; cough	Eye: Irrigate immediately Breathing: Fresh air
1.3.1 – 1.3.14	Manganese	7439-96-5	None	5 mg/m3 500 mg/m3	Groundwater Soil	inhalation, ingestion	aerosol is irritating to the respiratory tract	Eye: Irrigate immediately Skin: Soap flush promptly Breathing: Respiratory support Swallow: Medical attention immediately

Task	Contaminant	CAS Number	Monitoring Device	PEL/ IDLH	Source of Concentration on Site	Route of Exposure	Symptoms	First Aid
1.3.1 – 1.3.14	m-Cresol meta-Cresol 3-Cresol m-Cresylic acid 1-Hydroxy-3-methylbenzene 3-Hydroxytoluene 3-Methylphenol 3-Methylphenols	108-39-4	PID	5 ppm 250 ppm	Groundwater Soil Vapor	inhalation, skin absorption, ingestion, skin, and/or eye contact	irritation to the eyes, skin, mucous membrane; central nervous system effects: confusion, depression, resp failure; dyspnea (breathing difficulty), irregular rapid respiration, weak pulse; eye, skin, burns; dermatitis; lung, liver, kidney, pancreas damage	Eye: Irrigate immediately Skin: Soap wash immediately Breathing: Respiratory support Swallow: Medical attention immediately
1.3.1 – 1.3.14	Mercury	7439-97-6	None	0.1 mg/m3 10 mg/m3	Groundwater Soil	inhalation, skin absorption, ingestion, skin, and/or eye contact	irritation to the eyes, skin; cough, chest pain, dyspnea (breathing difficulty), bronchitis, pneumonitis; tremor, insomnia, irritability, headache, lassitude (weakness, exhaustion); stomatitis, salivation; gastrointestinal disturbance, anorexia, weight loss; proteinuria	Eye: Irrigate immediately Skin: Soap wash promptly Breathing: Respiratory support Swallow: Medical attention immediately
1.3.1 – 1.3.14	Methyl Chloride Chloromethane Monochloromethane Refrigerant-40 R-40	74-87-3	NA	100 ppm 2000 ppm	Groundwater Soil	inhalation, skin, and/or eye contact	dizziness, nausea, vomiting; visual disturbance, stagger, slurred speech, convulsions, coma; liver, kidney damage; liquid: frostbite; reproductive, teratogenic effects; [potential occupational carcinogen]	Eye: Frostbite Skin: Frostbite Breathing: Respiratory support

Task	Contaminant	CAS Number	Monitoring Device	PEL/ IDLH	Source of Concentration on Site	Route of Exposure	Symptoms	First Aid
1.3.1 – 1.3.14	Methyl chloroform Chlorothene 1,1,1-Trichloroethane 1,1,1-Trichloroethane-(stabilized) 1,1,1-TCA 1,1,1-Trichbroethane TCA	71-55-6	PID	350 ppm 700 ppm	Groundwater Soil Vapor	inhalation, ingestion, skin, and/or eye contact	irritation to the eyes, skin; headache, lassitude (weakness, exhaustion), central nervous system depression, poor equilibrium; dermatitis; cardiac arrhythmias; liver damage	Eye: Irrigate immediately Skin: Soap wash promptly Breathing: Respiratory support Swallow: Medical attention
1.3.1 – 1.3.14	Methyl tert-butyl ether MTBE Methyl tertiary-butyl ether Methyl t-butyl ether tert-Butyl methyl ether tBME tert-BuOMe Methyl tert butyl ether	1634-04-4	PID	NA NA	Groundwater Soil Vapor	inhalation, ingestion, skin, and/or eye contact	irritation to the eyes, skin, nose, throat; burning sensation in chest; headache, nausea, lassitude (weakness, exhaustion), restlessness, incoordination, confusion, drowsiness; vomiting, diarrhea; dermatitis; chemical pneumonitis (aspiration liquid)	Eye: Irrigate immediately Skin: Soap flush immediately Breathing: Respiratory support Swallow: Medical attention immediately
1.3.1 – 1.3.14	Methylcyclohexane Methyl cyclohexane Methylcyclohexane Hexahydrotoluene Cyclohexylmethane Toluene hexahydride	108-87-2	PID	500 ppm 1200 ppm	Soil Vapor	inhalation, ingestion, skin, and/or eye contact	irritation to the eyes, skin, nose, throat; dizziness, drowsiness; in animals: narcosis	Eye: Irrigate immediately Skin: Soap wash promptly Breathing: Respiratory support Swallow: Medical attention immediately

Task	Contaminant	CAS Number	Monitoring Device	PEL/ IDLH	Source of Concentration on Site	Route of Exposure	Symptoms	First Aid
1.3.1 – 1.3.14	Methylene Chloride Dichloromethane Methylene dichloride	75-09-2	PID	25 ppm 2300 ppm	Groundwater Soil Vapor	inhalation, skin absorption, ingestion, skin, and/or eye contact	irritation to the eyes, skin; lassitude (weakness, exhaustion), drowsiness, dizziness; numb, tingle limbs; nausea; [potential occupational carcinogen]	Eye: Irrigate immediately Skin: Soap wash promptly Breathing: Respiratory support Swallow: Medical attention immediately
1.3.1 – 1.3.14	m-Xylenes 1,3-Dimethylbenzene m-Xylol Metaxylene	108-38-3 179601-23-1	PID	100 ppm 900 ppm	Groundwater Soil Vapor	inhalation, skin absorption, ingestion, skin, and/or eye contact	irritation to the eyes, skin, nose, throat; dizziness, excitement, drowsiness, incoordination, staggering gait; corneal vacuolization; nausea, vomiting, abdominal pain; dermatitis	Eye: Irrigate immediately Skin: Soap flush immediately Breathing: Respiratory support Swallow: Medical attention immediately
1.3.1 – 1.3.14	Naphthalene Naphthalin Tar camphor White tar	91-20-3	PID	50 mg/m3 250 ppm	Groundwater Soil Vapor	inhalation, skin absorption, ingestion, skin, and/or eye contact	irritation to the eyes; headache, confusion, excitement, malaise (vague feeling of discomfort); nausea, vomiting, abdominal pain; irritation bladder; profuse sweating; hematuria (blood in the urine); dermatitis, optical neuritis	Eye: Irrigate immediately Skin: Molten flush immediately/solid-liquid soap wash promptly Breathing: Respiratory support Swallow: Medical attention immediately

Task	Contaminant	CAS Number	Monitoring Device	PEL/ IDLH	Source of Concentration on Site	Route of Exposure	Symptoms	First Aid
1.3.1 – 1.3.14	n-Butylbenzene Butylbenzene 1-phenylbutane	104-51-8	PID	NA NA	Groundwater Soil Vapor	inhalation, ingestion, skin, and/or eye contact	irritation to the eyes, skin; dry nose, throat; headache; low blood pressure, tachycardia, abnormal cardiovascular system stress; central nervous system, hematopoietic depression; metallic taste; liver, kidney injury	Eye: Irrigate immediately Skin: Water flush promptly Breathing: Respiratory support Swallow: Medical attention immediately
1.3.1 – 1.3.14	N-ethyl perfluorooctane sulfonamido acetic acid NEtFOSAA N-ethyl perfluorooctane sulfonamido acetic acid (N-EtFOSAA) N-Ethylperfluorooctanesulfonamide N-Ethyl Perfluorooctanesulfonamidoacetic Acid N-ethyl perfluorooctane-sulfonamidoacetic acid N-Ethyl-N-[(heptadecafluorooctyl)sulphonyl]glycine	2991-50-6	NA	None None	Groundwater Soil	inhalation, skin, or eye contact, ingestion	irritation to eyes with eye damage, skin, causing rash, redness or burning, irritation to nose, throat, and lungs	Eye: Irrigate immediately Skin: Water flush promptly Breathing: Respiratory support Swallow: Medical attention immediately
1.3.1 – 1.3.14	n-Hexane Hexane, Hexyl hydride, normal-Hexane	110-54-3	PID	500 ppm 1100 ppm	Groundwater Soil Vapor	inhalation, ingestion, skin, and/or eye contact	irritation to the eyes, nose; nausea, headache; peripheral neuropathy: numb extremities, muscle weak; dermatitis; dizziness; chemical pneumonitis (aspiration liquid)	Eye: Irrigate immediately Skin: Soap wash immediately Breathing: Respiratory support Swallow: Medical attention immediately

Task	Contaminant	CAS Number	Monitoring Device	PEL/ IDLH	Source of Concentration on Site	Route of Exposure	Symptoms	First Aid
1.3.1 – 1.3.14	Nickel	7440-02-0	None	NA 10 mg/m3	Groundwater Soil	ion, ingestion, skin, and/or eye contact	sensitization dermatitis, allergic asthma, pneumonitis; [potential occupational carcinogen]	Skin: Water flush immediately Breathing: Respiratory support Swallow: Medical attention immediately
1.3.1 – 1.3.14	N-Nitrosodi-n-propylamine N-nitroso-di-n-propylamine	621-64-7	None	NA NA	Groundwater Soil Vapor	inhalation, skin absorption, ingestion, skin, and/or eye contact	irritation to the eyes, skin, nose, respiratory system	Eye: Irrigate immediately Skin: Soap wash immediately Breathing: Respiratory support Swallow: Medical attention immediately
1.3.1 – 1.3.14	Non-Flammable Gas Mixture CALGAS (Equipment Calibration Gas : Oxygen Methane Hydrogen Sulfide Carbon Monoxide Nitrogen	 7782-44-7 74-82-8 7783-08-4 830-08-0 7727-37-9	Multi-Gas PID	 NA/NA NA/NA 10/100 ppm 50/1200 ppm NA/NA	NA	inhalation	dizziness, headache, and nausea	Breathing: Respiratory support
1.3.1 – 1.3.14	Non-Flammable Gas Mixture CALGAS (Equipment Calibration Gas : Oxygen Isobutylene Nitrogen	 7782-44-7 115-11-7 7727-37-9	PID	 NA/NA NA/NA NA/NA	NA	inhalation	dizziness, headache, and nausea	Breathing: Respiratory support

Task	Contaminant	CAS Number	Monitoring Device	PEL/ IDLH	Source of Concentration on Site	Route of Exposure	Symptoms	First Aid
1.3.1 – 1.3.14	n-Propylbenzene Isocumene Propylbenzene 1-Phenylpropane 1-Propylbenzene Phenylpropane Propylbenzene-n	103-65-1	PID	NA NA	Groundwater Soil Vapor	inhalation, ingestion, skin, and/or eye contact	irritation to the eyes, skin; dry nose, throat; headache; low blood pressure, tachycardia, abnormal cardiovascular system stress; central nervous system, hematopoietic depression; metallic taste; liver, kidney injury	Eye: Irrigate immediately Skin: Water flush promptly Breathing: Respiratory support Swallow: Medical attention immediately
1.3.1 – 1.3.14	o-Cresol ortho-Cresol 2-Cresol o-Cresylic acid 1-Hydroxy-2-methylbenzene 2-Hydroxytoluene 2-Methyl phenol 2-Methylphenol	95-48-7	PID	5 ppm 250 ppm	Groundwater Soil Vapor	inhalation, skin absorption, ingestion, skin, and/or eye contact	irritation to the eyes, skin, mucous membrane; central nervous system effects: confusion, depression, resp failure; dyspnea (breathing difficulty), irregular rapid respiration, weak pulse; eye, skin, burns; dermatitis; lung, liver, kidney, pancreas damage	Eye: Irrigate immediately Skin: Soap wash immediately Breathing: Respiratory support Swallow: Medical attention immediately
1.3.1 – 1.3.14	o-Xylenes 1,2-Dimethylbenzene ortho-Xylene o-Xylol	95-47-6 179601-23-1	PID	100 ppm 900 ppm	Soil Vapor	inhalation, skin absorption, ingestion, skin, and/or eye contact	irritation to the eyes, skin, nose, throat; dizziness, excitement, drowsiness, incoordination, staggering gait; corneal vacuolization; nausea, vomiting, abdominal pain; dermatitis	Eye: Irrigate immediately Skin: Soap flush immediately Breathing: Respiratory support Swallow: Medical attention immediately

Task	Contaminant	CAS Number	Monitoring Device	PEL/ IDLH	Source of Concentration on Site	Route of Exposure	Symptoms	First Aid
1.3.1 – 1.3.14	p-Cresol para-Cresol 4-Cresol p-Cresylic acid 1-Hydroxy-4-methylbenzene 4-Hydroxytoluene 4-Methylphenol 4-Methylphenols	106-44-5	PID	5 ppm 250 ppm	Groundwater Soil Vapor	inhalation, skin absorption, ingestion, skin, and/or eye contact	irritation to the eyes, skin, mucous membrane; central nervous system effects: confusion, depression, resp failure; dyspnea (breathing difficulty), irregular rapid respiration, weak pulse; eye, skin, burns; dermatitis; lung, liver, kidney, pancreas damage	Eye: Irrigate immediately Skin: Soap wash immediately Breathing: Respiratory support Swallow: Medical attention immediatelym
1.3.1 – 1.3.14	p-Diethylbenzene 1,4-Diethylbenzene 1,4-Diethyl benzene	105-05-5	PID	None None	Groundwater Soil Vapor	inhalation, ingestion, skin, and/or eye contact	irritation to the eyes, skin, respiratory system; skin, burns; in animals: central nervous system depression	Eye: Irrigate immediately Skin: Soap wash Breathing: Respiratory support Swallow: Medical attention immediately
1.3.1 – 1.3.14	Pentachlorophenol PCP; Penta; 2,3,4,5,6-Pentachlorophenol	87-86-5	PID	0.5 mg/m3 2.5 mg/m3	Groundwater Soil Vapor	inhalation, skin absorption, ingestion, skin, and/or eye contact	irritation to the eyes, nose, throat; sneezing, cough; lassitude (weakness, exhaustion), anorexia, weight loss; sweating; headache, dizziness; nausea, vomiting; dyspnea (breathing difficulty), chest pain; high fever; dermatitis	Eye: Irrigate immediately Skin: Soap wash immediately Breathing: Respiratory support Swallow: Medical attention immediately

Task	Contaminant	CAS Number	Monitoring Device	PEL/ IDLH	Source of Concentration on Site	Route of Exposure	Symptoms	First Aid
1.3.1 – 1.3.14	Perfluorobutanesulfonic acid FC-98 Nonaflate Nonafluorobutanesulphonic acid Perfluorobutanesulfonic Acid Perfluorobutane sulfonate PFBS	375-73-5	NA	None None	Groundwater	inhalation, skin, or eye contact, ingestion	irritation to eyes with eye damage, skin, causing rash, redness or burning, irritation to nose, throat, and lungs	Eye: Irrigate immediately Skin: Water flush promptly Breathing: Respiratory support Swallow: Medical attention immediately
1.3.1 – 1.3.14	Perfluorobutanoic Acid Heptafluorobutyric acid Heptafluorobutanoic acid Perfluorobutyric acid PFBA	375-22-4	NA	None None	Groundwater	inhalation, skin, or eye contact, ingestion	irritation to eyes with eye damage, skin, causing rash, redness or burning, irritation to nose, throat, and lungs	Eye: Irrigate immediately Skin: Water flush promptly Breathing: Respiratory support Swallow: Medical attention immediately
1.3.1 – 1.3.14	Perfluorodecanoic acid PFDA	335-76-2	NA	None None	Groundwater	inhalation, skin, or eye contact, ingestion	irritation to eyes with eye damage, skin, causing rash, redness or burning, irritation to nose, throat, and lungs	Eye: Irrigate immediately Skin: Water flush promptly Breathing: Respiratory support Swallow: Medical attention immediately
1.3.1 – 1.3.14	Perfluoroheptanoic acid Perfluoroheptanoic acid Tridecafluoroheptanoic acid PFHpA	375-85-9	NA	None None	Groundwater	inhalation, skin, or eye contact, ingestion	irritation to eyes with eye damage, skin, causing rash, redness or burning, irritation to nose, throat, and lungs	Eye: Irrigate immediately Skin: Water flush promptly Breathing: Respiratory support Swallow: Medical attention immediately

Task	Contaminant	CAS Number	Monitoring Device	PEL/ IDLH	Source of Concentration on Site	Route of Exposure	Symptoms	First Aid
1.3.1 – 1.3.14	Perfluorohexanesulfonic Acid perfluorohexanesulfonate perfluorohexanesulfonic acid Perfluorohexane-1-sulphonic acid PFHxS	355-46-4	NA	None None	Groundwater Soil	inhalation, skin, or eye contact, ingestion	irritation to eyes with eye damage, skin, causing rash, redness or burning, irritation to nose, throat, and lungs	Eye: Irrigate immediately Skin: Water flush promptly Breathing: Respiratory support Swallow: Medical attention immediately
1.3.1 – 1.3.14	Perfluorohexanoic Acid PFHxA	307-24-4	NA	None None	Groundwater	inhalation, skin, or eye contact, ingestion	irritation to eyes with eye damage, skin, causing rash, redness or burning, irritation to nose, throat, and lungs	Eye: Irrigate immediately Skin: Water flush promptly Breathing: Respiratory support Swallow: Medical attention immediately
1.3.1 – 1.3.14	Perfluoronoanoic Acid Perfluorononanoic Acid PFNA perfluoro-n-nonanoic acid perfluorononanoate	375-95-1	NA	None None	Groundwater	inhalation, skin, or eye contact, ingestion	irritation to eyes with eye damage, skin, causing rash, redness or burning, irritation to nose, throat, and lungs	Eye: Irrigate immediately Skin: Water flush promptly Breathing: Respiratory support Swallow: Medical attention immediately
1.3.1 – 1.3.14	Perfluorooctanesulfonic Acid PFOS	1763-23-1	NA	None None	Groundwater	inhalation, skin, or eye contact, ingestion	irritation to eyes with eye damage, skin, causing rash, redness or burning, irritation to nose, throat, and lungs	Eye: Irrigate immediately Skin: Water flush promptly Breathing: Respiratory support Swallow: Medical attention immediately

Task	Contaminant	CAS Number	Monitoring Device	PEL/ IDLH	Source of Concentration on Site	Route of Exposure	Symptoms	First Aid
1.3.1 – 1.3.14	Perfluorooctanoic Acid PFOA pentadecafluorooctanoic acid perfluorooctanoate perfluorocaprylic acid	335-67-1	NA	None None	Groundwater	inhalation, skin, or eye contact, ingestion	irritation to eyes with eye damage, skin, causing rash, redness or burning, irritation to nose, throat, and lungs	Eye: Irrigate immediately Skin: Water flush promptly Breathing: Respiratory support Swallow: Medical attention immediately
1.3.1 – 1.3.14	Perfluoropentanoic Acid PFPeA	2706-90-3	NA	None None	Groundwater	inhalation, skin, or eye contact, ingestion	irritation to eyes with eye damage, skin, causing rash, redness or burning, irritation to nose, throat, and lungs	Eye: Irrigate immediately Skin: Water flush promptly Breathing: Respiratory support Swallow: Medical attention immediately
1.3.1 – 1.3.14	Perfluoroundecanoic Acid PFUnA PFUnDA Perfluoroundecanoic Acid Henicosafluoroundecanoic Acid	2058-94-8	NA	None None	Groundwater	inhalation, skin, or eye contact, ingestion	irritation to eyes with eye damage, skin, causing rash, redness or burning, irritation to nose, throat, and lungs	Eye: Irrigate immediately Skin: Water flush promptly Breathing: Respiratory support Swallow: Medical attention immediately
1.3.1 – 1.3.14	p-Ethyltoluene 4-Ethyltoluene 1-ethyl-4-methyl-benzene 1-methyl-4-ethylbenzene	622-96-8	NA	NA NA	Soil	ingestion, skin, and/or eye contact	irritation to the eyes, skin, mucous membrane; headache; dermatitis; narcosis, coma	Eye: Irrigate immediately Skin: Water flush promptly Breathing: Respiratory support Swallow: Medical attention immediately

Task	Contaminant	CAS Number	Monitoring Device	PEL/ IDLH	Source of Concentration on Site	Route of Exposure	Symptoms	First Aid
1.3.1 – 1.3.14	Phenanthrene	85-01-8	PID	0.2 mg/m3 80 mg/m3 (Coal Pitch Tar)	Groundwater Soil	inhalation, skin, or eye contact, ingestion	irritation to eyes and skin, respiratory irritation (dizziness, weakness, fatigue, nausea, headache)	Eye: Irrigate immediately, refer to medical attention Skin: Soap wash immediately Breathing: move to fresh air Swallow: Medical attention immediately
1.3.1 – 1.3.14	Phenol Carbolic acid Hydroxybenzene, Monohydroxybenzene Phenyl alcohol Phenyl hydroxide	108-95-2	PID	5 ppm 250 ppm	Groundwater Soil	inhalation, skin absorption, ingestion, skin, and/or eye contact	irritation to the eyes, nose, throat; anorexia, weight loss; lassitude (weakness, exhaustion), muscle ache, pain; dark urine, skin, burns; dermatitis; tremor, convulsions, twitching	Eye: Irrigate immediately Skin: Soap wash immediately Breathing: Respiratory support Swallow: Medical attention immediately

Task	Contaminant	CAS Number	Monitoring Device	PEL/ IDLH	Source of Concentration on Site	Route of Exposure	Symptoms	First Aid
1.3.1 – 1.3.14	Potassium	7440-09-7	None	NA NA	Soil	inhalation, skin absorption, ingestion, skin, and/or eye contact inhalation, ingestion, skin, and/or eye contact	eye: Causes eye burns. Skin: Causes skin, burns. Reacts with moisture in the skin, to form potassium hydroxide and hydrogen with heat. ingestion: Causes gastrointestinal tract burns. inhalation: May cause irritation of the respiratory tract with burning pain in the nose and throat, coughing, wheezing, shortness of breath and pulmonary edema. Causes chemical burns to the respiratory tract. inhalation may be fatal because of spasm, inflammation, edema of the larynx and bronchi, chemical pneumonitis, and pulmonary edema.	Eyes: Get medical aid immediately Skin: Get medical aid immediately. Immediately flush skin with water for at least 15 minutes while removing contaminated clothing and shoes. Ingestion: If victim is conscious and alert, give 2-4 full cups of milk or water. Get medical aid immediately. inhalation: Get medical aid immediately.
1.3.1 – 1.3.14	p-Xylenes 1,4-Dimethylbenzene para-Xylene p-Xylol	106-42-3	PID	100 ppm 900 ppm	Groundwater Soil Vapor	inhalation, skin absorption, ingestion, skin, and/or eye contact	irritation to the eyes, skin, nose, throat; dizziness, excitement, drowsiness, incoordination, staggering gait; corneal vacuolization; nausea, vomiting, abdominal pain; dermatitis	Eye: Irrigate immediately Skin: Soap flush immediately Breathing: Respiratory support Swallow: Medical attention immediately

Task	Contaminant	CAS Number	Monitoring Device	PEL/ IDLH	Source of Concentration on Site	Route of Exposure	Symptoms	First Aid
1.3.1 – 1.3.14	Pyrene benzo[def]phenanthrene	129-00-0	PID	0.2 mg/m3 80 mg/m3 (Coal Pitch Tar)	Groundwater Soil	inhalation, skin, or eye contact, ingestion	irritation to eyes and skin, respiratory irritation (dizziness, weakness, fatigue, nausea, headache)	Eye: Irrigate immediately, refer to medical attention Skin: Soap wash immediately Breathing: move to fresh air Swallow: Medical attention immediately
1.3.1 – 1.3.14	sec-Butylbenzene 2-phenylbutane	135-98-8	PID	10 ppm 100 ppm	Groundwater Soil	inhalation, skin absorption, ingestion, skin, and/or eye contact	irritation to the eyes, nose, throat. inhalation: nausea or vomiting	Eye: Irrigate immediately Skin: Soap wash immediately Breathing: Respiratory support Swallow: Medical attention immediately
1.3.1 – 1.3.14	Selenium	7782-49-2	None	1 mg/m3 0.2 mg/m3	Soil	inhalation, ingestion, skin, and/or eye contact	irritation to the eyes, skin, nose, throat; visual disturbance; headache; chills, fever; dyspnea (breathing difficulty), bronchitis; metallic taste, garlic breath, gastrointestinal disturbance; dermatitis; eye, skin, burns; in animals: anemia; liver necrosis, cirrhosis; kidney, spleen damage	Eye: Irrigate immediately Skin: Soap wash immediately Breathing: Respiratory support Swallow: Medical attention immediately

Task	Contaminant	CAS Number	Monitoring Device	PEL/ IDLH	Source of Concentration on Site	Route of Exposure	Symptoms	First Aid
1.3.1 – 1.3.14	Silver	7440-22-4	None	0.01mg/m3 10 mg/m3	Soil	inhalation, ingestion, skin, and/or eye contact	blue-gray eyes, nasal septum, throat, skin; irritation, ulceration skin; gastrointestinal disturbance	Eye: Irrigate immediately Skin: Water flush Breathing: Respiratory support Swallow: Medical attention immediately
1.3.1 – 1.3.14	Silvex 2-(2,4,5-Trichlorophenoxy)propionic acid Fenoprop 2,4,5-TP Acid 2,4,5-TP	93-72-1	PID	NA NA	Groundwater Soil Vapor	inhalation, skin absorption, ingestion, skin, and/or eye contact	irritation to the eyes, nose, respiratory system; headache, lassitude (weakness, exhaustion), dizziness, confusion, malaise (vague feeling of discomfort), drowsiness, unsteady gait; narcosis; defatting dermatitis; liver injury; reproductive effects	Eye: Irrigate immediately Skin: Water flush Breathing: Respiratory support Swallow: Medical attention
1.3.1 – 1.3.14	Sodium	7440-23-5	None	NA NA	Groundwater Soil	ion, ingestion, skin, and/or eye contact	sensitization dermatitis, allergic asthma, pneumonitis; [potential occupational carcinogen]	Skin: Water flush immediately Breathing: Respiratory support Swallow: Medical attention immediately
1.3.1 – 1.3.14	Styrene Ethenyl benzene Phenylethylene Styrene monomer Styrol Vinyl benzene	100-42-5	PID	100 ppm 700 ppm	Groundwater Soil Vapor	inhalation, skin absorption, ingestion, skin, and/or eye contact	irritation to the eyes, nose, respiratory system; headache, lassitude (weakness, exhaustion), dizziness, confusion, malaise (vague feeling of discomfort), drowsiness, unsteady gait; narcosis; defatting dermatitis; liver injury; reproductive effects	Eye: Irrigate immediately Skin: Water flush Breathing: Respiratory support Swallow: Medical attention immediately

Task	Contaminant	CAS Number	Monitoring Device	PEL/ IDLH	Source of Concentration on Site	Route of Exposure	Symptoms	First Aid
1.3.1 – 1.3.14	Tert-Butyl Alcohol Tertiary Butyl Alcohol Tert-Butanol Butyl alcohol 2-Methyl-2-propanol Trimethyl carbinol Tert-Butyl Alcohol TBA	75-65-0	PID	100 ppm 1600 ppm	Groundwater Soil Vapor	inhalation, ingestion, skin, and/or eye contact	irritation to the eyes, skin, nose, throat; drowsiness, narcosis	Eye: Irrigate immediately Skin: Water flush promptly Breathing: Respiratory support Swallow: Medical attention immediately
1.3.1 – 1.3.14	tert-Butylbenzene t-Butylbenzene 2-Methyl-2-phenylpropane Pseudobutylbenzene	98-06-6	PID	10 ppm NA	Groundwater Soil Vapor	inhalation, ingestion, skin, and/or eye contact	eye, skin, irritation; dry nose, throat; headaches; low blood pressure, tachycardia; abnormal cardiovascular system; central nervous system depression; hematopoietic depression	Eye: Irrigate immediately Skin: Soap wash immediately Breathing: Respiratory support Swallow: Medical attention immediately
1.3.1 – 1.3.14	Tetrachloroethylene Perchlorethylene Perchloroethylene PCE Perk Tetrachlorethylene Tetrachloroethene	127-18-4	PID	100 ppm 150 ppm	Groundwater Soil Vapor	inhalation, skin absorption, ingestion, skin, and/or eye contact	irritation to the eyes, skin, nose, throat, respiratory system; nausea; flush face, neck; dizziness, incoordination; headache, drowsiness; skin, erythema (skin, redness); liver damage; [potential occupational carcinogen]	Eye: Irrigate immediately Skin: Soap wash promptly Breathing: Respiratory support Swallow: Medical attention immediately
1.3.1 – 1.3.14	Tetrahydrofuran Diethylene oxide 1,4-Epoxybutane Tetramethylene oxide THF	109-99-9	PID	200 ppm 2000 ppm	Groundwater Soil Vapor	inhalation, skin, and/or eye contact, ingestion	irritation to the eyes, upper respiratory system; nausea, dizziness, headache, central nervous system depression	Eye: Irrigate immediately Skin: Water flush promptly Breathing: Respiratory support Swallow: Medical attention immediately

Task	Contaminant	CAS Number	Monitoring Device	PEL/ IDLH	Source of Concentration on Site	Route of Exposure	Symptoms	First Aid
1.3.1 – 1.3.14	Thallium	7440-28-0	None	0.1 mg/m3 15 mg/m3	Groundwater Soil	inhalation, skin absorption, ingestion, skin, and/or eye contact	nausea, diarrhea, abdominal pain, vomiting; ptosis, strabismus; peri neuritis, tremor; retrosternal (occurring behind the sternum) tightness, chest pain, pulmonary edema; convulsions, chorea, psychosis; liver, kidney damage; alopecia; paresthesia legs	Eye: Irrigate immediately Skin: Water flush promptly Breathing: Respiratory support Swallow: Medical attention immediately
1.3.1 – 1.3.14	Toluene Methyl benzene Methyl benzol Phenyl methane Toluol	108-88-3	PID	200 ppm 500 ppm	Groundwater Soil Vapor	inhalation, skin absorption, ingestion, skin, and/or eye contact	irritation to the eyes, nose; lassitude (weakness, exhaustion), confusion, euphoria, dizziness, headache; dilated pupils, lacrimation (discharge of tears); anxiety, muscle fatigue, paresthesia; dermatitis	Eye: Irrigate immediately Skin: Soap wash promptly Breathing: Respiratory support Swallow: Medical attention immediately
1.3.1 – 1.3.14	Total Extractable Petroleum Hydrocarbons TEPH	TEPH	PID	5 mg/m^3 NA	Groundwater Soil Vapor	inhalation, skin absorption, ingestion, skin, and/or eye contact	irritation to the eyes, skin, mucous membrane; dermatitis; headache, lassitude (weakness, exhaustion), blurred vision, dizziness, slurred speech, confusion, convulsions; chemical pneumonitis (aspiration liquid)	Eye: Irrigate immediately Skin: Soap flush immediately Breathing: Respiratory support Swallow: Medical attention immediately

Task	Contaminant	CAS Number	Monitoring Device	PEL/ IDLH	Source of Concentration on Site	Route of Exposure	Symptoms	First Aid
1.3.1 – 1.3.14	Total PCBs Chlorodiphenyl (42% chlorine) Aroclor® 1242 PCB Polychlorinated biphenyl	53469-21-9	None	0.5 mg/m3 5 mg/m3	Groundwater Soil	inhalation, skin absorption, ingestion, skin, and/or eye contact	irritation to the eyes, chloracne	Eye: Irrigate immediately Skin: Soap wash immediately Breathing: Respiratory support Swallow: Medical attention immediately
1.3.1 – 1.3.14	Total Petroleum Hydrocarbons TPH	143-07-7	PID	NA NA	Groundwater Soil Vapor	inhalation, skin absorption, ingestion, skin, and/or eye contact	irritation to the eyes, skin, mucous membrane; dermatitis; headache, lassitude (weakness, exhaustion), blurred vision, dizziness, slurred speech, confusion, convulsions; chemical pneumonitis (aspiration liquid)	Eye: Irrigate immediately Skin: Soap flush immediately Breathing: Respiratory support Swallow: Medical attention immediately
1.3.1 – 1.3.14	Total Xylenes Dimethylbenzene Xylol	1330-20-7	PID	100 ppm 900 ppm	Groundwater Soil Vapor	inhalation, skin absorption, ingestion, skin, and/or eye contact	irritation to the eyes, skin, nose, throat; dizziness, excitement, drowsiness, incoordination, staggering gait; corneal vacuolization; nausea, vomiting, abdominal pain; dermatitis	Eye: Irrigate immediately Skin: Soap flush immediately Breathing: Respiratory support Swallow: Medical attention immediately
1.3.1 – 1.3.14	Trans-1,2-Dichloroethene trans-1,2-Dichloroethylene tDEC trans-Acetylene dichloride	156-60-5	PID	200 ppm 4000 ppm	Groundwater Soil Vapor	inhalation, ingestion, skin, and/or eye contact	Irritant to eyes, skin, mucous membranes, and respiratory system. May be harmful by ingestion, skin absorption and inhalation	Eye: Irrigate immediately Skin: Soap wash promptly Breathing: Respiratory support Swallow: Medical attention immediately

Task	Contaminant	CAS Number	Monitoring Device	PEL/ IDLH	Source of Concentration on Site	Route of Exposure	Symptoms	First Aid
1.3.1 – 1.3.14	Trans-Chlordane	5103-74-2	None	0.5 mg/m3 100 mg/m3	Groundwater Soil	inhalation, skin absorption, ingestion, skin, and/or eye contact	Blurred vision; confusion; ataxia, delirium; cough; abdominal pain, nausea, vomiting, diarrhea; irritability, tremor, convulsions; anuria	Eye: Irrigate immediately Skin: Soap wash immediately Breathing: Respiratory support Swallow: Medical attention immediately
1.3.1 – 1.3.14	Trichloroethylene Trichloroetheneylenes Ethylene trichloride TCE Trichloroethene Trilene	79-01-6	PID	100 ppm 1000 ppm	Groundwater Soil Vapor	inhalation, skin absorption, ingestion, skin, and/or eye contact	irritation to the eyes, skin; headache, visual disturbance, lassitude (weakness, exhaustion), dizziness, tremor, drowsiness, nausea, vomiting; dermatitis; cardiac arrhythmias, paresthesia; liver injury; [potential occupational carcinogen]	Eye: Irrigate immediately Skin: Soap wash promptly Breathing: Respiratory support Swallow: Medical attention immediately
1.3.1 – 1.3.14	Trichlorofluoromethane Fluorotrichloromethane Freon® 11 Monofluorotrichloromethane Refrigerant 11 Trichloromonofluoromethane Freon 11	75-69-4	PID	1000 ppm 2000 ppm	Groundwater Soil Vapor	inhalation, ingestion, skin, and/or eye contact	incoordination, tremor; dermatitis; cardiac arrhythmias, cardiac arrest; asphyxia; liquid: frostbite	Eye: Irrigate immediately Skin: Water flush immediately Breathing: Respiratory support Swallow: Medical attention immediately
1.3.1 – 1.3.14	Trivalent Chromium Chromium III Chromium, Trivalent	NA	None	1.0 mg/m3 250 mg/m3	Groundwater Soil	inhalation absorption ingestion	irritation to eye, skin, and respiratory	Eye: Irrigate immediately Skin: Soap wash Breathing: Respiratory support Swallow: Medical attention immediately

Task	Contaminant	CAS Number	Monitoring Device	PEL/ IDLH	Source of Concentration on Site	Route of Exposure	Symptoms	First Aid
1.3.1 – 1.3.14	Vanadium	7440-62-2	None	0.1 mg/m3 15 mg/m3	Groundwater Soil	inhalation, skin absorption, ingestion, skin, and/or eye contact	nausea, diarrhea, abdominal pain, vomiting; ptosis, strabismus; peri neuritis, tremor; retrosternal (occurring behind the sternum) tightness, chest pain, pulmonary edema; convulsions, chorea, psychosis; liver, kidney damage; alopecia; paresthesia legs	Eye: Irrigate immediately Skin: Water flush promptly Breathing: Respiratory support Swallow: Medical attention immediately
1.3.1 – 1.3.14	Vinyl Chloride Chloroethene Chloroethylen Ethylene monochloride Monochloroethene Monochloroethylene VC Vinyl chloride monomer (VCM)	75-01-4	PID	1 ppm NA	Groundwater Soil Vapor	inhalation, skin, and/or eye contact (liquid)	lassitude (weakness, exhaustion); abdominal pain, gastrointestinal bleeding; enlarged liver; pallor or cyanosis of extremities; liquid: frostbite; [potential occupational carcinogen]	Eye: Frostbite Skin: Frostbite Breathing: Respiratory support
1.3.1 – 1.3.14	Vinylidene chloride 1,1-DCE 1,1-Dichloroethene 1,1-Dichloroethylene VDC Vinylidene chloride monomer Vinylidene dichloride	75-35-4	PID	NA NA	Groundwater Soil Vapor	inhalation, skin absorption, ingestion, skin, and/or eye contact	irritation to the eyes, skin, throat; dizziness, headache, nausea, dyspnea (breathing difficulty); liver, kidney disturbance; pneumonitis; [potential occupational carcinogen]	Eye: Irrigate immediately Skin: Soap flush immediately Breathing: Respiratory support Swallow: Medical attention immediately
1.3.1 – 1.3.14	Volatile Organic Compounds VOCs	NA	PID	NA NA	Groundwater Soil Vapor	inhalation, skin absorption, ingestion, skin, and/or eye contact	irritation to the eyes, skin, throat; dizziness, headache, nausea, dyspnea (breathing difficulty); liver, kidney disturbance; pneumonitis; [potential occupational carcinogen]	Eye: Irrigate immediately Skin: Soap wash promptly Breathing: Respiratory support Swallow: Medical attention immediately

Task	Contaminant	CAS Number	Monitoring Device	PEL/ IDLH	Source of Concentration on Site	Route of Exposure	Symptoms	First Aid
1.3.1 – 1.3.14	Zinc	7440-62-2	None	15 mg/m3 500 mg/m3	Groundwater Soil	inhalation	chills, muscle ache, nausea, fever, dry throat, cough; lassitude (weakness, exhaustion); metallic taste; headache; blurred vision; low back pain; vomiting; malaise (vague feeling of discomfort); chest tightness; dyspnea (breathing difficulty), rales, decreased pulmonary function	Eye: Irrigate immediately Skin: Soap wash promptly Breathing: Respiratory support Swallow: Medical attention immediately

EXPLANATION OF ABBREVIATIONS

PID = Photoionization Detector
PEL = Permissible Exposure Limit (8-hour Time Weighted Average)
IDLH = Immediately Dangerous to Life and Health
ppm = part per million
mg/m^3 = milligrams per cubic meter
500 mg/m^3

TABLE 3
SUMMARY OF MONITORING EQUIPMENT

Instrument	Operation Parameters
Photoionization Detector (PID)	**Hazard Monitored:** Many organic and some inorganic gases and vapors. **Application:** Detects total concentration of many organic and some inorganic gases and vapors. Some identification of compounds is possible if more than one probe is measured. **Detection Method:** Ionizes molecules using UV radiation; produces a current that is proportional to the number of ions. **General Care/Maintenance:** Recharge or replace battery. Regularly clean lamp window. Regularly clean and maintain the instrument and accessories. **Typical Operating Time:** 10 hours. 5 hours with strip chart recorder.
Oxygen Meter	**Hazard Monitored:** Oxygen (O_2). **Application:** Measures the percentage of O_2 in the air. **Detection Method:** Uses an electrochemical sensor to measure the partial pressure of O_2 in the air and converts the reading to O_2 concentration. **General Care/Maintenance:** Replace detector cell according to manufacturer's recommendations. Recharge or replace batteries prior to explanation of the specified interval. If the ambient air is less than 0.5% C O_2, replace the detector cell frequently. **Typical Operating Time:** 8 – 12 hours.
Additional equipment (if needed, based on site conditions)	
Combustible Gas Indicator (CGI)	**Hazard Monitored:** Combustible gases and vapors. **Application:** Measures the concentration of combustible gas or vapor. **Detection Method:** A filament, usually made of platinum, is heated by burning the combustible gas or vapor. The increase in heat is measured. Gases and vapors are ionized in a flame. A current is produced in proportion to the number of carbon atoms present. **General Care/Maintenance:** Recharge or replace battery. Calibrate immediately before use. **Typical Operating Time:** Can be used for as long as the battery lasts, or for the recommended interval between calibrations, whichever is less.
Flame Ionization Detector (FID) with Gas Chromatography Option *(i.e., Foxboro Organic Vapor Analyzer (OVA))*	**Hazard Monitored:** Many organic gases and vapors (approved areas only). **Application:** In survey mode, detects the concentration of many organic gases and vapors. In gas chromatography (GC) mode, identifies and measures specific compounds. In survey mode, all the organic compounds are ionized and detected at the same time. In GC mode, volatile species are separated. **General Care/Maintenance:** Recharge or replace battery. Monitor fuel and/or combustion air supply gauges. Perform routine maintenance as described in the manual. Check for leaks. **Typical Operating Time:** 8 hours; 3 hours with strip chart recorder.
Potable Infrared (IR) Spectrophotometer	**Hazard Monitored:** Many gases and vapors. **Application:** Measures concentration of many gases and vapors in air. Designed to quantify one or two component mixtures. **Detection Method:** Passes different frequencies of IR through the sample. The frequencies absorbed are specific for each compound. **General Care/Maintenance:** As specified by the manufacturer.

Instrument	Operation Parameters
Direct Reading Colorimetric Indicator Tube	**Hazard Monitored:** Specific gas and vapors. **Application:** Measures concentration of specific gases and vapors. **Detection Method:** The compound reacts with the indicator chemical in the tube, producing a stain whose length or color change is proportional to the compound's concentration. **General Care/Maintenance:** Do not use a previously opened tube even if the indicator chemical is not stained. Check pump for leaks before and after use. Refrigerate before use to maintain a shelf life of about 2 years. Check expiration dates of tubes. Calibrate pump volume at least quarterly. Avoid rough handling which may cause channeling.
Aerosol Monitor	**Hazard Monitored:** Airborne particulate (dust, mist, fume) concentrations. **Application:** Measures total concentration of semi-volatile organic compounds, PCBs, and metals. **Detection Method:** Based on light-scattering properties of particulate matter. Using an internal pump, air sample is drawn into the sensing volume where near infrared light scattering is used to detect particles. **General Care/Maintenance:** As specified by the mfr. Also, the instrument must be calibrated with particulates of a size and refractive index similar to those to be measured in the ambient air.
Monitox	**Hazard Monitored:** Gases and vapors. **Application:** Measures specific gases and vapors. **Detection Method:** Electrochemical sensor specific for the chemical species in question. **General Care/Maintenance:** Moisten sponge before use; check the function switch; change the battery when needed.
Gamma Radiation Survey Instrument	**Hazard Monitored:** Gamma Radiation. **Application:** Environmental radiation monitor. **Detection Method:** Scintillation detector. **General Care/Maintenance:** Must be calibrated annually at a specialized facility. **Typical Operating Time:** Can be used for as long as the battery lasts, or for the recommended interval between calibrations, whichever is less.

TABLE 4
INSTRUMENTATION ACTION LEVELS

Photoionization Detector Action Levels	**Action Required**
Background to 5 parts per million (ppm)[1]	No respirator needed; no further action
>5ppm but </= 15 ppm at the perimeter of the work area	• Work temporarily halted and monitoring continues. • If instantaneous readings decrease below 5 ppm above background, work activities will resume with continued monitoring
>5ppm but </= 25 ppm at the downwind perimeter of the hot zone	• Work activities will be halted. • Source of vapors identified. • Corrective actions taken to abate emissions. • Continued monitoring. • Workers will don appropriate respirators and work can resume if vapor levels 200 feet downwind or the hot zone or half the distance to the nearest potential receptor or residential or commercial structure, whichever is less – but in no case less than 20 feet – is below 5 ppm above background for the 15-minute average
>25ppm at the parameter of the hot zone	Activities will shut down

Particulate Monitoring Action Levels	**Action Required**
Background to 100 micrograms per cubic meter (µg/m³)[2], no dust observed	No further action
Background to 100 µg/m³, dust observed leaving the work area	Dust suppression must be employed.
100 to 150 µg/m³ at the downwind parameter of the hot zone	• Work activities will be halted. • Source of dust identified. • Dust suppression activities initiated. • Corrective actions taken to abate emissions. • Continued monitoring. • Workers will don appropriate respirators. • Work can resume provided that dust suppression measures and other controls are successful in reducing the downwind PM10 concentration to within 150 µg/m³ of the upwind level and in preventing visible dust migration.
>150 µg/m³ at the parameter of the hot zone	Activities will shut down

[1] VOC concentrations are 15-minute averages above site background (upwind parameter)
[2] Particulate concentrations are 15-minute averages above site background (upwind parameter)

TABLE 5
EMERGENCY NOTIFICATION LIST

ORGANIZATION	CONTACT	TELEPHONE
Local Police Department		911
Local Fire Department		911
Ambulance/Rescue Squad		911
Hospital	New York University - Langone Hospital	911 or 212-263-7300
Langan Incident Hotline		973-560-4699
Medical Treatment Hotline	WorkCare™	911 or 888-449-7757
Langan Environmental Project Manager	Elizabeth Burgess	203-710-7157
Langan Construction Health and Safety Manager (HSM)	Tony Moffa	215-756-2523 (cell)
Langan Health & Safety Officer (HSO)	William Bohrer	410-984-3068 (cell)
Langan Field Team Leader (FTL)	To Be Determined	
Client's Representative	Katherine Kelman	646-527-7224
National Response Center (NRC)		800-424-8802
Chemical Transportation Emergency Center (Chemtrec)		800-424-9300
Center for Disease Control (CDC)		404-639-3534
EPA (RCRA Superfund Hotline)		800-424-9346
TSCA Hotline		202-554-1404
Poison Control Center		800-222-1222

Immediately following an injury, unless immediate emergency medical treatment is required, the injured employee must contact WorkCare - Incident Intervention® at 888-449-7787.

For all other incidents or near misses, unless emergency response is required, either the employee or a coworker must contact the Langan Incident Hotline at 973-560-4699.

TABLE 6
SUGGESTED FREQUENCY OF PHYSIOLOGICAL MONITORINGFOR FIT AND ACCLIMATED WORKERS[A]

Adjusted Temperature[b]	Normal Work Ensemble[c]	Impermeable Ensemble
90°F or above (32.2°C) or above	After each 45 min. of work	After each 15 min. of work
87.5°F (30.8°-32.2°C)	After each 60 min. of work	After each 30 min. of work
82.5°-87.5°F (28.1°-30.8°C)	After each 90 min. of work	After each 60 min. of work
77.5°-82.5°F (25.3°-28.1°C)	After each 120 min. of work	After each 90 min. of work
72.5°-77.5°F (22.5°-25.3°C)	After each 150 min. of work	After each 120 min. of work

a For work levels of 250 kilocalories/hour.

b Calculate the adjusted air temperature (ta adj) by using this equation: ta adj ^{o}F = ta ^{o}F + (13 x % sunshine). Measure air temperature (ta) with a standard mercury-in-glass thermometer, with the bulb shielded from radiant heat. Estimate percent sunshine by judging what percent time the sun is not covered by clouds that are thick enough to produce a shadow. (100 percent sunshine = no cloud cover and a sharp, distinct shadow; 0 percent sunshine = no shadows.)

c A normal work ensemble consists of cotton coveralls or other cotton clothing with long sleeves and pants.

TABLE 7

HEAT INDEX

ENVIRONMENTAL TEMPERATURE (Fahrenheit)

RELATIVE HUMIDITY	70	75	80	85	90	95	100	105	110	115	120
	APPARENT TEMPERATURE*										
0%	64	69	73	78	83	87	91	95	99	103	107
10%	65	70	75	80	85	90	95	100	105	111	116
20%	66	72	77	82	87	93	99	105	112	120	**130**
30%	67	73	78	84	90	96	104	113	123	**135**	**148**
40%	68	74	79	86	93	101	110	123	**137**	**151**	
50%	69	75	81	88	96	107	120	**135**	**150**		
60%	70	76	82	90	100	114	**132**	**149**			
70%	70	77	85	93	106	124	**144**				
80%	71	78	86	97	113	**136**					
90%	71	79	88	102	122						
100%	72	80	91	108							

*Combined Index of Heat and Humidity...what it "feels like" to the body
Source: National Oceanic and Atmospheric Administration

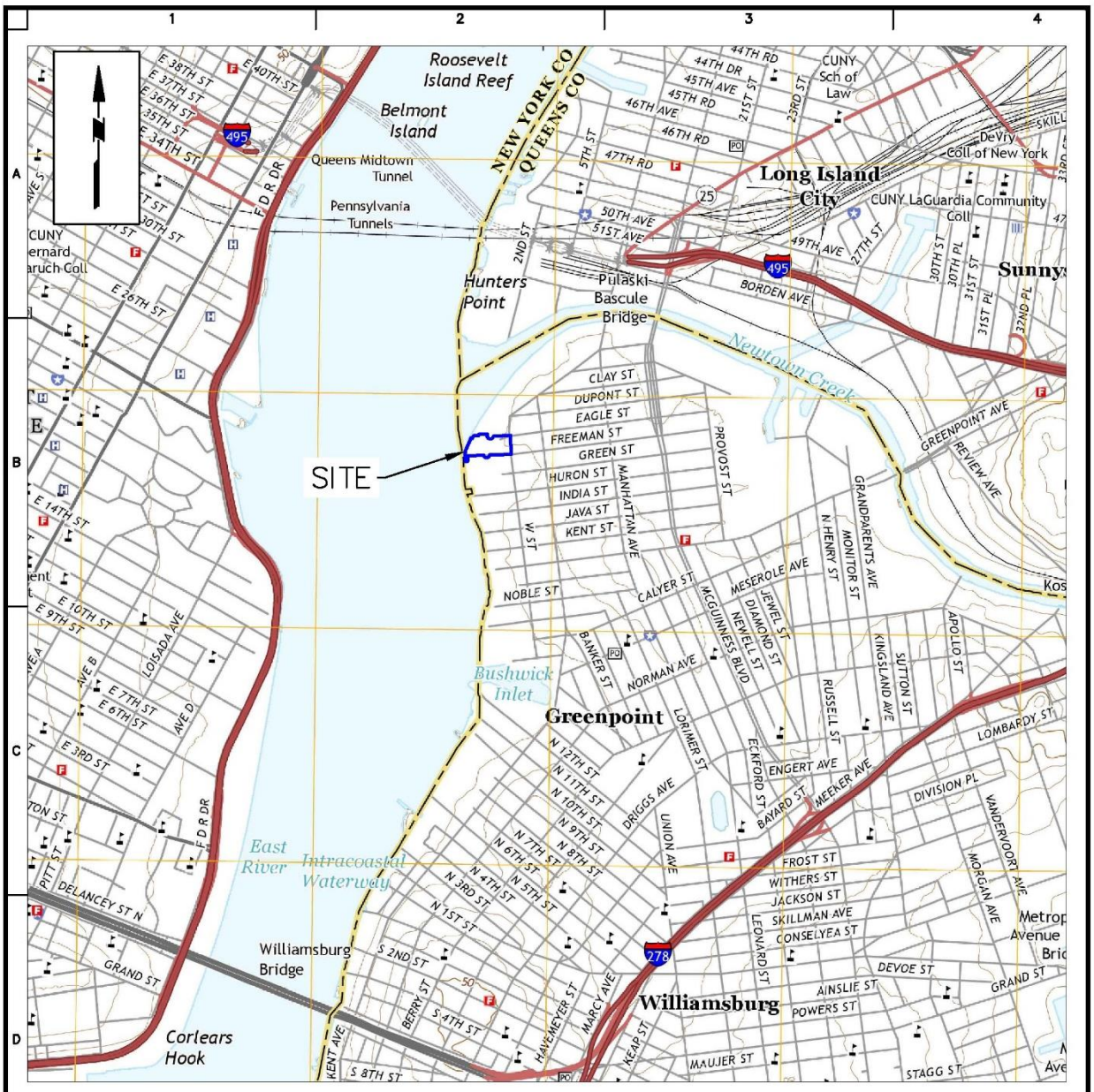
How to use Heat Index:
1. Across top locate Environmental Temperature
2. Down left side locate Relative Humidity
3. Follow across and down to find Apparent Temperature
4. Determine Heat Stress Risk on chart at right

Note: Exposure to full sunshine can increase Heat Index values by up to 15 degrees F.

Apparent Temperature	Heat Stress Risk with Physical Activity and/or Prolonged Exposure
90-105	Heat Cramps or Heat Exhaustion Possible
105-130	Heat Cramps or Heat Exhaustion Likely, Heat Stroke Possible
>130	Heatstroke Highly Likely

FIGURES

FIGURE 1
SITE LOCATION MAP



NOTES

1. BASE MAP SOURCE: UNITED STATES GEOLOGICAL SURVEY (USGS) (2016) 7.5–MINUTE SERIES TOPOGRAPHICAL MAPS, BROOKLYN, NEW YORK, QUADRANGLE.
2. NORTH ARROW SHOWS TRUE NORTH.

LEGEND

APPROXIMATE SITE BOUNDARY

2000 0 1000 2000

SCALE: 1 INCH = 2000 FEET

LANGAN
Langan Engineering, Environmental, Surveying, Landscape Architecture and Geology, D.P.C.
368 Ninth Avenue, 8th Floor
New York, NY 10001
T: 212.479.5400 F: 212.479.5444 www.langan.com

Project	C BLOCK BLOCK NO. 2502, p/o LOT NOs. 1 & 5, AND BLOCK NO. 2510, p/o LOT NOs. 1 & 100 KINGS NEW YORK
Figure Title	SITE LOCATION MAP
Project No.	170229030
Date	05/13/2025
Drawn By	VK
Checked By	GW
Figure	1
Sheet	1 of 13

© 2024 Langan

Filename: \\Langan.com\data\NYC\data01\170229030\Project Data\CAD\Sheet Files\Environmental\RIR Figures\Figure 1 - Site Location Map.dwg Date: 5/13/2025 Time: 09:45 User: vkanagaratnam Style Table: Langan.stb Layout: ANSI A-BP

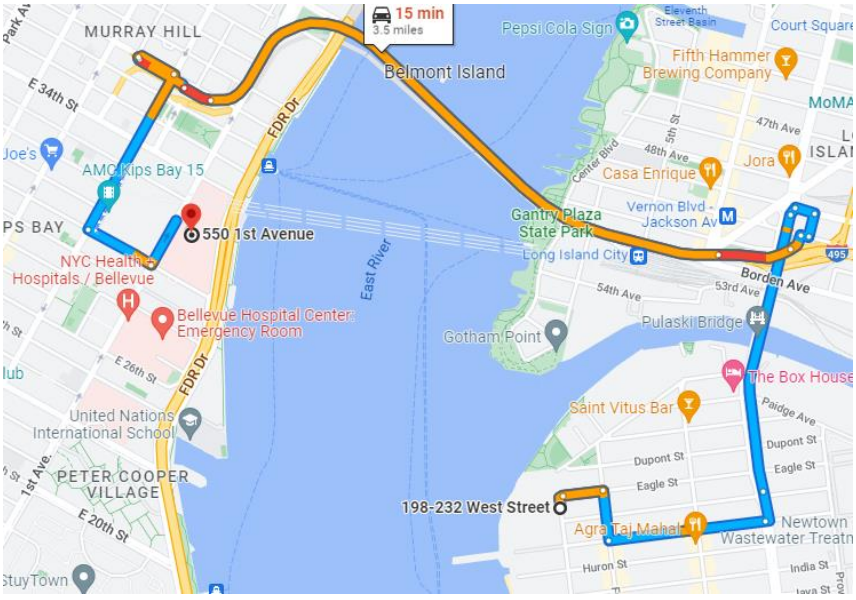
FIGURE 2
HOSPITAL ROUTE PLAN

Hospital Location: **New York University - Langone Hospital**
550 1st Avenue
New York, New York
212-263-7300

START: C Block, Brooklyn, New York

1. Head north on West St toward Eagle St
2. West St turns slightly right and becomes Eagle St
3. Turn right onto Franklin St
4. Turn left at the 2nd cross street onto Green St
5. Turn left onto McGuinness Blvd
6. Keep left to continue on Pulaski Bridge
7. Slight right toward 49th Ave
8. Tur right onto 49th Ave
9. Turn right onto 11th Pl
10. Turn right onto 50th Ave
11. Turn left onto the I-495 W ramp, follow onto Queens Midtown Tunnel
12. Use the right lane to take the exit toward Uptown/3 Ave/38th St/41 St
13. Keep right at the fork, follow signs for 39th St
14. Turn right onto E 37th St
15. Turn right onto 2nd Ave
16. Turn left onto E 30th St
17. Tur left onto 1st Ave, destination will be on the right.

END: New York University – Langone Hospital, 550 1st Ave, New York, NY



ATTACHMENTS

ATTACHMENT A

STANDING ORDERS

STANDING ORDERS

GENERAL

- No smoking, eating, or drinking in this work zone.
- Upon leaving the work zone, personnel will thoroughly wash their hands and face.
- Minimize contact with contaminated materials through proper planning of work areas and decontamination areas, and by following proper procedures. Do not place equipment on the ground. Do not sit on contaminated materials.
- No open flames in the work zone.
- Only properly trained and equipped personnel are permitted to work in potentially contaminated areas.
- Always use the appropriate level of personal protective equipment (PPE).
- Maintain close contact with your buddy in the work zone.
- Contaminated material will be contained in the Exclusion Zone (EZ).
- Report any unusual conditions.
- Work areas will be kept clear and uncluttered. Debris and other slip, trip, and fall hazards will be removed as frequently as possible.
- The number of personnel and equipment in the work zone will be kept to an essential minimum.
- Be alert to the symptoms of fatigue and heat/cold stress, and their effects on the normal caution and judgment of personnel.
- Conflicting situations which may arise concerning safety requirements and working conditions must be addressed and resolved quickly by the site HSO.

TOOLS AND HEAVY EQUIPMENT

- Do not, under any circumstances, enter or ride in or on any backhoe bucket, materials hoist, or any other device not specifically designed to carry passengers.
- Loose-fitting clothing or loose long hair is prohibited around moving machinery.
- Ensure that heavy equipment operators and all other personnel in the work zone are using the same hand signals to communicate.
- Drilling/excavating within 10 feet in any direction of overhead power lines is prohibited.
- The locations of all underground utilities must be identified and marked out prior to initiating any subsurface activities.
- Check to ensure that the equipment operator has lowered all blades and buckets to the ground before shutting off the vehicle.
- If the equipment has an emergency stop device, have the operator show all personnel its location and how to activate it.
- Help the operator ensure adequate clearances when the equipment must negotiate in tight quarters; serve as a signal operator to direct backing, as necessary.
- Ensure that all heavy equipment that is used in the Exclusion Zone is kept in that zone until the job is done and that such equipment is completely decontaminated before moving it into the clean area of the work zone.
- Samplers must not reach into or get near rotating equipment such as the drill rig. If personnel must work near any tools that could rotate, the equipment operator must completely shut down the rig prior to initiating such work. It may be necessary to use a remote sampling device.

ATTACHMENT B

DECONTAMINATION PROCEDURES

PERSONNEL DECONTAMINATION

LEVEL C DECONTAMINATION

Station 1:	Equipment Drop	1. Deposit equipment used on-site (tools, sampling devices and containers, monitoring instruments, radios, clipboards, etc.) on plastic drop cloths. Segregation at the drop reduces the probability of cross-contamination. During hot weather operations, cool down stations may be set up within this area.
Station 2:	Outer Garment, Boots, and Gloves Wash and Rinse	2. Scrub outer boots, outer gloves, and chemical-resistant splash suit with decon solution or detergent and water. Rinse off using copious amounts of water.
Station 3:	Outer Boot and Glove Removal	3. Remove outer boots and gloves. Deposit in container with plastic liner.
Station 4:	Canister or Mask Change	4. If worker leaves Exclusion Zone to change canister (or mask), this is the last step in the decontamination procedure. Worker's canister is exchanged, new outer gloves and boot covers donned, joints taped, and worker returns to duty.
Station 5:	Boot, Gloves and Outer Garment Removal	5. Boots, chemical-resistant splash suit, inner gloves removed and deposited in separate containers lined with plastic.
Station 6:	Face piece Removal	6. Face piece is removed (avoid touching face with fingers). Face piece deposited on plastic sheets.
Station 7:	Field Wash	7. Hands and face are thoroughly washed. Shower as soon as possible.

LEVEL D DECONTAMINATION

Station 1:	Equipment Drop	1. Deposit equipment used on-site (tools, sampling devices and containers, monitoring instruments, radios, clipboards, etc.) on plastic drop cloths. Segregation at the drop reduces the probability of cross contamination. During hot weather operations, cool down stations may be set up within this area.
Station 2:	Outer Garment, Boots, and Gloves Wash and Rinse	2. Scrub outer boots, outer gloves and chemical-resistant splash suit with decon solution or detergent and water. Rinse off using copious amounts of water.
Station 3:	Outer Boot and Glove Removal	3. Remove outer boots and gloves. Deposit in container with plastic liner.
Station 4:	Boot, Gloves and Outer Garment Removal	4. Boots, chemical-resistant splash suit, inner gloves removed and deposited in separate containers lined with plastic.
Station 5:	Field Wash	5. Hands and face are thoroughly washed. Shower as soon as possible.

EQUIPMENT DECONTAMINATION

GENERAL:

Equipment to be decontaminated during the project may include tools, monitoring equipment, respirators, sampling containers, laboratory equipment, and drilling equipment.

All decontamination will be done by personnel in protective gear, appropriate for the level of decontamination, as determined by the site HSO. The decontamination work tasks will be split or rotated among support and work crews.

Depending on site conditions, backhoes and pumps may be decontaminated over a portable decontamination pad to contain wash water; or wash water may be allowed to run off into a storm sewer system. Equipment needed may include a steam generator with high-pressure water, empty drums, screens, screen support structures, and shovels. Drums will be used to hold contaminated wash water pumped from the lined pit. These drums will be labeled as such.

Miscellaneous tools and equipment will be dropped into a plastic bucket, tub, or other containers. They will be brushed off and rinsed with a detergent solution, and finally rinsed with clean water.

MONITORING EQUIPMENT:

Monitoring equipment will be protected as much as possible from contamination by draping, masking, or otherwise covering as many of the instruments as possible with plastic without hindering the operation of the unit. The PID, HNu, or OVA meter, for example, can be placed in a clear plastic bag, which allows reading of the scale and operation of knobs. The probes can be partially wrapped keeping the sensor tip and discharge port clear.

The contaminated equipment will be taken from the drop area and the protective coverings removed and disposed of in the appropriate containers. Any dirt or obvious contamination will be brushed or wiped with a disposable paper wipe.

RESPIRATORS:

Respirators will be cleaned and disinfected after every use. Taken from the drop area, the masks (with the cartridges removed and disposed of with other used disposable gear) will be immersed in a cleaning solution and scrubbed gently with a soft brush, followed by a rinse in plain warm water, and then allowed to air dry. In the morning, new cartridges will be installed. Personnel will inspect their own masks for serviceability prior to donning them. And, once the mask is on, the wearer will check the respirator for leakage using the negative and positive pressure fit check techniques.

ATTACHMENT C

EMPLOYEE EXPOSURE/INJURY INCIDENT REPORT

EMPLOYEE INCIDENT/INJURY REPORT
LANGAN ENGINEERING & ENVIRONMENTAL SERVICES

(Complete and return to Tony Moffa in the Doylestown Office)

Affected Employee Name: _____ Date: _____

Incident type: ☐ Injury ☐ Report Only/No Injury
☐ Near Miss ☐ Other: _____

EMPLOYEE INFORMATION (Person completing Form)

Employee Name: _____ Employee No: _____

Title: _____ Office Location: _____

Length of time employed or date of hire: _____

Mailing address: _____

_____

Sex: M ☐ F ☐ Birth date: _____

Business phone & extension: _____ Residence/cell phone: _____

ACCIDENT INFORMATION

Project: _____ Project #: _____

Date & time of incident: _____ Time work started & ended: _____

Site location: _____

Incident Type: Possible Exposure ☐ Exposure ☐ Physical Injury ☐

Names of person(s) who witnessed the incident:_____

_____

_____

Exact location incident occurred:

_____

_____

Describe work being done:_____

_____

_____

_____

Describe what affected employee was doing prior to the incident occurring:

_____

_____

_____

Describe in detail how the incident occurred:

_____

_____

_____

_____

Nature of the incident (List the parts of the body affected):

_____

_____

_____

_____

Person(s) to whom the incident was reported (Time and Date):

_____

_____

List the names of other persons affected during this incident:

_____

_____

Possible causes of the incident (equipment, unsafe work practices, lack of PPE, etc.):

Weather conditions during incident:

MEDICAL CARE INFORMATION

Did affected employee receive medical care? Yes ☐ No ☐

If Yes, when, and where was medical care received:

Provide name of facility (hospital, clinic, etc.):

Length of stay at the facility.

Did the employee miss any work time? Yes ☐ No ☐ Undetermined ☐

Date employee last worked: Date employee returned to work:

Has the employee returned to work? Yes ☐ No ☐

Does the employee have any work limitations or restrictions from the injury? : Yes ☐ No ☐

If Yes, please describe:

Did the exposure/injury result in permanent disability? Yes ☐ No ☐ Unknown ☐

If Yes, please describe:

HEALTH & SAFETY INFORMATION

Was the operation being conducted under an established site-specific Construction Health and Safety Plan?
Yes ☐ No ☐ Not Applicable: ☐

Describe protective equipment and clothing used by the employee:

_____

_____

_____

Did any limitations in safety equipment or protective clothing contribute to or affect exposure/injury? If so, explain:

_____

_____

_____

_____

Employee Signature Date

_____

Langan Representative Date

ATTACHMENT D

CALIBRATION LOG

DATE:_____ **PROJECT:**_____

CALIBRATION LOG

Date & Time	Inst Type	Inst #	Media	Initial Reading	Span #	Calibrate Reading	Performed By:

ATTACHMENT E

SAFETY DATA SHEETS

SAFETY DATA SHEET

Version 4.10
Revision Date 01/28/2016
Print Date 02/18/2016

1. PRODUCT AND COMPANY IDENTIFICATION

1.1 Product identifiers

Product name : Biphenyl

Product Number : W312908
Brand : Aldrich
Index-No. : 601-042-00-8

CAS-No. : 92-52-4

1.2 Relevant identified uses of the substance or mixture and uses advised against

Identified uses : Laboratory chemicals, Synthesis of substances

1.3 Details of the supplier of the safety data sheet

Company : Sigma-Aldrich
3050 Spruce Street
SAINT LOUIS MO 63103
USA

Telephone : +1 800-325-5832
Fax : +1 800-325-5052

1.4 Emergency telephone number

Emergency Phone # : (314) 776-6555

2. HAZARDS IDENTIFICATION

2.1 Classification of the substance or mixture

GHS Classification in accordance with 29 CFR 1910 (OSHA HCS)
Skin irritation (Category 2), H315
Eye irritation (Category 2A), H319
Specific target organ toxicity - single exposure (Category 3), Respiratory system, H335
Acute aquatic toxicity (Category 1), H400
Chronic aquatic toxicity (Category 1), H410

For the full text of the H-Statements mentioned in this Section, see Section 16.

2.2 GHS Label elements, including precautionary statements

Pictogram



Signal word Warning

Hazard statement(s)
H315 Causes skin irritation.
H319 Causes serious eye irritation.
H335 May cause respiratory irritation.
H410 Very toxic to aquatic life with long lasting effects.

Precautionary statement(s)
P261 Avoid breathing dust/ fume/ gas/ mist/ vapours/ spray.
P264 Wash skin thoroughly after handling.
P271 Use only outdoors or in a well-ventilated area.

P273	Avoid release to the environment.
P280	Wear protective gloves/ eye protection/ face protection.
P302 + P352	IF ON SKIN: Wash with plenty of soap and water.
P304 + P340 + P312	IF INHALED: Remove person to fresh air and keep comfortable for breathing. Call a POISON CENTER or doctor/ physician if you feel unwell.
P305 + P351 + P338	IF IN EYES: Rinse cautiously with water for several minutes. Remove contact lenses, if present and easy to do. Continue rinsing.
P332 + P313	If skin irritation occurs: Get medical advice/ attention.
P337 + P313	If eye irritation persists: Get medical advice/ attention.
P362	Take off contaminated clothing and wash before reuse.
P391	Collect spillage.
P403 + P233	Store in a well-ventilated place. Keep container tightly closed.
P405	Store locked up.
P501	Dispose of contents/ container to an approved waste disposal plant.

2.3 Hazards not otherwise classified (HNOC) or not covered by GHS - none

3. COMPOSITION/INFORMATION ON INGREDIENTS

3.1 Substances

Formula	:	$C_{12}H_{10}$
Molecular weight	:	154.21 g/mol
CAS-No.	:	92-52-4
EC-No.	:	202-163-5
Index-No.	:	601-042-00-8

Hazardous components

Component	Classification	Concentration
Biphenyl		
	Skin Irrit. 2; Eye Irrit. 2A; STOT SE 3; Aquatic Acute 1; Aquatic Chronic 1; H315, H319, H335, H410	<= 100 %

For the full text of the H-Statements mentioned in this Section, see Section 16.

4. FIRST AID MEASURES

4.1 Description of first aid measures

General advice
Consult a physician. Show this safety data sheet to the doctor in attendance.Move out of dangerous area.

If inhaled
If breathed in, move person into fresh air. If not breathing, give artificial respiration. Consult a physician.

In case of skin contact
Wash off with soap and plenty of water. Consult a physician.

In case of eye contact
Rinse thoroughly with plenty of water for at least 15 minutes and consult a physician.

If swallowed
Never give anything by mouth to an unconscious person. Rinse mouth with water. Consult a physician.

4.2 Most important symptoms and effects, both acute and delayed
The most important known symptoms and effects are described in the labelling (see section 2.2) and/or in section 11

4.3 Indication of any immediate medical attention and special treatment needed
No data available

5. FIREFIGHTING MEASURES

5.1 Extinguishing media

Suitable extinguishing media
Use water spray, alcohol-resistant foam, dry chemical or carbon dioxide.

5.2 Special hazards arising from the substance or mixture
Carbon oxides

5.3 Advice for firefighters
Wear self-contained breathing apparatus for firefighting if necessary.

5.4 Further information
No data available

6. ACCIDENTAL RELEASE MEASURES

6.1 Personal precautions, protective equipment and emergency procedures
Use personal protective equipment. Avoid dust formation. Avoid breathing vapours, mist or gas. Ensure adequate ventilation. Evacuate personnel to safe areas. Avoid breathing dust.
For personal protection see section 8.

6.2 Environmental precautions
Prevent further leakage or spillage if safe to do so. Do not let product enter drains. Discharge into the environment must be avoided.

6.3 Methods and materials for containment and cleaning up
Pick up and arrange disposal without creating dust. Sweep up and shovel. Keep in suitable, closed containers for disposal.

6.4 Reference to other sections
For disposal see section 13.

7. HANDLING AND STORAGE

7.1 Precautions for safe handling
Avoid contact with skin and eyes. Avoid formation of dust and aerosols.Further processing of solid materials may result in the formation of combustible dusts. The potential for combustible dust formation should be taken into consideration before additional processing occurs.
Provide appropriate exhaust ventilation at places where dust is formed.
For precautions see section 2.2.

7.2 Conditions for safe storage, including any incompatibilities
Keep container tightly closed in a dry and well-ventilated place.
Storage class (TRGS 510): Non Combustible Solids

7.3 Specific end use(s)
Apart from the uses mentioned in section 1.2 no other specific uses are stipulated

8. EXPOSURE CONTROLS/PERSONAL PROTECTION

8.1 Control parameters

Components with workplace control parameters

Component	CAS-No.	Value	Control parameters	Basis
Biphenyl	92-52-4	TWA	0.2 ppm	USA. ACGIH Threshold Limit Values (TLV)
	Remarks	Pulmonary function		
		TWA	0.200000 ppm	USA. ACGIH Threshold Limit Values (TLV)
		Pulmonary function		

		TWA	0.2 ppm 1 mg/m3	USA. OSHA - TABLE Z-1 Limits for Air Contaminants - 1910.1000
		TWA	0.200000 ppm 1.000000 mg/m3	USA. Occupational Exposure Limits (OSHA) - Table Z-1 Limits for Air Contaminants
		The value in mg/m3 is approximate.		
		TWA	0.2 ppm 1 mg/m3	USA. Occupational Exposure Limits (OSHA) - Table Z-1 Limits for Air Contaminants
		The value in mg/m3 is approximate.		
		TWA	0.200000 ppm 1.000000 mg/m3	USA. NIOSH Recommended Exposure Limits

8.2 Exposure controls

Appropriate engineering controls
Handle in accordance with good industrial hygiene and safety practice. Wash hands before breaks and at the end of workday.

Personal protective equipment

Eye/face protection
Safety glasses with side-shields conforming to EN166 Use equipment for eye protection tested and approved under appropriate government standards such as NIOSH (US) or EN 166(EU).

Skin protection
Handle with gloves. Gloves must be inspected prior to use. Use proper glove removal technique (without touching glove's outer surface) to avoid skin contact with this product. Dispose of contaminated gloves after use in accordance with applicable laws and good laboratory practices. Wash and dry hands.

Full contact
Material: butyl-rubber
Minimum layer thickness: 0.3 mm
Break through time: 480 min
Material tested:Butoject® (KCL 897 / Aldrich Z677647, Size M)

Splash contact
Material: Nitrile rubber
Minimum layer thickness: 0.11 mm
Break through time: 30 min
Material tested:Dermatril® (KCL 740 / Aldrich Z677272, Size M)

data source: KCL GmbH, D-36124 Eichenzell, phone +49 (0)6659 87300, e-mail sales@kcl.de, test method: EN374
If used in solution, or mixed with other substances, and under conditions which differ from EN 374, contact the supplier of the CE approved gloves. This recommendation is advisory only and must be evaluated by an industrial hygienist and safety officer familiar with the specific situation of anticipated use by our customers. It should not be construed as offering an approval for any specific use scenario.

Body Protection
Impervious clothing, The type of protective equipment must be selected according to the concentration and amount of the dangerous substance at the specific workplace.

Respiratory protection
For nuisance exposures use type P95 (US) or type P1 (EU EN 143) particle respirator.For higher level protection use type OV/AG/P99 (US) or type ABEK-P2 (EU EN 143) respirator cartridges. Use respirators and components tested and approved under appropriate government standards such as NIOSH (US) or CEN (EU).

Control of environmental exposure
Prevent further leakage or spillage if safe to do so. Do not let product enter drains. Discharge into the environment must be avoided.

9. PHYSICAL AND CHEMICAL PROPERTIES

9.1 Information on basic physical and chemical properties

a)	Appearance	Form: crystalline Colour: light yellow
b)	Odour	characteristic
c)	Odour Threshold	No data available
d)	pH	5.5
e)	Melting point/freezing point	Melting point/range: 68 - 70 °C (154 - 158 °F) - lit.
f)	Initial boiling point and boiling range	255 °C (491 °F) - lit.
g)	Flash point	110 °C (230 °F) - closed cup
h)	Evaporation rate	No data available
i)	Flammability (solid, gas)	The product is not flammable. - Flammability (solids)
j)	Upper/lower flammability or explosive limits	Upper explosion limit: 5.8 %(V) Lower explosion limit: 0.6 %(V)
k)	Vapour pressure	0.04 hPa (0.03 mmHg) at 20 °C (68 °F) 5.5 hPa (4.1 mmHg) at 100 °C (212 °F) 12.6 hPa (9.5 mmHg) at 115 °C (239 °F) 95.7 hPa (71.8 mmHg) at 166 °C (331 °F)
l)	Vapour density	No data available
m)	Relative density	0.992 g/cm3
n)	Water solubility	0.0075 g/l at 15 °C (59 °F)
o)	Partition coefficient: n-octanol/water	log Pow: 4.008 at 25 °C (77 °F)
p)	Auto-ignition temperature	566 °C (1,051 °F) at 1,013.0 hPa (759.8 mmHg)
q)	Decomposition temperature	No data available
r)	Viscosity	No data available
s)	Explosive properties	No data available
t)	Oxidizing properties	No data available

9.2 Other safety information

No data available

10. STABILITY AND REACTIVITY

10.1 Reactivity

No data available

10.2 Chemical stability

Stable under recommended storage conditions.

10.3 Possibility of hazardous reactions

No data available

10.4 Conditions to avoid

No data available

10.5 Incompatible materials

Strong oxidizing agents

10.6 Hazardous decomposition products

Other decomposition products - No data available
In the event of fire: see section 5

11. TOXICOLOGICAL INFORMATION

11.1 Information on toxicological effects

Acute toxicity
Inhalation: No data available

LD50 Dermal - Rabbit - > 5,010 mg/kg

No data available

Skin corrosion/irritation
Skin - Rabbit
Result: Irritating to skin. - 24 h
(Draize Test)

Serious eye damage/eye irritation
No data available

Respiratory or skin sensitisation
Maximisation Test (GPMT) - Guinea pig
Does not cause skin sensitisation.
(OECD Test Guideline 406)

Germ cell mutagenicity
Ames test
S. typhimurium
Result: negative

Mouse - male and female
Result: negative

Carcinogenicity

Carcinogenicity - Mouse - Oral
Tumorigenic:Equivocal tumorigenic agent by RTECS criteria. Lungs, Thorax, or Respiration:Tumors. Blood:Tumors.

Carcinogenicity - Mouse - Subcutaneous
Tumorigenic:Neoplastic by RTECS criteria. Lungs, Thorax, or Respiration:Tumors. Liver:Tumors.

IARC:	No component of this product present at levels greater than or equal to 0.1% is identified as probable, possible or confirmed human carcinogen by IARC.
NTP:	No component of this product present at levels greater than or equal to 0.1% is identified as a known or anticipated carcinogen by NTP.
OSHA:	No component of this product present at levels greater than or equal to 0.1% is identified as a carcinogen or potential carcinogen by OSHA.

Reproductive toxicity
No data available

No data available

Specific target organ toxicity - single exposure
No data available

Specific target organ toxicity - repeated exposure
No data available

Aspiration hazard
No data available

Additional Information
RTECS: DU8050000

Liver injury may occur., Gastrointestinal disturbance

Stomach - Irregularities - Based on Human Evidence
Stomach - Irregularities - Based on Human Evidence

12. ECOLOGICAL INFORMATION

12.1 Toxicity

Toxicity to fish	flow-through test LC50 - Pimephales promelas (fathead minnow) - 3 mg/l - 96 h (OECD Test Guideline 203)
Toxicity to daphnia and other aquatic invertebrates	flow-through test EC50 - Daphnia magna (Water flea) - 0.36 mg/l - 48 h

12.2 Persistence and degradability

Biodegradability	aerobic - Exposure time 14 d Result: 84 % - Readily biodegradable (OECD Test Guideline 301C)

12.3 Bioaccumulative potential

Bioaccumulation	Leuciscus idus (Golden orfe) - 3 d - 50 µg/l Bioconcentration factor (BCF): 281

12.4 Mobility in soil

No data available

12.5 Results of PBT and vPvB assessment

PBT/vPvB assessment not available as chemical safety assessment not required/not conducted

12.6 Other adverse effects

An environmental hazard cannot be excluded in the event of unprofessional handling or disposal.
Very toxic to aquatic life with long lasting effects.

13. DISPOSAL CONSIDERATIONS

13.1 Waste treatment methods

Product
Offer surplus and non-recyclable solutions to a licensed disposal company. Contact a licensed professional waste disposal service to dispose of this material.

Contaminated packaging
Dispose of as unused product.

14. TRANSPORT INFORMATION

DOT (US)
UN number: 3077 Class: 9 Packing group: III
Proper shipping name: Environmentally hazardous substances, solid, n.o.s. (Biphenyl)
Reportable Quantity (RQ): 100 lbs
Marine pollutant:yes
Poison Inhalation Hazard: No

IMDG
UN number: 3077 Class: 9 Packing group: III EMS-No: F-A, S-F
Proper shipping name: ENVIRONMENTALLY HAZARDOUS SUBSTANCE, SOLID, N.O.S. (Biphenyl)
Marine pollutant:yes

IATA
UN number: 3077 Class: 9 Packing group: III
Proper shipping name: Environmentally hazardous substance, solid, n.o.s. (Biphenyl)

15. REGULATORY INFORMATION

SARA 302 Components
No chemicals in this material are subject to the reporting requirements of SARA Title III, Section 302.

SARA 313 Components
The following components are subject to reporting levels established by SARA Title III, Section 313:

	CAS-No.	Revision Date
Biphenyl	92-52-4	2007-07-01

SARA 311/312 Hazards
Acute Health Hazard, Chronic Health Hazard

Massachusetts Right To Know Components

	CAS-No.	Revision Date
Biphenyl	92-52-4	2007-07-01

Pennsylvania Right To Know Components

	CAS-No.	Revision Date
Biphenyl	92-52-4	2007-07-01

New Jersey Right To Know Components

	CAS-No.	Revision Date
Biphenyl	92-52-4	2007-07-01

California Prop. 65 Components
This product does not contain any chemicals known to State of California to cause cancer, birth defects, or any other reproductive harm.

16. OTHER INFORMATION

Full text of H-Statements referred to under sections 2 and 3.

Aquatic Acute	Acute aquatic toxicity
Aquatic Chronic	Chronic aquatic toxicity
Eye Irrit.	Eye irritation
H315	Causes skin irritation.
H319	Causes serious eye irritation.
H335	May cause respiratory irritation.
H400	Very toxic to aquatic life.
H410	Very toxic to aquatic life with long lasting effects.

HMIS Rating

Health hazard:	2
Chronic Health Hazard:	*
Flammability:	1
Physical Hazard	0

NFPA Rating

Health hazard:	2
Fire Hazard:	1
Reactivity Hazard:	0

Further information
Copyright 2016 Sigma-Aldrich Co. LLC. License granted to make unlimited paper copies for internal use only.
The above information is believed to be correct but does not purport to be all inclusive and shall be used only as a guide. The information in this document is based on the present state of our knowledge and is applicable to the product with regard to appropriate safety precautions. It does not represent any guarantee of the properties of the product. Sigma-Aldrich Corporation and its Affiliates shall not be held liable for any damage resulting from handling or from contact with the above product. See www.sigma-aldrich.com and/or the reverse side of invoice or packing slip for additional terms and conditions of sale.

Preparation Information
Sigma-Aldrich Corporation
Product Safety – Americas Region
1-800-521-8956

Version: 4.10 Revision Date: 01/28/2016 Print Date: 02/18/2016

SAFETY DATA SHEET

Version 5.3
Revision Date 12/29/2015
Print Date 04/11/2016

1. PRODUCT AND COMPANY IDENTIFICATION

1.1 Product identifiers

Product name : 1,1-Dichloroethane

Product Number : 48512
Brand : Supelco
Index-No. : 602-011-00-1

CAS-No. : 75-34-3

1.2 Relevant identified uses of the substance or mixture and uses advised against

Identified uses : Laboratory chemicals, Synthesis of substances

1.3 Details of the supplier of the safety data sheet

Company : Sigma-Aldrich
3050 Spruce Street
SAINT LOUIS MO 63103
USA

Telephone : +1 800-325-5832
Fax : +1 800-325-5052

1.4 Emergency telephone number

Emergency Phone # : (314) 776-6555

2. HAZARDS IDENTIFICATION

2.1 Classification of the substance or mixture

GHS Classification in accordance with 29 CFR 1910 (OSHA HCS)
Flammable liquids (Category 2), H225
Acute toxicity, Oral (Category 4), H302
Eye irritation (Category 2A), H319
Specific target organ toxicity - single exposure (Category 3), Respiratory system, H335
Acute aquatic toxicity (Category 3), H402
Chronic aquatic toxicity (Category 3), H412

For the full text of the H-Statements mentioned in this Section, see Section 16.

2.2 GHS Label elements, including precautionary statements

Pictogram



Signal word Danger

Hazard statement(s)
H225 Highly flammable liquid and vapour.
H302 Harmful if swallowed.
H319 Causes serious eye irritation.
H335 May cause respiratory irritation.
H412 Harmful to aquatic life with long lasting effects.

Precautionary statement(s)
P210 Keep away from heat/sparks/open flames/hot surfaces. No smoking.

P233	Keep container tightly closed.
P240	Ground/bond container and receiving equipment.
P241	Use explosion-proof electrical/ ventilating/ lighting/ equipment.
P242	Use only non-sparking tools.
P243	Take precautionary measures against static discharge.
P261	Avoid breathing dust/ fume/ gas/ mist/ vapours/ spray.
P264	Wash skin thoroughly after handling.
P270	Do not eat, drink or smoke when using this product.
P271	Use only outdoors or in a well-ventilated area.
P273	Avoid release to the environment.
P280	Wear protective gloves/ eye protection/ face protection.
P301 + P312 + P330	IF SWALLOWED: Call a POISON CENTER or doctor/ physician if you feel unwell. Rinse mouth.
P303 + P361 + P353	IF ON SKIN (or hair): Take off immediately all contaminated clothing. Rinse skin with water/shower.
P304 + P340 + P312	IF INHALED: Remove person to fresh air and keep comfortable for breathing. Call a POISON CENTER or doctor/ physician if you feel unwell.
P305 + P351 + P338	IF IN EYES: Rinse cautiously with water for several minutes. Remove contact lenses, if present and easy to do. Continue rinsing.
P337 + P313	If eye irritation persists: Get medical advice/ attention.
P370 + P378	In case of fire: Use dry sand, dry chemical or alcohol-resistant foam to extinguish.
P403 + P233	Store in a well-ventilated place. Keep container tightly closed.
P403 + P235	Store in a well-ventilated place. Keep cool.
P405	Store locked up.
P501	Dispose of contents/ container to an approved waste disposal plant.

2.3 Hazards not otherwise classified (HNOC) or not covered by GHS - none

3. COMPOSITION/INFORMATION ON INGREDIENTS

3.1 Substances

Synonyms	:	Ethylidene chloride
Formula	:	$C_2H_4Cl_2$
Molecular weight	:	98.96 g/mol
CAS-No.	:	75-34-3
EC-No.	:	200-863-5
Index-No.	:	602-011-00-1

Hazardous components

Component	Classification	Concentration
1,1-Dichloroethane		
	Flam. Liq. 2; Acute Tox. 4; Eye Irrit. 2A; STOT SE 3; Aquatic Acute 3; Aquatic Chronic 3; H225, H302, H319, H335, H412	<= 100 %

For the full text of the H-Statements mentioned in this Section, see Section 16.

4. FIRST AID MEASURES

4.1 Description of first aid measures

General advice
Consult a physician. Show this safety data sheet to the doctor in attendance.Move out of dangerous area.

If inhaled
If breathed in, move person into fresh air. If not breathing, give artificial respiration. Consult a physician.

In case of skin contact
Wash off with soap and plenty of water. Consult a physician.

In case of eye contact
Rinse thoroughly with plenty of water for at least 15 minutes and consult a physician.

If swallowed
Do NOT induce vomiting. Never give anything by mouth to an unconscious person. Rinse mouth with water. Consult a physician.

4.2 Most important symptoms and effects, both acute and delayed
The most important known symptoms and effects are described in the labelling (see section 2.2) and/or in section 11

4.3 Indication of any immediate medical attention and special treatment needed
No data available

5. FIREFIGHTING MEASURES

5.1 Extinguishing media

Suitable extinguishing media
Use water spray, alcohol-resistant foam, dry chemical or carbon dioxide.

5.2 Special hazards arising from the substance or mixture
Carbon oxides, Hydrogen chloride gas

5.3 Advice for firefighters
Wear self-contained breathing apparatus for firefighting if necessary.

5.4 Further information
Use water spray to cool unopened containers.

6. ACCIDENTAL RELEASE MEASURES

6.1 Personal precautions, protective equipment and emergency procedures
Use personal protective equipment. Avoid breathing vapours, mist or gas. Ensure adequate ventilation. Remove all sources of ignition. Evacuate personnel to safe areas. Beware of vapours accumulating to form explosive concentrations. Vapours can accumulate in low areas.
For personal protection see section 8.

6.2 Environmental precautions
Prevent further leakage or spillage if safe to do so. Do not let product enter drains. Discharge into the environment must be avoided.

6.3 Methods and materials for containment and cleaning up
Contain spillage, and then collect with an electrically protected vacuum cleaner or by wet-brushing and place in container for disposal according to local regulations (see section 13).

6.4 Reference to other sections
For disposal see section 13.

7. HANDLING AND STORAGE

7.1 Precautions for safe handling
Avoid contact with skin and eyes. Avoid inhalation of vapour or mist.
Use explosion-proof equipment.Keep away from sources of ignition - No smoking.Take measures to prevent the build up of electrostatic charge.
For precautions see section 2.2.

7.2 Conditions for safe storage, including any incompatibilities
Keep container tightly closed in a dry and well-ventilated place. Containers which are opened must be carefully resealed and kept upright to prevent leakage.
Storage class (TRGS 510): Flammable liquids

7.3 Specific end use(s)
Apart from the uses mentioned in section 1.2 no other specific uses are stipulated

8. EXPOSURE CONTROLS/PERSONAL PROTECTION

8.1 Control parameters

Components with workplace control parameters

Component	CAS-No.	Value	Control parameters	Basis
1,1-Dichloroethane	75-34-3	TWA	100.000000 ppm	USA. ACGIH Threshold Limit Values (TLV)
	Remarks	Upper Respiratory Tract irritation Eye irritation Liver damage Kidney damage Not classifiable as a human carcinogen		
		TWA	100.000000 ppm 400.000000 mg/m3	USA. NIOSH Recommended Exposure Limits
		See Appendix C		
		TWA	100.000000 ppm 400.000000 mg/m3	USA. Occupational Exposure Limits (OSHA) - Table Z-1 Limits for Air Contaminants
		The value in mg/m3 is approximate.		

8.2 Exposure controls

Appropriate engineering controls
Handle in accordance with good industrial hygiene and safety practice. Wash hands before breaks and at the end of workday.

Personal protective equipment

Eye/face protection
Face shield and safety glasses Use equipment for eye protection tested and approved under appropriate government standards such as NIOSH (US) or EN 166(EU).

Skin protection
Handle with gloves. Gloves must be inspected prior to use. Use proper glove removal technique (without touching glove's outer surface) to avoid skin contact with this product. Dispose of contaminated gloves after use in accordance with applicable laws and good laboratory practices. Wash and dry hands.

Full contact
Material: Fluorinated rubber
Minimum layer thickness: 0.7 mm
Break through time: 480 min
Material tested:Vitoject® (KCL 890 / Aldrich Z677698, Size M)

Splash contact
Material: butyl-rubber
Minimum layer thickness: 0.3 mm
Break through time: 60 min
Material tested:Butoject® (KCL 897 / Aldrich Z677647, Size M)

data source: KCL GmbH, D-36124 Eichenzell, phone +49 (0)6659 87300, e-mail sales@kcl.de, test method: EN374
If used in solution, or mixed with other substances, and under conditions which differ from EN 374, contact the supplier of the CE approved gloves. This recommendation is advisory only and must be evaluated by an industrial hygienist and safety officer familiar with the specific situation of anticipated use by our customers. It should not be construed as offering an approval for any specific use scenario.

Body Protection
Complete suit protecting against chemicals, Flame retardant antistatic protective clothing., The type of protective equipment must be selected according to the concentration and amount of the dangerous substance at the specific workplace.

Respiratory protection
Where risk assessment shows air-purifying respirators are appropriate use a full-face respirator with multi-purpose combination (US) or type AXBEK (EN 14387) respirator cartridges as a backup to engineering

controls. If the respirator is the sole means of protection, use a full-face supplied air respirator. Use respirators and components tested and approved under appropriate government standards such as NIOSH (US) or CEN (EU).

Control of environmental exposure
Prevent further leakage or spillage if safe to do so. Do not let product enter drains. Discharge into the environment must be avoided.

9. PHYSICAL AND CHEMICAL PROPERTIES

9.1 Information on basic physical and chemical properties

a)	Appearance	Form: liquid
b)	Odour	No data available
c)	Odour Threshold	No data available
d)	pH	No data available
e)	Melting point/freezing point	-97.99 °C (-144.38 °F)
f)	Initial boiling point and boiling range	55.0 - 58.0 °C (131.0 - 136.4 °F)
g)	Flash point	-9.99 °C (14.02 °F) - closed cup
h)	Evaporation rate	No data available
i)	Flammability (solid, gas)	No data available
j)	Upper/lower flammability or explosive limits	No data available
k)	Vapour pressure	No data available
l)	Vapour density	No data available
m)	Relative density	1.17 g/cm3
n)	Water solubility	No data available
o)	Partition coefficient: n-octanol/water	No data available
p)	Auto-ignition temperature	No data available
q)	Decomposition temperature	No data available
r)	Viscosity	No data available
s)	Explosive properties	No data available
t)	Oxidizing properties	No data available

9.2 Other safety information
No data available

10. STABILITY AND REACTIVITY

10.1 Reactivity
No data available

10.2 Chemical stability
Stable under recommended storage conditions.

10.3 Possibility of hazardous reactions
Vapours may form explosive mixture with air.

10.4 Conditions to avoid
Heat, flames and sparks.

10.5 Incompatible materials
Oxidizing agents

10.6 Hazardous decomposition products
Other decomposition products - No data available
In the event of fire: see section 5

11. TOXICOLOGICAL INFORMATION

11.1 Information on toxicological effects

Acute toxicity
LD50 Oral - Rat - 725.0 mg/kg

LC50 Inhalation - Rat - 4 h - 13000 ppm

Dermal: No data available

No data available

Skin corrosion/irritation
No data available

Serious eye damage/eye irritation
No data available

Respiratory or skin sensitisation
Chronic exposure may cause dermatitis.

Germ cell mutagenicity
No data available

Carcinogenicity

This product is or contains a component that is not classifiable as to its carcinogenicity based on its IARC, ACGIH, NTP, or EPA classification.

IARC:	No component of this product present at levels greater than or equal to 0.1% is identified as probable, possible or confirmed human carcinogen by IARC.
NTP:	No component of this product present at levels greater than or equal to 0.1% is identified as a known or anticipated carcinogen by NTP.
OSHA:	No component of this product present at levels greater than or equal to 0.1% is identified as a carcinogen or potential carcinogen by OSHA.

Reproductive toxicity
No data available

No data available

Specific target organ toxicity - single exposure
May cause respiratory irritation.

Specific target organ toxicity - repeated exposure
No data available

Aspiration hazard
No data available

Additional Information
RTECS: KI0175000

Liver injury may occur., Kidney injury may occur., narcosis, To the best of our knowledge, the chemical, physical, and toxicological properties have not been thoroughly investigated.

Central nervous system -

12. ECOLOGICAL INFORMATION

12.1 Toxicity
No data available

12.2 Persistence and degradability
No data available

12.3 Bioaccumulative potential
No data available

12.4 Mobility in soil
No data available

12.5 Results of PBT and vPvB assessment
PBT/vPvB assessment not available as chemical safety assessment not required/not conducted

12.6 Other adverse effects
An environmental hazard cannot be excluded in the event of unprofessional handling or disposal.
Harmful to aquatic life.

13. DISPOSAL CONSIDERATIONS

13.1 Waste treatment methods

Product
Burn in a chemical incinerator equipped with an afterburner and scrubber but exert extra care in igniting as this material is highly flammable. Offer surplus and non-recyclable solutions to a licensed disposal company. Contact a licensed professional waste disposal service to dispose of this material.

Contaminated packaging
Dispose of as unused product.

14. TRANSPORT INFORMATION

DOT (US)
UN number: 2362 Class: 3 Packing group: II
Proper shipping name: 1,1-Dichloroethane
Reportable Quantity (RQ): 1000 lbs

Poison Inhalation Hazard: No

IMDG
UN number: 2362 Class: 3 Packing group: II EMS-No: F-E, S-D
Proper shipping name: 1,1-DICHLOROETHANE

IATA
UN number: 2362 Class: 3 Packing group: II
Proper shipping name: 1,1-Dichloroethane

15. REGULATORY INFORMATION

SARA 302 Components
No chemicals in this material are subject to the reporting requirements of SARA Title III, Section 302.

SARA 313 Components
The following components are subject to reporting levels established by SARA Title III, Section 313:

	CAS-No.	Revision Date
1,1-Dichloroethane	75-34-3	2007-07-01

SARA 311/312 Hazards
Fire Hazard, Acute Health Hazard

Massachusetts Right To Know Components

	CAS-No.	Revision Date
1,1-Dichloroethane	75-34-3	2007-07-01

Pennsylvania Right To Know Components

	CAS-No.	Revision Date
1,1-Dichloroethane	75-34-3	2007-07-01

New Jersey Right To Know Components

	CAS-No.	Revision Date
1,1-Dichloroethane	75-34-3	2007-07-01

California Prop. 65 Components

WARNING! This product contains a chemical known to the State of California to cause cancer.	CAS-No.	Revision Date
1,1-Dichloroethane	75-34-3	2007-09-28

16. OTHER INFORMATION

Full text of H-Statements referred to under sections 2 and 3.

Acute Tox.	Acute toxicity
Aquatic Acute	Acute aquatic toxicity
Aquatic Chronic	Chronic aquatic toxicity
Eye Irrit.	Eye irritation
Flam. Liq.	Flammable liquids
H225	Highly flammable liquid and vapour.
H302	Harmful if swallowed.
H319	Causes serious eye irritation.
H335	May cause respiratory irritation.

HMIS Rating

Health hazard:	2
Chronic Health Hazard:	*
Flammability:	3
Physical Hazard	0

NFPA Rating

Health hazard:	2
Fire Hazard:	3
Reactivity Hazard:	0

Further information

Copyright 2015 Sigma-Aldrich Co. LLC. License granted to make unlimited paper copies for internal use only.
The above information is believed to be correct but does not purport to be all inclusive and shall be used only as a guide. The information in this document is based on the present state of our knowledge and is applicable to the product with regard to appropriate safety precautions. It does not represent any guarantee of the properties of the product. Sigma-Aldrich Corporation and its Affiliates shall not be held liable for any damage resulting from handling or from contact with the above product. See www.sigma-aldrich.com and/or the reverse side of invoice or packing slip for additional terms and conditions of sale.

Preparation Information

Sigma-Aldrich Corporation
Product Safety – Americas Region
1-800-521-8956

Version: 5.3 Revision Date: 12/29/2015 Print Date: 04/11/2016

SAFETY DATA SHEET

Version 6.5
Revision Date 05/02/2022
Print Date 05/14/2022

SECTION 1: Identification of the substance/mixture and of the company/undertaking

1.1 Product identifiers

Product name : 1,2,4,5-Tetramethylbenzene

Product Number : T19607
Brand : Aldrich
CAS-No. : 95-93-2

1.2 Relevant identified uses of the substance or mixture and uses advised against

Identified uses : Laboratory chemicals, Synthesis of substances

1.3 Details of the supplier of the safety data sheet

Company : Sigma-Aldrich Inc.
3050 SPRUCE ST
ST. LOUIS MO 63103
UNITED STATES

Telephone : +1 314 771-5765
Fax : +1 800 325-5052

1.4 Emergency telephone

Emergency Phone # : 800-424-9300 CHEMTREC (USA) +1-703-527-3887 CHEMTREC (International) 24 Hours/day; 7 Days/week

SECTION 2: Hazards identification

2.1 Classification of the substance or mixture

GHS Classification in accordance with 29 CFR 1910 (OSHA HCS)

Flammable solids (Category 1), H228
Short-term (acute) aquatic hazard (Category 1), H400
Long-term (chronic) aquatic hazard (Category 1), H410

For the full text of the H-Statements mentioned in this Section, see Section 16.

2.2 GHS Label elements, including precautionary statements

Pictogram



Signal Word Danger

Hazard statement(s)
H228 Flammable solid.

The life science business of Merck KGaA, Darmstadt, Germany
operates as MilliporeSigma in the US and Canada

H410	Very toxic to aquatic life with long lasting effects.

Precautionary statement(s)

P210	Keep away from heat/ sparks/ open flames/ hot surfaces. No smoking.
P240	Ground/bond container and receiving equipment.
P241	Use explosion-proof electrical/ ventilating/ lighting/ equipment.
P273	Avoid release to the environment.
P280	Wear protective gloves/ eye protection/ face protection.
P370 + P378	In case of fire: Use dry sand, dry chemical or alcohol-resistant foam to extinguish.
P391	Collect spillage.
P501	Dispose of contents/ container to an approved waste disposal plant.

2.3 Hazards not otherwise classified (HNOC) or not covered by GHS - none

SECTION 3: Composition/information on ingredients

3.1 Substances

Synonyms	:	Durene 1,2,4,5-Tetramethylbenzene
Formula	:	$C_{10}H_{14}$
Molecular weight	:	134.22 g/mol
CAS-No.	:	95-93-2
EC-No.	:	202-465-7

Component	Classification	Concentration
1,2,4,5-tetramethylbenzene		
	Flam. Sol. 1; Aquatic Acute 1; Aquatic Chronic 1; H228, H400, H410 M-Factor - Aquatic Acute: 1 - Aquatic Chronic: 1	<= 100 %

For the full text of the H-Statements mentioned in this Section, see Section 16.

SECTION 4: First aid measures

4.1 Description of first-aid measures

General advice
Show this material safety data sheet to the doctor in attendance.

If inhaled
After inhalation: fresh air.

In case of skin contact
In case of skin contact: Take off immediately all contaminated clothing. Rinse skin with water/ shower.

The life science business of Merck KGaA, Darmstadt, Germany
operates as MilliporeSigma in the US and Canada

In case of eye contact
After eye contact: rinse out with plenty of water. Remove contact lenses.

If swallowed
After swallowing: make victim drink water (two glasses at most). Consult doctor if feeling unwell.

4.2 Most important symptoms and effects, both acute and delayed
The most important known symptoms and effects are described in the labelling (see section 2.2) and/or in section 11

4.3 Indication of any immediate medical attention and special treatment needed
No data available

SECTION 5: Firefighting measures

5.1 Extinguishing media

Suitable extinguishing media
Water Foam Carbon dioxide (CO2) Dry powder

Unsuitable extinguishing media
For this substance/mixture no limitations of extinguishing agents are given.

5.2 Special hazards arising from the substance or mixture
Carbon oxides
Combustible.
Vapors are heavier than air and may spread along floors.
Forms explosive mixtures with air on intense heating.
Development of hazardous combustion gases or vapours possible in the event of fire.

5.3 Advice for firefighters
In the event of fire, wear self-contained breathing apparatus.

5.4 Further information
Remove container from danger zone and cool with water. Prevent fire extinguishing water from contaminating surface water or the ground water system.

SECTION 6: Accidental release measures

6.1 Personal precautions, protective equipment and emergency procedures
Advice for non-emergency personnel: Avoid inhalation of dusts. Avoid substance contact. Ensure adequate ventilation. Keep away from heat and sources of ignition. Evacuate the danger area, observe emergency procedures, consult an expert.
For personal protection see section 8.

6.2 Environmental precautions
Do not let product enter drains. Risk of explosion.

6.3 Methods and materials for containment and cleaning up
Cover drains. Collect, bind, and pump off spills. Observe possible material restrictions (see sections 7 and 10). Take up dry. Dispose of properly. Clean up affected area. Avoid generation of dusts.

6.4 Reference to other sections
For disposal see section 13.

The life science business of Merck KGaA, Darmstadt, Germany
operates as MilliporeSigma in the US and Canada

SECTION 7: Handling and storage

7.1 Precautions for safe handling

Advice on protection against fire and explosion
Keep away from open flames, hot surfaces and sources of ignition.Take precautionary measures against static discharge.

Hygiene measures
Change contaminated clothing. Wash hands after working with substance.
For precautions see section 2.2.

7.2 Conditions for safe storage, including any incompatibilities

Storage conditions
Tightly closed. Keep away from heat and sources of ignition.

Storage class
Storage class (TRGS 510): 4.1B: Flammable solid hazardous materials

7.3 Specific end use(s)

Apart from the uses mentioned in section 1.2 no other specific uses are stipulated

SECTION 8: Exposure controls/personal protection

8.1 Control parameters

Ingredients with workplace control parameters
Contains no substances with occupational exposure limit values.

8.2 Exposure controls

Appropriate engineering controls
Change contaminated clothing. Wash hands after working with substance.

Personal protective equipment

Eye/face protection
Use equipment for eye protection tested and approved under appropriate government standards such as NIOSH (US) or EN 166(EU). Safety glasses

Skin protection
Full contact
Material: Nitrile rubber
Minimum layer thickness: 0.11 mm
Break through time: 480 min
Material tested:KCL 741 Dermatril® L

Splash contact
Material: Nitrile rubber
Minimum layer thickness: 0.11 mm
Break through time: 480 min
Material tested:KCL 741 Dermatril® L

Body Protection
Flame retardant antistatic protective clothing.

Respiratory protection
required when dusts are generated.

The life science business of Merck KGaA, Darmstadt, Germany
operates as MilliporeSigma in the US and Canada

Our recommendations on filtering respiratory protection are based on the following standards: DIN EN 143, DIN 14387 and other accompanying standards relating to the used respiratory protection system.

Control of environmental exposure
Do not let product enter drains. Risk of explosion.

SECTION 9: Physical and chemical properties

9.1 Information on basic physical and chemical properties

a)	Appearance	Form: crystals
b)	Odor	No data available
c)	Odor Threshold	No data available
d)	pH	No data available
e)	Melting point/freezing point	Melting point/range: 76 - 80 °C (169 - 176 °F) - lit.
f)	Initial boiling point and boiling range	191 - 193 °C 376 - 379 °F
g)	Flash point	74 °C (165 °F) - c.c.
h)	Evaporation rate	No data available
i)	Flammability (solid, gas)	The substance or mixture is a flammable solid with the category 1.
j)	Upper/lower flammability or explosive limits	No data available
k)	Vapor pressure	No data available
l)	Vapor density	No data available
m)	Density	0.838 g/mL at 25 °C (77 °F) - lit.
	Relative density	No data available
n)	Water solubility	No data available
o)	Partition coefficient: n-octanol/water	No data available
p)	Autoignition temperature	No data available
q)	Decomposition temperature	No data available
r)	Viscosity	No data available
s)	Explosive properties	No data available
t)	Oxidizing properties	none

9.2 Other safety information

No data available

The life science business of Merck KGaA, Darmstadt, Germany
operates as MilliporeSigma in the US and Canada

SECTION 10: Stability and reactivity

10.1 Reactivity

Forms explosive mixtures with air on intense heating.
A range from approx. 15 Kelvin below the flash point is to be rated as critical.
The following applies in general to flammable organic substances and mixtures: in correspondingly fine distribution, when whirled up a dust explosion potential may generally be assumed.

10.2 Chemical stability

The product is chemically stable under standard ambient conditions (room temperature) .

10.3 Possibility of hazardous reactions

Violent reactions possible with:
Oxidizing agents

10.4 Conditions to avoid

Strong heating.

10.5 Incompatible materials

No data available

10.6 Hazardous decomposition products

In the event of fire: see section 5

SECTION 11: Toxicological information

11.1 Information on toxicological effects

Acute toxicity
LD50 Oral - Rat - 6,700 mg/kg
Remarks: (RTECS)
Inhalation: No data available
Dermal: No data available

Skin corrosion/irritation
No data available

Serious eye damage/eye irritation
No data available

Respiratory or skin sensitization
No data available

Germ cell mutagenicity
No data available

Carcinogenicity

IARC: No ingredient of this product present at levels greater than or equal to 0.1% is identified as probable, possible or confirmed human carcinogen by IARC.

NTP: No ingredient of this product present at levels greater than or equal to 0.1% is identified as a known or anticipated carcinogen by NTP.

OSHA: No component of this product present at levels greater than or equal to 0.1% is on OSHA's list of regulated carcinogens.

The life science business of Merck KGaA, Darmstadt, Germany
operates as MilliporeSigma in the US and Canada

Reproductive toxicity
No data available

Specific target organ toxicity - single exposure
No data available

Specific target organ toxicity - repeated exposure
No data available

Aspiration hazard
No data available

11.2 Additional Information

RTECS: DC0500000
The data available to us do not suffice to permit any industrial-toxicological assessment.

Further toxicological data:

Risk of absorption.

Other dangerous properties can not be excluded.

Further data:

Handle in accordance with good industrial hygiene and safety practice.

SECTION 12: Ecological information

12.1 Toxicity

Toxicity to fish	LC0 - Leuciscus idus (Golden orfe) - 10 mg/l - 48 h Remarks: (ECOTOX Database) LC50 - Leuciscus idus (Golden orfe) - 30 mg/l - 48 h Remarks: (ECOTOX Database) LC100 - Leuciscus idus (Golden orfe) - 50 mg/l - 48 h Remarks: (ECOTOX Database)
Toxicity to daphnia and other aquatic invertebrates	EC50 - Daphnia magna (Water flea) - 0.47 mg/l - 48 h Remarks: (External MSDS)

12.2 Persistence and degradability
Not readily biodegradable.

12.3 Bioaccumulative potential
No data available

12.4 Mobility in soil
No data available

The life science business of Merck KGaA, Darmstadt, Germany
operates as MilliporeSigma in the US and Canada

12.5 Results of PBT and vPvB assessment

PBT/vPvB assessment not available as chemical safety assessment not required/not conducted

12.6 Endocrine disrupting properties

No data available

12.7 Other adverse effects

Discharge into the environment must be avoided.

SECTION 13: Disposal considerations

13.1 Waste treatment methods

Product

Waste material must be disposed of in accordance with the national and local regulations. Leave chemicals in original containers. No mixing with other waste. Handle uncleaned containers like the product itself. See www.retrologistik.com for processes regarding the return of chemicals and containers, or contact us there if you have further questions.

SECTION 14: Transport information

DOT (US)

UN number: 1325 Class: 4.1 Packing group: II
Proper shipping name: Flammable solids, organic, n.o.s. (1,2,4,5-tetramethylbenzene)
Reportable Quantity (RQ):
Poison Inhalation Hazard: No

IMDG

UN number: 1325 Class: 4.1 Packing group: II EMS-No: F-A, S-G
Proper shipping name: FLAMMABLE SOLID, ORGANIC, N.O.S. (1,2,4,5-tetramethylbenzene)
Marine pollutant : yes

IATA

UN number: 1325 Class: 4.1 Packing group: II
Proper shipping name: Flammable solid, organic, n.o.s. (1,2,4,5-tetramethylbenzene)

SECTION 15: Regulatory information

SARA 302 Components

This material does not contain any components with a section 302 EHS TPQ.

SARA 313 Components

This material does not contain any chemical components with known CAS numbers that exceed the threshold (De Minimis) reporting levels established by SARA Title III, Section 313.

SARA 311/312 Hazards

Fire Hazard

Massachusetts Right To Know Components

No components are subject to the Massachusetts Right to Know Act.

The life science business of Merck KGaA, Darmstadt, Germany
operates as MilliporeSigma in the US and Canada

No components are subject to the Massachusetts Right to Know Act.

Pennsylvania Right To Know Components

1,2,4,5-tetramethylbenzene	CAS-No. 95-93-2	Revision Date

New Jersey Right To Know Components

1,2,4,5-tetramethylbenzene	CAS-No. 95-93-2	Revision Date

SECTION 16: Other information

Further information

The above information is believed to be correct but does not purport to be all inclusive and shall be used only as a guide. The information in this document is based on the present state of our knowledge and is applicable to the product with regard to appropriate safety precautions. It does not represent any guarantee of the properties of the product. Sigma-Aldrich Corporation and its Affiliates shall not be held liable for any damage resulting from handling or from contact with the above product. See www.sigma-aldrich.com and/or the reverse side of invoice or packing slip for additional terms and conditions of sale.

Copyright 2020 Sigma-Aldrich Co. LLC. License granted to make unlimited paper copies for internal use only.
The branding on the header and/or footer of this document may temporarily not visually match the product purchased as we transition our branding. However, all of the information in the document regarding the product remains unchanged and matches the product ordered. For further information please contact mlsbranding@sial.com.

Version: 6.5 Revision Date: 05/02/2022 Print Date: 05/14/2022

The life science business of Merck KGaA, Darmstadt, Germany
operates as MilliporeSigma in the US and Canada

SAFETY DATA SHEET

Version 3.11
Revision Date 05/24/2016
Print Date 10/31/2016

1. PRODUCT AND COMPANY IDENTIFICATION

1.1 Product identifiers

Product name : 1,2,4-Trichlorobenzene

Product Number : 296104
Brand : Sigma-Aldrich
Index-No. : 602-087-00-6

CAS-No. : 120-82-1

1.2 Relevant identified uses of the substance or mixture and uses advised against

Identified uses : Laboratory chemicals, Synthesis of substances

1.3 Details of the supplier of the safety data sheet

Company : Sigma-Aldrich
3050 Spruce Street
SAINT LOUIS MO 63103
USA

Telephone : +1 800-325-5832
Fax : +1 800-325-5052

1.4 Emergency telephone number

Emergency Phone # : +1-703-527-3887 (CHEMTREC)

2. HAZARDS IDENTIFICATION

2.1 Classification of the substance or mixture

GHS Classification in accordance with 29 CFR 1910 (OSHA HCS)
Acute toxicity, Oral (Category 4), H302
Skin irritation (Category 2), H315
Acute aquatic toxicity (Category 1), H400
Chronic aquatic toxicity (Category 2), H411

For the full text of the H-Statements mentioned in this Section, see Section 16.

2.2 GHS Label elements, including precautionary statements

Pictogram



Signal word Warning

Hazard statement(s)
H302 Harmful if swallowed.
H315 Causes skin irritation.
H400 Very toxic to aquatic life.
H411 Toxic to aquatic life with long lasting effects.

Precautionary statement(s)
P264 Wash skin thoroughly after handling.
P270 Do not eat, drink or smoke when using this product.
P273 Avoid release to the environment.
P280 Wear protective gloves.

P301 + P312 + P330	IF SWALLOWED: Call a POISON CENTER/doctor if you feel unwell. Rinse mouth.
P302 + P352	IF ON SKIN: Wash with plenty of soap and water.
P332 + P313	If skin irritation occurs: Get medical advice/ attention.
P362	Take off contaminated clothing and wash before reuse.
P391	Collect spillage.
P501	Dispose of contents/ container to an approved waste disposal plant.

2.3 Hazards not otherwise classified (HNOC) or not covered by GHS - none

3. COMPOSITION/INFORMATION ON INGREDIENTS

3.1 Substances

Formula	:	$C_6H_3Cl_3$
Molecular weight	:	181.45 g/mol
CAS-No.	:	120-82-1
EC-No.	:	204-428-0
Index-No.	:	602-087-00-6

Hazardous components

Component	Classification	Concentration
1,2,4-Trichlorobenzene		
	Acute Tox. 4; Skin Irrit. 2; Aquatic Acute 1; Aquatic Chronic 2; H302, H315, H400, H411	<= 100 %

For the full text of the H-Statements mentioned in this Section, see Section 16.

4. FIRST AID MEASURES

4.1 Description of first aid measures

General advice
Consult a physician. Show this safety data sheet to the doctor in attendance.Move out of dangerous area.

If inhaled
If breathed in, move person into fresh air. If not breathing, give artificial respiration. Consult a physician.

In case of skin contact
Wash off with soap and plenty of water. Consult a physician.

In case of eye contact
Flush eyes with water as a precaution.

If swallowed
Never give anything by mouth to an unconscious person. Rinse mouth with water. Consult a physician.

4.2 Most important symptoms and effects, both acute and delayed
The most important known symptoms and effects are described in the labelling (see section 2.2) and/or in section 11

4.3 Indication of any immediate medical attention and special treatment needed
No data available

5. FIREFIGHTING MEASURES

5.1 Extinguishing media

Suitable extinguishing media
Use water spray, alcohol-resistant foam, dry chemical or carbon dioxide.

5.2 Special hazards arising from the substance or mixture
No data available

5.3 Advice for firefighters
Wear self-contained breathing apparatus for firefighting if necessary.

5.4 Further information
No data available

6. ACCIDENTAL RELEASE MEASURES

6.1 Personal precautions, protective equipment and emergency procedures
Use personal protective equipment. Avoid breathing vapours, mist or gas. Ensure adequate ventilation. Evacuate personnel to safe areas.
For personal protection see section 8.

6.2 Environmental precautions
Prevent further leakage or spillage if safe to do so. Do not let product enter drains. Discharge into the environment must be avoided.

6.3 Methods and materials for containment and cleaning up
Soak up with inert absorbent material and dispose of as hazardous waste. Keep in suitable, closed containers for disposal.

6.4 Reference to other sections
For disposal see section 13.

7. HANDLING AND STORAGE

7.1 Precautions for safe handling
Avoid contact with skin and eyes. Avoid inhalation of vapour or mist.
For precautions see section 2.2.

7.2 Conditions for safe storage, including any incompatibilities
Keep container tightly closed in a dry and well-ventilated place. Containers which are opened must be carefully resealed and kept upright to prevent leakage.
Storage class (TRGS 510): Non-combustible, acute toxic Cat.3 / toxic hazardous materials or hazardous materials causing chronic effects

7.3 Specific end use(s)
Apart from the uses mentioned in section 1.2 no other specific uses are stipulated

8. EXPOSURE CONTROLS/PERSONAL PROTECTION

8.1 Control parameters

Components with workplace control parameters

Component	CAS-No.	Value	Control parameters	Basis
1,2,4-Trichlorobenzene	120-82-1	C	5.000000 ppm	USA. ACGIH Threshold Limit Values (TLV)
	Remarks	Upper Respiratory Tract irritation Eye irritation		
		C	5.000000 ppm 40.000000 mg/m3	USA. NIOSH Recommended Exposure Limits
		C	5 ppm 40 mg/m3	California permissible exposure limits for chemical contaminants (Title 8, Article 107)

8.2 Exposure controls

Appropriate engineering controls
Handle in accordance with good industrial hygiene and safety practice. Wash hands before breaks and at the end of workday.

Personal protective equipment

Eye/face protection
Face shield and safety glasses Use equipment for eye protection tested and approved under appropriate government standards such as NIOSH (US) or EN 166(EU).

Skin protection
Handle with gloves. Gloves must be inspected prior to use. Use proper glove removal technique (without touching glove's outer surface) to avoid skin contact with this product. Dispose of contaminated gloves after use in accordance with applicable laws and good laboratory practices. Wash and dry hands.

Full contact
Material: Fluorinated rubber
Minimum layer thickness: 0.7 mm
Break through time: 480 min
Material tested:Vitoject® (KCL 890 / Aldrich Z677698, Size M)

Splash contact
Material: Fluorinated rubber
Minimum layer thickness: 0.7 mm
Break through time: 480 min
Material tested:Vitoject® (KCL 890 / Aldrich Z677698, Size M)

data source: KCL GmbH, D-36124 Eichenzell, phone +49 (0)6659 87300, e-mail sales@kcl.de, test method: EN374
If used in solution, or mixed with other substances, and under conditions which differ from EN 374, contact the supplier of the CE approved gloves. This recommendation is advisory only and must be evaluated by an industrial hygienist and safety officer familiar with the specific situation of anticipated use by our customers. It should not be construed as offering an approval for any specific use scenario.

Body Protection
Complete suit protecting against chemicals, The type of protective equipment must be selected according to the concentration and amount of the dangerous substance at the specific workplace.

Respiratory protection
Where risk assessment shows air-purifying respirators are appropriate use a full-face respirator with multi-purpose combination (US) or type ABEK (EN 14387) respirator cartridges as a backup to engineering controls. If the respirator is the sole means of protection, use a full-face supplied air respirator. Use respirators and components tested and approved under appropriate government standards such as NIOSH (US) or CEN (EU).

Control of environmental exposure
Prevent further leakage or spillage if safe to do so. Do not let product enter drains. Discharge into the environment must be avoided.

9. PHYSICAL AND CHEMICAL PROPERTIES

9.1 Information on basic physical and chemical properties

a)	Appearance	Form: liquid, clear Colour: colourless
b)	Odour	No data available
c)	Odour Threshold	No data available
d)	pH	No data available
e)	Melting point/freezing point	16.0 °C (60.8 °F)
f)	Initial boiling point and boiling range	214.0 °C (417.2 °F)
g)	Flash point	110.0 °C (230.0 °F) - closed cup
h)	Evaporation rate	No data available
i)	Flammability (solid, gas)	No data available
j)	Upper/lower flammability or explosive limits	Upper explosion limit: 6.6 %(V) Lower explosion limit: 2.5 %(V)
k)	Vapour pressure	1.3 hPa (1.0 mmHg) at 40.0 °C (104.0 °F)
l)	Vapour density	No data available

m)	Relative density	1.45 g/cm3
n)	Water solubility	insoluble
o)	Partition coefficient: n-octanol/water	log Pow: 4.00
p)	Auto-ignition temperature	571.0 °C (1,059.8 °F)
q)	Decomposition temperature	No data available
r)	Viscosity	No data available
s)	Explosive properties	No data available
t)	Oxidizing properties	No data available

9.2 Other safety information
No data available

10. STABILITY AND REACTIVITY

10.1 Reactivity
No data available

10.2 Chemical stability
Stable under recommended storage conditions.

10.3 Possibility of hazardous reactions
No data available

10.4 Conditions to avoid
No data available

10.5 Incompatible materials
Strong oxidizing agents

10.6 Hazardous decomposition products
Hazardous decomposition products formed under fire conditions. - Carbon oxides, Hydrogen chloride gas
Other decomposition products - No data available
In the event of fire: see section 5

11. TOXICOLOGICAL INFORMATION

11.1 Information on toxicological effects

Acute toxicity
No data available

LD50 Oral - Rat - 756.0 mg/kg
Remarks: Behavioral:Somnolence (general depressed activity). Behavioral:Convulsions or effect on seizure threshold.

Inhalation: No data available

Inhalation: No data available

Dermal: No data available

LD50 Dermal - Rat - 6,139 mg/kg
Remarks: Behavioral:Somnolence (general depressed activity). Behavioral:Convulsions or effect on seizure threshold.

No data available

No data available

Skin corrosion/irritation
No data available

Skin - Rabbit
Result: Skin irritation

Serious eye damage/eye irritation
No data available

No data available

Respiratory or skin sensitisation
No data available

No data available

Germ cell mutagenicity

No data available

No data available

Carcinogenicity

IARC: No component of this product present at levels greater than or equal to 0.1% is identified as probable, possible or confirmed human carcinogen by IARC.

NTP: No component of this product present at levels greater than or equal to 0.1% is identified as a known or anticipated carcinogen by NTP.

OSHA: No component of this product present at levels greater than or equal to 0.1% is identified as a carcinogen or potential carcinogen by OSHA.

Reproductive toxicity
No data available
No data available
No data available

No data available

Specific target organ toxicity - single exposure
No data available

Specific target organ toxicity - repeated exposure
No data available

Aspiration hazard
No data available

Additional Information
RTECS: DC2100000

Nausea, Dizziness, Headache, Gastrointestinal disturbance, Liver injury may occur., Kidney injury may occur., To the best of our knowledge, the chemical, physical, and toxicological properties have not been thoroughly investigated.

12. ECOLOGICAL INFORMATION

12.1 Toxicity
No data available

Toxicity to fish	LC50 - Oncorhynchus mykiss (rainbow trout) - 1.32 mg/l - 96.0 h
Toxicity to daphnia and other aquatic invertebrates	LC50 - Daphnia magna (Water flea) - 1.7 mg/l - 48 h

12.2 Persistence and degradability
No data available

12.3 Bioaccumulative potential
No data available

12.4 Mobility in soil
No data available

12.5 Results of PBT and vPvB assessment

PBT/vPvB assessment not available as chemical safety assessment not required/not conducted

12.6 Other adverse effects

An environmental hazard cannot be excluded in the event of unprofessional handling or disposal.
Very toxic to aquatic life.

No data available

13. DISPOSAL CONSIDERATIONS

13.1 Waste treatment methods

Product

Offer surplus and non-recyclable solutions to a licensed disposal company. Contact a licensed professional waste disposal service to dispose of this material.

Contaminated packaging

Dispose of as unused product.

14. TRANSPORT INFORMATION

DOT (US)

UN number: 2321 Class: 6.1 Packing group: III
Proper shipping name: Trichlorobenzenes, liquid
Reportable Quantity (RQ): 100 lbs

Poison Inhalation Hazard: No

IMDG

UN number: 2321 Class: 6.1 Packing group: III EMS-No: F-A, S-A
Proper shipping name: TRICHLOROBENZENES, LIQUID
Marine pollutant: yes

IATA

UN number: 2321 Class: 6.1 Packing group: III
Proper shipping name: Trichlorobenzenes, liquid

15. REGULATORY INFORMATION

SARA 302 Components

No chemicals in this material are subject to the reporting requirements of SARA Title III, Section 302.

SARA 313 Components

The following components are subject to reporting levels established by SARA Title III, Section 313:

	CAS-No.	Revision Date
1,2,4-Trichlorobenzene	120-82-1	2007-07-01

SARA 311/312 Hazards

Acute Health Hazard

Massachusetts Right To Know Components

	CAS-No.	Revision Date
1,2,4-Trichlorobenzene	120-82-1	2007-07-01

Pennsylvania Right To Know Components

	CAS-No.	Revision Date
1,2,4-Trichlorobenzene	120-82-1	2007-07-01

New Jersey Right To Know Components

	CAS-No.	Revision Date
1,2,4-Trichlorobenzene	120-82-1	2007-07-01

California Prop. 65 Components

This product does not contain any chemicals known to State of California to cause cancer, birth defects, or any other reproductive harm.

16. OTHER INFORMATION

Full text of H-Statements referred to under sections 2 and 3.

Acute Tox.	Acute toxicity
Aquatic Acute	Acute aquatic toxicity
Aquatic Chronic	Chronic aquatic toxicity
H302	Harmful if swallowed.
H315	Causes skin irritation.
H400	Very toxic to aquatic life.
H411	Toxic to aquatic life with long lasting effects.
Skin Irrit.	Skin irritation

HMIS Rating

Health hazard:	2
Chronic Health Hazard:	
Flammability:	1
Physical Hazard	0

NFPA Rating

Health hazard:	2
Fire Hazard:	1
Reactivity Hazard:	0

Further information

Copyright 2016 Sigma-Aldrich Co. LLC. License granted to make unlimited paper copies for internal use only.
The above information is believed to be correct but does not purport to be all inclusive and shall be used only as a guide. The information in this document is based on the present state of our knowledge and is applicable to the product with regard to appropriate safety precautions. It does not represent any guarantee of the properties of the product. Sigma-Aldrich Corporation and its Affiliates shall not be held liable for any damage resulting from handling or from contact with the above product. See www.sigma-aldrich.com and/or the reverse side of invoice or packing slip for additional terms and conditions of sale.

Preparation Information

Sigma-Aldrich Corporation
Product Safety – Americas Region
1-800-521-8956

Version: 3.11 Revision Date: 05/24/2016 Print Date: 10/31/2016

SAFETY DATA SHEET

Version 4.7
Revision Date 11/26/2015
Print Date 02/11/2016

1. PRODUCT AND COMPANY IDENTIFICATION

1.1 Product identifiers

Product name : 1,2-Dichlorobenzene

Product Number : 240664
Brand : Sigma-Aldrich
Index-No. : 602-034-00-7

CAS-No. : 95-50-1

1.2 Relevant identified uses of the substance or mixture and uses advised against

Identified uses : Laboratory chemicals, Synthesis of substances

1.3 Details of the supplier of the safety data sheet

Company : Sigma-Aldrich
3050 Spruce Street
SAINT LOUIS MO 63103
USA

Telephone : +1 800-325-5832
Fax : +1 800-325-5052

1.4 Emergency telephone number

Emergency Phone # : (314) 776-6555

2. HAZARDS IDENTIFICATION

2.1 Classification of the substance or mixture

GHS Classification in accordance with 29 CFR 1910 (OSHA HCS)
Flammable liquids (Category 4), H227
Acute toxicity, Oral (Category 4), H302
Acute toxicity, Inhalation (Category 4), H332
Skin irritation (Category 2), H315
Eye irritation (Category 2A), H319
Skin sensitisation (Category 1), H317
Specific target organ toxicity - single exposure (Category 3), Respiratory system, H335
Acute aquatic toxicity (Category 1), H400
Chronic aquatic toxicity (Category 1), H410

For the full text of the H-Statements mentioned in this Section, see Section 16.

2.2 GHS Label elements, including precautionary statements

Pictogram



Signal word Warning

Hazard statement(s)
H227 Combustible liquid.
H302 + H332 Harmful if swallowed or if inhaled
H315 Causes skin irritation.
H317 May cause an allergic skin reaction.
H319 Causes serious eye irritation.

H335	May cause respiratory irritation.
H410	Very toxic to aquatic life with long lasting effects.

Precautionary statement(s)

P210	Keep away from heat/sparks/open flames/hot surfaces. No smoking.
P261	Avoid breathing dust/ fume/ gas/ mist/ vapours/ spray.
P264	Wash skin thoroughly after handling.
P270	Do not eat, drink or smoke when using this product.
P271	Use only outdoors or in a well-ventilated area.
P272	Contaminated work clothing should not be allowed out of the workplace.
P273	Avoid release to the environment.
P280	Wear protective gloves/ eye protection/ face protection.
P301 + P312 + P330	IF SWALLOWED: Call a POISON CENTER or doctor/ physician if you feel unwell. Rinse mouth.
P302 + P352	IF ON SKIN: Wash with plenty of soap and water.
P304 + P340 + P312	IF INHALED: Remove person to fresh air and keep comfortable for breathing. Call a POISON CENTER or doctor/ physician if you feel unwell.
P305 + P351 + P338	IF IN EYES: Rinse cautiously with water for several minutes. Remove contact lenses, if present and easy to do. Continue rinsing.
P333 + P313	If skin irritation or rash occurs: Get medical advice/ attention.
P337 + P313	If eye irritation persists: Get medical advice/ attention.
P362	Take off contaminated clothing and wash before reuse.
P370 + P378	In case of fire: Use dry sand, dry chemical or alcohol-resistant foam to extinguish.
P391	Collect spillage.
P403 + P233	Store in a well-ventilated place. Keep container tightly closed.
P403 + P235	Store in a well-ventilated place. Keep cool.
P405	Store locked up.
P501	Dispose of contents/ container to an approved waste disposal plant.

2.3 Hazards not otherwise classified (HNOC) or not covered by GHS - none

3. COMPOSITION/INFORMATION ON INGREDIENTS

3.1 Substances

Formula	:	$C_6H_4Cl_2$
Molecular weight	:	147.00 g/mol
CAS-No.	:	95-50-1
EC-No.	:	202-425-9
Index-No.	:	602-034-00-7

Hazardous components

Component	Classification	Concentration
1,2-Dichlorobenzene		
	Flam. Liq. 4; Acute Tox. 4; Skin Irrit. 2; Eye Irrit. 2A; Skin Sens. 1; STOT SE 3; Aquatic Acute 1; Aquatic Chronic 1; H227, H302 + H332, H315, H317, H319, H335, H410	<= 100 %

For the full text of the H-Statements mentioned in this Section, see Section 16.

4. FIRST AID MEASURES

4.1 Description of first aid measures

General advice
Consult a physician. Show this safety data sheet to the doctor in attendance.Move out of dangerous area.

If inhaled
If breathed in, move person into fresh air. If not breathing, give artificial respiration. Consult a physician.

In case of skin contact
Wash off with soap and plenty of water. Consult a physician.

In case of eye contact
Rinse thoroughly with plenty of water for at least 15 minutes and consult a physician.

If swallowed
Do NOT induce vomiting. Never give anything by mouth to an unconscious person. Rinse mouth with water. Consult a physician.

4.2 Most important symptoms and effects, both acute and delayed
The most important known symptoms and effects are described in the labelling (see section 2.2) and/or in section 11

4.3 Indication of any immediate medical attention and special treatment needed
No data available

5. FIREFIGHTING MEASURES

5.1 Extinguishing media

Suitable extinguishing media
Use water spray, alcohol-resistant foam, dry chemical or carbon dioxide.

5.2 Special hazards arising from the substance or mixture
Carbon oxides, Hydrogen chloride gas

5.3 Advice for firefighters
Wear self-contained breathing apparatus for firefighting if necessary.

5.4 Further information
Use water spray to cool unopened containers.

6. ACCIDENTAL RELEASE MEASURES

6.1 Personal precautions, protective equipment and emergency procedures
Use personal protective equipment. Avoid breathing vapours, mist or gas. Ensure adequate ventilation. Remove all sources of ignition. Evacuate personnel to safe areas. Beware of vapours accumulating to form explosive concentrations. Vapours can accumulate in low areas.
For personal protection see section 8.

6.2 Environmental precautions
Prevent further leakage or spillage if safe to do so. Do not let product enter drains. Discharge into the environment must be avoided.

6.3 Methods and materials for containment and cleaning up
Contain spillage, and then collect with an electrically protected vacuum cleaner or by wet-brushing and place in container for disposal according to local regulations (see section 13). Keep in suitable, closed containers for disposal.

6.4 Reference to other sections
For disposal see section 13.

7. HANDLING AND STORAGE

7.1 Precautions for safe handling
Avoid contact with skin and eyes. Avoid inhalation of vapour or mist.
Keep away from sources of ignition - No smoking.Take measures to prevent the build up of electrostatic charge.
For precautions see section 2.2.

7.2 Conditions for safe storage, including any incompatibilities
Keep container tightly closed in a dry and well-ventilated place. Containers which are opened must be carefully resealed and kept upright to prevent leakage.

Light sensitive.
Storage class (TRGS 510): Non-combustible, acute toxic Cat.3 / toxic hazardous materials or hazardous materials causing chronic effects

7.3 Specific end use(s)
Apart from the uses mentioned in section 1.2 no other specific uses are stipulated

8. EXPOSURE CONTROLS/PERSONAL PROTECTION

8.1 Control parameters

Components with workplace control parameters

Component	CAS-No.	Value	Control parameters	Basis
1,2-Dichlorobenzene	95-50-1	TWA	25.000000 ppm	USA. ACGIH Threshold Limit Values (TLV)
	Remarks	Upper Respiratory Tract irritation Eye irritation Liver damage Not classifiable as a human carcinogen		
		TWA	25 ppm	USA. ACGIH Threshold Limit Values (TLV)
		Upper Respiratory Tract irritation Eye irritation Liver damage Not classifiable as a human carcinogen		
		STEL	50.000000 ppm	USA. ACGIH Threshold Limit Values (TLV)
		Upper Respiratory Tract irritation Eye irritation Liver damage Not classifiable as a human carcinogen		
		STEL	50 ppm	USA. ACGIH Threshold Limit Values (TLV)
		Upper Respiratory Tract irritation Eye irritation Liver damage Not classifiable as a human carcinogen		
		C	50.000000 ppm 300.000000 mg/m3	USA. Occupational Exposure Limits (OSHA) - Table Z-1 Limits for Air Contaminants
		The value in mg/m3 is approximate. Ceiling limit is to be determined from breathing-zone air samples.		
		C	50.000000 ppm 300.000000 mg/m3	USA. NIOSH Recommended Exposure Limits

8.2 Exposure controls

Appropriate engineering controls
Handle in accordance with good industrial hygiene and safety practice. Wash hands before breaks and at the end of workday.

Personal protective equipment

Eye/face protection
Face shield and safety glasses Use equipment for eye protection tested and approved under appropriate government standards such as NIOSH (US) or EN 166(EU).

Skin protection
Handle with gloves. Gloves must be inspected prior to use. Use proper glove removal technique (without touching glove's outer surface) to avoid skin contact with this product. Dispose of contaminated gloves after use in accordance with applicable laws and good laboratory practices. Wash and dry hands.

Full contact
Material: Fluorinated rubber
Minimum layer thickness: 0.7 mm
Break through time: 480 min
Material tested:Vitoject® (KCL 890 / Aldrich Z677698, Size M)

Splash contact
Material: Nitrile rubber
Minimum layer thickness: 0.4 mm
Break through time: 38 min
Material tested:Camatril® (KCL 730 / Aldrich Z677442, Size M)

data source: KCL GmbH, D-36124 Eichenzell, phone +49 (0)6659 87300, e-mail sales@kcl.de, test method: EN374
If used in solution, or mixed with other substances, and under conditions which differ from EN 374, contact the supplier of the CE approved gloves. This recommendation is advisory only and must be evaluated by an industrial hygienist and safety officer familiar with the specific situation of anticipated use by our customers. It should not be construed as offering an approval for any specific use scenario.

Body Protection
Complete suit protecting against chemicals, The type of protective equipment must be selected according to the concentration and amount of the dangerous substance at the specific workplace.

Respiratory protection
Where risk assessment shows air-purifying respirators are appropriate use a full-face respirator with multi-purpose combination (US) or type ABEK (EN 14387) respirator cartridges as a backup to engineering controls. If the respirator is the sole means of protection, use a full-face supplied air respirator. Use respirators and components tested and approved under appropriate government standards such as NIOSH (US) or CEN (EU).

Control of environmental exposure
Prevent further leakage or spillage if safe to do so. Do not let product enter drains. Discharge into the environment must be avoided.

9. PHYSICAL AND CHEMICAL PROPERTIES

9.1 Information on basic physical and chemical properties

a)	Appearance	Form: liquid, clear Colour: colourless
b)	Odour	No data available
c)	Odour Threshold	No data available
d)	pH	No data available
e)	Melting point/freezing point	Melting point/range: -18 - -17 °C (0 - 1 °F) - lit.
f)	Initial boiling point and boiling range	178 - 180 °C (352 - 356 °F) - lit.
g)	Flash point	66.0 °C (150.8 °F) - closed cup
h)	Evaporation rate	No data available
i)	Flammability (solid, gas)	No data available
j)	Upper/lower flammability or explosive limits	Upper explosion limit: 9.2 %(V) Lower explosion limit: 2.2 %(V)
k)	Vapour pressure	2.1 hPa (1.6 mmHg) at 35.0 °C (95.0 °F) 1.6 hPa (1.2 mmHg) at 20.0 °C (68.0 °F)
l)	Vapour density	No data available
m)	Relative density	1.306 g/cm3 at 25 °C (77 °F)
n)	Water solubility	ca.0.1558 g/l at 25 °C (77 °F) - partly soluble
o)	Partition coefficient: n-octanol/water	log Pow: ca.3.433 at 25 °C (77 °F)
p)	Auto-ignition temperature	648.0 °C (1,198.4 °F)
q)	Decomposition	No data available

temperature

r)	Viscosity	No data available
s)	Explosive properties	No data available
t)	Oxidizing properties	No data available

9.2 Other safety information

Surface tension	ca.36.61 mN/m

10. STABILITY AND REACTIVITY

10.1 Reactivity
No data available

10.2 Chemical stability
Stable under recommended storage conditions.

10.3 Possibility of hazardous reactions
No data available

10.4 Conditions to avoid
Heat, flames and sparks.

10.5 Incompatible materials
Strong oxidizing agents

10.6 Hazardous decomposition products
Other decomposition products - No data available
In the event of fire: see section 5

11. TOXICOLOGICAL INFORMATION

11.1 Information on toxicological effects

Acute toxicity
LD50 Oral - Rat - 500.0 mg/kg

Inhalation: No data available

LD50 Dermal - Rabbit - > 10,000 mg/kg

No data available

Skin corrosion/irritation
Skin - Rabbit
(OECD Test Guideline 404)

Serious eye damage/eye irritation
No data available

Respiratory or skin sensitisation
in vivo assay - Mouse
May cause sensitisation by skin contact.
(OECD Test Guideline 429)

Germ cell mutagenicity
No data available

Ames test
Salmonella typhimurium
Result: negative

OECD Test Guideline 474
Mouse - male - Bone marrow
Result: negative

Carcinogenicity

IARC: 3 - Group 3: Not classifiable as to its carcinogenicity to humans (1,2-Dichlorobenzene)

NTP: No component of this product present at levels greater than or equal to 0.1% is identified as a known or anticipated carcinogen by NTP.

OSHA: No component of this product present at levels greater than or equal to 0.1% is identified as a carcinogen or potential carcinogen by OSHA.

Reproductive toxicity

No data available

Specific target organ toxicity - single exposure
No data available

Specific target organ toxicity - repeated exposure

Aspiration hazard
No data available

Additional Information

Repeated dose toxicity	Rat - male and female - Oral - 24 h - NOAEL : 60 mg/kg - LOAEL : 125 mg/kg - OECD Test Guideline 408

RTECS: CZ4500000

To the best of our knowledge, the chemical, physical, and toxicological properties have not been thoroughly investigated.

Stomach - Irregularities - Based on Human Evidence
Stomach - Irregularities - Based on Human Evidence

12. ECOLOGICAL INFORMATION

12.1 Toxicity

Toxicity to fish	flow-through test LC50 - Oncorhynchus mykiss (rainbow trout) - 1.58 mg/l - 96 h
Toxicity to daphnia and other aquatic invertebrates	static test EC50 - Ceriodaphnia dubia (water flea) - 0.66 mg/l - 48 h
Toxicity to algae	Growth inhibition EC50 - Pseudokirchneriella subcapitata - 2.2 mg/l - 96 h

12.2 Persistence and degradability

Biodegradability	aerobic - Exposure time 28 d Result: 0 % - Not readily biodegradable. (OECD Test Guideline 301C)

12.3 Bioaccumulative potential

Bioaccumulation	Cyprinus carpio (Carp) - 56 d - 0.01 mg/l Bioconcentration factor (BCF): 90 - 260 (OECD Test Guideline 305C)

12.4 Mobility in soil
No data available

12.5 Results of PBT and vPvB assessment
PBT/vPvB assessment not available as chemical safety assessment not required/not conducted

12.6 Other adverse effects
An environmental hazard cannot be excluded in the event of unprofessional handling or disposal.
Very toxic to aquatic life with long lasting effects.

13. DISPOSAL CONSIDERATIONS

13.1 Waste treatment methods

Product
This combustible material may be burned in a chemical incinerator equipped with an afterburner and scrubber. Offer surplus and non-recyclable solutions to a licensed disposal company. Contact a licensed professional waste disposal service to dispose of this material.

Contaminated packaging
Dispose of as unused product.

14. TRANSPORT INFORMATION

DOT (US)
UN number: 1591 Class: 6.1 Packing group: III
Proper shipping name: o-Dichlorobenzene
Reportable Quantity (RQ): 100 lbs

Poison Inhalation Hazard: No

IMDG
UN number: 1591 Class: 6.1 Packing group: III EMS-No: F-A, S-A
Proper shipping name: ortho-DICHLOROBENZENE
Marine pollutant:yes

IATA
UN number: 1591 Class: 6.1 Packing group: III
Proper shipping name: o-Dichlorobenzene

15. REGULATORY INFORMATION

SARA 302 Components
No chemicals in this material are subject to the reporting requirements of SARA Title III, Section 302.

SARA 313 Components
The following components are subject to reporting levels established by SARA Title III, Section 313:

	CAS-No.	Revision Date
1,2-Dichlorobenzene	95-50-1	2007-07-01

SARA 311/312 Hazards
Fire Hazard, Acute Health Hazard, Chronic Health Hazard

Massachusetts Right To Know Components

	CAS-No.	Revision Date
1,2-Dichlorobenzene	95-50-1	2007-07-01

Pennsylvania Right To Know Components

	CAS-No.	Revision Date
1,2-Dichlorobenzene	95-50-1	2007-07-01

New Jersey Right To Know Components

	CAS-No.	Revision Date
1,2-Dichlorobenzene	95-50-1	2007-07-01

California Prop. 65 Components
This product does not contain any chemicals known to State of California to cause cancer, birth defects, or any other reproductive harm.

16. OTHER INFORMATION

Full text of H-Statements referred to under sections 2 and 3.

Acute Tox. Acute toxicity

Aquatic Acute	Acute aquatic toxicity
Aquatic Chronic	Chronic aquatic toxicity
Eye Irrit.	Eye irritation
Flam. Liq.	Flammable liquids
H227	Combustible liquid.
H302	Harmful if swallowed.
H302 + H332	Harmful if swallowed or if inhaled
H315	Causes skin irritation.
H317	May cause an allergic skin reaction.
H319	Causes serious eye irritation.

HMIS Rating

Health hazard:	2
Chronic Health Hazard:	*
Flammability:	2
Physical Hazard	1

NFPA Rating

Health hazard:	2
Fire Hazard:	2
Reactivity Hazard:	0

Further information

Copyright 2015 Sigma-Aldrich Co. LLC. License granted to make unlimited paper copies for internal use only.
The above information is believed to be correct but does not purport to be all inclusive and shall be used only as a guide. The information in this document is based on the present state of our knowledge and is applicable to the product with regard to appropriate safety precautions. It does not represent any guarantee of the properties of the product. Sigma-Aldrich Corporation and its Affiliates shall not be held liable for any damage resulting from handling or from contact with the above product. See www.sigma-aldrich.com and/or the reverse side of invoice or packing slip for additional terms and conditions of sale.

Preparation Information

Sigma-Aldrich Corporation
Product Safety – Americas Region
1-800-521-8956

Version: 4.7 Revision Date: 11/26/2015 Print Date: 02/11/2016

SAFETY DATA SHEET

Creation Date 04-Feb-2010 **Revision Date** 18-Jan-2018 **Revision Number** 6

1. Identification

Product Name **1,2-Dichloroethane**

Cat No. : **E175-4; E175-20; E175-500; E175RS-19; E175RS-50; E190-4**

CAS-No 107-06-2
Synonyms Ethylene dichloride; Ethylene chloride (Certified ACS/Spectranalyzed)

Recommended Use Laboratory chemicals.
Uses advised against Not for food, drug, pesticide or biocidal product use

Details of the supplier of the safety data sheet

Company
Fisher Scientific
One Reagent Lane
Fair Lawn, NJ 07410
Tel: (201) 796-7100

Emergency Telephone Number
CHEMTREC®, Inside the USA: 800-424-9300
CHEMTREC®, Outside the USA: 001-703-527-3887

2. Hazard(s) identification

Classification
This chemical is considered hazardous by the 2012 OSHA Hazard Communication Standard (29 CFR 1910.1200)

Flammable liquids	Category 2
Acute oral toxicity	Category 4
Acute Inhalation Toxicity - Vapors	Category 3
Skin Corrosion/irritation	Category 2
Serious Eye Damage/Eye Irritation	Category 2
Carcinogenicity	Category 1B
Specific target organ toxicity (single exposure)	Category 3
Target Organs - Respiratory system, Central nervous system (CNS).	
Specific target organ toxicity - (repeated exposure)	Category 2
Target Organs - Kidney, Liver, Heart, Blood.	

Label Elements

Signal Word
Danger

Hazard Statements
Highly flammable liquid and vapor
Harmful if swallowed
Causes skin irritation
Causes serious eye irritation

Toxic if inhaled
May cause respiratory irritation
May cause drowsiness or dizziness
May cause cancer
May cause damage to organs through prolonged or repeated exposure



Precautionary Statements
Prevention
Obtain special instructions before use
Do not handle until all safety precautions have been read and understood
Use personal protective equipment as required
Wash face, hands and any exposed skin thoroughly after handling
Do not eat, drink or smoke when using this product
Use only outdoors or in a well-ventilated area
Wear eye/face protection
Do not breathe dust/fume/gas/mist/vapors/spray
Keep away from heat/sparks/open flames/hot surfaces. - No smoking
Keep container tightly closed
Ground/bond container and receiving equipment
Use explosion-proof electrical/ventilating/lighting/equipment
Use only non-sparking tools
Take precautionary measures against static discharge
Keep cool
Response
IF exposed or concerned: Get medical attention/advice
Inhalation
IF INHALED: Remove victim to fresh air and keep at rest in a position comfortable for breathing
Call a POISON CENTER or doctor/physician
Skin
If skin irritation occurs: Get medical advice/attention
IF ON SKIN (or hair): Take off immediately all contaminated clothing. Rinse skin with water/shower
Wash contaminated clothing before reuse
Eyes
IF IN EYES: Rinse cautiously with water for several minutes. Remove contact lenses, if present and easy to do. Continue rinsing
If eye irritation persists: Get medical advice/attention
Ingestion
IF SWALLOWED: Call a POISON CENTER or doctor/physician if you feel unwell
Rinse mouth
Fire
In case of fire: Use CO2, dry chemical, or foam for extinction
Storage
Store locked up
Store in a well-ventilated place. Keep container tightly closed
Disposal
Dispose of contents/container to an approved waste disposal plant
Hazards not otherwise classified (HNOC)

WARNING. Cancer - https://www.p65warnings.ca.gov/.

3. Composition/Information on Ingredients

Component	CAS-No	Weight %
Ethylene dichloride	107-06-2	>95

4. First-aid measures

General Advice Show this safety data sheet to the doctor in attendance. Immediate medical attention is required.

Eye Contact Rinse immediately with plenty of water, also under the eyelids, for at least 15 minutes. Immediate medical attention is required.

Skin Contact Wash off immediately with plenty of water for at least 15 minutes. Immediate medical attention is required.

Inhalation Move to fresh air. If breathing is difficult, give oxygen. Do not use mouth-to-mouth method if victim ingested or inhaled the substance; give artificial respiration with the aid of a pocket mask equipped with a one-way valve or other proper respiratory medical device. Immediate medical attention is required.

Ingestion Do not induce vomiting. Call a physician or Poison Control Center immediately.

Most important symptoms and effects Breathing difficulties. May cause cardiac arrhythmia. May cause central nervous system depression: Symptoms may include tightness in the chest, flushing, headache, nausea, vomiting, respiratory depression, weakness, irregular heartbeat, abdominal pain, convulsions, and shock

Notes to Physician Treat symptomatically

5. Fire-fighting measures

Suitable Extinguishing Media Use water spray, alcohol-resistant foam, dry chemical or carbon dioxide. Cool closed containers exposed to fire with water spray.

Unsuitable Extinguishing Media Water may be ineffective

Flash Point 13 °C / 55.4 °F

Method - No information available

Autoignition Temperature 440 °C / 824 °F

Explosion Limits

Upper 15.9 vol %
Lower 6.2 vol %
Sensitivity to Mechanical Impact No information available
Sensitivity to Static Discharge No information available

Specific Hazards Arising from the Chemical
Flammable. Containers may explode when heated. Vapors may form explosive mixtures with air. Vapors may travel to source of ignition and flash back. Keep product and empty container away from heat and sources of ignition. Thermal decomposition can lead to release of irritating gases and vapors.

Hazardous Combustion Products
Carbon monoxide (CO) Carbon dioxide (CO_2) Hydrogen chloride gas Phosgene
Protective Equipment and Precautions for Firefighters
As in any fire, wear self-contained breathing apparatus pressure-demand, MSHA/NIOSH (approved or equivalent) and full protective gear. Thermal decomposition can lead to release of irritating gases and vapors.

NFPA

Health	Flammability	Instability	Physical hazards
3	3	0	N/A

6. Accidental release measures

Personal Precautions Use personal protective equipment. Evacuate personnel to safe areas. Keep people away from and upwind of spill/leak. Ensure adequate ventilation. Remove all sources of ignition. Take precautionary measures against static discharges.

Environmental Precautions Should not be released into the environment. See Section 12 for additional ecological information.

Methods for Containment and Clean Up Soak up with inert absorbent material. Keep in suitable, closed containers for disposal. Remove all sources of ignition. Use spark-proof tools and explosion-proof equipment.

7. Handling and storage

Handling Wear personal protective equipment. Do not get in eyes, on skin, or on clothing. Do not ingest. Use only under a chemical fume hood. Do not breathe vapors or spray mist. Keep away from open flames, hot surfaces and sources of ignition. Use only non-sparking tools. To avoid ignition of vapors by static electricity discharge, all metal parts of the equipment must be grounded. Take precautionary measures against static discharges.

Storage Keep containers tightly closed in a dry, cool and well-ventilated place. Keep away from heat and sources of ignition.

8. Exposure controls / personal protection

Exposure Guidelines

Component	ACGIH TLV	OSHA PEL	NIOSH IDLH	Mexico OEL (TWA)
Ethylene dichloride	TWA: 10 ppm	(Vacated) TWA: 1 ppm (Vacated) TWA: 4 mg/m³ Ceiling: 100 ppm (Vacated) STEL: 2 ppm (Vacated) STEL: 8 mg/m³ TWA: 50 ppm	IDLH: 50 ppm TWA: 1 ppm TWA: 4 mg/m³ STEL: 2 ppm STEL: 8 mg/m³	TWA: 10 ppm TWA: 40 mg/m³

Legend

ACGIH - American Conference of Governmental Industrial Hygienists
OSHA - Occupational Safety and Health Administration
NIOSH IDLH: The National Institute for Occupational Safety and Health Immediately Dangerous to Life or Health

Engineering Measures Use only under a chemical fume hood. Use explosion-proof electrical/ventilating/lighting/equipment. Ensure that eyewash stations and safety showers are close to the workstation location. Ensure adequate ventilation, especially in confined areas.

Personal Protective Equipment

Eye/face Protection Wear appropriate protective eyeglasses or chemical safety goggles as described by OSHA's eye and face protection regulations in 29 CFR 1910.133 or European Standard EN166. Tightly fitting safety goggles. Face-shield.

Skin and body protection Wear appropriate protective gloves and clothing to prevent skin exposure.

Respiratory Protection Follow the OSHA respirator regulations found in 29 CFR 1910.134 or European Standard EN 149. Use a NIOSH/MSHA or European Standard EN 149 approved respirator if exposure limits are exceeded or if irritation or other symptoms are experienced.

Hygiene Measures Handle in accordance with good industrial hygiene and safety practice.

9. Physical and chemical properties

Physical State	Liquid
Appearance	Colorless
Odor	sweet
Odor Threshold	400 ppm
pH	No information available
Melting Point/Range	-35 °C / -31 °F
Boiling Point/Range	81 - 85 °C / 177.8 - 185 °F
Flash Point	13 °C / 55.4 °F
Evaporation Rate	6.5 (Butyl Acetate = 1.0)
Flammability (solid,gas)	Not applicable
Flammability or explosive limits	
Upper	15.9 vol %
Lower	6.2 vol %
Vapor Pressure	65 mmHg @ 29 °C
Vapor Density	3.4
Specific Gravity	1.250
Solubility	Insoluble in water
Partition coefficient; n-octanol/water	No data available
Autoignition Temperature	440 °C / 824 °F
Decomposition Temperature	No information available
Viscosity	0.8 mPa s at 20 °C
Molecular Formula	C2 H4 Cl2
Molecular Weight	98.96

10. Stability and reactivity

Reactive Hazard None known, based on information available

Stability Stable under normal conditions.

Conditions to Avoid Incompatible products. Excess heat. Keep away from open flames, hot surfaces and sources of ignition.

Incompatible Materials Strong oxidizing agents, Bases, Alkali metals

Hazardous Decomposition Products Carbon monoxide (CO), Carbon dioxide (CO_2), Hydrogen chloride gas, Phosgene

Hazardous Polymerization Hazardous polymerization does not occur.

Hazardous Reactions None under normal processing.

11. Toxicological information

Acute Toxicity

Product Information

Component Information

Component	LD50 Oral	LD50 Dermal	LC50 Inhalation
Ethylene dichloride	625 mg/kg (Rat) 413 mg/kg (Mouse)	2800 mg/kg (Rabbit)	28.79 mg/L (Rat) 1h 7.8 mg/l (Rat) 4h

Toxicologically Synergistic Products No information available

Delayed and immediate effects as well as chronic effects from short and long-term exposure

Irritation Irritating to eyes, respiratory system and skin

Sensitization No information available

Carcinogenicity The table below indicates whether each agency has listed any ingredient as a carcinogen.

Component	CAS-No	IARC	NTP	ACGIH	OSHA	Mexico
Ethylene dichloride	107-06-2	Group 2B	Reasonably Anticipated	Not listed	X	Not listed

IARC: (International Agency for Research on Cancer)

NTP: (National Toxicity Program)

IARC: (International Agency for Research on Cancer)
Group 1 - Carcinogenic to Humans
Group 2A - Probably Carcinogenic to Humans
Group 2B - Possibly Carcinogenic to Humans
NTP: (National Toxicity Program)
Known - Known Carcinogen
Reasonably Anticipated - Reasonably Anticipated to be a Human Carcinogen

Mutagenic Effects No information available

Reproductive Effects No information available.

Developmental Effects No information available.

Teratogenicity No information available.

STOT - single exposure Respiratory system Central nervous system (CNS)
STOT - repeated exposure Kidney Liver Heart Blood

Aspiration hazard No information available

Symptoms / effects,both acute and delayed May cause central nervous system depression: Symptoms may include tightness in the chest, flushing, headache, nausea, vomiting, respiratory depression, weakness, irregular heartbeat, abdominal pain, convulsions, and shock

Endocrine Disruptor Information No information available

Other Adverse Effects The toxicological properties have not been fully investigated.

12. Ecological information

Ecotoxicity
Do not empty into drains.

Component	Freshwater Algae	Freshwater Fish	Microtox	Water Flea
Ethylene dichloride	EC50: = 166 mg/L, 96h static (Desmodesmus subspicatus) EC50: > 433 mg/L, 96h (Pseudokirchneriella subcapitata)	LC50: 110 - 123 mg/L, 96h flow-through (Pimephales promelas) LC50: 230 - 710 mg/L, 96h flow-through (Lepomis macrochirus) LC50: = 225 mg/L, 96h static (Oncorhynchus mykiss)	Not listed	EC50: 140 - 190 mg/L, 48h Static (Daphnia magna)

Persistence and Degradability Persistence is unlikely based on information available.

Bioaccumulation/ Accumulation No information available.

Mobility Will likely be mobile in the environment due to its volatility.

Component	log Pow
Ethylene dichloride	1.45

13. Disposal considerations

Waste Disposal Methods Chemical waste generators must determine whether a discarded chemical is classified as a hazardous waste. Chemical waste generators must also consult local, regional, and national hazardous waste regulations to ensure complete and accurate classification.

Component	RCRA - U Series Wastes	RCRA - P Series Wastes
Ethylene dichloride - 107-06-2	U077	-

14. Transport information

DOT

UN-No	UN1184
Proper Shipping Name	ETHYLENE DICHLORIDE
Hazard Class	3
Subsidiary Hazard Class	6.1
Packing Group	II

TDG

UN-No	UN1184
Proper Shipping Name	ETHYLENE DICHLORIDE
Hazard Class	3
Subsidiary Hazard Class	6.1
Packing Group	II

IATA

UN-No	UN1184
Proper Shipping Name	ETHYLENE DICHLORIDE
Hazard Class	3
Subsidiary Hazard Class	6.1
Packing Group	II

IMDG/IMO

UN-No	UN1184
Proper Shipping Name	ETHYLENE DICHLORIDE
Hazard Class	3
Subsidiary Hazard Class	6.1
Packing Group	II

15. Regulatory information

All of the components in the product are on the following Inventory lists: X = listed

International Inventories

Component	TSCA	DSL	NDSL	EINECS	ELINCS	NLP	PICCS	ENCS	AICS	IECSC	KECL
Ethylene dichloride	X	X	-	203-458-1	-		X	X	X	X	X

Legend:
X - Listed
E - Indicates a substance that is the subject of a Section 5(e) Consent order under TSCA.
F - Indicates a substance that is the subject of a Section 5(f) Rule under TSCA.
N - Indicates a polymeric substance containing no free-radical initiator in its inventory name but is considered to cover the designated polymer made with any free-radical initiator regardless of the amount used.
P - Indicates a commenced PMN substance
R - Indicates a substance that is the subject of a Section 6 risk management rule under TSCA.
S - Indicates a substance that is identified in a proposed or final Significant New Use Rule
T - Indicates a substance that is the subject of a Section 4 test rule under TSCA.
XU - Indicates a substance exempt from reporting under the Inventory Update Rule, i.e. Partial Updating of the TSCA Inventory Data Base Production and Site Reports (40 CFR 710(B).
Y1 - Indicates an exempt polymer that has a number-average molecular weight of 1,000 or greater.
Y2 - Indicates an exempt polymer that is a polyester and is made only from reactants included in a specified list of low concern reactants that comprises one of the eligibility criteria for the exemption rule.

U.S. Federal Regulations

TSCA 12(b)

Component	TSCA 12(b)
Ethylene dichloride	Section 4

SARA 313

Component	CAS-No	Weight %	SARA 313 - Threshold Values %
Ethylene dichloride	107-06-2	>95	0.1

SARA 311/312 Hazard Categories See section 2 for more information

CWA (Clean Water Act)

Component	CWA - Hazardous Substances	CWA - Reportable Quantities	CWA - Toxic Pollutants	CWA - Priority Pollutants
Ethylene dichloride	X	100 lb	X	X

Clean Air Act

Component	HAPS Data	Class 1 Ozone Depletors	Class 2 Ozone Depletors
Ethylene dichloride	X		-

OSHA Occupational Safety and Health Administration
Not applicable

CERCLA This material, as supplied, contains one or more substances regulated as a hazardous substance under the Comprehensive Environmental Response Compensation and Liability Act (CERCLA) (40 CFR 302)

Component	Hazardous Substances RQs	CERCLA EHS RQs
Ethylene dichloride	100 lb 1 lb	-

California Proposition 65 This product contains the following proposition 65 chemicals

Component	CAS-No	California Prop. 65	Prop 65 NSRL	Category
Ethylene dichloride	107-06-2	Carcinogen	10 µg/day	Carcinogen

U.S. State Right-to-Know Regulations

Component	Massachusetts	New Jersey	Pennsylvania	Illinois	Rhode Island
Ethylene dichloride	X	X	X	X	-

U.S. Department of Transportation

Reportable Quantity (RQ): Y
DOT Marine Pollutant N
DOT Severe Marine Pollutant N

U.S. Department of Homeland Security
This product does not contain any DHS chemicals.

Other International Regulations

Mexico - Grade Serious risk, Grade 3

16. Other information

Prepared By Regulatory Affairs
Thermo Fisher Scientific
Email: EMSDS.RA@thermofisher.com

Creation Date 04-Feb-2010
Revision Date 18-Jan-2018
Print Date 18-Jan-2018
Revision Summary This document has been updated to comply with the US OSHA HazCom 2012 Standard replacing the current legislation under 29 CFR 1910.1200 to align with the Globally Harmonized System of Classification and Labeling of Chemicals (GHS).

Disclaimer

The information provided in this Safety Data Sheet is correct to the best of our knowledge, information and belief at the date of its publication. The information given is designed only as a guidance for safe handling, use, processing, storage, transportation, disposal and release and is not to be considered a warranty or quality specification. The information relates only to the specific material designated and may not be valid for such material used in combination with any other materials or in any process, unless specified in the text

End of SDS

Material Safety Data Sheet

Version 3.1
Revision Date 04/08/2011
Print Date 12/27/2011

1. PRODUCT AND COMPANY IDENTIFICATION

Product name	:	1,3,5-Trimethylbenzene
Product Number	:	442236
Brand	:	Supelco
Supplier	:	Sigma-Aldrich 3050 Spruce Street SAINT LOUIS MO 63103 USA
Telephone	:	+1 800-325-5832
Fax	:	+1 800-325-5052
Emergency Phone # (For both supplier and manufacturer)	:	(314) 776-6555
Preparation Information	:	Sigma-Aldrich Corporation Product Safety - Americas Region 1-800-521-8956

2. HAZARDS IDENTIFICATION

Emergency Overview

OSHA Hazards
Combustible Liquid, Target Organ Effect, Irritant

Target Organs

Peripheral nervous system., Central nervous system, Blood

GHS Classification
Flammable liquids (Category 3)
Acute toxicity, Inhalation (Category 5)
Skin irritation (Category 2)
Eye irritation (Category 2B)
Specific target organ toxicity - single exposure (Category 3)
Acute aquatic toxicity (Category 2)
Chronic aquatic toxicity (Category 2)

GHS Label elements, including precautionary statements

Pictogram



Signal word Warning

Hazard statement(s)

H226	Flammable liquid and vapour.
H315 + H320	Causes skin and eye irritation.
H333	May be harmful if inhaled.
H335	May cause respiratory irritation.
H411	Toxic to aquatic life with long lasting effects.

Precautionary statement(s)

P261	Avoid breathing dust/ fume/ gas/ mist/ vapours/ spray.
P273	Avoid release to the environment.
P305 + P351 + P338	IF IN EYES: Rinse cautiously with water for several minutes. Remove contact lenses, if present and easy to do. Continue rinsing.

HMIS Classification

Health hazard:	2
Chronic Health Hazard:	*
Flammability:	2
Physical hazards:	0

NFPA Rating

Health hazard:	2
Fire:	2
Reactivity Hazard:	0

Potential Health Effects

Inhalation	May be harmful if inhaled. Causes respiratory tract irritation.
Skin	May be harmful if absorbed through skin. Causes skin irritation.
Eyes	Causes eye irritation.
Ingestion	May be harmful if swallowed.

3. COMPOSITION/INFORMATION ON INGREDIENTS

Synonyms : Mesitylene
1,3,5-Trimethylbenzene

Formula : C_9H_{12}

Molecular Weight : 120.19 g/mol

CAS-No.	EC-No.	Index-No.	Concentration
Mesitylene			
108-67-8	203-604-4	601-025-00-5	-

4. FIRST AID MEASURES

General advice
Consult a physician. Show this safety data sheet to the doctor in attendance.Move out of dangerous area.

If inhaled
If breathed in, move person into fresh air. If not breathing, give artificial respiration. Consult a physician.

In case of skin contact
Wash off with soap and plenty of water. Consult a physician.

In case of eye contact
Rinse thoroughly with plenty of water for at least 15 minutes and consult a physician.

If swallowed
Do NOT induce vomiting. Never give anything by mouth to an unconscious person. Rinse mouth with water. Consult a physician.

5. FIRE-FIGHTING MEASURES

Suitable extinguishing media
For small (incipient) fires, use media such as "alcohol" foam, dry chemical, or carbon dioxide. For large fires, apply water from as far as possible. Use very large quantities (flooding) of water applied as a mist or spray; solid streams of water may be ineffective. Cool all affected containers with flooding quantities of water.

Special protective equipment for fire-fighters
Wear self contained breathing apparatus for fire fighting if necessary.

Hazardous combustion products
Hazardous decomposition products formed under fire conditions. - Carbon oxides

Further information
Use water spray to cool unopened containers.

6. ACCIDENTAL RELEASE MEASURES

Personal precautions
Use personal protective equipment. Avoid breathing vapors, mist or gas. Ensure adequate ventilation. Remove all sources of ignition. Evacuate personnel to safe areas. Beware of vapours accumulating to form explosive concentrations. Vapours can accumulate in low areas.

Environmental precautions
Prevent further leakage or spillage if safe to do so. Do not let product enter drains. Discharge into the environment must be avoided.

Methods and materials for containment and cleaning up
Contain spillage, and then collect with an electrically protected vacuum cleaner or by wet-brushing and place in container for disposal according to local regulations (see section 13).

7. HANDLING AND STORAGE

Precautions for safe handling
Avoid contact with skin and eyes. Avoid inhalation of vapour or mist.
Keep away from sources of ignition - No smoking. Take measures to prevent the build up of electrostatic charge.

Conditions for safe storage
Store in cool place. Keep container tightly closed in a dry and well-ventilated place. Containers which are opened must be carefully resealed and kept upright to prevent leakage.

8. EXPOSURE CONTROLS/PERSONAL PROTECTION

Components with workplace control parameters

Components	CAS-No.	Value	Control parameters	Basis
Mesitylene	108-67-8	TWA	25 ppm 125 mg/m3	USA. OSHA - TABLE Z-1 Limits for Air Contaminants - 1910.1000
		TWA	25 ppm 123 mg/m3	USA. ACGIH Threshold Limit Values (TLV)
		TWA	25 ppm 125 mg/m3	USA. NIOSH Recommended Exposure Limits

Personal protective equipment

Respiratory protection
Where risk assessment shows air-purifying respirators are appropriate use a full-face respirator with multi-purpose combination (US) or type ABEK (EN 14387) respirator cartridges as a backup to engineering controls. If the respirator is the sole means of protection, use a full-face supplied air respirator. Use respirators and components tested and approved under appropriate government standards such as NIOSH (US) or CEN (EU).

Hand protection
Handle with gloves. Gloves must be inspected prior to use. Use proper glove removal technique (without touching glove's outer surface) to avoid skin contact with this product. Dispose of contaminated gloves after use in accordance with applicable laws and good laboratory practices. Wash and dry hands.

Eye protection
Face shield and safety glasses Use equipment for eye protection tested and approved under appropriate government standards such as NIOSH (US) or EN 166(EU).

Skin and body protection
impervious clothing, Flame retardant antistatic protective clothing, The type of protective equipment must be selected according to the concentration and amount of the dangerous substance at the specific workplace.

Hygiene measures
Handle in accordance with good industrial hygiene and safety practice. Wash hands before breaks and at the end of workday.

9. PHYSICAL AND CHEMICAL PROPERTIES

Appearance

Form	liquid, clear

Colour	colourless

Safety data

pH	no data available
Melting point/freezing point	Melting point/range: -45 °C (-49 °F) - lit.
Boiling point	163 - 166 °C (325 - 331 °F) - lit.
Flash point	53.0 °C (127.4 °F) - closed cup
Ignition temperature	550 °C (1,022 °F)
Autoignition temperature	550.0 °C (1,022.0 °F)
Lower explosion limit	0.88 %(V)
Vapour pressure	18.7 hPa (14.0 mmHg) at 55.0 °C (131.0 °F) 3.3 hPa (2.5 mmHg) at 25.0 °C (77.0 °F)
Density	0.864 g/cm3 at 25 °C (77 °F)
Water solubility	no data available
Partition coefficient: n-octanol/water	no data available
Relative vapour density	no data available
Odour	no data available
Odour Threshold	no data available
Evaporation rate	no data available

10. STABILITY AND REACTIVITY

Chemical stability
Stable under recommended storage conditions.

Possibility of hazardous reactions
no data available

Conditions to avoid
Heat, flames and sparks.

Materials to avoid
Strong oxidizing agents

Hazardous decomposition products
Hazardous decomposition products formed under fire conditions. - Carbon oxides
Other decomposition products - no data available

11. TOXICOLOGICAL INFORMATION

Acute toxicity

Oral LD50
Inhalation LC50
LC50 Inhalation - rat - 4 h - 24,000 mg/m3

Dermal LD50
no data available

Other information on acute toxicity
no data available

Skin corrosion/irritation
Skin - rabbit - Skin irritation - 24 h

Serious eye damage/eye irritation
Eyes - rabbit - Mild eye irritation - 24 h

Respiratory or skin sensitization
no data available

Germ cell mutagenicity
no data available

Carcinogenicity

IARC: No component of this product present at levels greater than or equal to 0.1% is identified as probable, possible or confirmed human carcinogen by IARC.

ACGIH: No component of this product present at levels greater than or equal to 0.1% is identified as a carcinogen or potential carcinogen by ACGIH.

NTP: No component of this product present at levels greater than or equal to 0.1% is identified as a known or anticipated carcinogen by NTP.

OSHA: No component of this product present at levels greater than or equal to 0.1% is identified as a carcinogen or potential carcinogen by OSHA.

Reproductive toxicity

no data available

Teratogenicity

no data available

Specific target organ toxicity - single exposure (Globally Harmonized System)
May cause respiratory irritation.

Specific target organ toxicity - repeated exposure (Globally Harmonized System)
no data available

Aspiration hazard
no data available

Potential health effects

Inhalation	May be harmful if inhaled. Causes respiratory tract irritation.
Ingestion	May be harmful if swallowed.
Skin	May be harmful if absorbed through skin. Causes skin irritation.
Eyes	Causes eye irritation.

Signs and Symptoms of Exposure
To the best of our knowledge, the chemical, physical, and toxicological properties have not been thoroughly investigated.

Synergistic effects
no data available

Additional Information
RTECS: OX6825000

12. ECOLOGICAL INFORMATION

Toxicity

Toxicity to fish	LC50 - Carassius auratus (goldfish) - 12.52 mg/l - 96.0 h
Toxicity to daphnia and other aquatic invertebrates.	Immobilization EC50 - Daphnia magna (Water flea) - 6 mg/l - 48 h

Persistence and degradability
no data available

Bioaccumulative potential
no data available

Mobility in soil
no data available

PBT and vPvB assessment
no data available

Other adverse effects

Toxic to aquatic life with long lasting effects.

An environmental hazard cannot be excluded in the event of unprofessional handling or disposal.

13. DISPOSAL CONSIDERATIONS

Product
Burn in a chemical incinerator equipped with an afterburner and scrubber but exert extra care in igniting as this material is highly flammable. Offer surplus and non-recyclable solutions to a licensed disposal company. Contact a licensed professional waste disposal service to dispose of this material.

Contaminated packaging
Dispose of as unused product.

14. TRANSPORT INFORMATION

DOT (US)
UN number: 2325 Class: 3 Packing group: III
Proper shipping name: 1,3,5-Trimethylbenzene
Marine pollutant: No
Poison Inhalation Hazard: No

IMDG
UN number: 2325 Class: 3 Packing group: III EMS-No: F-E, S-D
Proper shipping name: 1,3,5-TRIMETHYLBENZENE
Marine pollutant: No

IATA
UN number: 2325 Class: 3 Packing group: III
Proper shipping name: 1,3,5-Trimethylbenzene

15. REGULATORY INFORMATION

OSHA Hazards
Combustible Liquid, Target Organ Effect, Irritant

SARA 302 Components
SARA 302: No chemicals in this material are subject to the reporting requirements of SARA Title III, Section 302.

SARA 313 Components
SARA 313: This material does not contain any chemical components with known CAS numbers that exceed the threshold (De Minimis) reporting levels established by SARA Title III, Section 313.

SARA 311/312 Hazards
Fire Hazard, Acute Health Hazard, Chronic Health Hazard

Massachusetts Right To Know Components

	CAS-No.	Revision Date
Mesitylene	108-67-8	1994-04-01

Pennsylvania Right To Know Components

	CAS-No.	Revision Date
Mesitylene	108-67-8	1994-04-01

New Jersey Right To Know Components

	CAS-No.	Revision Date
Mesitylene	108-67-8	1994-04-01

California Prop. 65 Components
This product does not contain any chemicals known to State of California to cause cancer, birth defects, or any other reproductive harm.

16. OTHER INFORMATION

Further information
Copyright 2011 Sigma-Aldrich Co. License granted to make unlimited paper copies for internal use only.
The above information is believed to be correct but does not purport to be all inclusive and shall be used only as a guide. The information in this document is based on the present state of our knowledge and is applicable to the product with regard to appropriate safety precautions. It does not represent any guarantee of the properties of the product. Sigma-Aldrich Co., shall not be held liable for any damage resulting from handling or from contact with the above product. See reverse side of invoice or packing slip for additional terms and conditions of sale.

SAFETY DATA SHEET

Version 4.6
Revision Date 03/03/2015
Print Date 03/03/2016

1. PRODUCT AND COMPANY IDENTIFICATION

1.1 Product identifiers

Product name : 1,3-Butadiene

Product Number : 295035
Brand : Aldrich
Index-No. : 601-013-00-X

CAS-No. : 106-99-0

1.2 Relevant identified uses of the substance or mixture and uses advised against

Identified uses : Laboratory chemicals, Manufacture of substances

1.3 Details of the supplier of the safety data sheet

Company : Sigma-Aldrich
3050 Spruce Street
SAINT LOUIS MO 63103
USA

Telephone : +1 800-325-5832
Fax : +1 800-325-5052

1.4 Emergency telephone number

Emergency Phone # : (314) 776-6555

2. HAZARDS IDENTIFICATION

2.1 Classification of the substance or mixture

GHS Classification in accordance with 29 CFR 1910 (OSHA HCS)
Flammable gases (Category 1), H220
Gases under pressure (Liquefied gas), H280
Germ cell mutagenicity (Category 1B), H340
Carcinogenicity (Category 1A), H350

For the full text of the H-Statements mentioned in this Section, see Section 16.

2.2 GHS Label elements, including precautionary statements

Pictogram



Signal word Danger

Hazard statement(s)
H220 Extremely flammable gas.
H280 Contains gas under pressure; may explode if heated.
H340 May cause genetic defects.
H350 May cause cancer.

Precautionary statement(s)
P201 Obtain special instructions before use.
P202 Do not handle until all safety precautions have been read and understood.
P210 Keep away from heat/sparks/open flames/hot surfaces. - No smoking.
P281 Use personal protective equipment as required.

P308 + P313	IF exposed or concerned: Get medical advice/ attention.
P377	Leaking gas fire: Do not extinguish, unless leak can be stopped safely.
P381	Eliminate all ignition sources if safe to do so.
P405	Store locked up.
P410 + P403	Protect from sunlight. Store in a well-ventilated place.
P501	Dispose of contents/ container to an approved waste disposal plant.

2.3 Hazards not otherwise classified (HNOC) or not covered by GHS - none

3. COMPOSITION/INFORMATION ON INGREDIENTS

3.1 Substances

Formula	:	C_4H_6
Molecular weight	:	54.09 g/mol
CAS-No.	:	106-99-0
EC-No.	:	203-450-8
Index-No.	:	601-013-00-X

Hazardous components

Component	Classification	Concentration
1,3-Butadiene		
	Flam. Gas 1; Press. Gas Liquefied gas; Muta. 1B; Carc. 1A; H220, H280, H340, H350	<= 100 %

For the full text of the H-Statements mentioned in this Section, see Section 16.

4. FIRST AID MEASURES

4.1 Description of first aid measures

General advice
Consult a physician. Show this safety data sheet to the doctor in attendance.Move out of dangerous area.

If inhaled
If breathed in, move person into fresh air. If not breathing, give artificial respiration. Consult a physician.

In case of skin contact
Wash off with soap and plenty of water. Consult a physician.

In case of eye contact
Flush eyes with water as a precaution.

If swallowed
Do NOT induce vomiting. Never give anything by mouth to an unconscious person. Rinse mouth with water. Consult a physician.

4.2 Most important symptoms and effects, both acute and delayed
The most important known symptoms and effects are described in the labelling (see section 2.2) and/or in section 11

4.3 Indication of any immediate medical attention and special treatment needed
No data available

5. FIREFIGHTING MEASURES

5.1 Extinguishing media

Suitable extinguishing media
Use water spray, alcohol-resistant foam, dry chemical or carbon dioxide.

5.2 Special hazards arising from the substance or mixture
Carbon oxides

5.3 Advice for firefighters
Wear self-contained breathing apparatus for firefighting if necessary.

5.4 Further information
Use water spray to cool unopened containers.

6. ACCIDENTAL RELEASE MEASURES

6.1 Personal precautions, protective equipment and emergency procedures

Use personal protective equipment. Avoid breathing vapours, mist or gas. Ensure adequate ventilation. Remove all sources of ignition. Evacuate personnel to safe areas. Beware of vapours accumulating to form explosive concentrations. Vapours can accumulate in low areas.
For personal protection see section 8.

6.2 Environmental precautions

Prevent further leakage or spillage if safe to do so. Do not let product enter drains.

6.3 Methods and materials for containment and cleaning up

Clean up promptly by sweeping or vacuum.

6.4 Reference to other sections

For disposal see section 13.

7. HANDLING AND STORAGE

7.1 Precautions for safe handling

Avoid inhalation of vapour or mist.
Use explosion-proof equipment.Keep away from sources of ignition - No smoking.Take measures to prevent the build up of electrostatic charge.
For precautions see section 2.2.

7.2 Conditions for safe storage, including any incompatibilities

Keep container tightly closed in a dry and well-ventilated place.

Recommended storage temperature 2 - 8 °C

Contents under pressure. Air sensitive. Light sensitive. Shock or heat may detonate May explode when heated. Handle and store under inert gas.
Storage class (TRGS 510): Gases

7.3 Specific end use(s)

Apart from the uses mentioned in section 1.2 no other specific uses are stipulated

8. EXPOSURE CONTROLS/PERSONAL PROTECTION

8.1 Control parameters

Components with workplace control parameters

Component	CAS-No.	Value	Control parameters	Basis
	Remarks	Potential Occupational Carcinogen See Appendix A		
1,3-Butadiene	106-99-0	TWA	2 ppm	USA. ACGIH Threshold Limit Values (TLV)
		Cancer Suspected human carcinogen		
		TWA	2.000000 ppm	USA. ACGIH Threshold Limit Values (TLV)
		Cancer Suspected human carcinogen		
		TWA	1 ppm	USA. Occupational Exposure Limits (OSHA) - Table Z-1 Limits for Air Contaminants
		Substance listed; for more information see OSHA document 29 CFR 1910.1051; 29 CFR 1910.19(1)		
		TWA	1.000000 ppm	USA. Occupational Exposure Limits (OSHA) - Table Z-1 Limits for Air Contaminants
		Substance listed; for more information see OSHA document 29 CFR 1910.1051; 29 CFR 1910.19(1)		

		STEL	5 ppm	USA. Occupational Exposure Limits (OSHA) - Table Z-1 Limits for Air Contaminants
		Substance listed; for more information see OSHA document 29 CFR 1910.1051; 29 CFR 1910.19(1)		
		STEL	5.000000 ppm	USA. Occupational Exposure Limits (OSHA) - Table Z-1 Limits for Air Contaminants
		Substance listed; for more information see OSHA document 29 CFR 1910.1051; 29 CFR 1910.19(1)		
		See 1910.1051		
		PEL	1.000000 ppm	OSHA Specifically Regulated Chemicals/Carcinogens
		1910.1051 This section applies to all occupational exposures to 1,3-Butadiene (BD), Chemical Abstracts Service Registry No. 106-99-0, except as provided in paragraph (a)(2) of this section. Except for the recordkeeping provisions in paragraph (m)(1) of this section, this section does not apply to the processing, use, or handling of products containing BD or to other work operations and streams in which BD is present where objective data are reasonably relied upon that demonstrate the work operation or the product or the group of products or operations to which it belongs may not reasonably be foreseen to release BD in airborne concentrations at or above the action level or in excess of the STEL under the expected conditions of processing, use, or handling that will cause the greatest possible release or in any plausible accident. This section also does not apply to work operations, products or streams where the only exposure to BD is from liquid mixtures containing 0.1% or less of BD by volume or the vapors released from such liquids, unless objective data become available that show that airborne concentrations generated by such mixtures can exceed the action level or STEL under reasonably predictable conditions of processing, use or handling that will cause the greatest possible release. Except for labeling requirements and requirements for emergency response, this section does not apply to the storage, transportation, distribution or sale of BD or liquid mixtures in intact containers or in transportation pipelines sealed in such a manner as to fully contain BD vapors or liquid. Where products or processes containing BD are exempted under paragraph (a)(2) of this section, the employer shall maintain records of the objective data supporting that exemption and the basis for the employer's reliance on the data, as provided in paragraph (m)(1) of this section 1,3-Butadiene means an organic compound with chemical formula CH2=CH-CH=CH2 that has a molecular weight of approximately 54.15 g/mole OSHA specifically regulated carcinogen		
		STEL	5.000000 ppm	OSHA Specifically Regulated Chemicals/Carcinogens
		1910.1051 This section applies to all occupational exposures to 1,3-Butadiene (BD), Chemical Abstracts Service Registry No. 106-99-0, except as provided in paragraph (a)(2) of this section. Except for the recordkeeping provisions in paragraph (m)(1) of this section, this section does not apply to the processing, use, or handling of products containing BD or to other work operations and streams in which BD is present where objective data are reasonably relied upon that demonstrate the work operation or the product or the group of products or operations to which it belongs may not reasonably be foreseen to release BD in airborne concentrations at or above the		

		action level or in excess of the STEL under the expected conditions of processing, use, or handling that will cause the greatest possible release or in any plausible accident. This section also does not apply to work operations, products or streams where the only exposure to BD is from liquid mixtures containing 0.1% or less of BD by volume or the vapors released from such liquids, unless objective data become available that show that airborne concentrations generated by such mixtures can exceed the action level or STEL under reasonably predictable conditions of processing, use or handling that will cause the greatest possible release. Except for labeling requirements and requirements for emergency response, this section does not apply to the storage, transportation, distribution or sale of BD or liquid mixtures in intact containers or in transportation pipelines sealed in such a manner as to fully contain BD vapors or liquid. Where products or processes containing BD are exempted under paragraph (a)(2) of this section, the employer shall maintain records of the objective data supporting that exemption and the basis for the employer's reliance on the data, as provided in paragraph (m)(1) of this section 1,3-Butadiene means an organic compound with chemical formula CH2=CH-CH=CH2 that has a molecular weight of approximately 54.15 g/mole OSHA specifically regulated carcinogen

Biological occupational exposure limits

Component	CAS-No.	Parameters	Value	Biological specimen	Basis
1,3-Butadiene	106-99-0	1,2 Dihydroxy-4-(N-acetylcysteinyl)-butane	2.5000 mg/l	Urine	ACGIH - Biological Exposure Indices (BEI)
	Remarks	End of shift (As soon as possible after exposure ceases)			
		Mixture of N-1 and N-2(hydroxybutenyl)valine	2.5pmol/g	Hemoglobin (Hb) adducts in blood	ACGIH - Biological Exposure Indices (BEI)
		Not critical			

8.2 Exposure controls

Appropriate engineering controls
Handle in accordance with good industrial hygiene and safety practice. Wash hands before breaks and at the end of workday.

Personal protective equipment

Eye/face protection
Face shield and safety glasses Use equipment for eye protection tested and approved under appropriate government standards such as NIOSH (US) or EN 166(EU).

Skin protection
Handle with gloves. Gloves must be inspected prior to use. Use proper glove removal technique (without touching glove's outer surface) to avoid skin contact with this product. Dispose of contaminated gloves after use in accordance with applicable laws and good laboratory practices. Wash and dry hands.

Full contact
Material: Fluorinated rubber
Minimum layer thickness: 0.7 mm
Break through time: 480 min
Material tested:Vitoject® (KCL 890 / Aldrich Z677698, Size M)

Splash contact
Material: Fluorinated rubber

Minimum layer thickness: 0.7 mm
Break through time: 480 min
Material tested:Vitoject® (KCL 890 / Aldrich Z677698, Size M)

data source: KCL GmbH, D-36124 Eichenzell, phone +49 (0)6659 87300, e-mail sales@kcl.de, test method: EN374
If used in solution, or mixed with other substances, and under conditions which differ from EN 374, contact the supplier of the CE approved gloves. This recommendation is advisory only and must be evaluated by an industrial hygienist and safety officer familiar with the specific situation of anticipated use by our customers. It should not be construed as offering an approval for any specific use scenario.

Body Protection
Complete suit protecting against chemicals, Flame retardant antistatic protective clothing., The type of protective equipment must be selected according to the concentration and amount of the dangerous substance at the specific workplace.

Respiratory protection
Where risk assessment shows air-purifying respirators are appropriate use a full-face respirator with multi-purpose combination (US) or type AXBEK (EN 14387) respirator cartridges as a backup to engineering controls. If the respirator is the sole means of protection, use a full-face supplied air respirator. Use respirators and components tested and approved under appropriate government standards such as NIOSH (US) or CEN (EU).

Control of environmental exposure
Prevent further leakage or spillage if safe to do so. Do not let product enter drains.

9. PHYSICAL AND CHEMICAL PROPERTIES

9.1 Information on basic physical and chemical properties

a)	Appearance	Form: Liquefied gas
b)	Odour	No data available
c)	Odour Threshold	No data available
d)	pH	No data available
e)	Melting point/freezing point	Melting point/range: -109 °C (-164 °F) - lit.
f)	Initial boiling point and boiling range	-4.5 °C (23.9 °F) - lit.
g)	Flash point	-75.99 °C (-104.78 °F) - closed cup - Tested according to Annex V of Directive 67/548/EEC.
h)	Evaporation rate	No data available
i)	Flammability (solid, gas)	No data available
j)	Upper/lower flammability or explosive limits	Upper explosion limit: 16.3 %(V) Lower explosion limit: 1.4 %(V)
k)	Vapour pressure	ca.2,400 hPa (1,800 mmHg) at 20 °C (68 °F) 3,200 hPa (2,400 mmHg) at 30 °C (86 °F) 5,700 hPa (4,275 mmHg) at 50 °C (122 °F)
l)	Vapour density	No data available
m)	Relative density	0.62 g/cm3 at 20 °C (68 °F)
n)	Water solubility	0.5 g/l at 20 °C (68 °F) - Tested according to Annex V of Directive 67/548/EEC.
o)	Partition coefficient: n-octanol/water	log Pow: 1.85 at 23 °C (73 °F)
p)	Auto-ignition temperature	No data available

q)	Decomposition temperature	No data available
r)	Viscosity	No data available
s)	Explosive properties	No data available
t)	Oxidizing properties	No data available

9.2 Other safety information
No data available

10. STABILITY AND REACTIVITY

10.1 Reactivity
No data available

10.2 Chemical stability
Test for peroxide formation before using or discard after 3 months.
Stable under recommended storage conditions.

10.3 Possibility of hazardous reactions
No data available

10.4 Conditions to avoid
Heat, flames and sparks.

10.5 Incompatible materials
Oxidizing agents, Oxygen, Copper, Copper alloys, Carbides, Halogens, Metal oxides, Metals

10.6 Hazardous decomposition products
Other decomposition products - No data available
In the event of fire: see section 5

11. TOXICOLOGICAL INFORMATION

11.1 Information on toxicological effects

Acute toxicity
LD50 Oral - Rat - 5,480 mg/kg

LC50 Inhalation - Rat - 4 h - 285 mg/l

Dermal: No data available

No data available

Skin corrosion/irritation
No data available

Serious eye damage/eye irritation
No data available

Respiratory or skin sensitisation
No data available

Germ cell mutagenicity
In vivo tests showed mutagenic effects

Carcinogenicity

Carcinogenicity - Rat - Inhalation
Tumorigenic:Carcinogenic by RTECS criteria. Cardiac:Tumors. Lungs, Thorax, or Respiration:Tumors.

This is or contains a component that has been reported to be carcinogenic based on its IARC, OSHA, ACGIH, NTP, or EPA classification.

Human carcinogen.

IARC: 1 - Group 1: Carcinogenic to humans (1,3-Butadiene)

NTP: Known to be human carcinogen (1,3-Butadiene)

OSHA: OSHA specifically regulated carcinogen (1,3-Butadiene)

Reproductive toxicity
No data available

Reproductive toxicity - Mouse - Inhalation
Effects on Fertility: Post-implantation mortality (e.g., dead and/or resorbed implants per total number of implants). Effects on Embryo or Fetus: Extra embryonic structures (e.g., placenta, umbilical cord). Effects on Embryo or Fetus: Fetotoxicity (except death, e.g., stunted fetus).

No data available

Developmental Toxicity - Rat - Inhalation
Specific Developmental Abnormalities: Musculoskeletal system.

Specific target organ toxicity - single exposure
No data available

Specific target organ toxicity - repeated exposure
No data available

Aspiration hazard
No data available

Additional Information
RTECS: Not available

Cholinesterase inhibitors can cause heavy salivation and secretion in the lungs, lachrymation, blurred vision, involuntary defecation, diarrhea, tremor, ataxia, sweating, hypothermia, lowered heart rate, and/or a fall in blood pressure as a result of their action at cholinergic nerve sites., narcosis, Headache, Nausea, Vomiting, Dizziness, Drowsiness, Confusion., Weakness, Muscle cramps/spasms., Change in pupil size., Tremors, Seizures., Incoordination., Convulsions, Coma

Stomach - Irregularities - Based on Human Evidence
Stomach - Irregularities - Based on Human Evidence

12. ECOLOGICAL INFORMATION

12.1 Toxicity

Toxicity to fish	LC50 - other fish - 71.5 mg/l - 24 h

12.2 Persistence and degradability
No data available

12.3 Bioaccumulative potential
No data available

12.4 Mobility in soil
No data available

12.5 Results of PBT and vPvB assessment
PBT/vPvB assessment not available as chemical safety assessment not required/not conducted

12.6 Other adverse effects

No data available

13. DISPOSAL CONSIDERATIONS

13.1 Waste treatment methods

Product
Burn in a chemical incinerator equipped with an afterburner and scrubber but exert extra care in igniting as this material is highly flammable. Offer surplus and non-recyclable solutions to a licensed disposal company. Contact a licensed professional waste disposal service to dispose of this material.

Contaminated packaging
Dispose of as unused product.

14. TRANSPORT INFORMATION

DOT (US)
UN number: 1010 Class: 2.1
Proper shipping name: Butadienes, stabilized
Reportable Quantity (RQ): 10 lbs

Poison Inhalation Hazard: No

IMDG
UN number: 1010 Class: 2.1 EMS-No: F-D, S-U
Proper shipping name: BUTADIENES, STABILIZED

IATA
UN number: 1010 Class: 2.1
Proper shipping name: Butadienes, stabilized
IATA Passenger: Not permitted for transport

15. REGULATORY INFORMATION

SARA 302 Components
No chemicals in this material are subject to the reporting requirements of SARA Title III, Section 302.

SARA 313 Components
The following components are subject to reporting levels established by SARA Title III, Section 313:

	CAS-No.	Revision Date
1,3-Butadiene	106-99-0	1993-04-24

SARA 311/312 Hazards
Fire Hazard, Sudden Release of Pressure Hazard, Chronic Health Hazard

Massachusetts Right To Know Components

	CAS-No.	Revision Date
1,3-Butadiene	106-99-0	1993-04-24

Pennsylvania Right To Know Components

	CAS-No.	Revision Date
1,3-Butadiene	106-99-0	1993-04-24

New Jersey Right To Know Components

	CAS-No.	Revision Date
1,3-Butadiene	106-99-0	1993-04-24

California Prop. 65 Components

WARNING! This product contains a chemical known to the State of California to cause cancer. 1,3-Butadiene	CAS-No. 106-99-0	Revision Date 2007-09-28
WARNING: This product contains a chemical known to the State of California to cause birth defects or other reproductive harm. 1,3-Butadiene	CAS-No. 106-99-0	Revision Date 2007-09-28

16. OTHER INFORMATION

Full text of H-Statements referred to under sections 2 and 3.

Carc.	Carcinogenicity
Flam. Gas	Flammable gases
H220	Extremely flammable gas.

H280	Contains gas under pressure; may explode if heated.
H340	May cause genetic defects.
H350	May cause cancer.
Muta.	Germ cell mutagenicity
Press. Gas	Gases under pressure

HMIS Rating

Health hazard:	0
Chronic Health Hazard:	*
Flammability:	4
Physical Hazard	3

NFPA Rating

Health hazard:	0
Fire Hazard:	4
Reactivity Hazard:	0

Further information

Copyright 2015 Sigma-Aldrich Co. LLC. License granted to make unlimited paper copies for internal use only.
The above information is believed to be correct but does not purport to be all inclusive and shall be used only as a guide. The information in this document is based on the present state of our knowledge and is applicable to the product with regard to appropriate safety precautions. It does not represent any guarantee of the properties of the product. Sigma-Aldrich Corporation and its Affiliates shall not be held liable for any damage resulting from handling or from contact with the above product. See www.sigma-aldrich.com and/or the reverse side of invoice or packing slip for additional terms and conditions of sale.

Preparation Information

Sigma-Aldrich Corporation
Product Safety – Americas Region
1-800-521-8956

Version: 4.6 Revision Date: 03/03/2015 Print Date: 03/03/2016

SAFETY DATA SHEET

Version 4.7
Revision Date 06/18/2015
Print Date 02/09/2016

1. PRODUCT AND COMPANY IDENTIFICATION

1.1 Product identifiers

Product name : 1,3-Dichlorobenzene

Product Number : 113808
Brand : Aldrich
Index-No. : 602-067-00-7

CAS-No. : 541-73-1

1.2 Relevant identified uses of the substance or mixture and uses advised against

Identified uses : Laboratory chemicals, Manufacture of substances

1.3 Details of the supplier of the safety data sheet

Company : Sigma-Aldrich
3050 Spruce Street
SAINT LOUIS MO 63103
USA

Telephone : +1 800-325-5832
Fax : +1 800-325-5052

1.4 Emergency telephone number

Emergency Phone # : (314) 776-6555

2. HAZARDS IDENTIFICATION

2.1 Classification of the substance or mixture

GHS Classification in accordance with 29 CFR 1910 (OSHA HCS)
Flammable liquids (Category 4), H227
Acute toxicity, Oral (Category 4), H302
Acute aquatic toxicity (Category 2), H401
Chronic aquatic toxicity (Category 2), H411

For the full text of the H-Statements mentioned in this Section, see Section 16.

2.2 GHS Label elements, including precautionary statements

Pictogram



Signal word Warning

Hazard statement(s)
H227 Combustible liquid.
H302 Harmful if swallowed.
H411 Toxic to aquatic life with long lasting effects.

Precautionary statement(s)
P210 Keep away from heat/sparks/open flames/hot surfaces. - No smoking.
P264 Wash skin thoroughly after handling.
P270 Do not eat, drink or smoke when using this product.
P273 Avoid release to the environment.
P280 Wear protective gloves/ eye protection/ face protection.
P301 + P312 + P330 IF SWALLOWED: Call a POISON CENTER or doctor/ physician if you

	feel unwell. Rinse mouth.
P370 + P378	In case of fire: Use dry sand, dry chemical or alcohol-resistant foam for extinction.
P391	Collect spillage.
P403 + P235	Store in a well-ventilated place. Keep cool.
P501	Dispose of contents/ container to an approved waste disposal plant.

2.3 Hazards not otherwise classified (HNOC) or not covered by GHS - none

3. COMPOSITION/INFORMATION ON INGREDIENTS

3.1 Substances

Formula	:	$C_6H_4Cl_2$
Molecular weight	:	147.00 g/mol
CAS-No.	:	541-73-1
EC-No.	:	208-792-1
Index-No.	:	602-067-00-7

Hazardous components

Component	Classification	Concentration
1,3-Dichlorobenzene		
	Flam. Liq. 4; Acute Tox. 4; Aquatic Acute 2; Aquatic Chronic 2; H227, H302, H411	<= 100 %

For the full text of the H-Statements mentioned in this Section, see Section 16.

4. FIRST AID MEASURES

4.1 Description of first aid measures

General advice
Consult a physician. Show this safety data sheet to the doctor in attendance.Move out of dangerous area.

If inhaled
If breathed in, move person into fresh air. If not breathing, give artificial respiration. Consult a physician.

In case of skin contact
Wash off with soap and plenty of water. Consult a physician.

In case of eye contact
Flush eyes with water as a precaution.

If swallowed
Do NOT induce vomiting. Never give anything by mouth to an unconscious person. Rinse mouth with water. Consult a physician.

4.2 Most important symptoms and effects, both acute and delayed
The most important known symptoms and effects are described in the labelling (see section 2.2) and/or in section 11

4.3 Indication of any immediate medical attention and special treatment needed
No data available

5. FIREFIGHTING MEASURES

5.1 Extinguishing media

Suitable extinguishing media
Use water spray, alcohol-resistant foam, dry chemical or carbon dioxide.

5.2 Special hazards arising from the substance or mixture
Carbon oxides, Hydrogen chloride gas

5.3 Advice for firefighters
Wear self-contained breathing apparatus for firefighting if necessary.

5.4 Further information
Use water spray to cool unopened containers.

6. ACCIDENTAL RELEASE MEASURES

6.1 Personal precautions, protective equipment and emergency procedures

Use personal protective equipment. Avoid breathing vapours, mist or gas. Ensure adequate ventilation. Remove all sources of ignition. Beware of vapours accumulating to form explosive concentrations. Vapours can accumulate in low areas.
For personal protection see section 8.

6.2 Environmental precautions

Prevent further leakage or spillage if safe to do so. Do not let product enter drains. Discharge into the environment must be avoided.

6.3 Methods and materials for containment and cleaning up

Contain spillage, and then collect with an electrically protected vacuum cleaner or by wet-brushing and place in container for disposal according to local regulations (see section 13). Keep in suitable, closed containers for disposal.

6.4 Reference to other sections

For disposal see section 13.

7. HANDLING AND STORAGE

7.1 Precautions for safe handling

Avoid contact with skin and eyes. Avoid inhalation of vapour or mist.
Keep away from sources of ignition - No smoking.Take measures to prevent the build up of electrostatic charge.
For precautions see section 2.2.

7.2 Conditions for safe storage, including any incompatibilities

Keep container tightly closed in a dry and well-ventilated place. Containers which are opened must be carefully resealed and kept upright to prevent leakage.
Storage class (TRGS 510): Combustible liquids

7.3 Specific end use(s)

Apart from the uses mentioned in section 1.2 no other specific uses are stipulated

8. EXPOSURE CONTROLS/PERSONAL PROTECTION

8.1 Control parameters

Components with workplace control parameters
Contains no substances with occupational exposure limit values.

8.2 Exposure controls

Appropriate engineering controls
Handle in accordance with good industrial hygiene and safety practice. Wash hands before breaks and at the end of workday.

Personal protective equipment

Eye/face protection
Face shield and safety glasses Use equipment for eye protection tested and approved under appropriate government standards such as NIOSH (US) or EN 166(EU).

Skin protection
Handle with gloves. Gloves must be inspected prior to use. Use proper glove removal technique (without touching glove's outer surface) to avoid skin contact with this product. Dispose of contaminated gloves after use in accordance with applicable laws and good laboratory practices. Wash and dry hands.

Full contact
Material: Fluorinated rubber
Minimum layer thickness: 0.7 mm
Break through time: 480 min
Material tested:Vitoject® (KCL 890 / Aldrich Z677698, Size M)

Splash contact
Material: Nitrile rubber
Minimum layer thickness: 0.4 mm

Break through time: 37 min
Material tested:Camatril® (KCL 730 / Aldrich Z677442, Size M)

data source: KCL GmbH, D-36124 Eichenzell, phone +49 (0)6659 87300, e-mail sales@kcl.de, test method: EN374
If used in solution, or mixed with other substances, and under conditions which differ from EN 374, contact the supplier of the CE approved gloves. This recommendation is advisory only and must be evaluated by an industrial hygienist and safety officer familiar with the specific situation of anticipated use by our customers. It should not be construed as offering an approval for any specific use scenario.

Body Protection
Complete suit protecting against chemicals, The type of protective equipment must be selected according to the concentration and amount of the dangerous substance at the specific workplace.

Respiratory protection
Where risk assessment shows air-purifying respirators are appropriate use a full-face respirator with multi-purpose combination (US) or type ABEK (EN 14387) respirator cartridges as a backup to engineering controls. If the respirator is the sole means of protection, use a full-face supplied air respirator. Use respirators and components tested and approved under appropriate government standards such as NIOSH (US) or CEN (EU).

Control of environmental exposure
Prevent further leakage or spillage if safe to do so. Do not let product enter drains. Discharge into the environment must be avoided.

9. PHYSICAL AND CHEMICAL PROPERTIES

9.1 Information on basic physical and chemical properties

a)	Appearance	Form: liquid, clear Colour: colourless
b)	Odour	No data available
c)	Odour Threshold	No data available
d)	pH	No data available
e)	Melting point/freezing point	Melting point/range: -25 - -22 °C (-13 - -8 °F) - lit.
f)	Initial boiling point and boiling range	172 - 173 °C (342 - 343 °F) - lit.
g)	Flash point	67.0 °C (152.6 °F) - closed cup
h)	Evaporation rate	No data available
i)	Flammability (solid, gas)	No data available
j)	Upper/lower flammability or explosive limits	No data available
k)	Vapour pressure	No data available
l)	Vapour density	No data available
m)	Relative density	1.288 g/cm3 at 25 °C (77 °F)
n)	Water solubility	No data available
o)	Partition coefficient: n-octanol/water	log Pow: 5
p)	Auto-ignition temperature	No data available
q)	Decomposition temperature	No data available
r)	Viscosity	No data available
s)	Explosive properties	No data available

t) Oxidizing properties No data available

9.2 Other safety information
No data available

10. STABILITY AND REACTIVITY

10.1 Reactivity
No data available

10.2 Chemical stability
Stable under recommended storage conditions.

10.3 Possibility of hazardous reactions
No data available

10.4 Conditions to avoid
Heat, flames and sparks.

10.5 Incompatible materials
Strong oxidizing agents

10.6 Hazardous decomposition products
Other decomposition products - No data available
In the event of fire: see section 5

11. TOXICOLOGICAL INFORMATION

11.1 Information on toxicological effects

Acute toxicity
No data available

Inhalation: No data available

Dermal: No data available

LD50 Intraperitoneal - Mouse - 1,062 mg/kg

Skin corrosion/irritation
No data available

Serious eye damage/eye irritation
No data available

Respiratory or skin sensitisation
No data available

Germ cell mutagenicity
No data available

Carcinogenicity

IARC: 3 - Group 3: Not classifiable as to its carcinogenicity to humans (1,3-Dichlorobenzene)

ACGIH: No component of this product present at levels greater than or equal to 0.1% is identified as a carcinogen or potential carcinogen by ACGIH.

NTP: No component of this product present at levels greater than or equal to 0.1% is identified as a known or anticipated carcinogen by NTP.

OSHA: No component of this product present at levels greater than or equal to 0.1% is identified as a carcinogen or potential carcinogen by OSHA.

Reproductive toxicity
No data available

No data available

Specific target organ toxicity - single exposure
No data available

Specific target organ toxicity - repeated exposure
No data available

Aspiration hazard
No data available

Additional Information
RTECS: CZ4499000

To the best of our knowledge, the chemical, physical, and toxicological properties have not been thoroughly investigated.

12. ECOLOGICAL INFORMATION

12.1 Toxicity

Toxicity to fish	LC50 - Pimephales promelas (fathead minnow) - 7.8 mg/l - 96.0 h
Toxicity to daphnia and other aquatic invertebrates	LC50 - Daphnia magna (Water flea) - 1.7 mg/l - 48 h

12.2 Persistence and degradability
No data available

12.3 Bioaccumulative potential
Bioaccumulation: Pimephales promelas (fathead minnow) - 32 d - 0.3 mg/l

Bioconcentration factor (BCF): 97

12.4 Mobility in soil
No data available

12.5 Results of PBT and vPvB assessment
PBT/vPvB assessment not available as chemical safety assessment not required/not conducted

12.6 Other adverse effects
An environmental hazard cannot be excluded in the event of unprofessional handling or disposal.
Toxic to aquatic life with long lasting effects.

13. DISPOSAL CONSIDERATIONS

13.1 Waste treatment methods

Product
This combustible material may be burned in a chemical incinerator equipped with an afterburner and scrubber. Offer surplus and non-recyclable solutions to a licensed disposal company.

Contaminated packaging
Dispose of as unused product.

14. TRANSPORT INFORMATION

DOT (US)
UN number: 3082 Class: 9 Packing group: III
Proper shipping name: Environmentally hazardous substance, liquid, n.o.s. (1,3-Dichlorobenzene)
Reportable Quantity (RQ): 100 lbs
Marine pollutant:yes
Poison Inhalation Hazard: No

IMDG
UN number: 3082 Class: 9 Packing group: III EMS-No: F-A, S-F
Proper shipping name: ENVIRONMENTALLY HAZARDOUS SUBSTANCE, LIQUID, N.O.S. (1,3-Dichlorobenzene)
Marine pollutant:yes

IATA
UN number: 3082 Class: 9 Packing group: III

Proper shipping name: Environmentally hazardous substance, liquid, n.o.s. (1,3-Dichlorobenzene)

15. REGULATORY INFORMATION

SARA 302 Components
No chemicals in this material are subject to the reporting requirements of SARA Title III, Section 302.

SARA 313 Components
The following components are subject to reporting levels established by SARA Title III, Section 313:

	CAS-No.	Revision Date
1,3-Dichlorobenzene	541-73-1	2007-07-01

SARA 311/312 Hazards
Fire Hazard, Acute Health Hazard

Massachusetts Right To Know Components

	CAS-No.	Revision Date
1,3-Dichlorobenzene	541-73-1	2007-07-01

Pennsylvania Right To Know Components

	CAS-No.	Revision Date
1,3-Dichlorobenzene	541-73-1	2007-07-01

New Jersey Right To Know Components

	CAS-No.	Revision Date
1,3-Dichlorobenzene	541-73-1	2007-07-01

California Prop. 65 Components
This product does not contain any chemicals known to State of California to cause cancer, birth defects, or any other reproductive harm.

16. OTHER INFORMATION

Full text of H-Statements referred to under sections 2 and 3.

Acute Tox.	Acute toxicity
Aquatic Acute	Acute aquatic toxicity
Aquatic Chronic	Chronic aquatic toxicity
Flam. Liq.	Flammable liquids
H227	Combustible liquid.
H302	Harmful if swallowed.
H401	Toxic to aquatic life.

HMIS Rating

Health hazard:	1
Chronic Health Hazard:	
Flammability:	2
Physical Hazard	0

NFPA Rating

Health hazard:	1
Fire Hazard:	2
Reactivity Hazard:	0

Further information
Copyright 2015 Sigma-Aldrich Co. LLC. License granted to make unlimited paper copies for internal use only.
The above information is believed to be correct but does not purport to be all inclusive and shall be used only as a guide. The information in this document is based on the present state of our knowledge and is applicable to the product with regard to appropriate safety precautions. It does not represent any guarantee of the properties of the product. Sigma-Aldrich Corporation and its Affiliates shall not be held liable for any damage resulting from handling or from contact with the above product. See www.sigma-aldrich.com and/or the reverse side of invoice or packing slip for additional terms and conditions of sale.

Preparation Information
Sigma-Aldrich Corporation
Product Safety – Americas Region
1-800-521-8956

Version: 4.7 Revision Date: 06/18/2015 Print Date: 02/09/2016

SAFETY DATA SHEET

Version 4.4
Revision Date 04/24/2015
Print Date 04/01/2016

1. PRODUCT AND COMPANY IDENTIFICATION

1.1 Product identifiers

Product name : 1,4-Dichlorobenzene

Product Number : D56829
Brand : Aldrich
Index-No. : 602-035-00-2

CAS-No. : 106-46-7

1.2 Relevant identified uses of the substance or mixture and uses advised against

Identified uses : Laboratory chemicals, Manufacture of substances

1.3 Details of the supplier of the safety data sheet

Company : Sigma-Aldrich
3050 Spruce Street
SAINT LOUIS MO 63103
USA

Telephone : +1 800-325-5832
Fax : +1 800-325-5052

1.4 Emergency telephone number

Emergency Phone # : (314) 776-6555

2. HAZARDS IDENTIFICATION

2.1 Classification of the substance or mixture

GHS Classification in accordance with 29 CFR 1910 (OSHA HCS)
Eye irritation (Category 2A), H319
Carcinogenicity (Category 2), H351
Acute aquatic toxicity (Category 1), H400
Chronic aquatic toxicity (Category 1), H410

For the full text of the H-Statements mentioned in this Section, see Section 16.

2.2 GHS Label elements, including precautionary statements

Pictogram



Signal word Warning

Hazard statement(s)
H319 Causes serious eye irritation.
H351 Suspected of causing cancer.
H410 Very toxic to aquatic life with long lasting effects.

Precautionary statement(s)
P201 Obtain special instructions before use.
P202 Do not handle until all safety precautions have been read and understood.
P264 Wash skin thoroughly after handling.
P273 Avoid release to the environment.
P280 Wear protective gloves/ eye protection/ face protection.

P305 + P351 + P338	IF IN EYES: Rinse cautiously with water for several minutes. Remove contact lenses, if present and easy to do. Continue rinsing.
P308 + P313	IF exposed or concerned: Get medical advice/ attention.
P337 + P313	If eye irritation persists: Get medical advice/ attention.
P391	Collect spillage.
P405	Store locked up.
P501	Dispose of contents/ container to an approved waste disposal plant.

2.3 Hazards not otherwise classified (HNOC) or not covered by GHS - none

3. COMPOSITION/INFORMATION ON INGREDIENTS

3.1 Substances

Formula	:	$C_6H_4Cl_2$
Molecular weight	:	147.00 g/mol
CAS-No.	:	106-46-7
EC-No.	:	203-400-5
Index-No.	:	602-035-00-2

Hazardous components

Component	Classification	Concentration
1,4-Dichlorobenzene		
	Eye Irrit. 2A; Carc. 2; Aquatic Acute 1; Aquatic Chronic 1; H319, H351, H410	<= 100 %

For the full text of the H-Statements mentioned in this Section, see Section 16.

4. FIRST AID MEASURES

4.1 Description of first aid measures

General advice
Consult a physician. Show this safety data sheet to the doctor in attendance.Move out of dangerous area.

If inhaled
If breathed in, move person into fresh air. If not breathing, give artificial respiration. Consult a physician.

In case of skin contact
Wash off with soap and plenty of water. Consult a physician.

In case of eye contact
Rinse thoroughly with plenty of water for at least 15 minutes and consult a physician.

If swallowed
Never give anything by mouth to an unconscious person. Rinse mouth with water. Consult a physician.

4.2 Most important symptoms and effects, both acute and delayed
The most important known symptoms and effects are described in the labelling (see section 2.2) and/or in section 11

4.3 Indication of any immediate medical attention and special treatment needed
No data available

5. FIREFIGHTING MEASURES

5.1 Extinguishing media

Suitable extinguishing media
Use water spray, alcohol-resistant foam, dry chemical or carbon dioxide.

5.2 Special hazards arising from the substance or mixture
Carbon oxides, Hydrogen chloride gas

5.3 Advice for firefighters
Wear self-contained breathing apparatus for firefighting if necessary.

5.4 Further information
No data available

6. ACCIDENTAL RELEASE MEASURES

6.1 Personal precautions, protective equipment and emergency procedures

Use personal protective equipment. Avoid dust formation. Avoid breathing vapours, mist or gas. Ensure adequate ventilation. Evacuate personnel to safe areas. Avoid breathing dust.
For personal protection see section 8.

6.2 Environmental precautions

Prevent further leakage or spillage if safe to do so. Do not let product enter drains. Discharge into the environment must be avoided.

6.3 Methods and materials for containment and cleaning up

Pick up and arrange disposal without creating dust. Sweep up and shovel. Keep in suitable, closed containers for disposal.

6.4 Reference to other sections

For disposal see section 13.

7. HANDLING AND STORAGE

7.1 Precautions for safe handling

Avoid contact with skin and eyes. Avoid formation of dust and aerosols.
Provide appropriate exhaust ventilation at places where dust is formed.
For precautions see section 2.2.

7.2 Conditions for safe storage, including any incompatibilities

Keep container tightly closed in a dry and well-ventilated place.

7.3 Specific end use(s)

Apart from the uses mentioned in section 1.2 no other specific uses are stipulated

8. EXPOSURE CONTROLS/PERSONAL PROTECTION

8.1 Control parameters

Components with workplace control parameters

Component	CAS-No.	Value	Control parameters	Basis
1,4-Dichlorobenzene	106-46-7	TWA	10.000000 ppm	USA. ACGIH Threshold Limit Values (TLV)
	Remarks	Eye irritation Kidney damage Confirmed animal carcinogen with unknown relevance to humans		
		Potential Occupational Carcinogen See Appendix A		
		TWA	75.000000 ppm 450.000000 mg/m3	USA. Occupational Exposure Limits (OSHA) - Table Z-1 Limits for Air Contaminants
		The value in mg/m3 is approximate.		

8.2 Exposure controls

Appropriate engineering controls

Handle in accordance with good industrial hygiene and safety practice. Wash hands before breaks and at the end of workday.

Personal protective equipment

Eye/face protection

Safety glasses with side-shields conforming to EN166 Use equipment for eye protection tested and approved under appropriate government standards such as NIOSH (US) or EN 166(EU).

Skin protection

Handle with gloves. Gloves must be inspected prior to use. Use proper glove removal technique (without touching glove's outer surface) to avoid skin contact with this product. Dispose of contaminated gloves after use in accordance with applicable laws and good laboratory practices. Wash and dry hands.

Full contact
Material: Nitrile rubber
Minimum layer thickness: 0.11 mm
Break through time: 480 min
Material tested:Dermatril® (KCL 740 / Aldrich Z677272, Size M)

Splash contact
Material: Nitrile rubber
Minimum layer thickness: 0.11 mm
Break through time: 480 min
Material tested:Dermatril® (KCL 740 / Aldrich Z677272, Size M)

data source: KCL GmbH, D-36124 Eichenzell, phone +49 (0)6659 87300, e-mail sales@kcl.de, test method: EN374
If used in solution, or mixed with other substances, and under conditions which differ from EN 374, contact the supplier of the CE approved gloves. This recommendation is advisory only and must be evaluated by an industrial hygienist and safety officer familiar with the specific situation of anticipated use by our customers. It should not be construed as offering an approval for any specific use scenario.

Body Protection
Complete suit protecting against chemicals, The type of protective equipment must be selected according to the concentration and amount of the dangerous substance at the specific workplace.

Respiratory protection
Where risk assessment shows air-purifying respirators are appropriate use a full-face particle respirator type N100 (US) or type P3 (EN 143) respirator cartridges as a backup to engineering controls. If the respirator is the sole means of protection, use a full-face supplied air respirator. Use respirators and components tested and approved under appropriate government standards such as NIOSH (US) or CEN (EU).

Control of environmental exposure
Prevent further leakage or spillage if safe to do so. Do not let product enter drains. Discharge into the environment must be avoided.

9. PHYSICAL AND CHEMICAL PROPERTIES

9.1 Information on basic physical and chemical properties

a)	Appearance	Form: sheets Colour: colourless
b)	Odour	No data available
c)	Odour Threshold	No data available
d)	pH	No data available
e)	Melting point/freezing point	Melting point/range: 52 - 54 °C (126 - 129 °F) - lit.
f)	Initial boiling point and boiling range	173 °C (343 °F) - lit.
g)	Flash point	66.0 °C (150.8 °F) - closed cup
h)	Evaporation rate	No data available
i)	Flammability (solid, gas)	No data available
j)	Upper/lower flammability or explosive limits	No data available
k)	Vapour pressure	8.8 hPa (6.6 mmHg) at 50.0 °C (122.0 °F) 0.5 hPa (0.4 mmHg) at 25.0 °C (77.0 °F)
l)	Vapour density	No data available
m)	Relative density	1.241 g/mL at 25 °C (77 °F)
n)	Water solubility	No data available

o)	Partition coefficient: n-octanol/water	log Pow: 3.40
p)	Auto-ignition temperature	No data available
q)	Decomposition temperature	No data available
r)	Viscosity	No data available
s)	Explosive properties	No data available
t)	Oxidizing properties	No data available

9.2 Other safety information

Bulk density	650 kg/m3

10. STABILITY AND REACTIVITY

10.1 Reactivity
No data available

10.2 Chemical stability
Stable under recommended storage conditions.

10.3 Possibility of hazardous reactions
No data available

10.4 Conditions to avoid
No data available

10.5 Incompatible materials
Oxidizing agents

10.6 Hazardous decomposition products
Other decomposition products - No data available
In the event of fire: see section 5

11. TOXICOLOGICAL INFORMATION

11.1 Information on toxicological effects

Acute toxicity
LD0 Oral - Rat - male and female - > 2,000 mg/kg
(OECD Test Guideline 401)

LC50 Inhalation - Rat - male and female - 4 h - > 5.07 mg/l

LD0 Dermal - Rat - > 2,000 mg/kg
(OECD Test Guideline 402)

No data available

Skin corrosion/irritation
Skin - Rabbit
Result: No skin irritation
(OECD Test Guideline 404)

Serious eye damage/eye irritation
Eyes - Rabbit
Result: No eye irritation
(OECD Test Guideline 405)

Respiratory or skin sensitisation
Maximisation Test (GPMT) - Guinea pig
Did not cause sensitisation on laboratory animals.
(OECD Test Guideline 406)

Germ cell mutagenicity
No data available

Carcinogenicity

This product is or contains a component that has been reported to be possibly carcinogenic based on its IARC, ACGIH, NTP, or EPA classification.

Limited evidence of carcinogenicity in animal studies

IARC:	2B - Group 2B: Possibly carcinogenic to humans (1,4-Dichlorobenzene)
NTP:	Reasonably anticipated to be a human carcinogen (1,4-Dichlorobenzene)
OSHA:	No component of this product present at levels greater than or equal to 0.1% is identified as a carcinogen or potential carcinogen by OSHA.

Reproductive toxicity
No data available

No data available

Specific target organ toxicity - single exposure
No data available

Specific target organ toxicity - repeated exposure
No data available

Aspiration hazard
No data available

Additional Information
RTECS: CZ4550000

Produces:, methemoglobin, Nausea, Vomiting, Increased pulse rate, Headache, Impairment of vision

12. ECOLOGICAL INFORMATION

12.1 Toxicity

Toxicity to fish	flow-through test LC50 - Salmo gairdneri - 1.12 mg/l - 96 h
Toxicity to daphnia and other aquatic invertebrates	static test EC50 - Daphnia magna (Water flea) - 0.7 mg/l - 48 h
Toxicity to algae	Growth inhibition EC50 - Scenedesmus capricornutum (fresh water algae) - 1.6 mg/l - 96 h

12.2 Persistence and degradability

Biodegradability	aerobic - Exposure time 28 d Result: 30 % - Not rapidly biodegradable (OECD Test Guideline 301C)

12.3 Bioaccumulative potential

Bioaccumulation	Jordanella floridae - 5 d - 2.68 µg/l Bioconcentration factor (BCF): 296

12.4 Mobility in soil
No data available

12.5 Results of PBT and vPvB assessment
PBT/vPvB assessment not available as chemical safety assessment not required/not conducted

12.6 Other adverse effects
An environmental hazard cannot be excluded in the event of unprofessional handling or disposal.

Very toxic to aquatic life with long lasting effects.

13. DISPOSAL CONSIDERATIONS

13.1 Waste treatment methods

Product
Offer surplus and non-recyclable solutions to a licensed disposal company. Contact a licensed professional waste disposal service to dispose of this material. Dissolve or mix the material with a combustible solvent and burn in a chemical incinerator equipped with an afterburner and scrubber.

Contaminated packaging
Dispose of as unused product.

14. TRANSPORT INFORMATION

DOT (US)
UN number: 3077 Class: 9 Packing group: III
Proper shipping name: Environmentally hazardous substances, solid, n.o.s. (1,4-Dichlorobenzene)
Reportable Quantity (RQ): 100 lbs
Marine pollutant:yes
Poison Inhalation Hazard: No

IMDG
UN number: 3077 Class: 9 Packing group: III EMS-No: F-A, S-F
Proper shipping name: ENVIRONMENTALLY HAZARDOUS SUBSTANCE, SOLID, N.O.S. (1,4-Dichlorobenzene)
Marine pollutant:yes

IATA
UN number: 3077 Class: 9 Packing group: III
Proper shipping name: Environmentally hazardous substance, solid, n.o.s. (1,4-Dichlorobenzene)

15. REGULATORY INFORMATION

SARA 302 Components
No chemicals in this material are subject to the reporting requirements of SARA Title III, Section 302.

SARA 313 Components
The following components are subject to reporting levels established by SARA Title III, Section 313:

	CAS-No.	Revision Date
1,4-Dichlorobenzene	106-46-7	2007-07-01

SARA 311/312 Hazards
Acute Health Hazard, Chronic Health Hazard

Massachusetts Right To Know Components

	CAS-No.	Revision Date
1,4-Dichlorobenzene	106-46-7	2007-07-01

Pennsylvania Right To Know Components

	CAS-No.	Revision Date
1,4-Dichlorobenzene	106-46-7	2007-07-01

New Jersey Right To Know Components

	CAS-No.	Revision Date
1,4-Dichlorobenzene	106-46-7	2007-07-01

California Prop. 65 Components

WARNING! This product contains a chemical known to the State of California to cause cancer.	CAS-No.	Revision Date
1,4-Dichlorobenzene	106-46-7	2007-09-28

16. OTHER INFORMATION

Full text of H-Statements referred to under sections 2 and 3.

Aquatic Acute	Acute aquatic toxicity
Aquatic Chronic	Chronic aquatic toxicity
Carc.	Carcinogenicity
Eye Irrit.	Eye irritation
H319	Causes serious eye irritation.
H351	Suspected of causing cancer.
H400	Very toxic to aquatic life.
H410	Very toxic to aquatic life with long lasting effects.

HMIS Rating

Health hazard:	2
Chronic Health Hazard:	*
Flammability:	0
Physical Hazard	0

NFPA Rating

Health hazard:	0
Fire Hazard:	2
Reactivity Hazard:	0

Further information

Copyright 2015 Sigma-Aldrich Co. LLC. License granted to make unlimited paper copies for internal use only.
The above information is believed to be correct but does not purport to be all inclusive and shall be used only as a guide. The information in this document is based on the present state of our knowledge and is applicable to the product with regard to appropriate safety precautions. It does not represent any guarantee of the properties of the product. Sigma-Aldrich Corporation and its Affiliates shall not be held liable for any damage resulting from handling or from contact with the above product. See www.sigma-aldrich.com and/or the reverse side of invoice or packing slip for additional terms and conditions of sale.

Preparation Information

Sigma-Aldrich Corporation
Product Safety – Americas Region
1-800-521-8956

Version: 4.4 Revision Date: 04/24/2015 Print Date: 04/01/2016

SAFETY DATA SHEET

Version 5.4
Revision Date 03/03/2015
Print Date 04/11/2016

1. PRODUCT AND COMPANY IDENTIFICATION

1.1 Product identifiers

Product name : 1,4-Dioxane

Product Number : 296309
Brand : Sigma-Aldrich
Index-No. : 603-024-00-5

CAS-No. : 123-91-1

1.2 Relevant identified uses of the substance or mixture and uses advised against

Identified uses : Laboratory chemicals, Manufacture of substances

1.3 Details of the supplier of the safety data sheet

Company : Sigma-Aldrich
3050 Spruce Street
SAINT LOUIS MO 63103
USA

Telephone : +1 800-325-5832
Fax : +1 800-325-5052

1.4 Emergency telephone number

Emergency Phone # : (314) 776-6555

2. HAZARDS IDENTIFICATION

2.1 Classification of the substance or mixture

GHS Classification in accordance with 29 CFR 1910 (OSHA HCS)
Flammable liquids (Category 2), H225
Eye irritation (Category 2A), H319
Carcinogenicity (Category 2), H351
Specific target organ toxicity - single exposure (Category 3), Respiratory system, H335

For the full text of the H-Statements mentioned in this Section, see Section 16.

2.2 GHS Label elements, including precautionary statements

Pictogram



Signal word Danger

Hazard statement(s)
H225 Highly flammable liquid and vapour.
H319 Causes serious eye irritation.
H335 May cause respiratory irritation.
H351 Suspected of causing cancer.

Precautionary statement(s)
P201 Obtain special instructions before use.
P202 Do not handle until all safety precautions have been read and understood.
P210 Keep away from heat/sparks/open flames/hot surfaces. - No smoking.
P233 Keep container tightly closed.

P240	Ground/bond container and receiving equipment.
P241	Use explosion-proof electrical/ ventilating/ lighting/ equipment.
P242	Use only non-sparking tools.
P243	Take precautionary measures against static discharge.
P261	Avoid breathing dust/ fume/ gas/ mist/ vapours/ spray.
P264	Wash skin thoroughly after handling.
P271	Use only outdoors or in a well-ventilated area.
P280	Wear protective gloves/ eye protection/ face protection.
P281	Use personal protective equipment as required.
P303 + P361 + P353	IF ON SKIN (or hair): Remove/ Take off immediately all contaminated clothing. Rinse skin with water/ shower.
P304 + P340 + P312	IF INHALED: Remove victim to fresh air and keep at rest in a position comfortable for breathing. Call a POISON CENTER or doctor/ physician if you feel unwell.
P305 + P351 + P338	IF IN EYES: Rinse cautiously with water for several minutes. Remove contact lenses, if present and easy to do. Continue rinsing.
P308 + P313	IF exposed or concerned: Get medical advice/ attention.
P337 + P313	If eye irritation persists: Get medical advice/ attention.
P370 + P378	In case of fire: Use dry sand, dry chemical or alcohol-resistant foam for extinction.
P403 + P233	Store in a well-ventilated place. Keep container tightly closed.
P403 + P235	Store in a well-ventilated place. Keep cool.
P405	Store locked up.
P501	Dispose of contents/ container to an approved waste disposal plant.

2.3 Hazards not otherwise classified (HNOC) or not covered by GHS

May form explosive peroxides., Repeated exposure may cause skin dryness or cracking.
May form explosive peroxides.

3. COMPOSITION/INFORMATION ON INGREDIENTS

3.1 Substances

Synonyms	:	Dioxane Diethylene oxide
Formula	:	$C_4H_8O_2$
Molecular weight	:	88.11 g/mol
CAS-No.	:	123-91-1
EC-No.	:	204-661-8
Index-No.	:	603-024-00-5
Registration number	:	01-2119462837-26-XXXX

Hazardous components

Component	Classification	Concentration
1,4-Dioxane		
	Flam. Liq. 2; Eye Irrit. 2A; Carc. 2; STOT SE 3; H225, H319, H335, H351	<= 100 %

For the full text of the H-Statements mentioned in this Section, see Section 16.

4. FIRST AID MEASURES

4.1 Description of first aid measures

General advice
Consult a physician. Show this safety data sheet to the doctor in attendance.Move out of dangerous area.

If inhaled
If breathed in, move person into fresh air. If not breathing, give artificial respiration. Consult a physician.

In case of skin contact
Wash off with soap and plenty of water. Consult a physician.

In case of eye contact
Rinse thoroughly with plenty of water for at least 15 minutes and consult a physician.

If swallowed
Do NOT induce vomiting. Never give anything by mouth to an unconscious person. Rinse mouth with water. Consult a physician.

4.2 Most important symptoms and effects, both acute and delayed
The most important known symptoms and effects are described in the labelling (see section 2.2) and/or in section 11

4.3 Indication of any immediate medical attention and special treatment needed
No data available

5. FIREFIGHTING MEASURES

5.1 Extinguishing media

Suitable extinguishing media
Use water spray, alcohol-resistant foam, dry chemical or carbon dioxide.

5.2 Special hazards arising from the substance or mixture
Carbon oxides

5.3 Advice for firefighters
Wear self-contained breathing apparatus for firefighting if necessary.

5.4 Further information
Use water spray to cool unopened containers.

6. ACCIDENTAL RELEASE MEASURES

6.1 Personal precautions, protective equipment and emergency procedures
Use personal protective equipment. Avoid breathing vapours, mist or gas. Ensure adequate ventilation. Remove all sources of ignition. Evacuate personnel to safe areas. Beware of vapours accumulating to form explosive concentrations. Vapours can accumulate in low areas.
For personal protection see section 8.

6.2 Environmental precautions
Prevent further leakage or spillage if safe to do so. Do not let product enter drains.

6.3 Methods and materials for containment and cleaning up
Contain spillage, and then collect with an electrically protected vacuum cleaner or by wet-brushing and place in container for disposal according to local regulations (see section 13).

6.4 Reference to other sections
For disposal see section 13.

7. HANDLING AND STORAGE

7.1 Precautions for safe handling
Avoid contact with skin and eyes. Avoid inhalation of vapour or mist.
Use explosion-proof equipment.Keep away from sources of ignition - No smoking.Take measures to prevent the build up of electrostatic charge.
For precautions see section 2.2.

7.2 Conditions for safe storage, including any incompatibilities
Keep container tightly closed in a dry and well-ventilated place. Containers which are opened must be carefully resealed and kept upright to prevent leakage.
Storage class (TRGS 510): Flammable liquids

7.3 Specific end use(s)
Apart from the uses mentioned in section 1.2 no other specific uses are stipulated

8. EXPOSURE CONTROLS/PERSONAL PROTECTION

8.1 Control parameters

Components with workplace control parameters

Component	CAS-No.	Value	Control parameters	Basis
1,4-Dioxane	123-91-1	TWA	20.000000 ppm	USA. ACGIH Threshold Limit Values (TLV)
	Remarks	Liver damage Confirmed animal carcinogen with unknown relevance to humans Danger of cutaneous absorption		
		TWA	20 ppm	USA. ACGIH Threshold Limit Values (TLV)
		Liver damage Confirmed animal carcinogen with unknown relevance to humans Danger of cutaneous absorption		
		TWA	25 ppm 90 mg/m3	USA. OSHA - TABLE Z-1 Limits for Air Contaminants - 1910.1000
		Skin notation		
		TWA	100.000000 ppm 360.000000 mg/m3	USA. Occupational Exposure Limits (OSHA) - Table Z-1 Limits for Air Contaminants
		Skin designation The value in mg/m3 is approximate.		
		TWA	100 ppm 360 mg/m3	USA. Occupational Exposure Limits (OSHA) - Table Z-1 Limits for Air Contaminants
		Skin designation The value in mg/m3 is approximate.		
		C	1.000000 ppm 3.600000 mg/m3	USA. NIOSH Recommended Exposure Limits
		Potential Occupational Carcinogen See Appendix A 30 minute ceiling value		

Derived No Effect Level (DNEL)

Application Area	Exposure routes	Health effect	Value
Workers	Inhalation	Long-term local effects	144 mg/m3
Workers	Inhalation	Long-term systemic effects	73 mg/m3
Workers	Skin contact	Long-term systemic effects	21 mg/m3

Predicted No Effect Concentration (PNEC)

Compartment	Value
Soil	0.153 mg/kg
Marine water	0.67 mg/l
Fresh water	10 mg/l
Fresh water sediment	37 mg/kg
Sewage treatment plant	2700 mg/l
Aquatic intermittent release	10 mg/l

8.2 Exposure controls

Appropriate engineering controls
Handle in accordance with good industrial hygiene and safety practice. Wash hands before breaks and at the end of workday.

Personal protective equipment

Eye/face protection
Face shield and safety glasses Use equipment for eye protection tested and approved under appropriate government standards such as NIOSH (US) or EN 166(EU).

Skin protection
Handle with gloves. Gloves must be inspected prior to use. Use proper glove removal technique (without touching glove's outer surface) to avoid skin contact with this product. Dispose of contaminated gloves after use in accordance with applicable laws and good laboratory practices. Wash and dry hands.

Full contact
Material: butyl-rubber
Minimum layer thickness: 0.3 mm
Break through time: 480 min
Material tested:Butoject® (KCL 897 / Aldrich Z677647, Size M)

Splash contact
Material: Chloroprene
Minimum layer thickness: 0.6 mm
Break through time: 35 min
Material tested:Camapren® (KCL 722 / Aldrich Z677493, Size M)

data source: KCL GmbH, D-36124 Eichenzell, phone +49 (0)6659 87300, e-mail sales@kcl.de, test method: EN374
If used in solution, or mixed with other substances, and under conditions which differ from EN 374, contact the supplier of the CE approved gloves. This recommendation is advisory only and must be evaluated by an industrial hygienist and safety officer familiar with the specific situation of anticipated use by our customers. It should not be construed as offering an approval for any specific use scenario.

Body Protection
Complete suit protecting against chemicals, Flame retardant antistatic protective clothing., The type of protective equipment must be selected according to the concentration and amount of the dangerous substance at the specific workplace.

Respiratory protection
Where risk assessment shows air-purifying respirators are appropriate use a full-face respirator with multi-purpose combination (US) or type ABEK (EN 14387) respirator cartridges as a backup to engineering controls. If the respirator is the sole means of protection, use a full-face supplied air respirator. Use respirators and components tested and approved under appropriate government standards such as NIOSH (US) or CEN (EU).

Control of environmental exposure
Prevent further leakage or spillage if safe to do so. Do not let product enter drains.

9. PHYSICAL AND CHEMICAL PROPERTIES

9.1 Information on basic physical and chemical properties

a)	Appearance	Form: liquid Colour: colourless
b)	Odour	No data available
c)	Odour Threshold	No data available
d)	pH	6.0 - 8 at 500 g/l at 20 °C (68 °F)
e)	Melting point/freezing point	Melting point/range: 10 - 12 °C (50 - 54 °F) - lit.
f)	Initial boiling point and boiling range	100 - 102 °C (212 - 216 °F) - lit.
g)	Flash point	12 °C (54 °F) - closed cup
h)	Evaporation rate	No data available
i)	Flammability (solid, gas)	No data available
j)	Upper/lower flammability or explosive limits	Upper explosion limit: 22 %(V) Lower explosion limit: 2 %(V)
k)	Vapour pressure	36 hPa (27 mmHg) at 20 °C (68 °F) 53 hPa (40 mmHg) at 25.20 °C (77.36 °F)
l)	Vapour density	3.04 - (Air = 1.0)

m)	Relative density	1.034 g/cm3 at 25 °C (77 °F)
n)	Water solubility	completely miscible
o)	Partition coefficient: n-octanol/water	log Pow: -0.27
p)	Auto-ignition temperature	300 °C (572 °F)
q)	Decomposition temperature	No data available
r)	Viscosity	No data available
s)	Explosive properties	No data available
t)	Oxidizing properties	No data available

9.2 Other safety information

Surface tension	36.9 mN/m at 25 °C (77 °F)
Relative vapour density	3.04 - (Air = 1.0)

10. STABILITY AND REACTIVITY

10.1 Reactivity
No data available

10.2 Chemical stability
Stable under recommended storage conditions.
Test for peroxide formation before distillation or evaporation. Test for peroxide formation or discard after 1 year.
Stable under recommended storage conditions.

10.3 Possibility of hazardous reactions
Vapours may form explosive mixture with air.Vapours may form explosive mixture with air.

10.4 Conditions to avoid
Heat, flames and sparks.

10.5 Incompatible materials
Oxygen, Oxidizing agents, Halogens, Reducing agents, Perchlorates., Trimethylaluminum

10.6 Hazardous decomposition products
Other decomposition products - No data available
In the event of fire: see section 5

11. TOXICOLOGICAL INFORMATION

11.1 Information on toxicological effects

Acute toxicity
LD50 Oral - Rat - 4,200 mg/kg

LC50 Inhalation - Rat - 2 h - 46,000 mg/m3
Remarks: Sense Organs and Special Senses (Nose, Eye, Ear, and Taste):Eye:Other.

LD50 Dermal - Rabbit - 7,858 mg/kg

No data available

Skin corrosion/irritation
Skin - Human
Remarks: Chronic exposure causes drying effect on the skin and eczema.

Skin - Rabbit
Result: No skin irritation

Serious eye damage/eye irritation
Eyes - Rabbit
Result: Eye irritation - 24 h

Respiratory or skin sensitisation
No data available

Germ cell mutagenicity
Laboratory experiments have shown mutagenic effects.

Carcinogenicity

This product is or contains a component that has been reported to be possibly carcinogenic based on its IARC, ACGIH, NTP, or EPA classification.

Limited evidence of carcinogenicity in animal studies

IARC:	2B - Group 2B: Possibly carcinogenic to humans (1,4-Dioxane)
NTP:	Reasonably anticipated to be a human carcinogen (1,4-Dioxane)
OSHA:	No component of this product present at levels greater than or equal to 0.1% is identified as a carcinogen or potential carcinogen by OSHA.

Reproductive toxicity
No data available

No data available

Specific target organ toxicity - single exposure
May cause respiratory irritation.

Specific target organ toxicity - repeated exposure
No data available

Aspiration hazard
No data available

Additional Information
RTECS: JG8225000

Nausea, Vomiting, Weakness, Dizziness, Vertigo, Headache, Sweating, loss of appetite, Kidney injury may occur., Liver injury may occur.
To the best of our knowledge, the chemical, physical, and toxicological properties have not been thoroughly investigated.

Liver - Irregularities - Based on Human Evidence
Liver - Irregularities - Based on Human Evidence

12. ECOLOGICAL INFORMATION

12.1 Toxicity

Toxicity to fish	LC50 - Pimephales promelas (fathead minnow) - 985 mg/l - 96 h
Toxicity to daphnia and other aquatic invertebrates	EC50 - Daphnia magna (Water flea) - 8,450 mg/l - 24 h
Toxicity to algae	EC50 - Desmodesmus subspicatus (green algae) - > 500 mg/l - 72 h

12.2 Persistence and degradability

Biodegradability	Result: < 5 % - Not readily biodegradable.

12.3 Bioaccumulative potential
Does not bioaccumulate.

12.4 Mobility in soil
No data available

12.5 Results of PBT and vPvB assessment
PBT/vPvB assessment not available as chemical safety assessment not required/not conducted

12.6 Other adverse effects

No data available

13. DISPOSAL CONSIDERATIONS

13.1 Waste treatment methods

Product
Burn in a chemical incinerator equipped with an afterburner and scrubber but exert extra care in igniting as this material is highly flammable. Offer surplus and non-recyclable solutions to a licensed disposal company. Contact a licensed professional waste disposal service to dispose of this material.

Contaminated packaging
Dispose of as unused product.

14. TRANSPORT INFORMATION

DOT (US)
UN number: 1165 Class: 3 Packing group: II
Proper shipping name: Dioxane
Reportable Quantity (RQ): 100 lbs

Poison Inhalation Hazard: No

IMDG
UN number: 1165 Class: 3 Packing group: II EMS-No: F-E, S-D
Proper shipping name: DIOXANE

IATA
UN number: 1165 Class: 3 Packing group: II
Proper shipping name: Dioxane

15. REGULATORY INFORMATION

SARA 302 Components
No chemicals in this material are subject to the reporting requirements of SARA Title III, Section 302.

SARA 313 Components
The following components are subject to reporting levels established by SARA Title III, Section 313:

	CAS-No.	Revision Date
1,4-Dioxane	123-91-1	2007-07-01

SARA 311/312 Hazards
Fire Hazard, Acute Health Hazard, Chronic Health Hazard

Massachusetts Right To Know Components

	CAS-No.	Revision Date
1,4-Dioxane	123-91-1	2007-07-01

Pennsylvania Right To Know Components

	CAS-No.	Revision Date
1,4-Dioxane	123-91-1	2007-07-01

New Jersey Right To Know Components

	CAS-No.	Revision Date
1,4-Dioxane	123-91-1	2007-07-01

California Prop. 65 Components

WARNING! This product contains a chemical known to the State of California to cause cancer.	CAS-No.	Revision Date
1,4-Dioxane	123-91-1	2007-09-28

16. OTHER INFORMATION

Full text of H-Statements referred to under sections 2 and 3.

Carc.	Carcinogenicity
Eye Irrit.	Eye irritation
Flam. Liq.	Flammable liquids
H225	Highly flammable liquid and vapour.
H319	Causes serious eye irritation.
H335	May cause respiratory irritation.
H351	Suspected of causing cancer.
STOT SE	Specific target organ toxicity - single exposure

HMIS Rating

Health hazard:	2
Chronic Health Hazard:	*
Flammability:	3
Physical Hazard	0

NFPA Rating

Health hazard:	2
Fire Hazard:	3
Reactivity Hazard:	0

Further information

Copyright 2015 Sigma-Aldrich Co. LLC. License granted to make unlimited paper copies for internal use only.
The above information is believed to be correct but does not purport to be all inclusive and shall be used only as a guide. The information in this document is based on the present state of our knowledge and is applicable to the product with regard to appropriate safety precautions. It does not represent any guarantee of the properties of the product. Sigma-Aldrich Corporation and its Affiliates shall not be held liable for any damage resulting from handling or from contact with the above product. See www.sigma-aldrich.com and/or the reverse side of invoice or packing slip for additional terms and conditions of sale.

Preparation Information

Sigma-Aldrich Corporation
Product Safety – Americas Region
1-800-521-8956

Version: 5.4 Revision Date: 03/03/2015 Print Date: 04/11/2016

SAFETY DATA SHEET

This safety data sheet was created pursuant to the requirements of:
Regulation (EC) No. 1907/2006 and Regulation (EC) No. 1272/2008

Revision date 02-Jan-2024 **Revision Number** 1

SECTION 1: Identification of the substance/mixture and of the company/undertaking

1.1. Product identifier

Product Code(s) DRE-C15987125

Product Name 1H,1H,2H,2H-Perfluorooctane sulfonic acid

Form Not applicable

NOTE [8] - No registration number is given for this substance because it is under the threshold in REACH Article 6(1) and not subject to the registration requirements according to REACH Title II

EC No (EU Index No) 248-580-6

CAS No. 27619-97-2

Pure substance/mixture Substance

Formula $C_8H_5F_{13}O_3S$

Molecular weight 428.17

1.2. Relevant identified uses of the substance or mixture and uses advised against

Recommended use Laboratory use

Uses advised against No information available

1.3. Details of the supplier of the safety data sheet

Supplier

LGC Limited
Queens Road
Teddington
Middlesex TW11 0LY
UNITED KINGDOM
:+44 (0) 20 8943 7000
Fax :+44 (0) 20 8943 2767
eMail : gb@lgcstandards.com

Web : www.lgcstandards.com

For further information, please contact

E-mail address sds-request@lgcgroup.com

1.4. Emergency telephone number

Emergency Telephone — For Hazardous Materials or Dangerous Goods Incident
Spill, Leak, Fire Exposure, or Accident
Call CHEMTREC:
USA & Canada 1-800-424-9300
Rest of the world +1 703-741-5970

Emergency Telephone - §45 - (EC)1272/2008	
Europe	**112**
Austria	No information available
Bulgaria	
Croatia	
Cyprus	
Czech Republic	
Denmark	
France	
Hungary	
Ireland	
Italy	
Lithuania	
Luxembourg	
Netherlands	
Norway	
Portugal	
Romania	
Slovakia	
Slovenia	
Spain	
Sweden	
Switzerland	

SECTION 2: Hazards identification

2.1. Classification of the substance or mixture

Classification according to
Regulation (EC) No. 1272/2008 [CLP]

Acute toxicity - Oral	Category 4 - (H302)
Skin corrosion/irritation	Category 1 Sub-category B - (H314)
Serious eye damage/eye irritation	Category 1 - (H318)
Specific target organ toxicity — repeated exposure	Category 2 - (H373)

2.2. Label elements

Contains 1H,1H,2H,2H-Perfluorooctane sulfonic acid



Signal word
Danger

Hazard statements
H302 - Harmful if swallowed
H314 - Causes severe skin burns and eye damage
H373 - May cause damage to organs through prolonged or repeated exposure

Precautionary Statements - EU (§28, 1272/2008)
P260 - Do not breathe dust/fume/gas/mist/vapours/spray
P280 - Wear protective gloves/protective clothing and eye/face protection
P303 + P361 + P353 - IF ON SKIN (or hair): Take off immediately all contaminated clothing. Rinse skin with water [or shower]
P305 + P351 + P338 - IF IN EYES: Rinse cautiously with water for several minutes. Remove contact lenses, if present and easy to do. Continue rinsing
P310 - Immediately call a POISON CENTER or doctor
P331 - Do NOT induce vomiting

2.3. Other hazards

No information available.

This substance does not meet the PBT/vPvB criteria of REACH, annex XIII.

This product does not contain any known or suspected endocrine disruptors.

Chemical name	EU - REACH (1907/2006) - Article 59(1) - Candidate List of Substances of Very High Concern (SVHC) for Authorisation	EU - REACH (1907/2006) - Endocrine Disruptor Assessment List of Substances
1H,1H,2H,2H-Perfluorooctane sulfonic acid	-	-

SECTION 3: Composition/information on ingredients

3.1 Substances

Chemical name	Weight-%	REACH registration number	EC No (EU Index No)	Classification according to Regulation (EC) No. 1272/2008 [CLP]	Specific concentration limit (SCL)	M-Factor	M-Factor (long-term)
1H,1H,2H,2H-Perfluorooctane sulfonic acid 27619-97-2	100	-	248-580-6	Acute Tox. 4 (H302) Skin Corr. 1B (H314) Eye Dam. 1 (H318) STOT RE 2 (H373)			

Full text of H- and EUH-phrases: see section 16

Acute Toxicity Estimate
No information available

This product does not contain candidate substances of very high concern at a concentration >=0.1% (Regulation (EC) No. 1907/2006 (REACH), Article 59)

SECTION 4: First aid measures

4.1. Description of first aid measures

General advice Show this safety data sheet to the doctor in attendance. Immediate medical attention is required.

Inhalation Remove to fresh air. If breathing has stopped, give artificial respiration. Get medical attention immediately. Do not use mouth-to-mouth method if victim ingested or inhaled the substance; give artificial respiration with the aid of a pocket mask equipped with a one-way valve or other proper respiratory medical device. If breathing is difficult, (trained personnel should) give oxygen. Delayed pulmonary edema may occur. Get immediate medical attention.

Eye contact Rinse immediately with plenty of water, also under the eyelids, for at least 15 minutes. Keep eye wide open while rinsing. Do not rub affected area. Remove contact lenses, if present and easy to do. Continue rinsing. Get immediate medical attention.

Skin contact Wash off immediately with soap and plenty of water while removing all contaminated clothes and shoes. Get immediate medical attention.

Ingestion Do NOT induce vomiting. Rinse mouth. Never give anything by mouth to an unconscious person. Get immediate medical attention.

Self-protection of the first aider Ensure that medical personnel are aware of the material(s) involved, take precautions to protect themselves and prevent spread of contamination. Avoid contact with skin, eyes or clothing. Avoid direct contact with skin. Use barrier to give mouth-to-mouth resuscitation. Wear personal protective clothing (see section 8).

4.2. Most important symptoms and effects, both acute and delayed

Symptoms	Burning sensation.

4.3. Indication of any immediate medical attention and special treatment needed

Note to doctors	Product is a corrosive material. Use of gastric lavage or emesis is contra-indicated. Possible perforation of stomach or esophagus should be investigated. Do not give chemical antidotes. Asphyxia from glottal edema may occur. Marked decrease in blood pressure may occur with moist rales, frothy sputum, and high pulse pressure.

SECTION 5: Firefighting measures

5.1. Extinguishing media

Suitable Extinguishing Media	Use extinguishing measures that are appropriate to local circumstances and the surrounding environment.
Large Fire	CAUTION: Use of water spray when fighting fire may be inefficient.
Unsuitable extinguishing media	Do not scatter spilled material with high pressure water streams.

5.2. Special hazards arising from the substance or mixture

Specific hazards arising from the chemical	The product causes burns of eyes, skin and mucous membranes. Thermal decomposition can lead to release of irritating gases and vapours.

5.3. Advice for firefighters

Special protective equipment and precautions for fire-fighters	Firefighters should wear self-contained breathing apparatus and full firefighting turnout gear. Use personal protection equipment.

SECTION 6: Accidental release measures

6.1. Personal precautions, protective equipment and emergency procedures

Personal precautions	Attention! Corrosive material. Avoid contact with skin, eyes or clothing. Ensure adequate ventilation. Use personal protective equipment as required. Evacuate personnel to safe areas. Keep people away from and upwind of spill/leak.
Other information	Refer to protective measures listed in Sections 7 and 8.
For emergency responders	Use personal protection recommended in Section 8.

6.2. Environmental precautions

Environmental precautions	Prevent further leakage or spillage if safe to do so. Should not be released into the environment. Do not allow to enter into soil/subsoil. Prevent product from entering drains.

6.3. Methods and material for containment and cleaning up

Methods for containment	Prevent further leakage or spillage if safe to do so.
Methods for cleaning up	Take up mechanically, placing in appropriate containers for disposal.
Prevention of secondary hazards	Clean contaminated objects and areas thoroughly observing environmental regulations.

6.4. Reference to other sections

Reference to other sections	See section 8 for more information. See section 13 for more information.

SECTION 7: Handling and storage

7.1. Precautions for safe handling

Advice on safe handling	Handle in accordance with good industrial hygiene and safety practice. Avoid contact with skin, eyes or clothing. In case of insufficient ventilation, wear suitable respiratory equipment. Handle product only in closed system or provide appropriate exhaust ventilation. Do not eat, drink or smoke when using this product. Take off contaminated clothing and wash it before reuse.
General hygiene considerations	Avoid contact with skin, eyes or clothing. Do not eat, drink or smoke when using this product. Wash hands before breaks and after work. Wear suitable gloves and eye/face protection. Remove and wash contaminated clothing and gloves, including the inside, before re-use. Contaminated work clothing should not be allowed out of the workplace. Regular cleaning of equipment, work area and clothing is recommended. Wash hands before breaks and immediately after handling the product.

7.2. Conditions for safe storage, including any incompatibilities

Storage Conditions	Keep containers tightly closed in a dry, cool and well-ventilated place. Keep out of the reach of children. Please refer to the manufacturer's certificate for specific storage and transport temperature conditions. Store only in the original receptacle unless other advice is given on the CoA. Protect from moisture. Store locked up. Store away from other materials.

7.3. Specific end use(s)

Risk Management Methods (RMM)	The information required is contained in this Safety Data Sheet.

SECTION 8: Exposure controls/personal protection

8.1. Control parameters

Exposure Limits This product, as supplied, does not contain any hazardous materials with occupational exposure limits established by the region specific regulatory bodies.

Biological occupational exposure limits

Chemical name	Latvia	Luxembourg	Romania	Slovakia
1H,1H,2H,2H-Perfluorooctane sulfonic acid 27619-97-2	-	-	5 mg/g Creatinine - urine (Fluorine) - end of shift	-

Derived No Effect Level (DNEL) No information available.
Predicted No Effect Concentration (PNEC) No information available.

8.2. Exposure controls

Personal protective equipment

Eye/face protection Avoid contact with eyes. Wear safety glasses with side shields (or goggles). Tight sealing safety goggles. Face protection shield.

Hand protection Wear suitable gloves. Impervious gloves. The protective gloves to be used must comply with the specifications of EC Directive 89/686/EEC and the related standard EN374. Wear protective nitrile rubber or Viton™ gloves.

Skin and body protection Wear suitable protective clothing. Long sleeved clothing. Chemical resistant apron.

Respiratory protection No protective equipment is needed under normal use conditions. If exposure limits are exceeded or irritation is experienced, ventilation and evacuation may be required.

General hygiene considerations Avoid contact with skin, eyes or clothing. Do not eat, drink or smoke when using this product. Wash hands before breaks and after work. Wear suitable gloves and eye/face protection. Remove and wash contaminated clothing and gloves, including the inside, before

re-use. Contaminated work clothing should not be allowed out of the workplace. Regular cleaning of equipment, work area and clothing is recommended. Wash hands before breaks and immediately after handling the product.

Environmental exposure controls Do not allow into any sewer, on the ground or into any body of water.

SECTION 9: Physical and chemical properties

9.1. Information on basic physical and chemical properties

Physical state	Solid
Appearance	Solid
Colour	white to brown
Odour	No information available.
Odour threshold	No information available

Property	**Values**	**Remarks • Method**
Melting point / freezing point	87 °C	None known
Initial boiling point and boiling range	No data available	None known
Flammability	No data available	None known
Flammability Limit in Air		None known
Upper flammability or explosive limits	No data available	
Lower flammability or explosive limits	No data available	
Flash point	No data available	None known
Autoignition temperature	No data available	None known
Decomposition temperature		None known
pH	No data available	None known
pH (as aqueous solution)	No data available	No information available
Kinematic viscosity	No data available	None known
Dynamic viscosity	No data available	None known
Water solubility	658 g/l	@ 20 °C
Solubility(ies)	No data available	None known
Partition coefficient	0.95	None known
Vapour pressure	1.96 Pa	@ 20°C
Relative density	1.953	@ 20 °C
Bulk density	No data available	
Liquid Density	No data available	
Relative vapour density	No data available	None known
Particle characteristics		
Particle Size	No information available	
Particle Size Distribution	No information available	

9.2. Other information

Molecular weight	428.17

Molecular formula $C_8H_5F_{13}O_3S$

9.2.1. Information with regards to physical hazard classes
Not applicable

9.2.2. Other safety characteristics
No information available

SECTION 10: Stability and reactivity

10.1. Reactivity

Reactivity No information available.

10.2. Chemical stability

Stability Stable under normal conditions.

Explosion data
Sensitivity to mechanical impact None.
Sensitivity to static discharge None.

10.3. Possibility of hazardous reactions

Possibility of hazardous reactions None under normal processing.

10.4. Conditions to avoid

Conditions to avoid Exposure to air or moisture over prolonged periods.

10.5. Incompatible materials

Incompatible materials Acids. Bases. Oxidising agent.

Hazardous decomposition products None known based on information supplied.

SECTION 11: Toxicological information

11.1. Information on hazard classes as defined in Regulation (EC) No 1272/2008

Information on likely routes of exposure

Product Information

Inhalation Specific test data for the substance or mixture is not available. Corrosive by inhalation.

(based on components). Inhalation of corrosive fumes/gases may cause coughing, choking, headache, dizziness, and weakness for several hours. Pulmonary edema may occur with tightness in the chest, shortness of breath, bluish skin, decreased blood pressure, and increased heart rate. Inhaled corrosive substances can lead to a toxic edema of the lungs. Pulmonary edema can be fatal.

Eye contact Specific test data for the substance or mixture is not available. Causes serious eye damage. (based on components). Corrosive to the eyes and may cause severe damage including blindness. May cause irreversible damage to eyes.

Skin contact Specific test data for the substance or mixture is not available. Corrosive. (based on components). Causes burns.

Ingestion Specific test data for the substance or mixture is not available. Causes burns. (based on components). Ingestion causes burns of the upper digestive and respiratory tracts. May cause severe burning pain in the mouth and stomach with vomiting and diarrhea of dark blood. Blood pressure may decrease. Brownish or yellowish stains may be seen around the mouth. Swelling of the throat may cause shortness of breath and choking. May cause lung damage if swallowed. May be fatal if swallowed and enters airways. Harmful if swallowed.

Symptoms related to the physical, chemical and toxicological characteristics

Symptoms Redness. Burning. May cause blindness. Coughing and/ or wheezing.

Numerical measures of toxicity

Acute toxicity

Component Information

Chemical name	Oral LD50	Dermal LD50	Inhalation LC50
1H,1H,2H,2H-Perfluorooctane sulfonic acid	> 300 - < 2000 mg/kg (Rat)	> 2000 mg/kg (Rat)	

Delayed and immediate effects as well as chronic effects from short and long-term exposure

Skin corrosion/irritation Classification based on data available for ingredients. Causes severe skin burns and eye damage.

Serious eye damage/eye irritation Classification based on data available for ingredients. Causes serious eye damage. Causes burns.

Respiratory or skin sensitisation	No information available.
Germ cell mutagenicity	No information available.
Carcinogenicity	No information available.
Reproductive toxicity	No information available.
STOT - single exposure	No information available.
STOT - repeated exposure	May cause damage to organs through prolonged or repeated exposure.
Aspiration hazard	No information available.

11.2. Information on other hazards

11.2.1. Endocrine disrupting properties

Endocrine disrupting properties	No information available.

11.2.2. Other information

Other adverse effects	No information available.

SECTION 12: Ecological information

12.1. Toxicity

Ecotoxicity	The environmental impact of this product has not been fully investigated.

12.2. Persistence and degradability

Persistence and degradability	No information available.

12.3. Bioaccumulative potential

Bioaccumulation There is no data for this product.

Component Information

Chemical name	Partition coefficient
1H,1H,2H,2H-Perfluorooctane sulfonic acid	0.95

12.4. Mobility in soil

Mobility in soil No information available.

12.5. Results of PBT and vPvB assessment

PBT and vPvB assessment No information available.

Chemical name	PBT and vPvB assessment
1H,1H,2H,2H-Perfluorooctane sulfonic acid	The substance is not PBT / vPvB

12.6. Endocrine disrupting properties

Endocrine disrupting properties No information available.

12.7. Other adverse effects

No information available.

SECTION 13: Disposal considerations

13.1. Waste treatment methods

Waste from residues/unused products Dispose of in accordance with local regulations. Dispose of waste in accordance with environmental legislation.

Contaminated packaging Do not reuse empty containers.

SECTION 14: Transport information

IATA

14.1 UN number or ID number UN3261
14.2 UN proper shipping name Corrosive solid, acidic, organic, n.o.s. (1H,1H,2H,2H-Perfluorooctane sulfonic acid)
14.3 Transport hazard class(es) 8

14.4 Packing group	II
Description	UN3261, Corrosive solid, acidic, organic, n.o.s. (1H,1H,2H,2H-Perfluorooctane sulfonic acid), 8, II
14.5 Environmental hazards	Not applicable
14.6 Special precautions for user	
Special Provisions	A3, A803
ERG Code	8L

IMDG

14.1 UN number or ID number	UN3261
14.2 UN proper shipping name	Corrosive solid, acidic, organic, n.o.s. (1H,1H,2H,2H-Perfluorooctane sulfonic acid)
14.3 Transport hazard class(es)	8
14.4 Packing group	II
Description	UN3261, Corrosive solid, acidic, organic, n.o.s. (1H,1H,2H,2H-Perfluorooctane sulfonic acid), 8, II
14.5 Marine pollutant	NP
14.6 Special precautions for user	
Special Provisions	274
EmS-No.	F-A, S-B No information available
14.7 Maritime transport in bulk according to IMO instruments	No information available

RID

14.1 UN number or ID number	UN3261
14.2 UN proper shipping name	Corrosive solid, acidic, organic, n.o.s. (1H,1H,2H,2H-Perfluorooctane sulfonic acid)
14.3 Transport hazard class(es)	8
14.4 Packing group	II
Description	UN3261, Corrosive solid, acidic, organic, n.o.s. (1H,1H,2H,2H-Perfluorooctane sulfonic acid), 8, II
14.5 Environmental hazards	Not applicable
14.6 Special precautions for user	
Special Provisions	274
Classification code	C4

ADR

14.1 UN number or ID number	UN3261
14.2 UN proper shipping name	Corrosive solid, acidic, organic, n.o.s. (1H,1H,2H,2H-Perfluorooctane sulfonic acid)
14.3 Transport hazard class(es)	8
14.4 Packing group	II
Description	UN3261, Corrosive solid, acidic, organic, n.o.s. (1H,1H,2H,2H-Perfluorooctane sulfonic acid), 8, II, (E)
14.5 Environmental hazards	Not applicable
14.6 Special precautions for user	
Special Provisions	274
Classification code	C4
Tunnel restriction code	(E)

SECTION 15: Regulatory information

15.1. Safety, health and environmental regulations/legislation specific for the substance or mixture

National regulations

Germany

Water hazard class (WGK) slightly hazardous to water (WGK 1)

TA Luft (German Air Pollution Control Regulation)

Poland

SDS created according to the following Polish regulation: Act of February 25, 2011 on chemical substances and their mixtures (Journal of Laws of 2018, item 143, as amended). Regulation (EC) No 1907/2006 of the European Parliament and of the Council on the Registration, Evaluation, Authorization and Restriction of Chemicals (REACH), establishing the European Chemicals Agency (EC) as amended. Regulation (EC) No 1272/2008 of the European Parliament and of the Council of 16 December 2008 on classification, labeling and packaging of substances and mixtures, as amended. Regulation of the Minister of Health of 10 August 2012 on the criteria and method of classifying chemical substances and their mixtures (Journal of Laws of 2012, item 1018). Regulation of the Minister of Health of 20 April 2012 on labeling packaging of hazardous substances and mixtures and some mixtures (Journal of Laws of 2012, item 445). Regulation of the Minister of Family, Labor and Social Policy of 12 June 2018 on the maximum allowable concentrations and intensities of factors harmful to health in the work environment (Journal of Laws of 2018, item 1286). Announcement of the Minister of Economy, Labor and Social Policy of August 28, 2003 on the publication of the unified text of the Ordinance of the Minister of Labor and Social Policy on general health and safety at work regulations (Journal of Laws of 2003, No. 169, item 1650) . Regulation of the Minister of Health of 30 December 2004 on occupational safety and health related to the presence of chemical agents in the workplace (Journal of Laws of 2005, No. 11, item 86). Act of December 14, 2012 on waste (Journal of Laws of 2013, item 21) Regulation of the Minister of Health of December 30, 2004 on occupational health and safety related to the presence of chemical agents in the workplace (Journal U. of 2005, No. 11, item 86). Waste Act of December 14, 2012 (Journal of Laws of 2013, item 21). Act of 13 June 2013 on the management of packaging and packaging waste, Journal of Laws 2013, item 888). Government statement of September 24, 2002 - European Agreement on the International Carriage of Dangerous Goods by Road (ADR) (Journal of Laws No. 194, item 1629 and Journal of Laws of 2003, No. 207, item 2013 and 2014).

European Union

Take note of Directive 98/24/EC on the protection of the health and safety of workers from the risks related to chemical agents at work.

Authorisations and/or restrictions on use:
This product does not contain substances subject to authorisation (Regulation (EC) No. 1907/2006 (REACH), Annex XIV) This product does not contain substances subject to restriction (Regulation (EC) No. 1907/2006 (REACH), Annex XVII)

DIRECTIVE (EU) 2021/1187 on the marketing and use of explosives precursors
Not applicable

Persistent Organic Pollutants
Not applicable

Ozone-depleting substances (ODS) regulation (EC) 1005/2009
Not applicable

International Inventories

TSCA	Complies
DSL/NDSL	Contact supplier for inventory compliance status
EINECS/ELINCS	Contact supplier for inventory compliance status
ENCS	Contact supplier for inventory compliance status
IECSC	Contact supplier for inventory compliance status
KECL	Contact supplier for inventory compliance status
PICCS	Contact supplier for inventory compliance status
AIIC	Contact supplier for inventory compliance status

Legend:
TSCA - United States Toxic Substances Control Act Section 8(b) Inventory
DSL/NDSL - Canadian Domestic Substances List/Non-Domestic Substances List
EINECS/ELINCS - European Inventory of Existing Chemical Substances/European List of Notified Chemical Substances
ENCS - Japan Existing and New Chemical Substances
IECSC - China Inventory of Existing Chemical Substances
KECL - Korean Existing and Evaluated Chemical Substances
PICCS - Philippines Inventory of Chemicals and Chemical Substances
AICS - Australian Inventory of Chemical Substances

15.2. Chemical safety assessment

Chemical Safety Report A Chemical Safety Assessment is not required for this substance

SECTION 16: Other information

Key or legend to abbreviations and acronyms used in the safety data sheet

Full text of H-Statements referred to under section 3
H302 - Harmful if swallowed
H314 - Causes severe skin burns and eye damage
H318 - Causes serious eye damage
H373 - May cause damage to organs through prolonged or repeated exposure

Legend
SVHC: Substances of Very High Concern for Authorisation:

Legend Section 8: Exposure controls/personal protection

TWA	TWA (time-weighted average)	STEL	STEL (Short Term Exposure Limit)
Ceiling	Maximum limit value	Sk*	Skin designation

Classification procedure	
Classification according to Regulation (EC) No. 1272/2008 [CLP]	Method Used
Acute oral toxicity	Calculation method
Acute dermal toxicity	Calculation method
Acute inhalation toxicity - gas	Calculation method
Acute inhalation toxicity - Vapour	Calculation method
Acute inhalation toxicity - dust/mist	Calculation method
Skin corrosion/irritation	Calculation method
Serious eye damage/eye irritation	Calculation method
Respiratory sensitisation	Calculation method
Skin sensitisation	Calculation method
Mutagenicity	Calculation method
Carcinogenicity	Calculation method
Reproductive toxicity	Calculation method
STOT - single exposure	Calculation method
STOT - repeated exposure	Calculation method
Acute aquatic toxicity	Calculation method
Chronic aquatic toxicity	Calculation method
Aspiration hazard	Calculation method
Ozone	Calculation method

Key literature references and sources for data used to compile the SDS
Agency for Toxic Substances and Disease Registry (ATSDR)
U.S. Environmental Protection Agency ChemView Database
European Food Safety Authority (EFSA)

EPA (Environmental Protection Agency)
Acute Exposure Guideline Level(s) (AEGL(s))
U.S. Environmental Protection Agency Federal Insecticide, Fungicide, and Rodenticide Act
U.S. Environmental Protection Agency High Production Volume Chemicals
Food Research Journal
Hazardous Substance Database
International Uniform Chemical Information Database (IUCLID)
Japan GHS Classification
Australian National Industrial Chemicals Notification and Assessment Scheme (NICNAS)
NIOSH (National Institute for Occupational Safety and Health)
National Library of Medicine's ChemID Plus (NLM CIP)
National Library of Medicine's PubMed database (NLM PUBMED)
National Toxicology Program (NTP)
New Zealand's Chemical Classification and Information Database (CCID)
Organisation for Economic Co-operation and Development Environment, Health, and Safety Publications
Organisation for Economic Co-operation and Development High Production Volume Chemicals Programme
Organisation for Economic Co-operation and Development Screening Information Data Set
World Health Organization

Revision date 02-Jan-2024

This material safety data sheet complies with the requirements of Regulation (EC) No. 1907/2006
Disclaimer
The information in this safety data sheet (SDS) has been prepared with due care and is true and accurate to the best of our knowledge. The user must determine the suitability of the information for its particular purpose, ensure compliance with existing laws and regulations, and be aware that other or additional safety or performance considerations may arise when using, handling and/ or storing the material. The information in this SDS does not purport to be all inclusive or a guarantee as to the properties of the material supplied, and should be used only as a guide. LGC makes no warranties or representations as to the accuracy and completeness of the information contained herein, shall not be held responsible for the suitability of this information for the user's intended purposes or the consequences of such use, and shall not be liable for any damage or loss, howsoever arising, direct or otherwise.

End of Safety Data Sheet

N-METHYLPERFLUOROOCTANESULFONAMIDOACETIC ACID UNLABELED (MIX OF ISOMERS) 50 UG/ML IN METHANOL

Safety Data Sheet

according to Regulation (EC) No. 1907/2006 (REACH) with its amendment Regulation (EU) 2015/830 and according to Federal Register / Vol. 77, No. 58 / Monday, March 26, 2012 / Rules and Regulations

Date of issue: 16/10/2018 Revision date: : Version: 1.0

ULM-10656-S

SECTION 1: Identification of the substance/mixture and of the company/undertaking

1.1. Product identifier

Product form : Mixtures

Product name : N-METHYLPERFLUOROOCTANESULFONAMIDOACETIC ACID UNLABELED (MIX OF ISOMERS) 50 UG/ML IN METHANOL

Product code : ULM-10656-S

1.2. Relevant identified uses of the substance or mixture and uses advised against

1.2.1. Relevant identified uses

Main use category : Professional use

Industrial/Professional use spec : For professional use only

1.2.2. Uses advised against

No additional information available

1.3. Details of the supplier of the safety data sheet

Cambridge Isotope Laboratories, Inc.
50 Frontage Road
Andover, MA 01810
USA

USA: 1-800-322-1174 Int: 1-978-749-8000
cilsales@isotope.com www.isotope.com

Emergency telephone number

Emergency numbers:

Chemtrec: 1-800-424-9300 (24 hours)
International: 1-703-741-5970 (24 hours)

SECTION 2: Hazards identification

2.1. Classification of the substance or mixture

Classification according to Regulation (EC) No. 1272/2008 [CLP]

Flam. Liq. 2	H225
Acute Tox. 3 (Oral)	H301
Acute Tox. 3 (Dermal)	H311
Acute Tox. 3 (Inhalation:vapour)	H331
Skin Irrit. 2	H315
Eye Irrit. 2A	H319
STOT SE 1	H370

Full text of hazard classes and H-statements : see section 16

Classification according to Directive 67/548/EEC [DSD] or 1999/45/EC [DPD]

F; R11
T; R39/23/24/25
Xi; R36/38

Full text of R-phrases: see section 16

GHS-US classification

Flam. Liq. 2	H225
Acute Tox. 3 (Oral)	H301
Acute Tox. 3 (Dermal)	H311
Acute Tox. 3 (Inhalation:vapour)	H331
Skin Irrit. 2	H315
Eye Irrit. 2A	H319
STOT SE 1	H370

Full text of H statements : see section 16

Adverse physicochemical, human health and environmental effects

Eyes, Kidney, Liver, Heart, Central nervous system. Highly flammable liquid and vapour. Causes damage to organs (eyes, kidneys, liver, heart, central nervous system) (if inhaled, if swallowed, in contact with skin). Toxic in contact with skin. Toxic if inhaled. Toxic if swallowed. Causes skin irritation. Causes serious eye irritation.

2.2. Label elements

Labeling according to Regulation (EC) No. 1272/2008 [CLP]

Hazard pictograms (CLP) :



GHS02 GHS08 GHS06

Signal word (CLP) : Danger

Hazard statements (CLP) : H225 - Highly flammable liquid and vapour
H301+H311+H331 - Toxic if swallowed, in contact with skin or if inhaled
H315 - Causes skin irritation
H319 - Causes serious eye irritation
H370 - Causes damage to organs (eyes, heart, kidneys, liver, central nervous system) (in contact with skin, if inhaled, if swallowed)

Precautionary statements (CLP) : P210 - Keep away from heat, hot surfaces, sparks, open flames and other ignition sources. No smoking.
P233 - Keep container tightly closed.
P240 - Ground/bond container and receiving equipment.
P241 - Use explosion-proof electrical, lighting, ventilating equipment
P260 - Do not breathe dust, mist, vapors, fume, gas, spray.
P264 - Wash hands, forearms and face thoroughly after handling.
P270 - Do not eat, drink or smoke when using this product.
P271 - Use only outdoors or in a well-ventilated area.

GHS-US labeling

Hazard pictograms (GHS-US) :



GHS02 GHS08 GHS06

Signal word (GHS-US) : Danger

Hazard statements (GHS-US) : H225 - Highly flammable liquid and vapour
H301+H311+H331 - Toxic if swallowed, in contact with skin or if inhaled
H315 - Causes skin irritation
H319 - Causes serious eye irritation
H370 - Causes damage to organs (eyes, kidneys, liver, heart, central nervous system) (Dermal, Inhalation, oral)

Precautionary statements (GHS-US) : P210 - Keep away from heat, open flames, sparks. - No smoking.
P233 - Keep container tightly closed.
P240 - Ground/Bond container and receiving equipment
P241 - Use explosion-proof electrical, lighting, ventilating equipment
P242 - Use only non-sparking tools.
P243 - Take precautionary measures against static discharge.
P260 - Do not breathe dust, fume, mist, gas, spray, vapors.
P261 - Avoid breathing dust, fume, gas, spray, vapors, mist.
P264 - Wash hands, forearms and face thoroughly after handling.
P270 - Do not eat, drink or smoke when using this product.
P271 - Use only outdoors or in a well-ventilated area.
P280 - Wear protective clothing, protective gloves.
P301+P310 - If swallowed: Immediately call a doctor, a POISON CENTER
P302+P352 - If on skin: Wash with plenty of water
P303+P361+P353 - If on skin (or hair): Take off immediately all contaminated clothing. Rinse skin with water/shower
P304+P340 - If inhaled: Remove person to fresh air and keep comfortable for breathing
P305+P351+P338 - If in eyes: Rinse cautiously with water for several minutes. Remove contact lenses, if present and easy to do. Continue rinsing
P307+P311 - If exposed: Call a poison center/doctor
P311 - Call a doctor, a POISON CENTER

P312 - Call a doctor, a POISON CENTER if you feel unwell
P321 - Specific treatment (see Hazardous component(s) for labeling on this label)
P322 - Specific treatment (see Hazard pictograms (CLP) on this label)
P330 - Rinse mouth.
P332+P313 - If skin irritation occurs: Get medical advice/attention.
P337+P313 - If eye irritation persists: Get medical advice/attention.
P361+P364 - Take off immediately all contaminated clothing and wash it before reuse.
P362+P364 - Take off contaminated clothing and wash it before reuse.
P370+P378 - In case of fire: Use alcohol resistant foam, carbon dioxide (CO2), dry extinguishing powder to extinguish.
P403+P233 - Store in a well-ventilated place. Keep container tightly closed.
P403+P235 - Store in a well-ventilated place. Keep cool.
P405 - Store locked up.
P501 - Dispose of contents/container to hazardous or special waste collection point, in accordance with local, regional, national and/or international regulation

2.3. Other hazards

PBT: not relevant – no registration required

SECTION 3: Composition/Information on ingredients

3.1. Substances

Not applicable

3.2. Mixtures

Name	Product identifier	%	Classification according to Directive 67/548/EEC
100% METHANOL UNLABELED	(CAS-No.) 67-56-1 (EC-No.) 200-659-6 (EC Index-No.) 603-001-00-X (REACH-no) 01-2119433307-44	99.9937	F; R11 T; R39/23/24/25 Xi; R36/38
N-METHYLPERFLUOROOCTANESULFONAMIDOACETIC ACID UNLABELED -	(CAS-No.) 2355-31-9 (EC Index-No.)	0.0063	Xi; R36/37/38

Name	Product identifier	%	Classification according to Regulation (EC) No. 1272/2008 [CLP]
100% METHANOL UNLABELED	(CAS-No.) 67-56-1 (EC-No.) 200-659-6 (EC Index-No.) 603-001-00-X (REACH-no) 01-2119433307-44	99.9937	Flam. Liq. 2, H225 Acute Tox. 3 (Oral), H301 Acute Tox. 3 (Dermal), H311 Acute Tox. 3 (Inhalation:vapour), H331 Skin Irrit. 2, H315 Eye Irrit. 2, H319 STOT SE 1, H370
N-METHYLPERFLUOROOCTANESULFONAMIDOACETIC ACID UNLABELED -	(CAS-No.) 2355-31-9 (EC Index-No.)	0.0063	Skin Irrit. 2, H315 Eye Irrit. 2, H319 STOT SE 3, H335

Name	Product identifier	%	GHS-US classification
100% METHANOL UNLABELED	(CAS-No.) 67-56-1	99.9937	Flam. Liq. 2, H225 Acute Tox. 3 (Oral), H301 Acute Tox. 3 (Dermal), H311 Acute Tox. 3 (Inhalation:vapour), H331 Skin Irrit. 2, H315 Eye Irrit. 2A, H319 STOT SE 1, H370
N-METHYLPERFLUOROOCTANESULFONAMIDOACETIC ACID UNLABELED -	(CAS-No.) 2355-31-9	0.0063	Skin Irrit. 2, H315 Eye Irrit. 2A, H319 STOT SE 3, H335

Full text of R- and H- phrases: see section 16

SECTION 4: First aid measures

4.1. Description of first aid measures

First-aid measures general : If medical advice is needed, have product container or label at hand. Call a physician immediately. Evacuate danger area.

First-aid measures after inhalation : Remove person to fresh air and keep comfortable for breathing. If not breathing, give artificial respiration. Call a doctor.

First-aid measures after skin contact : Rinse skin with water/shower. Take immediately victim to hospital. Remove/Take off immediately all contaminated clothing. If skin irritation occurs: Get medical advice/attention.

First-aid measures after eye contact : Immediately flush eyes thoroughly with water for at least 15 minutes. Remove contact lenses, if present and easy to do. Continue rinsing. If eye irritation persists: Get medical advice/attention.

First-aid measures after ingestion : Do not induce vomiting. Never give anything by mouth to an unconscious person. Rinse mouth. Call a physician immediately.

4.2. Most important symptoms and effects, both acute and delayed

Symptoms/effects after inhalation : Toxic if inhaled.

Symptoms/effects after skin contact : Toxic in contact with skin. Causes skin irritation.

Symptoms/effects after eye contact : Causes serious eye irritation.

Symptoms/effects after ingestion : Toxic if swallowed.

4.3. Indication of any immediate medical attention and special treatment needed

Treat symptomatically.

SECTION 5: Firefighting measures

5.1. Extinguishing media

Suitable extinguishing media : Dry powder. Dry sand.

Unsuitable extinguishing media : Do not use a heavy water stream.

5.2. Special hazards arising from the substance or mixture

Fire hazard : Highly flammable liquid and vapour.

Reactivity : vapors may form flammable mixture with air. Highly flammable liquid and vapour.

5.3. Advice for firefighters

Firefighting instructions : Do not enter fire area without proper protective equipment, including respiratory protection.

Protection during firefighting : Do not attempt to take action without suitable protective equipment. Self-contained breathing apparatus. Complete protective clothing. Wear recommended personal protective equipment.

Other information : Use water spray to cool exposed surfaces.

SECTION 6: Accidental release measures

6.1. Personal precautions, protective equipment and emergency procedures

6.1.1. For non-emergency personnel

Emergency procedures : Wear respiratory protection. Do not breathe dust, mist, gas, spray, vapors, fume. Avoid contact with skin, eyes and clothing. Ventilate spillage area. Remove all sources of ignition. No open flames, no sparks, and no smoking. Ensure adequate air ventilation. Special attention should be given to low areas/pits where flammable vapors can accumulate.

6.1.2. For emergency responders

Protective equipment : Do not attempt to take action without suitable protective equipment. For further information refer to section 8: "Exposure controls/personal protection".

6.2. Environmental precautions

Prevent entry to sewers and public waters. Do not allow to enter drains or water courses. Avoid release to the environment.

6.3. Methods and material for containment and cleaning up

For containment : Dike and contain spill.

Methods for cleaning up : Take up liquid spill into absorbent material. Notify authorities if product enters sewers or public waters. This material and its container must be disposed of in a safe way, and as per local legislation.

Other information : Dispose of materials or solid residues at an authorized site.

6.4. Reference to other sections

For further information refer to section 13.

SECTION 7: Handling and storage

7.1. Precautions for safe handling

Precautions for safe handling : Keep away from heat, hot surfaces, sparks, open flames and other ignition sources. No smoking. Ground/bond container and receiving equipment. Use only non-sparking tools. Take precautionary measures against static discharge. Flammable vapors may accumulate in the container. Use explosion-proof equipment. Wear personal protective equipment. Do not breathe dust, fume, gas, spray, vapors, mist. Do not get in eyes, on skin, or on clothing. Use only outdoors or in a well-ventilated area.

Hygiene measures : Avoid contact with skin, eyes and clothing. Wash hands before breaks and immediately after handling the product. Wash contaminated clothing before reuse. Do not eat, drink or smoke when using this product. Always wash hands after handling the product.

7.2. Conditions for safe storage, including any incompatibilities

Technical measures : Ground/bond container and receiving equipment. Store in a well-ventilated place. Keep container tightly closed. Store locked up.

Storage conditions : Store at room temperature away from light and moisture.

7.3. Specific end use(s)

No additional information available

SECTION 8: Exposure controls/personal protection

8.1. Control parameters

N-METHYLPERFLUOROOCTANESULFONAMIDOACETIC ACID UNLABELED (MIX OF ISOMERS) 50 UG/ML IN METHANOL		
Italy - Portugal - USA ACGIH	ACGIH TWA (ppm)	200.00000000 ppm Basis: USA. ACGIH Threshold Limit Values (TLV)
Italy - Portugal - USA ACGIH	ACGIH STEL (ppm)	250 ppm Basis: USA. ACGIH Threshold Limit Values (TLV)
Italy - Portugal - USA ACGIH	Remark (ACGIH)	Headache. Nausea. Dizziness. Eye damage. Substances for which there is a Biological Exposure Index or Indices (see BEI section). Danger of cutaneous absorption.
USA NIOSH	NIOSH REL (TWA) (mg/m³)	260 mg/m³ Basis: NIOSH Recommended Exposure Limits
USA NIOSH	NIOSH REL (TWA) (ppm)	200 ppm Basis: NIOSH Recommended Exposure Limits
USA NIOSH	NIOSH REL (STEL) (mg/m³)	325 mg/m³ Basis: NIOSH Recommended Exposure Limits
USA NIOSH	NIOSH REL (STEL) (ppm)	250 ppm Basis: NIOSH Recommended Exposure Limits
USA NIOSH	Remark (NIOSH)	Potential for dermal absorption.
USA OSHA	OSHA PEL (TWA) (mg/m³)	260 mg/m³ Basis: USA. Occupational Exposure Limits (OSHA) - Table Z-1 Limits for Air Contaminants - 1910.1000. California permissible exposure limits for chemical contaminants (Title 8, Article 107)
USA OSHA	OSHA PEL (TWA) (ppm)	200 ppm Basis: USA. Occupational Exposure Limits (OSHA) - Table Z-1 Limits for Air Contaminants - 1910.1000. California permissible exposure limits for chemical contaminants (Title 8, Article 107)
USA OSHA	OSHA PEL (STEL) (mg/m³)	325 mg/m³ Basis: USA. OSHA - Table Z-1 Limits for Air Contaminants - 1910.1000. California permissible exposure limits for chemical contaminants (Title 8, Article 107)
USA OSHA	OSHA PEL (STEL) (ppm)	250 ppm Basis: USA. OSHA - Table Z-1 Limits for Air Contaminants - 1910.1000. California permissible exposure limits for chemical contaminants (Title 8, Article 107)
USA OSHA	OSHA PEL (Ceiling) (ppm)	1000 ppm California permissible exposure limits for chemical contaminants (Title 8, Article 107)
USA OSHA	Remark (OSHA)	The value in mg/m3 is approximate. Skin notation.

100% METHANOL UNLABELED (67-56-1)		
Italy - Portugal - USA ACGIH	ACGIH TWA (ppm)	200.00000000 ppm Basis: USA. ACGIH Threshold Limit Values (TLV)
Italy - Portugal - USA ACGIH	ACGIH STEL (ppm)	250 ppm Basis: USA. ACGIH Threshold Limit Values (TLV)
Italy - Portugal - USA ACGIH	Remark (ACGIH)	Headache. Nausea. Dizziness. Eye damage. Substances for which there is a Biological Exposure Index or Indices (see BEI section). Danger of cutaneous absorption.
USA NIOSH	NIOSH REL (TWA) (mg/m³)	260 mg/m³ Basis: NIOSH Recommended Exposure Limits
USA NIOSH	NIOSH REL (TWA) (ppm)	200 ppm Basis: NIOSH Recommended Exposure Limits

100% METHANOL UNLABELED (67-56-1)		
USA NIOSH	NIOSH REL (STEL) (mg/m³)	325 mg/m³ Basis: NIOSH Recommended Exposure Limits
USA NIOSH	NIOSH REL (STEL) (ppm)	250 ppm Basis: NIOSH Recommended Exposure Limits
USA NIOSH	Remark (NIOSH)	Potential for dermal absorption.
USA OSHA	OSHA PEL (TWA) (mg/m³)	260 mg/m³ Basis: USA. Occupational Exposure Limits (OSHA) - Table Z-1 Limits for Air Contaminants - 1910.1000. California permissible exposure limits for chemical contaminants (Title 8, Article 107)
USA OSHA	OSHA PEL (TWA) (ppm)	200 ppm Basis: USA. Occupational Exposure Limits (OSHA) - Table Z-1 Limits for Air Contaminants - 1910.1000. California permissible exposure limits for chemical contaminants (Title 8, Article 107)
USA OSHA	OSHA PEL (STEL) (mg/m³)	325 mg/m³ Basis: USA. OSHA - Table Z-1 Limits for Air Contaminants - 1910.1000. California permissible exposure limits for chemical contaminants (Title 8, Article 107)
USA OSHA	OSHA PEL (STEL) (ppm)	250 ppm Basis: USA. OSHA - Table Z-1 Limits for Air Contaminants - 1910.1000. California permissible exposure limits for chemical contaminants (Title 8, Article 107)
USA OSHA	OSHA PEL (Ceiling) (ppm)	1000 ppm California permissible exposure limits for chemical contaminants (Title 8, Article 107)
USA OSHA	Remark (OSHA)	The value in mg/m3 is approximate. Skin notation.

N-METHYLPERFLUOROOCTANESULFONAMIDOACETIC ACID UNLABELED (MIX OF ISOMERS) 50 UG/ML IN METHANOL	
DNEL/DMEL (Workers)	
Acute - systemic effects, dermal	40 mg/kg bodyweight/day
Acute - systemic effects, inhalation	260 mg/m³
Acute - local effects, dermal	260 mg/cm²
Long-term - systemic effects, dermal	40 mg/kg bodyweight/day
Long-term - local effects, dermal	260 mg/cm²
Long-term - local effects, inhalation	260 mg/m³
DNEL/DMEL (General population)	
Acute - systemic effects, dermal	8 mg/kg body weight
Acute - systemic effects, inhalation	50 mg/m³
Acute - systemic effects, oral	8 mg/kg body weight
Acute - local effects, inhalation	50 mg/m³
Long-term - systemic effects,oral	8 mg/kg bodyweight/day
Long-term - systemic effects, inhalation	50 mg/m³
Long-term - systemic effects, dermal	8 mg/kg bodyweight/day
Long-term - local effects, inhalation	50 mg/m³
PNEC (Water)	
PNEC aqua (freshwater)	154 mg/l
PNEC aqua (marine water)	15.4 mg/l
PNEC (Sediment)	
PNEC sediment (freshwater)	570.4 mg/kg dwt
PNEC (Soil)	
PNEC soil	23.5 mg/kg dwt
PNEC (STP)	
PNEC sewage treatment plant	100 mg/kg

8.2. Exposure controls

Appropriate engineering controls : Wash hands and other exposed areas with mild soap and water before eating, drinking or smoking and when leaving work.

Personal protective equipment	:	Gloves. Protective clothing. Protective goggles. Self-contained breathing apparatus.



Materials for protective clothing	:	Wear suitable protective clothing and gloves.
Hand protection	:	Wear suitable protective clothing and gloves.
Eye protection	:	Wear eye protection. Chemical goggles or face shield with safety glasses.
Skin and body protection	:	Wear suitable protective clothing, gloves and eye/face protection.
Respiratory protection	:	In case of inadequate ventilation wear respiratory protection. Approved supplied air respirator.
Environmental exposure controls	:	Avoid release to the environment.

SECTION 9: Physical and chemical properties

9.1. Information on basic physical and chemical properties

The properties listed below are for the solvent, the main component of this mixture.

Physical state	:	Liquid
Appearance	:	Liquid
Molecular mass	:	32.04 g/mol
Color	:	Colorless
Odor	:	Pungent
Odor threshold	:	No data available
pH	:	No data available
Relative evaporation rate (butyl acetate=1)	:	No data available
Melting point	:	-98 °C (-144 °F)
Freezing point	:	No data available
Boiling point	:	64.7 °C (148.5 °F)
Flash point	:	9.7 °C (49.5 °F) - closed cup
Auto-ignition temperature	:	455 °C (851 °F) at 1,013 hPa (760 mmHg)
Decomposition temperature	:	No data available
Flammability (solid, gas)	:	No data available
Vapor pressure	:	130.3 hPa (97.7 mmHg) at 20 °C (68 °F); 169.27 hPa (126.96 mmHg) at 25 °C (77 °F)
Vapor pressure at 50 °C	:	546.6 hPa (410 mmHg) at 50 °C (122 °F)
Relative vapor density at 20 °C	:	1.11
Relative density	:	No data available
Specific gravity / density	:	0.791 g/ml at 25 °C (77 °F)
Solubility	:	Water: Completely miscible
Log Pow	:	-0.77
Log Kow	:	No data available
Viscosity, kinematic	:	No data available
Viscosity, dynamic	:	No data available
Explosive properties	:	Product is not explosive.
Oxidizing properties	:	Non oxidizing material according to EC criteria.
Explosion limits	:	6 - 36 % (V)

9.2. Other information

No additional information available

SECTION 10: Stability and reactivity

10.1. Reactivity

vapors may form flammable mixture with air. Highly flammable liquid and vapour.

10.2. Chemical stability

See storage and expiration date on CoA.

10.3. Possibility of hazardous reactions

No dangerous reactions known under normal conditions of use.

10.4. Conditions to avoid

Avoid contact with hot surfaces. Heat. No flames, no sparks. Eliminate all sources of ignition.

10.5. Incompatible materials

Acid anhydrides. Acid chlorides. Oxidizing agent. Alkali Metal Amides. Reducing agents. Acids.

10.6. Hazardous decomposition products

Carbon oxides (CO, CO2).

SECTION 11: Toxicological information

11.1. Information on toxicological effects

Acute toxicity : Oral: Toxic if swallowed. Dermal: Toxic in contact with skin. Inhalation:vapour: Toxic if inhaled.

N-METHYLPERFLUOROOCTANESULFONAMIDOACETIC ACID UNLABELED (MIX OF ISOMERS) 50 UG/ML IN METHANOL	
LD50 oral rat	1187 - 2769 mg/kg
LD50 dermal rabbit	17100 mg/kg
LC50 inhalation rat (mg/l)	128.2 mg/l/4h ; 87.6 mg/l - 6 h
ATE CLP (oral)	100.000 mg/kg body weight
ATE CLP (dermal)	300.000 mg/kg body weight
ATE CLP (vapors)	3.000 mg/l/4h
ATE CLP (dust, mist)	128.200 mg/l/4h
LDLO, oral, human	143 mg/kg Remarks: Lungs, Thorax, or Respiration: Dyspnea. Ingestion may cause gastrointestinal irritation, nausea, vomiting and diarrhea.

100% METHANOL UNLABELED (67-56-1)	
LD50 oral rat	1187 - 2769 mg/kg
LD50 dermal rabbit	17100 mg/kg
LC50 inhalation rat (mg/l)	128.2 mg/l/4h ; 87.6 mg/l - 6 h
ATE CLP (oral)	100.000 mg/kg body weight
ATE CLP (dermal)	300.000 mg/kg body weight
ATE CLP (vapors)	3.000 mg/l/4h
ATE CLP (dust, mist)	128.200 mg/l/4h
LDLO, oral, human	143 mg/kg Remarks: Lungs, Thorax, or Respiration: Dyspnea. Ingestion may cause gastrointestinal irritation, nausea, vomiting and diarrhea.

Skin corrosion/irritation : Skin. rabbit. Result: No skin irritation

Serious eye damage/irritation : Eyes. rabbit. Result: No eye irritation

Respiratory or skin sensitization : Maximisation Test . Guinea pig. Did not cause sensitization. (OECD 406 method)

Germ cell mutagenicity : AMES test : S. tymphimurium. Result: negative. fibroblast. Result: Negative. Mutation in mammalian somatic cells. Mutagenicity (in vivo mammalian bone-marrow cytogenetic test, chromosomal analysis) - Mouse - male and female Result: negative. Mouse - male and female. Result: Negative

Carcinogenicity : Not classified

Reproductive toxicity : Damage to fetus not classifiable. Fertility classification not possible from current data.

Specific target organ toxicity – single exposure : Causes damage to organs through prolonged or repeated exposure

Causes damage to organs

Specific target organ toxicity – repeated exposure : The substance or mixture is not classified as specific target organ toxicant, repeated exposure.

No data available

Aspiration hazard : No aspiration toxicity classification.

Potential Adverse human health effects and symptoms : This information is based on our current knowledge and is intended to describe the product for the purposes of health, safety and environmental requirements only. It should not therefore be construed as guaranteeing any specific property of the product. Effects due to Ingestion may include: Headache. Dizziness. Drowsiness. metabolic acidosis. Coma. May be fatal if swallowed and enters airways. If swallowed there is a risk of blindness. Effects on humans. stomach.

Symptoms/effects after inhalation : Toxic if inhaled.

Symptoms/effects after skin contact : Toxic in contact with skin. Causes skin irritation.

Symptoms/effects after eye contact : Causes serious eye irritation.

Symptoms/effects after ingestion : Toxic if swallowed.

SECTION 12: Ecological information

12.1. Toxicity

Ecology - general : The product is not considered harmful to aquatic organisms or to cause long-term adverse effects in the environment.

N-METHYLPERFLUOROOCTANESULFONAMIDOACETIC ACID UNLABELED (MIX OF ISOMERS) 50 UG/ML IN METHANOL	
LC50 fish 1	15400 mg/l mortality LC50 - Lepomis machrochirus (Bluegill) - 96 h
EC50 Daphnia 1	> 10000 mg/l Daphnia magna (Water flea) - 48 h
EC50 Daphnia 2	22000 mg/l Growth inhibition EC50 - Scenedesmus capricornutum (fresh water algae) - 96 h
NOEC (acute)	7900 mg/l Oryzias latipes - 200 h

100% METHANOL UNLABELED (67-56-1)	
LC50 fish 1	15400 mg/l mortality LC50 - Lepomis machrochirus (Bluegill) - 96 h
EC50 Daphnia 1	> 10000 mg/l Daphnia magna (Water flea) - 48 h
EC50 Daphnia 2	22000 mg/l Growth inhibition EC50 - Scenedesmus capricornutum (fresh water algae) - 96 h
NOEC (acute)	7900 mg/l Oryzias latipes - 200 h

12.2. Persistence and degradability

N-METHYLPERFLUOROOCTANESULFONAMIDOACETIC ACID UNLABELED (MIX OF ISOMERS) 50 UG/ML IN METHANOL	
Biochemical oxygen demand (BOD)	600 - 1200 mg/g
Chemical oxygen demand (COD)	1420 mg/g
ThOD	1500 mg/g
Biodegradation	72 % - rapidly biodegradable aerobic - Exposure time 5 d

100% METHANOL UNLABELED (67-56-1)	
Biochemical oxygen demand (BOD)	600 - 1200 mg/g
Chemical oxygen demand (COD)	1420 mg/g
ThOD	1500 mg/g
Biodegradation	72 % - rapidly biodegradable aerobic - Exposure time 5 d

12.3. Bioaccumulative potential

N-METHYLPERFLUOROOCTANESULFONAMIDOACETIC ACID UNLABELED (MIX OF ISOMERS) 50 UG/ML IN METHANOL	
BCF fish 1	5 mg/l Cyprinus carpio (Carp) - 72 d at 20 °C
Bioconcentration factor (BCF REACH)	1
Log Pow	-0.77

100% METHANOL UNLABELED (67-56-1)	
BCF fish 1	5 mg/l Cyprinus carpio (Carp) - 72 d at 20 °C
Bioconcentration factor (BCF REACH)	1
Log Pow	-0.77

12.4. Mobility in soil

N-METHYLPERFLUOROOCTANESULFONAMIDOACETIC ACID UNLABELED (MIX OF ISOMERS) 50 UG/ML IN METHANOL	
Ecology - soil	Not degradable in the soil.

100% METHANOL UNLABELED (67-56-1)	
Ecology - soil	Not degradable in the soil.

12.5. Results of PBT and vPvB assessment

N-METHYLPERFLUOROOCTANESULFONAMIDOACETIC ACID UNLABELED (MIX OF ISOMERS) 50 UG/ML IN METHANOL
PBT: not relevant – no registration required

100% METHANOL UNLABELED (67-56-1)
PBT: not relevant – no registration required

12.6. Other adverse effects

Other adverse effects : Avoid release to the environment.

Other information : Stability in water: at 19 °C - (83 - 91%) - 72 h. Remarks: Hydrolyses on contact with water. Hydrolyses readily.

SECTION 13: Disposal considerations

13.1. Waste treatment methods

Regional legislation (waste) : Waste materials should be disposed of under conditions which meet Federal, State, and local environmental control regulations.

Product/Packaging disposal recommendations : Offer surplus and non-recyclable solutions to a licensed disposal company. Contact a licensed professional waste disposal service to dispose of this material.

Ecology - waste materials : Dispose of as unused product.

SECTION 14: Transport information

In accordance with ADR / RID / IMDG / IATA / ADN

14.1. UN number

UN-No.(DOT) : 1230

DOT NA no. UN1230

14.2. UN proper shipping name

Proper Shipping Name (DOT) : Methanol

Class (DOT) : 3 - Class 3 - Flammable and combustible liquid 49 CFR 173.120

Hazard labels (DOT) : 3 - Flammable liquid
6.1 - Poison



DOT Symbols : + - Fixes (cannot be altered) proper shipping name, hazard class, and packing group,I - Proper shipping name appropriate for international and domestic transportation

Packing group (DOT) : II - Medium Danger

DOT Special Provisions (49 CFR 172.102) : IB2 - Authorized IBCs: Metal (31A, 31B and 31N); Rigid plastics (31H1 and 31H2); Composite (31HZ1). Additional Requirement: Only liquids with a vapor pressure less than or equal to 110 kPa at 50 C (1.1 bar at 122 F), or 130 kPa at 55 C (1.3 bar at 131 F) are authorized.
T7 - 4 178.274(d)(2) Normal..... 178.275(d)(3)
TP2 - a. The maximum degree of filling must not exceed the degree of filling determined by the following: (image) Where: tr is the maximum mean bulk temperature during transport, tf is the temperature in degrees celsius of the liquid during filling, and a is the mean coefficient of cubical expansion of the liquid between the mean temperature of the liquid during filling (tf) and the maximum mean bulk temperature during transportation (tr) both in degrees celsius. b. For liquids transported under ambient conditions may be calculated using the formula: (image) Where: d15 and d50 are the densities (in units of mass per unit volume) of the liquid at 15 C (59 F) and 50 C (122 F), respectively.

DOT Packaging Exceptions (49 CFR 173.xxx) : 150

DOT Packaging Non Bulk (49 CFR 173.xxx) : 202

DOT Packaging Bulk (49 CFR 173.xxx) : 242

DOT RQ : 5000 lbs

Marine pollutant : No

14.3. Additional information

Emergency Response Guide (ERG) Number : 131

Other information : No supplementary information available.

Overland transport

Packing group (ADR) : II

Class (ADR) : 3 - Flammable liquid

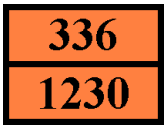
Hazard identification number (Kemler No.) : 336

Classification code (ADR) : FT1

Hazard labels (ADR) : 3 - Flammable liquids
6.1 - Toxic substances



Orange plates :



Tunnel restriction code (ADR)	:	D/E
Limited quantities (ADR)		1l
Excepted quantities (ADR)	:	E2

Transport by sea

DOT Vessel Stowage Location	:	B - (i) The material may be stowed ‘‘on deck’’ or ‘‘under deck’’ on a cargo vessel and on a passenger vessel carrying a number of passengers limited to not more than the larger of 25 passengers, or one passenger per each 3 m of overall vessel length; and (ii) ‘‘On deck only’’ on passenger vessels in which the number of passengers specified in paragraph (k)(2)(i) of this section is exceeded.
DOT Vessel Stowage Other	:	40 - Stow ‘‘clear of living quarters’’
MFAG-No	:	131

Air transport

DOT Quantity Limitations Passenger aircraft/rail (49 CFR 173.27)	:	1 L
DOT Quantity Limitations Cargo aircraft only (49 CFR 175.75)	:	60 L
Civil Aeronautics Law	:	Flammable liquids

14.4. Environmental hazards

Other information : No supplementary information available.

14.5. Special precautions for user

14.6. Transport in bulk according to Annex II of MARPOL 73/78 and the IBC Code

Not applicable

SECTION 15: Regulatory information

15.1. US Federal regulations

N-METHYLPERFLUOROOCTANESULFONAMIDOACETIC ACID UNLABELED (MIX OF ISOMERS) 50 UG/ML IN METHANOL	
Listed on the United States TSCA (Toxic Substances Control Act) inventory	
CERCLA RQ	5000 lb
SARA Section 302 Threshold Planning Quantity (TPQ)	Not subject to reporting requirements of the United States SARA Section 302.
SARA Section 311/312 Hazard Classes	Fire hazard Immediate (acute) health hazard Delayed (chronic) health hazard
SARA Section 313 - Emission Reporting	Subject to reporting requirements of United States SARA Section 313

N-METHYLPERFLUOROOCTANESULFONAMIDOACETIC ACID UNLABELED - (2355-31-9)	
SARA Section 302 Threshold Planning Quantity (TPQ)	Not subject to reporting requirements of the United States SARA Section 302.
SARA Section 313 - Emission Reporting	Not subject to reporting requirements of the United States SARA Section 313.

100% METHANOL UNLABELED (67-56-1)	
Listed on the United States TSCA (Toxic Substances Control Act) inventory	
CERCLA RQ	5000 lb
SARA Section 302 Threshold Planning Quantity (TPQ)	Not subject to reporting requirements of the United States SARA Section 302.
SARA Section 311/312 Hazard Classes	Fire hazard Immediate (acute) health hazard Delayed (chronic) health hazard
SARA Section 313 - Emission Reporting	Subject to reporting requirements of United States SARA Section 313

15.2. International regulations

CANADA

N-METHYLPERFLUOROOCTANESULFONAMIDOACETIC ACID UNLABELED (MIX OF ISOMERS) 50 UG/ML IN METHANOL
Listed on the Canadian DSL (Domestic Substances List)

100% METHANOL UNLABELED (67-56-1)
Listed on the Canadian DSL (Domestic Substances List)

15.2.1. National regulations

No additional information available

15.3. US State regulations

N-METHYLPERFLUOROOCTANESULFONAMIDOACETIC ACID UNLABELED (MIX OF ISOMERS) 50 UG/ML IN METHANOL()	
U.S. - California - Proposition 65 - Carcinogens List	No
U.S. - California - Proposition 65 - Developmental Toxicity	Yes
U.S. - California - Proposition 65 - Reproductive Toxicity - Female	No
U.S. - California - Proposition 65 - Reproductive Toxicity - Male	No
State or local regulations	U.S. - Delaware - Pollutant Discharge Requirements - Reportable Quantities U.S. - Idaho - Non-Carcinogenic Toxic Air Pollutants - Acceptable Ambient Concentrations U.S. - Massachusetts - Right To Know List U.S. - Pennsylvania - RTK (Right to Know) List U.S. - New Jersey - Right to Know Hazardous Substance List U.S. - New York - Reporting of Releases Part 597 - List of Hazardous Substances

N-METHYLPERFLUOROOCTANESULFONAMIDOACETIC ACID UNLABELED - (2355-31-9)				
U.S. - California - Proposition 65 - Carcinogens List	U.S. - California - Proposition 65 - Developmental Toxicity	U.S. - California - Proposition 65 - Reproductive Toxicity - Female	U.S. - California - Proposition 65 - Reproductive Toxicity - Male	No significant risk level (NSRL)
No	No	No	No	

100% METHANOL UNLABELED (67-56-1)				
U.S. - California - Proposition 65 - Carcinogens List	U.S. - California - Proposition 65 - Developmental Toxicity	U.S. - California - Proposition 65 - Reproductive Toxicity - Female	U.S. - California - Proposition 65 - Reproductive Toxicity - Male	No significant risk level (NSRL)
No	Yes	No	No	

N-METHYLPERFLUOROOCTANESULFONAMIDOACETIC ACID UNLABELED - (2355-31-9)
State or local regulations
U.S. - Pennsylvania - RTK (Right to Know) List U.S. - New Jersey - Right to Know Hazardous Substance List

100% METHANOL UNLABELED (67-56-1)
State or local regulations
U.S. - Delaware - Pollutant Discharge Requirements - Reportable Quantities U.S. - Idaho - Non-Carcinogenic Toxic Air Pollutants - Acceptable Ambient Concentrations U.S. - Massachusetts - Right To Know List U.S. - Pennsylvania - RTK (Right to Know) List U.S. - New Jersey - Right to Know Hazardous Substance List U.S. - New York - Reporting of Releases Part 597 - List of Hazardous Substances

SECTION 16: Other information

Other information : This product is not radioactive. The data given for this product are those of the corresponding unlabeled compound, unless specifically indicated otherwise. Health and safety data for labeled compounds are generally not available, but are assumed to be similar or identical to the corresponding unlabeled compound.

Full text of R-, H- and EUH-phrases:

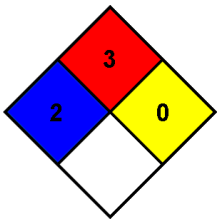
Acute Tox. 3 (Dermal)	Acute toxicity (dermal) Category 3
Acute Tox. 3 (Inhalation:vapour)	Acute toxicity (inhalation:vapour) Category 3
Acute Tox. 3 (Oral)	Acute toxicity (oral) Category 3
Eye Irrit. 2	Serious eye damage/eye irritation Category 2
Flam. Liq. 2	Flammable liquids Category 2
Skin Irrit. 2	Skin corrosion/irritation Category 2
STOT SE 1	Specific target organ toxicity (single exposure) Category 1
STOT SE 3	Specific target organ toxicity (single exposure) Category 3
H225	Highly flammable liquid and vapour
H301	Toxic if swallowed

H311	Toxic in contact with skin
H315	Causes skin irritation
H319	Causes serious eye irritation
H331	Toxic if inhaled
H335	May cause respiratory irritation
H370	Causes damage to organs
R11	Highly flammable
R36/37/38	Irritating to eyes, respiratory system and skin
R36/38	Irritating to eyes and skin
R39/23/24/25	Toxic: danger of very serious irreversible effects through inhalation, in contact with skin and if swallowed
F	Highly flammable
T	Toxic
Xi	Irritant

NFPA health hazard : 2 - Materials that, under emergency conditions, can cause temporary incapacitation or residual injury.

NFPA fire hazard : 3 - Liquids and solids (including finely divided suspended solids) that can be ignited under almost all ambient temperature conditions.

NFPA reactivity : 0 - Material that in themselves are normally stable, even under fire conditions.



Hazard Rating

Health : 2 Moderate Hazard - Temporary or minor injury may occur

Flammability : 3 Serious Hazard

Physical : 0 Minimal Hazard

CIL Mixture SDS

This information is based on our current knowledge and is intended to describe the product for the purposes of health, safety and environmental requirements only. It should not therefore be construed as guaranteeing any specific property of the product

SAFETY DATA SHEET

Version 5.4
Revision Date 11/03/2015
Print Date 04/01/2016

1. PRODUCT AND COMPANY IDENTIFICATION

1.1 Product identifiers

Product name : 2,2,4-Trimethylpentane

Product Number : 360597
Brand : Sigma-Aldrich
Index-No. : 601-009-00-8

CAS-No. : 540-84-1

1.2 Relevant identified uses of the substance or mixture and uses advised against

Identified uses : Laboratory chemicals, Synthesis of substances

1.3 Details of the supplier of the safety data sheet

Company : Sigma-Aldrich
3050 Spruce Street
SAINT LOUIS MO 63103
USA

Telephone : +1 800-325-5832
Fax : +1 800-325-5052

1.4 Emergency telephone number

Emergency Phone # : (314) 776-6555

2. HAZARDS IDENTIFICATION

2.1 Classification of the substance or mixture

GHS Classification in accordance with 29 CFR 1910 (OSHA HCS)
Flammable liquids (Category 2), H225
Skin irritation (Category 2), H315
Specific target organ toxicity - single exposure (Category 3), Central nervous system, H336
Aspiration hazard (Category 1), H304
Acute aquatic toxicity (Category 1), H400
Chronic aquatic toxicity (Category 1), H410

For the full text of the H-Statements mentioned in this Section, see Section 16.

2.2 GHS Label elements, including precautionary statements

Pictogram



Signal word Danger

Hazard statement(s)
H225 Highly flammable liquid and vapour.
H304 May be fatal if swallowed and enters airways.
H315 Causes skin irritation.
H336 May cause drowsiness or dizziness.
H410 Very toxic to aquatic life with long lasting effects.

Precautionary statement(s)
P210 Keep away from heat/sparks/open flames/hot surfaces. No smoking.

P233	Keep container tightly closed.
P240	Ground/bond container and receiving equipment.
P241	Use explosion-proof electrical/ ventilating/ lighting/ equipment.
P242	Use only non-sparking tools.
P243	Take precautionary measures against static discharge.
P261	Avoid breathing dust/ fume/ gas/ mist/ vapours/ spray.
P264	Wash skin thoroughly after handling.
P271	Use only outdoors or in a well-ventilated area.
P273	Avoid release to the environment.
P280	Wear protective gloves/ protective clothing/ eye protection/ face protection.
P301 + P310	IF SWALLOWED: Immediately call a POISON CENTER or doctor/ physician.
P303 + P361 + P353	IF ON SKIN (or hair): Remove/ Take off immediately all contaminated clothing. Rinse skin with water/ shower.
P304 + P340	IF INHALED: Remove victim to fresh air and keep at rest in a position comfortable for breathing.
P312	Call a POISON CENTER or doctor/ physician if you feel unwell.
P321	Specific treatment (see supplemental first aid instructions on this label).
P331	Do NOT induce vomiting.
P332 + P313	If skin irritation occurs: Get medical advice/ attention.
P362	Take off contaminated clothing and wash before reuse.
P370 + P378	In case of fire: Use dry sand, dry chemical or alcohol-resistant foam for extinction.
P391	Collect spillage.
P403 + P233	Store in a well-ventilated place. Keep container tightly closed.
P403 + P235	Store in a well-ventilated place. Keep cool.
P405	Store locked up.
P501	Dispose of contents/ container to an approved waste disposal plant.

2.3 Hazards not otherwise classified (HNOC) or not covered by GHS - none

3. COMPOSITION/INFORMATION ON INGREDIENTS

3.1 Substances

Synonyms	:	Isooctane
Formula	:	C_8H_{18}
Molecular weight	:	114.23 g/mol
CAS-No.	:	540-84-1
EC-No.	:	208-759-1
Index-No.	:	601-009-00-8
Registration number	:	01-2119457965-22-XXXX

Hazardous components

Component	Classification	Concentration
2,2,4-Trimethylpentane		
	Flam. Liq. 2; Skin Irrit. 2; STOT SE 3; Asp. Tox. 1; Aquatic Acute 1; Aquatic Chronic 1; H225, H304, H315, H336, H410	<= 100 %

For the full text of the H-Statements mentioned in this Section, see Section 16.

4. FIRST AID MEASURES

4.1 Description of first aid measures

General advice

Consult a physician. Show this safety data sheet to the doctor in attendance.Move out of dangerous area.

If inhaled
If breathed in, move person into fresh air. If not breathing, give artificial respiration. Consult a physician.

In case of skin contact
Wash off with soap and plenty of water. Consult a physician.

In case of eye contact
Flush eyes with water as a precaution.

If swallowed
Do NOT induce vomiting. Never give anything by mouth to an unconscious person. Rinse mouth with water. Consult a physician.

4.2 Most important symptoms and effects, both acute and delayed
The most important known symptoms and effects are described in the labelling (see section 2.2) and/or in section 11

4.3 Indication of any immediate medical attention and special treatment needed
No data available

5. FIREFIGHTING MEASURES

5.1 Extinguishing media

Suitable extinguishing media
For small (incipient) fires, use media such as "alcohol" foam, dry chemical, or carbon dioxide. For large fires, apply water from as far as possible. Use very large quantities (flooding) of water applied as a mist or spray; solid streams of water may be ineffective. Cool all affected containers with flooding quantities of water.

5.2 Special hazards arising from the substance or mixture
Carbon oxides
Nature of decomposition products not known.
Carbon oxides
Flash back possible over considerable distance., Container explosion may occur under fire conditions.

5.3 Advice for firefighters
Wear self-contained breathing apparatus for firefighting if necessary.

5.4 Further information
Use water spray to cool unopened containers.

6. ACCIDENTAL RELEASE MEASURES

6.1 Personal precautions, protective equipment and emergency procedures
Use personal protective equipment. Avoid breathing vapours, mist or gas. Ensure adequate ventilation. Remove all sources of ignition. Evacuate personnel to safe areas. Beware of vapours accumulating to form explosive concentrations. Vapours can accumulate in low areas.
For personal protection see section 8.

6.2 Environmental precautions
Prevent further leakage or spillage if safe to do so. Do not let product enter drains. Discharge into the environment must be avoided.

6.3 Methods and materials for containment and cleaning up
Contain spillage, and then collect with an electrically protected vacuum cleaner or by wet-brushing and place in container for disposal according to local regulations (see section 13).

6.4 Reference to other sections
For disposal see section 13.

7. HANDLING AND STORAGE

7.1 Precautions for safe handling
Avoid contact with skin and eyes. Avoid inhalation of vapour or mist.
Use explosion-proof equipment.Keep away from sources of ignition - No smoking.Take measures to prevent the build up of electrostatic charge.
For precautions see section 2.2.

7.2 Conditions for safe storage, including any incompatibilities

Store in cool place. Keep container tightly closed in a dry and well-ventilated place. Containers which are opened must be carefully resealed and kept upright to prevent leakage.

7.3 Specific end use(s)

Apart from the uses mentioned in section 1.2 no other specific uses are stipulated

8. EXPOSURE CONTROLS/PERSONAL PROTECTION

8.1 Control parameters

Components with workplace control parameters

Component	CAS-No.	Value	Control parameters	Basis
2,2,4-Trimethylpentane	540-84-1	TWA	300.000000 ppm	USA. ACGIH Threshold Limit Values (TLV)
	Remarks	Upper Respiratory Tract irritation		

8.2 Exposure controls

Appropriate engineering controls

Handle in accordance with good industrial hygiene and safety practice. Wash hands before breaks and at the end of workday.

Personal protective equipment

Eye/face protection

Face shield and safety glasses Use equipment for eye protection tested and approved under appropriate government standards such as NIOSH (US) or EN 166(EU).

Skin protection

Handle with gloves. Gloves must be inspected prior to use. Use proper glove removal technique (without touching glove's outer surface) to avoid skin contact with this product. Dispose of contaminated gloves after use in accordance with applicable laws and good laboratory practices. Wash and dry hands.

Full contact
Material: Nitrile rubber
Minimum layer thickness: 0.2 mm
Break through time: 482 min
Material tested:Dermatril® P (KCL 743 / Aldrich Z677388, Size M)

Splash contact
Material: Nitrile rubber
Minimum layer thickness: 0.11 mm
Break through time: 90 min
Material tested:Dermatril® (KCL 740 / Aldrich Z677272, Size M)

data source: KCL GmbH, D-36124 Eichenzell, phone +49 (0)6659 87300, e-mail sales@kcl.de, test method: EN374
If used in solution, or mixed with other substances, and under conditions which differ from EN 374, contact the supplier of the CE approved gloves. This recommendation is advisory only and must be evaluated by an industrial hygienist and safety officer familiar with the specific situation of anticipated use by our customers. It should not be construed as offering an approval for any specific use scenario.

Body Protection

Complete suit protecting against chemicals, Flame retardant antistatic protective clothing., The type of protective equipment must be selected according to the concentration and amount of the dangerous substance at the specific workplace.

Respiratory protection

Where risk assessment shows air-purifying respirators are appropriate use a full-face respirator with multi-purpose combination (US) or type ABEK (EN 14387) respirator cartridges as a backup to engineering controls. If the respirator is the sole means of protection, use a full-face supplied air respirator. Use respirators and components tested and approved under appropriate government standards such as NIOSH (US) or CEN (EU).

Control of environmental exposure
Prevent further leakage or spillage if safe to do so. Do not let product enter drains. Discharge into the environment must be avoided.

9. PHYSICAL AND CHEMICAL PROPERTIES

9.1 Information on basic physical and chemical properties

a)	Appearance	Form: liquid
b)	Odour	No data available
c)	Odour Threshold	No data available
d)	pH	No data available
e)	Melting point/freezing point	Melting point/range: -107 °C (-161 °F)
f)	Initial boiling point and boiling range	98 - 99 °C (208 - 210 °F)
g)	Flash point	-12 °C (10 °F) - closed cup
h)	Evaporation rate	No data available
i)	Flammability (solid, gas)	No data available
j)	Upper/lower flammability or explosive limits	Upper explosion limit: 6 %(V) Lower explosion limit: 1 %(V)
k)	Vapour pressure	55 hPa (41 mmHg) at 21 °C (70 °F) 117 hPa (88 mmHg) at 37.80 °C (100.04 °F)
l)	Vapour density	3.94 - (Air = 1.0)
m)	Relative density	0.692 g/mL at 25 °C (77 °F)
n)	Water solubility	insoluble
o)	Partition coefficient: n-octanol/water	log Pow: 4.6
p)	Auto-ignition temperature	No data available
q)	Decomposition temperature	No data available
r)	Viscosity	No data available
s)	Explosive properties	No data available
t)	Oxidizing properties	No data available

9.2 Other safety information

Relative vapour density	3.94 - (Air = 1.0)

10. STABILITY AND REACTIVITY

10.1 Reactivity
No data available

10.2 Chemical stability
Stable under recommended storage conditions.

10.3 Possibility of hazardous reactions
Vapours may form explosive mixture with air.

10.4 Conditions to avoid
Heat, flames and sparks. Extremes of temperature and direct sunlight.

10.5 Incompatible materials
Strong oxidizing agents

10.6 Hazardous decomposition products
Other decomposition products - No data available
In the event of fire: see section 5

11. TOXICOLOGICAL INFORMATION

11.1 Information on toxicological effects

Acute toxicity
LD50 Oral - Rat - > 5,000 mg/kg
(OECD Test Guideline 401)

LC50 Inhalation - Rat - 4 h - > 33.52 mg/l
(OECD Test Guideline 403)

LD50 Dermal - Rabbit - > 2,000 mg/kg
(OECD Test Guideline 402)

No data available

Skin corrosion/irritation
Skin - Rabbit
Result: Irritating to skin.
(OECD Test Guideline 404)

Serious eye damage/eye irritation
Eyes - Rabbit
Result: No eye irritation
(OECD Test Guideline 405)

Respiratory or skin sensitisation
No data available

Germ cell mutagenicity

Rat
Unscheduled DNA synthesis

Carcinogenicity

IARC:	No component of this product present at levels greater than or equal to 0.1% is identified as probable, possible or confirmed human carcinogen by IARC.
ACGIH:	No component of this product present at levels greater than or equal to 0.1% is identified as a carcinogen or potential carcinogen by ACGIH.
NTP:	No component of this product present at levels greater than or equal to 0.1% is identified as a known or anticipated carcinogen by NTP.
OSHA:	No component of this product present at levels greater than or equal to 0.1% is identified as a carcinogen or potential carcinogen by OSHA.

Reproductive toxicity
No data available

No data available

Specific target organ toxicity - single exposure
May cause drowsiness or dizziness.

Specific target organ toxicity - repeated exposure
No data available

Aspiration hazard
The substance or mixture is known to cause human aspiration toxicity hazards or has to be regarded as if it causes a human aspiration toxicity hazard.

Additional Information
RTECS: SA3320000

To the best of our knowledge, the chemical, physical, and toxicological properties have not been thoroughly investigated.

Liver - Irregularities - Based on Human Evidence
Liver - Irregularities - Based on Human Evidence

12. ECOLOGICAL INFORMATION

12.1 Toxicity
No data available

12.2 Persistence and degradability
No data available

12.3 Bioaccumulative potential

12.4 Mobility in soil
No data available

12.5 Results of PBT and vPvB assessment
PBT/vPvB assessment not available as chemical safety assessment not required/not conducted

12.6 Other adverse effects
An environmental hazard cannot be excluded in the event of unprofessional handling or disposal.
Very toxic to aquatic life with long lasting effects.

13. DISPOSAL CONSIDERATIONS

13.1 Waste treatment methods

Product
Burn in a chemical incinerator equipped with an afterburner and scrubber but exert extra care in igniting as this material is highly flammable. Offer surplus and non-recyclable solutions to a licensed disposal company. Contact a licensed professional waste disposal service to dispose of this material.

Contaminated packaging
Dispose of as unused product.

14. TRANSPORT INFORMATION

DOT (US)
UN number: 1262 Class: 3 Packing group: II
Proper shipping name: Octanes
Reportable Quantity (RQ): 1000 lbs
Marine pollutant:yes
Poison Inhalation Hazard: No

IMDG
UN number: 1262 Class: 3 Packing group: II EMS-No: F-E, S-E
Proper shipping name: OCTANES
Marine pollutant:yes

IATA
UN number: 1262 Class: 3 Packing group: II
Proper shipping name: Octanes

15. REGULATORY INFORMATION

SARA 302 Components
No chemicals in this material are subject to the reporting requirements of SARA Title III, Section 302.

SARA 313 Components
This material does not contain any chemical components with known CAS numbers that exceed the threshold (De Minimis) reporting levels established by SARA Title III, Section 313.

SARA 311/312 Hazards
Fire Hazard, Acute Health Hazard, Chronic Health Hazard

Massachusetts Right To Know Components

	CAS-No.	Revision Date
2,2,4-Trimethylpentane	540-84-1	2007-03-01

Pennsylvania Right To Know Components

	CAS-No.	Revision Date
2,2,4-Trimethylpentane	540-84-1	2007-03-01

New Jersey Right To Know Components

	CAS-No.	Revision Date
2,2,4-Trimethylpentane	540-84-1	2007-03-01

California Prop. 65 Components
This product does not contain any chemicals known to State of California to cause cancer, birth defects, or any other reproductive harm.

16. OTHER INFORMATION

Full text of H-Statements referred to under sections 2 and 3.

Aquatic Acute	Acute aquatic toxicity
Aquatic Chronic	Chronic aquatic toxicity
Asp. Tox.	Aspiration hazard
Flam. Liq.	Flammable liquids
H225	Highly flammable liquid and vapour.
H304	May be fatal if swallowed and enters airways.
H315	Causes skin irritation.
H336	May cause drowsiness or dizziness.
H400	Very toxic to aquatic life.
H410	Very toxic to aquatic life with long lasting effects.
Skin Irrit.	Skin irritation

HMIS Rating

Health hazard:	2
Chronic Health Hazard:	
Flammability:	3
Physical Hazard	0

NFPA Rating

Health hazard:	2
Fire Hazard:	3
Reactivity Hazard:	0

Further information
Copyright 2015 Sigma-Aldrich Co. LLC. License granted to make unlimited paper copies for internal use only.
The above information is believed to be correct but does not purport to be all inclusive and shall be used only as a guide. The information in this document is based on the present state of our knowledge and is applicable to the product with regard to appropriate safety precautions. It does not represent any guarantee of the properties of the product. Sigma-Aldrich Corporation and its Affiliates shall not be held liable for any damage resulting from handling or from contact with the above product. See www.sigma-aldrich.com and/or the reverse side of invoice or packing slip for additional terms and conditions of sale.

Preparation Information
Sigma-Aldrich Corporation
Product Safety – Americas Region
1-800-521-8956

Version: 5.4 Revision Date: 11/03/2015 Print Date: 04/01/2016

SAFETY DATA SHEET

Version 4.5
Revision Date 01/18/2016
Print Date 02/09/2016

1. PRODUCT AND COMPANY IDENTIFICATION

1.1 Product identifiers

Product name : 2,4-Dimethylphenol

Product Number : D174203
Brand : Aldrich
Index-No. : 604-006-00-X

CAS-No. : 105-67-9

1.2 Relevant identified uses of the substance or mixture and uses advised against

Identified uses : Laboratory chemicals, Synthesis of substances

1.3 Details of the supplier of the safety data sheet

Company : Sigma-Aldrich
3050 Spruce Street
SAINT LOUIS MO 63103
USA

Telephone : +1 800-325-5832
Fax : +1 800-325-5052

1.4 Emergency telephone number

Emergency Phone # : (314) 776-6555

2. HAZARDS IDENTIFICATION

2.1 Classification of the substance or mixture

GHS Classification in accordance with 29 CFR 1910 (OSHA HCS)
Acute toxicity, Oral (Category 3), H301
Acute toxicity, Dermal (Category 3), H311
Skin corrosion (Category 1B), H314
Serious eye damage (Category 1), H318
Acute aquatic toxicity (Category 2), H401

For the full text of the H-Statements mentioned in this Section, see Section 16.

2.2 GHS Label elements, including precautionary statements

Pictogram



Signal word Danger

Hazard statement(s)
H301 + H311 Toxic if swallowed or in contact with skin
H314 Causes severe skin burns and eye damage.
H401 Toxic to aquatic life.

Precautionary statement(s)
P264 Wash skin thoroughly after handling.
P270 Do not eat, drink or smoke when using this product.
P273 Avoid release to the environment.
P280 Wear protective gloves/ protective clothing/ eye protection/ face

	protection.
P301 + P310	IF SWALLOWED: Immediately call a POISON CENTER or doctor/ physician.
P301 + P330 + P331	IF SWALLOWED: Rinse mouth. Do NOT induce vomiting.
P303 + P361 + P353	IF ON SKIN (or hair): Remove/ Take off immediately all contaminated clothing. Rinse skin with water/ shower.
P304 + P340	IF INHALED: Remove victim to fresh air and keep at rest in a position comfortable for breathing.
P305 + P351 + P338	IF IN EYES: Rinse cautiously with water for several minutes. Remove contact lenses, if present and easy to do. Continue rinsing.
P310	Immediately call a POISON CENTER or doctor/ physician.
P322	Specific measures (see supplemental first aid instructions on this label).
P361	Remove/Take off immediately all contaminated clothing.
P363	Wash contaminated clothing before reuse.
P405	Store locked up.
P501	Dispose of contents/ container to an approved waste disposal plant.

2.3 Hazards not otherwise classified (HNOC) or not covered by GHS - none

3. COMPOSITION/INFORMATION ON INGREDIENTS

3.1 Substances

Synonyms : 4-Hydroxy-*m*-xylene
asym.-*m*-Xylenol

Formula : $C_8H_{10}O$
Molecular weight : 122.16 g/mol
CAS-No. : 105-67-9
EC-No. : 203-321-6
Index-No. : 604-006-00-X

Hazardous components

Component	Classification	Concentration
2,4-Xylenol		
	Acute Tox. 3; Skin Corr. 1B; Eye Dam. 1; Aquatic Acute 2; H301 + H311, H314, H401	<= 100 %

For the full text of the H-Statements mentioned in this Section, see Section 16.

4. FIRST AID MEASURES

4.1 Description of first aid measures

General advice
Consult a physician. Show this safety data sheet to the doctor in attendance.Move out of dangerous area.

If inhaled
If breathed in, move person into fresh air. If not breathing, give artificial respiration. Consult a physician.

In case of skin contact
Take off contaminated clothing and shoes immediately. Wash off with soap and plenty of water. Take victim immediately to hospital. Consult a physician.

In case of eye contact
Rinse thoroughly with plenty of water for at least 15 minutes and consult a physician.Continue rinsing eyes during transport to hospital.

If swallowed
Do NOT induce vomiting. Never give anything by mouth to an unconscious person. Rinse mouth with water. Consult a physician.

4.2 Most important symptoms and effects, both acute and delayed

The most important known symptoms and effects are described in the labelling (see section 2.2) and/or in section 11

4.3 Indication of any immediate medical attention and special treatment needed
No data available

5. FIREFIGHTING MEASURES

5.1 Extinguishing media

Suitable extinguishing media
Use water spray, alcohol-resistant foam, dry chemical or carbon dioxide.

5.2 Special hazards arising from the substance or mixture
Carbon oxides

5.3 Advice for firefighters
Wear self-contained breathing apparatus for firefighting if necessary.

5.4 Further information
No data available

6. ACCIDENTAL RELEASE MEASURES

6.1 Personal precautions, protective equipment and emergency procedures
Wear respiratory protection. Avoid breathing vapours, mist or gas. Ensure adequate ventilation. Evacuate personnel to safe areas.
For personal protection see section 8.

6.2 Environmental precautions
Prevent further leakage or spillage if safe to do so. Do not let product enter drains. Discharge into the environment must be avoided.

6.3 Methods and materials for containment and cleaning up
Soak up with inert absorbent material and dispose of as hazardous waste. Keep in suitable, closed containers for disposal.

6.4 Reference to other sections
For disposal see section 13.

7. HANDLING AND STORAGE

7.1 Precautions for safe handling
Avoid contact with skin and eyes. Avoid inhalation of vapour or mist.
For precautions see section 2.2.

7.2 Conditions for safe storage, including any incompatibilities
Keep container tightly closed in a dry and well-ventilated place. Containers which are opened must be carefully resealed and kept upright to prevent leakage.

7.3 Specific end use(s)
Apart from the uses mentioned in section 1.2 no other specific uses are stipulated

8. EXPOSURE CONTROLS/PERSONAL PROTECTION

8.1 Control parameters

Components with workplace control parameters
Contains no substances with occupational exposure limit values.

8.2 Exposure controls

Appropriate engineering controls
Avoid contact with skin, eyes and clothing. Wash hands before breaks and immediately after handling the product.

Personal protective equipment

Eye/face protection
Tightly fitting safety goggles. Faceshield (8-inch minimum). Use equipment for eye protection tested and approved under appropriate government standards such as NIOSH (US) or EN 166(EU).

Skin protection
Handle with gloves. Gloves must be inspected prior to use. Use proper glove removal technique (without touching glove's outer surface) to avoid skin contact with this product. Dispose of contaminated gloves after use in accordance with applicable laws and good laboratory practices. Wash and dry hands.

Full contact
Material: Fluorinated rubber
Minimum layer thickness: 0.7 mm
Break through time: 480 min
Material tested:Vitoject® (KCL 890 / Aldrich Z677698, Size M)

Splash contact
Material: Nitrile rubber
Minimum layer thickness: 0.4 mm
Break through time: 60 min
Material tested:Camatril® (KCL 730 / Aldrich Z677442, Size M)

data source: KCL GmbH, D-36124 Eichenzell, phone +49 (0)6659 87300, e-mail sales@kcl.de, test method: EN374
If used in solution, or mixed with other substances, and under conditions which differ from EN 374, contact the supplier of the CE approved gloves. This recommendation is advisory only and must be evaluated by an industrial hygienist and safety officer familiar with the specific situation of anticipated use by our customers. It should not be construed as offering an approval for any specific use scenario.

Body Protection
Complete suit protecting against chemicals, The type of protective equipment must be selected according to the concentration and amount of the dangerous substance at the specific workplace.

Respiratory protection
Where risk assessment shows air-purifying respirators are appropriate use a full-face respirator with multi-purpose combination (US) or type ABEK (EN 14387) respirator cartridges as a backup to engineering controls. If the respirator is the sole means of protection, use a full-face supplied air respirator. Use respirators and components tested and approved under appropriate government standards such as NIOSH (US) or CEN (EU).

Control of environmental exposure
Prevent further leakage or spillage if safe to do so. Do not let product enter drains. Discharge into the environment must be avoided.

9. PHYSICAL AND CHEMICAL PROPERTIES

9.1 Information on basic physical and chemical properties

a)	Appearance	Form: Semi-solid melting to a liquid, clear Colour: brown
b)	Odour	No data available
c)	Odour Threshold	No data available
d)	pH	No data available
e)	Melting point/freezing point	Melting point/range: 22 - 23 °C (72 - 73 °F) - lit.
f)	Initial boiling point and boiling range	211 - 212 °C (412 - 414 °F) - lit.
g)	Flash point	94.0 °C (201.2 °F) - closed cup
h)	Evaporation rate	No data available
i)	Flammability (solid, gas)	No data available
j)	Upper/lower flammability or explosive limits	No data available
k)	Vapour pressure	0.1 hPa (0.1 mmHg) at 25.0 °C (77.0 °F)
l)	Vapour density	No data available

m)	Relative density	1.011 g/cm3 at 25 °C (77 °F)
n)	Water solubility	No data available
o)	Partition coefficient: n-octanol/water	log Pow: 2.35
p)	Auto-ignition temperature	No data available
q)	Decomposition temperature	No data available
r)	Viscosity	No data available
s)	Explosive properties	No data available
t)	Oxidizing properties	No data available

9.2 Other safety information
No data available

10. STABILITY AND REACTIVITY

10.1 Reactivity
No data available

10.2 Chemical stability
Stable under recommended storage conditions.

10.3 Possibility of hazardous reactions
No data available

10.4 Conditions to avoid
No data available

10.5 Incompatible materials
Bases, Acid chlorides, Acid anhydrides, Oxidizing agents, Brass, Copper

10.6 Hazardous decomposition products
Other decomposition products - No data available
In the event of fire: see section 5

11. TOXICOLOGICAL INFORMATION

11.1 Information on toxicological effects

Acute toxicity
LD50 Oral - Rat - 3,200 mg/kg

Inhalation: No data available

LD50 Dermal - Rat - 1,040 mg/kg

No data available

Skin corrosion/irritation
Causes burns.

Serious eye damage/eye irritation
Risk of serious damage to eyes.

Respiratory or skin sensitisation
No data available

Germ cell mutagenicity
No data available

Carcinogenicity

IARC: No component of this product present at levels greater than or equal to 0.1% is identified as probable, possible or confirmed human carcinogen by IARC.

ACGIH: No component of this product present at levels greater than or equal to 0.1% is identified as a carcinogen or potential carcinogen by ACGIH.

NTP: No component of this product present at levels greater than or equal to 0.1% is identified as a known or anticipated carcinogen by NTP.

OSHA: No component of this product present at levels greater than or equal to 0.1% is identified as a carcinogen or potential carcinogen by OSHA.

Reproductive toxicity
No data available

No data available

Specific target organ toxicity - single exposure
No data available

Specific target organ toxicity - repeated exposure
No data available

Aspiration hazard
No data available

Additional Information
RTECS: ZE5600000

Material is extremely destructive to tissue of the mucous membranes and upper respiratory tract, eyes, and skin., spasm, inflammation and edema of the larynx, spasm, inflammation and edema of the bronchi, pneumonitis, pulmonary edema, burning sensation, Cough, wheezing, laryngitis, Shortness of breath, Headache, Nausea, Vomiting

12. ECOLOGICAL INFORMATION

12.1 Toxicity

Toxicity to fish	LC50 - Oncorhynchus mykiss (rainbow trout) - 9.2 mg/l - 96 h
Toxicity to daphnia and other aquatic invertebrates	LC50 - Daphnia magna (Water flea) - 2.1 mg/l - 48 h

12.2 Persistence and degradability

12.3 Bioaccumulative potential

Bioaccumulation	Lepomis macrochirus (Bluegill) - 28 d - 0.0102 mg/l
	Bioconcentration factor (BCF): 150

12.4 Mobility in soil
No data available

12.5 Results of PBT and vPvB assessment
PBT/vPvB assessment not available as chemical safety assessment not required/not conducted

12.6 Other adverse effects
An environmental hazard cannot be excluded in the event of unprofessional handling or disposal.
Toxic to aquatic life.

13. DISPOSAL CONSIDERATIONS

13.1 Waste treatment methods

Product
Offer surplus and non-recyclable solutions to a licensed disposal company. Contact a licensed professional waste disposal service to dispose of this material. Dissolve or mix the material with a combustible solvent and burn in a chemical incinerator equipped with an afterburner and scrubber.

Contaminated packaging
Dispose of as unused product.

14. TRANSPORT INFORMATION

DOT (US)
UN number: 2261 Class: 6.1 Packing group: II
Proper shipping name: Xylenols, solid
Reportable Quantity (RQ): 100 lbs

Poison Inhalation Hazard: No

IMDG
UN number: 2261 Class: 6.1 Packing group: II EMS-No: F-A, S-A
Proper shipping name: XYLENOLS, SOLID

IATA
UN number: 2261 Class: 6.1 Packing group: II
Proper shipping name: Xylenols, solid

15. REGULATORY INFORMATION

SARA 302 Components
No chemicals in this material are subject to the reporting requirements of SARA Title III, Section 302.

SARA 313 Components
The following components are subject to reporting levels established by SARA Title III, Section 313:

	CAS-No.	Revision Date
2,4-Xylenol	105-67-9	2007-07-01

SARA 311/312 Hazards
Acute Health Hazard

Massachusetts Right To Know Components

	CAS-No.	Revision Date
2,4-Xylenol	105-67-9	2007-07-01

Pennsylvania Right To Know Components

	CAS-No.	Revision Date
2,4-Xylenol	105-67-9	2007-07-01

New Jersey Right To Know Components

	CAS-No.	Revision Date
2,4-Xylenol	105-67-9	2007-07-01

California Prop. 65 Components
This product does not contain any chemicals known to State of California to cause cancer, birth defects, or any other reproductive harm.

16. OTHER INFORMATION

Full text of H-Statements referred to under sections 2 and 3.

Acute Tox.	Acute toxicity
Aquatic Acute	Acute aquatic toxicity
Eye Dam.	Serious eye damage
H301	Toxic if swallowed.
H301 + H311	Toxic if swallowed or in contact with skin
H311	Toxic in contact with skin.
H314	Causes severe skin burns and eye damage.

HMIS Rating
Health hazard: 3
Chronic Health Hazard:
Flammability: 1

Physical Hazard	0

NFPA Rating

Health hazard:	3
Fire Hazard:	1
Reactivity Hazard:	0

Further information

Copyright 2016 Sigma-Aldrich Co. LLC. License granted to make unlimited paper copies for internal use only.
The above information is believed to be correct but does not purport to be all inclusive and shall be used only as a guide. The information in this document is based on the present state of our knowledge and is applicable to the product with regard to appropriate safety precautions. It does not represent any guarantee of the properties of the product. Sigma-Aldrich Corporation and its Affiliates shall not be held liable for any damage resulting from handling or from contact with the above product. See www.sigma-aldrich.com and/or the reverse side of invoice or packing slip for additional terms and conditions of sale.

Preparation Information

Sigma-Aldrich Corporation
Product Safety – Americas Region
1-800-521-8956

Version: 4.5 Revision Date: 01/18/2016 Print Date: 02/09/2016

MATHESON
ask. . .The Gas Professionals™

Safety Data Sheet

Material Name: 1,2-Butadiene **SDS ID: 00244321**

Section 1 - PRODUCT AND COMPANY IDENTIFICATION

Material Name
1,2-Butadiene
Synonyms
Methylallene; 1-Methylallene
Chemical Family
Hydrocarbons, aliphatic
Product Use
Industrial and Specialty Gas Applications.
Restrictions on Use
None known.
Details of the supplier of the safety data sheet
MATHESON TRI-GAS, INC.
150 Allen Road, Suite 302
Basking Ridge, NJ 07920
General Information: 1-800-416-2505
Emergency #: 1-800-424-9300 (CHEMTREC)
Outside the US: 703-527-3887 (Call collect)

Section 2 - HAZARDS IDENTIFICATION

Classification in accordance with paragraph (d) of 29 CFR 1910.1200.
Flammable Gases - Category 1
Gases Under Pressure - Liquefied gas
Skin Corrosion/Irritation - Category 2
Serious Eye Damage/Eye Irritation - Category 2B
Specific target organ toxicity - Single exposure - Category 3 (respiratory tract)
GHS Label Elements
Symbol(s)



Signal Word
Danger
Hazard Statement(s)
Extremely flammable gas.
Contains gas under pressure; may explode if heated.
Causes skin irritation.
Causes eye irritation.
May cause respiratory irritation.
Precautionary Statement(s)
Prevention
Keep away from heat, sparks, open flame, and hot surfaces - No smoking.
Wash thoroughly after handling.
Wear protective gloves.

Avoid breathing gas.
Use only outdoors or in a well-ventilated area.

Response

Do not extinguish, unless leak can be stopped safely.
Eliminate all ignition sources if safe to do so.
IF INHALED.
Remove to fresh air and keep at rest in a position comfortable for breathing.
Call a POISON CENTER or doctor/physician if you feel unwell.
IF ON SKIN.
Wash with plenty of water.
If skin irritation occurs.
Get medical advice/attention.
Take off contaminated clothing and wash before reuse.
IF IN EYES.
Rinse cautiously with water for several minutes.
Remove contact lenses, if present and easy to do.
Continue rinsing.
If eye irritation persists.
Get medical advice/attention.

Storage

Store in a well-ventilated place.
Keep container tightly closed.
Store locked up.

Disposal

Dispose in accordance with all applicable regulations.

Other Hazards

Rapid release of compressed gas may cause frostbite.

Section 3 - COMPOSITION / INFORMATION ON INGREDIENTS

CAS	Component Name	Percent
590-19-2	1,2-Butadiene	100

Section 4 - FIRST AID MEASURES

Inhalation

If adverse effects occur, remove to uncontaminated area. Give artificial respiration if not breathing. If breathing is difficult, oxygen should be administered by qualified personnel. Get immediate medical attention.

Skin

If frostbite or freezing occur, immediately flush with plenty of lukewarm water (105-115°F; 41-46°C). DO NOT USE HOT WATER. If warm water is not available, gently wrap affected parts in blankets. Get immediate medical attention.

Eyes

Flush eyes with plenty of water for at least 15 minutes. Then get immediate medical attention.

Ingestion

If swallowed, get medical attention.

Most Important Symptoms/Effects

Acute

frostbite, respiratory tract irritation, skin irritation, eye irritation

Delayed
No data available.
Note to Physicians
For inhalation, consider oxygen.

Section 5 - FIRE FIGHTING MEASURES

Extinguishing Media
Suitable Extinguishing Media
carbon dioxide, regular dry chemical, Large fires: Use regular foam or flood with fine water spray.
Unsuitable Extinguishing Media
None known.
Special Hazards Arising from the Chemical
Severe fire hazard. Severe explosion hazard. Vapor/air mixtures are explosive above flash point. The vapor is heavier than air. Vapors or gases may ignite at distant ignition sources and flash back.
Hazardous Combustion Products
Oxides of carbon
Fire Fighting Measures
Move container from fire area if it can be done without risk. For fires in cargo or storage area: Cool containers with water from unmanned hose holder or monitor nozzles until well after fire is out. If this is impossible then take the following precautions: Keep unnecessary people away, isolate hazard area and deny entry. Let the fire burn. Withdraw immediately in case of rising sound from venting safety device or any discoloration of tanks due to fire. For tank, rail car or tank truck: Stop leak if possible without personal risk. Let burn unless leak can be stopped immediately. For smaller tanks or cylinders, extinguish and isolate from other flammables. Evacuation radius: 800 meters (1/2 mile). Do not attempt to extinguish fire unless flow of material can be stopped first. Flood with fine water spray. Cool containers with water spray until well after the fire is out. Apply water from a protected location or from a safe distance. Avoid inhalation of material or combustion by-products. Stay upwind and keep out of low areas. Evacuate if fire gets out of control or containers are directly exposed to fire. Evacuation radius: 500 meters (1/3 mile). Consider downwind evacuation if material is leaking.
Special Protective Equipment and Precautions for Firefighters
Wear full protective fire fighting gear including self contained breathing apparatus (SCBA) for protection against possible exposure.

Section 6 - ACCIDENTAL RELEASE MEASURES

Personal Precautions, Protective Equipment and Emergency Procedures
Wear personal protective clothing and equipment, see Section 8.
Methods and Materials for Containment and Cleaning Up
Leaking gas fire: Do not extinguish, unless leak can be stopped safely. Keep unnecessary people away, isolate hazard area and deny entry. Remove sources of ignition. Ventilate closed spaces before entering. Avoid heat, flames, sparks and other sources of ignition. Do not touch spilled material. Stop leak if possible without personal risk. Reduce vapors with water spray.
Environmental Precautions
Avoid release to the environment.

Section 7 - HANDLING AND STORAGE

Precautions for Safe Handling
Keep away from heat/sparks/open flame/hot surfaces - No smoking. Wash hands thoroughly after handling. Wear protective gloves. Avoid breathing gas. Use only outdoors or in a well-ventilated area.
Conditions for Safe Storage, Including any Incompatibilities

Store in a well-ventilated place.
Keep container tightly closed.
Store locked up.
Store and handle in accordance with all current regulations and standards. Subject to storage regulations: U.S. OSHA 29 CFR 1910.101. Grounding and bonding required. Keep away from heat, sparks and flame. Protect from sunlight. Keep separated from incompatible substances.

Incompatible Materials

oxidizing materials

Section 8 - EXPOSURE CONTROLS / PERSONAL PROTECTION

Component Exposure Limits

1,2-Butadiene	**590-19-2**
Mexico:	1000 ppm TWA VLE-PPT ; 2200 mg/m3 TWA VLE-PPT (related to Butadienes)
	1250 ppm STEL [PPT-CT]; 2750 mg/m3 STEL [PPT-CT] (related to Butadienes)

ACGIH - Threshold Limit Values - Biological Exposure Indices (BEI)

There are no biological limit values for any of this product's components.

Engineering Controls

Ventilation equipment should be explosion-resistant if explosive concentrations of material are present. Provide local exhaust ventilation system. Ensure compliance with applicable exposure limits.

Individual Protection Measures, such as Personal Protective Equipment

Eye/face protection

Wear splash resistant safety goggles. Contact lenses should not be worn. Provide an emergency eye wash fountain and quick drench shower in the immediate work area.

Skin Protection

For the gas: Wear appropriate chemical resistant clothing. For the liquid: Wear appropriate protective, cold insulating clothing.

Respiratory Protection

Under conditions of frequent use or heavy exposure, respiratory protection may be needed. Respiratory protection is ranked in order from minimum to maximum. Consider warning properties before use. Any supplied-air respirator with a full facepiece that is operated in a pressure-demand or other positive-pressure mode. Any self-contained breathing apparatus that has a full facepiece and is operated in a pressure-demand or other positive-pressure mode. Any supplied-air respirator with a full facepiece that is operated in a pressure-demand or other positive-pressure mode in combination with an auxiliary self-contained breathing apparatus operated in pressure-demand or other positive-pressure mode. Any self-contained breathing apparatus that has a full facepiece and is operated in a pressure-demand or other positive-pressure mode.

Glove Recommendations

For the gas: Wear appropriate chemical resistant gloves. For the liquid: Wear insulated gloves.

Section 9 - PHYSICAL AND CHEMICAL PROPERTIES

Appearance	colorless gas	**Physical State**	gas
Odor	Slight	**Color**	colorless
Odor Threshold	Not available	**pH**	Not available
Melting Point	-136 °C (-213 °F	**Boiling Point**	11 °C (52 °F)

	)		
Boiling Point Range	Not available	**Freezing point**	Not available
Evaporation Rate	Not available	**Flammability (solid, gas)**	Not available
Autoignition Temperature	Not available	**Flash Point**	<0 °C Closed Cup (<32 °F)
Lower Explosive Limit	2 %	**Decomposition temperature**	Not available
Upper Explosive Limit	12 %	**Vapor Pressure**	760 mmHg @ 18.5 °C
Vapor Density (air=1)	1.9	**Specific Gravity (water=1)**	0.68 at 0 °C
Water Solubility	(Insoluble)	**Partition coefficient: n-octanol/water**	Not available
Viscosity	Not available	**Kinematic viscosity**	Not available
Solubility (Other)	Not available	**Density**	Not available
Log KOW	2.06 (Estimated)	**Physical Form**	liquified gas
Molecular Formula	C4-H6	**Molecular Weight**	54.09

Solvent Solubility
Soluble
alcohol, ether, Benzene

Section 10 - STABILITY AND REACTIVITY

Reactivity
Leaking gas fire: Do not extinguish, unless leak can be stopped safely. Eliminate all ignition sources if safe to do so.
Chemical Stability
May explode if exposed to shock, friction or heating.
Possibility of Hazardous Reactions
May polymerize. Avoid contact with incompatible materials.
Conditions to Avoid
Avoid heat, flames, sparks and other sources of ignition. Containers may rupture or explode if exposed to heat. Minimize contact with material.
Incompatible Materials
oxidizing materials
Hazardous decomposition products
Oxides of carbon

Section 11 - TOXICOLOGICAL INFORMATION

Information on Likely Routes of Exposure
Inhalation
irritation, headache, drowsiness, dizziness, loss of coordination, lung congestion

Skin Contact
irritation
Eye Contact
irritation
Ingestion
No information available for the product.
Acute and Chronic Toxicity
Component Analysis - LD50/LC50
The components of this material have been reviewed in various sources and no selected endpoints have been identified.
Product Toxicity Data
Acute Toxicity Estimate
No data available.
Immediate Effects
frostbite, respiratory tract irritation, skin irritation, eye irritation
Delayed Effects
No data available.
Irritation/Corrosivity Data
No animal testing data available for skin or eyes.
Respiratory Sensitization
No data available.
Dermal Sensitization
No data available.
Component Carcinogenicity
None of this product's components are listed by ACGIH, IARC, NTP, DFG or OSHA
Germ Cell Mutagenicity
No data available.
Tumorigenic Data
No data available
Reproductive Toxicity
No data available.
Specific Target Organ Toxicity - Single Exposure
Respiratory system
Specific Target Organ Toxicity - Repeated Exposure
No data available.
Aspiration hazard
Not applicable.
Medical Conditions Aggravated by Exposure
None known.

Section 12 - ECOLOGICAL INFORMATION

Component Analysis - Aquatic Toxicity
No LOLI ecotoxicity data are available for this product's components.
Persistence and Degradability
No data available.
Bioaccumulative Potential
Bioconcentration potential is low (BCF <100 or log Kow <3).
Mobility
No data available.

Section 13 - DISPOSAL CONSIDERATIONS

Disposal Methods
Dispose in accordance with all applicable regulations. Subject to disposal regulations: U.S. EPA 40 CFR 262. Hazardous Waste Number(s): D001. D003.
Component Waste Numbers
The U.S. EPA has not published waste numbers for this product's components.

Section 14 - TRANSPORT INFORMATION

US DOT Information:
Shipping Name: BUTADIENES, STABILIZED
Hazard Class: 2.1
UN/NA #: UN1010
Required Label(s): 2.1

IMDG Information:
Shipping Name: BUTADIENES, STABILIZED
Hazard Class: 2.1
UN#: UN1010
Required Label(s): 2.1
International Bulk Chemical Code
This material does not contain any chemicals required by the IBC Code to be identified as dangerous chemicals in bulk.

Section 15 - REGULATORY INFORMATION

U.S. Federal Regulations
None of this products components are listed under SARA Sections 302/304 (40 CFR 355 Appendix A), SARA Section 313 (40 CFR 372.65), CERCLA (40 CFR 302.4), TSCA 12(b), or require an OSHA process safety plan.
SARA Section 311/312 (40 CFR 370 Subparts B and C) reporting categories
Flammable; Gas Under Pressure; Skin Corrosion/Irritation; Serious Eye Damage/Eye Irritation; Specific Target Organ Toxicity
U.S. State Regulations
None of this product's components are listed on the state lists from CA, MA, MN, NJ or PA.
Not listed under California Proposition 65
Canada Regulations
Canadian WHMIS Ingredient Disclosure List (IDL)
The components of this product are either not listed on the IDL or are present below the threshold limit listed on the IDL.
Component Analysis - Inventory
1,2-Butadiene (590-19-2)

US	CA	EU	AU	PH	JP - ENCS	JP - ISHL	KR KECI - Annex 1	KR KECI - Annex 2	KR - REACH CCA	CN	NZ	MX	TW	VN - NCI (Draft)
Yes	DSL	EIN	Yes	Yes	Yes	Yes	Yes	No	No	Yes	No	No	Yes	Yes

Section 16 - OTHER INFORMATION

NFPA Ratings

Health: 2 Fire: 4 Reactivity: 3
Hazard Scale: 0 = Minimal 1 = Slight 2 = Moderate 3 = Serious 4 = Severe

Summary of Changes

Updated: 05/01/2015

Key / Legend

ACGIH - American Conference of Governmental Industrial Hygienists; ADR - European Road Transport; AU - Australia; BOD - Biochemical Oxygen Demand; C - Celsius; CA - Canada; CA/MA/MN/NJ/PA - California/Massachusetts/Minnesota/New Jersey/Pennsylvania*; CAS - Chemical Abstracts Service; CERCLA - Comprehensive Environmental Response, Compensation, and Liability Act; CFR - Code of Federal Regulations (US); CLP - Classification, Labelling, and Packaging; CN - China; CPR - Controlled Products Regulations; DFG - Deutsche Forschungsgemeinschaft; DOT - Department of Transportation; DSD - Dangerous Substance Directive; DSL - Domestic Substances List; EC – European Commission; EEC - European Economic Community; EIN - European Inventory of (Existing Commercial Chemical Substances); EINECS - European Inventory of Existing Commercial Chemical Substances; ENCS - Japan Existing and New Chemical Substance Inventory; EPA - Environmental Protection Agency; EU - European Union; F - Fahrenheit; IARC - International Agency for Research on Cancer; IATA - International Air Transport Association; ICAO - International Civil Aviation Organization; IDL - Ingredient Disclosure List; IDLH - Immediately Dangerous to Life and Health; IMDG - International Maritime Dangerous Goods; ISHL - Japan Industrial Safety and Health Law; IUCLID - International Uniform Chemical Information Database; JP - Japan; Kow - Octanol/water partition coefficient; KR KECI Annex 1 - Korea Existing Chemicals Inventory (KECI) / Korea Existing Chemicals List (KECL); KR KECI Annex 2 - Korea Existing Chemicals Inventory (KECI) / Korea Existing Chemicals List (KECL) , KR - Korea; LD50/LC50 - Lethal Dose/ Lethal Concentration; LEL - Lower Explosive Limit; LLV - Level Limit Value; LOLI - List Of LIsts™ - ChemADVISOR's Regulatory Database; MAK - Maximum Concentration Value in the Workplace; MEL - Maximum Exposure Limits; MX – Mexico; NDSL – Non-Domestic Substance List (Canada); NFPA - National Fire Protection Agency; NIOSH - National Institute for Occupational Safety and Health; NJTSR - New Jersey Trade Secret Registry; NTP - National Toxicology Program; NZ - New Zealand; OSHA - Occupational Safety and Health Administration; PEL- Permissible Exposure Limit; PH - Philippines; RCRA - Resource Conservation and Recovery Act; REACH- Registration, Evaluation, Authorisation, and restriction of Chemicals; RID - European Rail Transport; SARA - Superfund Amendments and Reauthorization Act; STEL - Short-term Exposure Limit; TCCA – Korea Toxic Chemicals Control Act; TDG - Transportation of Dangerous Goods; TLV - Threshold Limit Value; TSCA - Toxic Substances Control Act; TW – Taiwan; TWA - Time Weighted Average; UEL - Upper Explosive Limit; UN/NA - United Nations /North American; US - United States; VLE - Exposure Limit Value (Mexico); VN NCI (Draft) - Vietnam National Chemicals Inventory (NCI) (Draft); WHMIS - Workplace Hazardous Materials Information System (Canada) .

Other Information

Disclaimer:

Matheson Tri-Gas, Inc. makes no express or implied warranties, guarantees or representations regarding the product or the information herein, including but not limited to any implied warranty or merchantability or fitness for use. Matheson Tri-Gas, Inc. shall not be liable for any personal injury, property or other damages of any nature, whether compensatory, consequential, exemplary, or otherwise, resulting from any publication, use or reliance upon the information herein.

SAFETY DATA SHEET

Version 5.2
Revision Date 01/03/2015
Print Date 06/21/2016

1. PRODUCT AND COMPANY IDENTIFICATION

1.1 Product identifiers

Product name : 2-Chloronaphthalene

Product Number : 48517
Brand : Supelco

CAS-No. : 91-58-7

1.2 Relevant identified uses of the substance or mixture and uses advised against

Identified uses : Laboratory chemicals, Manufacture of substances

1.3 Details of the supplier of the safety data sheet

Company : Sigma-Aldrich
3050 Spruce Street
SAINT LOUIS MO 63103
USA

Telephone : +1 800-325-5832
Fax : +1 800-325-5052

1.4 Emergency telephone number

Emergency Phone # : (314) 776-6555

2. HAZARDS IDENTIFICATION

2.1 Classification of the substance or mixture

GHS Classification in accordance with 29 CFR 1910 (OSHA HCS)
Acute aquatic toxicity (Category 2), H401
Chronic aquatic toxicity (Category 2), H411

For the full text of the H-Statements mentioned in this Section, see Section 16.

2.2 GHS Label elements, including precautionary statements

Pictogram



Signal word none

Hazard statement(s)
H411 Toxic to aquatic life with long lasting effects.

Precautionary statement(s)
P273 Avoid release to the environment.
P391 Collect spillage.
P501 Dispose of contents/ container to an approved waste disposal plant.

2.3 Hazards not otherwise classified (HNOC) or not covered by GHS - none

3. COMPOSITION/INFORMATION ON INGREDIENTS

3.1 Substances

Formula : $C_{10}H_7Cl$ $C_{10}H_7Cl$
Molecular weight : 162.62 g/mol

CAS-No. : 91-58-7
EC-No. : 202-079-9

Hazardous components

Component	Classification	Concentration
2-Chloronaphthalene		
	Aquatic Acute 2; Aquatic Chronic 2; H411	<= 100 %

For the full text of the H-Statements mentioned in this Section, see Section 16.

4. FIRST AID MEASURES

4.1 Description of first aid measures

General advice
Consult a physician. Show this safety data sheet to the doctor in attendance.

If inhaled
If breathed in, move person into fresh air. If not breathing, give artificial respiration. Consult a physician.

In case of skin contact
Wash off with soap and plenty of water. Consult a physician.

In case of eye contact
Flush eyes with water as a precaution.

If swallowed
Never give anything by mouth to an unconscious person. Rinse mouth with water. Consult a physician.

4.2 Most important symptoms and effects, both acute and delayed
The most important known symptoms and effects are described in the labelling (see section 2.2) and/or in section 11

4.3 Indication of any immediate medical attention and special treatment needed
No data available

5. FIREFIGHTING MEASURES

5.1 Extinguishing media

Suitable extinguishing media
Use water spray, alcohol-resistant foam, dry chemical or carbon dioxide.

5.2 Special hazards arising from the substance or mixture
Carbon oxides, Hydrogen chloride gas

5.3 Advice for firefighters
Wear self-contained breathing apparatus for firefighting if necessary.

5.4 Further information
No data available

6. ACCIDENTAL RELEASE MEASURES

6.1 Personal precautions, protective equipment and emergency procedures
Use personal protective equipment. Avoid dust formation. Avoid breathing vapours, mist or gas. Ensure adequate ventilation. Avoid breathing dust.
For personal protection see section 8.

6.2 Environmental precautions
Prevent further leakage or spillage if safe to do so. Do not let product enter drains. Discharge into the environment must be avoided.

6.3 Methods and materials for containment and cleaning up
Pick up and arrange disposal without creating dust. Sweep up and shovel. Keep in suitable, closed containers for disposal.

6.4 Reference to other sections
For disposal see section 13.

7. HANDLING AND STORAGE

7.1 Precautions for safe handling

Avoid formation of dust and aerosols.Further processing of solid materials may result in the formation of combustible dusts. The potential for combustible dust formation should be taken into consideration before additional processing occurs.
Provide appropriate exhaust ventilation at places where dust is formed.
For precautions see section 2.2.

7.2 Conditions for safe storage, including any incompatibilities

Keep container tightly closed in a dry and well-ventilated place.
Storage class (TRGS 510): Non Combustible Solids

7.3 Specific end use(s)

Apart from the uses mentioned in section 1.2 no other specific uses are stipulated

8. EXPOSURE CONTROLS/PERSONAL PROTECTION

8.1 Control parameters

Components with workplace control parameters
Contains no substances with occupational exposure limit values.

8.2 Exposure controls

Appropriate engineering controls
Handle in accordance with good industrial hygiene and safety practice. Wash hands before breaks and at the end of workday.

Personal protective equipment

Eye/face protection
Use equipment for eye protection tested and approved under appropriate government standards such as NIOSH (US) or EN 166(EU).

Skin protection
Handle with gloves. Gloves must be inspected prior to use. Use proper glove removal technique (without touching glove's outer surface) to avoid skin contact with this product. Dispose of contaminated gloves after use in accordance with applicable laws and good laboratory practices. Wash and dry hands.

Body Protection
Choose body protection in relation to its type, to the concentration and amount of dangerous substances, and to the specific work-place., The type of protective equipment must be selected according to the concentration and amount of the dangerous substance at the specific workplace.

Respiratory protection
Respiratory protection is not required. Where protection from nuisance levels of dusts are desired, use type N95 (US) or type P1 (EN 143) dust masks. Use respirators and components tested and approved under appropriate government standards such as NIOSH (US) or CEN (EU).

Control of environmental exposure
Prevent further leakage or spillage if safe to do so. Do not let product enter drains. Discharge into the environment must be avoided.

9. PHYSICAL AND CHEMICAL PROPERTIES

9.1 Information on basic physical and chemical properties

a)	Appearance	Form: solid
b)	Odour	No data available
c)	Odour Threshold	No data available
d)	pH	No data available
e)	Melting point/freezing point	No data available
f)	Initial boiling point and	No data available

	boiling range	
g)	Flash point	No data available
h)	Evaporation rate	No data available
i)	Flammability (solid, gas)	No data available
j)	Upper/lower flammability or explosive limits	No data available
k)	Vapour pressure	No data available
l)	Vapour density	No data available
m)	Relative density	No data available
n)	Water solubility	No data available
o)	Partition coefficient: n-octanol/water	No data available
p)	Auto-ignition temperature	No data available
q)	Decomposition temperature	No data available
r)	Viscosity	No data available
s)	Explosive properties	No data available
t)	Oxidizing properties	No data available

9.2 Other safety information
No data available

10. STABILITY AND REACTIVITY

10.1 Reactivity
No data available

10.2 Chemical stability
Stable under recommended storage conditions.

10.3 Possibility of hazardous reactions
No data available

10.4 Conditions to avoid
No data available

10.5 Incompatible materials
Strong oxidizing agents

10.6 Hazardous decomposition products
Other decomposition products - No data available
In the event of fire: see section 5

11. TOXICOLOGICAL INFORMATION

11.1 Information on toxicological effects

Acute toxicity
LD50 Oral - Rat - 2,078 mg/kg

Inhalation: No data available

Dermal: No data available

No data available

Skin corrosion/irritation
No data available

Serious eye damage/eye irritation
No data available

Respiratory or skin sensitisation
No data available

Germ cell mutagenicity
No data available

Carcinogenicity

IARC: No component of this product present at levels greater than or equal to 0.1% is identified as probable, possible or confirmed human carcinogen by IARC.

ACGIH: No component of this product present at levels greater than or equal to 0.1% is identified as a carcinogen or potential carcinogen by ACGIH.

NTP: No component of this product present at levels greater than or equal to 0.1% is identified as a known or anticipated carcinogen by NTP.

OSHA: No component of this product present at levels greater than or equal to 0.1% is identified as a carcinogen or potential carcinogen by OSHA.

Reproductive toxicity
No data available

No data available

Specific target organ toxicity - single exposure
No data available

Specific target organ toxicity - repeated exposure
No data available

Aspiration hazard
No data available

Additional Information
RTECS: Not available

To the best of our knowledge, the chemical, physical, and toxicological properties have not been thoroughly investigated.

12. ECOLOGICAL INFORMATION

12.1 Toxicity

Toxicity to daphnia and other aquatic invertebrates	Immobilization EC50 - Daphnia magna (Water flea) - 1.64 mg/l - 48 h

12.2 Persistence and degradability
No data available

12.3 Bioaccumulative potential
No data available

12.4 Mobility in soil
No data available

12.5 Results of PBT and vPvB assessment
PBT/vPvB assessment not available as chemical safety assessment not required/not conducted

12.6 Other adverse effects
An environmental hazard cannot be excluded in the event of unprofessional handling or disposal.
Toxic to aquatic life.

No data available

13. DISPOSAL CONSIDERATIONS

13.1 Waste treatment methods

Product
Offer surplus and non-recyclable solutions to a licensed disposal company.

Contaminated packaging
Dispose of as unused product.

14. TRANSPORT INFORMATION

DOT (US)
Not dangerous goods

IMDG
Not dangerous goods

IATA
Not dangerous goods

15. REGULATORY INFORMATION

SARA 302 Components
No chemicals in this material are subject to the reporting requirements of SARA Title III, Section 302.

SARA 313 Components
This material does not contain any chemical components with known CAS numbers that exceed the threshold (De Minimis) reporting levels established by SARA Title III, Section 313.

Massachusetts Right To Know Components

	CAS-No.	Revision Date
2-Chloronaphthalene	91-58-7	1993-04-24

Pennsylvania Right To Know Components

	CAS-No.	Revision Date
2-Chloronaphthalene	91-58-7	1993-04-24

New Jersey Right To Know Components

	CAS-No.	Revision Date
2-Chloronaphthalene	91-58-7	1993-04-24

California Prop. 65 Components
This product does not contain any chemicals known to State of California to cause cancer, birth defects, or any other reproductive harm.

16. OTHER INFORMATION

Full text of H-Statements referred to under sections 2 and 3.

Aquatic Acute	Acute aquatic toxicity
Aquatic Chronic	Chronic aquatic toxicity
H401	Toxic to aquatic life.
H411	Toxic to aquatic life with long lasting effects.

HMIS Rating

Health hazard:	1
Chronic Health Hazard:	
Flammability:	0
Physical Hazard	0

NFPA Rating

Health hazard:	0
Fire Hazard:	0

Reactivity Hazard: 0

Further information

Copyright 2014 Sigma-Aldrich Co. LLC. License granted to make unlimited paper copies for internal use only.
The above information is believed to be correct but does not purport to be all inclusive and shall be used only as a guide. The information in this document is based on the present state of our knowledge and is applicable to the product with regard to appropriate safety precautions. It does not represent any guarantee of the properties of the product. Sigma-Aldrich Corporation and its Affiliates shall not be held liable for any damage resulting from handling or from contact with the above product. See www.sigma-aldrich.com and/or the reverse side of invoice or packing slip for additional terms and conditions of sale.

Preparation Information

Sigma-Aldrich Corporation
Product Safety – Americas Region
1-800-521-8956

Version: 5.2 Revision Date: 01/03/2015 Print Date: 06/21/2016

SAFETY DATA SHEET

Version 6.8
Revision Date 09/08/2024
Print Date 09/09/2024

SECTION 1: Identification of the substance/mixture and of the company/undertaking

1.1 Product identifiers

Product name : 2-Hexanone

Product Number : 02473
Brand : Sigma-Aldrich
Index-No. : 606-030-00-6
CAS-No. : 591-78-6

1.2 Relevant identified uses of the substance or mixture and uses advised against

Identified uses : Laboratory chemicals, Synthesis of substances

Uses advised against : The product is being supplied under the TSCA R&D Exemption (40 CFR Section 720.36). It is the recipient's responsibility to comply with the requirements of the R&D exemption. The product may not be used for a non-exempt commercial purpose under TSCA unless appropriate consent is granted in writing by MilliporeSigma.

1.3 Details of the supplier of the safety data sheet

Company : Sigma-Aldrich Inc.
3050 SPRUCE ST
ST. LOUIS MO 63103
UNITED STATES

Telephone : +1 314 771-5765
Fax : +1 800 325-5052

1.4 Emergency telephone

Emergency Phone # : 800-424-9300 CHEMTREC (USA) +1-703-527-3887 CHEMTREC (International) 24 Hours/day; 7 Days/week

SECTION 2: Hazards identification

2.1 Classification of the substance or mixture

GHS Classification in accordance with 29 CFR 1910 (OSHA HCS)

Flammable liquids (Category 3), H226
Reproductive toxicity (Category 2), H361
Specific target organ toxicity - single exposure (Category 3), Central nervous system, H336
Specific target organ toxicity - repeated exposure (Category 1), H372

The life science business of Merck KGaA, Darmstadt, Germany
operates as MilliporeSigma in the US and Canada

For the full text of the H-Statements mentioned in this Section, see Section 16.

2.2 GHS Label elements, including precautionary statements

Pictogram



Signal Word Danger

Hazard Statements

H226	Flammable liquid and vapor.
H336	May cause drowsiness or dizziness.
H361	Suspected of damaging fertility or the unborn child.
H372	Causes damage to organs through prolonged or repeated exposure.

Precautionary Statements

P201	Obtain special instructions before use.
P202	Do not handle until all safety precautions have been read and understood.
P210	Keep away from heat/ sparks/ open flames/ hot surfaces. No smoking.
P233	Keep container tightly closed.
P240	Ground/bond container and receiving equipment.
P241	Use explosion-proof electrical/ ventilating/ lighting/ equipment.
P242	Use only non-sparking tools.
P243	Take precautionary measures against static discharge.
P260	Do not breathe mist or vapors.
P264	Wash skin thoroughly after handling.
P270	Do not eat, drink or smoke when using this product.
P271	Use only outdoors or in a well-ventilated area.
P280	Wear protective gloves/ protective clothing/ eye protection/ face protection.
P303 + P361 + P353	IF ON SKIN (or hair): Take off immediately all contaminated clothing. Rinse skin with water/ shower.
P304 + P340 + P312	IF INHALED: Remove person to fresh air and keep comfortable for breathing. Call a POISON CENTER/ doctor if you feel unwell.
P308 + P313	IF exposed or concerned: Get medical advice/ attention.
P370 + P378	In case of fire: Use dry sand, dry chemical or alcohol-resistant foam to extinguish.
P403 + P233	Store in a well-ventilated place. Keep container tightly closed.
P403 + P235	Store in a well-ventilated place. Keep cool.
P405	Store locked up.
P501	Dispose of contents/ container to an approved waste disposal plant.

2.3 Hazards not otherwise classified (HNOC) or not covered by GHS - none

---

SECTION 3: Composition/information on ingredients

3.1 Substances

Synonyms : Butyl methyl ketone

The life science business of Merck KGaA, Darmstadt, Germany
operates as MilliporeSigma in the US and Canada

Formula	:	$C_6H_{12}O$
Molecular weight	:	100.16 g/mol
CAS-No.	:	591-78-6
EC-No.	:	209-731-1
Index-No.	:	606-030-00-6

Component	Classification	Concentration
Methyl butyl ketone		
	Flam. Liq. 3; Repr. 2; STOT SE 3; STOT RE 1; H226, H361, H336, H372	<= 100 %

For the full text of the H-Statements mentioned in this Section, see Section 16.

SECTION 4: First aid measures

4.1 Description of first-aid measures

General advice
Show this material safety data sheet to the doctor in attendance.

If inhaled
After inhalation: fresh air. Call in physician.

In case of skin contact
In case of skin contact: Take off immediately all contaminated clothing. Rinse skin with water/ shower. Consult a physician.

In case of eye contact
After eye contact: rinse out with plenty of water. Call in ophthalmologist. Remove contact lenses.

If swallowed
After swallowing: immediately make victim drink water (two glasses at most). Consult a physician.

4.2 Most important symptoms and effects, both acute and delayed
The most important known symptoms and effects are described in the labelling (see section 2.2) and/or in section 11

4.3 Indication of any immediate medical attention and special treatment needed
No data available

SECTION 5: Firefighting measures

5.1 Extinguishing media

Suitable extinguishing media
Foam Carbon dioxide (CO2) Dry powder

Unsuitable extinguishing media
For this substance/mixture no limitations of extinguishing agents are given.

The life science business of Merck KGaA, Darmstadt, Germany
operates as MilliporeSigma in the US and Canada

5.2 Special hazards arising from the substance or mixture

Carbon oxides
Combustible.
Vapors are heavier than air and may spread along floors.
Forms explosive mixtures with air at elevated temperatures.
Development of hazardous combustion gases or vapours possible in the event of fire.

5.3 Advice for firefighters

Stay in danger area only with self-contained breathing apparatus. Prevent skin contact by keeping a safe distance or by wearing suitable protective clothing.

5.4 Further information

Remove container from danger zone and cool with water. Prevent fire extinguishing water from contaminating surface water or the ground water system.

SECTION 6: Accidental release measures

6.1 Personal precautions, protective equipment and emergency procedures

Advice for non-emergency personnel: Do not breathe vapors, aerosols. Avoid substance contact. Ensure adequate ventilation. Keep away from heat and sources of ignition.
Evacuate the danger area, observe emergency procedures, consult an expert.
For personal protection see section 8.

6.2 Environmental precautions

Do not let product enter drains. Risk of explosion.

6.3 Methods and materials for containment and cleaning up

Cover drains. Collect, bind, and pump off spills. Observe possible material restrictions (see sections 7 and 10). Take up carefully with liquid-absorbent material (e.g. Chemizorb®). Dispose of properly. Clean up affected area.

6.4 Reference to other sections

For disposal see section 13.

SECTION 7: Handling and storage

7.1 Precautions for safe handling

Advice on safe handling
Work under hood. Do not inhale substance/mixture. Avoid generation of vapours/aerosols.

Advice on protection against fire and explosion
Keep away from open flames, hot surfaces and sources of ignition.Take precautionary measures against static discharge.

Hygiene measures
Immediately change contaminated clothing. Apply preventive skin protection. Wash hands and face after working with substance.
For precautions see section 2.2.

7.2 Conditions for safe storage, including any incompatibilities

Storage conditions

The life science business of Merck KGaA, Darmstadt, Germany
operates as MilliporeSigma in the US and Canada

Keep container tightly closed in a dry and well-ventilated place. Keep away from heat and sources of ignition. Keep locked up or in an area accessible only to qualified or authorized persons.

Storage class
Storage class (TRGS 510): 3: Flammable liquids

7.3 Specific end use(s)
Apart from the uses mentioned in section 1.2 no other specific uses are stipulated

SECTION 8: Exposure controls/personal protection

8.1 Control parameters

Ingredients with workplace control parameters

Component	CAS-No.	Value	Control parameters	Basis
Methyl butyl ketone	591-78-6	TWA	100 ppm 410 mg/m3	USA. Occupational Exposure Limits (OSHA) - Table Z-1 Limits for Air Contaminants
		TWA	5 ppm	USA. ACGIH Threshold Limit Values (TLV)
	Remarks	Danger of cutaneous absorption		
		STEL	10 ppm	USA. ACGIH Threshold Limit Values (TLV)
		Danger of cutaneous absorption		
		TWA	5 ppm 20 mg/m3	USA. Table Z-1-A Limits for Air Contaminants (1989 vacated values)
		TWA	1 ppm 4 mg/m3	USA. NIOSH Recommended Exposure Limits
		PEL	1 ppm 4 mg/m3	California permissible exposure limits for chemical contaminants (Title 8, Article 107)
		Skin		
		STEL	10 ppm 40 mg/m3	California permissible exposure limits for chemical contaminants (Title 8, Article 107)
		Skin		

8.2 Exposure controls

Appropriate engineering controls
Immediately change contaminated clothing. Apply preventive skin protection. Wash hands and face after working with substance.

The life science business of Merck KGaA, Darmstadt, Germany
operates as MilliporeSigma in the US and Canada

Personal protective equipment

Eye/face protection
Use equipment for eye protection tested and approved under appropriate government standards such as NIOSH (US) or EN 166(EU). Safety glasses

Skin protection
required

Body Protection
Flame retardant antistatic protective clothing.

Respiratory protection
Recommended Filter type: Filter type ABEK
The entrepeneur has to ensure that maintenance, cleaning and testing of respiratory protective devices are carried out according to the instructions of the producer. These measures have to be properly documented.
required when vapours/aerosols are generated.
Our recommendations on filtering respiratory protection are based on the following standards: DIN EN 143, DIN 14387 and other accompanying standards relating to the used respiratory protection system.

Control of environmental exposure
Do not let product enter drains. Risk of explosion.

SECTION 9: Physical and chemical properties

9.1 Information on basic physical and chemical properties

a)	Appearance	Form: clear, liquid Color: colorless
b)	Odor	No data available
c)	Odor Threshold	No data available
d)	pH	No data available
e)	Melting point/freezing point	Melting point/ range: -57 °C (-71 °F) - lit.
f)	Initial boiling point and boiling range	127 °C 261 °F - lit.
g)	Flash point	23 °C (73 °F) - closed cup
h)	Evaporation rate	No data available
i)	Flammability (solid, gas)	No data available
j)	Upper/lower flammability or explosive limits	Upper explosion limit: 8.1 %(V) Lower explosion limit: 1.3 %(V)
k)	Vapor pressure	1,013 hPa at 127.5 °C (261.5 °F) 13 hPa at 39 °C(102 °F)
l)	Vapor density	3.46 - (Air = 1.0)

The life science business of Merck KGaA, Darmstadt, Germany
operates as MilliporeSigma in the US and Canada

m)	Density	0.812 g/mL at 25 °C (77 °F) - lit.
	Relative density	No data available
n)	Water solubility	slightly soluble
o)	Partition coefficient: n-octanol/water	log Pow: 1.38
p)	Autoignition temperature	No data available
q)	Decomposition temperature	No data available
r)	Viscosity	No data available
s)	Explosive properties	No data available
t)	Oxidizing properties	none

9.2 Other safety information

Surface tension	25.49 mN/m at 20 °C (68 °F)
Relative vapor density	3.46 - (Air = 1.0)

SECTION 10: Stability and reactivity

10.1 Reactivity
Vapor/air-mixtures are explosive at intense warming.

10.2 Chemical stability
The product is chemically stable under standard ambient conditions (room temperature) .

10.3 Possibility of hazardous reactions
No data available

10.4 Conditions to avoid
Heating.

10.5 Incompatible materials
Oxidizing agents, Strong bases

10.6 Hazardous decomposition products
In the event of fire: see section 5

SECTION 11: Toxicological information

11.1 Information on toxicological effects

Acute toxicity
LD50 Oral - Rat - 2,590 mg/kg
LC50 Inhalation - Rat - 4 h - 8000 ppm - vapor

The life science business of Merck KGaA, Darmstadt, Germany
operates as MilliporeSigma in the US and Canada

LD50 Dermal - Rabbit - 4,800 mg/kg

Skin corrosion/irritation
Skin - Rabbit
Result: Mild skin irritation - 24 h

Serious eye damage/eye irritation
Eyes - Rabbit
Result: Mild eye irritation - 24 h

Respiratory or skin sensitization
No data available

Germ cell mutagenicity
No data available

Carcinogenicity

IARC: No ingredient of this product present at levels greater than or equal to 0.1% is identified as probable, possible or confirmed human carcinogen by IARC.

NTP: No ingredient of this product present at levels greater than or equal to 0.1% is identified as a known or anticipated carcinogen by NTP.

OSHA: No component of this product present at levels greater than or equal to 0.1% is on OSHA's list of regulated carcinogens.

Reproductive toxicity
Overexposure may cause reproductive disorder(s) based on tests with laboratory animals. Suspected of damaging fertility.

Specific target organ toxicity - single exposure
May cause drowsiness or dizziness.

Specific target organ toxicity - repeated exposure
Causes damage to organs through prolonged or repeated exposure.

Aspiration hazard
No data available

11.2 Additional Information

RTECS: MP1400000
narcosis, To the best of our knowledge, the chemical, physical, and toxicological properties have not been thoroughly investigated.

Stomach - Irregularities - Based on Human Evidence

Stomach - Irregularities - Based on Human Evidence

SECTION 12: Ecological information

12.1 Toxicity

Toxicity to fish	LC50 - Pimephales promelas (fathead minnow) - 428 mg/l - 96 h

12.2 Persistence and degradability
No data available

The life science business of Merck KGaA, Darmstadt, Germany
operates as MilliporeSigma in the US and Canada

12.3 Bioaccumulative potential
No data available

12.4 Mobility in soil
No data available

12.5 Results of PBT and vPvB assessment
PBT/vPvB assessment not available as chemical safety assessment not required/not conducted

12.6 Endocrine disrupting properties
No data available

12.7 Other adverse effects
No data available

SECTION 13: Disposal considerations

13.1 Waste treatment methods

Product
Waste material must be disposed of in accordance with the national and local regulations. Leave chemicals in original containers. No mixing with other waste. Handle uncleaned containers like the product itself.

SECTION 14: Transport information

DOT (US)
UN number: 1224 Class: 3 Packing group: III
Proper shipping name: Ketones, liquid, n.o.s. (Methyl butyl ketone)
Reportable Quantity (RQ):
Poison Inhalation Hazard: No

IMDG
UN number: 1224 Class: 3 Packing group: III EMS-No: F-E, S-D
Proper shipping name: KETONES, LIQUID, N.O.S. (Methyl butyl ketone)

IATA
UN number: 1224 Class: 3 Packing group: III
Proper shipping name: Ketones, liquid, n.o.s. (Methyl butyl ketone)

SECTION 15: Regulatory information

CERCLA Reportable Quantity
This material does not contain any components with a CERCLA RQ.

The life science business of Merck KGaA, Darmstadt, Germany
operates as MilliporeSigma in the US and Canada

SARA 304 Extremely Hazardous Substances Reportable Quantity

This material does not contain any components with a section 304 EHS RQ.

SARA 302 Extremely Hazardous Substances Threshold Planning Quantity

This material does not contain any components with a section 302 EHS TPQ.

SARA 311/312 Hazards	:	Fire Hazard Chronic Health Hazard
SARA 313	:	This material does not contain any chemical components with known CAS numbers that exceed the threshold (De Minimis) reporting levels established by SARA Title III, Section 313.

US State Regulations

Massachusetts Right To Know

Methyl butyl ketone	591-78-6

Pennsylvania Right To Know

Methyl butyl ketone	591-78-6

Maine Chemicals of High Concern

Product does not contain any listed chemicals

Vermont Chemicals of High Concern

Product does not contain any listed chemicals

Washington Chemicals of High Concern

Product does not contain any listed chemicals

California Prop. 65

WARNING: This product can expose you to chemicals including Methyl butyl ketone, which is/are known to the State of California to cause birth defects or other reproductive harm. For more information go to www.P65Warnings.ca.gov.

The ingredients of this product are reported in the following inventories:

TSCA	:	All substances listed as active on the TSCA inventory

TSCA list

The following substance(s) is/are subject to a Significant New Use Rule:

Methyl butyl ketone	591-78-6	See 40 CFR § 721.4925; Final Rule

The following substance(s) is/are subject to TSCA 12(b) export notification requirements:

Methyl butyl ketone	591-78-6

The life science business of Merck KGaA, Darmstadt, Germany
operates as MilliporeSigma in the US and Canada

SECTION 16: Other information

Further information

The information is believed to be correct but is not exhaustive and will be used solely as a guideline, which is based on current knowledge of the chemical substance or mixture and is applicable to appropriate safety precautions for the product. It does not represent any guarantee of the properties of the product. Sigma-Aldrich Corporation and its Affiliates shall not be held liable for any damage resulting from handling or from contact with the above product. See www.sigma-aldrich.com and/or the reverse side of invoice or packing slip for additional terms and conditions of sale.

Copyright 2020 Sigma-Aldrich Co. LLC. License granted to make unlimited paper copies for internal use only.

The branding on the header and/or footer of this document may temporarily not visually match the product purchased as we transition our branding. However, all of the information in the document regarding the product remains unchanged and matches the product ordered. For further information please contact mlsbranding@sial.com.

Version: 6.8 Revision Date: 09/08/2024 Print Date: 09/09/2024

The life science business of Merck KGaA, Darmstadt, Germany
operates as MilliporeSigma in the US and Canada

Fisher Scientific

Part of Thermo Fisher Scientific

SAFETY DATA SHEET

Revision Date 10-Feb-2015 **Revision Number** 1

1. Identification

Product Name **2-Methylnaphthalene, 99% (gc)**

Cat No. : **AC414551000; AC414555000**

Synonyms No information available

Recommended Use Laboratory chemicals.

Uses advised against No Information available

Details of the supplier of the safety data sheet

Company
Fisher Scientific
One Reagent Lane
Fair Lawn, NJ 07410
Tel: (201) 796-7100

Entity / Business Name
Acros Organics
One Reagent Lane
Fair Lawn, NJ 07410

Emergency Telephone Number
For information **US** call: 001-800-ACROS-01 / **Europe** call: +32 14 57 52 11
Emergency Number **US:**001-201-796-7100 / **Europe:** +32 14 57 52 99
CHEMTREC Tel. No.**US:**001-800-424-9300 / **Europe:**001-703-527-3887

2. Hazard(s) identification

Classification

This chemical is considered hazardous by the 2012 OSHA Hazard Communication Standard (29 CFR 1910.1200)

Acute oral toxicity	Category 4
Skin Corrosion/irritation	Category 2
Serious Eye Damage/Eye Irritation	Category 2
Specific target organ toxicity (single exposure)	Category 3
Target Organs - Respiratory system.	

Label Elements

Signal Word
Warning

Hazard Statements
Harmful if swallowed
Causes skin irritation
Causes serious eye irritation
May cause respiratory irritation



Precautionary Statements
Prevention
Wash face, hands and any exposed skin thoroughly after handling
Do not eat, drink or smoke when using this product
Wear protective gloves/protective clothing/eye protection/face protection
Avoid breathing dust/fume/gas/mist/vapors/spray
Use only outdoors or in a well-ventilated area
Inhalation
IF INHALED: Remove victim to fresh air and keep at rest in a position comfortable for breathing
Call a POISON CENTER or doctor/physician if you feel unwell
Skin
IF ON SKIN: Wash with plenty of soap and water
If skin irritation occurs: Get medical advice/attention
Take off contaminated clothing and wash before reuse
Eyes
IF IN EYES: Rinse cautiously with water for several minutes. Remove contact lenses, if present and easy to do. Continue rinsing
If eye irritation persists: Get medical advice/attention
Ingestion
IF SWALLOWED: Call a POISON CENTER or doctor/physician if you feel unwell
Rinse mouth
Storage
Store in a well-ventilated place. Keep container tightly closed
Store locked up
Disposal
Dispose of contents/container to an approved waste disposal plant
Hazards not otherwise classified (HNOC)
Toxic to aquatic life with long lasting effects

3. Composition / information on ingredients

Component	CAS-No	Weight %
2-Methylnaphthalene	91-57-6	99.0

4. First-aid measures

Eye Contact Rinse immediately with plenty of water, also under the eyelids, for at least 15 minutes.

Skin Contact Wash off immediately with plenty of water for at least 15 minutes.

Inhalation Move to fresh air.

Ingestion Do not induce vomiting.

Most important symptoms/effects No information available.
Notes to Physician Treat symptomatically

5. Fire-fighting measures

Unsuitable Extinguishing Media No information available

Flash Point
Method - No information available

Autoignition Temperature No information available
Explosion Limits
Upper No data available
Lower No data available
Sensitivity to Mechanical Impact No information available
Sensitivity to Static Discharge No information available

Specific Hazards Arising from the Chemical
Keep product and empty container away from heat and sources of ignition.

Hazardous Combustion Products
None known
Protective Equipment and Precautions for Firefighters
As in any fire, wear self-contained breathing apparatus pressure-demand, MSHA/NIOSH (approved or equivalent) and full protective gear.

NFPA

Health	Flammability	Instability	Physical hazards
2	1	0	N/A

6. Accidental release measures

Personal Precautions Ensure adequate ventilation. Use personal protective equipment.
Environmental Precautions See Section 12 for additional ecological information. Avoid release to the environment. Collect spillage.

Methods for Containment and Clean Up No information available.

7. Handling and storage

Handling Ensure adequate ventilation.

Storage Keep containers tightly closed in a dry, cool and well-ventilated place.

8. Exposure controls / personal protection

Exposure Guidelines

Component	ACGIH TLV	OSHA PEL	NIOSH IDLH
2-Methylnaphthalene	TWA: 0.5 ppm Skin		

Component	Quebec	Mexico OEL (TWA)	Ontario TWAEV
2-Methylnaphthalene			TWA: 0.5 ppm Skin

Legend

ACGIH - American Conference of Governmental Industrial Hygienists

Engineering Measures Ensure adequate ventilation, especially in confined areas.

Personal Protective Equipment

Eye/face Protection Wear appropriate protective eyeglasses or chemical safety goggles as described by OSHA's eye and face protection regulations in 29 CFR 1910.133 or European Standard EN166.

Skin and body protection Wear appropriate protective gloves and clothing to prevent skin exposure.

Respiratory Protection Follow the OSHA respirator regulations found in 29 CFR 1910.134 or European Standard EN 149. Use a NIOSH/MSHA or European Standard EN 149 approved respirator if exposure limits are exceeded or if irritation or other symptoms are experienced.

Hygiene Measures Handle in accordance with good industrial hygiene and safety practice.

9. Physical and chemical properties

Physical State	Solid
Appearance	No information available
Odor	Odorless
Odor Threshold	No information available
pH	
Melting Point/Range	37 38 °C
Boiling Point/Range	°C
Flash Point	
Evaporation Rate	No information available
Flammability (solid,gas)	No information available
Flammability or explosive limits	
Upper	No data available
Lower	No data available
Vapor Pressure	< 1 mmHg @ 25 °C
Vapor Density	No information available
Relative Density	1.0000
Solubility	Insoluble in water
Partition coefficient; n-octanol/water	No data available
Autoignition Temperature	No information available
Decomposition Temperature	No information available
Viscosity	No information available
Molecular Formula	C11H10
Molecular Weight	142.20

10. Stability and reactivity

Reactive Hazard None known, based on information available

Stability Stable under normal conditions.

Conditions to Avoid Incompatible products.

Incompatible Materials Strong oxidizing agents

Hazardous Decomposition Products None under normal use conditions

Hazardous Polymerization Hazardous polymerization does not occur.

Hazardous Reactions None under normal processing.

11. Toxicological information

Acute Toxicity

Component Information

Component	LD50 Oral	LD50 Dermal	LC50 Inhalation
2-Methylnaphthalene	1630 mg/kg (Rat)	Not listed	Not listed

Toxicologically Synergistic Products No information available

Delayed and immediate effects as well as chronic effects from short and long-term exposure

Irritation No information available

Sensitization No information available

Carcinogenicity The table below indicates whether each agency has listed any ingredient as a carcinogen.

Component	CAS-No	IARC	NTP	ACGIH	OSHA	Mexico
2-Methylnaphthalene	91-57-6	Not listed	Not listed	Not listed	Not listed	Not listed

Mutagenic Effects No information available

Reproductive Effects No information available.

Developmental Effects No information available.

Teratogenicity No information available.

STOT - single exposure Respiratory system
STOT - repeated exposure None known

Aspiration hazard No information available

Symptoms / effects,both acute and delayed No information available

Endocrine Disruptor Information No information available

Other Adverse Effects The toxicological properties have not been fully investigated.

12. Ecological information

Ecotoxicity
Do not empty into drains.

Component	Freshwater Algae	Freshwater Fish	Microtox	Water Flea
2-Methylnaphthalene	Not listed	Pimephales promelas:LC50 = 2.5mg/L	Not listed	EC50 = 1.5 mg/L/48h

Persistence and Degradability No information available
Bioaccumulation/ Accumulation No information available.

Mobility No information available.

Component	log Pow
2-Methylnaphthalene	3.86

13. Disposal considerations

Waste Disposal Methods Chemical waste generators must determine whether a discarded chemical is classified as a hazardous waste. Chemical waste generators must also consult local, regional, and national hazardous waste regulations to ensure complete and accurate classification.

14. Transport information

DOT Not regulated
TDG Not regulated
IATA Not regulated
IMDG/IMO Not regulated

15. Regulatory information

International Inventories

Component	TSCA	DSL	NDSL	EINECS	ELINCS	NLP	PICCS	ENCS	AICS	IECSC	KECL
2-Methylnaphthalene	X	X	-	202-078-3	-		X	X	X	X	-

Legend:

X - Listed
E - Indicates a substance that is the subject of a Section 5(e) Consent order under TSCA.
F - Indicates a substance that is the subject of a Section 5(f) Rule under TSCA.
N - Indicates a polymeric substance containing no free-radical initiator in its inventory name but is considered to cover the designated polymer made with any free-radical initiator regardless of the amount used.
P - Indicates a commenced PMN substance
R - Indicates a substance that is the subject of a Section 6 risk management rule under TSCA.
S - Indicates a substance that is identified in a proposed or final Significant New Use Rule
T - Indicates a substance that is the subject of a Section 4 test rule under TSCA.
XU - Indicates a substance exempt from reporting under the Inventory Update Rule, i.e. Partial Updating of the TSCA Inventory Data Base Production and Site Reports (40 CFR 710(B).
Y1 - Indicates an exempt polymer that has a number-average molecular weight of 1,000 or greater.
Y2 - Indicates an exempt polymer that is a polyester and is made only from reactants included in a specified list of low concern reactants that comprises one of the eligibility criteria for the exemption rule.

U.S. Federal Regulations

TSCA 12(b) Not applicable

SARA 313 Not applicable

SARA 311/312 Hazardous Categorization

Acute Health Hazard	Yes
Chronic Health Hazard	No
Fire Hazard	No
Sudden Release of Pressure Hazard	No
Reactive Hazard	No

Clean Water Act Not applicable

Clean Air Act Not applicable

OSHA Occupational Safety and Health Administration
Not applicable

CERCLA
Not applicable

California Proposition 65 This product does not contain any Proposition 65 chemicals

State Right-to-Know

Component	Massachusetts	New Jersey	Pennsylvania	Illinois	Rhode Island
2-Methylnaphthalene	-	X	-	-	-

U.S. Department of Transportation

Reportable Quantity (RQ):	N
DOT Marine Pollutant	N
DOT Severe Marine Pollutant	N

U.S. Department of Homeland Security
This product does not contain any DHS chemicals.

Other International Regulations

Mexico - Grade No information available

Canada
This product has been classified in accordance with the hazard criteria of the Controlled Products Regulations (CPR) and the MSDS contains all the information required by the CPR

WHMIS Hazard Class D1B Toxic materials

D2B Toxic materials



16. Other information

Prepared By
Regulatory Affairs
Thermo Fisher Scientific
Email: EMSDS.RA@thermofisher.com

Revision Date 10-Feb-2015
Print Date 10-Feb-2015
Revision Summary This document has been updated to comply with the US OSHA HazCom 2012 Standard replacing the current legislation under 29 CFR 1910.1200 to align with the Globally Harmonized System of Classification and Labeling of Chemicals (GHS)

Disclaimer

The information provided on this Safety Data Sheet is correct to the best of our knowledge, information and belief at the date of its publication. The information given is designed only as a guide for safe handling, use, processing, storage, transportation, disposal and release and is not to be considered as a warranty or quality specification. The information relates only to the specific material designated and may not be valid for such material used in combination with any other material or in any process, unless specified in the text.

End of SDS

SAFETY DATA SHEET

Version 5.1
Revision Date 06/26/2014
Print Date 05/11/2016

1. PRODUCT AND COMPANY IDENTIFICATION

1.1 Product identifiers

Product name : 4,4′-DDD

Product Number : 35486
Brand : Sigma-Aldrich

CAS-No. : 72-54-8

1.2 Relevant identified uses of the substance or mixture and uses advised against

Identified uses : Laboratory chemicals, Manufacture of substances

1.3 Details of the supplier of the safety data sheet

Company : Sigma-Aldrich
3050 Spruce Street
SAINT LOUIS MO 63103
USA

Telephone : +1 800-325-5832
Fax : +1 800-325-5052

1.4 Emergency telephone number

Emergency Phone # : (314) 776-6555

2. HAZARDS IDENTIFICATION

2.1 Classification of the substance or mixture

GHS Classification in accordance with 29 CFR 1910 (OSHA HCS)
Acute toxicity, Oral (Category 3), H301
Acute toxicity, Dermal (Category 4), H312
Carcinogenicity (Category 2), H351
Acute aquatic toxicity (Category 1), H400
Chronic aquatic toxicity (Category 1), H410

For the full text of the H-Statements mentioned in this Section, see Section 16.

2.2 GHS Label elements, including precautionary statements

Pictogram



Signal word Danger

Hazard statement(s)
H301 Toxic if swallowed.
H312 Harmful in contact with skin.
H351 Suspected of causing cancer.
H410 Very toxic to aquatic life with long lasting effects.

Precautionary statement(s)
P201 Obtain special instructions before use.
P202 Do not handle until all safety precautions have been read and understood.
P264 Wash skin thoroughly after handling.
P270 Do not eat, drink or smoke when using this product.

P273	Avoid release to the environment.
P280	Wear protective gloves/ protective clothing.
P301 + P310	IF SWALLOWED: Immediately call a POISON CENTER or doctor/ physician.
P302 + P352	IF ON SKIN: Wash with plenty of soap and water.
P308 + P313	IF exposed or concerned: Get medical advice/ attention.
P322	Specific measures (see supplemental first aid instructions on this label).
P330	Rinse mouth.
P363	Wash contaminated clothing before reuse.
P391	Collect spillage.
P405	Store locked up.
P501	Dispose of contents/ container to an approved waste disposal plant.

2.3 Hazards not otherwise classified (HNOC) or not covered by GHS - none

3. COMPOSITION/INFORMATION ON INGREDIENTS

3.1 Substances

Synonyms	:	1,1-Dichloro-2,2-bis(4-chlorophenyl)ethane TDE
Formula	:	$C_{14}H_{10}Cl_4$
Molecular Weight	:	320.04 g/mol
CAS-No.	:	72-54-8
EC-No.	:	200-783-0

Hazardous components

Component	Classification	Concentration
2,2-bis(4-Chlorophenyl)-1,1-dichloro-ethane		
	Acute Tox. 3; Acute Tox. 4; Carc. 2; Aquatic Acute 1; Aquatic Chronic 1; H301, H312, H351, H410	-

For the full text of the H-Statements mentioned in this Section, see Section 16.

4. FIRST AID MEASURES

4.1 Description of first aid measures

General advice
Consult a physician. Show this safety data sheet to the doctor in attendance.Move out of dangerous area.

If inhaled
If breathed in, move person into fresh air. If not breathing, give artificial respiration. Consult a physician.

In case of skin contact
Wash off with soap and plenty of water. Take victim immediately to hospital. Consult a physician.

In case of eye contact
Flush eyes with water as a precaution.

If swallowed
Never give anything by mouth to an unconscious person. Rinse mouth with water. Consult a physician.

4.2 Most important symptoms and effects, both acute and delayed
The most important known symptoms and effects are described in the labelling (see section 2.2) and/or in section 11

4.3 Indication of any immediate medical attention and special treatment needed
no data available

5. FIREFIGHTING MEASURES

5.1 Extinguishing media

Suitable extinguishing media
Use water spray, alcohol-resistant foam, dry chemical or carbon dioxide.

5.2 Special hazards arising from the substance or mixture

Carbon oxides, Hydrogen chloride gas
Nature of decomposition products not known.

5.3 Advice for firefighters

Wear self contained breathing apparatus for fire fighting if necessary.

5.4 Further information

no data available

6. ACCIDENTAL RELEASE MEASURES

6.1 Personal precautions, protective equipment and emergency procedures

Wear respiratory protection. Avoid dust formation. Avoid breathing vapours, mist or gas. Ensure adequate ventilation. Evacuate personnel to safe areas. Avoid breathing dust.
For personal protection see section 8.

6.2 Environmental precautions

Prevent further leakage or spillage if safe to do so. Do not let product enter drains. Discharge into the environment must be avoided.

6.3 Methods and materials for containment and cleaning up

Pick up and arrange disposal without creating dust. Sweep up and shovel. Keep in suitable, closed containers for disposal.

6.4 Reference to other sections

For disposal see section 13.

7. HANDLING AND STORAGE

7.1 Precautions for safe handling

Avoid contact with skin and eyes. Avoid formation of dust and aerosols.
Provide appropriate exhaust ventilation at places where dust is formed.Normal measures for preventive fire protection.
For precautions see section 2.2.

7.2 Conditions for safe storage, including any incompatibilities

Keep container tightly closed in a dry and well-ventilated place.

7.3 Specific end use(s)

Apart from the uses mentioned in section 1.2 no other specific uses are stipulated

8. EXPOSURE CONTROLS/PERSONAL PROTECTION

8.1 Control parameters

Components with workplace control parameters
Contains no substances with occupational exposure limit values.

8.2 Exposure controls

Appropriate engineering controls
Avoid contact with skin, eyes and clothing. Wash hands before breaks and immediately after handling the product.

Personal protective equipment

Eye/face protection
Face shield and safety glasses Use equipment for eye protection tested and approved under appropriate government standards such as NIOSH (US) or EN 166(EU).

Skin protection
Handle with gloves. Gloves must be inspected prior to use. Use proper glove removal technique (without touching glove's outer surface) to avoid skin contact with this product. Dispose of contaminated gloves after use in accordance with applicable laws and good laboratory practices. Wash and dry hands.

Body Protection
Complete suit protecting against chemicals, The type of protective equipment must be selected according to the concentration and amount of the dangerous substance at the specific workplace.

Respiratory protection
Where risk assessment shows air-purifying respirators are appropriate use a full-face particle respirator type N100 (US) or type P3 (EN 143) respirator cartridges as a backup to engineering controls. If the respirator is the sole means of protection, use a full-face supplied air respirator. Use respirators and components tested and approved under appropriate government standards such as NIOSH (US) or CEN (EU).

Control of environmental exposure
Prevent further leakage or spillage if safe to do so. Do not let product enter drains. Discharge into the environment must be avoided.

9. PHYSICAL AND CHEMICAL PROPERTIES

9.1 Information on basic physical and chemical properties

a)	Appearance	Form: solid
b)	Odour	no data available
c)	Odour Threshold	no data available
d)	pH	no data available
e)	Melting point/freezing point	94.0 - 96.0 °C (201.2 - 204.8 °F)
f)	Initial boiling point and boiling range	193.0 °C (379.4 °F) at 1.3 hPa (1.0 mmHg)
g)	Flash point	no data available
h)	Evapouration rate	no data available
i)	Flammability (solid, gas)	no data available
j)	Upper/lower flammability or explosive limits	no data available
k)	Vapour pressure	< 0.00001 hPa (< 0.00001 mmHg) at 25.0 °C (77.0 °F)
l)	Vapour density	no data available
m)	Relative density	1.38 g/cm3
n)	Water solubility	no data available
o)	Partition coefficient: n-octanol/water	log Pow: 6.02
p)	Auto-ignition temperature	no data available
q)	Decomposition temperature	no data available
r)	Viscosity	no data available
s)	Explosive properties	no data available
t)	Oxidizing properties	no data available

9.2 Other safety information
no data available

10. STABILITY AND REACTIVITY

10.1 Reactivity
no data available

10.2 Chemical stability
Stable under recommended storage conditions.

10.3 Possibility of hazardous reactions
no data available

10.4 Conditions to avoid
no data available

10.5 Incompatible materials
Strong oxidizing agents

10.6 Hazardous decomposition products
Other decomposition products - no data available
In the event of fire: see section 5

11. TOXICOLOGICAL INFORMATION

11.1 Information on toxicological effects

Acute toxicity
LD50 Oral - Hamster - > 5,000 mg/kg

TDLo Oral - Human - 428.5 mg/kg
Remarks: Endocrine:Adrenal cortex hypoplasia.

TDLo Oral - rat - 6,000 mg/kg
Remarks: Cardiac:Other changes. Gastrointestinal:Other changes. Kidney, Ureter, Bladder:Changes in both tubules and glomeruli.

TDLo Oral - rat - 14 mg/kg
Remarks: Liver:Changes in liver weight. Endocrine:Estrogenic. Musculoskeletal:Other changes.

TDLo Oral - rat - 2,100 mg/kg
Remarks: Behavioral:Altered sleep time (including change in righting reflex).

Inhalation: no data available

LD50 Dermal - rabbit - 1,200 mg/kg
Remarks: Behavioral:Excitement. Behavioral:Convulsions or effect on seizure threshold. Skin irritation

no data available

Skin corrosion/irritation
no data available

Serious eye damage/eye irritation
no data available

Respiratory or skin sensitisation
no data available

Germ cell mutagenicity
no data available

Carcinogenicity

This product is or contains a component that has been reported to be possibly carcinogenic based on its IARC, ACGIH, NTP, or EPA classification.

Limited evidence of carcinogenicity in animal studies

IARC: No component of this product present at levels greater than or equal to 0.1% is identified as

probable, possible or confirmed human carcinogen by IARC.

ACGIH: No component of this product present at levels greater than or equal to 0.1% is identified as a carcinogen or potential carcinogen by ACGIH.

NTP: No component of this product present at levels greater than or equal to 0.1% is identified as a known or anticipated carcinogen by NTP.

OSHA: No component of this product present at levels greater than or equal to 0.1% is identified as a carcinogen or potential carcinogen by OSHA.

Reproductive toxicity
no data available

no data available

Specific target organ toxicity - single exposure
no data available

Specific target organ toxicity - repeated exposure
no data available

Aspiration hazard
no data available

Additional Information
RTECS: KI0700000

To the best of our knowledge, the chemical, physical, and toxicological properties have not been thoroughly investigated.

12. ECOLOGICAL INFORMATION

12.1 Toxicity

Toxicity to fish	LC50 - other fish - 1.18 - 9 mg/l - 96.0 h
	LC50 - Lepomis macrochirus (Bluegill) - 0.04 - 0.05 mg/l - 96.0 h
	LC50 - Oncorhynchus mykiss (rainbow trout) - 0.06 - 0.09 mg/l - 96.0 h
	LC50 - Pimephales promelas (fathead minnow) - 3.47 - 5.58 mg/l - 96.0 h
Toxicity to daphnia and other aquatic invertebrates	EC50 - Daphnia pulex (Water flea) - 0.01 mg/l - 48 h

12.2 Persistence and degradability
no data available

12.3 Bioaccumulative potential
Indication of bioaccumulation.

12.4 Mobility in soil
no data available

12.5 Results of PBT and vPvB assessment
PBT/vPvB assessment not available as chemical safety assessment not required/not conducted

12.6 Other adverse effects
An environmental hazard cannot be excluded in the event of unprofessional handling or disposal.
Very toxic to aquatic life.

13. DISPOSAL CONSIDERATIONS

13.1 Waste treatment methods

Product
Offer surplus and non-recyclable solutions to a licensed disposal company. Contact a licensed professional waste disposal service to dispose of this material. Dissolve or mix the material with a combustible solvent and burn in a chemical incinerator equipped with an afterburner and scrubber.

Contaminated packaging
Dispose of as unused product.

14. TRANSPORT INFORMATION

DOT (US)
UN number: 2811 Class: 6.1 Packing group: III
Proper shipping name: Toxic solids, organic, n.o.s. (2,2-bis(4-Chlorophenyl)-1,1-dichloro-ethane)
Reportable Quantity (RQ): 1 lbs
Marine pollutant: No
Poison Inhalation Hazard: No

IMDG
UN number: 2811 Class: 6.1 Packing group: III EMS-No: F-A, S-A
Proper shipping name: TOXIC SOLID, ORGANIC, N.O.S. (2,2-bis(4-Chlorophenyl)-1,1-dichloro-ethane)
Marine pollutant: No

IATA
UN number: 2811 Class: 6.1 Packing group: III
Proper shipping name: Toxic solid, organic, n.o.s. (2,2-bis(4-Chlorophenyl)-1,1-dichloro-ethane)

15. REGULATORY INFORMATION

SARA 302 Components
SARA 302: No chemicals in this material are subject to the reporting requirements of SARA Title III, Section 302.

SARA 313 Components
SARA 313: This material does not contain any chemical components with known CAS numbers that exceed the threshold (De Minimis) reporting levels established by SARA Title III, Section 313.

SARA 311/312 Hazards
Acute Health Hazard

Massachusetts Right To Know Components
No components are subject to the Massachusetts Right to Know Act.

Pennsylvania Right To Know Components

	CAS-No.	Revision Date
2,2-bis(4-Chlorophenyl)-1,1-dichloro-ethane	72-54-8	1993-04-24

New Jersey Right To Know Components

	CAS-No.	Revision Date
2,2-bis(4-Chlorophenyl)-1,1-dichloro-ethane	72-54-8	1993-04-24

California Prop. 65 Components

WARNING! This product contains a chemical known to the State of California to cause cancer.	CAS-No.	Revision Date
2,2-bis(4-Chlorophenyl)-1,1-dichloro-ethane	72-54-8	2007-09-28

16. OTHER INFORMATION

Full text of H-Statements referred to under sections 2 and 3.

Acute Tox.	Acute toxicity
Aquatic Acute	Acute aquatic toxicity
Aquatic Chronic	Chronic aquatic toxicity
Carc.	Carcinogenicity
H301	Toxic if swallowed.
H312	Harmful in contact with skin.
H351	Suspected of causing cancer.
H400	Very toxic to aquatic life.
H410	Very toxic to aquatic life with long lasting effects.

HMIS Rating

Health hazard:	2
Chronic Health Hazard:	*
Flammability:	0
Physical Hazard	0

NFPA Rating

Health hazard:	2
Fire Hazard:	0
Reactivity Hazard:	0

Further information

Copyright 2014 Sigma-Aldrich Co. LLC. License granted to make unlimited paper copies for internal use only.
The above information is believed to be correct but does not purport to be all inclusive and shall be used only as a guide. The information in this document is based on the present state of our knowledge and is applicable to the product with regard to appropriate safety precautions. It does not represent any guarantee of the properties of the product. Sigma-Aldrich Corporation and its Affiliates shall not be held liable for any damage resulting from handling or from contact with the above product. See www.sigma-aldrich.com and/or the reverse side of invoice or packing slip for additional terms and conditions of sale.

Preparation Information

Sigma-Aldrich Corporation
Product Safety – Americas Region
1-800-521-8956

Version: 5.1 Revision Date: 06/26/2014 Print Date: 05/11/2016

SAFETY DATA SHEET

Version 6.7
Revision Date 08/05/2024
Print Date 08/06/2024

SECTION 1: Identification of the substance/mixture and of the company/undertaking

1.1 Product identifiers

Product name : *p*-Cymene

Product Number : W235601
Brand : Aldrich
Index-No. : 601-094-00-1
CAS-No. : 99-87-6

1.2 Relevant identified uses of the substance or mixture and uses advised against

Identified uses : Laboratory chemicals, Synthesis of substances

Uses advised against : The product is being supplied under the TSCA R&D Exemption (40 CFR Section 720.36). It is the recipient's responsibility to comply with the requirements of the R&D exemption. The product may not be used for a non-exempt commercial purpose under TSCA unless appropriate consent is granted in writing by MilliporeSigma.

1.3 Details of the supplier of the safety data sheet

Company : Sigma-Aldrich Inc.
3050 SPRUCE ST
ST. LOUIS MO 63103
UNITED STATES

Telephone : +1 314 771-5765
Fax : +1 800 325-5052

1.4 Emergency telephone

Emergency Phone # : 800-424-9300 CHEMTREC (USA) +1-703-527-3887 CHEMTREC (International) 24 Hours/day; 7 Days/week

SECTION 2: Hazards identification

2.1 Classification of the substance or mixture

GHS Classification in accordance with 29 CFR 1910 (OSHA HCS)

Flammable liquids (Category 3), H226
Acute toxicity, Inhalation (Category 3), H331
Reproductive toxicity (Category 2), H361

The life science business of Merck KGaA, Darmstadt, Germany
operates as MilliporeSigma in the US and Canada

Aspiration hazard (Category 1), H304
Short-term (acute) aquatic hazard (Category 2), H401
Long-term (chronic) aquatic hazard (Category 2), H411

For the full text of the H-Statements mentioned in this Section, see Section 16.

2.2 GHS Label elements, including precautionary statements

Pictogram



Signal Word Danger

Hazard Statements

H226	Flammable liquid and vapor.
H304	May be fatal if swallowed and enters airways.
H331	Toxic if inhaled.
H361	Suspected of damaging fertility or the unborn child.
H411	Toxic to aquatic life with long lasting effects.

Precautionary Statements

P201	Obtain special instructions before use.
P202	Do not handle until all safety precautions have been read and understood.
P210	Keep away from heat/ sparks/ open flames/ hot surfaces. No smoking.
P233	Keep container tightly closed.
P240	Ground/bond container and receiving equipment.
P241	Use explosion-proof electrical/ ventilating/ lighting/ equipment.
P242	Use only non-sparking tools.
P243	Take precautionary measures against static discharge.
P261	Avoid breathing mist or vapors.
P271	Use only outdoors or in a well-ventilated area.
P273	Avoid release to the environment.
P280	Wear protective gloves/ protective clothing/ eye protection/ face protection.
P301 + P310	IF SWALLOWED: Immediately call a POISON CENTER/ doctor.
P303 + P361 + P353	IF ON SKIN (or hair): Take off immediately all contaminated clothing. Rinse skin with water/ shower.
P304 + P340 + P311	IF INHALED: Remove person to fresh air and keep comfortable for breathing. Call a POISON CENTER/ doctor.
P308 + P313	IF exposed or concerned: Get medical advice/ attention.
P331	Do NOT induce vomiting.
P370 + P378	In case of fire: Use dry sand, dry chemical or alcohol-resistant foam to extinguish.
P391	Collect spillage.
P403 + P233	Store in a well-ventilated place. Keep container tightly closed.
P403 + P235	Store in a well-ventilated place. Keep cool.
P405	Store locked up.
P501	Dispose of contents/ container to an approved waste disposal plant.

2.3 Hazards not otherwise classified (HNOC) or not covered by GHS

May form explosive peroxides.

The life science business of Merck KGaA, Darmstadt, Germany
operates as MilliporeSigma in the US and Canada

SECTION 3: Composition/information on ingredients

3.1 Substances

Synonyms : 1-Isopropyl-4-methylbenzene
4-Isopropyltoluene

Formula : $C_{10}H_{14}$
Molecular weight : 134.22 g/mol
CAS-No. : 99-87-6
EC-No. : 202-796-7
Index-No. : 601-094-00-1

Component	Classification	Concentration
p-Cymene		
	Flam. Liq. 3; Acute Tox. 3; Repr. 2; Asp. Tox. 1; Aquatic Acute 2; Aquatic Chronic 2; H226, H331, H361, H304, H401, H411	<= 100 %

For the full text of the H-Statements mentioned in this Section, see Section 16.

SECTION 4: First aid measures

4.1 Description of first-aid measures

No data available

4.2 Most important symptoms and effects, both acute and delayed

The most important known symptoms and effects are described in the labelling (see section 2.2) and/or in section 11

4.3 Indication of any immediate medical attention and special treatment needed

No data available

SECTION 5: Firefighting measures

5.1 Extinguishing media

No data available

5.2 Special hazards arising from the substance or mixture

Carbon oxides
Combustible.

5.3 Advice for firefighters

No data available

5.4 Further information

No data available

The life science business of Merck KGaA, Darmstadt, Germany
operates as MilliporeSigma in the US and Canada

SECTION 6: Accidental release measures

6.1 Personal precautions, protective equipment and emergency procedures
For personal protection see section 8.

6.2 Environmental precautions
No data available

6.3 Methods and materials for containment and cleaning up
No data available

6.4 Reference to other sections
For disposal see section 13.

SECTION 7: Handling and storage

7.1 Precautions for safe handling
For precautions see section 2.2.

7.2 Conditions for safe storage, including any incompatibilities
No data available

7.3 Specific end use(s)
Apart from the uses mentioned in section 1.2 no other specific uses are stipulated

SECTION 8: Exposure controls/personal protection

8.1 Control parameters

Ingredients with workplace control parameters
Contains no substances with occupational exposure limit values.

8.2 Exposure controls
No data available

SECTION 9: Physical and chemical properties

9.1 Information on basic physical and chemical properties

a)	Appearance	Form: liquid, clear Color: colorless
b)	Odor	No data available
c)	Odor Threshold	No data available
d)	pH	No data available
e)	Melting point/freezing point	Melting point/freezing point: < -20 °C (< -4 °F) - OECD Test Guideline 102
f)	Initial boiling point	176 - 178 °C 349 - 352 °F - lit.

The life science business of Merck KGaA, Darmstadt, Germany
operates as MilliporeSigma in the US and Canada

	and boiling range	
g)	Flash point	52 °C (126 °F) - closed cup
h)	Evaporation rate	No data available
i)	Flammability (solid, gas)	No data available
j)	Upper/lower flammability or explosive limits	Upper explosion limit: 5.6 %(V) Lower explosion limit: 0.7 %(V)
k)	Vapor pressure	3.6 hPa at 25 °C (77 °F) - OECD Test Guideline 104
l)	Vapor density	No data available
m)	Density	0.86 g/cm3 at 25 °C (77 °F) - lit.
	Relative density	No data available
n)	Water solubility	0.015 g/l at 20 °C (68 °F) - OECD Test Guideline 105
o)	Partition coefficient: n-octanol/water	log Pow: 4.8 at ca.20 °C (ca.68 °F) - OECD Test Guideline 117
p)	Autoignition temperature	> 400 °C (> 752 °F) at 994 hPa
q)	Decomposition temperature	No data available
r)	Viscosity	No data available
s)	Explosive properties	No data available
t)	Oxidizing properties	none

9.2 Other safety information

Solubility in other solvents	Alcohol - soluble

SECTION 10: Stability and reactivity

10.1 Reactivity
No data available

10.2 Chemical stability
Stable under recommended storage conditions.
Test for peroxide formation before distillation or evaporation. Test for peroxide formation or discard after 1 year.

10.3 Possibility of hazardous reactions
No data available

10.4 Conditions to avoid
No data available

The life science business of Merck KGaA, Darmstadt, Germany
operates as MilliporeSigma in the US and Canada

10.5 Incompatible materials
Strong oxidizing agents

10.6 Hazardous decomposition products
In the event of fire: see section 5

SECTION 11: Toxicological information

11.1 Information on toxicological effects

Acute toxicity
LD50 Oral - Rat - male and female - 4,750 mg/kg
Acute toxicity estimate Inhalation - 4 h - 3 mg/l - vapor

(Expert judgment)
Remarks: (Regulation (EC) No 1272/2008, Annex VI)
LD50 Dermal - Rabbit - > 5,000 mg/kg
Remarks: (ECHA)
No data available

Skin corrosion/irritation
Remarks: No data available
Skin - reconstructed human epidermis (RhE)
Result: No skin irritation
(OECD Test Guideline 439)

Serious eye damage/eye irritation
Eyes - Humans
Result: No eye irritation
(OECD Test Guideline 492)

Respiratory or skin sensitization
Local lymph node assay (LLNA) - Mouse
Result: negative
(OECD Test Guideline 429)

Germ cell mutagenicity
Test Type: Chromosome aberration test in vitro
Test system: Human lymphocytes
Metabolic activation: with and without metabolic activation
Method: OECD Test Guideline 473
Result: negative
Test Type: In vitro mammalian cell gene mutation test
Test system: Chinese hamster fibroblasts
Metabolic activation: with and without metabolic activation
Method: OECD Test Guideline 476
Result: negative

Carcinogenicity

IARC: No ingredient of this product present at levels greater than or equal to 0.1% is identified as probable, possible or confirmed human carcinogen by IARC.

NTP: No ingredient of this product present at levels greater than or equal to 0.1% is identified as a known or anticipated carcinogen by NTP.

The life science business of Merck KGaA, Darmstadt, Germany
operates as MilliporeSigma in the US and Canada

OSHA: No component of this product present at levels greater than or equal to 0.1% is on OSHA's list of regulated carcinogens.

Reproductive toxicity
Suspected of damaging fertility.

Developmental Toxicity- Rat- male and female- Oral

Specific target organ toxicity - single exposure
No data available

Specific target organ toxicity - repeated exposure
No data available

Aspiration hazard
May be fatal if swallowed and enters airways.

11.2 Additional Information

Repeated dose toxicity - Rat - male - Oral - NOAEL (No observed adverse effect level) - 50 mg/kg

Repeated dose toxicity - Rat - male - Inhalation
Remarks: (ECHA)

RTECS: GZ5950000
To the best of our knowledge, the chemical, physical, and toxicological properties have not been thoroughly investigated.

SECTION 12: Ecological information

12.1 Toxicity

Toxicity to fish	static test LC50 - Cyprinodon variegatus (sheepshead minnow) - 48 mg/l - 96 h (OPPTS 850.1075)
Toxicity to daphnia and other aquatic invertebrates	semi-static test EC50 - Daphnia magna (Water flea) - 3.7 mg/l - 48 h (OECD Test Guideline 202)
Toxicity to algae	static test EC50 - Scenedesmus capricornutum (fresh water algae) - 4.03 mg/l - 72 h (OECD Test Guideline 201)
Toxicity to bacteria	static test NOEC - activated sludge - 100 mg/l - 28 d

12.2 Persistence and degradability

Biodegradability	aerobic - Exposure time 14 d Result: 88 % - Readily biodegradable. (OECD Test Guideline 301C)

12.3 Bioaccumulative potential

No data available

The life science business of Merck KGaA, Darmstadt, Germany
operates as MilliporeSigma in the US and Canada

12.4 Mobility in soil
No data available

12.5 Results of PBT and vPvB assessment
PBT/vPvB assessment not available as chemical safety assessment not required/not conducted

12.6 Endocrine disrupting properties
No data available

12.7 Other adverse effects
No data available

SECTION 13: Disposal considerations

13.1 Waste treatment methods
No data available

SECTION 14: Transport information

DOT (US)
UN number: 2046 Class: 3 Packing group: III
Proper shipping name: Cymenes
Reportable Quantity (RQ):
Marine pollutant: yes Poison Inhalation Hazard: No

IMDG
UN number: 2046 Class: 3 Packing group: III EMS-No: F-E, S-D
Proper shipping name: CYMENES
Marine pollutant : yes
Marine pollutant : yes

IATA
UN number: 2046 Class: 3 Packing group: III
Proper shipping name: Cymenes

SECTION 15: Regulatory information

CERCLA Reportable Quantity
This material does not contain any components with a CERCLA RQ.

SARA 304 Extremely Hazardous Substances Reportable Quantity
This material does not contain any components with a section 304 EHS RQ.

SARA 302 Extremely Hazardous Substances Threshold Planning Quantity
This material does not contain any components with a section 302 EHS TPQ.

The life science business of Merck KGaA, Darmstadt, Germany
operates as MilliporeSigma in the US and Canada

SARA 311/312 Hazards	:	Fire Hazard Acute Health Hazard
SARA 313	:	This material does not contain any chemical components with known CAS numbers that exceed the threshold (De Minimis) reporting levels established by SARA Title III, Section 313.

US State Regulations

Massachusetts Right To Know

p-Cymene	99-87-6

Pennsylvania Right To Know

p-Cymene	99-87-6

Maine Chemicals of High Concern

Product does not contain any listed chemicals

Vermont Chemicals of High Concern

Product does not contain any listed chemicals

Washington Chemicals of High Concern

Product does not contain any listed chemicals

The ingredients of this product are reported in the following inventories:

TSCA	:	All substances listed as active on the TSCA inventory

TSCA list

No substances are subject to a Significant New Use Rule.

No substances are subject to TSCA 12(b) export notification requirements.

SECTION 16: Other information

The branding on the header and/or footer of this document may temporarily not visually match the product purchased as we transition our branding. However, all of the information in the document regarding the product remains unchanged and matches the product ordered. For further information please contact mlsbranding@sial.com.

Version: 6.7 Revision Date: 08/05/2024 Print Date: 08/06/2024

The life science business of Merck KGaA, Darmstadt, Germany
operates as MilliporeSigma in the US and Canada

SAFETY DATA SHEET

Version 6.10
Revision Date 03/02/2024
Print Date 07/14/2024

SECTION 1: Identification of the substance/mixture and of the company/undertaking

1.1 Product identifiers

Product name : 4-Methyl-2-pentanone

Product Number : W273104
Brand : Aldrich
Index-No. : 606-004-00-4
CAS-No. : 108-10-1

1.2 Relevant identified uses of the substance or mixture and uses advised against

Identified uses : Laboratory chemicals, Synthesis of substances

Uses advised against : The product is being supplied under the TSCA R&D Exemption (40 CFR Section 720.36). It is the recipient's responsibility to comply with the requirements of the R&D exemption. The product may not be used for a non-exempt commercial purpose under TSCA unless appropriate consent is granted in writing by MilliporeSigma.

1.3 Details of the supplier of the safety data sheet

Company : Sigma-Aldrich Inc.
3050 SPRUCE ST
ST. LOUIS MO 63103
UNITED STATES

Telephone : +1 314 771-5765
Fax : +1 800 325-5052

1.4 Emergency telephone

Emergency Phone # : 800-424-9300 CHEMTREC (USA) +1-703-527-3887 CHEMTREC (International) 24 Hours/day; 7 Days/week

SECTION 2: Hazards identification

2.1 Classification of the substance or mixture

GHS Classification in accordance with 29 CFR 1910 (OSHA HCS)

Flammable liquids (Category 2), H225
Acute toxicity, Inhalation (Category 4), H332
Eye irritation (Category 2A), H319

The life science business of Merck KGaA, Darmstadt, Germany
operates as MilliporeSigma in the US and Canada

Carcinogenicity, Inhalation (Category 2), H351
Specific target organ toxicity - single exposure (Category 3), Central nervous system, H336

For the full text of the H-Statements mentioned in this Section, see Section 16.

2.2 GHS Label elements, including precautionary statements

Pictogram



Signal Word Danger

Hazard Statements

H225	Highly flammable liquid and vapor.
H319	Causes serious eye irritation.
H332	Harmful if inhaled.
H336	May cause drowsiness or dizziness.
H351	Suspected of causing cancer if inhaled.

Precautionary Statements

P201	Obtain special instructions before use.
P202	Do not handle until all safety precautions have been read and understood.
P210	Keep away from heat/ sparks/ open flames/ hot surfaces. No smoking.
P233	Keep container tightly closed.
P240	Ground/bond container and receiving equipment.
P241	Use explosion-proof electrical/ ventilating/ lighting/ equipment.
P242	Use only non-sparking tools.
P243	Take precautionary measures against static discharge.
P261	Avoid breathing mist or vapors.
P264	Wash skin thoroughly after handling.
P271	Use only outdoors or in a well-ventilated area.
P280	Wear protective gloves/ protective clothing/ eye protection/ face protection.
P303 + P361 + P353	IF ON SKIN (or hair): Take off immediately all contaminated clothing. Rinse skin with water/ shower.
P304 + P340 + P312	IF INHALED: Remove person to fresh air and keep comfortable for breathing. Call a POISON CENTER/ doctor if you feel unwell.
P305 + P351 + P338	IF IN EYES: Rinse cautiously with water for several minutes. Remove contact lenses, if present and easy to do. Continue rinsing.
P308 + P313	IF exposed or concerned: Get medical advice/ attention.
P337 + P313	If eye irritation persists: Get medical advice/ attention.
P370 + P378	In case of fire: Use dry sand, dry chemical or alcohol-resistant foam to extinguish.
P403 + P233	Store in a well-ventilated place. Keep container tightly closed.
P403 + P235	Store in a well-ventilated place. Keep cool.
P405	Store locked up.
P501	Dispose of contents/ container to an approved waste disposal plant.

2.3 Hazards not otherwise classified (HNOC) or not covered by GHS

Repeated exposure may cause skin dryness or cracking.
May form explosive peroxides.

The life science business of Merck KGaA, Darmstadt, Germany
operates as MilliporeSigma in the US and Canada

SECTION 3: Composition/information on ingredients

3.1 Substances

Synonyms : Isobutyl methyl ketone
Methyl isobutyl ketone
Isopropylacetone

Formula : $C_6H_{12}O$
Molecular weight : 100.16 g/mol
CAS-No. : 108-10-1
EC-No. : 203-550-1
Index-No. : 606-004-00-4

Component	Classification	Concentration
4-methylpentan-2-one		
	Flam. Liq. 2; Acute Tox. 4; Eye Irrit. 2A; Carc. 2; STOT SE 3; H225, H332, H319, H351, H336 Concentration limits: 20 %: STOT SE 3, H335;	<= 100 %

For the full text of the H-Statements mentioned in this Section, see Section 16.

SECTION 4: First aid measures

4.1 Description of first-aid measures

General advice
Show this material safety data sheet to the doctor in attendance.

If inhaled
After inhalation: fresh air. Immediately call in physician. If breathing stops: immediately apply artificial respiration, if necessary also oxygen.

In case of skin contact
In case of skin contact: Take off immediately all contaminated clothing. Rinse skin with water/ shower.

In case of eye contact
After eye contact: rinse out with plenty of water. Call in ophthalmologist. Remove contact lenses.

If swallowed
After swallowing: immediately make victim drink water (two glasses at most). Consult a physician.

4.2 Most important symptoms and effects, both acute and delayed

The most important known symptoms and effects are described in the labelling (see section 2.2) and/or in section 11

The life science business of Merck KGaA, Darmstadt, Germany
operates as MilliporeSigma in the US and Canada

4.3 Indication of any immediate medical attention and special treatment needed
No data available

SECTION 5: Firefighting measures

5.1 Extinguishing media

Suitable extinguishing media
Carbon dioxide (CO2) Foam Dry powder

Unsuitable extinguishing media
For this substance/mixture no limitations of extinguishing agents are given.

5.2 Special hazards arising from the substance or mixture
Carbon oxides
Combustible.
Pay attention to flashback.
Vapors are heavier than air and may spread along floors.
Development of hazardous combustion gases or vapours possible in the event of fire.
Forms explosive mixtures with air at ambient temperatures.

5.3 Advice for firefighters
Stay in danger area only with self-contained breathing apparatus. Prevent skin contact by keeping a safe distance or by wearing suitable protective clothing.

5.4 Further information
Remove container from danger zone and cool with water. Prevent fire extinguishing water from contaminating surface water or the ground water system.

SECTION 6: Accidental release measures

6.1 Personal precautions, protective equipment and emergency procedures
Advice for non-emergency personnel: Do not breathe vapors, aerosols. Avoid substance contact. Ensure adequate ventilation. Keep away from heat and sources of ignition.
Evacuate the danger area, observe emergency procedures, consult an expert.
For personal protection see section 8.

6.2 Environmental precautions
Do not let product enter drains. Risk of explosion.

6.3 Methods and materials for containment and cleaning up
Cover drains. Collect, bind, and pump off spills. Observe possible material restrictions (see sections 7 and 10). Take up carefully with liquid-absorbent material (e.g. Chemizorb®). Dispose of properly. Clean up affected area.

6.4 Reference to other sections
For disposal see section 13.

The life science business of Merck KGaA, Darmstadt, Germany
operates as MilliporeSigma in the US and Canada

SECTION 7: Handling and storage

7.1 Precautions for safe handling

Advice on safe handling
Work under hood. Do not inhale substance/mixture. Avoid generation of vapours/aerosols.

Advice on protection against fire and explosion
Keep away from open flames, hot surfaces and sources of ignition.Take precautionary measures against static discharge.

Hygiene measures
Immediately change contaminated clothing. Apply preventive skin protection. Wash hands and face after working with substance.
For precautions see section 2.2.

7.2 Conditions for safe storage, including any incompatibilities

Storage conditions
Keep container tightly closed in a dry and well-ventilated place. Keep away from heat and sources of ignition.

Storage class
Storage class (TRGS 510): 3: Flammable liquids

7.3 Specific end use(s)

Apart from the uses mentioned in section 1.2 no other specific uses are stipulated

SECTION 8: Exposure controls/personal protection

8.1 Control parameters

Ingredients with workplace control parameters

Component	CAS-No.	Value	Control parameters	Basis
4-methylpentan-2-one	108-10-1	STEL	75 ppm	USA. ACGIH Threshold Limit Values (TLV)
	Remarks	Confirmed animal carcinogen with unknown relevance to humans		
		TWA	50 ppm 205 mg/m3	USA. Table Z-1-A Limits for Air Contaminants (1989 vacated values)
		STEL	75 ppm 300 mg/m3	USA. Table Z-1-A Limits for Air Contaminants (1989 vacated values)
		TWA	100 ppm 410 mg/m3	USA. Occupational Exposure Limits (OSHA) - Table Z-1 Limits for Air Contaminants
		TWA	20 ppm	USA. ACGIH Threshold Limit Values (TLV)
		Confirmed animal carcinogen with unknown relevance to		

The life science business of Merck KGaA, Darmstadt, Germany
operates as MilliporeSigma in the US and Canada

		humans		
		TWA	50 ppm 205 mg/m3	USA. NIOSH Recommended Exposure Limits
		ST	75 ppm 300 mg/m3	USA. NIOSH Recommended Exposure Limits
		PEL	50 ppm 205 mg/m3	California permissible exposure limits for chemical contaminants (Title 8, Article 107)
		STEL	75 ppm 300 mg/m3	California permissible exposure limits for chemical contaminants (Title 8, Article 107)

Biological occupational exposure limits

Component	CAS-No.	Parameters	Value	Biological specimen	Basis
4-methylpentan-2-one	108-10-1	methyl isobutyl ketone	1 mg/l	Urine	ACGIH - Biological Exposure Indices (BEI)
	Remarks	End of shift (As soon as possible after exposure ceases)			

8.2 Exposure controls

Appropriate engineering controls
Immediately change contaminated clothing. Apply preventive skin protection. Wash hands and face after working with substance.

Personal protective equipment

Eye/face protection
Use equipment for eye protection tested and approved under appropriate government standards such as NIOSH (US) or EN 166(EU). Safety glasses

Skin protection
This recommendation applies only to the product stated in the safety data sheet, supplied by us and for the designated use. When dissolving in or mixing with other substances and under conditions deviating from those stated in EN 16523-1 please contact the supplier of CE-approved gloves (e.g. KCL GmbH, D-36124 Eichenzell, Internet: www.kcl.de).
Splash contact
Material: butyl-rubber
Minimum layer thickness: 0.7 mm
Break through time: 240 min
Material tested:Butoject® (KCL 898)

Body Protection
Flame retardant antistatic protective clothing.

Respiratory protection
Recommended Filter type: Filter A (acc. to DIN 3181) for vapours of organic compounds

The life science business of Merck KGaA, Darmstadt, Germany
operates as MilliporeSigma in the US and Canada

The entrepeneur has to ensure that maintenance, cleaning and testing of respiratory protective devices are carried out according to the instructions of the producer. These measures have to be properly documented.
required when vapours/aerosols are generated. Our recommendations on filtering respiratory protection are based on the following standards: DIN EN 143, DIN 14387 and other accompanying standards relating to the used respiratory protection system.

Control of environmental exposure
Do not let product enter drains. Risk of explosion.

SECTION 9: Physical and chemical properties

9.1 Information on basic physical and chemical properties

a)	Appearance	Form: liquid Color: colorless
b)	Odor	characteristic
c)	Odor Threshold	0.1 ppm
d)	pH	at 20 °C (68 °F)neutral
e)	Melting point/freezing point	Melting point/range: -80 °C (-112 °F) - lit.
f)	Initial boiling point and boiling range	117 - 118 °C 243 - 244 °F - lit.
g)	Flash point	14 °C (57 °F) - closed cup
h)	Evaporation rate	No data available
i)	Flammability (solid, gas)	No data available
j)	Upper/lower flammability or explosive limits	Upper explosion limit: 8 %(V) Lower explosion limit: 1.2 %(V)
k)	Vapor pressure	20 hPa at 20 °C (68 °F)
l)	Vapor density	3.46 - (Air = 1.0)
m)	Density	0.801 g/cm3 at 25 °C (77 °F) - lit.
	Relative density	No data available
n)	Water solubility	14.1 g/l at 20 °C (68 °F) - OECD Test Guideline 105 - completely soluble
o)	Partition coefficient: n-octanol/water	log Pow: 1.9 - Bioaccumulation is not expected.
p)	Autoignition temperature	No data available
q)	Decomposition temperature	No data available

The life science business of Merck KGaA, Darmstadt, Germany
operates as MilliporeSigma in the US and Canada

r)	Viscosity	No data available
s)	Explosive properties	No data available
t)	Oxidizing properties	none

9.2 Other safety information

Surface tension	23.6 mN/m at 20 °C (68 °F)
Relative vapor density	3.46 - (Air = 1.0)

SECTION 10: Stability and reactivity

10.1 Reactivity
Stable under recommended storage conditions.
Vapors may form explosive mixture with air.

10.2 Chemical stability
The product is chemically stable under standard ambient conditions (room temperature) .
Stable under recommended storage conditions.
Test for peroxide formation before distillation or evaporation. Test for peroxide formation or discard after 1 year.

10.3 Possibility of hazardous reactions

Vapors may form explosive mixture with air.

10.4 Conditions to avoid
May form peroxides on contact with air.
Warming.

10.5 Incompatible materials
rubber, various plastics, Copper

10.6 Hazardous decomposition products
In the event of fire: see section 5

SECTION 11: Toxicological information

11.1 Information on toxicological effects

Acute toxicity
LD50 Oral - Rat - 2,080 mg/kg
(OECD Test Guideline 401)
LC50 Inhalation - Rat - male - 4 h - 11.6 mg/l - vapor

(OECD Test Guideline 403)
Dermal: No data available

The life science business of Merck KGaA, Darmstadt, Germany
operates as MilliporeSigma in the US and Canada

Skin corrosion/irritation
Skin - Rabbit
Result: No skin irritation - 4 h
(OECD Test Guideline 404)

Serious eye damage/eye irritation
Eyes - Rabbit
Result: slight irritation - 72 h
(OECD Test Guideline 405)
Remarks: Classified according to Regulation (EU) 1272/2008, Annex VI (Table 3.1/3.2)

Respiratory or skin sensitization
Maximization Test - Guinea pig
Result: negative
(OECD Test Guideline 406)

Germ cell mutagenicity
Test Type: Ames test
Test system: Salmonella typhimurium
Metabolic activation: with and without metabolic activation
Method: OECD Test Guideline 471
Result: negative
Test Type: Mutagenicity (mammal cell test): chromosome aberration.
Test system: rat hepatocytes
Metabolic activation: without metabolic activation
Method: OECD Test Guideline 473
Result: negative
Test Type: In vitro mammalian cell gene mutation test
Test system: mouse lymphoma cells
Metabolic activation: with and without metabolic activation
Method: OECD Test Guideline 476
Result: negative

Test Type: Micronucleus test
Species: Mouse
Cell type: Bone marrow
Application Route: Intraperitoneal
Method: OECD Test Guideline 474
Result: negative

Carcinogenicity
Suspected of causing cancer if inhaled.

IARC:	2B - Group 2B: Possibly carcinogenic to humans (4-methylpentan-2-one)
NTP:	No ingredient of this product present at levels greater than or equal to 0.1% is identified as a known or anticipated carcinogen by NTP.
OSHA:	No component of this product present at levels greater than or equal to 0.1% is on OSHA's list of regulated carcinogens.

Reproductive toxicity
No data available

Specific target organ toxicity - single exposure
May cause drowsiness or dizziness. - Respiratory Tract

The life science business of Merck KGaA, Darmstadt, Germany
operates as MilliporeSigma in the US and Canada

Remarks: Classified according to Regulation (EU) 1272/2008, Annex VI (Table 3.1/3.2)

Specific target organ toxicity - repeated exposure
No data available

Aspiration hazard
No data available

11.2 Additional Information

Repeated dose toxicity - Rat - male and female - Gavage - 90 d - NOAEL (No observed adverse effect level) - 250 mg/kg - LOAEL (Lowest observed adverse effect level) - 1,000 mg/kg
Remarks: Subchronic toxicity

RTECS: SA9275000
Blurred vision, Dermatitis
To the best of our knowledge, the chemical, physical, and toxicological properties have not been thoroughly investigated.

Stomach - Irregularities - Based on Human Evidence

Stomach - Irregularities - Based on Human Evidence

SECTION 12: Ecological information

12.1 Toxicity

Toxicity to fish	static test LC50 - Danio rerio (zebra fish) - > 179 mg/l - 96 h (OECD Test Guideline 203)
Toxicity to daphnia and other aquatic invertebrates	static test EC50 - Daphnia magna (Water flea) - > 200 mg/l - 48 h (OECD Test Guideline 202)
Toxicity to daphnia and other aquatic invertebrates(Chronic toxicity)	semi-static test NOEC - Daphnia - 30 - 78 mg/l - 21 d (OECD Test Guideline 211)

12.2 Persistence and degradability

Biodegradability	aerobic - Exposure time 28 d Result: 83 % - Readily biodegradable. (OECD Test Guideline 301F)
Theoretical oxygen demand	2,720 mg/g Remarks: (Lit.)

12.3 Bioaccumulative potential
No data available

12.4 Mobility in soil
No data available

The life science business of Merck KGaA, Darmstadt, Germany
operates as MilliporeSigma in the US and Canada

12.5 Results of PBT and vPvB assessment

PBT/vPvB assessment not available as chemical safety assessment not required/not conducted

12.6 Endocrine disrupting properties

No data available

12.7 Other adverse effects

No data available

SECTION 13: Disposal considerations

13.1 Waste treatment methods

Product

Waste material must be disposed of in accordance with the national and local regulations. Leave chemicals in original containers. No mixing with other waste. Handle uncleaned containers like the product itself. See www.retrologistik.com for processes regarding the return of chemicals and containers, or contact us there if you have further questions.

SECTION 14: Transport information

DOT (US)

UN number: 1245 Class: 3 Packing group: II
Proper shipping name: Methyl isobutyl ketone
Reportable Quantity (RQ): 5000 lbs
Poison Inhalation Hazard: No

IMDG

UN number: 1245 Class: 3 Packing group: II EMS-No: F-E, S-D
Proper shipping name: METHYL ISOBUTYL KETONE

IATA

UN number: 1245 Class: 3 Packing group: II
Proper shipping name: Methyl isobutyl ketone

SECTION 15: Regulatory information

SARA 302 Components

This material does not contain any components with a section 302 EHS TPQ.

SARA 313 Components

The following components are subject to reporting levels established by SARA Title III, Section 313:

CAS-No. Revision Date

The life science business of Merck KGaA, Darmstadt, Germany
operates as MilliporeSigma in the US and Canada

4-methylpentan-2-one	108-10-1	2007-03-01

SARA 311/312 Hazards
Fire Hazard, Acute Health Hazard, Chronic Health Hazard

Massachusetts Right To Know Components

	CAS-No.	Revision Date
4-methylpentan-2-one	108-10-1	2007-03-01

Pennsylvania Right To Know Components

	CAS-No.	Revision Date
4-methylpentan-2-one	108-10-1	2007-03-01

California Prop. 65 Components

	CAS-No.	Revision Date
, which is/are known to the State of California to cause cancer and birth defects or other reproductive harm. For more information go to www.P65Warnings.ca.gov.4-methylpentan-2-one	108-10-1	2011-11-18

SECTION 16: Other information

Further information
The information is believed to be correct but is not exhaustive and will be used solely as a guideline, which is based on current knowledge of the chemical substance or mixture and is applicable to appropriate safety precautions for the product. It does not represent any guarantee of the properties of the product. Sigma-Aldrich Corporation and its Affiliates shall not be held liable for any damage resulting from handling or from contact with the above product. See www.sigma-aldrich.com and/or the reverse side of invoice or packing slip for additional terms and conditions of sale.
Copyright 2020 Sigma-Aldrich Co. LLC. License granted to make unlimited paper copies for internal use only.
The branding on the header and/or footer of this document may temporarily not visually match the product purchased as we transition our branding. However, all of the information in the document regarding the product remains unchanged and matches the product ordered. For further information please contact mlsbranding@sial.com.
Version: 6.10 Revision Date: 03/02/2024 Print Date: 07/14/2024

The life science business of Merck KGaA, Darmstadt, Germany
operates as MilliporeSigma in the US and Canada

SAFETY DATA SHEET

Version 5.4
Revision Date 01/02/2015
Print Date 12/11/2015

1. PRODUCT AND COMPANY IDENTIFICATION

1.1 Product identifiers

Product name : Acenaphthene

Product Number : 215376
Brand : Aldrich

CAS-No. : 83-32-9

1.2 Relevant identified uses of the substance or mixture and uses advised against

Identified uses : Laboratory chemicals, Manufacture of substances

1.3 Details of the supplier of the safety data sheet

Company : Sigma-Aldrich
3050 Spruce Street
SAINT LOUIS MO 63103
USA

Telephone : +1 800-325-5832
Fax : +1 800-325-5052

1.4 Emergency telephone number

Emergency Phone # : (314) 776-6555

2. HAZARDS IDENTIFICATION

2.1 Classification of the substance or mixture

GHS Classification in accordance with 29 CFR 1910 (OSHA HCS)
Skin irritation (Category 2), H315
Eye irritation (Category 2A), H319
Carcinogenicity (Category 1B), H350
Specific target organ toxicity - single exposure (Category 3), Respiratory system, H335
Acute aquatic toxicity (Category 1), H400
Chronic aquatic toxicity (Category 1), H410

For the full text of the H-Statements mentioned in this Section, see Section 16.

2.2 GHS Label elements, including precautionary statements

Pictogram



Signal word Danger

Hazard statement(s)
H315 Causes skin irritation.
H319 Causes serious eye irritation.
H335 May cause respiratory irritation.
H350 May cause cancer.
H410 Very toxic to aquatic life with long lasting effects.

Precautionary statement(s)
P201 Obtain special instructions before use.
P202 Do not handle until all safety precautions have been read and understood.

P261	Avoid breathing dust/ fume/ gas/ mist/ vapours/ spray.
P264	Wash skin thoroughly after handling.
P271	Use only outdoors or in a well-ventilated area.
P273	Avoid release to the environment.
P280	Wear eye protection/ face protection.
P280	Wear protective gloves.
P281	Use personal protective equipment as required.
P302 + P352	IF ON SKIN: Wash with plenty of soap and water.
P304 + P340 + P312	IF INHALED: Remove victim to fresh air and keep at rest in a position comfortable for breathing. Call a POISON CENTER or doctor/ physician if you feel unwell.
P305 + P351 + P338	IF IN EYES: Rinse cautiously with water for several minutes. Remove contact lenses, if present and easy to do. Continue rinsing.
P308 + P313	IF exposed or concerned: Get medical advice/ attention.
P332 + P313	If skin irritation occurs: Get medical advice/ attention.
P337 + P313	If eye irritation persists: Get medical advice/ attention.
P362	Take off contaminated clothing and wash before reuse.
P391	Collect spillage.
P403 + P233	Store in a well-ventilated place. Keep container tightly closed.
P405	Store locked up.
P501	Dispose of contents/ container to an approved waste disposal plant.

2.3 Hazards not otherwise classified (HNOC) or not covered by GHS - none

3. COMPOSITION/INFORMATION ON INGREDIENTS

3.1 Substances

Synonyms : 1,8-Ethylenenaphthalene

Formula : $C_{12}H_{10}$
Molecular weight : 154.21 g/mol
CAS-No. : 83-32-9
EC-No. : 201-469-6

Hazardous components

Component	Classification	Concentration
Acenaphthene		
	Skin Irrit. 2; Eye Irrit. 2A; Carc. 1B; STOT SE 3; Aquatic Acute 1; Aquatic Chronic 1; H315, H319, H335, H350, H410	<= 100 %

For the full text of the H-Statements mentioned in this Section, see Section 16.

4. FIRST AID MEASURES

4.1 Description of first aid measures

General advice
Consult a physician. Show this safety data sheet to the doctor in attendance.Move out of dangerous area.

If inhaled
If breathed in, move person into fresh air. If not breathing, give artificial respiration. Consult a physician.

In case of skin contact
Wash off with soap and plenty of water. Consult a physician.

In case of eye contact
Rinse thoroughly with plenty of water for at least 15 minutes and consult a physician.

If swallowed
Never give anything by mouth to an unconscious person. Rinse mouth with water. Consult a physician.

4.2 Most important symptoms and effects, both acute and delayed
The most important known symptoms and effects are described in the labelling (see section 2.2) and/or in section 11

4.3 Indication of any immediate medical attention and special treatment needed
No data available

5. FIREFIGHTING MEASURES

5.1 Extinguishing media

Suitable extinguishing media
Use water spray, alcohol-resistant foam, dry chemical or carbon dioxide.

5.2 Special hazards arising from the substance or mixture
Carbon oxides

5.3 Advice for firefighters
Wear self-contained breathing apparatus for firefighting if necessary.

5.4 Further information
No data available

6. ACCIDENTAL RELEASE MEASURES

6.1 Personal precautions, protective equipment and emergency procedures
Use personal protective equipment. Avoid dust formation. Avoid breathing vapours, mist or gas. Ensure adequate ventilation. Evacuate personnel to safe areas. Avoid breathing dust.
For personal protection see section 8.

6.2 Environmental precautions
Prevent further leakage or spillage if safe to do so. Do not let product enter drains. Discharge into the environment must be avoided.

6.3 Methods and materials for containment and cleaning up
Pick up and arrange disposal without creating dust. Sweep up and shovel. Keep in suitable, closed containers for disposal.

6.4 Reference to other sections
For disposal see section 13.

7. HANDLING AND STORAGE

7.1 Precautions for safe handling
Avoid contact with skin and eyes. Avoid formation of dust and aerosols.Further processing of solid materials may result in the formation of combustible dusts. The potential for combustible dust formation should be taken into consideration before additional processing occurs.
Provide appropriate exhaust ventilation at places where dust is formed.
For precautions see section 2.2.

7.2 Conditions for safe storage, including any incompatibilities
Keep container tightly closed in a dry and well-ventilated place.
Storage class (TRGS 510): Non Combustible Solids

7.3 Specific end use(s)
Apart from the uses mentioned in section 1.2 no other specific uses are stipulated

8. EXPOSURE CONTROLS/PERSONAL PROTECTION

8.1 Control parameters

Components with workplace control parameters
Contains no substances with occupational exposure limit values.

8.2 Exposure controls

Appropriate engineering controls
Handle in accordance with good industrial hygiene and safety practice. Wash hands before breaks and at the end of workday.

Personal protective equipment

Eye/face protection
Safety glasses with side-shields conforming to EN166 Use equipment for eye protection tested and approved under appropriate government standards such as NIOSH (US) or EN 166(EU).

Skin protection
Handle with gloves. Gloves must be inspected prior to use. Use proper glove removal technique (without touching glove's outer surface) to avoid skin contact with this product. Dispose of contaminated gloves after use in accordance with applicable laws and good laboratory practices. Wash and dry hands.

Full contact
Material: Nitrile rubber
Minimum layer thickness: 0.11 mm
Break through time: 480 min
Material tested:Dermatril® (KCL 740 / Aldrich Z677272, Size M)

Splash contact
Material: Nitrile rubber
Minimum layer thickness: 0.11 mm
Break through time: 480 min
Material tested:Dermatril® (KCL 740 / Aldrich Z677272, Size M)

data source: KCL GmbH, D-36124 Eichenzell, phone +49 (0)6659 87300, e-mail sales@kcl.de, test method: EN374
If used in solution, or mixed with other substances, and under conditions which differ from EN 374, contact the supplier of the CE approved gloves. This recommendation is advisory only and must be evaluated by an industrial hygienist and safety officer familiar with the specific situation of anticipated use by our customers. It should not be construed as offering an approval for any specific use scenario.

Body Protection
impervious clothing, The type of protective equipment must be selected according to the concentration and amount of the dangerous substance at the specific workplace.

Respiratory protection
For nuisance exposures use type P95 (US) or type P1 (EU EN 143) particle respirator.For higher level protection use type OV/AG/P99 (US) or type ABEK-P2 (EU EN 143) respirator cartridges. Use respirators and components tested and approved under appropriate government standards such as NIOSH (US) or CEN (EU).

Control of environmental exposure
Prevent further leakage or spillage if safe to do so. Do not let product enter drains. Discharge into the environment must be avoided.

9. PHYSICAL AND CHEMICAL PROPERTIES

9.1 Information on basic physical and chemical properties

a)	Appearance	Form: solid
b)	Odour	No data available
c)	Odour Threshold	No data available
d)	pH	No data available
e)	Melting point/freezing point	Melting point/range: 90 - 94 °C (194 - 201 °F) - lit.
f)	Initial boiling point and boiling range	279 °C (534 °F) - lit.
g)	Flash point	125.0 °C (257.0 °F) - closed cup
h)	Evaporation rate	No data available
i)	Flammability (solid, gas)	No data available
j)	Upper/lower flammability or explosive limits	No data available

k)	Vapour pressure	13.3 hPa (10.0 mmHg) at 131.0 °C (267.8 °F)
l)	Vapour density	No data available
m)	Relative density	No data available
n)	Water solubility	No data available
o)	Partition coefficient: n-octanol/water	log Pow: 3.39 - 4.19
p)	Auto-ignition temperature	No data available
q)	Decomposition temperature	No data available
r)	Viscosity	No data available
s)	Explosive properties	No data available
t)	Oxidizing properties	No data available

9.2 Other safety information
No data available

10. STABILITY AND REACTIVITY

10.1 Reactivity
No data available

10.2 Chemical stability
Stable under recommended storage conditions.

10.3 Possibility of hazardous reactions
No data available

10.4 Conditions to avoid
No data available

10.5 Incompatible materials
Strong oxidizing agents

10.6 Hazardous decomposition products
Other decomposition products - No data available
In the event of fire: see section 5

11. TOXICOLOGICAL INFORMATION

11.1 Information on toxicological effects

Acute toxicity
No data available

Inhalation: No data available

Dermal: No data available

LD50 Intraperitoneal - Rat - 600 mg/kg

Skin corrosion/irritation
No data available

Serious eye damage/eye irritation
No data available

Respiratory or skin sensitisation
No data available

Germ cell mutagenicity
No data available

Carcinogenicity

IARC: 3 - Group 3: Not classifiable as to its carcinogenicity to humans (Acenaphthene)

ACGIH: No component of this product present at levels greater than or equal to 0.1% is identified as a carcinogen or potential carcinogen by ACGIH.

NTP: Reasonably anticipated to be a human carcinogen (Acenaphthene)

OSHA: No component of this product present at levels greater than or equal to 0.1% is identified as a carcinogen or potential carcinogen by OSHA.

Reproductive toxicity
No data available

No data available

Specific target organ toxicity - single exposure
Inhalation - May cause respiratory irritation.

Specific target organ toxicity - repeated exposure
No data available

Aspiration hazard
No data available

Additional Information
RTECS: AB1000000

To the best of our knowledge, the chemical, physical, and toxicological properties have not been thoroughly investigated.

12. ECOLOGICAL INFORMATION

12.1 Toxicity

Toxicity to fish	LC50 - Oncorhynchus mykiss (rainbow trout) - 0.67 mg/l - 96.0 h
	LC50 - Pimephales promelas (fathead minnow) - 0.6 - 1.73 mg/l - 96.0 h
Toxicity to daphnia and other aquatic invertebrates	EC50 - Daphnia magna (Water flea) - 1.27 - 3.45 mg/l - 48 h
Toxicity to algae	EC50 - Pseudokirchneriella subcapitata (green algae) - 0.52 - 0.53 mg/l - 96 h

12.2 Persistence and degradability

12.3 Bioaccumulative potential

Bioaccumulation	Lepomis macrochirus (Bluegill) - 28 d - 0.00894 mg/l
	Bioconcentration factor (BCF): 387

12.4 Mobility in soil
No data available

12.5 Results of PBT and vPvB assessment
PBT/vPvB assessment not available as chemical safety assessment not required/not conducted

12.6 Other adverse effects
An environmental hazard cannot be excluded in the event of unprofessional handling or disposal.
Very toxic to aquatic life with long lasting effects.

13. DISPOSAL CONSIDERATIONS

13.1 Waste treatment methods

Product
Offer surplus and non-recyclable solutions to a licensed disposal company. Contact a licensed professional waste disposal service to dispose of this material. Dissolve or mix the material with a combustible solvent and burn in a chemical incinerator equipped with an afterburner and scrubber.

Contaminated packaging
Dispose of as unused product.

14. TRANSPORT INFORMATION

DOT (US)
UN number: 3077 Class: 9 Packing group: III
Proper shipping name: Environmentally hazardous substances, solid, n.o.s. (Acenaphthene)
Reportable Quantity (RQ): 100 lbs

Poison Inhalation Hazard: No

IMDG
UN number: 3077 Class: 9 Packing group: III EMS-No: F-A, S-F
Proper shipping name: ENVIRONMENTALLY HAZARDOUS SUBSTANCE, SOLID, N.O.S. (Acenaphthene)
Marine pollutant:yes

IATA
UN number: 3077 Class: 9 Packing group: III
Proper shipping name: Environmentally hazardous substance, solid, n.o.s. (Acenaphthene)

Further information
EHS-Mark required (ADR 2.2.9.1.10, IMDG code 2.10.3) for single packagings and combination packagings containing inner packagings with Dangerous Goods > 5L for liquids or > 5kg for solids.

15. REGULATORY INFORMATION

SARA 302 Components
No chemicals in this material are subject to the reporting requirements of SARA Title III, Section 302.

SARA 313 Components
This material does not contain any chemical components with known CAS numbers that exceed the threshold (De Minimis) reporting levels established by SARA Title III, Section 313.

Massachusetts Right To Know Components

	CAS-No.	Revision Date
Acenaphthene	83-32-9	1993-04-24

Pennsylvania Right To Know Components

	CAS-No.	Revision Date
Acenaphthene	83-32-9	1993-04-24

New Jersey Right To Know Components

	CAS-No.	Revision Date
Acenaphthene	83-32-9	1993-04-24

California Prop. 65 Components

WARNING! This product contains a chemical known to the State of California to cause cancer.	CAS-No.	Revision Date
Acenaphthene	83-32-9	2007-09-28

16. OTHER INFORMATION

Full text of H-Statements referred to under sections 2 and 3.

Aquatic Acute	Acute aquatic toxicity
Aquatic Chronic	Chronic aquatic toxicity
Carc.	Carcinogenicity
Eye Irrit.	Eye irritation
H315	Causes skin irritation.
H319	Causes serious eye irritation.
H335	May cause respiratory irritation.

H350	May cause cancer.
H400	Very toxic to aquatic life.
H410	Very toxic to aquatic life with long lasting effects.

HMIS Rating

Health hazard:	0
Chronic Health Hazard:	*
Flammability:	1
Physical Hazard	0

NFPA Rating

Health hazard:	0
Fire Hazard:	1
Reactivity Hazard:	0

Further information

Copyright 2014 Sigma-Aldrich Co. LLC. License granted to make unlimited paper copies for internal use only.
The above information is believed to be correct but does not purport to be all inclusive and shall be used only as a guide. The information in this document is based on the present state of our knowledge and is applicable to the product with regard to appropriate safety precautions. It does not represent any guarantee of the properties of the product. Sigma-Aldrich Corporation and its Affiliates shall not be held liable for any damage resulting from handling or from contact with the above product. See www.sigma-aldrich.com and/or the reverse side of invoice or packing slip for additional terms and conditions of sale.

Preparation Information

Sigma-Aldrich Corporation
Product Safety – Americas Region
1-800-521-8956

Version: 5.4 Revision Date: 01/02/2015 Print Date: 12/11/2015

SAFETY DATA SHEET

Revision Date 10-Feb-2015 **Revision Number** 1

1. Identification

Product Name **Poly(acenaphthylene)**

Cat No. : **AC178020000; AC178020050; AC178020100**

Synonyms None.

Recommended Use Laboratory chemicals.

Uses advised against No Information available

Details of the supplier of the safety data sheet

Company
Fisher Scientific
One Reagent Lane
Fair Lawn, NJ 07410
Tel: (201) 796-7100

Entity / Business Name
Acros Organics
One Reagent Lane
Fair Lawn, NJ 07410

Emergency Telephone Number
For information **US** call: 001-800-ACROS-01 / **Europe** call: +32 14 57 52 11
Emergency Number **US:**001-201-796-7100 / **Europe:** +32 14 57 52 99
CHEMTREC Tel. No.**US:**001-800-424-9300 / **Europe:**001-703-527-3887

2. Hazard(s) identification

Classification
Classification under 2012 OSHA Hazard Communication Standard (29 CFR 1910.1200)

Based on available data, the classification criteria are not met

Label Elements
None required

Hazards not otherwise classified (HNOC)
None identified

Unknown Acute Toxicity
.? % of the mixture consists of ingredients of unknown toxicity.

3. Composition / information on ingredients

Component	CAS-No	Weight %
Poly(acenaphthylene)	25036-01-5	100

4. First-aid measures

Eye Contact Rinse immediately with plenty of water, also under the eyelids, for at least 15 minutes.

Skin Contact Wash off immediately with soap and plenty of water while removing all contaminated

clothes and shoes.

Inhalation Remove from exposure, lie down. Move to fresh air.

Ingestion Do not induce vomiting. Never give anything by mouth to an unconscious person. Drink plenty of water. If possible drink milk afterwards.

Most important symptoms/effects No information available.
Notes to Physician Treat symptomatically

5. Fire-fighting measures

Suitable Extinguishing Media Water spray. Carbon dioxide (CO_2). Dry chemical. alcohol-resistant foam.

Unsuitable Extinguishing Media No information available

Flash Point No information available
Method - No information available

Autoignition Temperature No information available
Explosion Limits
Upper No data available
Lower No data available
Sensitivity to Mechanical Impact No information available
Sensitivity to Static Discharge No information available

Specific Hazards Arising from the Chemical
Keep product and empty container away from heat and sources of ignition.

Hazardous Combustion Products
Thermal decomposition can lead to release of irritating gases and vapors Carbon monoxide (CO) Carbon dioxide (CO_2)
Protective Equipment and Precautions for Firefighters
As in any fire, wear self-contained breathing apparatus pressure-demand, MSHA/NIOSH (approved or equivalent) and full protective gear. Thermal decomposition can lead to release of irritating gases and vapors.

NFPA

Health	Flammability	Instability	Physical hazards
0	0	0	N/A

6. Accidental release measures

Personal Precautions Ensure adequate ventilation. Use personal protective equipment.
Environmental Precautions See Section 12 for additional ecological information.

Methods for Containment and Clean Up Sweep up or vacuum up spillage and collect in suitable container for disposal.

7. Handling and storage

Handling Avoid contact with skin and eyes. Avoid contact with clothing. Remove and wash contaminated clothing before re-use. Avoid breathing vapors or mists. Do not ingest. Wash thoroughly after handling.

Storage Keep in a dry, cool and well-ventilated place. Keep container tightly closed.

8. Exposure controls / personal protection

Exposure Guidelines This product does not contain any hazardous materials with occupational exposure limits established by the region specific regulatory bodies.

Engineering Measures Ensure adequate ventilation, especially in confined areas. Ventilation systems.

Personal Protective Equipment

Eye/face Protection Wear appropriate protective eyeglasses or chemical safety goggles as described by OSHA's eye and face protection regulations in 29 CFR 1910.133 or European Standard EN166.

Skin and body protection Wear appropriate protective gloves and clothing to prevent skin exposure.

Respiratory Protection Wear a NIOSH/MSHA or European Standard EN 149 approved full-facepiece airline respirator in the positive pressure mode with emergency escape provisions.

Hygiene Measures Handle in accordance with good industrial hygiene and safety practice.

9. Physical and chemical properties

Physical State	Powder Solid
Appearance	Yellow
Odor	Odorless
Odor Threshold	No information available
pH	No information available
Melting Point/Range	No data available
Boiling Point/Range	No information available
Flash Point	No information available
Evaporation Rate	No information available
Flammability (solid,gas)	No information available
Flammability or explosive limits	
Upper	No data available
Lower	No data available
Vapor Pressure	No information available
Vapor Density	No information available
Relative Density	No information available
Solubility	No information available
Partition coefficient; n-octanol/water	No data available
Autoignition Temperature	No information available
Decomposition Temperature	No information available
Viscosity	No information available

10. Stability and reactivity

Reactive Hazard None known, based on information available

Stability Stable under normal conditions.

Conditions to Avoid Incompatible products.

Incompatible Materials Oxidizing agents

Hazardous Decomposition Products Thermal decomposition can lead to release of irritating gases and vapors, Carbon monoxide (CO), Carbon dioxide (CO_2)

Hazardous Polymerization No information available.

Hazardous Reactions None under normal processing.

11. Toxicological information

Acute Toxicity

Product Information No acute toxicity information is available for this product

Oral LD50 Based on ATE data, the classification criteria are not met. ATE > 2000 mg/kg.
Dermal LD50 Based on ATE data, the classification criteria are not met. ATE > 2000 mg/kg.
Mist LC50 Based on ATE data, the classification criteria are not met. ATE > 5 mg/l.
Component Information
Toxicologically Synergistic Products No information available

Delayed and immediate effects as well as chronic effects from short and long-term exposure

Irritation No information available

Sensitization No information available

Carcinogenicity The table below indicates whether each agency has listed any ingredient as a carcinogen.

Component	CAS-No	IARC	NTP	ACGIH	OSHA	Mexico
Poly(acenaphthylene)	25036-01-5	Not listed	Not listed	Not listed	Not listed	Not listed

Mutagenic Effects No information available

Reproductive Effects No information available.

Developmental Effects No information available.

Teratogenicity No information available.

STOT - single exposure None known
STOT - repeated exposure None known

Aspiration hazard No information available

Symptoms / effects,both acute and delayed No information available
Endocrine Disruptor Information No information available

Other Adverse Effects The toxicological properties have not been fully investigated.

12. Ecological information

Ecotoxicity
Do not empty into drains.

Persistence and Degradability No information available
Bioaccumulation/ Accumulation No information available.

Mobility No information available.

13. Disposal considerations

Waste Disposal Methods Chemical waste generators must determine whether a discarded chemical is classified as a hazardous waste. Chemical waste generators must also consult local, regional, and national hazardous waste regulations to ensure complete and accurate classification.

14. Transport information

DOT Not regulated
TDG Not regulated
IATA Not regulated
IMDG/IMO Not regulated

15. Regulatory information

International Inventories

Legend:
X - Listed
E - Indicates a substance that is the subject of a Section 5(e) Consent order under TSCA.
F - Indicates a substance that is the subject of a Section 5(f) Rule under TSCA.
N - Indicates a polymeric substance containing no free-radical initiator in its inventory name but is considered to cover the designated polymer made with any free-radical initiator regardless of the amount used.
P - Indicates a commenced PMN substance
R - Indicates a substance that is the subject of a Section 6 risk management rule under TSCA.
S - Indicates a substance that is identified in a proposed or final Significant New Use Rule
T - Indicates a substance that is the subject of a Section 4 test rule under TSCA.
XU - Indicates a substance exempt from reporting under the Inventory Update Rule, i.e. Partial Updating of the TSCA Inventory Data Base Production and Site Reports (40 CFR 710(B).
Y1 - Indicates an exempt polymer that has a number-average molecular weight of 1,000 or greater.
Y2 - Indicates an exempt polymer that is a polyester and is made only from reactants included in a specified list of low concern reactants that comprises one of the eligibility criteria for the exemption rule.

U.S. Federal Regulations

TSCA 12(b) Not applicable

SARA 313 Not applicable

SARA 311/312 Hazardous Categorization

Acute Health Hazard	No
Chronic Health Hazard	No
Fire Hazard	No
Sudden Release of Pressure Hazard	No
Reactive Hazard	No

Clean Water Act Not applicable

Clean Air Act Not applicable

OSHA Occupational Safety and Health Administration
Not applicable

CERCLA
Not applicable

California Proposition 65 This product does not contain any Proposition 65 chemicals

State Right-to-Know Not applicable

U.S. Department of Transportation

Reportable Quantity (RQ):	N
DOT Marine Pollutant	N
DOT Severe Marine Pollutant	N

U.S. Department of Homeland Security
This product does not contain any DHS chemicals.

Other International Regulations

Mexico - Grade No information available

Canada
This product has been classified in accordance with the hazard criteria of the Controlled Products Regulations (CPR) and the MSDS contains all the information required by the CPR

WHMIS Hazard Class Non-controlled

16. Other information

Prepared By
Regulatory Affairs
Thermo Fisher Scientific
Email: EMSDS.RA@thermofisher.com

Revision Date 10-Feb-2015
Print Date 10-Feb-2015
Revision Summary This document has been updated to comply with the US OSHA HazCom 2012 Standard replacing the current legislation under 29 CFR 1910.1200 to align with the Globally Harmonized System of Classification and Labeling of Chemicals (GHS)

Disclaimer

The information provided on this Safety Data Sheet is correct to the best of our knowledge, information and belief at the date of its publication. The information given is designed only as a guide for safe handling, use, processing, storage, transportation, disposal and release and is not to be considered as a warranty or quality specification. The information relates only to the specific material designated and may not be valid for such material used in combination with any other material or in any process, unless specified in the text.

End of SDS

SAFETY DATA SHEET

Version 6.11
Revision Date 09/06/2024
Print Date 09/07/2024

SECTION 1: Identification of the substance/mixture and of the company/undertaking

1.1 Product identifiers

Product name : Acetone

Product Number : 179124
Brand : SIGALD
Index-No. : 606-001-00-8
CAS-No. : 67-64-1

1.2 Relevant identified uses of the substance or mixture and uses advised against

Identified uses : Laboratory chemicals, Synthesis of substances

Uses advised against : The product is being supplied under the TSCA R&D Exemption (40 CFR Section 720.36). It is the recipient's responsibility to comply with the requirements of the R&D exemption. The product may not be used for a non-exempt commercial purpose under TSCA unless appropriate consent is granted in writing by MilliporeSigma.

1.3 Details of the supplier of the safety data sheet

Company : Sigma-Aldrich Inc.
3050 SPRUCE ST
ST. LOUIS MO 63103
UNITED STATES

Telephone : +1 314 771-5765
Fax : +1 800 325-5052

1.4 Emergency telephone

Emergency Phone # : 800-424-9300 CHEMTREC (USA) +1-703-527-3887 CHEMTREC (International) 24 Hours/day; 7 Days/week

SECTION 2: Hazards identification

2.1 Classification of the substance or mixture

GHS Classification in accordance with 29 CFR 1910 (OSHA HCS)

Flammable liquids (Category 2), H225
Eye irritation (Category 2A), H319
Specific target organ toxicity - single exposure (Category 3), Central nervous system, H336

The life science business of Merck KGaA, Darmstadt, Germany
operates as MilliporeSigma in the US and Canada

For the full text of the H-Statements mentioned in this Section, see Section 16.

2.2 GHS Label elements, including precautionary statements

Pictogram



Signal Word: Danger

Hazard Statements

H225	Highly flammable liquid and vapor.
H319	Causes serious eye irritation.
H336	May cause drowsiness or dizziness.

Precautionary Statements

P210	Keep away from heat/ sparks/ open flames/ hot surfaces. No smoking.
P233	Keep container tightly closed.
P240	Ground/bond container and receiving equipment.
P241	Use explosion-proof electrical/ ventilating/ lighting/ equipment.
P242	Use only non-sparking tools.
P243	Take precautionary measures against static discharge.
P261	Avoid breathing mist or vapors.
P264	Wash skin thoroughly after handling.
P271	Use only outdoors or in a well-ventilated area.
P280	Wear protective gloves/ eye protection/ face protection.
P303 + P361 + P353	IF ON SKIN (or hair): Take off immediately all contaminated clothing. Rinse skin with water/ shower.
P304 + P340 + P312	IF INHALED: Remove person to fresh air and keep comfortable for breathing. Call a POISON CENTER/ doctor if you feel unwell.
P305 + P351 + P338	IF IN EYES: Rinse cautiously with water for several minutes. Remove contact lenses, if present and easy to do. Continue rinsing.
P337 + P313	If eye irritation persists: Get medical advice/ attention.
P370 + P378	In case of fire: Use dry sand, dry chemical or alcohol-resistant foam to extinguish.
P403 + P233	Store in a well-ventilated place. Keep container tightly closed.
P403 + P235	Store in a well-ventilated place. Keep cool.
P405	Store locked up.
P501	Dispose of contents/ container to an approved waste disposal plant.

2.3 Hazards not otherwise classified (HNOC) or not covered by GHS

Repeated exposure may cause skin dryness or cracking.

SECTION 3: Composition/information on ingredients

3.1 Substances

Formula	:	C_3H_6O
Molecular weight	:	58.08 g/mol
CAS-No.	:	67-64-1
EC-No.	:	200-662-2
Index-No.	:	606-001-00-8

The life science business of Merck KGaA, Darmstadt, Germany
operates as MilliporeSigma in the US and Canada

Component	Classification	Concentration
acetone		
	Flam. Liq. 2; Eye Irrit. 2A; STOT SE 3; H225, H319, H336 Concentration limits: >= 20 %: STOT SE 3, H336;	<= 100 %

For the full text of the H-Statements mentioned in this Section, see Section 16.

SECTION 4: First aid measures

4.1 Description of first-aid measures

General advice
Show this material safety data sheet to the doctor in attendance.

If inhaled
After inhalation: fresh air. Call in physician.

In case of skin contact
In case of skin contact: Take off immediately all contaminated clothing. Rinse skin with water/ shower.

In case of eye contact
After eye contact: rinse out with plenty of water. Call in ophthalmologist. Remove contact lenses.

If swallowed
After swallowing: immediately make victim drink water (two glasses at most). Consult a physician.

4.2 Most important symptoms and effects, both acute and delayed
The most important known symptoms and effects are described in the labelling (see section 2.2) and/or in section 11

4.3 Indication of any immediate medical attention and special treatment needed
No data available

SECTION 5: Firefighting measures

5.1 Extinguishing media

Suitable extinguishing media
Carbon dioxide (CO2) Foam Dry powder

Unsuitable extinguishing media
For this substance/mixture no limitations of extinguishing agents are given.

The life science business of Merck KGaA, Darmstadt, Germany
operates as MilliporeSigma in the US and Canada

5.2 Special hazards arising from the substance or mixture

Carbon oxides
Combustible.
Pay attention to flashback.
Vapors are heavier than air and may spread along floors.
Development of hazardous combustion gases or vapours possible in the event of fire.
Forms explosive mixtures with air at ambient temperatures.

5.3 Advice for firefighters

In the event of fire, wear self-contained breathing apparatus.

5.4 Further information

Remove container from danger zone and cool with water. Prevent fire extinguishing water from contaminating surface water or the ground water system.

SECTION 6: Accidental release measures

6.1 Personal precautions, protective equipment and emergency procedures

Advice for non-emergency personnel: Do not breathe vapors, aerosols. Avoid substance contact. Ensure adequate ventilation. Keep away from heat and sources of ignition.
Evacuate the danger area, observe emergency procedures, consult an expert.
For personal protection see section 8.

6.2 Environmental precautions

Do not let product enter drains. Risk of explosion.

6.3 Methods and materials for containment and cleaning up

Cover drains. Collect, bind, and pump off spills. Observe possible material restrictions (see sections 7 and 10). Take up with liquid-absorbent material (e.g. Chemizorb®).
Dispose of properly. Clean up affected area.

6.4 Reference to other sections

For disposal see section 13.

SECTION 7: Handling and storage

7.1 Precautions for safe handling

Advice on safe handling
Work under hood. Do not inhale substance/mixture. Avoid generation of vapours/aerosols.

Advice on protection against fire and explosion
Keep away from open flames, hot surfaces and sources of ignition.Take precautionary measures against static discharge.

Hygiene measures
Change contaminated clothing. Preventive skin protection recommended. Wash hands after working with substance.
For precautions see section 2.2.

7.2 Conditions for safe storage, including any incompatibilities

Storage conditions

The life science business of Merck KGaA, Darmstadt, Germany
operates as MilliporeSigma in the US and Canada

Keep container tightly closed in a dry and well-ventilated place. Keep away from heat and sources of ignition.

Storage class
Storage class (TRGS 510): 3: Flammable liquids

7.3 Specific end use(s)
Apart from the uses mentioned in section 1.2 no other specific uses are stipulated

SECTION 8: Exposure controls/personal protection

8.1 Control parameters

Ingredients with workplace control parameters

Component	CAS-No.	Value	Control parameters	Basis
acetone	67-64-1	TWA	250 ppm	USA. ACGIH Threshold Limit Values (TLV)
	Remarks	Not classifiable as a human carcinogen		
		STEL	500 ppm	USA. ACGIH Threshold Limit Values (TLV)
		Not classifiable as a human carcinogen		
		TWA	250 ppm 590 mg/m3	USA. NIOSH Recommended Exposure Limits
		TWA	1,000 ppm 2,400 mg/m3	USA. Occupational Exposure Limits (OSHA) - Table Z-1 Limits for Air Contaminants
		C	3,000 ppm	California permissible exposure limits for chemical contaminants (Title 8, Article 107)
		PEL	500 ppm 1,200 mg/m3	California permissible exposure limits for chemical contaminants (Title 8, Article 107)
		STEL	750 ppm 1,780 mg/m3	California permissible exposure limits for chemical contaminants (Title 8, Article 107)

Biological occupational exposure limits

Component	CAS-No.	Parameters	Value	Biological specimen	Basis
acetone	67-64-1	Acetone	25 mg/l	Urine	ACGIH - Biological Exposure Indices (BEI)
	Remarks	End of shift (As soon as possible after exposure ceases)			

The life science business of Merck KGaA, Darmstadt, Germany
operates as MilliporeSigma in the US and Canada

Derived No Effect Level (DNEL)

Application Area	Routes of exposure	Health effect	Value
Workers	Skin contact	Long-term systemic effects	186mg/kg BW/d
Consumers	Ingestion	Long-term systemic effects	62mg/kg BW/d
Consumers	Skin contact	Long-term systemic effects	62mg/kg BW/d
Workers	Inhalation	Acute systemic effects	2420 mg/m3
Workers	Inhalation	Long-term systemic effects	1210 mg/m3
Consumers	Inhalation	Long-term systemic effects	200 mg/m3

Predicted No Effect Concentration (PNEC)

Compartment	Value
Soil	33.3 mg/kg
Sea water	1.06 mg/l
Fresh water	10.6 mg/l
Sea sediment	3.04 mg/kg
Fresh water sediment	30.4 mg/kg
Onsite sewage treatment plant	100 mg/l

8.2 Exposure controls

Appropriate engineering controls
Change contaminated clothing. Preventive skin protection recommended. Wash hands after working with substance.

Personal protective equipment

Eye/face protection
Use equipment for eye protection tested and approved under appropriate government standards such as NIOSH (US) or EN 166(EU). Safety glasses

Skin protection
This recommendation applies only to the product stated in the safety data sheet, supplied by us and for the designated use. When dissolving in or mixing with other substances and under conditions deviating from those stated in EN 16523-1 please contact the supplier of CE-approved gloves (e.g. KCL GmbH, D-36124 Eichenzell, Internet: www.kcl.de).
Full contact
Material: butyl-rubber
Minimum layer thickness: 0.7 mm
Break through time: 480 min
Material tested:Butoject® (KCL 898)

This recommendation applies only to the product stated in the safety data sheet, supplied by us and for the designated use. When dissolving in or mixing with other substances and under conditions deviating from those stated in EN 16523-1 please contact the supplier of CE-approved gloves (e.g. KCL GmbH, D-36124 Eichenzell, Internet: www.kcl.de).
Splash contact
Material: Latex gloves
Minimum layer thickness: 0.6 mm
Break through time: 10 min
Material tested:Lapren® (KCL 706 / Aldrich Z677558, Size M)

The life science business of Merck KGaA, Darmstadt, Germany
operates as MilliporeSigma in the US and Canada

Body Protection
Flame retardant antistatic protective clothing.

Respiratory protection
Recommended Filter type: Filter type AX
The entrepeneur has to ensure that maintenance, cleaning and testing of respiratory protective devices are carried out according to the instructions of the producer. These measures have to be properly documented.
required when vapours/aerosols are generated.
Our recommendations on filtering respiratory protection are based on the following standards: DIN EN 143, DIN 14387 and other accompanying standards relating to the used respiratory protection system.

Control of environmental exposure
Do not let product enter drains. Risk of explosion.

SECTION 9: Physical and chemical properties

9.1 Information on basic physical and chemical properties

a)	Appearance	Form: clear, liquid Color: colorless
b)	Odor	pungent, weakly aromatic
c)	Odor Threshold	0.1 ppm
d)	pH	5 - 6 at 395 g/l at 20 °C (68 °F)
e)	Melting point/freezing point	Melting point/ range: -94 °C (-137 °F) - lit.
f)	Initial boiling point and boiling range	56 °C 133 °F at 1,013 hPa - lit.
g)	Flash point	-17.0 °C (1.4 °F) - closed cup
h)	Evaporation rate	No data available
i)	Flammability (solid, gas)	No data available
j)	Upper/lower flammability or explosive limits	Upper explosion limit: 13 %(V) Lower explosion limit: 2 %(V)
k)	Vapor pressure	245.3 hPa at 20.0 °C (68.0 °F)
l)	Vapor density	No data available
m)	Density	0.791 g/cm3 at 25 °C (77 °F) - lit.
	Relative density	No data available
n)	Water solubility	soluble, in all proportions
o)	Partition coefficient: n-octanol/water	No data available
p)	Autoignition	465.0 °C (869.0 °F)

The life science business of Merck KGaA, Darmstadt, Germany
operates as MilliporeSigma in the US and Canada

	temperature	
q)	Decomposition temperature	Distillable in an undecomposed state at normal pressure.
r)	Viscosity	No data available
s)	Explosive properties	No data available
t)	Oxidizing properties	none

9.2 Other safety information

Conductivity	0.01 µS/cm at 20 °C (68 °F)
Surface tension	23.2 mN/m at 20.0 °C (68.0 °F)

SECTION 10: Stability and reactivity

10.1 Reactivity

Vapors may form explosive mixture with air.

10.2 Chemical stability

The product is chemically stable under standard ambient conditions (room temperature) .

10.3 Possibility of hazardous reactions

Risk of ignition or formation of inflammable gases or vapours with:
chromosulfuric acid
chromyl chloride
ethanolamine
Fluorine
Strong oxidizing agents
strong reducing agents
Nitric acid
chromium(VI) oxide
Risk of explosion with:
nonmetallic oxyhalides
halogen-halogen compounds
Chloroform
nitrating acid
nitrosyl compounds
hydrogen peroxide
halogen oxides
organic nitro compounds
peroxi compounds
Exothermic reaction with:
Bromine
Alkali metals
alkali hydroxides
Halogenated hydrocarbon
Sulfur dichloride
phosphorous oxichloride

The life science business of Merck KGaA, Darmstadt, Germany
operates as MilliporeSigma in the US and Canada

10.4 Conditions to avoid
Warming.

10.5 Incompatible materials
No data available

10.6 Hazardous decomposition products
In the event of fire: see section 5

SECTION 11: Toxicological information

11.1 Information on toxicological effects

Acute toxicity
LD50 Oral - Rat - female - 5,800 mg/kg
Remarks: (ECHA)
Symptoms: Stomach/intestinal disorders, Risk of aspiration upon vomiting., Pulmonary failure possible after aspiration of vomit.
LC50 Inhalation - Rat - 4 h - 76 mg/l - vapor

Remarks: Unconsciousness
Drowsiness
Dizziness
(External MSDS)
LD50 Dermal - Rabbit - 20,000 mg/kg
Remarks: (IUCLID)

Skin corrosion/irritation
Skin - Rabbit
Result: Mild skin irritation - 24 h
(Draize Test)
Remarks: (RTECS)

Serious eye damage/eye irritation
Eyes - Rabbit
Result: Eye irritation - 24 h
(Draize Test)
Remarks: (RTECS)

Respiratory or skin sensitization
Maximization Test - Guinea pig
Result: negative
Remarks: (ECHA)
Chronic exposure may cause dermatitis.

Germ cell mutagenicity
Test Type: Mutagenicity (mammal cell test): chromosome aberration.
Test system: Chinese hamster ovary cells
Metabolic activation: with and without metabolic activation
Method: OECD Test Guideline 473
Result: negative
Test Type: Ames test
Test system: Salmonella typhimurium
Metabolic activation: with and without metabolic activation

The life science business of Merck KGaA, Darmstadt, Germany
operates as MilliporeSigma in the US and Canada

Method: OECD Test Guideline 471
Result: negative
Test Type: In vitro mammalian cell gene mutation test
Test system: Mouse lymphoma test
Metabolic activation: without metabolic activation
Method: OECD Test Guideline 476
Result: negative

Carcinogenicity

IARC: No ingredient of this product present at levels greater than or equal to 0.1% is identified as probable, possible or confirmed human carcinogen by IARC.

NTP: No ingredient of this product present at levels greater than or equal to 0.1% is identified as a known or anticipated carcinogen by NTP.

OSHA: No component of this product present at levels greater than or equal to 0.1% is on OSHA's list of regulated carcinogens.

Reproductive toxicity
No data available

Specific target organ toxicity - single exposure
Inhalation - May cause drowsiness or dizziness. - Narcotic effects
Remarks: Classified according to Regulation (EU) 1272/2008, Annex VI (Table 3.1/3.2)

Specific target organ toxicity - repeated exposure
No data available

Aspiration hazard
No data available

11.2 Additional Information

RTECS: AL3150000
To the best of our knowledge, the chemical, physical, and toxicological properties have not been thoroughly investigated.

After absorption:

Headache
Salivation
Nausea
Vomiting
Dizziness
narcosis
Coma

Other dangerous properties can not be excluded.

Handle in accordance with good industrial hygiene and safety practice.

Kidney - Irregularities - Based on Human Evidence

Skin - Dermatitis - Based on Human Evidence

Kidney - Irregularities - Based on Human Evidence

The life science business of Merck KGaA, Darmstadt, Germany
operates as MilliporeSigma in the US and Canada

Skin - Dermatitis - Based on Human Evidence

SECTION 12: Ecological information

12.1 Toxicity

Toxicity to fish	flow-through test LC50 - Pimephales promelas (fathead minnow) - 6,210 mg/l - 96 h (OECD Test Guideline 203)
Toxicity to daphnia and other aquatic invertebrates	static test LC50 - Daphnia pulex (Water flea) - 8,800 mg/l - 48 h Remarks: (ECHA)
Toxicity to algae	static test NOEC - M.aeruginosa - 530 mg/l - 8 d (DIN 38412) Remarks: (maximum permissible toxic concentration) (IUCLID)
Toxicity to bacteria	static test EC50 - activated sludge - 61.15 mg/l - 30 min (OECD Test Guideline 209)
Toxicity to daphnia and other aquatic invertebrates(Chronic toxicity)	flow-through test NOEC - Daphnia magna (Water flea) - 2,212 mg/l - 28 d Remarks: (ECHA)

12.2 Persistence and degradability

Biodegradability	aerobic - Exposure time 28 d Result: 91 % - Readily biodegradable. (OECD Test Guideline 301B)
Biochemical Oxygen Demand (BOD)	1,850 mg/g Remarks: (IUCLID)
Chemical Oxygen Demand (COD)	2,070 mg/g Remarks: (IUCLID)
Theoretical oxygen demand	2,200 mg/g Remarks: (Lit.)

12.3 Bioaccumulative potential

Does not bioaccumulate.

12.4 Mobility in soil

No data available

12.5 Results of PBT and vPvB assessment

PBT/vPvB assessment not available as chemical safety assessment not required/not conducted

12.6 Endocrine disrupting properties

No data available

The life science business of Merck KGaA, Darmstadt, Germany
operates as MilliporeSigma in the US and Canada

12.7 Other adverse effects

SECTION 13: Disposal considerations

13.1 Waste treatment methods

Product
Waste material must be disposed of in accordance with the national and local regulations. Leave chemicals in original containers. No mixing with other waste. Handle uncleaned containers like the product itself.

SECTION 14: Transport information

DOT (US)
UN number: 1090 Class: 3 Packing group: II
Proper shipping name: Acetone
Reportable Quantity (RQ): 5000 lbs
Poison Inhalation Hazard: No

IMDG
UN number: 1090 Class: 3 Packing group: II EMS-No: F-E, S-D
Proper shipping name: ACETONE

IATA
UN number: 1090 Class: 3 Packing group: II
Proper shipping name: Acetone

SECTION 15: Regulatory information

CERCLA Reportable Quantity

Components	CAS-No.	Component RQ (lbs)	Calculated product RQ (lbs)
acetone	67-64-1	5000	5000

SARA 304 Extremely Hazardous Substances Reportable Quantity
This material does not contain any components with a section 304 EHS RQ.

SARA 302 Extremely Hazardous Substances Threshold Planning Quantity
This material does not contain any components with a section 302 EHS TPQ.

SARA 311/312 Hazards : Fire Hazard
Acute Health Hazard
Chronic Health Hazard

The life science business of Merck KGaA, Darmstadt, Germany
operates as MilliporeSigma in the US and Canada

SARA 313 : This material does not contain any chemical components with known CAS numbers that exceed the threshold (De Minimis) reporting levels established by SARA Title III, Section 313.

US State Regulations

Massachusetts Right To Know

acetone	67-64-1

Pennsylvania Right To Know

acetone	67-64-1

Maine Chemicals of High Concern

Product does not contain any listed chemicals

Vermont Chemicals of High Concern

Product does not contain any listed chemicals

Washington Chemicals of High Concern

Product does not contain any listed chemicals

The ingredients of this product are reported in the following inventories:

TSCA : All substances listed as active on the TSCA inventory

TSCA list

No substances are subject to a Significant New Use Rule.

No substances are subject to TSCA 12(b) export notification requirements.

SECTION 16: Other information

Further information

The information is believed to be correct but is not exhaustive and will be used solely as a guideline, which is based on current knowledge of the chemical substance or mixture and is applicable to appropriate safety precautions for the product. It does not represent any guarantee of the properties of the product. Sigma-Aldrich Corporation and its Affiliates shall not be held liable for any damage resulting from handling or from contact with the above product. See www.sigma-aldrich.com and/or the reverse side of invoice or packing slip for additional terms and conditions of sale.

Copyright 2020 Sigma-Aldrich Co. LLC. License granted to make unlimited paper copies for internal use only.

The branding on the header and/or footer of this document may temporarily not visually match the product purchased as we transition our branding. However, all of the information in the document regarding the product remains unchanged and matches the product ordered. For further information please contact mlsbranding@sial.com.

Version: 6.11 Revision Date: 09/06/2024 Print Date: 09/07/2024

The life science business of Merck KGaA, Darmstadt, Germany
operates as MilliporeSigma in the US and Canada

SAFETY DATA SHEET

Version 6.7
Revision Date 09/09/2024
Print Date 09/10/2024

SECTION 1: Identification of the substance/mixture and of the company/undertaking

1.1 Product identifiers

Product name : Acetophenone

Product Number : W200910
Brand : Aldrich
Index-No. : 606-042-00-1
CAS-No. : 98-86-2

1.2 Relevant identified uses of the substance or mixture and uses advised against

Identified uses : Laboratory chemicals, Synthesis of substances

Uses advised against : The product is being supplied under the TSCA R&D Exemption (40 CFR Section 720.36). It is the recipient's responsibility to comply with the requirements of the R&D exemption. The product may not be used for a non-exempt commercial purpose under TSCA unless appropriate consent is granted in writing by MilliporeSigma.

1.3 Details of the supplier of the safety data sheet

Company : Sigma-Aldrich Inc.
3050 SPRUCE ST
ST. LOUIS MO 63103
UNITED STATES

Telephone : +1 314 771-5765
Fax : +1 800 325-5052

1.4 Emergency telephone

Emergency Phone # : 800-424-9300 CHEMTREC (USA) +1-703-527-3887 CHEMTREC (International) 24 Hours/day; 7 Days/week

SECTION 2: Hazards identification

2.1 Classification of the substance or mixture

GHS Classification in accordance with 29 CFR 1910 (OSHA HCS)

Flammable liquids (Category 4), H227
Acute toxicity, Oral (Category 4), H302
Eye irritation (Category 2A), H319

The life science business of Merck KGaA, Darmstadt, Germany
operates as MilliporeSigma in the US and Canada

Short-term (acute) aquatic hazard (Category 3), H402

For the full text of the H-Statements mentioned in this Section, see Section 16.

2.2 GHS Label elements, including precautionary statements

Pictogram



Signal Word Warning

Hazard Statements

H227	Combustible liquid.
H302	Harmful if swallowed.
H319	Causes serious eye irritation.
H402	Harmful to aquatic life.

Precautionary Statements

P210	Keep away from heat/ sparks/ open flames/ hot surfaces. No smoking.
P264	Wash skin thoroughly after handling.
P270	Do not eat, drink or smoke when using this product.
P273	Avoid release to the environment.
P280	Wear protective gloves/ eye protection/ face protection.
P301 + P312 + P330	IF SWALLOWED: Call a POISON CENTER/ doctor if you feel unwell. Rinse mouth.
P305 + P351 + P338	IF IN EYES: Rinse cautiously with water for several minutes. Remove contact lenses, if present and easy to do. Continue rinsing.
P337 + P313	If eye irritation persists: Get medical advice/ attention.
P370 + P378	In case of fire: Use dry sand, dry chemical or alcohol-resistant foam to extinguish.
P403 + P235	Store in a well-ventilated place. Keep cool.
P501	Dispose of contents/ container to an approved waste disposal plant.

2.3 Hazards not otherwise classified (HNOC) or not covered by GHS - none

SECTION 3: Composition/information on ingredients

3.1 Substances

Formula	:	C_8H_8O
Molecular weight	:	120.15 g/mol
CAS-No.	:	98-86-2
EC-No.	:	202-708-7
Index-No.	:	606-042-00-1

Component	Classification	Concentration
acetophenone		
	Flam. Liq. 4; Acute Tox. 4; Eye Irrit. 2A; Aquatic Acute 3; H227, H302, H319, H402	<= 100 %

The life science business of Merck KGaA, Darmstadt, Germany
operates as MilliporeSigma in the US and Canada

For the full text of the H-Statements mentioned in this Section, see Section 16.

SECTION 4: First aid measures

4.1 Description of first-aid measures

General advice
Show this material safety data sheet to the doctor in attendance.

If inhaled
After inhalation: fresh air.

In case of skin contact
In case of skin contact: Take off immediately all contaminated clothing. Rinse skin with water/ shower.

In case of eye contact
After eye contact: rinse out with plenty of water. Call in ophthalmologist. Remove contact lenses.

If swallowed
After swallowing: immediately make victim drink water (two glasses at most). Consult a physician.

4.2 Most important symptoms and effects, both acute and delayed
The most important known symptoms and effects are described in the labelling (see section 2.2) and/or in section 11

4.3 Indication of any immediate medical attention and special treatment needed
No data available

SECTION 5: Firefighting measures

5.1 Extinguishing media

Suitable extinguishing media
Water Foam Carbon dioxide (CO2) Dry powder

Unsuitable extinguishing media
For this substance/mixture no limitations of extinguishing agents are given.

5.2 Special hazards arising from the substance or mixture
Carbon oxides
Combustible.
Vapors are heavier than air and may spread along floors.
Forms explosive mixtures with air on intense heating.
Development of hazardous combustion gases or vapours possible in the event of fire.

5.3 Advice for firefighters
In the event of fire, wear self-contained breathing apparatus.

The life science business of Merck KGaA, Darmstadt, Germany
operates as MilliporeSigma in the US and Canada

5.4 Further information

Remove container from danger zone and cool with water. Prevent fire extinguishing water from contaminating surface water or the ground water system.

SECTION 6: Accidental release measures

6.1 Personal precautions, protective equipment and emergency procedures

Advice for non-emergency personnel: Do not breathe vapors, aerosols. Avoid substance contact. Ensure adequate ventilation. Keep away from heat and sources of ignition.
Evacuate the danger area, observe emergency procedures, consult an expert.
For personal protection see section 8.

6.2 Environmental precautions

Do not let product enter drains.

6.3 Methods and materials for containment and cleaning up

Cover drains. Collect, bind, and pump off spills. Observe possible material restrictions (see sections 7 and 10). Take up with liquid-absorbent material (e.g. Chemizorb®).
Dispose of properly. Clean up affected area.

6.4 Reference to other sections

For disposal see section 13.

SECTION 7: Handling and storage

7.1 Precautions for safe handling

Advice on protection against fire and explosion

Keep away from open flames, hot surfaces and sources of ignition.Take precautionary measures against static discharge.

Hygiene measures

Change contaminated clothing. Preventive skin protection recommended. Wash hands after working with substance.
For precautions see section 2.2.

7.2 Conditions for safe storage, including any incompatibilities

Storage conditions

Tightly closed.

Storage class

Storage class (TRGS 510): 10: Combustible liquids

7.3 Specific end use(s)

Apart from the uses mentioned in section 1.2 no other specific uses are stipulated

The life science business of Merck KGaA, Darmstadt, Germany
operates as MilliporeSigma in the US and Canada

SECTION 8: Exposure controls/personal protection

8.1 Control parameters

Ingredients with workplace control parameters

Component	CAS-No.	Value	Control parameters	Basis
acetophenone	98-86-2	TWA	10 ppm	USA. ACGIH Threshold Limit Values (TLV)
		TWA	10 ppm	USA. Workplace Environmental Exposure Levels (WEEL)
		PEL	10 ppm 49 mg/m3	California permissible exposure limits for chemical contaminants (Title 8, Article 107)

8.2 Exposure controls

Appropriate engineering controls
Change contaminated clothing. Preventive skin protection recommended. Wash hands after working with substance.

Personal protective equipment

Eye/face protection
Use equipment for eye protection tested and approved under appropriate government standards such as NIOSH (US) or EN 166(EU). Safety glasses

Skin protection
This recommendation applies only to the product stated in the safety data sheet, supplied by us and for the designated use. When dissolving in or mixing with other substances and under conditions deviating from those stated in EN 16523-1 please contact the supplier of CE-approved gloves (e.g. KCL GmbH, D-36124 Eichenzell, Internet: www.kcl.de).
Full contact
Material: butyl-rubber
Minimum layer thickness: 0.7 mm
Break through time: 480 min
Material tested:Butoject® (KCL 898)

Splash contact
Material: Latex gloves
Minimum layer thickness: 0.6 mm
Break through time: 30 min
Material tested:Lapren® (KCL 706 / Aldrich Z677558, Size M)

Body Protection
protective clothing

Respiratory protection
Recommended Filter type: Filter A-(P2)
The entrepeneur has to ensure that maintenance, cleaning and testing of respiratory protective devices are carried out according to the instructions of the producer. These measures have to be properly documented.
required when vapours/aerosols are generated. Our recommendations on filtering respiratory protection are based on the following standards: DIN EN 143, DIN 14387

The life science business of Merck KGaA, Darmstadt, Germany
operates as MilliporeSigma in the US and Canada

and other accompanying standards relating to the used respiratory protection system.

Control of environmental exposure
Do not let product enter drains.

SECTION 9: Physical and chemical properties

9.1 Information on basic physical and chemical properties

a)	Appearance	Form: clear, liquid Color: colorless
b)	Odor	pleasant
c)	Odor Threshold	0.002 ppm
d)	pH	No data available
e)	Melting point/freezing point	Melting point/freezing point: 20 °C (68 °F)
f)	Initial boiling point and boiling range	202 °C 396 °F at 1,013 hPa
g)	Flash point	82 °C (180 °F) - closed cup - DIN 51758
h)	Evaporation rate	No data available
i)	Flammability (solid, gas)	No data available
j)	Upper/lower flammability or explosive limits	Upper explosion limit: 5.2 %(V) Lower explosion limit: 1.4 %(V)
k)	Vapor pressure	0.45 hPa at 25 °C (77 °F)
l)	Vapor density	4.15 - (Air = 1.0)
m)	Density	1.03 g/cm3 at 25 °C (77 °F)
	Relative density	1.0320 °C
n)	Water solubility	6.3 g/l at 25 °C (77 °F) - soluble
o)	Partition coefficient: n-octanol/water	log Pow: 1.61 at 25 °C (77 °F) - Bioaccumulation is not expected.
p)	Autoignition temperature	535 °C (995 °F) at 1,013 hPa
q)	Decomposition temperature	No data available
r)	Viscosity	No data available
s)	Explosive properties	No data available
t)	Oxidizing properties	none

9.2 Other safety information

Surface tension	39.04 mN/m at 25 °C (77 °F)

The life science business of Merck KGaA, Darmstadt, Germany
operates as MilliporeSigma in the US and Canada

Relative vapor density	4.15 - (Air = 1.0)

SECTION 10: Stability and reactivity

10.1 Reactivity
Forms explosive mixtures with air on intense heating.
A range from approx. 15 Kelvin below the flash point is to be rated as critical.

10.2 Chemical stability
The product is chemically stable under standard ambient conditions (room temperature) .

10.3 Possibility of hazardous reactions
Exothermic reaction with:
Strong oxidizing agents
strong alkalis
strong reducing agents

10.4 Conditions to avoid
Strong heating.

10.5 Incompatible materials
No data available

10.6 Hazardous decomposition products
In the event of fire: see section 5

SECTION 11: Toxicological information

11.1 Information on toxicological effects

Acute toxicity
LD50 Oral - Rat - 815 mg/kg
Remarks: (RTECS)
Inhalation: No data available
LD50 Dermal - Rat - male and female - 3,300 mg/kg
(OECD Test Guideline 402)

Skin corrosion/irritation
Skin - Rabbit
Result: No skin irritation - 24 h
(OECD Test Guideline 404)

Serious eye damage/eye irritation
Eyes - Rabbit
Result: Irritating to eyes.
Remarks: (RTECS)
Remarks: Classified according to Regulation (EU) 1272/2008, Annex VI (Table 3.1/3.2)

Respiratory or skin sensitization
No data available

The life science business of Merck KGaA, Darmstadt, Germany
operates as MilliporeSigma in the US and Canada

Germ cell mutagenicity
Test Type: In vitro mammalian cell gene mutation test
Test system: mouse lymphoma cells
Metabolic activation: with and without metabolic activation
Method: OECD Test Guideline 476
Result: negative
Test Type: Ames test
Test system: Salmonella typhimurium
Metabolic activation: with and without metabolic activation
Method: OECD Test Guideline 471
Result: negative
Test Type: Mutagenicity (mammal cell test): chromosome aberration.
Test system: Chinese hamster lung cells
Metabolic activation: Metabolic activation
Method: OECD Test Guideline 473
Result: positive
Test Type: Mutagenicity (mammal cell test): chromosome aberration.
Test system: Chinese hamster lung cells
Metabolic activation: without metabolic activation
Method: OECD Test Guideline 473
Result: negative

Test Type: Micronucleus test
Species: Mouse
Cell type: Red blood cells (erythrocytes)
Application Route: Intraperitoneal injection
Method: OECD Test Guideline 474
Result: negative

Carcinogenicity

IARC: No ingredient of this product present at levels greater than or equal to 0.1% is identified as probable, possible or confirmed human carcinogen by IARC.

NTP: No ingredient of this product present at levels greater than or equal to 0.1% is identified as a known or anticipated carcinogen by NTP.

OSHA: No component of this product present at levels greater than or equal to 0.1% is on OSHA's list of regulated carcinogens.

Reproductive toxicity
No data available

Specific target organ toxicity - single exposure
No data available

Specific target organ toxicity - repeated exposure
No data available

Aspiration hazard
No data available

11.2 Additional Information

Repeated dose toxicity - Rat - male and female - Oral - 90 Days - NOAEL (No observed adverse effect level) - 250 mg/kg

The life science business of Merck KGaA, Darmstadt, Germany
operates as MilliporeSigma in the US and Canada

To the best of our knowledge, the chemical, physical, and toxicological properties have not been thoroughly investigated.

Other dangerous properties can not be excluded.

Handle in accordance with good industrial hygiene and safety practice.

SECTION 12: Ecological information

12.1 Toxicity

Toxicity to fish	flow-through test LC50 - Pimephales promelas (fathead minnow) - 162 mg/l - 96 h (OECD Test Guideline 203)
Toxicity to daphnia and other aquatic invertebrates	static test LC50 - Daphnia magna (Water flea) - 528 mg/l - 48 h Remarks: (ECHA)
Toxicity to algae	static test ErC50 - Pseudokirchneriella subcapitata (green algae) - 86.4 mg/l - 72 h (OECD Test Guideline 201)
Toxicity to bacteria	static test IC50 - activated sludge - > 1,000 mg/l - 3 h (OECD Test Guideline 209)

12.2 Persistence and degradability

Biodegradability	aerobic - Exposure time 14 d Result: 64.7 % - Readily biodegradable. (OECD Test Guideline 301C)

12.3 Bioaccumulative potential

No data available

12.4 Mobility in soil

No data available

12.5 Results of PBT and vPvB assessment

PBT/vPvB assessment not available as chemical safety assessment not required/not conducted

12.6 Endocrine disrupting properties

No data available

12.7 Other adverse effects

Discharge into the environment must be avoided.

Stability in water	- 56 d Remarks: reaction with hydroxyl radicals

The life science business of Merck KGaA, Darmstadt, Germany
operates as MilliporeSigma in the US and Canada

SECTION 13: Disposal considerations

13.1 Waste treatment methods

Product
Waste material must be disposed of in accordance with the national and local regulations. Leave chemicals in original containers. No mixing with other waste. Handle uncleaned containers like the product itself.

SECTION 14: Transport information

DOT (US)
Not dangerous goods

IMDG
Not dangerous goods

IATA
UN number: 3334 Class: 9 Packing group: III
Proper shipping name: Aviation regulated liquid, n.o.s. (acetophenone)

SECTION 15: Regulatory information

CERCLA Reportable Quantity

Components	CAS-No.	Component RQ (lbs)	Calculated product RQ (lbs)
acetophenone	98-86-2	5000	5000

SARA 304 Extremely Hazardous Substances Reportable Quantity
This material does not contain any components with a section 304 EHS RQ.

SARA 302 Extremely Hazardous Substances Threshold Planning Quantity
This material does not contain any components with a section 302 EHS TPQ.

SARA 311/312 Hazards : Fire Hazard
Acute Health Hazard

SARA 313 : The following components are subject to reporting levels established by SARA Title III, Section 313:

acetophenone 98-86-2 >= 90 - <= 100 %

US State Regulations

Massachusetts Right To Know
acetophenone 98-86-2

Pennsylvania Right To Know
acetophenone 98-86-2

Maine Chemicals of High Concern

The life science business of Merck KGaA, Darmstadt, Germany
operates as MilliporeSigma in the US and Canada

Product does not contain any listed chemicals

Vermont Chemicals of High Concern

Product does not contain any listed chemicals

Washington Chemicals of High Concern

Product does not contain any listed chemicals

The ingredients of this product are reported in the following inventories:

TSCA : All substances listed as active on the TSCA inventory

TSCA list

No substances are subject to a Significant New Use Rule.

No substances are subject to TSCA 12(b) export notification requirements.

SECTION 16: Other information

Further information

The information is believed to be correct but is not exhaustive and will be used solely as a guideline, which is based on current knowledge of the chemical substance or mixture and is applicable to appropriate safety precautions for the product. It does not represent any guarantee of the properties of the product. Sigma-Aldrich Corporation and its Affiliates shall not be held liable for any damage resulting from handling or from contact with the above product. See www.sigma-aldrich.com and/or the reverse side of invoice or packing slip for additional terms and conditions of sale.

Copyright 2020 Sigma-Aldrich Co. LLC. License granted to make unlimited paper copies for internal use only.

The branding on the header and/or footer of this document may temporarily not visually match the product purchased as we transition our branding. However, all of the information in the document regarding the product remains unchanged and matches the product ordered. For further information please contact mlsbranding@sial.com.

Version: 6.7 Revision Date: 09/09/2024 Print Date: 09/10/2024

The life science business of Merck KGaA, Darmstadt, Germany
operates as MilliporeSigma in the US and Canada

Safety Data Sheet

Revision Date: 10/21/14
www.restek.com

1. IDENTIFICATION

Catalog Number / Product Name:	**32205, 32205-5XX, & 32305 / Aldrin Standard**
Company:	Restek Corporation
Address:	110 Benner Circle Bellefonte, Pa. 16823
Phone#:	814-353-1300
Fax#:	814-353-1309
Emergency#:	800-424-9300 (CHEMTREC) 703-527-3887 (Outside the US)
Email:	sds@restek.com
Revision Number:	5
Intended use:	For Laboratory use only

2. HAZARD(S)IDENTIFICATION

Emergency Overview:

GHS Hazard Symbols:



GHS Classification:

Specific Target Organ Systemic Toxicity (STOT) - Single Exposure Category 1
Flammable Liquid Category 2
Acute Toxicity - Inhalation Dust / Mist Category 3
Acute Toxicity - Inhalation Vapour Category 3
Acute Toxicity - Inhalation Gas Category 3
Acute Toxicity - Dermal Category 3
Acute Toxicity - Oral Category 3

GHS Signal Word:

Danger

GHS Hazard:

Highly flammable liquid and vapour.
Toxic if swallowed, in contact with skin or if inhaled.
Toxic if inhaled.
Causes damage to organs.

GHS Precautions:

Safety Precautions:

Keep away from heat/sparks/open flames/hot surfaces. – No smoking.
Ground/bond container and receiving equipment.
Use explosion-proof electrical/ventilation and lighting equipment.
Use only non-sparking tools.
Take precautionary measures against static discharge.
Do not breathe dust/fume/gas/mist/vapours/spray.
Wash hands and skin thoroughly after handling.
Do no eat, drink or smoke when using this product.
Use only outdoors or in a well-ventilated area.
Wear protective gloves/protective clothing/eye protection/face protection.

First Aid Measures:

IF SWALLOWED: Immediately call a POISON CENTER/doctor/....
IF ON SKIN: Wash with plenty of soap and water.
IF ON SKIN (or hair): Remove/Take off immediately all contaminated clothing. Rinse skin with water/shower.
IF INHALED: Remove victim to fresh air and keep at rest in a position comfortable for breathing.
IF exposed: Call a POISON CENTER or doctor/physician.
Call a POISON CENTER or doctor/physician if you feel unwell.
Specific treatment see section 4.

	Specific measures see section 4. Rinse mouth. Remove/Take off immediately all contaminated clothing. Wash contaminated clothing before reuse. In case of fire: Use extinguishing media in section 5 for extinction.
Storage:	Store in a well-ventilated place. Keep container tightly closed. Store in a well-ventilated place. Keep cool. Store locked up.
Disposal:	Dispose of contents/container according to section 13 of the SDS.
Single Exposure Target Organs:	No data available.
Repeated Exposure Target Organs:	No data available.

3. COMPOSITION / INFORMATION ON INGREDIENTS

Chemical Name	CAS #	EINEC #	% Composition
methanol	67-56-1	200-659-6	99.900000
aldrin	309-00-2	206-215-8	0.100000

4. FIRST-AID MEASURES

Inhalation:	Remove to fresh air. If breathing is difficult, have a trained individual administer oxygen. If not breathing, give artificial respiration and have a trained individual administer oxygen. Get medical attention immediately
Eyes:	Flush eyes with plenty of water for at least 20 minutes retracting eyelids often. Tilt the head to prevent chemical from transferring to the uncontaminated eye. Get immediate medical attention.
Skin Contact:	Wash with soap and water. Remove contaminated clothing and launder. Get medical attention if irritation develops or persists.
Ingestion:	Do not induce vomiting and seek medical attention immediately. Drink two glasses of water or milk to dilute. Provide medical care provider with this SDS.

5. FIRE- FIGHTING MEASURES

Extinguishing Media:	Use alcohol resistant foam, carbon dioxide, or dry chemical extinguishing agents. Water may be ineffective but water spray can be used extinguish a fire if swept across the base of the flames. Water can absorb heat and keep exposed material from being damaged by fire.
Fire and/or Explosion Hazards:	Vapors may be ignited by sparks, flames or other sources of ignition if material is above the flash point giving rise to a fire (Class B). Vapors are heavier than air and may travel to a source of ignition and flash back.
Fire Fighting Methods and Protection:	Do not enter fire area without proper protection including self-contained breathing apparatus and full protective equipment. Fight fire from a safe distance and a protected location due to the potential of hazardous vapors and decomposition products. Flammable component(s) of this material may be lighter than water and burn while floating on the surface.
Hazardous Combustion Products:	Carbon dioxide, Carbon monoxide

6. ACCIDENTAL RELEASE MEASURES

Personal Precautions and Equipment:	Exposure to the spilled material may be severely irritating or toxic. Follow personal protective equipment recommendations found in Section 8 of this SDS. Personal protective equipment needs must be evaluated based on information provided on this sheet and the special circumstances created by the spill including; the material spilled, the quantity of the spill, the area in which the spill occurred, and the expertise of employees in the area responding to the spill. Never exceed any occupational exposure limits.
Methods for Clean-up:	Prevent the spread of any spill to minimize harm to human health and the environment if safe to do so. Wear complete and proper personal

protective equipment following the recommendation of Section 8 at a minimum. Dike with suitable absorbent material like granulated clay. Gather and store in a sealed container pending a waste disposal evaluation.

7. HANDLING AND STORAGE

Handling Technical Measures and Precautions: Toxic or severely irritating material. Avoid contacting and avoid breathing the material. Use only in a well ventilated area. Use spark-proof tools and explosion-proof equipment

Storage Technical Measures and Conditions: Store in a cool dry ventilated location. Isolate from incompatible materials and conditions. Keep container(s) closed. Keep away from sources of ignition

8. EXPOSURE CONTROLS / PERSONAL PROTECTION

United States:

Chemical Name	CAS No.	IDLH	ACGIH STEL	ACGIH TLV-TWA	OSHA Exposure Limit
methanol	67-56-1	6000 ppm IDLH	250 ppm STEL	200 ppm TWA	200 ppm TWA; 260 mg/m3 TWA
aldrin	309-00-2	ND		0.05 mg/m3 TWA (inhalable fraction and vapor)	0.25 mg/m3 TWA

Personal Protection:

Engineering Measures: Local exhaust ventilation is recommended when generating excessive levels of vapors from handling or thermal processing.

Respiratory Protection: Respiratory protection may be required to avoid overexposure when handling this product. General or local exhaust ventilation is the preferred means of protection. Use a respirator if general room ventilation is not available or sufficient to eliminate symptoms.If an exposure limit is exceeded or if an operator is experiencing symptoms of inhalation overexposure as explained in Section 3, provide respiratory protection.

Eye Protection: Wear chemically resistant safety glasses with side shields when handling this product. Do not wear contact lenses.

Skin Protection: Wear protective gloves. Inspect gloves for chemical break-through and replace at regular intervals. Clean protective equipment regularly. Wash hands and other exposed areas with mild soap and water before eating, drinking, and when leaving work

9. PHYSICAL AND CHEMICAL PROPERTIES

Appearance, color:	No data available.
Odor:	Mild
Physical State:	No data available.
pH:	No data available
Vapor Density:	1.1 (air = 1)
Melting Point:	-98 °C
Flash Point:	52
Flammability:	Highly Flammable
Upper Flammable/Explosive Limit, % in air:	36.0
Lower Flammable/Explosive Limit, % in air:	6.0
Autoignition Temperature:	464 deg C
Decomposition Temperature:	No data available.
Specific Gravity:	0.791 - 0.792 g/cm3 at 20 °C
Evaporation Rate:	No data available.
Odor Threshold:	No data available.
Solubility:	Moderate; 50-99%
Partition Coefficient: n-octanol in water:	No data available.
VOC % by weight:	99.90
Molecular Weight:	32.04

10. STABILITY AND REACTIVITY

Stability:	Stable under normal conditions.
Conditions to Avoid:	No data available.
Materials to Avoid / Chemical Incompatiability:	Strong oxidizing agents
Hazardous Decomposition Products:	Carbon dioxide Carbon monoxide

11. TOXICOLOGICAL INFORMATION

Routes of Entry: Inhalation, Skin Contact, Eye Contact, Ingestion

Target Organs Potentially Affected By Exposure: Eyes, Central nervous system stimulation, Skin, GI Tract, Respiratory Tract

Chemical Interactions That Change Toxicity: None Known

Immediate (Acute) Health Effects by Route of Exposure:

Inhalation Irritation: Can cause moderate respiratory irritation, dizziness, weakness, fatigue, nausea and headache.

Inhalation Toxicity: Harmful! Can cause systemic damage (see "Target Organs)Methanol can cause central nervous system depression and overexposure can cause damage to the optic nerve resulting in visual impairment or blindness.

Skin Contact: Can cause moderate skin irritation, defatting, and dermatitis. Not likely to cause permanent damage.

Eye Contact: Can cause moderate irritation, tearing and reddening, but not likely to permanently injure eye tissue.

Ingestion Irritation: Irritating to mouth, throat, and stomach. Can cause abdominal discomfort, nausea, vomiting and diarrhea.Highly toxic and may be fatal if swallowed.

Ingestion Toxicity: Toxic if swallowed. May cause target organ failure and/or death.May be fatal if swallowed.

Long-Term (Chronic) Health Effects:

Carcinogenicity: Contains a probable or known human carcinogen.

Reproductive and Developmental Toxicity: Contains a known human reproductive and/or developmental hazard.

Inhalation: Upon prolonged and/or repeated exposure, can cause moderate respiratory irritation, dizziness, weakness, fatigue, nausea and headache.Harmful! Can cause systemic damage upon prolonged and/or repeated exposure (see "Target Organs)

Skin Contact: Upon prolonged or repeated contact, can cause moderate skin irritation, defatting, and dermatitis. Not likely to cause permanent damage.

Ingestion: Toxic if swallowed. May cause target organ failure and/or death.

Component Toxicological Data:

NIOSH:

Chemical Name	CAS No.	LD50/LC50
Methanol	67-56-1	Oral LD50 Rat 5628 mg/kg (Source: NLM_CIP); Inhalation LC50 Rat 83.2 mg/L 4 h (Source: IUCLID)

Component Carcinogenic Data:

OSHA:

Chemical Name	CAS No.
No data available.	

ACGIH:

Chemical Name	CAS No.
No data available.	

NIOSH:

Chemical Name	CAS No.
No data available.	

NTP:

Chemical Name	CAS No.
No data available.	

IARC:

Chemical Name	CAS No.	Group No.
No data.		Group 1
No data.		Group 2A
No data.		Group 2B

12. ECOLOGICAL INFORMATION

Overview: Moderate ecological hazard. This product may be dangerous

to plants and/or wildlife.

Mobility: No data
Persistence: No data
Bioaccumulation: No data
Degradability: Biodegrades slowly.
Ecological Toxicity Data: No data available.

13. DISPOSAL CONSIDERATIONS

Waste Description of Spent Product: Spent or discarded material is a hazardous waste.
Disposal Methods: Dispose of by incineration following Federal, State, Local, or Provincial regulations.
Waste Disposal of Packaging: Comply with all Local, State, Federal, and Provincial Environmental Regulations.

14. TRANSPORTATION INFORMATION

United States:
DOT Proper Shipping Name: Methanol
UN Number: UN1230
Hazard Class: 3
Packing Group: II

International:
IATA Proper Shipping Name: Methanol
UN Number: UN1230
Hazard Class: 3 (6.1)
Packing Group: II

Marine Pollutant: No

15. REGULATORY INFORMATION

United States:

Chemical Name	CAS#	CERCLA	SARA 313	SARA EHS 313	TSCA
methanol	67-56-1	X	X	-	X
aldrin	309-00-2	X	X	X	-

The following chemicals are listed on CA Prop 65:

Chemical Name	CAS #	Regulation
Aldrin	309-00-2	Prop 65 Cancer
Methanol	67-56-1	Prop 65 Devolop Tox

State Right To Know Listing:

Chemical Name	CAS#	New Jersey	Massachusetts	Pennsylvania	California
methanol	67-56-1	X	X	X	X
aldrin	309-00-2	X	X	X	X

16. OTHER INFORMATION

Prior Version Date: 03/23/11
Disclaimer: Restek Corporation provides the descriptions, data and information contained herein in good faith but makes no representation as to its comprehensiveness or accuracy. It is provided for your guidance only. Because many factors may affect processing or application/use, Restek Corporation recommends you perform an assessment to determine the suitability of a product for your particular purpose prior to use. No warranties of any kind, either expressed or implied, including fitness for a particular purpose, are made regarding prodcuts described, data or information set forth. In no case shall the descriptions, information, or data provided be considered a part of our terms and conditions of sale. Further, the descriptions, data and information furnished hereunder are given gratis. No obligation or liability for the description, data and information given are assumed. All such being given and accepted at your risk.

SAFETY DATA SHEET

Version 5.8
Revision Date 06/02/2016
Print Date 08/02/2019

1. PRODUCT AND COMPANY IDENTIFICATION

1.1 Product identifiers

Product name : α-BHC

Product Number : 48493
Brand : Supelco
Index-No. : 602-042-00-0

CAS-No. : 319-84-6

1.2 Relevant identified uses of the substance or mixture and uses advised against

Identified uses : Laboratory chemicals, Synthesis of substances

1.3 Details of the supplier of the safety data sheet

Company : Sigma-Aldrich
3050 Spruce Street
SAINT LOUIS MO 63103
USA

Telephone : +1 800-325-5832
Fax : +1 800-325-5052

1.4 Emergency telephone number

Emergency Phone # : +1-703-527-3887 (CHEMTREC)

2. HAZARDS IDENTIFICATION

2.1 Classification of the substance or mixture

GHS Classification in accordance with 29 CFR 1910 (OSHA HCS)
Acute toxicity, Oral (Category 3), H301
Acute toxicity, Dermal (Category 4), H312
Carcinogenicity (Category 2), H351
Acute aquatic toxicity (Category 1), H400
Chronic aquatic toxicity (Category 1), H410

For the full text of the H-Statements mentioned in this Section, see Section 16.

2.2 GHS Label elements, including precautionary statements

Pictogram



Signal word Danger

Hazard statement(s)
H301 Toxic if swallowed.
H312 Harmful in contact with skin.
H351 Suspected of causing cancer.
H410 Very toxic to aquatic life with long lasting effects.

Precautionary statement(s)
P201 Obtain special instructions before use.
P202 Do not handle until all safety precautions have been read and understood.

P264	Wash skin thoroughly after handling.
P270	Do not eat, drink or smoke when using this product.
P273	Avoid release to the environment.
P280	Wear protective gloves/ protective clothing.
P281	Use personal protective equipment as required.
P301 + P310 + P330	IF SWALLOWED: Immediately call a POISON CENTER/doctor. Rinse mouth.
P302 + P352 + P312	IF ON SKIN: Wash with plenty of soap and water. Call a POISON CENTER or doctor/ physician if you feel unwell.
P308 + P313	IF exposed or concerned: Get medical advice/ attention.
P363	Wash contaminated clothing before reuse.
P391	Collect spillage.
P405	Store locked up.
P501	Dispose of contents/ container to an approved waste disposal plant.

2.3 Hazards not otherwise classified (HNOC) or not covered by GHS - none

3. COMPOSITION/INFORMATION ON INGREDIENTS

3.1 Substances

Synonyms	:	α-1,2,3,4,5,6-Hexachlorocyclohexane
Formula	:	C6H6Cl6
Molecular weight	:	290.83 g/mol
CAS-No.	:	319-84-6
EC-No.	:	206-270-8
Index-No.	:	602-042-00-0

Hazardous components

Component	Classification	Concentration
(1α,2α,3β,4α,5β,6β)-1,2,3,4,5,6-Hexachlorocyclohexane		
	Acute Tox. 3; Acute Tox. 4; Carc. 2; Aquatic Acute 1; Aquatic Chronic 1; H301, H312, H351, H410	<= 100 %

For the full text of the H-Statements mentioned in this Section, see Section 16.

4. FIRST AID MEASURES

4.1 Description of first aid measures

General advice
Consult a physician. Show this safety data sheet to the doctor in attendance.Move out of dangerous area.

If inhaled
If breathed in, move person into fresh air. If not breathing, give artificial respiration. Consult a physician.

In case of skin contact
Wash off with soap and plenty of water. Take victim immediately to hospital. Consult a physician.

In case of eye contact
Flush eyes with water as a precaution.

If swallowed
Never give anything by mouth to an unconscious person. Rinse mouth with water. Consult a physician.

4.2 Most important symptoms and effects, both acute and delayed
The most important known symptoms and effects are described in the labelling (see section 2.2) and/or in section 11

4.3 Indication of any immediate medical attention and special treatment needed
No data available

5. FIREFIGHTING MEASURES

5.1 Extinguishing media

Suitable extinguishing media
Use water spray, alcohol-resistant foam, dry chemical or carbon dioxide.

5.2 Special hazards arising from the substance or mixture
No data available

5.3 Advice for firefighters
Wear self-contained breathing apparatus for firefighting if necessary.

5.4 Further information
No data available

6. ACCIDENTAL RELEASE MEASURES

6.1 Personal precautions, protective equipment and emergency procedures
Wear respiratory protection. Avoid dust formation. Avoid breathing vapours, mist or gas. Ensure adequate ventilation. Evacuate personnel to safe areas. Avoid breathing dust.
For personal protection see section 8.

6.2 Environmental precautions
Prevent further leakage or spillage if safe to do so. Do not let product enter drains. Discharge into the environment must be avoided.

6.3 Methods and materials for containment and cleaning up
Pick up and arrange disposal without creating dust. Sweep up and shovel. Keep in suitable, closed containers for disposal.

6.4 Reference to other sections
For disposal see section 13.

7. HANDLING AND STORAGE

7.1 Precautions for safe handling
Avoid contact with skin and eyes. Avoid formation of dust and aerosols.Further processing of solid materials may result in the formation of combustible dusts. The potential for combustible dust formation should be taken into consideration before additional processing occurs.
Provide appropriate exhaust ventilation at places where dust is formed.
For precautions see section 2.2.

7.2 Conditions for safe storage, including any incompatibilities
Keep container tightly closed in a dry and well-ventilated place.
Storage class (TRGS 510): Non-combustible, acute toxic Cat.3 / toxic hazardous materials or hazardous materials causing chronic effects

7.3 Specific end use(s)
Apart from the uses mentioned in section 1.2 no other specific uses are stipulated

8. EXPOSURE CONTROLS/PERSONAL PROTECTION

8.1 Control parameters

Components with workplace control parameters
Contains no substances with occupational exposure limit values.

8.2 Exposure controls

Appropriate engineering controls
Avoid contact with skin, eyes and clothing. Wash hands before breaks and immediately after handling the product.

Personal protective equipment

Eye/face protection
Face shield and safety glasses Use equipment for eye protection tested and approved under appropriate government standards such as NIOSH (US) or EN 166(EU).

Skin protection
Handle with gloves. Gloves must be inspected prior to use. Use proper glove removal technique (without touching glove's outer surface) to avoid skin contact with this product. Dispose of contaminated gloves after use in accordance with applicable laws and good laboratory practices. Wash and dry hands.

Body Protection
Complete suit protecting against chemicals, The type of protective equipment must be selected according to the concentration and amount of the dangerous substance at the specific workplace.

Respiratory protection
Where risk assessment shows air-purifying respirators are appropriate use a full-face particle respirator type N100 (US) or type P3 (EN 143) respirator cartridges as a backup to engineering controls. If the respirator is the sole means of protection, use a full-face supplied air respirator. Use respirators and components tested and approved under appropriate government standards such as NIOSH (US) or CEN (EU).

Control of environmental exposure
Prevent further leakage or spillage if safe to do so. Do not let product enter drains. Discharge into the environment must be avoided.

9. PHYSICAL AND CHEMICAL PROPERTIES

9.1 Information on basic physical and chemical properties

a)	Appearance	Form: solid
b)	Odour	No data available
c)	Odour Threshold	No data available
d)	pH	No data available
e)	Melting point/freezing point	156.0 - 161.0 °C (312.8 - 321.8 °F)
f)	Initial boiling point and boiling range	No data available
g)	Flash point	No data available
h)	Evaporation rate	No data available
i)	Flammability (solid, gas)	No data available
j)	Upper/lower flammability or explosive limits	No data available
k)	Vapour pressure	No data available
l)	Vapour density	No data available
m)	Relative density	No data available
n)	Water solubility	No data available
o)	Partition coefficient: n-octanol/water	log Pow: 3.80
p)	Auto-ignition temperature	No data available
q)	Decomposition temperature	No data available
r)	Viscosity	No data available
s)	Explosive properties	No data available
t)	Oxidizing properties	No data available

9.2 Other safety information
No data available

10. STABILITY AND REACTIVITY

10.1 Reactivity
No data available

10.2 Chemical stability
Stable under recommended storage conditions.

10.3 Possibility of hazardous reactions
No data available

10.4 Conditions to avoid
No data available

10.5 Incompatible materials
Strong oxidizing agents

10.6 Hazardous decomposition products
Hazardous decomposition products formed under fire conditions. - Carbon oxides, Hydrogen chloride gas
Other decomposition products - No data available
In the event of fire: see section 5

11. TOXICOLOGICAL INFORMATION

11.1 Information on toxicological effects

Acute toxicity
LD50 Oral - Rat - 177.0 mg/kg

Inhalation: No data available

Dermal: No data available

No data available

Skin corrosion/irritation
No data available

Serious eye damage/eye irritation
No data available

Respiratory or skin sensitisation
No data available

Germ cell mutagenicity
No data available

Carcinogenicity

This product is or contains a component that has been reported to be possibly carcinogenic based on its IARC, ACGIH, NTP, or EPA classification.

Limited evidence of carcinogenicity in animal studies

IARC:	2B - Group 2B: Possibly carcinogenic to humans ((1α,2α,3β,4α,5β,6β)-1,2,3,4,5,6-Hexachlorocyclohexane)
IARC:	2B - Group 2B: Possibly carcinogenic to humans ((1α,2α,3β,4α,5β,6β)-1,2,3,4,5,6-Hexachlorocyclohexane)
ACGIH:	No component of this product present at levels greater than or equal to 0.1% is identified as a carcinogen or potential carcinogen by ACGIH.
NTP:	Reasonably anticipated to be a human carcinogen ((1α,2α,3β,4α,5β,6β)-1,2,3,4,5,6-Hexachlorocyclohexane)
NTP:	Reasonably anticipated to be a human carcinogen ((1α,2α,3β,4α,5β,6β)-1,2,3,4,5,6-Hexachlorocyclohexane)

OSHA: No component of this product present at levels greater than or equal to 0.1% is identified as a carcinogen or potential carcinogen by OSHA.

No component of this product present at levels greater than or equal to 0.1% is identified as a carcinogen or potential carcinogen by OSHA.

Reproductive toxicity
No data available

No data available

Specific target organ toxicity - single exposure
No data available

Specific target organ toxicity - repeated exposure
No data available

Aspiration hazard
No data available

Additional Information
RTECS: GV3500000

To the best of our knowledge, the chemical, physical, and toxicological properties have not been thoroughly investigated.

12. ECOLOGICAL INFORMATION

12.1 Toxicity

Toxicity to fish	LC50 - Carassius auratus (goldfish) - 0.12 mg/l - 48.0 h
	LC50 - Cyprinus carpio (Carp) - 0.2 mg/l - 48.0 h
	LC50 - other fish - 1.49 mg/l - 96.0 h
Toxicity to daphnia and other aquatic invertebrates	EC50 - Daphnia magna (Water flea) - 0.20 - 1.70 mg/l - 48 h
Toxicity to algae	EC50 - No information available. - > 100.00 mg/l - 48 h

12.2 Persistence and degradability
No data available

12.3 Bioaccumulative potential
Bioaccumulation: other fish - 96 h
- 0.8 mg/l

Bioconcentration factor (BCF): 250

12.4 Mobility in soil
No data available

12.5 Results of PBT and vPvB assessment
PBT/vPvB assessment not available as chemical safety assessment not required/not conducted

12.6 Other adverse effects
An environmental hazard cannot be excluded in the event of unprofessional handling or disposal.
Very toxic to aquatic life with long lasting effects.

13. DISPOSAL CONSIDERATIONS

13.1 Waste treatment methods

Product
Offer surplus and non-recyclable solutions to a licensed disposal company. Contact a licensed professional waste disposal service to dispose of this material. Dissolve or mix the material with a combustible solvent and burn in a chemical incinerator equipped with an afterburner and scrubber.

Contaminated packaging
Dispose of as unused product.

14. TRANSPORT INFORMATION

DOT (US)
UN number: 2811 Class: 6.1 Packing group: III
Proper shipping name: Toxic solids, organic, n.o.s. ((1α,2α,3β,4α,5β,6β)-1,2,3,4,5,6-Hexachlorocyclohexane)
Reportable Quantity (RQ): 10 lbs
Marine pollutant:yes
Poison Inhalation Hazard: No

IMDG
UN number: 2811 Class: 6.1 Packing group: III EMS-No: F-A, S-A
Proper shipping name: TOXIC SOLID, ORGANIC, N.O.S. ((1α,2α,3β,4α,5β,6β)-1,2,3,4,5,6-Hexachlorocyclohexane)

IATA
UN number: 2811 Class: 6.1 Packing group: III
Proper shipping name: Toxic solid, organic, n.o.s. ((1α,2α,3β,4α,5β,6β)-1,2,3,4,5,6-Hexachlorocyclohexane)

15. REGULATORY INFORMATION

SARA 302 Components
No chemicals in this material are subject to the reporting requirements of SARA Title III, Section 302.

SARA 313 Components
The following components are subject to reporting levels established by SARA Title III, Section 313:

	CAS-No.	Revision Date
(1α,2α,3β,4α,5β,6β)-1,2,3,4,5,6-Hexachlorocyclohexane	319-84-6	2007-07-01

SARA 311/312 Hazards
Acute Health Hazard, Chronic Health Hazard

Massachusetts Right To Know Components

	CAS-No.	Revision Date
(1α,2α,3β,4α,5β,6β)-1,2,3,4,5,6-Hexachlorocyclohexane	319-84-6	2007-07-01

Pennsylvania Right To Know Components

	CAS-No.	Revision Date
(1α,2α,3β,4α,5β,6β)-1,2,3,4,5,6-Hexachlorocyclohexane	319-84-6	2007-07-01

New Jersey Right To Know Components

	CAS-No.	Revision Date
(1α,2α,3β,4α,5β,6β)-1,2,3,4,5,6-Hexachlorocyclohexane	319-84-6	2007-07-01

California Prop. 65 Components

	CAS-No.	Revision Date
WARNING! This product contains a chemical known to the State of California to cause cancer. (1α,2α,3β,4α,5β,6β)-1,2,3,4,5,6-Hexachlorocyclohexane	319-84-6	2009-02-01
WARNING! This product contains a chemical known to the State of California to cause cancer. (1α,2α,3β,4α,5β,6β)-1,2,3,4,5,6-Hexachlorocyclohexane	319-84-6	2009-02-01

16. OTHER INFORMATION

Full text of H-Statements referred to under sections 2 and 3.

Acute Tox.	Acute toxicity
Aquatic Acute	Acute aquatic toxicity
Aquatic Chronic	Chronic aquatic toxicity

Carc.	Carcinogenicity
H301	Toxic if swallowed.
H312	Harmful in contact with skin.
H351	Suspected of causing cancer.
H400	Very toxic to aquatic life.
H410	Very toxic to aquatic life with long lasting effects.

HMIS Rating

Health hazard:	2
Chronic Health Hazard:	*
Flammability:	0
Physical Hazard	0

NFPA Rating

Health hazard:	2
Fire Hazard:	0
Reactivity Hazard:	0
Health hazard:	1
Fire Hazard:	0
Reactivity Hazard:	0

Further information

Copyright 2016 Sigma-Aldrich Co. LLC. License granted to make unlimited paper copies for internal use only.
The above information is believed to be correct but does not purport to be all inclusive and shall be used only as a guide. The information in this document is based on the present state of our knowledge and is applicable to the product with regard to appropriate safety precautions. It does not represent any guarantee of the properties of the product. Sigma-Aldrich Corporation and its Affiliates shall not be held liable for any damage resulting from handling or from contact with the above product. See www.sigma-aldrich.com and/or the reverse side of invoice or packing slip for additional terms and conditions of sale.

Preparation Information

Sigma-Aldrich Corporation
Product Safety – Americas Region
1-800-521-8956

Version: 5.8 Revision Date: 06/02/2016 Print Date: 08/02/2019

SAFETY DATA SHEET

Version 4.10
Revision Date 03/13/2018
Print Date 06/28/2019

1. PRODUCT AND COMPANY IDENTIFICATION

1.1 Product identifiers

Product name : Endosulfan I (alpha)

Product Number : 48576
Brand : Supelco

CAS-No. : 959-98-8

1.2 Relevant identified uses of the substance or mixture and uses advised against

Identified uses : Laboratory chemicals, Synthesis of substances

1.3 Details of the supplier of the safety data sheet

Company : Sigma-Aldrich
3050 Spruce Street
SAINT LOUIS MO 63103
USA

Telephone : +1 800-325-5832
Fax : +1 800-325-5052

1.4 Emergency telephone number

Emergency Phone # : +1-703-527-3887 (CHEMTREC)

2. HAZARDS IDENTIFICATION

2.1 Classification of the substance or mixture

GHS Classification in accordance with 29 CFR 1910 (OSHA HCS)
Acute toxicity, Oral (Category 2), H300
Acute toxicity, Inhalation (Category 2), H330
Acute toxicity, Dermal (Category 4), H312
Acute aquatic toxicity (Category 1), H400
Chronic aquatic toxicity (Category 1), H410

For the full text of the H-Statements mentioned in this Section, see Section 16.

2.2 GHS Label elements, including precautionary statements

Pictogram



Signal word Danger

Hazard statement(s)

H300 + H330	Fatal if swallowed or if inhaled.
H312	Harmful in contact with skin.
H410	Very toxic to aquatic life with long lasting effects.

Precautionary statement(s)

P260	Do not breathe dust/ fume/ gas/ mist/ vapours/ spray.
P264	Wash skin thoroughly after handling.
P270	Do not eat, drink or smoke when using this product.
P271	Use only outdoors or in a well-ventilated area.
P273	Avoid release to the environment.
P280	Wear protective gloves/ protective clothing.

P284	Wear respiratory protection.
P301 + P310 + P330	IF SWALLOWED: Immediately call a POISON CENTER/doctor. Rinse mouth.
P302 + P352 + P312	IF ON SKIN: Wash with plenty of water.Call a POISON CENTER/doctor if you feel unwell.
P304 + P340 + P310	IF INHALED: Remove person to fresh air and keep comfortable for breathing. Immediately call a POISON CENTER/doctor.
P363	Wash contaminated clothing before reuse.
P391	Collect spillage.
P403 + P233	Store in a well-ventilated place. Keep container tightly closed.
P405	Store locked up.
P501	Dispose of contents/ container to an approved waste disposal plant.

2.3 Hazards not otherwise classified (HNOC) or not covered by GHS - none

3. COMPOSITION/INFORMATION ON INGREDIENTS

3.1 Substances

Formula	:	C9H6Cl6O3S
Molecular weight	:	406.93 g/mol
CAS-No.	:	959-98-8

Hazardous components

Component	Classification	Concentration
Endosulfan (α isomer)		
	Acute Tox. 2; Acute Tox. 4; Aquatic Acute 1; Aquatic Chronic 1; H300 + H330, H312, H410	90 - 100 %

For the full text of the H-Statements mentioned in this Section, see Section 16.

4. FIRST AID MEASURES

4.1 Description of first aid measures

General advice
Consult a physician. Show this safety data sheet to the doctor in attendance.Move out of dangerous area.

If inhaled
If breathed in, move person into fresh air. If not breathing, give artificial respiration. Consult a physician.

In case of skin contact
Wash off with soap and plenty of water. Take victim immediately to hospital. Consult a physician.

In case of eye contact
Flush eyes with water as a precaution.

If swallowed
Never give anything by mouth to an unconscious person. Rinse mouth with water. Consult a physician.

4.2 Most important symptoms and effects, both acute and delayed
The most important known symptoms and effects are described in the labelling (see section 2.2) and/or in section 11

4.3 Indication of any immediate medical attention and special treatment needed
No data available

5. FIREFIGHTING MEASURES

5.1 Extinguishing media

Suitable extinguishing media
Use water spray, alcohol-resistant foam, dry chemical or carbon dioxide.

5.2 Special hazards arising from the substance or mixture
No data available

5.3 Advice for firefighters
Wear self-contained breathing apparatus for firefighting if necessary.

5.4 Further information
No data available

6. ACCIDENTAL RELEASE MEASURES

6.1 Personal precautions, protective equipment and emergency procedures
Wear respiratory protection. Avoid dust formation. Avoid breathing vapours, mist or gas. Ensure adequate ventilation. Evacuate personnel to safe areas. Avoid breathing dust.
For personal protection see section 8.

6.2 Environmental precautions
Prevent further leakage or spillage if safe to do so. Do not let product enter drains. Discharge into the environment must be avoided.

6.3 Methods and materials for containment and cleaning up
Pick up and arrange disposal without creating dust. Sweep up and shovel. Keep in suitable, closed containers for disposal.

6.4 Reference to other sections
For disposal see section 13.

7. HANDLING AND STORAGE

7.1 Precautions for safe handling
Avoid contact with skin and eyes. Avoid formation of dust and aerosols.Further processing of solid materials may result in the formation of combustible dusts. The potential for combustible dust formation should be taken into consideration before additional processing occurs.
Provide appropriate exhaust ventilation at places where dust is formed.
For precautions see section 2.2.

7.2 Conditions for safe storage, including any incompatibilities
Keep container tightly closed in a dry and well-ventilated place.
Storage class (TRGS 510): 6.1B: Non-combustible, acute toxic Cat. 1 and 2 / very toxic hazardous materials

7.3 Specific end use(s)
Apart from the uses mentioned in section 1.2 no other specific uses are stipulated

8. EXPOSURE CONTROLS/PERSONAL PROTECTION

8.1 Control parameters

Components with workplace control parameters
Contains no substances with occupational exposure limit values.
Hazardous components without workplace control parameters

8.2 Exposure controls

Appropriate engineering controls
Avoid contact with skin, eyes and clothing. Wash hands before breaks and immediately after handling the product.

Personal protective equipment

Eye/face protection
Face shield and safety glasses Use equipment for eye protection tested and approved under appropriate government standards such as NIOSH (US) or EN 166(EU).

Skin protection
Handle with gloves. Gloves must be inspected prior to use. Use proper glove removal technique (without touching glove's outer surface) to avoid skin contact with this product. Dispose of contaminated gloves after use in accordance with applicable laws and good laboratory practices. Wash and dry hands.

Full contact
Material: Nitrile rubber

Minimum layer thickness: 0.11 mm
Break through time: 480 min
Material tested:Dermatril® (KCL 740 / Aldrich Z677272, Size M)

Splash contact
Material: Nitrile rubber
Minimum layer thickness: 0.11 mm
Break through time: 480 min
Material tested:Dermatril® (KCL 740 / Aldrich Z677272, Size M)

data source: KCL GmbH, D-36124 Eichenzell, phone +49 (0)6659 87300, e-mail sales@kcl.de, test method: EN374
If used in solution, or mixed with other substances, and under conditions which differ from EN 374, contact the supplier of the CE approved gloves. This recommendation is advisory only and must be evaluated by an industrial hygienist and safety officer familiar with the specific situation of anticipated use by our customers. It should not be construed as offering an approval for any specific use scenario.

Body Protection
Complete suit protecting against chemicals, The type of protective equipment must be selected according to the concentration and amount of the dangerous substance at the specific workplace.

Respiratory protection
Where risk assessment shows air-purifying respirators are appropriate use a full-face particle respirator type N100 (US) or type P3 (EN 143) respirator cartridges as a backup to engineering controls. If the respirator is the sole means of protection, use a full-face supplied air respirator. Use respirators and components tested and approved under appropriate government standards such as NIOSH (US) or CEN (EU).

Control of environmental exposure
Prevent further leakage or spillage if safe to do so. Do not let product enter drains. Discharge into the environment must be avoided.

9. PHYSICAL AND CHEMICAL PROPERTIES

9.1 Information on basic physical and chemical properties

a)	Appearance	Form: crystalline Colour: white
b)	Odour	No data available
c)	Odour Threshold	No data available
d)	pH	No data available
e)	Melting point/freezing point	108.0 - 110.0 °C (226.4 - 230.0 °F)
f)	Initial boiling point and boiling range	No data available
g)	Flash point	No data available
h)	Evaporation rate	No data available
i)	Flammability (solid, gas)	No data available
j)	Upper/lower flammability or explosive limits	No data available
k)	Vapour pressure	No data available
l)	Vapour density	No data available
m)	Relative density	No data available
n)	Water solubility	insoluble
o)	Partition coefficient: n-octanol/water	No data available
p)	Auto-ignition temperature	No data available

q)	Decomposition temperature	No data available
r)	Viscosity	No data available
s)	Explosive properties	No data available
t)	Oxidizing properties	No data available

9.2 Other safety information
No data available

10. STABILITY AND REACTIVITY

10.1 Reactivity
No data available

10.2 Chemical stability
Stable under recommended storage conditions.

10.3 Possibility of hazardous reactions
No data available

10.4 Conditions to avoid
No data available

10.5 Incompatible materials
Strong oxidizing agents

10.6 Hazardous decomposition products
Hazardous decomposition products formed under fire conditions. - Carbon oxides, Sulphur oxides, Hydrogen chloride gas
Other decomposition products - No data available
In the event of fire: see section 5

11. TOXICOLOGICAL INFORMATION

11.1 Information on toxicological effects

Acute toxicity
No data available

Inhalation: No data available

Dermal: No data available

No data available

Skin corrosion/irritation
No data available

Serious eye damage/eye irritation
No data available

Respiratory or skin sensitisation
No data available

Germ cell mutagenicity
No data available

Carcinogenicity

IARC:	No component of this product present at levels greater than or equal to 0.1% is identified as probable, possible or confirmed human carcinogen by IARC.
NTP:	No component of this product present at levels greater than or equal to 0.1% is identified as a known or anticipated carcinogen by NTP.
OSHA:	No component of this product present at levels greater than or equal to 0.1% is on OSHA's list of regulated carcinogens.

Reproductive toxicity
No data available

No data available

Specific target organ toxicity - single exposure
No data available

Specific target organ toxicity - repeated exposure
No data available

Aspiration hazard
No data available

Additional Information
RTECS: Not available

To the best of our knowledge, the chemical, physical, and toxicological properties have not been thoroughly investigated.

12. ECOLOGICAL INFORMATION

12.1 Toxicity

12.2 Persistence and degradability
No data available

12.3 Bioaccumulative potential

Bioaccumulation	other fish - 21 d - 0.2 µg/l
	Bioconcentration factor (BCF): 10,994

12.4 Mobility in soil
No data available

12.5 Results of PBT and vPvB assessment
PBT/vPvB assessment not available as chemical safety assessment not required/not conducted

12.6 Other adverse effects
An environmental hazard cannot be excluded in the event of unprofessional handling or disposal.
Very toxic to aquatic life with long lasting effects.

No data available

13. DISPOSAL CONSIDERATIONS

13.1 Waste treatment methods

Product
Offer surplus and non-recyclable solutions to a licensed disposal company. Contact a licensed professional waste disposal service to dispose of this material. Dissolve or mix the material with a combustible solvent and burn in a chemical incinerator equipped with an afterburner and scrubber.

Contaminated packaging
Dispose of as unused product.

14. TRANSPORT INFORMATION

DOT (US)
UN number: 2811 Class: 6.1 Packing group: III
Proper shipping name: Toxic solids, organic, n.o.s. (Endosulfan (α isomer))
Reportable Quantity (RQ): 1 lbsMarine pollutant:yes
Poison Inhalation Hazard: No

IMDG
UN number: 2811 Class: 6.1 Packing group: III EMS-No: F-A, S-A
Proper shipping name: TOXIC SOLID, ORGANIC, N.O.S. (Endosulfan (α isomer))

IATA
UN number: 2811 Class: 6.1 Packing group: III
Proper shipping name: Toxic solid, organic, n.o.s. (Endosulfan (α isomer))

15. REGULATORY INFORMATION

SARA 302 Components
No chemicals in this material are subject to the reporting requirements of SARA Title III, Section 302.

SARA 313 Components
This material does not contain any chemical components with known CAS numbers that exceed the threshold (De Minimis) reporting levels established by SARA Title III, Section 313.

SARA 311/312 Hazards
Acute Health Hazard

Massachusetts Right To Know Components

	CAS-No.	Revision Date
Endosulfan (α isomer)	959-98-8	1993-02-16

Pennsylvania Right To Know Components

	CAS-No.	Revision Date
Endosulfan (α isomer)	959-98-8	1993-02-16

	CAS-No.	Revision Date
Endosulfan (α isomer)	959-98-8	1993-02-16

New Jersey Right To Know Components

	CAS-No.	Revision Date
Endosulfan (α isomer)	959-98-8	1993-02-16

California Prop. 65 Components
This product does not contain any chemicals known to State of California to cause cancer, birth defects, or any other reproductive harm.

16. OTHER INFORMATION

Full text of H-Statements referred to under sections 2 and 3.

Acute Tox.	Acute toxicity
Aquatic Acute	Acute aquatic toxicity
Aquatic Chronic	Chronic aquatic toxicity
H300	Fatal if swallowed.
H300 + H330	Fatal if swallowed or if inhaled.
H312	Harmful in contact with skin.
H330	Fatal if inhaled.

HMIS Rating

Health hazard:	4
Chronic Health Hazard:	
Flammability:	0
Physical Hazard	0

NFPA Rating

Health hazard:	4
Fire Hazard:	0
Reactivity Hazard:	0

Further information
Copyright 2016 Sigma-Aldrich Co. LLC. License granted to make unlimited paper copies for internal use only.
The above information is believed to be correct but does not purport to be all inclusive and shall be used only as a guide. The information in this document is based on the present state of our knowledge and is applicable to the product with regard to appropriate safety precautions. It does not represent any guarantee of the properties of the product. Sigma-Aldrich Corporation and its Affiliates shall not be held liable for any damage resulting from handling or from contact with the above product. See www.sigma-aldrich.com and/or the reverse side of invoice or packing slip for additional terms and conditions of sale.

Preparation Information
Sigma-Aldrich Corporation
Product Safety – Americas Region
1-800-521-8956

Version: 4.10 Revision Date: 03/13/2018 Print Date: 06/28/2019

SAFETY DATA SHEET

Version 4.8
Revision Date 05/03/2017
Print Date 07/13/2017

1. PRODUCT AND COMPANY IDENTIFICATION

1.1 Product identifiers

Product name : α-Chlordane

Product Number : 442449
Brand : Supelco

1.2 Relevant identified uses of the substance or mixture and uses advised against

Identified uses : Laboratory chemicals, Synthesis of substances

1.3 Details of the supplier of the safety data sheet

Company : Sigma-Aldrich
3050 Spruce Street
SAINT LOUIS MO 63103
USA

Telephone : +1 800-325-5832
Fax : +1 800-325-5052

1.4 Emergency telephone number

Emergency Phone # : +1-703-527-3887 (CHEMTREC)

2. HAZARDS IDENTIFICATION

2.1 Classification of the substance or mixture

GHS Classification in accordance with 29 CFR 1910 (OSHA HCS)
Acute toxicity, Oral (Category 4), H302
Acute toxicity, Inhalation (Category 4), H332
Skin irritation (Category 2), H315
Eye irritation (Category 2A), H319
Carcinogenicity (Category 2), H351
Specific target organ toxicity - single exposure (Category 3), Respiratory system, H335
Acute aquatic toxicity (Category 1), H400
Chronic aquatic toxicity (Category 1), H410

For the full text of the H-Statements mentioned in this Section, see Section 16.

2.2 GHS Label elements, including precautionary statements

Pictogram



Signal word Warning

Hazard statement(s)

H302 + H332	Harmful if swallowed or if inhaled
H315	Causes skin irritation.
H319	Causes serious eye irritation.
H335	May cause respiratory irritation.
H351	Suspected of causing cancer.
H410	Very toxic to aquatic life with long lasting effects.

Precautionary statement(s)

P201	Obtain special instructions before use.

P202	Do not handle until all safety precautions have been read and understood.
P261	Avoid breathing dust/ fume/ gas/ mist/ vapours/ spray.
P264	Wash skin thoroughly after handling.
P270	Do not eat, drink or smoke when using this product.
P271	Use only outdoors or in a well-ventilated area.
P273	Avoid release to the environment.
P280	Wear protective gloves/ protective clothing/ eye protection/ face protection.
P301 + P312 + P330	IF SWALLOWED: Call a POISON CENTER/doctor if you feel unwell. Rinse mouth.
P302 + P352	IF ON SKIN: Wash with plenty of soap and water.
P304 + P340 + P312	IF INHALED: Remove person to fresh air and keep comfortable for breathing. Call a POISON CENTER/doctor if you feel unwell.
P305 + P351 + P338	IF IN EYES: Rinse cautiously with water for several minutes. Remove contact lenses, if present and easy to do. Continue rinsing.
P308 + P313	IF exposed or concerned: Get medical advice/ attention.
P332 + P313	If skin irritation occurs: Get medical advice/ attention.
P337 + P313	If eye irritation persists: Get medical advice/ attention.
P362	Take off contaminated clothing and wash before reuse.
P391	Collect spillage.
P403 + P233	Store in a well-ventilated place. Keep container tightly closed.
P405	Store locked up.
P501	Dispose of contents/ container to an approved waste disposal plant.

2.3 Hazards not otherwise classified (HNOC) or not covered by GHS - none

3. COMPOSITION/INFORMATION ON INGREDIENTS

3.1 Substances

Molecular weight : 409.8 g/mol
EC-No. : 225-825-5

Hazardous components

Component	Classification	Concentration
Chlordane		
	Acute Tox. 4; Skin Irrit. 2; Eye Irrit. 2A; Carc. 2; STOT SE 3; Aquatic Acute 1; Aquatic Chronic 1; H302 + H332, H315, H319, H335, H351, H410	90 - 100 %

For the full text of the H-Statements mentioned in this Section, see Section 16.

4. FIRST AID MEASURES

4.1 Description of first aid measures

General advice
Consult a physician. Show this safety data sheet to the doctor in attendance.Move out of dangerous area.

If inhaled
If breathed in, move person into fresh air. If not breathing, give artificial respiration. Consult a physician.

In case of skin contact
Wash off with soap and plenty of water. Consult a physician.

In case of eye contact
Rinse thoroughly with plenty of water for at least 15 minutes and consult a physician.

If swallowed
Never give anything by mouth to an unconscious person. Rinse mouth with water. Consult a physician.

4.2 Most important symptoms and effects, both acute and delayed
The most important known symptoms and effects are described in the labelling (see section 2.2) and/or in section 11

4.3 Indication of any immediate medical attention and special treatment needed
No data available

5. FIREFIGHTING MEASURES

5.1 Extinguishing media

Suitable extinguishing media
Use water spray, alcohol-resistant foam, dry chemical or carbon dioxide.

5.2 Special hazards arising from the substance or mixture
No data available

5.3 Advice for firefighters
Wear self-contained breathing apparatus for firefighting if necessary.

5.4 Further information
No data available

6. ACCIDENTAL RELEASE MEASURES

6.1 Personal precautions, protective equipment and emergency procedures
Use personal protective equipment. Avoid dust formation. Avoid breathing vapours, mist or gas. Ensure adequate ventilation. Evacuate personnel to safe areas. Avoid breathing dust.
For personal protection see section 8.

6.2 Environmental precautions
Prevent further leakage or spillage if safe to do so. Do not let product enter drains. Discharge into the environment must be avoided.

6.3 Methods and materials for containment and cleaning up
Pick up and arrange disposal without creating dust. Sweep up and shovel. Keep in suitable, closed containers for disposal.

6.4 Reference to other sections
For disposal see section 13.

7. HANDLING AND STORAGE

7.1 Precautions for safe handling
Avoid contact with skin and eyes. Avoid formation of dust and aerosols.Further processing of solid materials may result in the formation of combustible dusts. The potential for combustible dust formation should be taken into consideration before additional processing occurs.
Provide appropriate exhaust ventilation at places where dust is formed.
For precautions see section 2.2.

7.2 Conditions for safe storage, including any incompatibilities
Keep container tightly closed in a dry and well-ventilated place.

7.3 Specific end use(s)
Apart from the uses mentioned in section 1.2 no other specific uses are stipulated

8. EXPOSURE CONTROLS/PERSONAL PROTECTION

8.1 Control parameters

Components with workplace control parameters
Contains no substances with occupational exposure limit values.
Hazardous components without workplace control parameters

8.2 Exposure controls

Appropriate engineering controls
Handle in accordance with good industrial hygiene and safety practice. Wash hands before breaks and at the end of workday.

Personal protective equipment

Eye/face protection
Safety glasses with side-shields conforming to EN166 Use equipment for eye protection tested and approved under appropriate government standards such as NIOSH (US) or EN 166(EU).

Skin protection
Handle with gloves. Gloves must be inspected prior to use. Use proper glove removal technique (without touching glove's outer surface) to avoid skin contact with this product. Dispose of contaminated gloves after use in accordance with applicable laws and good laboratory practices. Wash and dry hands.

Full contact
Material: Nitrile rubber
Minimum layer thickness: 0.11 mm
Break through time: 480 min
Material tested:Dermatril® (KCL 740 / Aldrich Z677272, Size M)

Splash contact
Material: Nitrile rubber
Minimum layer thickness: 0.11 mm
Break through time: 480 min
Material tested:Dermatril® (KCL 740 / Aldrich Z677272, Size M)

data source: KCL GmbH, D-36124 Eichenzell, phone +49 (0)6659 87300, e-mail sales@kcl.de, test method: EN374
If used in solution, or mixed with other substances, and under conditions which differ from EN 374, contact the supplier of the CE approved gloves. This recommendation is advisory only and must be evaluated by an industrial hygienist and safety officer familiar with the specific situation of anticipated use by our customers. It should not be construed as offering an approval for any specific use scenario.

Body Protection
Complete suit protecting against chemicals, The type of protective equipment must be selected according to the concentration and amount of the dangerous substance at the specific workplace.

Respiratory protection
For nuisance exposures use type P95 (US) or type P1 (EU EN 143) particle respirator.For higher level protection use type OV/AG/P99 (US) or type ABEK-P2 (EU EN 143) respirator cartridges. Use respirators and components tested and approved under appropriate government standards such as NIOSH (US) or CEN (EU).

Control of environmental exposure
Prevent further leakage or spillage if safe to do so. Do not let product enter drains. Discharge into the environment must be avoided.

9. PHYSICAL AND CHEMICAL PROPERTIES

9.1 Information on basic physical and chemical properties

a)	Appearance	Form: crystalline Colour: colourless
b)	Odour	No data available
c)	Odour Threshold	No data available
d)	pH	No data available
e)	Melting point/freezing point	93.0 - 94.0 °C (199.4 - 201.2 °F)
f)	Initial boiling point and boiling range	No data available
g)	Flash point	No data available
h)	Evaporation rate	No data available

i)	Flammability (solid, gas)	No data available
j)	Upper/lower flammability or explosive limits	No data available
k)	Vapour pressure	No data available
l)	Vapour density	No data available
m)	Relative density	No data available
n)	Water solubility	No data available
o)	Partition coefficient: n-octanol/water	No data available
p)	Auto-ignition temperature	No data available
q)	Decomposition temperature	No data available
r)	Viscosity	No data available
s)	Explosive properties	No data available
t)	Oxidizing properties	No data available

9.2 Other safety information
No data available

10. STABILITY AND REACTIVITY

10.1 Reactivity
No data available

10.2 Chemical stability
Stable under recommended storage conditions.

10.3 Possibility of hazardous reactions
No data available

10.4 Conditions to avoid
No data available

10.5 Incompatible materials
Strong oxidizing agents

10.6 Hazardous decomposition products
Hazardous decomposition products formed under fire conditions. - Carbon oxides, Hydrogen chloride gas
Other decomposition products - No data available
In the event of fire: see section 5

11. TOXICOLOGICAL INFORMATION

11.1 Information on toxicological effects

Acute toxicity
LD50 Oral - Rat - 500 mg/kg

Inhalation: No data available

Dermal: No data available

No data available

Skin corrosion/irritation
No data available

Serious eye damage/eye irritation
No data available

Respiratory or skin sensitisation
No data available

Germ cell mutagenicity
No data available

Carcinogenicity

IARC: 2B - Group 2B: Possibly carcinogenic to humans (Chlordane)

NTP: No component of this product present at levels greater than or equal to 0.1% is identified as a known or anticipated carcinogen by NTP.

OSHA: No component of this product present at levels greater than or equal to 0.1% is identified as a carcinogen or potential carcinogen by OSHA.

Reproductive toxicity
No data available

No data available

Specific target organ toxicity - single exposure
No data available

Specific target organ toxicity - repeated exposure
No data available

Aspiration hazard
No data available

Additional Information
RTECS: Not available

12. ECOLOGICAL INFORMATION

12.1 Toxicity

Toxicity to fish	LC50 - Lepomis macrochirus (Bluegill) - 0.0074 mg/l - 96 h

12.2 Persistence and degradability
No data available

12.3 Bioaccumulative potential

Bioaccumulation	Lepomis macrochirus (Bluegill) - 24 h - 0.005 mg/l
	Bioconcentration factor (BCF): 322

12.4 Mobility in soil
No data available

12.5 Results of PBT and vPvB assessment
PBT/vPvB assessment not available as chemical safety assessment not required/not conducted

12.6 Other adverse effects
An environmental hazard cannot be excluded in the event of unprofessional handling or disposal.
Very toxic to aquatic life with long lasting effects.

13. DISPOSAL CONSIDERATIONS

13.1 Waste treatment methods

Product
Offer surplus and non-recyclable solutions to a licensed disposal company. Contact a licensed professional waste disposal service to dispose of this material. Dissolve or mix the material with a combustible solvent and burn in a chemical incinerator equipped with an afterburner and scrubber.

Contaminated packaging
Dispose of as unused product.

14. TRANSPORT INFORMATION

DOT (US)
UN number: 3077 Class: 9 Packing group: III
Proper shipping name: Environmentally hazardous substances, solid, n.o.s. (Chlordane)
Reportable Quantity (RQ): Marine pollutant:yes
Poison Inhalation Hazard: No

IMDG
UN number: 3077 Class: 9 Packing group: III EMS-No: F-A, S-F
Proper shipping name: ENVIRONMENTALLY HAZARDOUS SUBSTANCE, SOLID, N.O.S. (Chlordane)
Marine pollutant:yes

IATA
UN number: 3077 Class: 9 Packing group: III
Proper shipping name: Environmentally hazardous substance, solid, n.o.s. (Chlordane)

15. REGULATORY INFORMATION

SARA 302 Components
No chemicals in this material are subject to the reporting requirements of SARA Title III, Section 302.

SARA 313 Components
This material does not contain any chemical components with known CAS numbers that exceed the threshold (De Minimis) reporting levels established by SARA Title III, Section 313.

SARA 311/312 Hazards
Acute Health Hazard, Chronic Health Hazard

Massachusetts Right To Know Components
No components are subject to the Massachusetts Right to Know Act.

Pennsylvania Right To Know Components

	CAS-No.	Revision Date
Chlordane	5103-71-9	

	CAS-No.	Revision Date
Chlordane	5103-71-9	

New Jersey Right To Know Components

	CAS-No.	Revision Date
Chlordane	5103-71-9	

California Prop. 65 Components
This product does not contain any chemicals known to State of California to cause cancer, birth defects, or any other reproductive harm.

16. OTHER INFORMATION

Full text of H-Statements referred to under sections 2 and 3.

Acute Tox.	Acute toxicity
Aquatic Acute	Acute aquatic toxicity
Aquatic Chronic	Chronic aquatic toxicity
Carc.	Carcinogenicity
Eye Irrit.	Eye irritation
H302	Harmful if swallowed.
H302 + H332	Harmful if swallowed or if inhaled
H315	Causes skin irritation.
H319	Causes serious eye irritation.
H332	Harmful if inhaled.
H335	May cause respiratory irritation.

HMIS Rating

Health hazard:	2
Chronic Health Hazard:	*
Flammability:	0
Physical Hazard	0

NFPA Rating

Health hazard:	2
Fire Hazard:	0
Reactivity Hazard:	0

Further information

Copyright 2016 Sigma-Aldrich Co. LLC. License granted to make unlimited paper copies for internal use only.
The above information is believed to be correct but does not purport to be all inclusive and shall be used only as a guide. The information in this document is based on the present state of our knowledge and is applicable to the product with regard to appropriate safety precautions. It does not represent any guarantee of the properties of the product. Sigma-Aldrich Corporation and its Affiliates shall not be held liable for any damage resulting from handling or from contact with the above product. See www.sigma-aldrich.com and/or the reverse side of invoice or packing slip for additional terms and conditions of sale.

Preparation Information

Sigma-Aldrich Corporation
Product Safety – Americas Region
1-800-521-8956

Version: 4.8 Revision Date: 05/03/2017 Print Date: 07/13/2017

SAFETY DATA SHEET
Aluminum (pieces)

1. Identification

Product identifier

Product name Aluminum (pieces)

Internal identification Replaces M-1000-010

CAS number 7429-90-5

Recommended use of the chemical and restrictions on use

Application Exterior surface coating.

Uses advised against No specific uses advised against are identified.

Details of the supplier of the safety data sheet

Supplier Kurt J Lesker Company

Manufacturer Kurt J Lesker Company
1925 Route 51
Jefferson Hills, PA 15025
+1 412-387-9200

Kurt J Lesker Company LTD
United Kingdom
15-16 Burgess Road
Hastings, East Sussex, TN35 4NR
England
Customer Service: +44 (0) 1424 458100
msds@lesker.com

Emergency telephone number

Emergency telephone North America [USA, Canada, Mexico]: 1-866-519-4752
Mainland China: (+86) 4001 2001 74
Europe: {int'l call prefix}-1-760-476-3961
Asia Pacific: {int'l call prefix}-1-760-476-3960
Middle East & Africa: {int'l call prefix}-1-760-476-3959

2. Hazard(s) identification

Classification of the substance or mixture

Physical hazards Not Classified

Health hazards Not Classified

Environmental hazards Not Classified

Label elements

Hazard statements NC Not Classified

Other hazards

Aluminum (pieces)

This product does not contain any substances classified as PBT or vPvB. Based on available knowledge of this material, it has been determined to be non-hazardous and will not pose a risk to persons or the environment in its provided form. However, any cutting, welding, melting, grinding, or use for deposition will produce dust, fume, or particulates containing component elements of this material. Exposure to these components may present significant health hazards. Note: Fine particulate may be a combustible dust which, when dispersed in air, may present an explosion hazard.

3. Composition/information on ingredients

Mixtures

Aluminum (pieces) CAS number: 7429-90-5	**0 - 100%**

Classification
Not Classified

The full text for all hazard statements is displayed in Section 16.

4. First-aid measures

Description of first aid measures

General information If in doubt, get medical attention promptly. Show this Safety Data Sheet to the medical personnel.

Inhalation Move affected person to fresh air and keep warm and at rest in a position comfortable for breathing. Loosen tight clothing such as collar, tie or belt. Get medical attention if symptoms are severe or persist.

Ingestion Rinse mouth thoroughly with water. Get medical advice/attention if you feel unwell. Do not induce vomiting unless under the direction of medical personnel.

Skin Contact Rinse with water.

Eye contact Rinse with water. Get medical attention if any discomfort continues.

Protection of first aiders First aid personnel should wear appropriate protective equipment during any rescue.

Most important symptoms and effects, both acute and delayed

General information The severity of the symptoms described will vary dependent on the concentration and the length of exposure.

Inhalation No specific symptoms known.

Ingestion No specific symptoms known.

Skin contact Prolonged contact may cause dryness of the skin.

Eye contact No specific symptoms known. May be slightly irritating to eyes.

Indication of immediate medical attention and special treatment needed

Notes for the doctor Treat symptomatically.

5. Fire-fighting measures

Extinguishing media

Suitable extinguishing media The product is flammable. Extinguish with alcohol-resistant foam, carbon dioxide or dry powder. Use fire-extinguishing media suitable for the surrounding fire.

Unsuitable extinguishing media Do not use water, if avoidable.

Aluminum (pieces)

Special hazards arising from the substance or mixture

Specific hazards Reacts with water. Flammable solid. Dust may form explosive mixture with air. Fire-water run-off in sewers may create fire or explosion hazard.

Hazardous combustion products Thermal decomposition or combustion products may include the following substances: Harmful gases or vapors.

Advice for firefighters

Protective actions during firefighting Avoid breathing fire gases or vapors. Evacuate area. Control run-off water by containing and keeping it out of sewers and watercourses. If risk of water pollution occurs, notify appropriate authorities.

Special protective equipment for firefighters Wear positive-pressure self-contained breathing apparatus (SCBA) and appropriate protective clothing. Standard Firefighter's clothing including helmets, protective boots and gloves will provide a basic level of protection for chemical incidents.

6. Accidental release measures

Personal precautions, protective equipment and emergency procedures

Personal precautions Wear protective clothing as described in Section 8 of this safety data sheet. No action shall be taken without appropriate training or involving any personal risk. Evacuate area. Provide adequate ventilation. No smoking, sparks, flames or other sources of ignition near spillage. Promptly remove any clothing that becomes contaminated.

Environmental precautions

Environmental precautions Avoid discharge into drains or watercourses or onto the ground.

Methods and material for containment and cleaning up

Methods for cleaning up Wear protective clothing as described in Section 8 of this safety data sheet. Clear up spills immediately and dispose of waste safely. Eliminate all ignition sources if safe to do so. No smoking, sparks, flames or other sources of ignition near spillage. Do not allow material to enter confined spaces, due to the risk of explosion. Collect spillage with a shovel and broom, or similar and reuse, if possible. Collect and place in suitable waste disposal containers and seal securely. Flush contaminated area with plenty of water. Wash thoroughly after dealing with a spillage. For waste disposal, see Section 13.

Reference to other sections For personal protection, see Section 8. See Section 11 for additional information on health hazards. See Section 12 for additional information on ecological hazards. For waste disposal, see Section 13.

7. Handling and storage

Precautions for safe handling

Usage precautions Read and follow manufacturer's recommendations. Wear protective clothing as described in Section 8 of this safety data sheet. Keep away from food, drink and animal feeding stuffs. Keep container tightly sealed when not in use. The product is flammable. Keep away from heat, hot surfaces, sparks, open flames and other ignition sources. No smoking. Do not handle until all safety precautions have been read and understood. Do not handle broken packages without protective equipment. Do not reuse empty containers.

Advice on general occupational hygiene Wash promptly if skin becomes contaminated. Take off contaminated clothing and wash before reuse. Wash contaminated clothing before reuse.

Conditions for safe storage, including any incompatibilities

Storage precautions Keep away from oxidizing materials, heat and flames. Avoid contact with water. Keep only in the original container. Keep container tightly closed, in a cool, well ventilated place. Keep containers upright. Protect containers from damage.

Aluminum (pieces)

Storage class Water-reactive storage.

Specific end uses(s)

Specific end use(s) The identified uses for this product are detailed in Section 1.

8. Exposure Controls/personal protection

Control parameters

Occupational exposure limits

Aluminum (pieces)

Long-term exposure limit (8-hour TWA): OSHA 5 mg/m³ respirable fraction
as Al
Long-term exposure limit (8-hour TWA): OSHA 15 mg/m³ total dust
as Al
Long-term exposure limit (8-hour TWA): ACGIH 1 mg/m³ respirable fraction
A4
OSHA = Occupational Safety and Health Administration.
ACGIH = American Conference of Governmental Industrial Hygienists.
A4 = Not Classifiable as a Human Carcinogen.

Exposure controls

Protective equipment



Appropriate engineering controls Provide adequate ventilation. Observe any occupational exposure limits for the product or ingredients.

Eye/face protection Unless the assessment indicates a higher degree of protection is required, the following protection should be worn: Tight-fitting safety glasses.

Hand protection No specific hand protection recommended.

Other skin and body protection Wear appropriate clothing to prevent repeated or prolonged skin contact.

Hygiene measures Wash hands thoroughly after handling. Wash at the end of each work shift and before eating, smoking and using the toilet. Do not eat, drink or smoke when using this product.

Respiratory protection Ensure all respiratory protective equipment is suitable for its intended use and is NIOSH approved. Check that the respirator fits tightly and the filter is changed regularly. Gas and combination filter cartridges should comply with OSHA 1910.134. Full face mask respirators with replaceable filter cartridges should comply with OSHA 1910.134. Half mask and quarter mask respirators with replaceable filter cartridges should comply with OSHA 1910.134.

Environmental exposure controls Keep container tightly sealed when not in use.

9. Physical and Chemical Properties

Information on basic physical and chemical properties

Appearance Solid.

Color Silver.

Odor No characteristic odor.

Odor threshold Not applicable.

Aluminum (pieces)

pH	Not applicable.
Melting point	660°C
Initial boiling point and range	Not available.
Flash point	Not applicable.
Evaporation rate	Not applicable.
Flammability (solid, gas)	Not applicable.
Upper/lower flammability or explosive limits	Not applicable.
Vapor pressure	Not available.
Vapor density	Not available.
Relative density	2.70 @ 25°C
Bulk density	Not available.
Solubility(ies)	Insoluble in water.
Partition coefficient	Not applicable.
Auto-ignition temperature	Not applicable.
Decomposition Temperature	Not available.
Viscosity	Not applicable.
Molecular weight	26.98

10. Stability and reactivity

Reactivity	There are no known reactivity hazards associated with this product.
Stability	Stable at normal ambient temperatures and when used as recommended. Stable under the prescribed storage conditions.
Possibility of hazardous reactions	Reacts strongly with water. The following materials may react strongly with the product: Oxidizing agents.
Conditions to avoid	Avoid heat, flames and other sources of ignition. Static electricity and formation of sparks must be prevented.
Materials to avoid	Water. Oxidizing materials. Acids - oxidizing.
Hazardous decomposition products	Does not decompose when used and stored as recommended. Thermal decomposition or combustion products may include the following substances: Harmful gases or vapors.

11. Toxicological information

Information on toxicological effects

Acute toxicity - oral

Notes (oral LD_{50}) Based on available data the classification criteria are not met.

Acute toxicity - dermal

Notes (dermal LD_{50}) Based on available data the classification criteria are not met.

Acute toxicity - inhalation

Aluminum (pieces)

Notes (inhalation LC_{50}) Based on available data the classification criteria are not met.

Skin corrosion/irritation

Animal data Based on available data the classification criteria are not met.

Serious eye damage/irritation

Serious eye damage/irritation Based on available data the classification criteria are not met.

Respiratory sensitization

Respiratory sensitization Based on available data the classification criteria are not met.

Skin sensitization

Skin sensitization Based on available data the classification criteria are not met.

Germ cell mutagenicity

Genotoxicity - in vitro Based on available data the classification criteria are not met.

Carcinogenicity

Carcinogenicity Based on available data the classification criteria are not met.

IARC carcinogenicity None of the ingredients are listed or exempt.

Reproductive toxicity

Reproductive toxicity - fertility Based on available data the classification criteria are not met.

Reproductive toxicity - development Based on available data the classification criteria are not met.

Specific target organ toxicity - single exposure

STOT - single exposure Not classified as a specific target organ toxicant after a single exposure.

Specific target organ toxicity - repeated exposure

STOT - repeated exposure Not classified as a specific target organ toxicant after repeated exposure.

Aspiration hazard

Aspiration hazard Not relevant. Solid.

General information The severity of the symptoms described will vary dependent on the concentration and the length of exposure.

Inhalation No specific symptoms known.

Ingestion No specific symptoms known.

Skin Contact Prolonged contact may cause dryness of the skin.

Eye contact No specific symptoms known.

Route of exposure Ingestion Inhalation Skin and/or eye contact

Target Organs No specific target organs known.

12. Ecological Information

Ecotoxicity Not regarded as dangerous for the environment. However, large or frequent spills may have hazardous effects on the environment.

Toxicity Based on available data the classification criteria are not met.

Persistence and degradability

Aluminum (pieces)

Persistence and degradability Reacts with water.

Bioaccumulative potential

Bio-Accumulative Potential No data available on bioaccumulation.

Partition coefficient Not applicable.

Mobility in soil

Mobility No data available.

Other adverse effects

Other adverse effects None known.

13. Disposal considerations

Waste treatment methods

General information The generation of waste should be minimized or avoided wherever possible. Reuse or recycle products wherever possible. This material and its container must be disposed of in a safe way. When handling waste, the safety precautions applying to handling of the product should be considered. Care should be taken when handling emptied containers that have not been thoroughly cleaned or rinsed out. Empty containers or liners may retain some product residues and hence be potentially hazardous.

Disposal methods Dispose of surplus products and those that cannot be recycled via a licensed waste disposal contractor. Waste, residues, empty containers, discarded work clothes and contaminated cleaning materials should be collected in designated containers, labeled with their contents. Incineration or landfill should only be considered when recycling is not feasible.

14. Transport information

General The product is not covered by international regulations on the transport of dangerous goods (IMDG, IATA, DOT).

UN Number

Not applicable.

UN proper shipping name

Not applicable.

Transport hazard class(es)

No transport warning sign required.

Transport labels

No transport warning sign required.

DOT transport labels

No transport warning sign required.

Packing group

Not applicable.

Environmental hazards

Environmentally Hazardous Substance

No.

Special precautions for user

Aluminum (pieces)

Based on available knowledge of this material, it has been determined to be non-hazardous and will not pose a risk to persons or the environment in its provided form. However, any cutting, welding, melting, grinding, or use for deposition will produce dust, fume, or particulates containing component elements of this material. Exposure to these components may present significant health hazards. Note: Fine particulate may be a combustible dust which, when dispersed in air, may present an explosion hazard.

DOT TIH Zone Not applicable.

Transport in bulk according to Annex II of MARPOL 73/78 and the IBC Code Not applicable.

15. Regulatory information

US Federal Regulations

SARA Section 302 Extremely Hazardous Substances Tier II Threshold Planning Quantities
None of the ingredients are listed or exempt.

CERCLA/Superfund, Hazardous Substances/Reportable Quantities (EPA)
None of the ingredients are listed or exempt.

SARA Extremely Hazardous Substances EPCRA Reportable Quantities
None of the ingredients are listed or exempt.

SARA 313 Emission Reporting
None of the ingredients are listed or exempt.

CAA Accidental Release Prevention
None of the ingredients are listed or exempt.

FDA - Essential Chemical
None of the ingredients are listed or exempt.

FDA - Precursor Chemical
None of the ingredients are listed or exempt.

SARA (311/312) Hazard Categories
None of the ingredients are listed or exempt.

OSHA Highly Hazardous Chemicals
None of the ingredients are listed or exempt.

US State Regulations

California Proposition 65 Carcinogens and Reproductive Toxins
None of the ingredients are listed or exempt.

California Air Toxics "Hot Spots" (A-I)
None of the ingredients are listed or exempt.

California Air Toxics "Hot Spots" (A-II)
None of the ingredients are listed or exempt.

California Directors List of Hazardous Substances
None of the ingredients are listed or exempt.

Massachusetts "Right To Know" List
None of the ingredients are listed or exempt.

Aluminum (pieces)

Rhode Island "Right To Know" List
None of the ingredients are listed or exempt.

Minnesota "Right To Know" List
None of the ingredients are listed or exempt.

New Jersey "Right To Know" List
None of the ingredients are listed or exempt.

Pennsylvania "Right To Know" List
None of the ingredients are listed or exempt.

Inventories

US - TSCA
None of the ingredients are listed or exempt.

US - TSCA 12(b) Export Notification
None of the ingredients are listed or exempt.

16. Other information

Training advice	Only trained personnel should use this material.
Revision date	5/9/2018
Revision	7
Supersedes date	5/9/2018
SDS No.	4661

End of SDS

This information relates only to the specific material designated and may not be valid for such material used in combination with any other materials or in any process. Such information is, to the best of the company's knowledge and belief, accurate and reliable as of the date indicated. However, no warranty, guarantee or representation is made to its accuracy, reliability or completeness. It is the user's responsibility to satisfy himself as to the suitability of such information for his own particular use.

SAFETY DATA SHEET

Version 4.9
Revision Date 04/20/2015
Print Date 12/11/2015

1. PRODUCT AND COMPANY IDENTIFICATION

1.1 Product identifiers

Product name : Anthracene

Product Number : A89200
Brand : Aldrich

CAS-No. : 120-12-7

1.2 Relevant identified uses of the substance or mixture and uses advised against

Identified uses : Laboratory chemicals, Manufacture of substances

1.3 Details of the supplier of the safety data sheet

Company : Sigma-Aldrich
3050 Spruce Street
SAINT LOUIS MO 63103
USA

Telephone : +1 800-325-5832
Fax : +1 800-325-5052

1.4 Emergency telephone number

Emergency Phone # : (314) 776-6555

2. HAZARDS IDENTIFICATION

2.1 Classification of the substance or mixture

GHS Classification in accordance with 29 CFR 1910 (OSHA HCS)
Skin irritation (Category 2), H315
Eye irritation (Category 2A), H319
Specific target organ toxicity - single exposure (Category 3), Respiratory system, H335
Acute aquatic toxicity (Category 1), H400
Chronic aquatic toxicity (Category 1), H410

For the full text of the H-Statements mentioned in this Section, see Section 16.

2.2 GHS Label elements, including precautionary statements

Pictogram



Signal word Warning

Hazard statement(s)
H315 Causes skin irritation.
H319 Causes serious eye irritation.
H335 May cause respiratory irritation.
H410 Very toxic to aquatic life with long lasting effects.

Precautionary statement(s)
P261 Avoid breathing dust/ fume/ gas/ mist/ vapours/ spray.
P264 Wash skin thoroughly after handling.
P271 Use only outdoors or in a well-ventilated area.
P273 Avoid release to the environment.
P280 Wear eye protection/ face protection.

P280	Wear protective gloves.
P302 + P352	IF ON SKIN: Wash with plenty of soap and water.
P304 + P340 + P312	IF INHALED: Remove person to fresh air and keep comfortable for breathing. Call a POISON CENTER or doctor/ physician if you feel unwell.
P305 + P351 + P338	IF IN EYES: Rinse cautiously with water for several minutes. Remove contact lenses, if present and easy to do. Continue rinsing.
P332 + P313	If skin irritation occurs: Get medical advice/ attention.
P337 + P313	If eye irritation persists: Get medical advice/ attention.
P362	Take off contaminated clothing and wash before reuse.
P391	Collect spillage.
P403 + P233	Store in a well-ventilated place. Keep container tightly closed.
P405	Store locked up.
P501	Dispose of contents/ container to an approved waste disposal plant.

2.3 Hazards not otherwise classified (HNOC) or not covered by GHS

Photosensitizer., Lachrymator.

3. COMPOSITION/INFORMATION ON INGREDIENTS

3.1 Substances

Formula	:	$C_{14}H_{10}$
Molecular weight	:	178.23 g/mol
CAS-No.	:	120-12-7
EC-No.	:	204-371-1

Hazardous components

Component	Classification	Concentration
Anthracene Included in the Candidate List of Substances of Very High Concern (SVHC) according to Regulation (EC) No. 1907/2006 (REACH)		
	Skin Irrit. 2; Eye Irrit. 2A; STOT SE 3; Aquatic Acute 1; Aquatic Chronic 1; H315, H319, H335, H410	<= 100 %

For the full text of the H-Statements mentioned in this Section, see Section 16.

4. FIRST AID MEASURES

4.1 Description of first aid measures

General advice
Consult a physician. Show this safety data sheet to the doctor in attendance.Move out of dangerous area.

If inhaled
If breathed in, move person into fresh air. If not breathing, give artificial respiration. Consult a physician.

In case of skin contact
Wash off with soap and plenty of water. Consult a physician.

In case of eye contact
Rinse thoroughly with plenty of water for at least 15 minutes and consult a physician.

If swallowed
Never give anything by mouth to an unconscious person. Rinse mouth with water. Consult a physician.

4.2 Most important symptoms and effects, both acute and delayed

The most important known symptoms and effects are described in the labelling (see section 2.2) and/or in section 11

4.3 Indication of any immediate medical attention and special treatment needed

No data available

5. FIREFIGHTING MEASURES

5.1 Extinguishing media

Suitable extinguishing media
Use water spray, alcohol-resistant foam, dry chemical or carbon dioxide.

5.2 Special hazards arising from the substance or mixture
No data available

5.3 Advice for firefighters
Wear self-contained breathing apparatus for firefighting if necessary.

5.4 Further information
No data available

6. ACCIDENTAL RELEASE MEASURES

6.1 Personal precautions, protective equipment and emergency procedures
Use personal protective equipment. Avoid dust formation. Avoid breathing vapours, mist or gas. Ensure adequate ventilation. Evacuate personnel to safe areas. Avoid breathing dust.
For personal protection see section 8.

6.2 Environmental precautions
Prevent further leakage or spillage if safe to do so. Do not let product enter drains. Discharge into the environment must be avoided.

6.3 Methods and materials for containment and cleaning up
Pick up and arrange disposal without creating dust. Sweep up and shovel. Keep in suitable, closed containers for disposal.

6.4 Reference to other sections
For disposal see section 13.

7. HANDLING AND STORAGE

7.1 Precautions for safe handling
Avoid contact with skin and eyes. Avoid formation of dust and aerosols.
Provide appropriate exhaust ventilation at places where dust is formed.
For precautions see section 2.2.

7.2 Conditions for safe storage, including any incompatibilities
Keep container tightly closed in a dry and well-ventilated place.

7.3 Specific end use(s)
Apart from the uses mentioned in section 1.2 no other specific uses are stipulated

8. EXPOSURE CONTROLS/PERSONAL PROTECTION

8.1 Control parameters

Components with workplace control parameters

Component	CAS-No.	Value	Control parameters	Basis
Anthracene	120-12-7	TWA	0.200000 mg/m3	USA. Occupational Exposure Limits (OSHA) - Table Z-1 Limits for Air Contaminants
	Remarks	1910.1002 As used in §1910.1000 (Table Z-1), coal tar pitch volatiles include the fused polycyclic hydrocarbons which volatilize from the distillation residues of coal, petroleum (excluding asphalt), wood, and other organic matter. Asphalt (CAS 8052-42-4, and CAS 64742-93-4) is not covered under the 'coal tar pitch volatiles' standard OSHA specifically regulated carcinogen		

		TWA	0.100000 mg/m3	USA. NIOSH Recommended Exposure Limits
		Potential Occupational Carcinogen NIOSH considers coal tar, coal tar pitch, and creosote to be coal tar products. cyclohexane-extractable fraction See Appendix C See Appendix A		

Biological occupational exposure limits

Component	CAS-No.	Parameters	Value	Biological specimen	Basis
Anthracene	120-12-7	1-Hydroxypyrene (1-HP)		Urine	ACGIH - Biological Exposure Indices (BEI)
	Remarks	End of shift at end of workweek			

8.2 Exposure controls

Appropriate engineering controls
Handle in accordance with good industrial hygiene and safety practice. Wash hands before breaks and at the end of workday.

Personal protective equipment

Eye/face protection
Safety glasses with side-shields conforming to EN166 Use equipment for eye protection tested and approved under appropriate government standards such as NIOSH (US) or EN 166(EU).

Skin protection
Handle with gloves. Gloves must be inspected prior to use. Use proper glove removal technique (without touching glove's outer surface) to avoid skin contact with this product. Dispose of contaminated gloves after use in accordance with applicable laws and good laboratory practices. Wash and dry hands.

Full contact
Material: Chloroprene
Minimum layer thickness: 0.6 mm
Break through time: 480 min
Material tested:Camapren® (KCL 722 / Aldrich Z677493, Size M)

Splash contact
Material: Nitrile rubber
Minimum layer thickness: 0.11 mm
Break through time: 30 min
Material tested:Dermatril® (KCL 740 / Aldrich Z677272, Size M)

data source: KCL GmbH, D-36124 Eichenzell, phone +49 (0)6659 87300, e-mail sales@kcl.de, test method: EN374
If used in solution, or mixed with other substances, and under conditions which differ from EN 374, contact the supplier of the CE approved gloves. This recommendation is advisory only and must be evaluated by an industrial hygienist and safety officer familiar with the specific situation of anticipated use by our customers. It should not be construed as offering an approval for any specific use scenario.

Body Protection
impervious clothing, The type of protective equipment must be selected according to the concentration and amount of the dangerous substance at the specific workplace.

Respiratory protection
For nuisance exposures use type P95 (US) or type P1 (EU EN 143) particle respirator.For higher level protection use type OV/AG/P99 (US) or type ABEK-P2 (EU EN 143) respirator cartridges. Use respirators and components tested and approved under appropriate government standards such as NIOSH (US) or CEN (EU).

Control of environmental exposure
Prevent further leakage or spillage if safe to do so. Do not let product enter drains. Discharge into the environment must be avoided.

9. PHYSICAL AND CHEMICAL PROPERTIES

9.1 Information on basic physical and chemical properties

a)	Appearance	Form: crystalline Colour: beige
b)	Odour	No data available
c)	Odour Threshold	No data available
d)	pH	No data available
e)	Melting point/freezing point	Melting point/range: 210 - 215 °C (410 - 419 °F) - lit.
f)	Initial boiling point and boiling range	340 °C (644 °F) - lit.
g)	Flash point	No data available
h)	Evaporation rate	No data available
i)	Flammability (solid, gas)	No data available
j)	Upper/lower flammability or explosive limits	Lower explosion limit: 0.6 %(V)
k)	Vapour pressure	1.3 hPa (1.0 mmHg) at 145.0 °C (293.0 °F)
l)	Vapour density	No data available
m)	Relative density	No data available
n)	Water solubility	No data available
o)	Partition coefficient: n-octanol/water	log Pow: 4.45
p)	Auto-ignition temperature	540.0 °C (1,004.0 °F)
q)	Decomposition temperature	No data available
r)	Viscosity	No data available
s)	Explosive properties	No data available
t)	Oxidizing properties	No data available

9.2 Other safety information

No data available

10. STABILITY AND REACTIVITY

10.1 Reactivity

No data available

10.2 Chemical stability

Stable under recommended storage conditions.

10.3 Possibility of hazardous reactions

No data available

10.4 Conditions to avoid

No data available

10.5 Incompatible materials

Strong oxidizing agents, Hypochlorites

10.6 Hazardous decomposition products

Other decomposition products - No data available

In the event of fire: see section 5

11. TOXICOLOGICAL INFORMATION

11.1 Information on toxicological effects

Acute toxicity
Inhalation: No data available

Dermal: No data available

LD50 Intraperitoneal - Mouse - 430 mg/kg

Skin corrosion/irritation
Skin - Mouse
Result: Mild skin irritation

Serious eye damage/eye irritation
Irritating to eyes. The preceding data, or interpretation of data, was determined using Quantitative Structure Activity Relationship (QSAR) modeling.

Respiratory or skin sensitisation
Causes photosensitivity. Exposure to light can result in allergic reactions resulting in dermatologic lesions, which can vary from sunburnlike responses to edematous, vesiculated lesions, or bullae

Germ cell mutagenicity
No data available

Carcinogenicity

IARC:	3 - Group 3: Not classifiable as to its carcinogenicity to humans (Anthracene)
ACGIH:	No component of this product present at levels greater than or equal to 0.1% is identified as a carcinogen or potential carcinogen by ACGIH.
NTP:	No component of this product present at levels greater than or equal to 0.1% is identified as a known or anticipated carcinogen by NTP.
OSHA:	OSHA specifically regulated carcinogen (Anthracene)

Reproductive toxicity

No data available

Specific target organ toxicity - single exposure
Inhalation - May cause respiratory irritation.
The preceding data, or interpretation of data, was determined using Quantitative Structure Activity Relationship (QSAR) modeling.

Specific target organ toxicity - repeated exposure
No data available

Aspiration hazard
No data available

Additional Information
RTECS: CA9350000

Possible tumor promoter., Headache, Nausea, Weakness

Blood -

12. ECOLOGICAL INFORMATION

12.1 Toxicity

Toxicity to fish	LC50 - Lepomis macrochirus (Bluegill) - 0.001 mg/l - 96.0 h
Toxicity to daphnia and other aquatic invertebrates	EC50 - Daphnia magna (Water flea) - 0.10 mg/l - 48 h

12.2 Persistence and degradability
No data available

12.3 Bioaccumulative potential
Indication of bioaccumulation.
Bioaccumulation Pimephales promelas (fathead minnow) - 42 d
- 0.01191 mg/l

Bioconcentration factor (BCF): 649

12.4 Mobility in soil
No data available

12.5 Results of PBT and vPvB assessment
PBT/vPvB assessment not available as chemical safety assessment not required/not conducted

12.6 Other adverse effects
An environmental hazard cannot be excluded in the event of unprofessional handling or disposal.
Very toxic to aquatic life with long lasting effects.

No data available

13. DISPOSAL CONSIDERATIONS

13.1 Waste treatment methods

Product
Offer surplus and non-recyclable solutions to a licensed disposal company. Contact a licensed professional waste disposal service to dispose of this material.

Contaminated packaging
Dispose of as unused product.

14. TRANSPORT INFORMATION

DOT (US)
UN number: 3077 Class: 9 Packing group: III
Proper shipping name: Environmentally hazardous substances, solid, n.o.s. (Anthracene)
Reportable Quantity (RQ): 5000 lbs

Poison Inhalation Hazard: No

IMDG
UN number: 3077 Class: 9 Packing group: III EMS-No: F-A, S-F
Proper shipping name: ENVIRONMENTALLY HAZARDOUS SUBSTANCE, SOLID, N.O.S. (Anthracene)
Marine pollutant:yes

IATA
UN number: 3077 Class: 9 Packing group: III
Proper shipping name: Environmentally hazardous substance, solid, n.o.s. (Anthracene)

Further information
EHS-Mark required (ADR 2.2.9.1.10, IMDG code 2.10.3) for single packagings and combination packagings containing inner packagings with Dangerous Goods > 5L for liquids or > 5kg for solids.

15. REGULATORY INFORMATION

SARA 302 Components
No chemicals in this material are subject to the reporting requirements of SARA Title III, Section 302.

SARA 313 Components
The following components are subject to reporting levels established by SARA Title III, Section 313:

	CAS-No.	Revision Date
Anthracene	120-12-7	2007-07-01

SARA 311/312 Hazards
Acute Health Hazard, Chronic Health Hazard

Massachusetts Right To Know Components

	CAS-No.	Revision Date
Anthracene	120-12-7	2007-07-01

Pennsylvania Right To Know Components

	CAS-No.	Revision Date
Anthracene	120-12-7	2007-07-01

New Jersey Right To Know Components

	CAS-No.	Revision Date
Anthracene	120-12-7	2007-07-01

California Prop. 65 Components

WARNING! This product contains a chemical known to the State of California to cause cancer.	CAS-No.	Revision Date
Anthracene	120-12-7	2007-09-28

16. OTHER INFORMATION

Full text of H-Statements referred to under sections 2 and 3.

Aquatic Acute	Acute aquatic toxicity
Aquatic Chronic	Chronic aquatic toxicity
Eye Irrit.	Eye irritation
H315	Causes skin irritation.
H319	Causes serious eye irritation.
H335	May cause respiratory irritation.
H400	Very toxic to aquatic life.
H410	Very toxic to aquatic life with long lasting effects.

HMIS Rating

Health hazard:	2
Chronic Health Hazard:	
Flammability:	0
Physical Hazard	0

NFPA Rating

Health hazard:	2
Fire Hazard:	0
Reactivity Hazard:	0

Further information

Copyright 2015 Sigma-Aldrich Co. LLC. License granted to make unlimited paper copies for internal use only.
The above information is believed to be correct but does not purport to be all inclusive and shall be used only as a guide. The information in this document is based on the present state of our knowledge and is applicable to the product with regard to appropriate safety precautions. It does not represent any guarantee of the properties of the product. Sigma-Aldrich Corporation and its Affiliates shall not be held liable for any damage resulting from handling or from contact with the above product. See www.sigma-aldrich.com and/or the reverse side of invoice or packing slip for additional terms and conditions of sale.

Preparation Information

Sigma-Aldrich Corporation
Product Safety – Americas Region
1-800-521-8956

Version: 4.9 Revision Date: 04/20/2015 Print Date: 12/11/2015

Antimony

Safety Data Sheet

according to Federal Register / Vol. 77, No. 58 / Monday, March 26, 2012 / Rules and Regulations

Revision Date: 02/12/2014 Version: 1.0

SECTION 1: IDENTIFICATION OF THE SUBSTANCE/MIXTURE AND OF THE COMPANY

1.1. Product Identifier

Product Form: Substance

Product Name: Antimony

Synonyms: Stibium (Sb)

1.2. Intended Use of the Product No additional information available

1.3. Name, Address, and Telephone of the Responsible Party

Company

Atomized Products Group, Inc
3838 Miller Park Dr
Garland, TX 75042
T 972-272-9596
atomizedproductsgroup.com

1.4. Emergency Telephone Number

Emergency Number : 800-255-3924 (CHEMTEL)

SECTION 2: HAZARDS IDENTIFICATION

2.1. Classification of the Substance or Mixture

Classification (GHS-US)

Comb. Dust
Acute Tox. 3 (Oral) H301
Acute Tox. 4 (Inhalation:dust,mist) H332
Carc. 2 H351
Aquatic Acute 2 H401
Aquatic Chronic 2 H411

2.2. Label Elements

GHS-US Labeling

Hazard Pictograms (GHS-US) :



GHS06 GHS07 GHS08 GHS09

Signal Word (GHS-US) : Danger

Hazard Statements (GHS-US) : May form combustible dust concentrations in air
H301 - Toxic if swallowed
H332 - Harmful if inhaled
H351 - Suspected of causing cancer
H401 - Toxic to aquatic life
H411 - Toxic to aquatic life with long lasting effects

Precautionary Statements (GHS-US) : P201 - Obtain special instructions before use.
P202 - Do not handle until all safety precautions have been read and understood.
P261 - Avoid breathing dust.
P264 - Wash hands, forearms, and other exposed areas thoroughly after handling.
P270 - Do not eat, drink or smoke when using this product.
P271 - Use only outdoors or in a well-ventilated area.
P273 - Avoid release to the environment.
P280 - Wear protective gloves, protective clothing, eye protection, face protection, respiratory protection.
P301+P310 - IF SWALLOWED: Immediately call a POISON CENTER or doctor/physician.
P304+P340 - IF INHALED: Remove victim to fresh air and keep at rest in a position comfortable for breathing.
P308+P313 - If exposed or concerned: Get medical advice/attention.

P312 - Call a POISON CENTER/doctor/physician if you feel unwell.
P321 - Specific treatment (see section 4).
P330 - If swallowed, rinse mouth.
P391 - Collect spillage.
P405 - Store locked up.
P501 - Dispose of contents/container to local, regional, national, territorial, provincial, and international regulations.

2.3. Other Hazards

Other Hazards Not Contributing to the Classification: Exposure may aggravate those with pre-existing eye, skin, or respiratory conditions. May form combustible dust concentrations in air. Exposure may aggravate individuals with pre-existing skin, kidney, liver, and pulmonary disorders. On burning release of harmful/irritant gases/vapours (antimony oxides). Inhalation of dusts and fumes can cause metal fume fever. Symptoms can include a metallic or sweet taste in the mouth, sweating, shivering, headache, throat irritation, fever, chills, thirstiness, muscle aches, nausea, vomiting, weakness, fatigue, and shortness of breath.

2.4. Unknown Acute Toxicity (GHS-US)

No data available

SECTION 3: COMPOSITION/INFORMATION ON INGREDIENTS

3.1. Substance

Name : Antimony

Name	Product identifier	%	Classification (GHS-US)
Antimony	(CAS No) 7440-36-0	100	Comb. Dust Acute Tox. 3 (Oral), H301 Acute Tox. 4 (Inhalation), H332 Carc. 2, H351 Aquatic Acute 2, H401 Aquatic Chronic 2, H411

Full text of H-phrases: see section 16

3.2. Mixture

Not applicable

SECTION 4: FIRST AID MEASURES

4.1. Description of First Aid Measures

First-aid Measures General: Never give anything by mouth to an unconscious person. If you feel unwell, seek medical advice (show the label where possible).

First-aid Measures After Inhalation: When symptoms occur: go into open air and ventilate suspected area. Obtain medical attention if breathing difficulty persists.

First-aid Measures After Skin Contact: Remove contaminated clothing. Drench affected area with water for at least 15 minutes. Obtain medical attention if irritation persists.

First-aid Measures After Eye Contact: Rinse cautiously with water for several minutes. Remove contact lenses, if present and easy to do. Continue rinsing. Obtain medical attention if irritation persists.

First-aid Measures After Ingestion: Rinse mouth. Do not induce vomiting. Seek medical attention if a large amount is swallowed.

4.2. Most important symptoms and effects, both acute and delayed

Symptoms/Injuries: Suspected of causing cancer. Toxic if swallowed. Harmful if inhaled.

Symptoms/Injuries After Inhalation: Harmful if inhaled. Respiratory tract irritation.

Symptoms/Injuries After Skin Contact: Prolonged contact with large amounts of dust may cause mechanical irritation.

Symptoms/Injuries After Eye Contact: Prolonged contact with large amounts of dust may cause mechanical irritation.

Symptoms/Injuries After Ingestion: Toxic if swallowed. May cause nausea, vomiting, and diarrhea.

Chronic Symptoms: Prolonged exposure may cause effects in specific organs such as the liver, kidneys, blood, and nervous system.

4.3. Indication of Any Immediate Medical Attention and Special Treatment Needed

If exposed or concerned, get medical advice and attention.

SECTION 5: FIREFIGHTING MEASURES

5.1. Extinguishing Media

Suitable Extinguishing Media: Use extinguishing media appropriate for surrounding fire.

Unsuitable Extinguishing Media: Do not use a heavy water stream. Use of heavy stream of water may spread fire.

5.2. Special Hazards Arising From the Substance or Mixture

Fire Hazard: Not considered flammable but may burn at high temperatures. Dust explosion hazard in air.

Explosion Hazard: Avoid dust clouds in combination with static electricity. Dust explosion hazard in air.

Reactivity: Hazardous reactions will not occur under normal conditions. Dust clouds can be explosive.

5.3. Advice for Firefighters

Precautionary Measures Fire: Exercise caution when fighting any chemical fire.

Firefighting Instructions: Use water spray or fog for cooling exposed containers. In case of major fire and large quantities: Evacuate area. Fight fire remotely due to the risk of explosion.

Protection During Firefighting: Do not enter fire area without proper protective equipment, including respiratory protection.

Other information: Risk of dust explosion. Do not allow the product to be released into the environment. Do not allow run-off from fire fighting to enter drains or water courses.

SECTION 6: ACCIDENTAL RELEASE MEASURES

6.1. Personal Precautions, Protective Equipment and Emergency Procedures

General Measures: Use special care to avoid static electric charges. Keep away from heat/sparks/open flames/hot surfaces. – No smoking. Handle in accordance with good industrial hygiene and safety practice. Do not breathe dust. Avoid generating dust. Avoid all contact with skin, eyes, or clothing.

6.1.1. For Non-emergency Personnel

Protective Equipment: Use appropriate personal protection equipment (PPE).

Emergency Procedures: Evacuate unnecessary personnel.

6.1.2. For Emergency Responders

Protective Equipment: Equip cleanup crew with proper protection. Use appropriate personal protection equipment (PPE).

Emergency Procedures: Ventilate area.

6.2. Environmental Precautions

Prevent entry to sewers and public waters. Do not allow to enter drains or water courses.

6.3. Methods and Material for Containment and Cleaning Up

For Containment: Avoid generation of dust during clean-up of spills. Use only non-sparking tools.

Methods for Cleaning Up: Clear up spills immediately and dispose of waste safely. Avoid generation of dust during clean-up of spills. Use only non-sparking tools. Use explosion proof vacuum during cleanup, with appropriate filter, do not mix with other materials. Contact competent authorities after a spill.

6.4. Reference to Other Sections

See heading 8, Exposure Controls and Personal Protection.

SECTION 7: HANDLING AND STORAGE

7.1. Precautions for Safe Handling

Additional Hazards When Processed: Avoid dust production. Accumulation and dispersion of dust with an ignition source can cause a combustible dust explosion, keep dust levels to a minimum and follow applicable regulations. Do not pressurize, cut, or weld containers. . On burning: release of harmful/irritant gases/vapours e.g.: (antimony oxides).

Precautions for Safe Handling: Use only non-sparking tools. Keep away from heat/sparks/open flames/hot surfaces. – No smoking. Handle in accordance with good industrial hygiene and safety procedures.

Hygiene Measures: Handle in accordance with good industrial hygiene and safety procedures. Wash hands and other exposed areas with mild soap and water before eating, drinking, or smoking and again when leaving work. Do no eat, drink or smoke when using this product.

7.2. Conditions for Safe Storage, Including Any Incompatibilities

Technical Measures: Proper grounding procedures to avoid static electricity should be followed. Ground/bond container and receiving equipment. Use explosion-proof electrical, ventilating, and lighting equipment. Comply with applicable regulations.

Storage Conditions: Store in a dry, cool and well-ventilated place. Keep container closed when not in use. Keep/Store away from extremely high or low temperatures, ignition sources, incompatible materials.

Incompatible Products: Strong acids. Strong bases. Strong oxidizers.

7.3. Specific End Use(s)

No additional information available

SECTION 8: EXPOSURE CONTROLS/PERSONAL PROTECTION

8.1. Control Parameters

Antimony (7440-36-0)		
USA ACGIH	ACGIH TWA (mg/m³)	0.5 mg/m³
USA NIOSH	NIOSH REL (TWA) (mg/m³)	0.5 mg/m³

USA IDLH	US IDLH (mg/m³)	50 mg/m³
USA OSHA	OSHA PEL (TWA) (mg/m³)	0.5 mg/m³

8.2. Exposure Controls

Appropriate Engineering Controls : Ensure all national/local regulations are observed. Proper grounding procedures to avoid static electricity should be followed. Use explosion-proof equipment. Emergency eye wash fountains and safety showers should be available in the immediate vicinity of any potential exposure. Ensure adequate ventilation, especially in confined areas.

Personal Protective Equipment : Gloves. Protective goggles. Respiratory protection of the dependent type. Protective clothing.



Materials for Protective Clothing : Chemically resistant materials and fabrics.

Hand Protection : Wear chemically resistant protective gloves.

Eye Protection : Chemical goggles or safety glasses.

Skin and Body Protection : Wear suitable protective clothing.

Respiratory Protection : Use NIOSH-approved air-purifying or supplied-air respirator where airborne concentrations of dust are expected to exceed exposure limits.

Thermal Hazard Protection : Wear suitable protective clothing.

SECTION 9: PHYSICAL AND CHEMICAL PROPERTIES

9.1. Information on Basic Physical and Chemical Properties

Physical State : Solid

Odor : No data available

Odor Threshold : No data available

pH : No data available

Relative Evaporation Rate (butylacetate=1) : No data available

Melting Point : No data available

Freezing Point : No data available

Boiling Point : No data available

Flash Point : No data available

Auto-ignition Temperature : No data available

Decomposition Temperature : No data available

Flammability (solid, gas) : No data available

Vapor Pressure : No data available

Relative Vapor Density at 20 °C : No data available

Relative Density : No data available

Specific Gravity : No data available

Solubility : No data available

Log Pow : No data available

Log Kow : No data available

Viscosity, Kinematic : No data available

Viscosity, Dynamic : No data available

Explosive Properties : No data available

Oxidizing Properties : No data available

Explosive Limits : No data available

9.2. Other Information No additional information available

SECTION 10: STABILITY AND REACTIVITY

10.1 Reactivity: Hazardous reactions will not occur under normal conditions. Dust clouds can be explosive.

10.2 Chemical Stability: Dust clouds can be explosive.

10.3 Possibility of Hazardous Reactions: Hazardous polymerization will not occur.

10.4 Conditions to Avoid: Direct sunlight. Extremely high or low temperatures. Open flame. Ignition sources. Incompatible materials.

10.5 Incompatible Materials: Strong acids. Strong bases. Strong oxidizers. Halogenated compounds.

10.6 Hazardous Decomposition Products: Antimony and its oxides. Metal oxides. Inhalation of fumes may cause metal fume fever.

SECTION 11: TOXICOLOGICAL INFORMATION

11.1. Information On Toxicological Effects

Acute Toxicity: Toxic if swallowed. Harmful if inhaled.

Antimony	
ATE (Oral)	500.000 mg/kg body weight
ATE (Dust/Mist)	1.500 mg/l/4h

Antimony (7440-36-0)	
LD50 Oral Rat	100 mg/kg
ATE (Oral)	100.000 mg/kg body weight

Skin Corrosion/Irritation: Not classified

Serious Eye Damage/Irritation: Not classified

Respiratory or Skin Sensitization: Not classified

Germ Cell Mutagenicity: Not classified

Carcinogenicity: Suspected of causing cancer.

Reproductive Toxicity: Not classified

Specific Target Organ Toxicity (Single Exposure): Not classified

Specific Target Organ Toxicity (Repeated Exposure): Not classified

Aspiration Hazard: Not classified

Symptoms/Injuries After Inhalation: Harmful if inhaled. Respiratory tract irritation.

Symptoms/Injuries After Skin Contact: Prolonged contact with large amounts of dust may cause mechanical irritation.

Symptoms/Injuries After Eye Contact: Prolonged contact with large amounts of dust may cause mechanical irritation.

Symptoms/Injuries After Ingestion: Toxic if swallowed. May cause nausea, vomiting, and diarrhea.

Chronic Symptoms: Prolonged exposure may cause effects in specific organs such as the liver, kidneys, blood, and nervous system.

SECTION 12: ECOLOGICAL INFORMATION

12.1. Toxicity

Ecology - General : Toxic to aquatic life with long lasting effects.

12.2. Persistence and Degradability

Antimony	
Persistence and Degradability	May cause long-term adverse effects in the environment.

12.3. Bioaccumulative Potential No additional information available

12.4. Mobility in Soil No additional information available

12.5. Other Adverse Effects

Other Information : Avoid release to the environment.

SECTION 13: DISPOSAL CONSIDERATIONS

13.1. Waste treatment methods

Waste Disposal Recommendations: Dispose of waste material in accordance with all local, regional, national, and international regulations.

Additional Information: The materials contained within this product are hazardous to the environment, do not release into the environment.

SECTION 14: TRANSPORT INFORMATION

14.1 In Accordance with DOT

Proper Shipping Name : ANTIMONY POWDER
Hazard Class : 6.1
Identification Number : UN2871
Label Codes : 6.1
Packing Group : III
Marine Pollutant : Marine pollutant
ERG Number : 170



14.2 In Accordance with IMDG

Proper Shipping Name : ANTIMONY POWDER
Hazard Class : 6.1
Identification Number : UN2871
Packing Group : III
Label Codes : 6.1
EmS-No. (Fire) : F-A
EmS-No. (Spillage) : S-A
MFAG Number : 171



14.3 In Accordance with IATA

Proper Shipping Name : ANTIMONY POWDER
Packing Group : III
Identification Number : UN2871
Hazard Class : 6
Label Codes : 6.1
ERG Code (IATA) : 6L



SECTION 15: REGULATORY INFORMATION

15.1 US Federal Regulations

Antimony	
SARA Section 311/312 Hazard Classes	Delayed (chronic) health hazard Immediate (acute) health hazard

Antimony (7440-36-0)	
Listed on the United States TSCA (Toxic Substances Control Act) inventory	
Listed on SARA Section 313 (Specific toxic chemical listings)	
SARA Section 313 - Emission Reporting	1.0 %

15.2 US State Regulations

Antimony (7440-36-0)
U.S. - California - Priority Toxic Pollutants - Human Health Criteria
U.S. - California - Toxic Air Contaminant List (AB 1807, AB 2728)
U.S. - Colorado - Primary Drinking Water Regulations - Maximum Contaminant Level Goals (MCLGs)
U.S. - Colorado - Primary Drinking Water Regulations - Maximum Contaminant Levels (MCLs)
U.S. - Connecticut - Drinking Water Quality Standards - Maximum Contaminant Levels
U.S. - Connecticut - Hazardous Air Pollutants - HLVs (30 min)
U.S. - Connecticut - Hazardous Air Pollutants - HLVs (8 hr)
U.S. - Connecticut - Water Quality Standards - Consumption of Organisms Only
U.S. - Connecticut - Water Quality Standards - Consumption of Water and Organisms
U.S. - Connecticut - Water Quality Standards - Health Designations
U.S. - Delaware - Pollutant Discharge Requirements - Reportable Quantities
U.S. - Florida - Drinking Water Standards - Inorganic Contaminants - Maximum Contaminant Levels (MCLs)
U.S. - Georgia - Drinking Water - Maximum Contaminant Levels (MCLs)
U.S. - Idaho - Non-Carcinogenic Toxic Air Pollutants - Acceptable Ambient Concentrations
U.S. - Idaho - Non-Carcinogenic Toxic Air Pollutants - Emission Levels (ELs)
U.S. - Idaho - Occupational Exposure Limits - TWAs

U.S. - Illinois - Toxic Air Contaminants
U.S. - Louisiana - Reportable Quantity List for Pollutants
U.S. - Maine - Air Pollutants - Hazardous Air Pollutants
U.S. - Maryland - Surface Water Quality Standards - Consumption of Organisms Only
U.S. - Maryland - Surface Water Quality Standards - Consumption of Water and Organisms
U.S. - Massachusetts - Allowable Ambient Limits (AALs)
U.S. - Massachusetts - Allowable Threshold Concentrations (ATCs)
U.S. - Massachusetts - Drinking Water - Maximum Contaminant Levels (MCLs)
U.S. - Massachusetts - Oil & Hazardous Material List - Groundwater Reportable Concentration - Reporting Category 1
U.S. - Massachusetts - Oil & Hazardous Material List - Groundwater Reportable Concentration - Reporting Category 2
U.S. - Massachusetts - Oil & Hazardous Material List - Reportable Quantity
U.S. - Massachusetts - Oil & Hazardous Material List - Soil Reportable Concentration - Reporting Category 1
U.S. - Massachusetts - Oil & Hazardous Material List - Soil Reportable Concentration - Reporting Category 2
U.S. - Massachusetts - Right To Know List
U.S. - Massachusetts - Threshold Effects Exposure Limits (TELs)
U.S. - Massachusetts - Toxics Use Reduction Act
U.S. - Michigan - Occupational Exposure Limits - TWAs
U.S. - Michigan - Polluting Materials List
U.S. - Minnesota - Chemicals of High Concern
U.S. - Minnesota - Groundwater Health Risk Limits
U.S. - Minnesota - Hazardous Substance List
U.S. - Minnesota - Permissible Exposure Limits - TWAs
U.S. - Missouri - Drinking Water - Maximum Contaminant Levels (MCLs)
U.S. - Nebraska - Drinking Water - Maximum Contaminant Levels (MCLs)
U.S. - New Hampshire - Drinking Water - Maximum Contaminant Levels (MCLs)
U.S. - New Hampshire - Regulated Toxic Air Pollutants - Ambient Air Levels (AALs) - 24-Hour
U.S. - New Hampshire - Regulated Toxic Air Pollutants - Ambient Air Levels (AALs) - Annual
U.S. - New Jersey - Discharge Prevention - List of Hazardous Substances
U.S. - New Jersey - Environmental Hazardous Substances List
U.S. - New Jersey - Primary Drinking Water Standards - Maximum Contaminant Levels - MCLs
U.S. - New Jersey - Right to Know Hazardous Substance List
U.S. - New Jersey - Water Quality - Ground Water Quality Criteria
U.S. - New Jersey - Water Quality - Practical Quantitation Levels (PQLs)
U.S. - New York - Occupational Exposure Limits - TWAs
U.S. - New York - Reporting of Releases Part 597 - List of Hazardous Substances
U.S. - North Dakota - Air Pollutants - Guideline Concentrations - 8-Hour
U.S. - North Dakota - Water Quality Standards - Human Health Value for Class III
U.S. - North Dakota - Water Quality Standards - Human Health Value for Classes I, IA, II
U.S. - Oregon - Permissible Exposure Limits - TWAs
U.S. - Pennsylvania - Drinking Water - Maximum Contaminant Levels (MCLs)
U.S. - Pennsylvania - RTK (Right to Know) - Environmental Hazard List
U.S. - Pennsylvania - RTK (Right to Know) List
U.S. - Rhode Island - Air Toxics - Acceptable Ambient Levels - 24-Hour
U.S. - Rhode Island - Water Quality Standards - Acute Freshwater Aquatic Life Criteria
U.S. - Rhode Island - Water Quality Standards - Chronic Freshwater Aquatic Life Criteria
U.S. - Rhode Island - Water Quality Standards - Human Health Criteria for Consumption of Aquatic Organisms Only
U.S. - Rhode Island - Water Quality Standards - Human Health Criteria for Consumption of Water and Aquatic Organisms
U.S. - South Carolina - Maximum Contaminant Levels (MCLs)
U.S. - Tennessee - Occupational Exposure Limits - TWAs
U.S. - Texas - Drinking Water Standards - Maximum Contaminant Levels (MCLs)
U.S. - Texas - Effects Screening Levels - Long Term
U.S. - Texas - Effects Screening Levels - Short Term
U.S. - Utah - Drinking Water - Maximum Contaminant Levels (MCLs)
U.S. - Vermont - Hazardous Waste - Hazardous Constituents
U.S. - Vermont - Permissible Exposure Limits - TWAs
U.S. - Virginia - Water Quality Standards - Public Water Supply Effluent Limits
U.S. - Virginia - Water Quality Standards - Surface Waters Not Used for the Public Water Supply Effluent Limits

U.S. - Washington - Dangerous Waste - Dangerous Waste Constituents List
U.S. - Washington - Permissible Exposure Limits - STELs
U.S. - Washington - Permissible Exposure Limits - TWAs
U.S. - Wisconsin - Hazardous Air Contaminants - All Sources - Emissions From Stack Heights 25 Feet to Less Than 40 Feet
U.S. - Wisconsin - Hazardous Air Contaminants - All Sources - Emissions From Stack Heights 40 Feet to Less Than 75 Feet
U.S. - Wisconsin - Hazardous Air Contaminants - All Sources - Emissions From Stack Heights 75 Feet or Greater
U.S. - Wisconsin - Hazardous Air Contaminants - All Sources - Emissions From Stack Heights Less Than 25 Feet

SECTION 16: OTHER INFORMATION

Revision date : 02/12/2014

Other Information : This document has been prepared in accordance with the SDS requirements of the OSHA Hazard Communication Standard 29 CFR 1910.1200.

GHS Full Text Phrases:

Acute Tox. 3 (Oral)	Acute toxicity (oral) Category 3
Acute Tox. 4 (Inhalation)	Acute toxicity (inhalation) Category 4
Acute Tox. 4 (Inhalation:dust,mist)	Acute toxicity (inhalation:dust,mist) Category 4
Aquatic Acute 2	Hazardous to the aquatic environment - Acute Hazard Category 2
Aquatic Chronic 2	Hazardous to the aquatic environment - Chronic Hazard Category 2
Carc. 2	Carcinogenicity Category 2
Comb. Dust	Combustible Dust
	May form combustible dust concentrations in air
H301	Toxic if swallowed
H332	Harmful if inhaled
H351	Suspected of causing cancer
H401	Toxic to aquatic life
H411	Toxic to aquatic life with long lasting effects

This information is based on our current knowledge and is intended to describe the product for the purposes of health, safety and environmental requirements only. It should not therefore be construed as guaranteeing any specific property of the product.

SDS US (GHS HazCom) - US

SAFETY DATA SHEET

Version 5.3
Revision Date 09/11/2015
Print Date 05/11/2016

1. PRODUCT AND COMPANY IDENTIFICATION

1.1 Product identifiers

Product name : Aroclor 1248

Product Number : 48589
Brand : Supelco
Index-No. : 602-039-00-4

CAS-No. : 12672-29-6

1.2 Relevant identified uses of the substance or mixture and uses advised against

Identified uses : Laboratory chemicals, Synthesis of substances

1.3 Details of the supplier of the safety data sheet

Company : Sigma-Aldrich
3050 Spruce Street
SAINT LOUIS MO 63103
USA

Telephone : +1 800-325-5832
Fax : +1 800-325-5052

1.4 Emergency telephone number

Emergency Phone # : (314) 776-6555

2. HAZARDS IDENTIFICATION

2.1 Classification of the substance or mixture

GHS Classification in accordance with 29 CFR 1910 (OSHA HCS)
Specific target organ toxicity - repeated exposure (Category 2), H373
Acute aquatic toxicity (Category 1), H400
Chronic aquatic toxicity (Category 1), H410

For the full text of the H-Statements mentioned in this Section, see Section 16.

2.2 GHS Label elements, including precautionary statements

Pictogram



Signal word Warning

Hazard statement(s)
H373 May cause damage to organs through prolonged or repeated exposure.
H410 Very toxic to aquatic life with long lasting effects.

Precautionary statement(s)
P260 Do not breathe dust/ fume/ gas/ mist/ vapours/ spray.
P273 Avoid release to the environment.
P314 Get medical advice/ attention if you feel unwell.
P391 Collect spillage.
P501 Dispose of contents/ container to an approved waste disposal plant.

2.3 Hazards not otherwise classified (HNOC) or not covered by GHS - none

3. COMPOSITION/INFORMATION ON INGREDIENTS

3.1 Substances

CAS-No. : 12672-29-6
Index-No. : 602-039-00-4

Hazardous components

Component	Classification	Concentration
Aroclor 1248		
	STOT RE 2; Aquatic Acute 1; Aquatic Chronic 1; H373, H410	<= 100 %

For the full text of the H-Statements mentioned in this Section, see Section 16.

4. FIRST AID MEASURES

4.1 Description of first aid measures

General advice
Consult a physician. Show this safety data sheet to the doctor in attendance.Move out of dangerous area.

If inhaled
If breathed in, move person into fresh air. If not breathing, give artificial respiration. Consult a physician.

In case of skin contact
Wash off with soap and plenty of water. Consult a physician.

In case of eye contact
Flush eyes with water as a precaution.

If swallowed
Never give anything by mouth to an unconscious person. Rinse mouth with water. Consult a physician.

4.2 Most important symptoms and effects, both acute and delayed

The most important known symptoms and effects are described in the labelling (see section 2.2) and/or in section 11

4.3 Indication of any immediate medical attention and special treatment needed

No data available

5. FIREFIGHTING MEASURES

5.1 Extinguishing media

Suitable extinguishing media
Use water spray, alcohol-resistant foam, dry chemical or carbon dioxide.

5.2 Special hazards arising from the substance or mixture

Nature of decomposition products not known.

5.3 Advice for firefighters

Wear self-contained breathing apparatus for firefighting if necessary.

5.4 Further information

No data available

6. ACCIDENTAL RELEASE MEASURES

6.1 Personal precautions, protective equipment and emergency procedures

Use personal protective equipment. Avoid breathing vapours, mist or gas. Ensure adequate ventilation. Evacuate personnel to safe areas.
For personal protection see section 8.

6.2 Environmental precautions

Prevent further leakage or spillage if safe to do so. Do not let product enter drains. Discharge into the environment must be avoided.

6.3 Methods and materials for containment and cleaning up
Soak up with inert absorbent material and dispose of as hazardous waste. Keep in suitable, closed containers for disposal.

6.4 Reference to other sections
For disposal see section 13.

7. HANDLING AND STORAGE

7.1 Precautions for safe handling
Avoid contact with skin and eyes. Avoid inhalation of vapour or mist.
For precautions see section 2.2.

7.2 Conditions for safe storage, including any incompatibilities
Keep container tightly closed in a dry and well-ventilated place. Containers which are opened must be carefully resealed and kept upright to prevent leakage.
Storage class (TRGS 510): Non Combustible Liquids

7.3 Specific end use(s)
Apart from the uses mentioned in section 1.2 no other specific uses are stipulated

8. EXPOSURE CONTROLS/PERSONAL PROTECTION

8.1 Control parameters

Components with workplace control parameters

Component	CAS-No.	Value	Control parameters	Basis
Aroclor 1248	12672-29-6	TWA	0.001000 mg/m3	USA. NIOSH Recommended Exposure Limits
	Remarks	Potential Occupational Carcinogen		

8.2 Exposure controls

Appropriate engineering controls
Handle in accordance with good industrial hygiene and safety practice. Wash hands before breaks and at the end of workday.

Personal protective equipment

Eye/face protection
Face shield and safety glasses Use equipment for eye protection tested and approved under appropriate government standards such as NIOSH (US) or EN 166(EU).

Skin protection
Handle with gloves. Gloves must be inspected prior to use. Use proper glove removal technique (without touching glove's outer surface) to avoid skin contact with this product. Dispose of contaminated gloves after use in accordance with applicable laws and good laboratory practices. Wash and dry hands.

Body Protection
Complete suit protecting against chemicals, The type of protective equipment must be selected according to the concentration and amount of the dangerous substance at the specific workplace.

Respiratory protection
Where risk assessment shows air-purifying respirators are appropriate use a full-face respirator with multi-purpose combination (US) or type ABEK (EN 14387) respirator cartridges as a backup to engineering controls. If the respirator is the sole means of protection, use a full-face supplied air respirator. Use respirators and components tested and approved under appropriate government standards such as NIOSH (US) or CEN (EU).

Control of environmental exposure
Prevent further leakage or spillage if safe to do so. Do not let product enter drains. Discharge into the environment must be avoided.

9. PHYSICAL AND CHEMICAL PROPERTIES

9.1 Information on basic physical and chemical properties

a) Appearance Form: liquid

b)	Odour	No data available
c)	Odour Threshold	No data available
d)	pH	No data available
e)	Melting point/freezing point	No data available
f)	Initial boiling point and boiling range	No data available
g)	Flash point	No data available
h)	Evaporation rate	No data available
i)	Flammability (solid, gas)	No data available
j)	Upper/lower flammability or explosive limits	No data available
k)	Vapour pressure	No data available
l)	Vapour density	No data available
m)	Relative density	No data available
n)	Water solubility	No data available
o)	Partition coefficient: n-octanol/water	No data available
p)	Auto-ignition temperature	No data available
q)	Decomposition temperature	No data available
r)	Viscosity	No data available
s)	Explosive properties	No data available
t)	Oxidizing properties	No data available

9.2 Other safety information
No data available

10. STABILITY AND REACTIVITY

10.1 Reactivity
No data available

10.2 Chemical stability
Stable under recommended storage conditions.

10.3 Possibility of hazardous reactions
No data available

10.4 Conditions to avoid
No data available

10.5 Incompatible materials
Strong oxidizing agents

10.6 Hazardous decomposition products
Other decomposition products - No data available
In the event of fire: see section 5

11. TOXICOLOGICAL INFORMATION

11.1 Information on toxicological effects

Acute toxicity
LD50 Oral - Rat - 11,000 mg/kg

Inhalation: No data available

Dermal: No data available

No data available

Skin corrosion/irritation
No data available

Serious eye damage/eye irritation
No data available

Respiratory or skin sensitisation
No data available

Germ cell mutagenicity
No data available

Carcinogenicity

IARC:	No component of this product present at levels greater than or equal to 0.1% is identified as probable, possible or confirmed human carcinogen by IARC.
ACGIH:	No component of this product present at levels greater than or equal to 0.1% is identified as a carcinogen or potential carcinogen by ACGIH.
NTP:	No component of this product present at levels greater than or equal to 0.1% is identified as a known or anticipated carcinogen by NTP.
OSHA:	No component of this product present at levels greater than or equal to 0.1% is identified as a carcinogen or potential carcinogen by OSHA.

Reproductive toxicity
No data available

Reproductive toxicity - Monkey - Oral
Maternal Effects: Menstrual cycle changes or disorders.

Reproductive toxicity - Monkey - Oral
Effects on Fertility: Post-implantation mortality (e.g., dead and/or resorbed implants per total number of implants).

Reproductive toxicity - Monkey - Oral
Effects on Fertility: Abortion.

Reproductive toxicity - Monkey - Oral
Effects on Newborn: Growth statistics (e.g., reduced weight gain). Effects on Newborn: Behavioral. Effects on Newborn: Other postnatal measures or effects.

No data available

Developmental Toxicity - Rabbit - Oral
Specific Developmental Abnormalities: Immune and reticuloendothelial system.

Specific target organ toxicity - single exposure
No data available

Specific target organ toxicity - repeated exposure
May cause damage to organs through prolonged or repeated exposure.
No data available

Aspiration hazard
No data available

Additional Information
RTECS: Not available

Nausea, Dizziness, Headache, muscle pain, muscle weakness, neck stiffness, trunk stiffness, stiffness of extremities, thick feeling in the tongue, Thirst

Stomach - Irregularities - Based on Human Evidence
Stomach - Irregularities - Based on Human Evidence

12. ECOLOGICAL INFORMATION

12.1 Toxicity

Toxicity to fish	LC50 - Lepomis macrochirus - 0.278 mg/l - 96.0 h
Toxicity to algae	Growth inhibition EC50 - Thalassiosira rotula - 0.02 mg/l - 44 h

12.2 Persistence and degradability
No data available

12.3 Bioaccumulative potential
Bioaccumulation Pimephales promelas (fathead minnow) - 250 d - 3 µg/l

Bioconcentration factor (BCF): 120,000

12.4 Mobility in soil
No data available

12.5 Results of PBT and vPvB assessment
PBT/vPvB assessment not available as chemical safety assessment not required/not conducted

12.6 Other adverse effects
An environmental hazard cannot be excluded in the event of unprofessional handling or disposal.
Very toxic to aquatic life with long lasting effects.

No data available

13. DISPOSAL CONSIDERATIONS

13.1 Waste treatment methods

Product
Offer surplus and non-recyclable solutions to a licensed disposal company.

Contaminated packaging
Dispose of as unused product.

14. TRANSPORT INFORMATION

DOT (US)
UN number: 2315 Class: 9 Packing group: II
Proper shipping name: Polychlorinated biphenyls, liquid
Reportable Quantity (RQ): 1 lbs

Poison Inhalation Hazard: No

IMDG
UN number: 2315 Class: 9 Packing group: II EMS-No: F-A, S-A
Proper shipping name: POLYCHLORINATED BIPHENYLS, LIQUID
Marine pollutant: yes

IATA
UN number: 2315 Class: 9 Packing group: II
Proper shipping name: Polychlorinated biphenyls, liquid

15. REGULATORY INFORMATION

SARA 302 Components
No chemicals in this material are subject to the reporting requirements of SARA Title III, Section 302.

SARA 313 Components

This material does not contain any chemical components with known CAS numbers that exceed the threshold (De Minimis) reporting levels established by SARA Title III, Section 313.

SARA 311/312 Hazards
Chronic Health Hazard

Massachusetts Right To Know Components

	CAS-No.	Revision Date
Aroclor 1248	12672-29-6	1993-04-24

Pennsylvania Right To Know Components

	CAS-No.	Revision Date
Aroclor 1248	12672-29-6	1993-04-24

New Jersey Right To Know Components

	CAS-No.	Revision Date
Aroclor 1248	12672-29-6	1993-04-24

California Prop. 65 Components

WARNING! This product contains a chemical known to the State of California to cause cancer. Aroclor 1248	CAS-No. 12672-29-6	Revision Date 2008-08-01
WARNING: This product contains a chemical known to the State of California to cause birth defects or other reproductive harm. Aroclor 1248	CAS-No. 12672-29-6	Revision Date 2008-08-01

16. OTHER INFORMATION

Full text of H-Statements referred to under sections 2 and 3.

Aquatic Acute	Acute aquatic toxicity
Aquatic Chronic	Chronic aquatic toxicity
H373	May cause damage to organs through prolonged or repeated exposure.
H400	Very toxic to aquatic life.
H410	Very toxic to aquatic life with long lasting effects.
STOT RE	Specific target organ toxicity - repeated exposure

HMIS Rating

Health hazard:	0
Chronic Health Hazard:	*
Flammability:	0
Physical Hazard	0

NFPA Rating

Health hazard:	0
Fire Hazard:	0
Reactivity Hazard:	0

Further information

Copyright 2015 Sigma-Aldrich Co. LLC. License granted to make unlimited paper copies for internal use only.
The above information is believed to be correct but does not purport to be all inclusive and shall be used only as a guide. The information in this document is based on the present state of our knowledge and is applicable to the product with regard to appropriate safety precautions. It does not represent any guarantee of the properties of the product. Sigma-Aldrich Corporation and its Affiliates shall not be held liable for any damage resulting from handling or from contact with the above product. See www.sigma-aldrich.com and/or the reverse side of invoice or packing slip for additional terms and conditions of sale.

Preparation Information
Sigma-Aldrich Corporation
Product Safety – Americas Region
1-800-521-8956

Version: 5.3 Revision Date: 09/11/2015 Print Date: 05/11/2016

SAFETY DATA SHEET

Version 5.2
Revision Date 02/27/2015
Print Date 05/01/2016

1. PRODUCT AND COMPANY IDENTIFICATION

1.1 Product identifiers

Product name : Aroclor 1254

Product Number : 48586
Brand : Supelco
Index-No. : 602-039-00-4

CAS-No. : 11097-69-1

1.2 Relevant identified uses of the substance or mixture and uses advised against

Identified uses : Laboratory chemicals, Manufacture of substances

1.3 Details of the supplier of the safety data sheet

Company : Sigma-Aldrich
3050 Spruce Street
SAINT LOUIS MO 63103
USA

Telephone : +1 800-325-5832
Fax : +1 800-325-5052

1.4 Emergency telephone number

Emergency Phone # : (314) 776-6555

2. HAZARDS IDENTIFICATION

2.1 Classification of the substance or mixture

GHS Classification in accordance with 29 CFR 1910 (OSHA HCS)
Acute toxicity, Oral (Category 4), H302
Specific target organ toxicity - repeated exposure (Category 2), H373
Acute aquatic toxicity (Category 1), H400
Chronic aquatic toxicity (Category 1), H410

For the full text of the H-Statements mentioned in this Section, see Section 16.

2.2 GHS Label elements, including precautionary statements

Pictogram



Signal word Warning

Hazard statement(s)
H302 Harmful if swallowed.
H373 May cause damage to organs through prolonged or repeated exposure.
H410 Very toxic to aquatic life with long lasting effects.

Precautionary statement(s)
P260 Do not breathe dust/ fume/ gas/ mist/ vapours/ spray.
P264 Wash skin thoroughly after handling.
P270 Do not eat, drink or smoke when using this product.
P273 Avoid release to the environment.
P301 + P312 + P330 IF SWALLOWED: Call a POISON CENTER or doctor/ physician if you feel unwell. Rinse mouth.

P314	Get medical advice/ attention if you feel unwell.
P391	Collect spillage.
P501	Dispose of contents/ container to an approved waste disposal plant.

2.3 Hazards not otherwise classified (HNOC) or not covered by GHS - none

3. COMPOSITION/INFORMATION ON INGREDIENTS

3.1 Substances

CAS-No. : 11097-69-1
Index-No. : 602-039-00-4

Hazardous components

Component	Classification	Concentration
Aroclor 1254		
	Acute Tox. 4; STOT RE 2; Aquatic Acute 1; Aquatic Chronic 1; H302, H373, H410	<= 100 %

For the full text of the H-Statements mentioned in this Section, see Section 16.

4. FIRST AID MEASURES

4.1 Description of first aid measures

General advice
Consult a physician. Show this safety data sheet to the doctor in attendance.Move out of dangerous area.

If inhaled
If breathed in, move person into fresh air. If not breathing, give artificial respiration. Consult a physician.

In case of skin contact
Wash off with soap and plenty of water. Consult a physician.

In case of eye contact
Flush eyes with water as a precaution.

If swallowed
Never give anything by mouth to an unconscious person. Rinse mouth with water. Consult a physician.

4.2 Most important symptoms and effects, both acute and delayed
The most important known symptoms and effects are described in the labelling (see section 2.2) and/or in section 11

4.3 Indication of any immediate medical attention and special treatment needed
No data available

5. FIREFIGHTING MEASURES

5.1 Extinguishing media

Suitable extinguishing media
Use water spray, alcohol-resistant foam, dry chemical or carbon dioxide.

5.2 Special hazards arising from the substance or mixture
Nature of decomposition products not known.

5.3 Advice for firefighters
Wear self-contained breathing apparatus for firefighting if necessary.

5.4 Further information
No data available

6. ACCIDENTAL RELEASE MEASURES

6.1 Personal precautions, protective equipment and emergency procedures
Use personal protective equipment. Avoid breathing vapours, mist or gas. Ensure adequate ventilation. Evacuate personnel to safe areas.
For personal protection see section 8.

6.2 Environmental precautions
Prevent further leakage or spillage if safe to do so. Do not let product enter drains. Discharge into the environment must be avoided.

6.3 Methods and materials for containment and cleaning up
Soak up with inert absorbent material and dispose of as hazardous waste. Keep in suitable, closed containers for disposal.

6.4 Reference to other sections
For disposal see section 13.

7. HANDLING AND STORAGE

7.1 Precautions for safe handling
Avoid contact with skin and eyes. Avoid inhalation of vapour or mist.
For precautions see section 2.2.

7.2 Conditions for safe storage, including any incompatibilities
Keep container tightly closed in a dry and well-ventilated place. Containers which are opened must be carefully resealed and kept upright to prevent leakage.
Storage class (TRGS 510): Non Combustible Liquids

7.3 Specific end use(s)
Apart from the uses mentioned in section 1.2 no other specific uses are stipulated

8. EXPOSURE CONTROLS/PERSONAL PROTECTION

8.1 Control parameters

Components with workplace control parameters

Component	CAS-No.	Value	Control parameters	Basis
Aroclor 1254	11097-69-1	TWA	0.5 mg/m3	USA. Occupational Exposure Limits (OSHA) - Table Z-1 Limits for Air Contaminants
	Remarks	Skin designation		
		TWA	0.500000 mg/m3	USA. Occupational Exposure Limits (OSHA) - Table Z-1 Limits for Air Contaminants
		Skin designation		
		TWA	0.5 mg/m3	USA. ACGIH Threshold Limit Values (TLV)
		Upper Respiratory Tract irritation Liver damage Chloracne Confirmed animal carcinogen with unknown relevance to humans Danger of cutaneous absorption		
		TWA	0.500000 mg/m3	USA. ACGIH Threshold Limit Values (TLV)
		Upper Respiratory Tract irritation Liver damage Chloracne Confirmed animal carcinogen with unknown relevance to humans Danger of cutaneous absorption		
		TWA	0.5 mg/m3	USA. OSHA - TABLE Z-1 Limits for Air Contaminants - 1910.1000
		Skin notation		
		TWA	0.001000 mg/m3	USA. NIOSH Recommended Exposure Limits
		Potential Occupational Carcinogen See Appendix A		

8.2 Exposure controls

Appropriate engineering controls
Handle in accordance with good industrial hygiene and safety practice. Wash hands before breaks and at the end of workday.

Personal protective equipment

Eye/face protection
Face shield and safety glasses Use equipment for eye protection tested and approved under appropriate government standards such as NIOSH (US) or EN 166(EU).

Skin protection
Handle with gloves. Gloves must be inspected prior to use. Use proper glove removal technique (without touching glove's outer surface) to avoid skin contact with this product. Dispose of contaminated gloves after use in accordance with applicable laws and good laboratory practices. Wash and dry hands.

Body Protection
Complete suit protecting against chemicals, The type of protective equipment must be selected according to the concentration and amount of the dangerous substance at the specific workplace.

Respiratory protection
Where risk assessment shows air-purifying respirators are appropriate use a full-face respirator with multi-purpose combination (US) or type ABEK (EN 14387) respirator cartridges as a backup to engineering controls. If the respirator is the sole means of protection, use a full-face supplied air respirator. Use respirators and components tested and approved under appropriate government standards such as NIOSH (US) or CEN (EU).

Control of environmental exposure
Prevent further leakage or spillage if safe to do so. Do not let product enter drains. Discharge into the environment must be avoided.

9. PHYSICAL AND CHEMICAL PROPERTIES

9.1 Information on basic physical and chemical properties

a)	Appearance	Form: liquid
b)	Odour	No data available
c)	Odour Threshold	No data available
d)	pH	No data available
e)	Melting point/freezing point	No data available
f)	Initial boiling point and boiling range	No data available
g)	Flash point	No data available
h)	Evaporation rate	No data available
i)	Flammability (solid, gas)	No data available
j)	Upper/lower flammability or explosive limits	No data available
k)	Vapour pressure	No data available
l)	Vapour density	No data available
m)	Relative density	No data available
n)	Water solubility	No data available
o)	Partition coefficient: n-octanol/water	No data available
p)	Auto-ignition temperature	No data available
q)	Decomposition	No data available

temperature

r)	Viscosity	No data available
s)	Explosive properties	No data available
t)	Oxidizing properties	No data available

9.2 Other safety information
No data available

10. STABILITY AND REACTIVITY

10.1 Reactivity
No data available

10.2 Chemical stability
Stable under recommended storage conditions.

10.3 Possibility of hazardous reactions
No data available

10.4 Conditions to avoid
No data available

10.5 Incompatible materials
Strong oxidizing agents

10.6 Hazardous decomposition products
Other decomposition products - No data available
In the event of fire: see section 5

11. TOXICOLOGICAL INFORMATION

11.1 Information on toxicological effects

Acute toxicity
LD50 Oral - Rat - 1,010 mg/kg

Inhalation: No data available

Dermal: No data available

No data available

Skin corrosion/irritation
No data available

Serious eye damage/eye irritation
No data available

Respiratory or skin sensitisation
No data available

Germ cell mutagenicity
Rat
Liver
Unscheduled DNA synthesis

Rat
Liver
DNA damage

Mouse
fibroblast
Morphological transformation.

Rat
Morphological transformation.

Rat
DNA damage

Rat
DNA damage

Carcinogenicity

Carcinogenicity - Rat - Oral
Tumorigenic:Equivocal tumorigenic agent by RTECS criteria. Gastrointestinal:Tumors.

Carcinogenicity - Rat - Oral
Tumorigenic:Carcinogenic by RTECS criteria. Liver:Tumors.

Carcinogenicity - Mouse - Skin
Tumorigenic:Equivocal tumorigenic agent by RTECS criteria. Skin and Appendages: Other: Tumors.
Tumorigenic:Tumors at site or application.

Carcinogenicity - Rat - Oral
Tumorigenic:Equivocal tumorigenic agent by RTECS criteria. Gastrointestinal:Tumors.

Carcinogenicity - Mouse - Oral
Tumorigenic:Neoplastic by RTECS criteria. Liver:Tumors.

Carcinogenicity - Mouse - Intraperitoneal
Tumorigenic:Equivocal tumorigenic agent by RTECS criteria. Tumorigenic Effects: Uterine tumors. Lungs, Thorax, or Respiration:Tumors.

IARC:	No component of this product present at levels greater than or equal to 0.1% is identified as probable, possible or confirmed human carcinogen by IARC.
NTP:	No component of this product present at levels greater than or equal to 0.1% is identified as a known or anticipated carcinogen by NTP.
OSHA:	No component of this product present at levels greater than or equal to 0.1% is identified as a carcinogen or potential carcinogen by OSHA.

Reproductive toxicity
No data available

Reproductive toxicity - Rabbit - Oral
Effects on Fertility: Post-implantation mortality (e.g., dead and/or resorbed implants per total number of implants).
Effects on Fertility: Abortion. Effects on Embryo or Fetus: Fetal death.

Reproductive toxicity - Rabbit - Oral
Effects on Newborn: Biochemical and metabolic.

Reproductive toxicity - Rat - Oral
Effects on Newborn: Biochemical and metabolic.

Reproductive toxicity - Rat - Oral
Effects on Newborn: Behavioral.

Reproductive toxicity - Rat - Oral
Effects on Newborn: Delayed effects.

Reproductive toxicity - Rat - Intraperitoneal
Maternal Effects: Other effects. Effects on Newborn: Biochemical and metabolic.

Reproductive toxicity - Mouse - Oral
Effects on Newborn: Behavioral.

Reproductive toxicity - Mammal - Oral
Effects on Fertility: Female fertility index (e.g., # females pregnant per # sperm positive females; # females pregnant per # females mated).

No data available

Developmental Toxicity - Rat - Oral

Specific Developmental Abnormalities: Hepatobiliary system.

Specific target organ toxicity - single exposure
No data available

Specific target organ toxicity - repeated exposure
May cause damage to organs through prolonged or repeated exposure.

Aspiration hazard
No data available

Additional Information
RTECS: Not available

To the best of our knowledge, the chemical, physical, and toxicological properties have not been thoroughly investigated.

Stomach - Irregularities - Based on Human Evidence
Stomach - Irregularities - Based on Human Evidence

12. ECOLOGICAL INFORMATION

12.1 Toxicity

Toxicity to fish	LC50 - Oncorhynchus mykiss (rainbow trout) - 0.22 µg/l - 96.0 h
Toxicity to algae	LC50 - Algae - 0.015 mg/l - 28 h

12.2 Persistence and degradability

12.3 Bioaccumulative potential

Bioaccumulation	Pimephales promelas (fathead minnow) - 8 Months - 1.8 µg/l
	Bioconcentration factor (BCF): 238,000

12.4 Mobility in soil
No data available

12.5 Results of PBT and vPvB assessment
PBT/vPvB assessment not available as chemical safety assessment not required/not conducted

12.6 Other adverse effects
An environmental hazard cannot be excluded in the event of unprofessional handling or disposal.
Very toxic to aquatic life with long lasting effects.

13. DISPOSAL CONSIDERATIONS

13.1 Waste treatment methods

Product
Offer surplus and non-recyclable solutions to a licensed disposal company. Contact a licensed professional waste disposal service to dispose of this material. Dissolve or mix the material with a combustible solvent and burn in a chemical incinerator equipped with an afterburner and scrubber.

Contaminated packaging
Dispose of as unused product.

14. TRANSPORT INFORMATION

DOT (US)
UN number: 2315 Class: 9 Packing group: II
Proper shipping name: Polychlorinated biphenyls, liquid
Reportable Quantity (RQ): 1 lbs

Poison Inhalation Hazard: No

IMDG
UN number: 2315 Class: 9 Packing group: II EMS-No: F-A, S-A

Proper shipping name: POLYCHLORINATED BIPHENYLS, LIQUID
Marine pollutant: yes

IATA

UN number: 2315 Class: 9 Packing group: II
Proper shipping name: Polychlorinated biphenyls, liquid

15. REGULATORY INFORMATION

SARA 302 Components

No chemicals in this material are subject to the reporting requirements of SARA Title III, Section 302.

SARA 313 Components

This material does not contain any chemical components with known CAS numbers that exceed the threshold (De Minimis) reporting levels established by SARA Title III, Section 313.

Massachusetts Right To Know Components

	CAS-No.	Revision Date
Aroclor 1254	11097-69-1	1993-04-24

Pennsylvania Right To Know Components

	CAS-No.	Revision Date
Aroclor 1254	11097-69-1	1993-04-24

New Jersey Right To Know Components

	CAS-No.	Revision Date
Aroclor 1254	11097-69-1	1993-04-24

California Prop. 65 Components

WARNING! This product contains a chemical known to the State of California to cause cancer. Aroclor 1254	CAS-No. 11097-69-1	Revision Date 1990-06-30
WARNING: This product contains a chemical known to the State of California to cause birth defects or other reproductive harm. Aroclor 1254	CAS-No. 11097-69-1	Revision Date 1990-06-30

16. OTHER INFORMATION

Full text of H-Statements referred to under sections 2 and 3.

Acute Tox.	Acute toxicity
Aquatic Acute	Acute aquatic toxicity
Aquatic Chronic	Chronic aquatic toxicity
H302	Harmful if swallowed.
H373	May cause damage to organs through prolonged or repeated exposure.
H400	Very toxic to aquatic life.
H410	Very toxic to aquatic life with long lasting effects.
STOT RE	Specific target organ toxicity - repeated exposure

HMIS Rating

Health hazard:	1
Chronic Health Hazard:	*
Flammability:	0
Physical Hazard	0

NFPA Rating

Health hazard:	1
Fire Hazard:	0
Reactivity Hazard:	0

Further information

Copyright 2015 Sigma-Aldrich Co. LLC. License granted to make unlimited paper copies for internal use only.
The above information is believed to be correct but does not purport to be all inclusive and shall be used only as a guide. The information in this document is based on the present state of our knowledge and is applicable to the product with regard to appropriate safety precautions. It does not represent any guarantee of the properties of the product. Sigma-Aldrich Corporation and its Affiliates shall not be held liable for any damage resulting from handling or from contact with the above product. See www.sigma-aldrich.com and/or the reverse side of invoice or packing slip for additional terms and conditions of sale.

Preparation Information

Sigma-Aldrich Corporation
Product Safety – Americas Region
1-800-521-8956

Version: 5.2 Revision Date: 02/27/2015 Print Date: 05/01/2016

SAFETY DATA SHEET

Version 5.3
Revision Date 06/25/2015
Print Date 05/11/2016

1. PRODUCT AND COMPANY IDENTIFICATION

1.1 Product identifiers

Product name : AROCLOR 1260

Product Number : CRM48736
Brand : Supelco

1.2 Relevant identified uses of the substance or mixture and uses advised against

Identified uses : Laboratory chemicals, Manufacture of substances

1.3 Details of the supplier of the safety data sheet

Company : Sigma-Aldrich
3050 Spruce Street
SAINT LOUIS MO 63103
USA

Telephone : +1 800-325-5832
Fax : +1 800-325-5052

1.4 Emergency telephone number

Emergency Phone # : (314) 776-6555

2. HAZARDS IDENTIFICATION

2.1 Classification of the substance or mixture

GHS Classification in accordance with 29 CFR 1910 (OSHA HCS)
Carcinogenicity (Category 1B), H350

For the full text of the H-Statements mentioned in this Section, see Section 16.

2.2 GHS Label elements, including precautionary statements

Pictogram



Signal word Danger

Hazard statement(s)
H350 May cause cancer.

Precautionary statement(s)
P201 Obtain special instructions before use.
P202 Do not handle until all safety precautions have been read and understood.
P280 Wear protective gloves/ protective clothing/ eye protection/ face protection.
P308 + P313 IF exposed or concerned: Get medical advice/ attention.
P405 Store locked up.
P501 Dispose of contents/ container to an approved waste disposal plant.

2.3 Hazards not otherwise classified (HNOC) or not covered by GHS - none

3. COMPOSITION/INFORMATION ON INGREDIENTS

3.2 Mixtures

Hazardous components

Component		Classification	Concentration
Distillates (petroleum), hydrotreated middle			
CAS-No. EC-No. Index-No.	64742-46-7 265-148-2 649-221-00-X	Carc. 1B; H350	>= 90 - <= 100 %
Baseoil - unspecified			
CAS-No. EC-No. Index-No.	64742-53-6 265-156-6 649-466-00-2	Carc. 1B; H350	>= 30 - < 50 %
2,6-di-tert-Butyl-p-cresol			
CAS-No. EC-No.	128-37-0 204-881-4	Aquatic Acute 1; Aquatic Chronic 1; H410	>= 0.1 - < 1 %

For the full text of the H-Statements mentioned in this Section, see Section 16.

4. FIRST AID MEASURES

4.1 Description of first aid measures

General advice
Consult a physician. Show this safety data sheet to the doctor in attendance.Move out of dangerous area.

If inhaled
If breathed in, move person into fresh air. If not breathing, give artificial respiration. Consult a physician.

In case of skin contact
Wash off with soap and plenty of water. Consult a physician.

In case of eye contact
Flush eyes with water as a precaution.

If swallowed
Never give anything by mouth to an unconscious person. Rinse mouth with water. Consult a physician.

4.2 Most important symptoms and effects, both acute and delayed
The most important known symptoms and effects are described in the labelling (see section 2.2) and/or in section 11

4.3 Indication of any immediate medical attention and special treatment needed
No data available

5. FIREFIGHTING MEASURES

5.1 Extinguishing media

Suitable extinguishing media
Use water spray, alcohol-resistant foam, dry chemical or carbon dioxide.

5.2 Special hazards arising from the substance or mixture
Nature of decomposition products not known.

5.3 Advice for firefighters
Wear self-contained breathing apparatus for firefighting if necessary.

5.4 Further information
No data available

6. ACCIDENTAL RELEASE MEASURES

6.1 Personal precautions, protective equipment and emergency procedures

Use personal protective equipment. Avoid breathing vapours, mist or gas. Ensure adequate ventilation. Evacuate personnel to safe areas.
For personal protection see section 8.

6.2 Environmental precautions

Prevent further leakage or spillage if safe to do so. Do not let product enter drains.

6.3 Methods and materials for containment and cleaning up

Soak up with inert absorbent material and dispose of as hazardous waste. Keep in suitable, closed containers for disposal.

6.4 Reference to other sections

For disposal see section 13.

7. HANDLING AND STORAGE

7.1 Precautions for safe handling

Avoid inhalation of vapour or mist.
For precautions see section 2.2.

7.2 Conditions for safe storage, including any incompatibilities

Keep container tightly closed in a dry and well-ventilated place. Containers which are opened must be carefully resealed and kept upright to prevent leakage.
Storage class (TRGS 510): Non-combustible, acute toxic Cat.3 / toxic hazardous materials or hazardous materials causing chronic effects

7.3 Specific end use(s)

Apart from the uses mentioned in section 1.2 no other specific uses are stipulated

8. EXPOSURE CONTROLS/PERSONAL PROTECTION

8.1 Control parameters

Components with workplace control parameters

Component	CAS-No.	Value	Control parameters	Basis
Distillates (petroleum), hydrotreated middle	64742-46-7	TWA	500.000000 ppm 2,000.000000 mg/m3	USA. Occupational Exposure Limits (OSHA) - Table Z-1 Limits for Air Contaminants
	Remarks	The value in mg/m3 is approximate.		

		TWA	5.000000 mg/m3	USA. Occupational Exposure Limits (OSHA) - Table Z-1 Limits for Air Contaminants
		TWA	5.000000 mg/m3	USA. NIOSH Recommended Exposure Limits
		ST	10.000000 mg/m3	USA. NIOSH Recommended Exposure Limits
		TWA	5 mg/m3	USA. Occupational Exposure Limits (OSHA) - Table Z-1 Limits for Air Contaminants
		TWA	5 mg/m3	USA. OSHA - TABLE Z-1 Limits for Air Contaminants - 1910.1000
		TWA	5 mg/m3	USA. NIOSH Recommended Exposure Limits
		ST	10 mg/m3	USA. NIOSH Recommended Exposure Limits
Baseoil - unspecified	64742-53-6	TWA	5.000000 mg/m3	USA. Occupational Exposure Limits (OSHA) - Table Z-1 Limits for Air Contaminants
		TWA	5.000000 mg/m3	USA. Occupational Exposure Limits (OSHA) - Table Z-1 Limits for Air Contaminants
		TWA	5.000000 mg/m3	USA. ACGIH Threshold Limit Values (TLV)
		Upper Respiratory Tract irritation Not classifiable as a human carcinogen		
		TWA	5.000000 mg/m3	USA. NIOSH Recommended Exposure Limits
		ST	10.000000 mg/m3	USA. NIOSH Recommended Exposure Limits

8.2 Exposure controls

Appropriate engineering controls
Handle in accordance with good industrial hygiene and safety practice. Wash hands before breaks and at the end of workday.

Personal protective equipment

Eye/face protection
Safety glasses with side-shields conforming to EN166 Use equipment for eye protection tested and approved under appropriate government standards such as NIOSH (US) or EN 166(EU).

Skin protection
Handle with gloves. Gloves must be inspected prior to use. Use proper glove removal technique (without touching glove's outer surface) to avoid skin contact with this product. Dispose of contaminated gloves after use in accordance with applicable laws and good laboratory practices. Wash and dry hands.

Body Protection
Complete suit protecting against chemicals, The type of protective equipment must be selected according to the concentration and amount of the dangerous substance at the specific workplace.

Respiratory protection
Where risk assessment shows air-purifying respirators are appropriate use a full-face respirator with multi-purpose combination (US) or type ABEK (EN 14387) respirator cartridges as a backup to engineering controls. If the respirator is the sole means of protection, use a full-face supplied air respirator. Use respirators and components tested and approved under appropriate government standards such as NIOSH (US) or CEN (EU).

Control of environmental exposure
Prevent further leakage or spillage if safe to do so. Do not let product enter drains.

9. PHYSICAL AND CHEMICAL PROPERTIES

9.1 Information on basic physical and chemical properties

a)	Appearance	Form: liquid
b)	Odour	No data available
c)	Odour Threshold	No data available
d)	pH	No data available
e)	Melting point/freezing point	No data available
f)	Initial boiling point and boiling range	No data available
g)	Flash point	No data available
h)	Evaporation rate	No data available
i)	Flammability (solid, gas)	No data available
j)	Upper/lower flammability or explosive limits	No data available
k)	Vapour pressure	No data available
l)	Vapour density	No data available
m)	Relative density	No data available
n)	Water solubility	No data available
o)	Partition coefficient: n-octanol/water	No data available
p)	Auto-ignition temperature	No data available
q)	Decomposition temperature	No data available
r)	Viscosity	No data available
s)	Explosive properties	No data available
t)	Oxidizing properties	No data available

9.2 Other safety information

No data available

10. STABILITY AND REACTIVITY

10.1 Reactivity

No data available

10.2 Chemical stability

Stable under recommended storage conditions.

10.3 Possibility of hazardous reactions

No data available

10.4 Conditions to avoid

No data available

10.5 Incompatible materials

Strong oxidizing agents

10.6 Hazardous decomposition products

Other decomposition products - No data available
In the event of fire: see section 5

11. TOXICOLOGICAL INFORMATION

11.1 Information on toxicological effects

Acute toxicity
No data available

Inhalation: No data available

Dermal: No data available

No data available

Skin corrosion/irritation
No data available

Serious eye damage/eye irritation
No data available

Respiratory or skin sensitisation
No data available

Germ cell mutagenicity
No data available

Carcinogenicity

IARC:	3 - Group 3: Not classifiable as to its carcinogenicity to humans (2,6-di-tert-Butyl-p-cresol)
IARC:	3 - Group 3: Not classifiable as to its carcinogenicity to humans (Distillates (petroleum), hydrotreated middle)
NTP:	No component of this product present at levels greater than or equal to 0.1% is identified as a known or anticipated carcinogen by NTP.
OSHA:	No component of this product present at levels greater than or equal to 0.1% is identified as a carcinogen or potential carcinogen by OSHA.

Reproductive toxicity
No data available
No data available

Specific target organ toxicity - single exposure
No data available

Specific target organ toxicity - repeated exposure
No data available

Aspiration hazard
No data available

Additional Information
RTECS: Not available

To the best of our knowledge, the chemical, physical, and toxicological properties have not been thoroughly investigated.

Nerves. - (Aroclor 1260)

12. ECOLOGICAL INFORMATION

12.1 Toxicity
No data available

12.2 Persistence and degradability
No data available

12.3 Bioaccumulative potential
No data available

12.4 Mobility in soil
No data available

12.5 Results of PBT and vPvB assessment
PBT/vPvB assessment not available as chemical safety assessment not required/not conducted

12.6 Other adverse effects
No data available

13. DISPOSAL CONSIDERATIONS

13.1 Waste treatment methods

Product
Offer surplus and non-recyclable solutions to a licensed disposal company. Contact a licensed professional waste disposal service to dispose of this material. Dissolve or mix the material with a combustible solvent and burn in a chemical incinerator equipped with an afterburner and scrubber.

Contaminated packaging
Dispose of as unused product.

14. TRANSPORT INFORMATION

DOT (US)
Not dangerous goods

IMDG
Not dangerous goods

IATA
Not dangerous goods

15. REGULATORY INFORMATION

SARA 302 Components
No chemicals in this material are subject to the reporting requirements of SARA Title III, Section 302.

SARA 313 Components
This material does not contain any chemical components with known CAS numbers that exceed the threshold (De Minimis) reporting levels established by SARA Title III, Section 313.

SARA 311/312 Hazards
Chronic Health Hazard

Massachusetts Right To Know Components

	CAS-No.	Revision Date
Distillates (petroleum), hydrotreated middle	64742-46-7	1989-08-11
Baseoil - unspecified	64742-53-6	1993-04-24

Pennsylvania Right To Know Components

	CAS-No.	Revision Date
Distillates (petroleum), hydrotreated middle	64742-46-7	1989-08-11
Baseoil - unspecified	64742-53-6	1993-04-24

New Jersey Right To Know Components

	CAS-No.	Revision Date
Distillates (petroleum), hydrotreated middle	64742-46-7	1989-08-11
Baseoil - unspecified	64742-53-6	1993-04-24

California Prop. 65 Components

WARNING! This product contains a chemical known to the State of California to cause cancer.	CAS-No.	Revision Date
Aroclor 1260	11096-82-5	2008-08-01
Distillates (petroleum), hydrotreated middle	64742-46-7	2013-12-20

WARNING: This product contains a chemical known to the	CAS-No.	Revision Date

State of California to cause birth defects or other reproductive harm.	11096-82-5	2008-08-01
Aroclor 1260		

16. OTHER INFORMATION

Full text of H-Statements referred to under sections 2 and 3.

Aquatic Acute	Acute aquatic toxicity
Aquatic Chronic	Chronic aquatic toxicity
Carc.	Carcinogenicity
H350	May cause cancer.
H410	Very toxic to aquatic life with long lasting effects.

HMIS Rating

Health hazard:	0
Chronic Health Hazard:	*
Flammability:	0
Physical Hazard	0

NFPA Rating

Health hazard:	0
Fire Hazard:	0
Reactivity Hazard:	0

Further information

Copyright 2015 Sigma-Aldrich Co. LLC. License granted to make unlimited paper copies for internal use only.
The above information is believed to be correct but does not purport to be all inclusive and shall be used only as a guide. The information in this document is based on the present state of our knowledge and is applicable to the product with regard to appropriate safety precautions. It does not represent any guarantee of the properties of the product. Sigma-Aldrich Corporation and its Affiliates shall not be held liable for any damage resulting from handling or from contact with the above product. See www.sigma-aldrich.com and/or the reverse side of invoice or packing slip for additional terms and conditions of sale.

Preparation Information

Sigma-Aldrich Corporation
Product Safety – Americas Region
1-800-521-8956

Version: 5.3 Revision Date: 06/25/2015 Print Date: 05/11/2016

AccuStandard, Inc.
125 Market St., New Haven, CT 06513 USA
Tel: 203-786-5290 Fax: 203-786-5287

SAFETY DATA SHEET

SECTION 1 - CHEMICAL PRODUCT AND COMPANY IDENTIFICATION

1.1 - Product Identifiers

Catalog Name: C-268S-M

Description: Aroclor 1268 in Methanol

1.2 - Relevant Identified Uses of the Substance or Mixture

Laboratory Chemical Reference Material

1.3 - Supplier Details

Company: AccuStandard, Inc.
125 Market St.
New Haven, CT 06513 USA

Telephone Number: 203-786-5290

Fax: 203-786-5287

Email: edocs@accustandard.com

1.4 - Emergency Telephone Number

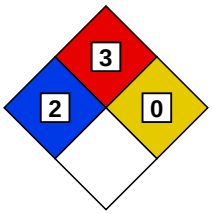
Emergency Phone #: AccuStandard, Inc.
1-203-502-7070 (USA)
+001-203-502-7070 (International)

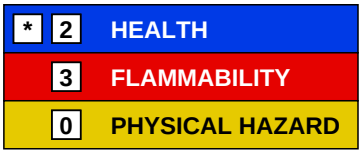
24 hours / 7 days a week

SECTION 2 - HAZARDS IDENTIFICATION

2.1 - GHS Label Elements







Signal Word: Danger

Hazard Codes:

H225 - Highly Flammable (Flammable liquids, category 2)

H301 - Toxic if swallowed. (Acute toxicity, oral, category 3)

H311 - Toxic if absorbed through skin. (Acute toxicity, dermal, category 3)

H315 - Irritating to skin. (Skin corrosion/irritation, category 2)

H320 - Irritating to eyes. (Eye damage/irritation, category 2B)

H332 - Harmful if inhaled. (Acute toxicity, inhalation, category 4)

H336 - Overexposure may cause dizziness, nausea, muscle weakness, narcosis and respiratory failure.

H360 - California Proposition 65 Warning: This product contains a component (or components) that may cause birth defects or other reproductive harm in a quantity greater than or equal to 0.1%.

H370 - Causes damage to organs. (Specific target organ toxicity, single exposure, category 1)

Precautionary Codes:

SECTION 2 - HAZARDS IDENTIFICATION *- continued*

2.1 - GHS Label Elements *- continued*

P202 - This product should only by used by persons trained in the safe handling of hazardous chemicals.

P233 - Store in a tightly closed container. (P404)

P262 - Do not get in eyes, on skin or clothing.

P264 - Wash thoroughly after handling. Do not take internally. Eye wash and safety equipment should be readily available.

P280 - Protective gloves must be worn to prevent skin contact.

P284 - Respiratory Protection: If workplace exposure limit(s) of product or any component is exceeded (see TLV/PEL), or a risk assessment shows air-purifying respirators are appropriate, use of a NIOSH/MSHA approved air supplied respirator is advised. Use a full-face respirator with multi-purpose combination (US) or type ABEK (EN14387) respirator cartridges in absence of proper environmental control. Always use respirators and components tested and approved under appropriate government standards such as NIOSH (US) or CEN (EU). Engineering and/or administrative controls should be implemented to reduce exposure.

P331 - Ingestion: Do NOT induce vomiting. Call a physician or poison control center immediately. Never give anything by mouth to an unconscious person.

P338 - Eye contact: Immediately flush with plenty of water. After initial flushing, remove any contact lenses and continue flushing for at least 15 minutes. Assure adequate flushing by separating the eyelids with fingers.

P360 - Skin contact: Immediately wash skin with soap and plenty of water. Remove contaminated clothing. Get medical attention if symptoms occur. Wash clothing before reuse.

2.2 - Other Hazards

2.2.1 - Symptom of Exposure Health/Environment

Highly Flammable (Flammable liquids, category 2)

Causes damage to organs. (Specific target organ toxicity, single exposure, category 1)

After ingestion or inhalation, initial symptoms may be only that of mild intoxication, but may become severe after 12 or 18 hours.

POISON: May be fatal or cause blindness if swallowed.

Overexposure may cause dizziness, nausea, muscle weakness, narcosis and respiratory failure.

2.2.2 - Potential Health Effects

Irritating to eyes. (Eye damage/irritation, category 2B)

Irritating to skin. (Skin corrosion/irritation, category 2)

Toxic if absorbed through skin. (Acute toxicity, dermal, category 3)

Irritating to mucous membrane and upper respiratory system.

Harmful if inhaled. (Acute toxicity, inhalation, category 4)

Toxic if swallowed. (Acute toxicity, oral, category 3)

2.2.3 - Routes of Entry

Inhalation, ingestion or skin contact.

2.2.4 - Carcinogenicity

California Proposition 65 Warning: This product contains a component (or components) that may cause birth defects or other reproductive harm in a quantity greater than or equal to 0.1%.

California Proposition 65 Warning: This product contains a component (or components) that may cause cancer in a concentration less than 0.1%.

Contains one or more components that are classified (ACGIH, IARC, NTP, OSHA) as a possible cancer hazard in quantities less than 0.1%.

SECTION 3 - COMPOSITION / ANALYTES DATA

Description: Aroclor 1268 in Methanol

			ACGIH -TLV (mg/m³)			OSHA -PEL (mg/m³)		
Analyte	CAS #	% Concentration	TWA	STEL	Skin	TWA	STEL	Skin
Aroclor 1268	11100-14-4	0.004						
Methanol	67-56-1	99.996				260		

SECTION 4 - FIRST AID MEASURES

4.1 - First Aid Procedures - General

Get medical assistance for all cases of overexposure.

4.2 - Eye Contact

Eye contact: Immediately flush with plenty of water. After initial flushing, remove any contact lenses and continue flushing for at least 15 minutes. Assure adequate flushing by separating the eyelids with fingers. (P338)

4.3 - Skin Contact

Skin contact: Immediately wash skin with soap and plenty of water. Remove contaminated clothing. Get medical attention if symptoms occur. Wash clothing before reuse. (P360)

4.4 - Inhalation

Inhalation: Remove to fresh air. If not breathing, give artificial respiration or give oxygen by trained personnel. Seek immediate medical attention.

4.5 - Ingestion

Ingestion: Do NOT induce vomiting. Call a physician or poison control center immediately. Never give anything by mouth to an unconscious person. (P331)

SECTION 5 - FIRE FIGHTING MEASURES

5.1 - Flammable Properties

Dangerous fire and explosive hazard.

Containers can build up pressure if exposed to heat.

Vapors can travel to a source of ignition and flash back.

During a fire, irritating and highly toxic gases may be generated by thermal decomposition or combustion.

5.2 - Extinguishing Media

Use alcohol foam, carbon dioxide, dry chemical, or water spray when fighting fires involving this material.

5.3 - Protection of Firefighters

As in any fire, wear self-contained breathing apparatus pressure demand, MSHA/NIOSH (approved or equivalent) and full protective gear.

SECTION 6 - ACCIDENTAL RELEASE MEASURES

6.1 - Spill Response

Wear suitable protective equipment listed under Exposure Controls / Personal Protection. Eliminate any ignition sources until the area is determined to be free from explosion or fire hazards. Contain the release and eliminate its source, if this can be done without risk. Dispose as hazardous waste. Comply with Federal, State and local regulations.

SECTION 7 - HANDLING AND STORAGE

Store in a tightly closed container. (P404)

Store in a cool area away from ignition sources and oxidizers.

Sonicate before use.

Avoid breathing vapors or mists.

Use with adequate ventilation.

Do not get in eyes, on skin or clothing. (P262)

Avoid prolonged or repeated exposure.

This product should only by used by persons trained in the safe handling of hazardous chemicals. (P202)

SECTION 8 - EXPOSURE CONTROLS

8.1 - Engineering Controls/PPE

Wash thoroughly after handling. Do not take internally. Eye wash and safety equipment should be readily available. (P264)

8.2 - General Hygene Considerations

Respiratory Protection: If workplace exposure limit(s) of product or any component is exceeded (see TLV/PEL), or a risk assessment shows air-purifying respirators are appropriate, use of a NIOSH/MSHA approved air supplied respirator is advised. Use a full-face respirator with multi-purpose combination (US) or type ABEK (EN14387) respirator cartridges in absence of proper environmental control. Always use respirators and components tested and approved under appropriate government standards such as NIOSH (US) or CEN (EU). Engineering and/or administrative controls should be implemented to reduce exposure.

Material should be handled or transferred in an approved fume hood or with adequate ventilation.

Protective gloves must be worn to prevent skin contact. (P280)

(Chloroprene, natural rubber, nitrile, or equivalent)

Use eye protection tested and approved under the appropriate government standards such as NIOSH (US) or EN 166 (EU).

All recommendations are advisory only and must be evaluated by an industrial hygienist and/or safety officer familiar with the specific situation of anticipated use, such as concentration and amount of the substance in the workplace. Any recommendation should not be construed as offering an approval for any specific use of the product.

SECTION 9 - PHYSICAL AND CHEMICAL PROPERTIES

Appearance: Clear liquid

Odor: N/A

Odor Threshold: N/A

pH: N/A

Melting Point: -93.9 °C

Boiling Point: 65 °C

Flash Point: 52 °F (11 °C) (tcc)

Evaporation Rate (Butyl Acetate=1): 5.9

Flammability Class: N/A

Lower Flammability Level: 6.7

Upper Flammability Level: 36.5

Vapor Pressure: 97 mmHg (20 °C)

Vapor Density (Air = 1): 1.1 g/L

SECTION 9 - PHYSICAL AND CHEMICAL PROPERTIES *- continued*

Specific Gravity: 0.791 g/cm3

Solubility in Water: Very soluble

Partition Coefficient: log Pow: -0.77

Autoignition Temperature: 385 °C

Decomposition Temperature: N/A

Viscosity: N/A

VOC Content: N/A

Percent Volatile: 99.9+

SECTION 10 - STABILITY AND REACTIVITY

Stability: Stable

Materials to Avoid: Acids
Oxidizers

Hazardous Decomposition: Oxides of carbon; Formaldehyde

Hazardous Polymerization: Will not occur

Condition to Avoid: Heat; Contact with ignition sources

SECTION 11 - TOXICOLOGICAL INFORMATION

Human Health Toxicity

See section 2 for specific toxicological information for the ingredients of this product.

LD50 (Oral): Human - 143 mg/kg; Rat - 1500 mg/kg

LD50 (Dermal) : Rabbit - >2000 mg/kg

LC50 (Inhalation): Rat - >20 mg/L

WARNING: This product contains chemical(s) known to the state of California to cause cancer and to cause birth defects or other reproductive harm.

No other information related to the toxicological properties of this product is available at this time.

SECTION 12 - ECOLOGICAL INFORMATION

Environmental Toxicity

By complying with sections 6 and 7 there should be no release to the environment.

LC50 (Fish): >1000 mg/L 96H

EC50 (Aquatic Invertebrate): >1000 mg/L 48H

BCF: 1.0

Hydrolyzes readily on contact with water. Readily biodegradable.

No other information related to the ecological properties of this product is available at this time.

SECTION 13 - DISPOSAL CONSIDERATIONS

Recycle or incinerate at any EPA approved facility or dispose in compliance with Federal, State and local regulations. Empty containers must be triple-rinsed prior to disposal.

SECTION 14 - TRANSPORT INFORMATION

Transportation Information (DOT/IATA)

UN Number: UN1230

Class: 3

Packing Group: II

Proper Shipping Name: Methanol

Poison by Inhalation: No

Marine Pollutant: No

SECTION 15 - REGULATORY INFORMATION

WARNING: This product contains chemical(s) known to the state of California to cause cancer and to cause birth defects or other reproductive harm.

This product contains a compound or compounds subject to EU Regulation (EC) No 1907/2006 (REACH) on Annex XIV, Annex XVII, and/or Article 59. Refer to the below table for details.

This product is subject to SARA section 313 reporting requirements.

All components are listed on the TSCA Inventory.

For laboratory, research and development use only. Not for manufacturing or commercial purposes.

In addition to federal and state regulations, local regulations may apply. Check with your local regulatory authorities.

			REACH (1907/2006)		
Analyte	CAS #	% Concentration	Annex XIV	Annex XVII	Article 59
Methanol	67-56-1	99.996		X	

SECTION 16 - OTHER INFORMATION

This document has been designed to meet the requirements of OSHA, ANSI, GHS and CHIPs regulations. Chemicals are classified using the Globally Harmonized System for Classification and Labeling of Chemicals and CLP Regulation (EC) No. 1272/2008.

The statements contained herein are offered for informational purposes only and are based on technical data that we believe to be accurate. The manufacturer will not assume any liability for the accuracy and completeness of this information. Final determination of the suitability of the material is the responsibility of the user. Although certain hazards are described herein, the user should not presume that these are the only hazards that exist. Since conditions and manner of use are outside of the manufacturers control, we make

NO WARRANTY OF MERCHANTABILITY, EXPRESSED OR IMPLIED, AND ASSUME NO LIABILITY RESULTING FROM ITS USE.

Legend : N/A = Not Available ND = Not Determined NR = Not Regulated

Alteration of any information contained herein without written permission from the manufacturer is strictly prohibited.

HMIS/NFPA HAZARD INDEX

0 - Minimal
1 - Slight
2 - Moderate
3 - Serious
4 - Severe

* - Additional Hazard

GHS HAZARD INDEX

Category 1 - Most Severe
Category 5 - Least Severe

**** End of Document ****

SAFETY DATA SHEET

Version 6.10
Revision Date 09/06/2024
Print Date 09/07/2024

SECTION 1: Identification of the substance/mixture and of the company/undertaking

1.1 Product identifiers

Product name : Arsenic

Product Number : 202657
Brand : Aldrich
Index-No. : 033-001-00-X
CAS-No. : 7440-38-2

1.2 Relevant identified uses of the substance or mixture and uses advised against

Identified uses : Laboratory chemicals, Synthesis of substances

Uses advised against : The product is being supplied under the TSCA R&D Exemption (40 CFR Section 720.36). It is the recipient's responsibility to comply with the requirements of the R&D exemption. The product may not be used for a non-exempt commercial purpose under TSCA unless appropriate consent is granted in writing by MilliporeSigma.

1.3 Details of the supplier of the safety data sheet

Company : Sigma-Aldrich Inc.
3050 SPRUCE ST
ST. LOUIS MO 63103
UNITED STATES

Telephone : +1 314 771-5765
Fax : +1 800 325-5052

1.4 Emergency telephone

Emergency Phone # : 800-424-9300 CHEMTREC (USA) +1-703-527-3887 CHEMTREC (International) 24 Hours/day; 7 Days/week

SECTION 2: Hazards identification

2.1 Classification of the substance or mixture

GHS Classification in accordance with 29 CFR 1910 (OSHA HCS)

Acute toxicity, Oral (Category 3), H301
Acute toxicity, Inhalation (Category 3), H331
Skin irritation (Category 2), H315

The life science business of Merck KGaA, Darmstadt, Germany
operates as MilliporeSigma in the US and Canada

Serious eye damage (Category 1), H318
Carcinogenicity (Category 1A), H350
Short-term (acute) aquatic hazard (Category 1), H400
Long-term (chronic) aquatic hazard (Category 1), H410

For the full text of the H-Statements mentioned in this Section, see Section 16.

2.2 GHS Label elements, including precautionary statements

Pictogram



Signal Word	Danger
Hazard Statements	
H301 + H331	Toxic if swallowed or if inhaled.
H315	Causes skin irritation.
H318	Causes serious eye damage.
H350	May cause cancer.
H410	Very toxic to aquatic life with long lasting effects.
Precautionary Statements	
P201	Obtain special instructions before use.
P202	Do not handle until all safety precautions have been read and understood.
P261	Avoid breathing dust.
P264	Wash skin thoroughly after handling.
P270	Do not eat, drink or smoke when using this product.
P271	Use only outdoors or in a well-ventilated area.
P273	Avoid release to the environment.
P280	Wear protective gloves/ protective clothing/ eye protection/ face protection.
P301 + P310 + P330	IF SWALLOWED: Immediately call a POISON CENTER/ doctor. Rinse mouth.
P302 + P352	IF ON SKIN: Wash with plenty of soap and water.
P304 + P340 + P311	IF INHALED: Remove person to fresh air and keep comfortable for breathing. Call a POISON CENTER/ doctor.
P305 + P351 + P338 + P310	IF IN EYES: Rinse cautiously with water for several minutes. Remove contact lenses, if present and easy to do. Continue rinsing. Immediately call a POISON CENTER/ doctor.
P308 + P313	IF exposed or concerned: Get medical advice/ attention.
P332 + P313	If skin irritation occurs: Get medical advice/ attention.
P362	Take off contaminated clothing and wash before reuse.
P391	Collect spillage.
P403 + P233	Store in a well-ventilated place. Keep container tightly closed.
P405	Store locked up.
P501	Dispose of contents/ container to an approved waste disposal plant.

2.3 Hazards not otherwise classified (HNOC) or not covered by GHS - none

The life science business of Merck KGaA, Darmstadt, Germany
operates as MilliporeSigma in the US and Canada

SECTION 3: Composition/information on ingredients

3.1 Substances

Formula	:	As
Molecular weight	:	74.92 g/mol
CAS-No.	:	7440-38-2
EC-No.	:	231-148-6
Index-No.	:	033-001-00-X

Component	Classification	Concentration
arsenic		
	Acute Tox. 3; Skin Irrit. 2; Eye Dam. 1; Carc. 1A; Aquatic Acute 1; Aquatic Chronic 1; H301, H331, H315, H318, H350, H400, H410 M-Factor - Aquatic Acute: 10 M-Factor - Aquatic Chronic: 1	<= 100 %

For the full text of the H-Statements mentioned in this Section, see Section 16.

SECTION 4: First aid measures

4.1 Description of first-aid measures

General advice
First aiders need to protect themselves. Show this material safety data sheet to the doctor in attendance.

If inhaled
After inhalation: fresh air. Immediately call in physician. If breathing stops: immediately apply artificial respiration, if necessary also oxygen.

In case of skin contact
In case of skin contact: Take off immediately all contaminated clothing. Rinse skin with water/ shower. Consult a physician.

In case of eye contact
After eye contact: rinse out with plenty of water. Immediately call in ophthalmologist. Remove contact lenses.

If swallowed
If swallowed: give water to drink (two glasses at most). Seek medical advice immediately. In exceptional cases only, if medical care is not available within one hour, induce vomiting (only in persons who are wide awake and fully conscious), administer activated charcoal (20 - 40 g in a 10% slurry) and consult a doctor as quickly as possible.

The life science business of Merck KGaA, Darmstadt, Germany
operates as MilliporeSigma in the US and Canada

4.2 Most important symptoms and effects, both acute and delayed
The most important known symptoms and effects are described in the labelling (see section 2.2) and/or in section 11

4.3 Indication of any immediate medical attention and special treatment needed
No data available

SECTION 5: Firefighting measures

5.1 Extinguishing media

Suitable extinguishing media
Use extinguishing measures that are appropriate to local circumstances and the surrounding environment.

Unsuitable extinguishing media
For this substance/mixture no limitations of extinguishing agents are given.

5.2 Special hazards arising from the substance or mixture
Nature of decomposition products not known.
Not combustible.
Ambient fire may liberate hazardous vapours.

5.3 Advice for firefighters
Stay in danger area only with self-contained breathing apparatus. Prevent skin contact by keeping a safe distance or by wearing suitable protective clothing.

5.4 Further information
Prevent fire extinguishing water from contaminating surface water or the ground water system.

SECTION 6: Accidental release measures

6.1 Personal precautions, protective equipment and emergency procedures
Advice for non-emergency personnel: Avoid generation and inhalation of dusts in all circumstances. Avoid substance contact. Ensure adequate ventilation. Evacuate the danger area, observe emergency procedures, consult an expert.
For personal protection see section 8.

6.2 Environmental precautions
Do not let product enter drains.

6.3 Methods and materials for containment and cleaning up
Cover drains. Collect, bind, and pump off spills. Observe possible material restrictions (see sections 7 and 10). Take up carefully. Dispose of properly. Clean up affected area. Avoid generation of dusts.

6.4 Reference to other sections
For disposal see section 13.

The life science business of Merck KGaA, Darmstadt, Germany
operates as MilliporeSigma in the US and Canada

SECTION 7: Handling and storage

7.1 Precautions for safe handling

Advice on safe handling
Work under hood. Do not inhale substance/mixture.

Hygiene measures
Immediately change contaminated clothing. Apply preventive skin protection. Wash hands and face after working with substance.
For precautions see section 2.2.

7.2 Conditions for safe storage, including any incompatibilities

Storage conditions
Tightly closed. Dry. Keep in a well-ventilated place. Keep locked up or in an area accessible only to qualified or authorized persons.

Storage class
Storage class (TRGS 510): 6.1A: Combustible, acute toxic Cat. 1 and 2 / very toxic hazardous materials

7.3 Specific end use(s)

Apart from the uses mentioned in section 1.2 no other specific uses are stipulated

SECTION 8: Exposure controls/personal protection

8.1 Control parameters

Ingredients with workplace control parameters

Component	CAS-No.	Value	Control parameters	Basis
arsenic	7440-38-2	TWA	0.01 mg/m3	USA. ACGIH Threshold Limit Values (TLV)
	Remarks	Lung cancer Substances for which there is a Biological Exposure Index or Indices (see BEI® section) Confirmed human carcinogen		
		C	0.0020 mg/m3	USA. NIOSH Recommended Exposure Limits
		Potential Occupational Carcinogen See Appendix A 15 minute ceiling value		

Biological occupational exposure limits

Component	CAS-No.	Parameters	Value	Biological specimen	Basis
arsenic	7440-38-2	inorganic arsenic plus methylated metabolites	15µg/g creatinine	Urine	ACGIH - Biological Exposure Indices (BEI)

The life science business of Merck KGaA, Darmstadt, Germany
operates as MilliporeSigma in the US and Canada

	Remarks	End of shift			
		inorganic arsenic plus methylated metabolites	15µg/g creatinine	Urine	ACGIH - Biological Exposure Indices (BEI)
		End of the workweek (After four or five consecutive working days with exposure)			

8.2 Exposure controls

Appropriate engineering controls
Immediately change contaminated clothing. Apply preventive skin protection. Wash hands and face after working with substance.

Personal protective equipment

Eye/face protection
Use equipment for eye protection tested and approved under appropriate government standards such as NIOSH (US) or EN 166(EU). Tightly fitting safety goggles

Skin protection
This recommendation applies only to the product stated in the safety data sheet, supplied by us and for the designated use. When dissolving in or mixing with other substances and under conditions deviating from those stated in EN 16523-1 please contact the supplier of CE-approved gloves (e.g. KCL GmbH, D-36124 Eichenzell, Internet: www.kcl.de).
Full contact
Material: Nitrile rubber
Minimum layer thickness: 0.11 mm
Break through time: 480 min
Material tested:KCL 741 Dermatril® L

This recommendation applies only to the product stated in the safety data sheet, supplied by us and for the designated use. When dissolving in or mixing with other substances and under conditions deviating from those stated in EN 16523-1 please contact the supplier of CE-approved gloves (e.g. KCL GmbH, D-36124 Eichenzell, Internet: www.kcl.de).
Splash contact
Material: Nitrile rubber
Minimum layer thickness: 0.11 mm
Break through time: 480 min
Material tested:KCL 741 Dermatril® L

Body Protection
protective clothing

Respiratory protection
Recommended Filter type: Filter type P3
The entrepeneur has to ensure that maintenance, cleaning and testing of respiratory protective devices are carried out according to the instructions of the producer. These measures have to be properly documented.
required when dusts are generated.
Our recommendations on filtering respiratory protection are based on the following standards: DIN EN 143, DIN 14387 and other accompanying standards relating to the used respiratory protection system.

The life science business of Merck KGaA, Darmstadt, Germany
operates as MilliporeSigma in the US and Canada

Control of environmental exposure
Do not let product enter drains.

SECTION 9: Physical and chemical properties

9.1 Information on basic physical and chemical properties

a)	Appearance	Form: powder Color: gray
b)	Odor	No data available
c)	Odor Threshold	No data available
d)	pH	No data available
e)	Melting point/freezing point	Melting point/ range: 817 °C (1503 °F) - lit.
f)	Initial boiling point and boiling range	613 °C 1135 °F - lit.
g)	Flash point	()Not applicable
h)	Evaporation rate	No data available
i)	Flammability (solid, gas)	No data available
j)	Upper/lower flammability or explosive limits	No data available
k)	Vapor pressure	No data available
l)	Vapor density	No data available
m)	Density	5.727 g/mL at 25 °C (77 °F) - lit.
	Relative density	5.622.4 °C - OECD Test Guideline 109
n)	Water solubility	ca.0.0106 g/l at 20 °C (68 °F) - OECD Test Guideline 105 - slightly soluble
o)	Partition coefficient: n-octanol/water	Not applicable for inorganic substances
p)	Autoignition temperature	> 430 °C (> 806 °F)does not ignite
q)	Decomposition temperature	No data available
r)	Viscosity	No data available
s)	Explosive properties	No data available
t)	Oxidizing properties	none

9.2 Other safety information

No data available

The life science business of Merck KGaA, Darmstadt, Germany
operates as MilliporeSigma in the US and Canada

SECTION 10: Stability and reactivity

10.1 Reactivity
No data available

10.2 Chemical stability
The product is chemically stable under standard ambient conditions (room temperature) .

10.3 Possibility of hazardous reactions
Exothermic reaction with:
Aluminum
Bromine
bromates
chlorates
iodates
Nitric acid
Risk of ignition or formation of inflammable gases or vapours with:
nitrates
Alkali metals
Zinc
Reducing agents
Strong oxidizing agents
Risk of explosion with:
potassium permanganate
azides
halogen-halogen compounds
Peroxides
nitrogen trichloride

10.4 Conditions to avoid
Heat. Exposure to air may affect product quality.
no information available

10.5 Incompatible materials
No data available

10.6 Hazardous decomposition products
In the event of fire: see section 5

SECTION 11: Toxicological information

11.1 Information on toxicological effects

Acute toxicity
LD50 Oral - Mouse - 145 mg/kg
Remarks: Behavioral:Ataxia.
Diarrhea
(RTECS)
Classified according to Regulation (EU) 1272/2008, Annex VI (Table 3.1/3.2)

The life science business of Merck KGaA, Darmstadt, Germany
operates as MilliporeSigma in the US and Canada

Inhalation: No data available
Dermal: No data available
No data available

Skin corrosion/irritation
Skin - In vitro study
Result: Irritating to skin. - 15 min
Remarks: (ECHA)

Serious eye damage/eye irritation
Eyes - Rabbit
Result: Causes serious eye damage. - 24 h
(OECD Test Guideline 405)

Respiratory or skin sensitization
Maximization Test - Guinea pig
Result: negative
(OECD Test Guideline 406)

Germ cell mutagenicity
Test Type: Ames test
Test system: Escherichia coli
Result: negative
Remarks: (ECHA)

Carcinogenicity
May cause cancer. Positive evidence from human epidemiological studies.

IARC:	1 - Group 1: Carcinogenic to humans (arsenic)
NTP:	Known - Known to be human carcinogen (arsenic)
OSHA:	OSHA specifically regulated carcinogen (arsenic)

Reproductive toxicity
No data available

Specific target organ toxicity - single exposure
No data available

Specific target organ toxicity - repeated exposure
No data available

Aspiration hazard
No data available

11.2 Additional Information

RTECS: CG0525000
To the best of our knowledge, the chemical, physical, and toxicological properties have not been thoroughly investigated.

The following applies to arsenic and its compounds in general: they take effect as capillary and enzyme toxins. Symptoms of arsenic poisoning: acute: after inhalation, mucosal irritations with coughing, dyspnoea, pain in the thorax. Perforations within the respiratory tract are possible. After oral uptake, gastrointestinal disorders with vomiting, diarrhoea, and spasms, CNS disorders with headache, confusion, shaking fits and disturbed consciousness, cardiovascular disorders all the way to circulatory collapse. Chronic: exanthema, dermal lesions in the form of hyperkeratosis and hypermelanosis, loss of hair,

The life science business of Merck KGaA, Darmstadt, Germany
operates as MilliporeSigma in the US and Canada

conjunctivitis and polyneuropathy, impaired hepatic function, and renal damage. After accumulation in the liver, kidneys, and skin, arsenic is eliminated from the organism only slowly. Experience has shown arsenic compounds to be carcinogenic in man.

Other dangerous properties can not be excluded.

This substance should be handled with particular care.

Stomach - Irregularities - Based on Human Evidence

Stomach - Irregularities - Based on Human Evidence

SECTION 12: Ecological information

12.1 Toxicity

Toxicity to fish	static test LC50 - Oreochromis mossambicus (Mozambique tilapia) - 28.68 mg/l - 96 h Remarks: (ECHA)
Toxicity to daphnia and other aquatic invertebrates	static test EC50 - Bosmina longirostris (water flea) - 0.85 mg/l - 48 h Remarks: (ECHA)
Toxicity to algae	static test NOEC - Macrocystis pyrifera (brown algae) - 0.04 mg/l - 42 h Remarks: (ECHA)
Toxicity to bacteria	static test EC50 - activated sludge - 10.6 mg/l - 10 Days Remarks: (ECHA)
Toxicity to fish(Chronic toxicity)	flow-through test NOEC - Pimephales promelas (fathead minnow) - 2.13 mg/l - 35 d Remarks: (ECHA)
Toxicity to daphnia and other aquatic invertebrates(Chronic toxicity)	flow-through test NOEC - Shrimp - 0.631 mg/l - 51 d Remarks: (ECHA)

12.2 Persistence and degradability

The methods for determining biodegradability are not applicable to inorganic substances.

12.3 Bioaccumulative potential

No data available

12.4 Mobility in soil

No data available

The life science business of Merck KGaA, Darmstadt, Germany
operates as MilliporeSigma in the US and Canada

12.5 Results of PBT and vPvB assessment

PBT/vPvB assessment not available as chemical safety assessment not required/not conducted

12.6 Endocrine disrupting properties

No data available

12.7 Other adverse effects

No data available

SECTION 13: Disposal considerations

13.1 Waste treatment methods

Product

Waste material must be disposed of in accordance with the national and local regulations. Leave chemicals in original containers. No mixing with other waste. Handle uncleaned containers like the product itself.

SECTION 14: Transport information

DOT (US)

UN number: 1558 Class: 6.1 Packing group: II
Proper shipping name: Arsenic
Reportable Quantity (RQ): 1 lbs
Reportable Quantity (RQ): 1 lbs
Poison Inhalation Hazard: No

IMDG

UN number: 1558 Class: 6.1 Packing group: II EMS-No: F-A, S-A
Proper shipping name: ARSENIC
Marine pollutant : yes

IATA

UN number: 1558 Class: 6.1 Packing group: II
Proper shipping name: Arsenic

SECTION 15: Regulatory information

CERCLA Reportable Quantity

Components	CAS-No.	Component RQ (lbs)	Calculated product RQ (lbs)
arsenic	7440-38-2	1	1
arsenic	7440-38-2	1	1 (D004)

The life science business of Merck KGaA, Darmstadt, Germany
operates as MilliporeSigma in the US and Canada

SARA 304 Extremely Hazardous Substances Reportable Quantity

This material does not contain any components with a section 304 EHS RQ.

SARA 302 Extremely Hazardous Substances Threshold Planning Quantity

This material does not contain any components with a section 302 EHS TPQ.

SARA 311/312 Hazards	:	Acute Health Hazard Chronic Health Hazard
SARA 313	:	The following components are subject to reporting levels established by SARA Title III, Section 313:

arsenic	7440-38-2	>= 90 - <= 100 %

US State Regulations

Massachusetts Right To Know

arsenic	7440-38-2

Pennsylvania Right To Know

arsenic	7440-38-2

Maine Chemicals of High Concern

Product does not contain any listed chemicals

Vermont Chemicals of High Concern

arsenic	7440-38-2

Washington Chemicals of High Concern

arsenic	7440-38-2

California Prop. 65

WARNING: This product can expose you to chemicals including arsenic, which is/are known to the State of California to cause cancer. For more information go to www.P65Warnings.ca.gov.

The ingredients of this product are reported in the following inventories:

TSCA	:	All substances listed as active on the TSCA inventory

TSCA list

No substances are subject to a Significant New Use Rule.

No substances are subject to TSCA 12(b) export notification requirements.

SECTION 16: Other information

Further information

The information is believed to be correct but is not exhaustive and will be used solely as a guideline, which is based on current knowledge of the chemical substance or mixture and is applicable to appropriate safety precautions for the product. It does not represent any guarantee of the properties of the product. Sigma-Aldrich Corporation and its Affiliates shall not be held liable for any damage resulting from handling or from contact

The life science business of Merck KGaA, Darmstadt, Germany
operates as MilliporeSigma in the US and Canada

with the above product. See www.sigma-aldrich.com and/or the reverse side of invoice or packing slip for additional terms and conditions of sale.
Copyright 2020 Sigma-Aldrich Co. LLC. License granted to make unlimited paper copies for internal use only.
The branding on the header and/or footer of this document may temporarily not visually match the product purchased as we transition our branding. However, all of the information in the document regarding the product remains unchanged and matches the product ordered. For further information please contact mlsbranding@sial.com.
Version: 6.10 Revision Date: 09/06/2024 Print Date: 09/07/2024

The life science business of Merck KGaA, Darmstadt, Germany
operates as MilliporeSigma in the US and Canada

SAFETY DATA SHEET

Version 4.5
Revision Date 03/02/2015
Print Date 05/24/2016

1. PRODUCT AND COMPANY IDENTIFICATION

1.1 Product identifiers

Product name : Barium

Product Number : 237094
Brand : Aldrich

CAS-No. : 7440-39-3

1.2 Relevant identified uses of the substance or mixture and uses advised against

Identified uses : Laboratory chemicals, Manufacture of substances

1.3 Details of the supplier of the safety data sheet

Company : Sigma-Aldrich
3050 Spruce Street
SAINT LOUIS MO 63103
USA

Telephone : +1 800-325-5832
Fax : +1 800-325-5052

1.4 Emergency telephone number

Emergency Phone # : (314) 776-6555

2. HAZARDS IDENTIFICATION

2.1 Classification of the substance or mixture

GHS Classification in accordance with 29 CFR 1910 (OSHA HCS)
Substances and mixtures, which in contact with water, emit flammable gases (Category 2), H261
Skin irritation (Category 2), H315
Eye irritation (Category 2A), H319
Specific target organ toxicity - single exposure (Category 3), Respiratory system, H335

For the full text of the H-Statements mentioned in this Section, see Section 16.

2.2 GHS Label elements, including precautionary statements

Pictogram



Signal word Danger

Hazard statement(s)
H261 In contact with water releases flammable gases.
H315 Causes skin irritation.
H319 Causes serious eye irritation.
H335 May cause respiratory irritation.

Precautionary statement(s)
P223 Keep away from any possible contact with water, because of violent reaction and possible flash fire.
P231 + P232 Handle under inert gas. Protect from moisture.
P261 Avoid breathing dust/ fume/ gas/ mist/ vapours/ spray.
P264 Wash skin thoroughly after handling.
P271 Use only outdoors or in a well-ventilated area.

P280	Wear protective gloves/ eye protection/ face protection.
P302 + P352	IF ON SKIN: Wash with plenty of soap and water.
P304 + P340 + P312	IF INHALED: Remove victim to fresh air and keep at rest in a position comfortable for breathing. Call a POISON CENTER or doctor/ physician if you feel unwell.
P305 + P351 + P338	IF IN EYES: Rinse cautiously with water for several minutes. Remove contact lenses, if present and easy to do. Continue rinsing.
P332 + P313	If skin irritation occurs: Get medical advice/ attention.
P335 + P334	Brush off loose particles from skin. Immerse in cool water/ wrap in wet bandages.
P337 + P313	If eye irritation persists: Get medical advice/ attention.
P362	Take off contaminated clothing and wash before reuse.
P370 + P378	In case of fire: Use dry sand, dry chemical or alcohol-resistant foam for extinction.
P402 + P404	Store in a dry place. Store in a closed container.
P403 + P233	Store in a well-ventilated place. Keep container tightly closed.
P405	Store locked up.
P501	Dispose of contents/ container to an approved waste disposal plant.

2.3 Hazards not otherwise classified (HNOC) or not covered by GHS - none

3. COMPOSITION/INFORMATION ON INGREDIENTS

3.1 Substances

Formula	:	Ba
Molecular weight	:	137.33 g/mol
CAS-No.	:	7440-39-3
EC-No.	:	231-149-1

Hazardous components

Component	Classification	Concentration
Barium		
	Water-react. 2; Skin Irrit. 2; Eye Irrit. 2A; STOT SE 3; H261, H315, H319, H335	<= 100 %

For the full text of the H-Statements mentioned in this Section, see Section 16.

4. FIRST AID MEASURES

4.1 Description of first aid measures

General advice
Consult a physician. Show this safety data sheet to the doctor in attendance.Move out of dangerous area.

If inhaled
If breathed in, move person into fresh air. If not breathing, give artificial respiration. Consult a physician.

In case of skin contact
Wash off with soap and plenty of water. Consult a physician.

In case of eye contact
Rinse thoroughly with plenty of water for at least 15 minutes and consult a physician.

If swallowed
Never give anything by mouth to an unconscious person. Rinse mouth with water. Consult a physician.

4.2 Most important symptoms and effects, both acute and delayed
The most important known symptoms and effects are described in the labelling (see section 2.2) and/or in section 11

4.3 Indication of any immediate medical attention and special treatment needed
No data available

5. FIREFIGHTING MEASURES

5.1 Extinguishing media

Suitable extinguishing media
Dry powder

5.2 Special hazards arising from the substance or mixture
Barium oxide

5.3 Advice for firefighters
Wear self-contained breathing apparatus for firefighting if necessary.

5.4 Further information
No data available

6. ACCIDENTAL RELEASE MEASURES

6.1 Personal precautions, protective equipment and emergency procedures
Use personal protective equipment. Avoid dust formation. Avoid breathing vapours, mist or gas. Ensure adequate ventilation. Evacuate personnel to safe areas. Avoid breathing dust.
For personal protection see section 8.

6.2 Environmental precautions
Prevent further leakage or spillage if safe to do so. Do not let product enter drains.

6.3 Methods and materials for containment and cleaning up
Sweep up and shovel. Contain spillage, and then collect with an electrically protected vacuum cleaner or by wet-brushing and place in container for disposal according to local regulations (see section 13). Do not flush with water. Keep in suitable, closed containers for disposal.

6.4 Reference to other sections
For disposal see section 13.

7. HANDLING AND STORAGE

7.1 Precautions for safe handling
Avoid contact with skin and eyes. Avoid formation of dust and aerosols.Further processing of solid materials may result in the formation of combustible dusts. The potential for combustible dust formation should be taken into consideration before additional processing occurs.
Provide appropriate exhaust ventilation at places where dust is formed.Keep away from sources of ignition - No smoking.
For precautions see section 2.2.

7.2 Conditions for safe storage, including any incompatibilities
Keep container tightly closed in a dry and well-ventilated place.
Never allow product to get in contact with water during storage.

Store under inert gas.
Storage class (TRGS 510): Hazardous materials, which set free flammable gases upon contact with water

7.3 Specific end use(s)
Apart from the uses mentioned in section 1.2 no other specific uses are stipulated

8. EXPOSURE CONTROLS/PERSONAL PROTECTION

8.1 Control parameters

Components with workplace control parameters

Component	CAS-No.	Value	Control parameters	Basis
Barium	7440-39-3	TWA	0.500000 mg/m3	USA. ACGIH Threshold Limit Values (TLV)
	Remarks	Eye, skin, & Gastrointestinal irritation Muscular stimulation Not classifiable as a human carcinogen		

		TWA	0.500000 mg/m3	USA. Occupational Exposure Limits (OSHA) - Table Z-1 Limits for Air Contaminants
		TWA	0.500000 mg/m3	USA. ACGIH Threshold Limit Values (TLV)
		Eye irritation Muscular stimulation Skin irritation Gastrointestinal irritation Not classifiable as a human carcinogen		
		TWA	0.500000 mg/m3	USA. NIOSH Recommended Exposure Limits

8.2 Exposure controls

Appropriate engineering controls
Handle in accordance with good industrial hygiene and safety practice. Wash hands before breaks and at the end of workday.

Personal protective equipment

Eye/face protection
Safety glasses with side-shields conforming to EN166 Use equipment for eye protection tested and approved under appropriate government standards such as NIOSH (US) or EN 166(EU).

Skin protection
Handle with gloves. Gloves must be inspected prior to use. Use proper glove removal technique (without touching glove's outer surface) to avoid skin contact with this product. Dispose of contaminated gloves after use in accordance with applicable laws and good laboratory practices. Wash and dry hands.

Full contact
Material: Nitrile rubber
Minimum layer thickness: 0.11 mm
Break through time: 480 min
Material tested:Dermatril® (KCL 740 / Aldrich Z677272, Size M)

Splash contact
Material: Nitrile rubber
Minimum layer thickness: 0.11 mm
Break through time: 480 min
Material tested:Dermatril® (KCL 740 / Aldrich Z677272, Size M)

data source: KCL GmbH, D-36124 Eichenzell, phone +49 (0)6659 87300, e-mail sales@kcl.de, test method: EN374
If used in solution, or mixed with other substances, and under conditions which differ from EN 374, contact the supplier of the CE approved gloves. This recommendation is advisory only and must be evaluated by an industrial hygienist and safety officer familiar with the specific situation of anticipated use by our customers. It should not be construed as offering an approval for any specific use scenario.

Body Protection
impervious clothing, Flame retardant protective clothing, The type of protective equipment must be selected according to the concentration and amount of the dangerous substance at the specific workplace.

Respiratory protection
Where risk assessment shows air-purifying respirators are appropriate use a full-face particle respirator type N100 (US) or type P3 (EN 143) respirator cartridges as a backup to engineering controls. If the respirator is the sole means of protection, use a full-face supplied air respirator. Use respirators and components tested and approved under appropriate government standards such as NIOSH (US) or CEN (EU).

Control of environmental exposure
Prevent further leakage or spillage if safe to do so. Do not let product enter drains.

9. PHYSICAL AND CHEMICAL PROPERTIES

9.1 Information on basic physical and chemical properties

a) Appearance Form: Rods

		Colour: grey
b)	Odour	No data available
c)	Odour Threshold	No data available
d)	pH	No data available
e)	Melting point/freezing point	Melting point/range: 725 °C (1,337 °F) - lit.
f)	Initial boiling point and boiling range	1,640 °C (2,984 °F) - lit.
g)	Flash point	Not applicable
h)	Evaporation rate	No data available
i)	Flammability (solid, gas)	No data available
j)	Upper/lower flammability or explosive limits	No data available
k)	Vapour pressure	No data available
l)	Vapour density	No data available
m)	Relative density	3.6 g/mL at 25 °C (77 °F)
n)	Water solubility	No data available
o)	Partition coefficient: n-octanol/water	No data available
p)	Auto-ignition temperature	No data available
q)	Decomposition temperature	No data available
r)	Viscosity	No data available
s)	Explosive properties	No data available
t)	Oxidizing properties	No data available

9.2 Other safety information
No data available

10. STABILITY AND REACTIVITY

10.1 Reactivity
No data available

10.2 Chemical stability
Stable under recommended storage conditions.

10.3 Possibility of hazardous reactions
Reacts violently with water.

10.4 Conditions to avoid
Exposure to moisture

10.5 Incompatible materials
Oxidizing agents, Water, acids, Oxygen, Chlorinated solvents, Carbon dioxide (CO2), Halogens, Halogenated hydrocarbon, Alcohols, Sulphur compounds, Hydrogen sulfide gas

10.6 Hazardous decomposition products
Other decomposition products - No data available
In the event of fire: see section 5

11. TOXICOLOGICAL INFORMATION

11.1 Information on toxicological effects

Acute toxicity
No data available

Inhalation: No data available

Dermal: No data available

No data available

Skin corrosion/irritation
No data available

Serious eye damage/eye irritation
No data available

Respiratory or skin sensitisation
No data available

Germ cell mutagenicity
No data available

Carcinogenicity

This product is or contains a component that is not classifiable as to its carcinogenicity based on its IARC, ACGIH, NTP, or EPA classification.

IARC:	No component of this product present at levels greater than or equal to 0.1% is identified as probable, possible or confirmed human carcinogen by IARC.
NTP:	No component of this product present at levels greater than or equal to 0.1% is identified as a known or anticipated carcinogen by NTP.
OSHA:	No component of this product present at levels greater than or equal to 0.1% is identified as a carcinogen or potential carcinogen by OSHA.

Reproductive toxicity
No data available

No data available

Specific target organ toxicity - single exposure
Inhalation - May cause respiratory irritation.

Specific target organ toxicity - repeated exposure
No data available

Aspiration hazard
No data available

Additional Information
RTECS: CQ8370000

Stomach/intestinal disorders, Nausea, Vomiting, Drowsiness, Dizziness, Gastrointestinal disturbance, Weakness, Tremors, Seizures.

12. ECOLOGICAL INFORMATION

12.1 Toxicity

Toxicity to fish	mortality NOEC - Cyprinodon variegatus (sheepshead minnow) - 500 mg/l - 96 h
	LC50 - Cyprinodon variegatus (sheepshead minnow) - > 500 mg/l - 96 h

12.2 Persistence and degradability
No data available

12.3 Bioaccumulative potential
No data available

12.4 Mobility in soil
No data available

12.5 Results of PBT and vPvB assessment
PBT/vPvB assessment not available as chemical safety assessment not required/not conducted

12.6 Other adverse effects

No data available

13. DISPOSAL CONSIDERATIONS

13.1 Waste treatment methods

Product
Burn in a chemical incinerator equipped with an afterburner and scrubber but exert extra care in igniting as this material is highly flammable. Offer surplus and non-recyclable solutions to a licensed disposal company. Contact a licensed professional waste disposal service to dispose of this material.

Contaminated packaging
Dispose of as unused product.

14. TRANSPORT INFORMATION

DOT (US)
UN number: 1400 Class: 4.3 Packing group: II
Proper shipping name: Barium
Reportable Quantity (RQ): 1000 lbs

Poison Inhalation Hazard: No

IMDG
UN number: 1400 Class: 4.3 Packing group: II EMS-No: F-G, S-O
Proper shipping name: BARIUM

IATA
UN number: 1400 Class: 4.3 Packing group: II
Proper shipping name: Barium

15. REGULATORY INFORMATION

SARA 302 Components
No chemicals in this material are subject to the reporting requirements of SARA Title III, Section 302.

SARA 313 Components
The following components are subject to reporting levels established by SARA Title III, Section 313:

	CAS-No.	Revision Date
Barium	7440-39-3	2007-07-01

SARA 311/312 Hazards
Reactivity Hazard, Acute Health Hazard

Massachusetts Right To Know Components

	CAS-No.	Revision Date
Barium	7440-39-3	2007-07-01

Pennsylvania Right To Know Components

	CAS-No.	Revision Date
Barium	7440-39-3	2007-07-01

New Jersey Right To Know Components

	CAS-No.	Revision Date

Barium	7440-39-3	2007-07-01

California Prop. 65 Components
This product does not contain any chemicals known to State of California to cause cancer, birth defects, or any other reproductive harm.

16. OTHER INFORMATION

Full text of H-Statements referred to under sections 2 and 3.

Eye Irrit.	Eye irritation
H261	In contact with water releases flammable gases.
H315	Causes skin irritation.
H319	Causes serious eye irritation.
H335	May cause respiratory irritation.
Skin Irrit.	Skin irritation
STOT SE	Specific target organ toxicity - single exposure
Water-react.	Substances and mixtures, which in contact with water, emit flammable gases

HMIS Rating

Health hazard:	2
Chronic Health Hazard:	
Flammability:	3
Physical Hazard	1

NFPA Rating

Health hazard:	2
Fire Hazard:	3
Reactivity Hazard:	1
Special hazard.I:	W

Further information
Copyright 2015 Sigma-Aldrich Co. LLC. License granted to make unlimited paper copies for internal use only.
The above information is believed to be correct but does not purport to be all inclusive and shall be used only as a guide. The information in this document is based on the present state of our knowledge and is applicable to the product with regard to appropriate safety precautions. It does not represent any guarantee of the properties of the product. Sigma-Aldrich Corporation and its Affiliates shall not be held liable for any damage resulting from handling or from contact with the above product. See www.sigma-aldrich.com and/or the reverse side of invoice or packing slip for additional terms and conditions of sale.

Preparation Information
Sigma-Aldrich Corporation
Product Safety – Americas Region
1-800-521-8956

Version: 4.5 Revision Date: 03/02/2015 Print Date: 05/24/2016

SAFETY DATA SHEET

Benzene

Section 1. Identification

GHS product identifier : Benzene

Chemical name : benzene

Other means of identification : benzene, purebenzol; cyclohexatriene; phenyl hydride; phene; coal naphtha; pyrobenzol

Product use : Synthetic/Analytical chemistry.

Synonym : benzene, purebenzol; cyclohexatriene; phenyl hydride; phene; coal naphtha; pyrobenzol

SDS # : 001062

Supplier's details : Airgas USA, LLC and its affiliates
259 North Radnor-Chester Road
Suite 100
Radnor, PA 19087-5283
1-610-687-5253

Emergency telephone number (with hours of operation) : 1-866-734-3438

Section 2. Hazards identification

OSHA/HCS status : This material is considered hazardous by the OSHA Hazard Communication Standard (29 CFR 1910.1200).

Classification of the substance or mixture : FLAMMABLE LIQUIDS - Category 2
SKIN CORROSION/IRRITATION - Category 2
SERIOUS EYE DAMAGE/ EYE IRRITATION - Category 2
GERM CELL MUTAGENICITY - Category 1B
CARCINOGENICITY - Category 1
SPECIFIC TARGET ORGAN TOXICITY (REPEATED EXPOSURE) (bone marrow) - Category 1

GHS label elements

Hazard pictograms :



Signal word : Danger

Hazard statements : Highly flammable liquid and vapor.
May form explosive mixtures with air.
Causes serious eye irritation.
Causes skin irritation.
May cause genetic defects.
May cause cancer.
Causes damage to organs through prolonged or repeated exposure. (bone marrow)

Precautionary statements

General : Read label before use. Keep out of reach of children. If medical advice is needed, have product container or label at hand.

Powered by IHS

Section 2. Hazards identification

Prevention : Obtain special instructions before use. Do not handle until all safety precautions have been read and understood. Use personal protective equipment as required. Wear protective gloves. Wear eye or face protection. Keep away from heat, sparks, open flames and hot surfaces. - No smoking. Use explosion-proof electrical, ventilating, lighting and all material-handling equipment. Use only non-sparking tools. Take precautionary measures against static discharge. Keep container tightly closed. Do not breathe vapor. Do not eat, drink or smoke when using this product. Wash hands thoroughly after handling.

Response : Get medical attention if you feel unwell. IF exposed or concerned: Get medical attention. IF SWALLOWED: Call a POISON CENTER or physician if you feel unwell. Rinse mouth. IF ON SKIN (or hair): Take off immediately all contaminated clothing. Rinse skin with water or shower. IF ON SKIN: Wash with plenty of soap and water. Take off contaminated clothing. If skin irritation occurs: Get medical attention. IF IN EYES: Rinse cautiously with water for several minutes. Remove contact lenses, if present and easy to do. Continue rinsing. If eye irritation persists: Get medical attention.

Storage : Store locked up. Store in a well-ventilated place. Keep cool.

Disposal : Dispose of contents and container in accordance with all local, regional, national and international regulations.

Hazards not otherwise classified : None known.

Section 3. Composition/information on ingredients

Substance/mixture : Substance

Chemical name : benzene

Other means of identification : benzene, purebenzol; cyclohexatriene; phenyl hydride; phene; coal naphtha; pyrobenzol

CAS number/other identifiers

CAS number : 71-43-2

Product code : 001062

Ingredient name	%	CAS number
benzene	100	71-43-2

There are no additional ingredients present which, within the current knowledge of the supplier and in the concentrations applicable, are classified as hazardous to health or the environment and hence require reporting in this section.

Occupational exposure limits, if available, are listed in Section 8.

Section 4. First aid measures

Description of necessary first aid measures

Eye contact : Immediately flush eyes with plenty of water, occasionally lifting the upper and lower eyelids. Check for and remove any contact lenses. Continue to rinse for at least 10 minutes. Get medical attention.

Inhalation : Remove victim to fresh air and keep at rest in a position comfortable for breathing. If not breathing, if breathing is irregular or if respiratory arrest occurs, provide artificial respiration or oxygen by trained personnel. It may be dangerous to the person providing aid to give mouth-to-mouth resuscitation. Get medical attention. If unconscious, place in recovery position and get medical attention immediately. Maintain an open airway. Loosen tight clothing such as a collar, tie, belt or waistband.

Powered by IHS

Section 4. First aid measures

Skin contact : Flush contaminated skin with plenty of water. Remove contaminated clothing and shoes. Wash contaminated clothing thoroughly with water before removing it, or wear gloves. Continue to rinse for at least 10 minutes. Get medical attention. Wash clothing before reuse. Clean shoes thoroughly before reuse.

Ingestion : Wash out mouth with water. Remove dentures if any. Remove victim to fresh air and keep at rest in a position comfortable for breathing. If material has been swallowed and the exposed person is conscious, give small quantities of water to drink. Stop if the exposed person feels sick as vomiting may be dangerous. Do not induce vomiting unless directed to do so by medical personnel. If vomiting occurs, the head should be kept low so that vomit does not enter the lungs. Get medical attention. If necessary, call a poison center or physician. Never give anything by mouth to an unconscious person. If unconscious, place in recovery position and get medical attention immediately. Maintain an open airway. Loosen tight clothing such as a collar, tie, belt or waistband.

Most important symptoms/effects, acute and delayed

Potential acute health effects

Eye contact : Causes serious eye irritation.

Inhalation : No known significant effects or critical hazards.

Skin contact : Causes skin irritation.

Frostbite : Try to warm up the frozen tissues and seek medical attention.

Ingestion : Harmful if swallowed. Irritating to mouth, throat and stomach.

Over-exposure signs/symptoms

Eye contact : Adverse symptoms may include the following:
pain or irritation
watering
redness

Inhalation : No specific data.

Skin contact : Adverse symptoms may include the following:
irritation
redness

Ingestion : No specific data.

Indication of immediate medical attention and special treatment needed, if necessary

Notes to physician : Treat symptomatically. Contact poison treatment specialist immediately if large quantities have been ingested or inhaled.

Specific treatments : No specific treatment.

Protection of first-aiders : No action shall be taken involving any personal risk or without suitable training. If it is suspected that fumes are still present, the rescuer should wear an appropriate mask or self-contained breathing apparatus. It may be dangerous to the person providing aid to give mouth-to-mouth resuscitation. Wash contaminated clothing thoroughly with water before removing it, or wear gloves.

See toxicological information (Section 11)

Powered by IHS

Section 5. Fire-fighting measures

Extinguishing media

Suitable extinguishing media : Use dry chemical, CO_2, water spray (fog) or foam.

Unsuitable extinguishing media : Do not use water jet.

Specific hazards arising from the chemical : Highly flammable liquid and vapor. In a fire or if heated, a pressure increase will occur and the container may burst, with the risk of a subsequent explosion. The vapor/gas is heavier than air and will spread along the ground. Vapors may accumulate in low or confined areas or travel a considerable distance to a source of ignition and flash back. Runoff to sewer may create fire or explosion hazard.

Hazardous thermal decomposition products : Decomposition products may include the following materials:
carbon dioxide
carbon monoxide

Special protective actions for fire-fighters : Promptly isolate the scene by removing all persons from the vicinity of the incident if there is a fire. No action shall be taken involving any personal risk or without suitable training. Move containers from fire area if this can be done without risk. Use water spray to keep fire-exposed containers cool.

Special protective equipment for fire-fighters : Fire-fighters should wear appropriate protective equipment and self-contained breathing apparatus (SCBA) with a full face-piece operated in positive pressure mode.

Section 6. Accidental release measures

Personal precautions, protective equipment and emergency procedures

For non-emergency personnel : No action shall be taken involving any personal risk or without suitable training. Evacuate surrounding areas. Keep unnecessary and unprotected personnel from entering. Do not touch or walk through spilled material. Shut off all ignition sources. No flares, smoking or flames in hazard area. Avoid breathing vapor or mist. Provide adequate ventilation. Wear appropriate respirator when ventilation is inadequate. Put on appropriate personal protective equipment.

For emergency responders : If specialised clothing is required to deal with the spillage, take note of any information in Section 8 on suitable and unsuitable materials. See also the information in "For non-emergency personnel".

Environmental precautions : Avoid dispersal of spilled material and runoff and contact with soil, waterways, drains and sewers. Inform the relevant authorities if the product has caused environmental pollution (sewers, waterways, soil or air).

Methods and materials for containment and cleaning up

Small spill : Stop leak if without risk. Move containers from spill area. Use spark-proof tools and explosion-proof equipment. Dilute with water and mop up if water-soluble. Alternatively, or if water-insoluble, absorb with an inert dry material and place in an appropriate waste disposal container. Dispose of via a licensed waste disposal contractor.

Large spill : Stop leak if without risk. Move containers from spill area. Use spark-proof tools and explosion-proof equipment. Approach release from upwind. Prevent entry into sewers, water courses, basements or confined areas. Wash spillages into an effluent treatment plant or proceed as follows. Contain and collect spillage with non-combustible, absorbent material e.g. sand, earth, vermiculite or diatomaceous earth and place in container for disposal according to local regulations (see Section 13). Dispose of via a licensed waste disposal contractor. Contaminated absorbent material may pose the same hazard as the spilled product. Note: see Section 1 for emergency contact information and Section 13 for waste disposal.

Powered by IHS

Section 7. Handling and storage

Precautions for safe handling

Protective measures : Put on appropriate personal protective equipment (see Section 8). Avoid exposure - obtain special instructions before use. Do not handle until all safety precautions have been read and understood. Do not get in eyes or on skin or clothing. Do not breathe vapor or mist. Do not ingest. Use only with adequate ventilation. Wear appropriate respirator when ventilation is inadequate. Do not enter storage areas and confined spaces unless adequately ventilated. Keep in the original container or an approved alternative made from a compatible material, kept tightly closed when not in use. Store and use away from heat, sparks, open flame or any other ignition source. Use explosion-proof electrical (ventilating, lighting and material handling) equipment. Use only non-sparking tools. Take precautionary measures against electrostatic discharges. Empty containers retain product residue and can be hazardous. Do not reuse container.

Advice on general occupational hygiene : Eating, drinking and smoking should be prohibited in areas where this material is handled, stored and processed. Workers should wash hands and face before eating, drinking and smoking. Remove contaminated clothing and protective equipment before entering eating areas. See also Section 8 for additional information on hygiene measures.

Conditions for safe storage, including any incompatibilities : Store in accordance with local regulations. Store in a segregated and approved area. Store in original container protected from direct sunlight in a dry, cool and well-ventilated area, away from incompatible materials (see Section 10) and food and drink. Store locked up. Eliminate all ignition sources. Separate from oxidizing materials. Keep container tightly closed and sealed until ready for use. Containers that have been opened must be carefully resealed and kept upright to prevent leakage. Do not store in unlabeled containers. Use appropriate containment to avoid environmental contamination.

Section 8. Exposure controls/personal protection

Control parameters

Occupational exposure limits

Ingredient name	Exposure limits
benzene	**ACGIH TLV (United States, 3/2012).** **Absorbed through skin.** STEL: 8 mg/m³ 15 minutes. STEL: 2.5 ppm 15 minutes. TWA: 1.6 mg/m³ 8 hours. TWA: 0.5 ppm 8 hours. **NIOSH REL (United States, 1/2013).** STEL: 1 ppm 15 minutes. TWA: 0.1 ppm 10 hours. **OSHA PEL (United States, 6/2010).** STEL: 5 ppm 15 minutes. TWA: 1 ppm 8 hours. **OSHA PEL 1989 (United States, 3/1989).** STEL: 5 ppm 15 minutes. TWA: 1 ppm 8 hours. **OSHA PEL Z2 (United States, 11/2006).** AMP: 50 ppm 10 minutes. CEIL: 25 ppm TWA: 10 ppm 8 hours.

Powered by IHS

Section 8. Exposure controls/personal protection

Appropriate engineering controls : Use only with adequate ventilation. Use process enclosures, local exhaust ventilation or other engineering controls to keep worker exposure to airborne contaminants below any recommended or statutory limits. The engineering controls also need to keep gas, vapor or dust concentrations below any lower explosive limits. Use explosion-proof ventilation equipment.

Environmental exposure controls : Emissions from ventilation or work process equipment should be checked to ensure they comply with the requirements of environmental protection legislation. In some cases, fume scrubbers, filters or engineering modifications to the process equipment will be necessary to reduce emissions to acceptable levels.

Individual protection measures

Hygiene measures : Wash hands, forearms and face thoroughly after handling chemical products, before eating, smoking and using the lavatory and at the end of the working period. Appropriate techniques should be used to remove potentially contaminated clothing. Wash contaminated clothing before reusing. Ensure that eyewash stations and safety showers are close to the workstation location.

Eye/face protection : Safety eyewear complying with an approved standard should be used when a risk assessment indicates this is necessary to avoid exposure to liquid splashes, mists, gases or dusts. If contact is possible, the following protection should be worn, unless the assessment indicates a higher degree of protection: chemical splash goggles.

Skin protection

Hand protection : Chemical-resistant, impervious gloves complying with an approved standard should be worn at all times when handling chemical products if a risk assessment indicates this is necessary. Considering the parameters specified by the glove manufacturer, check during use that the gloves are still retaining their protective properties. It should be noted that the time to breakthrough for any glove material may be different for different glove manufacturers. In the case of mixtures, consisting of several substances, the protection time of the gloves cannot be accurately estimated.

Body protection : Personal protective equipment for the body should be selected based on the task being performed and the risks involved and should be approved by a specialist before handling this product. When there is a risk of ignition from static electricity, wear anti-static protective clothing. For the greatest protection from static discharges, clothing should include anti-static overalls, boots and gloves.

Other skin protection : Appropriate footwear and any additional skin protection measures should be selected based on the task being performed and the risks involved and should be approved by a specialist before handling this product.

Respiratory protection : Use a properly fitted, air-purifying or air-fed respirator complying with an approved standard if a risk assessment indicates this is necessary. Respirator selection must be based on known or anticipated exposure levels, the hazards of the product and the safe working limits of the selected respirator.

Section 9. Physical and chemical properties

Appearance

Physical state : Liquid. [Watery liquid.]

Color : Colorless. Yellowish.

Molecular weight : 78.12 g/mole

Molecular formula : C6-H6

Boiling/condensation point : 80.09°C (176.2°F)

Melting/freezing point : 5.49°C (41.9°F)

Critical temperature : 288.95°C (552.1°F)

Odor : Characteristic.

Odor threshold : Not available.

Powered by IHS

Section 9. Physical and chemical properties

pH	:	Not available.
Flash point	:	Closed cup: -11°C (12.2°F)
Burning time	:	Not applicable.
Burning rate	:	Not applicable.
Evaporation rate	:	3.5 (butyl acetate = 1)
Flammability (solid, gas)	:	Not available.
Lower and upper explosive (flammable) limits	:	Lower: 1.2% Upper: 7.8%
Vapor pressure	:	10 kPa (75.006094245 mm Hg) [room temperature]
Vapor density	:	2.7 (Air = 1)
Specific Volume (ft^3/lb)	:	1.1403
Gas Density (lb/ft^3)	:	0.877 (20°C / 68 to °F)
Relative density	:	0.88
Solubility	:	Not available.
Solubility in water	:	1.88 g/l
Partition coefficient: n-octanol/water	:	2.13
Auto-ignition temperature	:	498°C (928.4°F)
Decomposition temperature	:	Not available.
SADT	:	Not available.
Viscosity	:	Dynamic (room temperature): 0.604 mPa·s (0.604 cP)

Section 10. Stability and reactivity

Reactivity	:	No specific test data related to reactivity available for this product or its ingredients.
Chemical stability	:	The product is stable.
Possibility of hazardous reactions	:	Under normal conditions of storage and use, hazardous reactions will not occur.
Conditions to avoid	:	Avoid all possible sources of ignition (spark or flame). Do not pressurize, cut, weld, braze, solder, drill, grind or expose containers to heat or sources of ignition. Do not allow vapor to accumulate in low or confined areas.
Incompatibility with various substances	:	Highly reactive or incompatible with the following materials: oxidizing materials.
Hazardous decomposition products	:	Under normal conditions of storage and use, hazardous decomposition products should not be produced.
Hazardous polymerization	:	Under normal conditions of storage and use, hazardous polymerization will not occur.

Powered by IHS

Section 11. Toxicological information

Information on toxicological effects

Acute toxicity

Product/ingredient name	Result	Species	Dose	Exposure
benzene	LC50 Inhalation Gas. LD50 Oral	Rat Rat	10000 ppm 930 mg/kg	7 hours -

Irritation/Corrosion

Product/ingredient name	Result	Species	Score	Exposure	Observation
benzene	Eyes - Moderate irritant Eyes - Severe irritant Skin - Mild irritant Skin - Mild irritant Skin - Moderate irritant	Rabbit Rabbit Rat Rabbit Rabbit	- - - - -	88 milligrams 24 hours 2 milligrams 8 hours 60 microliters 24 hours 15 milligrams 24 hours 20 milligrams	- - - - -

Sensitization

Not available.

Mutagenicity

Not available.

Carcinogenicity

Not available.

Classification

Product/ingredient name	OSHA	IARC	NTP
benzene	+	1	Known to be a human carcinogen.

Reproductive toxicity

Not available.

Teratogenicity

Not available.

Specific target organ toxicity (single exposure)

Not available.

Specific target organ toxicity (repeated exposure)

Name	Category	Route of exposure	Target organs
benzene	Category 1	Not determined	bone marrow

Aspiration hazard

Not available.

Information on the likely routes of exposure : Not available.

Potential acute health effects

Eye contact : Causes serious eye irritation.

Inhalation : No known significant effects or critical hazards.

Powered by IHS

Section 11. Toxicological information

Skin contact : Causes skin irritation.

Ingestion : Harmful if swallowed. Irritating to mouth, throat and stomach.

Symptoms related to the physical, chemical and toxicological characteristics

Eye contact : Adverse symptoms may include the following:
pain or irritation
watering
redness

Inhalation : No specific data.

Skin contact : Adverse symptoms may include the following:
irritation
redness

Ingestion : No specific data.

Delayed and immediate effects and also chronic effects from short and long term exposure

Short term exposure

Potential immediate effects : Not available.

Potential delayed effects : Not available.

Long term exposure

Potential immediate effects : Not available.

Potential delayed effects : Not available.

Potential chronic health effects

Not available.

General : Causes damage to organs through prolonged or repeated exposure.

Carcinogenicity : May cause cancer. Risk of cancer depends on duration and level of exposure.

Mutagenicity : May cause genetic defects.

Teratogenicity : No known significant effects or critical hazards.

Developmental effects : No known significant effects or critical hazards.

Fertility effects : No known significant effects or critical hazards.

Numerical measures of toxicity

Acute toxicity estimates

Not available.

Section 12. Ecological information

Toxicity

Not available.

Persistence and degradability

Not available.

Bioaccumulative potential

Powered by IHS

Section 12. Ecological information

Product/ingredient name	$LogP_{ow}$	BCF	Potential
benzene	2.13	11	low

Mobility in soil

Soil/water partition coefficient (K_{OC}) : Not available.

Other adverse effects : No known significant effects or critical hazards.

Section 13. Disposal considerations

Disposal methods : The generation of waste should be avoided or minimized wherever possible. Disposal of this product, solutions and any by-products should at all times comply with the requirements of environmental protection and waste disposal legislation and any regional local authority requirements. Dispose of surplus and non-recyclable products via a licensed waste disposal contractor. Waste should not be disposed of untreated to the sewer unless fully compliant with the requirements of all authorities with jurisdiction. Waste packaging should be recycled. Incineration or landfill should only be considered when recycling is not feasible. This material and its container must be disposed of in a safe way. Care should be taken when handling emptied containers that have not been cleaned or rinsed out. Empty containers or liners may retain some product residues. Vapor from product residues may create a highly flammable or explosive atmosphere inside the container. Do not cut, weld or grind used containers unless they have been cleaned thoroughly internally. Avoid dispersal of spilled material and runoff and contact with soil, waterways, drains and sewers.

United States - RCRA Toxic hazardous waste "U" List

Ingredient	CAS #	Status	Reference number
Benzene (I,T)	71-43-2	Listed	U019

Section 14. Transport information

	DOT	TDG	Mexico	IMDG	IATA
UN number	UN1114	UN1114	UN114	UN1114	UN1114
UN proper shipping name	BENZENE	BENZENE	BENZENE	BENZENE	BENZENE
Transport hazard class(es)	3 	3 	3 	3 	3 
Packing group	II	II	II	II	II
Environment	No.	No.	No.	No.	No.
Additional information	**Reportable quantity** 10 lbs / 4.54 kg [1.3675 gal / 5.1767 L] Package sizes shipped in quantities less than the product reportable quantity are not subject to the RQ (reportable quantity) transportation requirements.	**Explosive Limit and Limited Quantity Index** 1 **Passenger Carrying Road or Rail Index** 5	-	-	**Passenger and Cargo Aircraft**Quantity limitation: 5 L **Cargo Aircraft Only** Quantity limitation: 60 L **Limited Quantities - Passenger Aircraft** Quantity limitation: 1 L

Powered by IHS

Section 14. Transport information

	Limited quantity Yes. **Packaging instruction** **Passenger aircraft** Quantity limitation: 5 L **Cargo aircraft** Quantity limitation: 60 L **Special provisions** IB2, T4, TP1				

"Refer to CFR 49 (or authority having jurisdiction) to determine the information required for shipment of the product."

Special precautions for user : **Transport within user's premises:** always transport in closed containers that are upright and secure. Ensure that persons transporting the product know what to do in the event of an accident or spillage.

Transport in bulk according to Annex II of MARPOL 73/78 and the IBC Code : Not available.

Section 15. Regulatory information

U.S. Federal regulations : **TSCA 8(a) CDR Exempt/Partial exemption**: Not determined

United States inventory (TSCA 8b): This material is listed or exempted.

Clean Water Act (CWA) 307: benzene

Clean Water Act (CWA) 311: benzene

Clean Air Act Section 112 (b) Hazardous Air Pollutants (HAPs) : Listed

Clean Air Act Section 602 Class I Substances : Not listed

Clean Air Act Section 602 Class II Substances : Not listed

DEA List I Chemicals (Precursor Chemicals) : Not listed

DEA List II Chemicals (Essential Chemicals) : Not listed

SARA 302/304

Composition/information on ingredients

No products were found.

SARA 304 RQ : Not applicable.

SARA 311/312

Classification : Fire hazard
Immediate (acute) health hazard
Delayed (chronic) health hazard

Composition/information on ingredients

Powered by IHS

Section 15. Regulatory information

Name	%	Fire hazard	Sudden release of pressure	Reactive	Immediate (acute) health hazard	Delayed (chronic) health hazard
benzene	100	Yes.	No.	No.	Yes.	Yes.

SARA 313

	Product name	CAS number	%
Form R - Reporting requirements	benzene	71-43-2	100
Supplier notification	benzene	71-43-2	100

SARA 313 notifications must not be detached from the SDS and any copying and redistribution of the SDS shall include copying and redistribution of the notice attached to copies of the SDS subsequently redistributed.

State regulations

Massachusetts : This material is listed.

New York : This material is listed.

New Jersey : This material is listed.

Pennsylvania : This material is listed.

California Prop. 65

WARNING: This product contains a chemical known to the State of California to cause cancer and birth defects or other reproductive harm.

Ingredient name	Cancer	Reproductive	No significant risk level	Maximum acceptable dosage level
benzene	Yes.	Yes.	6.4 µg/day (ingestion) 13 µg/day (inhalation)	24 µg/day (ingestion) 49 µg/day (inhalation)

Canada inventory : This material is listed or exempted.

International regulations

International lists : **Australia inventory (AICS)**: This material is listed or exempted.
China inventory (IECSC): This material is listed or exempted.
Japan inventory: This material is listed or exempted.
Korea inventory: This material is listed or exempted.
Malaysia Inventory (EHS Register): Not determined.
New Zealand Inventory of Chemicals (NZIoC): This material is listed or exempted.
Philippines inventory (PICCS): This material is listed or exempted.
Taiwan inventory (CSNN): Not determined.

Chemical Weapons Convention List Schedule I Chemicals : Not listed

Chemical Weapons Convention List Schedule II Chemicals : Not listed

Chemical Weapons Convention List Schedule III Chemicals : Not listed

Canada

Powered by IHS

Section 15. Regulatory information

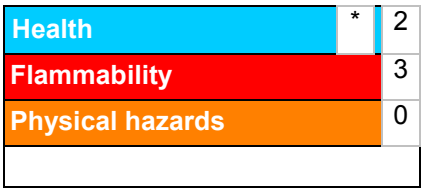
WHMIS (Canada) : Class B-2: Flammable liquid
Class D-2A: Material causing other toxic effects (Very toxic).
Class D-2B: Material causing other toxic effects (Toxic).

CEPA Toxic substances: This material is listed.
Canadian ARET: This material is not listed.
Canadian NPRI: This material is listed.
Alberta Designated Substances: This material is not listed.
Ontario Designated Substances: This material is not listed.
Quebec Designated Substances: This material is not listed.

Section 16. Other information

Canada Label requirements : Class B-2: Flammable liquid
Class D-2A: Material causing other toxic effects (Very toxic).
Class D-2B: Material causing other toxic effects (Toxic).

Hazardous Material Information System (U.S.A.)



Caution: HMIS® ratings are based on a 0-4 rating scale, with 0 representing minimal hazards or risks, and 4 representing significant hazards or risks Although HMIS® ratings are not required on SDSs under 29 CFR 1910. 1200, the preparer may choose to provide them. HMIS® ratings are to be used with a fully implemented HMIS® program. HMIS® is a registered mark of the National Paint & Coatings Association (NPCA). HMIS® materials may be purchased exclusively from J. J. Keller (800) 327-6868.

The customer is responsible for determining the PPE code for this material.

National Fire Protection Association (U.S.A.)



Reprinted with permission from NFPA 704-2001, Identification of the Hazards of Materials for Emergency Response Copyright ©1997, National Fire Protection Association, Quincy, MA 02269. This reprinted material is not the complete and official position of the National Fire Protection Association, on the referenced subject which is represented only by the standard in its entirety.

Copyright ©2001, National Fire Protection Association, Quincy, MA 02269. This warning system is intended to be interpreted and applied only by properly trained individuals to identify fire, health and reactivity hazards of chemicals. The user is referred to certain limited number of chemicals with recommended classifications in NFPA 49 and NFPA 325, which would be used as a guideline only. Whether the chemicals are classified by NFPA or not, anyone using the 704 systems to classify chemicals does so at their own risk.

History

Date of printing : 4/26/2015.

Date of issue/Date of revision : 4/26/2015.

Date of previous issue : 10/16/2014.

Version : 0.03

Powered by IHS

Section 16. Other information

Key to abbreviations : ATE = Acute Toxicity Estimate
BCF = Bioconcentration Factor
GHS = Globally Harmonized System of Classification and Labelling of Chemicals
IATA = International Air Transport Association
IBC = Intermediate Bulk Container
IMDG = International Maritime Dangerous Goods
LogPow = logarithm of the octanol/water partition coefficient
MARPOL 73/78 = International Convention for the Prevention of Pollution From Ships, 1973 as modified by the Protocol of 1978. ("Marpol" = marine pollution)
UN = United NationsACGIH – American Conference of Governmental Industrial Hygienists
AIHA – American Industrial Hygiene Association
CAS – Chemical Abstract Services
CEPA – Canadian Environmental Protection Act
CERCLA – Comprehensive Environmental Response, Compensation, and Liability Act (EPA)
CFR – United States Code of Federal Regulations
CPR – Controlled Products Regulations
DSL – Domestic Substances List
GWP – Global Warming Potential
IARC – International Agency for Research on Cancer
ICAO – International Civil Aviation Organisation
Inh – Inhalation
LC – Lethal concentration
LD – Lethal dosage
NDSL – Non-Domestic Substances List
NIOSH – National Institute for Occupational Safety and Health
TDG – Canadian Transportation of Dangerous Goods Act and Regulations
TLV – Threshold Limit Value
TSCA – Toxic Substances Control Act
WEEL – Workplace Environmental Exposure Level
WHMIS – Canadian Workplace Hazardous Material Information System

References : Not available.

Indicates information that has changed from previously issued version.

Notice to reader

To the best of our knowledge, the information contained herein is accurate. However, neither the above-named supplier, nor any of its subsidiaries, assumes any liability whatsoever for the accuracy or completeness of the information contained herein.
Final determination of suitability of any material is the sole responsibility of the user. All materials may present unknown hazards and should be used with caution. Although certain hazards are described herein, we cannot guarantee that these are the only hazards that exist.

Powered by IHS

SAFETY DATA SHEET

Based on Directive 2001/58/EC et seq. of the Commission of the European Communities

BENZ[a]ANTHRACENE

1. Identification of the substance/preparation and of the company/undertaking

1.1 Identification of the substance or preparation:

Synonyms: benzo(a)anthracene

CAS No.	: 56-55-3	**BCR number**	: BCR-271
EC index No.	: 601-033-00-9	**NFPA code**	: N.D.
EINECS No.	: 200-280-6	**Molecular weight**	: 228.30
RTECS No.	: CV9275000	**Formula**	: C18H12

1.2 Use of the substance or the preparation:
Certified reference material for laboratory use only

1.3 Company/undertaking identification:
Institute for Reference Materials and Measurements
Retieseweg
B-2440 Geel
Tel. : +32 14 57 12 11
Fax : +32 14 58 42 73

1.4 Telephone number for emergency:
+32 70 245 245
Antigifcentrum
p/a Militair Hospitaal Koningin Astrid, Bruynstraat, B-1120 Brussel

2. Composition/information on ingredients

Hazardous ingredients	CAS No. EINECS No.	Conc. in %	Hazard symbol	Risks (R-phrases)
Benzo[a]anthracene	56-55-3 200-280-6	100	T;N	45-50/53 (1)

(1) For R-phrases in full: see heading 16

3. Hazards identification

- May cause cancer
- Very toxic to aquatic organisms, may cause long-term adverse effects in the aquatic environment

4. First aid measures

4.1 Eye contact:
- Consult a doctor/medical service if irritation persists
- Rinse immediately with water

4.2 Skin contact:
- Consult a doctor/medical service if irritation persists
- Wash with water and soap
- Remove clothing before washing

4.3 After inhalation:
- Consult a doctor/medical service if breathing problems develop
- Remove the victim into fresh air
- Unconscious: maintain adequate airway and respiration

4.4 After ingestion:
- Consult a doctor/medical service if you feel unwell
- Immediately give lots of water to drink
- Never give water to an unconscious person

5. Fire-fighting measures

5.1 Suitable extinguishing media:
- Water spray
- Alcohol foam
- Polymer foam
- ABC powder
- Carbon dioxide

5.2 Unsuitable extinguishing media:
- Solid water jet ineffective as extinguishing medium

5.3 Special exposure hazards:
- Not easily combustible
- Upon combustion CO and CO2 are formed

5.4 Instructions:
- Take account of toxic firefighting water
- Use firefighting water moderately and contain it

5.5 Special protective equipment for firefighters:
- Heat/fire exposure: compressed air/oxygen apparatus
- Dust cloud production: compressed air/oxygen apparatus

6. Accidental release measures

6.1 Personal protection/precautions: see heading 8.1/8.3/10.3

6.2 Environmental precautions:
- Prevent soil and water pollution
- Substance must not be discharged into the sewer
- Dam up the solid spill

6.3 Methods for cleaning up:
- Stop dust cloud by covering with sand/earth
- Carefully collect the spill/leftovers
- Scoop solid spill into closing containers
- Take collected spill to manufacturer/competent authority
- Clean contaminated surfaces with an excess of water
- Wash clothing and equipment after handling

7. Handling and storage

7.1 Handling:
- Observe strict hygiene
- Avoid prolonged and repeated contact with skin
- Avoid raising dust
- Do not discharge the waste into the drain
- Remove contaminated clothing immediately

7.2 Storage:
- Keep container tightly closed. Store in a cool area. Store in a dry area.
- Store in a dark area.
- Keep away from: heat sources, ignition sources, oxidizing agents, acids

Storage temperature : N.D. **°C**
Quantity limits : N.D. **kg**
Storage life : N.D.
Materials for packaging :
- suitable : no data available

- to avoid : no data available

7.3 Specific uses:
See information supplied by the manufacturer

8. Exposure controls/Personal protection

8.1 Exposure limit values:

TLV-TWA	:	**mg/m³**	-	**ppm**
TLV-STEL	:	**mg/m³**	-	**ppm**
TLV-Ceiling	:	**mg/m³**		**ppm**
OES-LTEL	:	**mg/m³**		**ppm**
OES-STEL	:	**mg/m³**		**ppm**
MAK	:	**mg/m³**		**ppm**
TRK	:	**mg/m³**		**ppm**
MAC-TGG 8 h	:	**mg/m³**		
MAC-TGG 15 min.	:	**mg/m³**		
MAC-Ceiling	:	**mg/m³**		
VME-8 h	:	**mg/m³**		**ppm**
VLE-15 min.	:	**mg/m³**		**ppm**
GWBB-8 h	:	**mg/m³**		**ppm**
GWK-15 min.	:	**mg/m³**		**ppm**
Momentary value	:	**mg/m³**		**ppm**
EC	:	**mg/m³**		**ppm**
EC-STEL	:	**mg/m³**		**ppm**

Sampling methods:

-	Benz(a)Anthracene (Polynuclear aromatic hydrocarbons)	NIOSH 5506
-	Benz(a)Anthracene (Polynuclear aromatic hydrocarbons)	NIOSH 5515
-	Benz(a)Anthracene	OSHA CSI

8.2 Exposure controls:

8.2.1 Occupational exposure controls:
- Measure the concentration in the air regularly
- Work under local exhaust/ventilation

8.2.2 Environmental exposure controls: see heading 13

8.3 Personal protection:

8.3.1 respiratory protection:
- Dust production: dust mask with filter type P3
- High dust production: compressed air/oxygen apparatus

8.3.2 hand protection:
- Gloves
  Suitable materials: No data available

- Breakthrough time: N.D.

8.3.3 eye protection:
- Safety glasses
- In case of dust production: protective goggles

8.3.4 skin protection:
- Protective clothing
- In case of dust production: head/neck protection
  Suitable materials: No data available

9. Physical and chemical properties

9.1 General information:

Appearance (at 20°C)	:	Crystalline solid / Scales
Odour	:	Odourless
Colour	:	Colourless to fluorescent yellow-green

9.2 Important health, safety and environmental information:

pH value	:	N.D.	
Boiling point/boiling range	:	N.A.	**°C**
Flashpoint	:	N.D.	**°C**
Explosion limits	:	N.D.	**vol%** (**°C**)
Vapour pressure (at 20°C)	:	0.00007	**hPa**
Vapour pressure (at 50°C)	:	N.D.	**hPa**
Relative density (at 20°C)	:	1.3	
Water solubility	:	0.00001	**g/100 ml**
Soluble in	:	Ether, acetone, oils/fats	
Relative vapour density	:	N.D.	
Viscosity	:	N.D.	**Pa.s**
Partition coëfficient n-octanol/water	:	5.61/5.79	
Evaporation rate			
ratio to butyl acetate	:	N.D.	
ratio to ether	:	N.D.	

9.3 Other information:

Melting point/melting range	:	160	**°C**
Auto-ignition point	:	N.D.	**°C**
Saturation concentration	:	N.D.	**g/m^3**

10. Stability and reactivity

10.1 Conditions to avoid/reactivity:
- Stable under normal conditions

10.2 Materials to avoid:
- Keep away from: heat sources, ignition sources, oxidizing agents, acids

10.3 Hazardous decomposition products:
- Upon combustion CO and CO2 are formed
- Reacts violently with (strong) oxidizers
- Decomposes on exposure to (strong) acids

11. Toxicological information

11.1 Acute toxicity:

LD50 oral rat	:	N.D.	**mg/kg**
LD50 dermal rat	:	N.D.	**mg/kg**
LD50 dermal rabbit	:	N.D.	**mg/kg**
LC50 inhalation rat	:	N.D.	**mg/l/4 h**
LC50 inhalation rat	:	N.D.	**ppm/4 h**

11.2 Chronic toxicity:

EC carc. cat.	:	2
EC muta. cat.	:	not listed
EC repr. cat.	:	not listed
Carcinogenicity (TLV)	:	A2
Carcinogenicity (MAC)	:	K
Carcinogenicity (VME)	:	not listed
Carcinogenicity (GWBB)	:	not listed
Carcinogenicity (MAK)	:	2
Mutagenicity (MAK)	:	not listed
Teratogenicity (MAK)	:	-
IARC classification	:	2A

11.3 Routes of exposure: ingestion, inhalation, eyes and skin
Caution! Substance is absorbed through the skin

11.4 Acute effects/symptoms:

AFTER SKIN CONTACT
- Slight irritation

11.5 Chronic effects:

- Probably human carcinogenic
- Mutagenicity: AMES test positive
- Probably human mutagenic

ON CONTINUOUS/REPEATED EXPOSURE/CONTACT:
- No specific information available

SIMILAR PRODUCTS CAUSE FOLLOWING SYMPTOMS:
- Feeling of weakness
- Photoallergy
- Skin rash/inflammation
- Cracking of the skin
- Skin cancer
- Lung tissue affection/degeneration
- Enlargement/affection of the liver
- Affection of the renal tissue

12. Ecological information

12.1 Ecotoxicity:

- LC50 (65 h) : 0.0018 mg/l (PIMEPHALES PROMELAS)
- EC50 (96 h) : 0.01 mg/l (DAPHNIA PULEX)

12.2 Mobility:

- **Volatile organic compounds (VOC):** 0%

- Photolysis in water
- Ozonation in water
- Insoluble in water

For other physicochemical properties see heading 9.

12.3 Persistence and degradability:

- **biodegradation BOD_5** : N.D. **% ThOD**
- **water** : - Not readily biodegradable in water
- **soil** : **T ½:** > 100 **days**

12.4 Bioaccumulative potential:
- **log P_{ow}** : 5.61/5.79
- **BCF** : 72 h : 350 (LEUCISCUS IDUS)
- Highly bioaccumulative

12.5 Other adverse effects:

- **WGK** : 3 (Classification based on the R-phrases in compliance with Verwaltungsvorschrift wassergefährdender Stoffe (VwVwS) of 17 May 1999)
- **Effect on the ozone layer** : Not dangerous for the ozone layer (Council Regulation (EC) 3093/94)
- **Greenhouse effect** : no data available
- **Effect on waste water purification** : no data available

13. Disposal considerations

13.1 Provisions relating to waste:

- Waste material code (91/689/EEC, Council Decision 2001/118/EC, O.J. L47 of 16/2/2001): 16 05 06 (laboratory chemicals, consisting of or containing dangerous substances, including mixtures of laboratory chemicals)
- Waste material code (Flanders): 001, 045, 691
- Waste code (Germany): 59302
- Hazardous waste (91/689/EEC)

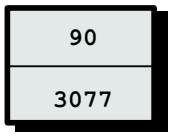
13.2 Disposal methods:

- Dissolve or mix with a combustible solvent
- Remove to an authorized incinerator equipped with an afterburner and a flue gas scrubber
- Do not discharge into surface water (2000/60/EEC, Council Decision 2455/2001/EC)

13.3 Packaging/Container:

- Waste material code packaging (91/689/EEC, Council Decision 2001/118/EC, O.J. L47 of 16/2/2001): 15 01 10 (packaging containing residues of or contaminated by dangerous substances)

14. Transport information



14.1 Classification of the substance in compliance with UN Recommendations

UN number	: 3077
CLASS	: 9
SUB RISKS	: -
PACKING	: III
PROPER SHIPPING NAME	: UN 3077, Environmentally hazardous substance, solid, n.o.s. (benzo[a]anthracene)

14.2 ADR (transport by road)

CLASS	: 9
PACKING	: III
DANGER LABEL TANKS	: 9
DANGER LABEL PACKAGES	: 9

14.3 RID (transport by rail)

CLASS	: 9
PACKING	: III
DANGER LABEL TANKS	: 9
DANGER LABEL PACKAGES	: 9

14.4 ADNR (transport by inland waterways)

CLASS	: 9
PACKING	: III
DANGER LABEL TANKS	: 9
DANGER LABEL PACKAGES	: 9

14.5 IMDG (maritime transport)

CLASS	: 9
SUB RISKS	: -
PACKING	: III
MFAG	: -
EMS	: -
MARINE POLLUTANT	: P

14.6 ICAO (air transport)

CLASS	: 9
SUB RISKS	: -
PACKING	: III
PACKING INSTRUCTIONS PASSENGER AIRCRAFT	:
PACKING INSTRUCTIONS CARGO AIRCRAFT	:

14.7 Special precautions in connection with transport : none

14.8 Limited quantities (LQ) :

When substances and their packaging meet the conditions established by ADR/RID/ADNR in chapter 3.4, **only** the following prescriptions shall be complied with:
each package shall display a diamond-shaped figure with the following inscription:
- 'UN 3077'
or, in the case of different goods with different identification numbers within a single package:
- the letters 'LQ'

15. Regulatory information

Enumerated in substance list Annex I of directive 67/548/EEC et sequens



Toxic



Dangerous for the environment

R45 : May cause cancer
R50/53 : Very toxic to aquatic organisms, may cause long-term adverse effects in the aquatic environment

S53 : Avoid exposure - obtain special instructions before use
S45 : In case of accident or if you feel unwell, seek medical advice (show the label where possible)
S60 : This material and/or its container must be disposed of as hazardous waste
S61 : Avoid release to the environment. Refer to special instructions/safety data sheets.

16. Other information

The information provided on this MSDS is correct to the best of our knowledge, information and belief at the date of its publication. The information given is designed only as a guidance for safe handling, use, processing, storage, transportation, disposal and release and is not to be considered as a warranty or quality specification. The information relates only to the specific material designated and may not be valid for such material used in combination with any other material or in any process, unless specified in the text.

N.A. = NOT APPLICABLE
N.D. = NOT DETERMINED
***** = INTERNAL CLASSIFICATION

Full text of any R-phrases referred to under heading 2:

R45 : May cause cancer
R50/53 : Very toxic to aquatic organisms, may cause long-term adverse effects in the aquatic environment

Exposure limits:
TLV : Threshold Limit Value - ACGIH USA 2000
OES : Occupational Exposure Standards - United Kingdom 1999
MEL : Maximum Exposure Limits - United Kingdom 1999
MAK : Maximale Arbeitsplatzkonzentrationen - Germany 2001
TRK : Technische Richtkonzentrationen - Germany 2001
MAC : Maximale aanvaarde concentratie - The Netherlands 2002
VME : Valeurs limites de Moyenne d'Exposition - France 1999
VLE : Valeurs limites d'Exposition à court terme - France 1999
GWBB : Grenswaarde beroepsmatige blootstelling - Belgium 1998
GWK : Grenswaarde kortstondige blootstelling - Belgium 1998
EC : Indicative occupational exposure limit values - directive 2000/39/EC

Chronic toxicity:
K : List of the carcinogenic substances and processes - The Netherlands 2002

Safety Data Sheet

Revision Date: 03/23/15
www.restek.com

1. IDENTIFICATION

Catalog Number / Product Name:	**31272, 31272-5XX, & 31372 / Benzo (b) Fluoranthene Standard**
Company:	Restek Corporation
Address:	110 Benner Circle Bellefonte, Pa. 16823
Phone#:	814-353-1300
Fax#:	814-353-1309
Emergency#:	1-800-424-9300 (CHEMTREC) +1 703-741-5970 (Outside the US)
Email:	sds@restek.com
Revision Number:	8
Intended use:	For Laboratory use only

2. HAZARD(S)IDENTIFICATION

Emergency Overview:

GHS Hazard Symbols:



GHS Classification:
Flammable Liquid Category 2
Specific Target Organ Systemic Toxicity (STOT) - Single Exposure Category 3

GHS Signal Word:
Danger

GHS Hazard:
Highly flammable liquid and vapour.
May cause drowsiness or dizziness.

GHS Precautions:

Safety Precautions:
Keep away from heat/sparks/open flames/hot surfaces. – No smoking.
Ground/bond container and receiving equipment.
Use explosion-proof electrical/ventilation and lighting equipment.
Use only non-sparking tools.
Take precautionary measures against static discharge.
Avoid breathing dust/fume/gas/mist/vapours/spray.
Use only outdoors or in a well-ventilated area.
Wear protective gloves/protective clothing/eye protection/face protection.

First Aid Measures:
IF ON SKIN (or hair): Remove/Take off immediately all contaminated clothing. Rinse skin with water/shower.
IF INHALED: Remove victim to fresh air and keep at rest in a position comfortable for breathing.
Call a POISON CENTER or doctor/physician if you feel unwell.
In case of fire: Use extinguishing media in section 5 for extinction.

Storage:
Store in a well-ventilated place. Keep container tightly closed.
Store in a well-ventilated place. Keep cool.
Store locked up.

Disposal:
Dispose of contents/container according to section 13 of the SDS.

Single Exposure Target Organs:
No data available.

Repeated Exposure Target Organs:
No data available.

3. COMPOSITION / INFORMATION ON INGREDIENT

Chemical Name	CAS #	EINEC #	% Composition
Acetone	67-64-1	200-662-2	99.900000
benzo (b) fluoranthene	205-99-2	205-911-9	0.100000

4. FIRST-AID MEASURES

Inhalation: Remove to fresh air. If breathing is difficult, have a trained individual administer oxygen. If not breathing, give artificial respiration and have a trained individual administer oxygen. Get medical attention immediately

Eyes: Flush eyes with plenty of water for at least 20 minutes retracting eyelids often. Tilt the head to prevent chemical from transferring to the uncontaminated eye. Get immediate medical attention.

Skin Contact: Wash with soap and water. Remove contaminated clothing and launder. Get medical attention if irritation develops or persists.

Ingestion: Do not induce vomiting and seek medical attention immediately. Drink two glasses of water or milk to dilute. Provide medical care provider with this SDS.

5. FIRE- FIGHTING MEASURES

Extinguishing Media: Use alcohol resistant foam, carbon dioxide, or dry chemical extinguishing agents. Water spray or fog may also be effective for extinguishing if swept across the base of the fire. Water can also be used to absorb heat and keep exposed material from being damaged by fire. Flammable component(s) of this material may be lighter than water and burn while floating on the surface.

Fire and/or Explosion Hazards: Vapors may be ignited by heat, sparks, flames or other sources of ignition at or above the low flash point giving rise to a Class B fire. Vapors are heavier than air and may travel to a source of ignition and flash back

Fire Fighting Methods and Protection: Do not enter fire area without proper protection including self-contained toxic breathing apparatus and full protective equipment. Fight fire from a safe distance and a protected location due to the potential of hazardous vapors and decomposition products. Flammable component(s) of this material may be lighter than water and burn while floating on the surface. Use water spray/fog for cooling.

Hazardous Combustion Products: Carbon dioxide, Carbon monoxide

6. ACCIDENTAL RELEASE MEASURES

Personal Precautions and Equipment: Exposure to the spilled material may be irritating or harmful. Follow personal protective equipment recommendations found in Section 8 of this SDS. Additional precautions may be necessary based on special circumstances created by the spill including; the material spilled, the quantity of the spill, the area in which the spill occurred. Also consider the expertise of employees in the area responding to the spill.

Methods for Clean-up: Prevent the spread of any spill to minimize harm to human health and the environment if safe to do so. Wear complete and proper personal protective equipment following the recommendation of Section 8 at a minimum. Dike with suitable absorbent material like granulated clay. Gather and store in a sealed container pending a waste disposal evaluation.

7. HANDLING AND STORAGE

Handling Technical Measures and Precautions: Harmful or irritating material. Avoid contacting and avoid breathing the material. Use only in a well ventilated area. Use spark-proof tools and explosion-proof equipment

Storage Technical Measures and Conditions: Store in a cool dry ventilated location. Isolate from incompatible materials and conditions. Keep container(s) closed. Keep away from sources of ignition

8. EXPOSURE CONTROLS / PERSONAL PROTECTION

United States:

Chemical Name	CAS No.	IDLH	ACGIH STEL	ACGIH TLV-TWA	OSHA Exposure Limit
Acetone	67-64-1	2500 ppm IDLH (10% LEL)	750 ppm STEL 750 ppm STEL;	500 ppm TWA 500 ppm TWA; 1188 mg/m3	1000 ppm TWA; 2400 mg/m3 TWA

benzo (b) fluoranthene	205-99-2	ND	1782 mg/m3 STEL TWA No TLV		No data available.

Personal Protection:

Engineering Measures:	Local exhaust ventilation is recommended when generating excessive levels of vapors from handling or thermal processing.
Respiratory Protection:	No respiratory protection required under normal conditions of use. Provide general room exhaust ventilation if symptoms of overexposure occur as explained Section 3. A respirator is not normally required.
Eye Protection:	Wear chemically resistant safety glasses with side shields when handling this product. Do not wear contact lenses.
Skin Protection:	Wear protective gloves. Inspect gloves for chemical break-through and replace at regular intervals. Clean protective equipment regularly. Wash hands and other exposed areas with mild soap and water before eating, drinking, and when leaving work
Medical Conditions Aggravated By Exposure:	Respiratory disease including asthma and bronchitis

9. PHYSICAL AND CHEMICAL PROPERTIES

Appearance, color:	Depends upon product selection
Odor:	Strong
Physical State:	No data available.
pH:	No data available
Vapor Density:	2.0 (air = 1)
Melting Point:	-95.4 °C Melting Point
Flash Point:	39
Flammability:	Highly Flammable
Upper Flammable/Explosive Limit, % in air:	No data available.
Lower Flammable/Explosive Limit, % in air:	No data available.
Autoignition Temperature:	465 deg C
Decomposition Temperature:	No data available.
Specific Gravity:	0.7845 g/cm3 at 25 °C
Evaporation Rate:	No data available.
Odor Threshold:	ND
Solubility:	Complete; 100%
Partition Coefficient: n-octanol in water:	No data available.
VOC % by weight:	0.00
Molecular Weight:	58.08

10. STABILITY AND REACTIVITY

Stability:	Stable under normal conditions.
Conditions to Avoid:	No data available.
Materials to Avoid / Chemical Incompatiability:	Strong oxidizing agents Strong acids
Hazardous Decomposition Products:	Carbon dioxide Carbon monoxide

11. TOXICOLOGICAL INFORMATION

Routes of Entry:	Inhalation, Skin Contact, Eye Contact, Ingestion
Target Organs Potentially Affected By Exposure:	Eyes, Central nervous system stimulation, Respiratory Tract, Skin
Chemical Interactions That Change Toxicity:	None Known

Immediate (Acute) Health Effects by Route of Exposure:

Inhalation Irritation:	Can cause minor respiratory irritation, dizziness, weakness, fatigue, nausea, and headache.
Skin Contact:	Can cause minor skin irritation, defatting, and dermatitis.
Eye Contact:	Can cause minor irritation, tearing and reddening.
Ingestion Irritation:	May be harmful if swallowed.
Ingestion Toxicity:	Harmful if swallowed. May cause systemic poisoning.

Long-Term (Chronic) Health Effects:

Carcinogenicity:	Contains a probable or known human carcinogen.
Reproductive and Developmental Toxicity:	No data available to indicate product or any components present at greater than 0.1% may cause birth defects.
Inhalation:	Upon prolonged and/or repeated exposure, can cause minor respiratory irritation, dizziness, weakness, fatigue, nausea, and headache.
Skin Contact:	Upon prolonged or repeated contact, can cause minor

skin irritation, defatting, and dermatitis.

Component Toxicological Data:

NIOSH:

Chemical Name	CAS No.	LD50/LC50
Acetone	67-64-1	Inhalation LC50 Rat 50100 mg/m3 8 h

Component Carcinogenic Data:

OSHA:

Chemical Name	CAS No.	
Benzo(b)fluoranthene	205-99-2	Present

ACGIH:

Chemical Name	CAS No.	
Acetone	67-64-1	A4 - Not Classifiable as a Human Carcinogen
Benzo[b]fluoranthene	205-99-2	A2 - Suspected Human Carcinogen

NIOSH:

Chemical Name	CAS No.
No data available.	

NTP:

Chemical Name	CAS No.
No data available.	

IARC:

Chemical Name	CAS No.	Group No.
No data.		Group 1
No data.		Group 2A
Benzo(b)fluoranthene	205-99-2	Group 2B

12. ECOLOGICAL INFORMATION

Overview:	This material is not expected to be harmful to the ecology.
Mobility:	No data
Persistence:	No data
Bioaccumulation:	No data
Degradability:	No data
Ecological Toxicity Data:	No data available.

13. DISPOSAL CONSIDERATIONS

Waste Description of Spent Product:	Spent or discarded material is a hazardous waste.
Disposal Methods:	Dispose of by incineration following Federal, State, Local, or Provincial regulations.
Waste Disposal of Packaging:	Comply with all Local, State, Federal, and Provincial Environmental Regulations.

14. TRANSPORTATION INFORMATION

United States:

DOT Proper Shipping Name:	Acetone
UN Number:	UN1090
Hazard Class:	3
Packing Group:	II

International:

IATA Proper Shipping Name:	Acetone
UN Number:	UN1090
Hazard Class:	3
Packing Group:	II

Marine Pollutant: No

Chemical Name	CAS#	Marine Pollutant	Severe Marine Pollutant
No data available.			

15. REGULATORY INFORMATION

United States:

Chemical Name	CAS#	CERCLA	SARA 313	SARA EHS 313	TSCA
Acetone	67-64-1	X	-	-	X
benzo (b) fluoranthene	205-99-2	X	X	-	-

The following chemicals are listed on CA Prop 65:

Chemical Name	CAS #	Regulation
Benzo[b]fluoranthene	205-99-2	Prop 65 Cancer

State Right To Know Listing:

Chemical Name	CAS#	New Jersey	Massachusetts	Pennsylvania	California
Acetone	67-64-1	X	X	X	X
benzo (b) fluoranthene	205-99-2	X	X	X	X

16. OTHER INFORMATION

Prior Version Date: 05/16/14

Disclaimer: Restek Corporation provides the descriptions, data and information contained herein in good faith but makes no representation as to its comprehensiveness or accuracy. It is provided for your guidance only. Because many factors may affect processing or application/use, Restek Corporation recommends you perform an assessment to determine the suitability of a product for your particular purpose prior to use. No warranties of any kind, either expressed or implied, including fitness for a particular purpose, are made regarding prodcuts described, data or information set forth. In no case shall the descriptions, information, or data provided be considered a part of our terms and conditions of sale. Further, the descriptions, data and information furnished hereunder are given gratis. No obligation or liability for the description, data and information given are assumed. All such being given and accepted at your risk.

SAFETY DATA SHEET

Revision Date 10-Feb-2015 **Revision Number** 1

1. Identification

Product Name **Benzo[ghi]perylene**

Cat No. : **AC105550000; AC105550050; AC105550250; AC105551000**

Synonyms 1,12-Benzoperylene

Recommended Use Laboratory chemicals.

Uses advised against No Information available

Details of the supplier of the safety data sheet

Company
Fisher Scientific
One Reagent Lane
Fair Lawn, NJ 07410
Tel: (201) 796-7100

Entity / Business Name
Acros Organics
One Reagent Lane
Fair Lawn, NJ 07410

Emergency Telephone Number
For information **US** call: 001-800-ACROS-01 / **Europe** call: +32 14 57 52 11
Emergency Number **US:**001-201-796-7100 / **Europe:** +32 14 57 52 99
CHEMTREC Tel. No.**US:**001-800-424-9300 / **Europe:**001-703-527-3887

2. Hazard(s) identification

Classification
Classification under 2012 OSHA Hazard Communication Standard (29 CFR 1910.1200)

Label Elements
None required

Hazards not otherwise classified (HNOC)
Very toxic to aquatic life with long lasting effects

3. Composition / information on ingredients

Component	CAS-No	Weight %
Benzo(ghi)perylene	191-24-2	> 98

4. First-aid measures

Eye Contact Rinse immediately with plenty of water, also under the eyelids, for at least 15 minutes. Obtain medical attention.

Skin Contact Wash off immediately with soap and plenty of water while removing all contaminated clothes and shoes. Obtain medical attention.

Inhalation Remove from exposure, lie down. Move to fresh air. If breathing is difficult, give oxygen. If not breathing, give artificial respiration. Obtain medical attention.

Ingestion Clean mouth with water. Get medical attention.

Most important symptoms/effects No information available.
Notes to Physician Treat symptomatically

5. Fire-fighting measures

Unsuitable Extinguishing Media No information available

Flash Point No information available
Method - No information available

Autoignition Temperature No information available
Explosion Limits
Upper No data available
Lower No data available
Sensitivity to Mechanical Impact No information available
Sensitivity to Static Discharge No information available

Specific Hazards Arising from the Chemical
Keep product and empty container away from heat and sources of ignition.

Hazardous Combustion Products
Carbon monoxide (CO) Carbon dioxide (CO_2)
Protective Equipment and Precautions for Firefighters
As in any fire, wear self-contained breathing apparatus pressure-demand, MSHA/NIOSH (approved or equivalent) and full protective gear.

NFPA

Health	Flammability	Instability	Physical hazards
0	0	0	N/A

6. Accidental release measures

Personal Precautions Ensure adequate ventilation. Use personal protective equipment.
Environmental Precautions See Section 12 for additional ecological information. Avoid release to the environment. Collect spillage.

Methods for Containment and Clean Up Avoid dust formation. Sweep up or vacuum up spillage and collect in suitable container for disposal. Do not let this chemical enter the environment.

7. Handling and storage

Handling Avoid contact with skin and eyes. Do not breathe dust. Do not breathe vapors or spray mist.

Storage Keep in a dry, cool and well-ventilated place. Keep container tightly closed.

8. Exposure controls / personal protection

Exposure Guidelines This product does not contain any hazardous materials with occupational exposure limits established by the region specific regulatory bodies.

Engineering Measures Ensure adequate ventilation, especially in confined areas.

Personal Protective Equipment

Eye/face Protection	Wear appropriate protective eyeglasses or chemical safety goggles as described by OSHA's eye and face protection regulations in 29 CFR 1910.133 or European Standard EN166.
Skin and body protection	Wear appropriate protective gloves and clothing to prevent skin exposure.
Respiratory Protection	Follow the OSHA respirator regulations found in 29 CFR 1910.134 or European Standard EN 149. Use a NIOSH/MSHA or European Standard EN 149 approved respirator if exposure limits are exceeded or if irritation or other symptoms are experienced.
Hygiene Measures	Handle in accordance with good industrial hygiene and safety practice.

9. Physical and chemical properties

Physical State	Solid
Appearance	Yellow
Odor	Odorless
Odor Threshold	No information available
pH	No information available
Melting Point/Range	276 - 280 °C / 528.8 - 536 °F
Boiling Point/Range	No information available > @ 760 mmHg
Flash Point	No information available
Evaporation Rate	No information available
Flammability (solid,gas)	No information available
Flammability or explosive limits	
Upper	No data available
Lower	No data available
Vapor Pressure	No information available
Vapor Density	No information available
Relative Density	No information available
Solubility	No information available
Partition coefficient; n-octanol/water	No data available
Autoignition Temperature	No information available
Decomposition Temperature	No information available
Viscosity	No information available
Molecular Formula	C22 H12
Molecular Weight	276.33

10. Stability and reactivity

Reactive Hazard	None known, based on information available
Stability	Stable.
Conditions to Avoid	Excess heat. Exposure to light. Incompatible products.
Incompatible Materials	Strong oxidizing agents
Hazardous Decomposition Products	Carbon monoxide (CO), Carbon dioxide (CO_2)
Hazardous Polymerization	Hazardous polymerization does not occur.
Hazardous Reactions	None under normal processing.

11. Toxicological information

Acute Toxicity

Product Information	No acute toxicity information is available for this product
Component Information	
Toxicologically Synergistic	No information available

Products

Delayed and immediate effects as well as chronic effects from short and long-term exposure

Irritation No information available

Sensitization No information available

Carcinogenicity The table below indicates whether each agency has listed any ingredient as a carcinogen.

Component	CAS-No	IARC	NTP	ACGIH	OSHA	Mexico
Benzo(ghi)perylene	191-24-2	Not listed	Not listed	Not listed	Not listed	Not listed

Mutagenic Effects No information available

Reproductive Effects No information available.

Developmental Effects No information available.

Teratogenicity No information available.

STOT - single exposure None known
STOT - repeated exposure None known

Aspiration hazard No information available

Symptoms / effects,both acute and delayed No information available

Endocrine Disruptor Information No information available

Other Adverse Effects The toxicological properties have not been fully investigated. See actual entry in RTECS for complete information.

12. Ecological information

Ecotoxicity

Do not empty into drains.

Persistence and Degradability No information available
Bioaccumulation/ Accumulation No information available.

Mobility .

Component	log Pow
Benzo(ghi)perylene	7.23

13. Disposal considerations

Waste Disposal Methods Chemical waste generators must determine whether a discarded chemical is classified as a hazardous waste. Chemical waste generators must also consult local, regional, and national hazardous waste regulations to ensure complete and accurate classification.

14. Transport information

DOT Not regulated
TDG Not regulated
IATA Not regulated
IMDG/IMO Not regulated

15. Regulatory information

International Inventories

Component	TSCA	DSL	NDSL	EINECS	ELINCS	NLP	PICCS	ENCS	AICS	IECSC	KECL

Benzo(ghi)perylene	-	-	-	205-883-8	-		-	-	-	-	-

Legend:
X - Listed
E - Indicates a substance that is the subject of a Section 5(e) Consent order under TSCA.
F - Indicates a substance that is the subject of a Section 5(f) Rule under TSCA.
N - Indicates a polymeric substance containing no free-radical initiator in its inventory name but is considered to cover the designated polymer made with any free-radical initiator regardless of the amount used.
P - Indicates a commenced PMN substance
R - Indicates a substance that is the subject of a Section 6 risk management rule under TSCA.
S - Indicates a substance that is identified in a proposed or final Significant New Use Rule
T - Indicates a substance that is the subject of a Section 4 test rule under TSCA.
XU - Indicates a substance exempt from reporting under the Inventory Update Rule, i.e. Partial Updating of the TSCA Inventory Data Base Production and Site Reports (40 CFR 710(B).
Y1 - Indicates an exempt polymer that has a number-average molecular weight of 1,000 or greater.
Y2 - Indicates an exempt polymer that is a polyester and is made only from reactants included in a specified list of low concern reactants that comprises one of the eligibility criteria for the exemption rule.

U.S. Federal Regulations

TSCA 12(b) Not applicable

SARA 313

Component	CAS-No	Weight %	SARA 313 - Threshold Values %
Benzo(ghi)perylene	191-24-2	> 98	1.0

SARA 311/312 Hazardous Categorization

Acute Health Hazard	No
Chronic Health Hazard	No
Fire Hazard	No
Sudden Release of Pressure Hazard	No
Reactive Hazard	No

Clean Water Act

Component	CWA - Hazardous Substances	CWA - Reportable Quantities	CWA - Toxic Pollutants	CWA - Priority Pollutants
Benzo(ghi)perylene	-	-	X	X

Clean Air Act Not applicable

OSHA Occupational Safety and Health Administration
Not applicable

CERCLA
This material, as supplied, contains one or more substances regulated as a hazardous substance under the Comprehensive Environmental Response Compensation and Liability Act (CERCLA) (40 CFR 302)

Component	Hazardous Substances RQs	CERCLA EHS RQs
Benzo(ghi)perylene	5000 lb	-

California Proposition 65 This product does not contain any Proposition 65 chemicals

State Right-to-Know

Component	Massachusetts	New Jersey	Pennsylvania	Illinois	Rhode Island
Benzo(ghi)perylene	X	X	X	X	-

U.S. Department of Transportation

Reportable Quantity (RQ):	N
DOT Marine Pollutant	N
DOT Severe Marine Pollutant	N

U.S. Department of Homeland Security

This product does not contain any DHS chemicals.

Other International Regulations

Mexico - Grade No information available

Canada
This product has been classified in accordance with the hazard criteria of the Controlled Products Regulations (CPR) and the MSDS contains all the information required by the CPR

WHMIS Hazard Class Non-controlled

16. Other information

Prepared By
Regulatory Affairs
Thermo Fisher Scientific
Email: EMSDS.RA@thermofisher.com

Revision Date 10-Feb-2015
Print Date 10-Feb-2015
Revision Summary This document has been updated to comply with the US OSHA HazCom 2012 Standard replacing the current legislation under 29 CFR 1910.1200 to align with the Globally Harmonized System of Classification and Labeling of Chemicals (GHS)

Disclaimer
The information provided on this Safety Data Sheet is correct to the best of our knowledge, information and belief at the date of its publication. The information given is designed only as a guide for safe handling, use, processing, storage, transportation, disposal and release and is not to be considered as a warranty or quality specification. The information relates only to the specific material designated and may not be valid for such material used in combination with any other material or in any process, unless specified in the text.

End of SDS

Institute for Reference Materials and Measurements

SAFETY DATA SHEET

Based on Regulation (EC) No. 1907/2006 (REACH) Article 31 and Annex II

BCR-048R: benzo[k]fluoranthene

1. Identification of the substance/preparation and of the company/undertaking

1.1 Identification of the substance or preparation:

Product name: BCR-048R: benzo[k]fluoranthene

CAS number	207-08-9
EC index number	601-036-00-5
EINECS number	205-916-6
RTECS number	DF6350000
Molecular mass	252.32 g/mol
Formula	C20H12

1.2 Use of the substance/preparation:

Certified reference material for laboratory use only

1.3 Company/undertaking identification:

Institute for Reference Materials and Measurements
Retieseweg
B-2440 Geel
Tel: +32 14 57 12 11
Fax: +32 14 59 04 06
JRC-IRMM-RM-Sales@ec.europa.eu

1.4 Emergency telephone:

Poison Centre: +32 70 245 245

2. Hazards identification

NFPA: 1-1-2(*)

DSD/DPD

May cause cancer

Very toxic to aquatic organisms, may cause long-term adverse effects in the aquatic environment

Other hazards

Its dust is explosive with air

Dust cloud can be ignited by a spark

Slightly irritant to skin

Slightly irritant to eyes

Caution! Substance is absorbed through the skin

No certainty about human mutagenic properties

Highly bioaccumulative

Not readily biodegradable in water

CLP

Carc. 1B	May cause cancer. (H350)
Aquatic Acute 1	Very toxic to aquatic life. (H400)
Aquatic Chronic 1	Very toxic to aquatic life with long lasting effects. (H410)

Other hazards

Its dust is explosive with air

Dust cloud can be ignited by a spark

Slightly irritant to skin

Slightly irritant to eyes

Caution! Substance is absorbed through the skin

No certainty about human mutagenic properties

Highly bioaccumulative

Not readily biodegradable in water

3. Composition/information on ingredients

Name	CAS No EINECS/ELINCS	Conc.	Classification according to DSD/DPD	Classification according to CLP	Note
benzo[k]fluoranthene	207-08-9 205-916-6		Carc. Cat. 2; R45 N; R50-53	Carc. 1B; H350 Aquatic Acute 1; H400 Aquatic Chronic 1; H410	

4. First aid measures

4.1 After inhalation:

Remove the victim into fresh air

Respiratory problems: consult a doctor/medical service

4.2 Skin contact:

Rinse with water

Do not apply (chemical) neutralizing agents

Take victim to a doctor if irritation persists

4.3 Eye contact:

Rinse with water

Do not apply neutralizing agents

Take victim to an ophthalmologist if irritation persists

4.4 After ingestion:

Rinse mouth with water

Immediately after ingestion: give lots of water to drink

Do not induce vomiting

Consult a doctor/medical service if you feel unwell

5. Fire-fighting measures

5.1 Suitable extinguishing media:

Water spray

Polyvalent foam

ABC powder

Carbon dioxide

5.2 Unsuitable extinguishing media:

No unsuitable extinguishing media known

5.3 Special exposure hazards:

Heating increases the fire hazard

Dust cloud can be ignited by a spark

Upon combustion CO and CO2 are formed

5.4 Instructions:

Take account of toxic fire-fighting water

Use water moderately and if possible collect or contain it

5.5 Special protective equipment for fire-fighters:

Gloves

Protective clothing

Heat/fire exposure: compressed air/oxygen apparatus

6. Accidental release measures

6.1 Personal precautions:

See heading 8.2

6.2 Environmental precautions:

Dam up the solid spill

Prevent soil and water pollution

Prevent spreading in sewers

See heading 13

6.3 Methods for cleaning up:

Scoop solid spill into closing containers
Carefully collect the spill/leftovers
Clean contaminated surfaces with an excess of water
Take collected spill to manufacturer/competent authority
Wash clothing and equipment after handling

7. Handling and storage

7.1 Handling:

Avoid raising dust
Warning! Avoid exposure
Keep away from naked flames/heat
Obtain special instructions before use
Observe strict hygiene
Keep container tightly closed
Do not discharge the waste into the drain

7.2 Storage:

Safe storage requirements:

Store in a cool area
Store in a dry area
Keep container in a well-ventilated place
Keep locked up
Unauthorized persons are not admitted
Meet the legal requirements

Keep away from:

oxidizing agents
(strong) acids

7.3 Specific use(s):

See information supplied by the manufacturer for the identified use(s)

8. Exposure controls/Personal protection

8.1 Exposure limit values:

8.1.1 Occupational exposure:

If limit values are applicable and available these will be listed below.

8.1.2 Sampling methods:

Product name	Test	Number	Sampling method	Remarks
Benz(a)Anthracene	OSHA	CSI		
Benz(a)Anthracene (Polynuclear aromatic hydrocarbons)	NIOSH	5506	adsorption tubes	
Benz(a)Anthracene (Polynuclear aromatic hydrocarbons)	NIOSH	5515	adsorption tubes	

8.2 Exposure controls:

8.2.1 Occupational exposure controls:

Measure the concentration in the air regularly
Carry operations in the open/under local exhaust/ventilation or with respiratory protection
Personal protective equipment:

a) Respiratory protection:

Dust production: dust mask with filter type P3

b) Hand protection:

Gloves

c) Eye protection:

Safety glasses
In case of dust production: protective goggles

d) Skin protection:

Protective clothing

8.2.2 Environmental exposure controls:

See headings 6.2, 6.3 and 13

9. Physical and chemical properties

9.1 General information:

Physical form	Crystalline solid
	Needles
Colour	Light yellow

9.2 Important health, safety and environmental information:

Boiling point	480 °C
Vapour pressure (20°C)	< 0.00001 hPa
Solubility in water	< 0.00001 g/100 ml
Solubility in solvents	Soluble in ethanol
	Soluble in acetic acid
	Soluble in oils/fats
Log Pow	6.84

9.3 Other information:

Melting point	217 °C

10. Stability and reactivity

10.1 Conditions to avoid:

Possible fire hazard

heat sources

ignition sources

Stability

No data available

Reactions

Reacts violently with (strong) oxidizers

10.2 Materials to avoid:

oxidizing agents

(strong) acids

10.3 Hazardous decomposition products:

Upon combustion CO and CO2 are formed

11. Toxicological information

11.1 Acute toxicity:

No (test)data available.

11.2 Chronic toxicity:

Probably human carcinogenic

No certainty about human mutagenic properties

Not classified as toxic to reproduction (EC)

BCR-048R: benzo[k]fluoranthene

EC carc cat	2
Listed in SZW - List of carcinogenic substances	yes
IARC - classification	2B
MAK - Krebserzeugend Kategorie	2
MAK - Keimzellmutagen Kategorie	3B
MAK - Schwangerschaft Gruppe	-
CLP carc cat	category 1B

11.3 Acute effects/symptoms:

Inhalation:

No data available

Skin contact:

Slight irritation

Eye contact:

Slight irritation

Ingestion:

No data available

11.4 Chronic effects:

ON CONTINUOUS/REPEATED EXPOSURE/CONTACT:
No specific information available
SIMILAR PRODUCTS CAUSE FOLLOWING SYMPTOMS:
Feeling of weakness
Cracking of the skin
Skin rash/inflammation
Photoallergy
Skin cancer
Lung tissue affection/degeneration
Enlargement/affection of the liver
Affection of the renal tissue

12. Ecological information

12.1 Ecotoxicity:

No (test)data available.

12.2 Mobility:

Volatile organic compounds (VOC)	0 %
Solubility in/reaction with water	Insoluble in water
Water physicochemical processes	Forming sediments in water
Soil physicochemical processes	Adsorbs into the soil

12.3 Persistence and degradability:

Water abiotic degradation processes	Ozonation in water
Half-life soil	65 - 1400 days

Not readily biodegradable in water

12.4 Bioaccumulative potential:

Log Pow	6.84

Highly bioaccumulative

12.5 Results of PBT assessment:

Not applicable, based on available data

12.6 Other adverse effects:

Not dangerous for the ozone layer (Council Regulation (EC) no 1005/2009)

13. Disposal considerations

13.1 Provisions relating to waste:

Waste material code (Directive 2008/98/EC, decision 2001/118/EC)
16 05 06* : laboratory chemicals, consisting of or containing dangerous substances, including mixtures of laboratory chemicals
Depending on branch of industry and production process, also other EURAL codes may be applicable
Hazardous waste according to Directive 2008/98/EC

13.2 Disposal methods:

Dissolve or mix with a combustible solvent
Remove to an authorized incinerator equipped with an afterburner and a flue gas scrubber with energy recovery
Remove waste in accordance with local and/or national regulations
Do not discharge into surface water (2000/60/EC, Council decision 2455/2001/EC, O.J. L331 of 15/12/2001)

13.3 Packaging/Container:

Waste material code packaging (Directive 2008/98/EC)
15 01 10* : packaging containing residues of or contaminated by dangerous substances

{13.4 Entsorgung verschmutzter Gebinde:}

14. Transport information

ADR

Proper shipping name	Environmentally hazardous substance, solid, n.o.s.
Techn./chem. name ADR	benzo[k]fluoranthene
UN number	3077
Class	9
Packing group	III
Hazard identification number	90
Classification code	M7
Labels	9
Environmentally hazardous substance mark	yes

RID

Proper shipping name	Environmentally hazardous substance, solid, n.o.s.
Techn./chem. name RID	benzo[k]fluoranthene
UN number	3077
Class	9
Packing group	III
Classification code	M7
Labels	9
Environmentally hazardous substance mark	yes

ADNR

Proper shipping name	Environmentally hazardous substance, solid, n.o.s.
Techn./chem. name ADNR	benzo[k]fluoranthene
UN number	3077
Class	9
Packing group	III
Classification code	M7
Labels	9
Environmentally hazardous substance mark	yes

IMO

Proper shipping name	Environmentally hazardous substance, solid, n.o.s.
Techn./chem. name IMO	benzo[k]fluoranthene
UN number	3077
Class	9
Packing group	III
Labels	9
Marine pollutant	P
Environmentally hazardous substance mark	yes

ICAO

Proper shipping name	Environmentally hazardous substance, solid, n.o.s.
Techn./chem. name ICAO	benzo[k]fluoranthene
UN number	3077
Class	9
Packing group	III
Labels	9
Environmentally hazardous substance mark	yes

15. Regulatory information

15.1 EU Legislation:

DSD/DPD

Enumerated in substance list Annex I of directive 67/548/EEC et sequens





Dangerous for the environment

R-phrases

45	May cause cancer
50/53	Very toxic to aquatic organisms, may cause long-term adverse effects in the aquatic environment

S-phrases

53	Avoid exposure - obtain special instructions before use
45	In case of accident or if you feel unwell, seek medical advice immediately (show the label where possible)
60	This material and its container must be disposed of as hazardous waste
61	Avoid release to the environment. Refer to special instructions/safety data sheets.

Additional recommendations

	Restricted to professional users.

CLP

Classification and labelling according to Regulation (EC) No 1272/2008 – Annex VI and after evaluation of available test data





Signal word

Dgr	Danger

H-statements

H350	May cause cancer.
H410	Very toxic to aquatic life with long lasting effects.

P-statements

P202	Do not handle until all safety precautions have been read and understood.
P281	Use personal protective equipment as required.
P273	Avoid release to the environment.
P308 + P313	IF exposed or concerned: Get medical advice/attention.
P391	Collect spillage.
P405	Store locked up.

Supplemental information

	Restricted to professional users.

15.2 National provisions:

15.3 Specific community rules:

Enumerated in Annex XVII of Regulation (EC) No. 1907/2006: Restrictions on the manufacture, placing on the market and use of certain dangerous substances, mixtures and articles.

Legislation	Reference legislation
EG/552/2009	See column 1: 28.
EG/552/2009	See column 1: 50. g)

16. Other information

The information in this safety data sheet is based on data and samples provided to BIG. The sheet was written to the best of our ability and according to the state of knowledge at that time. The safety data sheet only constitutes a guideline for the safe handling, use, consumption, storage, transport and disposal of the substances/preparations/mixtures mentioned under point 1. New safety data sheets are written from time to time. Only the most recent versions may be used. Old versions must be destroyed. Unless indicated otherwise word for word on the safety data sheet, the information does not apply to substances/preparations/mixtures in purer form, mixed with other substances or in processes. The safety data sheet offers no quality specification for the substances/preparations/mixtures in question.

Compliance with the instructions in this safety data sheet does not release the user from the obligation to take all measures dictated by common sense, regulations and recommendations or which are necessary and/or useful based on the real applicable circumstances. BIG does not guarantee the accuracy or exhaustiveness of the information provided. Use of this safety data sheet is subject to the licence and liability limiting conditions as stated in your BIG licence agreement. All intellectual property rights to this sheet are the property of BIG and its distribution and reproduction are limited. Consult your BIG licence agreement for details.

(*) = INTERNAL CLASSIFICATION (NFPA)

PBT-substances = persistent, bioaccumulative and toxic substances

DSD Dangerous Substance Directive
DPD Dangerous Preparation Directive
CLP (EU-GHS) Classification, labelling and packaging (Globally Harmonised System in Europe)

Full text of any R-phrases referred to under headings 2 and 3:

R45	May cause cancer
R50/53	Very toxic to aquatic organisms, may cause long-term adverse effects in the aquatic environment

Full text of any H-statements referred to under headings 2 and 3:

H350	May cause cancer.
H400	Very toxic to aquatic life.
H410	Very toxic to aquatic life with long lasting effects.

Full text of any classes referred to under headings 2 and 3:

Aquatic Acute	Hazardous to the aquatic environment - acute
Aquatic Chronic	Hazardous to the aquatic environment - chronic
Carc.	Carcinogenicity

SAFETY DATA SHEET

Revision Date 25-Mar-2024 **Revision Number** 4

1. Identification

Product Name **Benzo[a]pyrene**

Cat No. : **15856**

CAS No 50-32-8
Synonyms Benzo[def]chrysene.; 3,4-Benzopyrene; 3,4-Benzpyrene

Recommended Use Laboratory chemicals.
Uses advised against Food, drug, pesticide or biocidal product use.

Details of the supplier of the safety data sheet

Company
Thermo Fisher Scientific Chemicals, Inc.
30 Bond Street
Ward Hill, MA 01835-8099
Tel: 800-343-0660
Fax: 800-322-4757

Emergency Telephone Number
For information **US** call: 001-800-227-6701 / **Europe** call: +32 14 57 52 11
Emergency Number **US:**001-201-796-7100 / **Europe:** +32 14 57 52 99
CHEMTREC Tel. No. **US:**001-800-424-9300 / **Europe:**001-703-527-3887

2. Hazard(s) identification

Classification
This chemical is considered hazardous by the 2012 OSHA Hazard Communication Standard (29 CFR 1910.1200)

Skin Sensitization	Category 1
Germ Cell Mutagenicity	Category 1B
Carcinogenicity	Category 1A
Reproductive Toxicity	Category 1B

Label Elements

Signal Word
Danger

Hazard Statements
May cause an allergic skin reaction
May cause genetic defects

May cause cancer
May damage fertility. May damage the unborn child



Precautionary Statements
Prevention
Obtain special instructions before use
Do not handle until all safety precautions have been read and understood
Use personal protective equipment as required
Avoid breathing dust/fume/gas/mist/vapors/spray
Contaminated work clothing should not be allowed out of the workplace
Wear protective gloves
Response
IF exposed or concerned: Get medical attention/advice
Skin
IF ON SKIN: Wash with plenty of soap and water
If skin irritation or rash occurs: Get medical advice/attention
Wash contaminated clothing before reuse
Storage
Store locked up
Disposal
Dispose of contents/container to an approved waste disposal plant
Hazards not otherwise classified (HNOC)
Very toxic to aquatic life with long lasting effects
WARNING. Cancer - https://www.p65warnings.ca.gov/.

3. Composition/Information on Ingredients

Component	CAS No	Weight %
Benzo[a]pyrene	50-32-8	> 96

4. First-aid measures

General Advice If symptoms persist, call a physician.

Eye Contact Rinse immediately with plenty of water, also under the eyelids, for at least 15 minutes. Get medical attention.

Skin Contact Wash off immediately with plenty of water for at least 15 minutes. If skin irritation persists, call a physician.

Inhalation Remove to fresh air. If not breathing, give artificial respiration. Get medical attention if symptoms occur.

Ingestion Clean mouth with water and drink afterwards plenty of water. Get medical attention if symptoms occur.

Most important symptoms and effects None reasonably foreseeable. . May cause allergic skin reaction. Symptoms of allergic reaction may include rash, itching, swelling, trouble breathing, tingling of the hands and feet, dizziness, lightheadedness, chest pain, muscle pain or flushing

Notes to Physician Treat symptomatically

5. Fire-fighting measures

Unsuitable Extinguishing Media No information available

Flash Point No information available
Method - No information available

Autoignition Temperature Not applicable
Explosion Limits
Upper No data available
Lower No data available
Sensitivity to Mechanical Impact No information available
Sensitivity to Static Discharge No information available

Specific Hazards Arising from the Chemical
Do not allow run-off from fire-fighting to enter drains or water courses.

Hazardous Combustion Products
Carbon monoxide (CO). Carbon dioxide (CO_2).
Protective Equipment and Precautions for Firefighters
As in any fire, wear self-contained breathing apparatus pressure-demand, MSHA/NIOSH (approved or equivalent) and full protective gear.

NFPA

Health	Flammability	Instability	Physical hazards
2	1	0	N/A

6. Accidental release measures

Personal Precautions Ensure adequate ventilation. Use personal protective equipment as required. Avoid dust formation.

Environmental Precautions Do not flush into surface water or sanitary sewer system. Do not allow material to contaminate ground water system. Prevent product from entering drains. Local authorities should be advised if significant spillages cannot be contained.

Methods for Containment and Clean Up Sweep up and shovel into suitable containers for disposal. Keep in suitable, closed containers for disposal.

7. Handling and storage

Handling Wear personal protective equipment/face protection. Ensure adequate ventilation. Do not get in eyes, on skin, or on clothing. Avoid ingestion and inhalation. Avoid dust formation.

Storage. Keep containers tightly closed in a dry, cool and well-ventilated place. Incompatible Materials. Oxidizing agent.

8. Exposure controls / personal protection

Exposure Guidelines

Component	ACGIH TLV	OSHA PEL	NIOSH	Mexico OEL (TWA)
Benzo[a]pyrene		TWA: 0.2 mg/m³		

Legend

OSHA - Occupational Safety and Health Administration

Engineering Measures Ensure adequate ventilation, especially in confined areas.

Personal Protective Equipment

Eye/face Protection	Wear appropriate protective eyeglasses or chemical safety goggles as described by OSHA's eye and face protection regulations in 29 CFR 1910.133 or European Standard EN166.
Skin and body protection	Wear appropriate protective gloves and clothing to prevent skin exposure.
Respiratory Protection	Follow the OSHA respirator regulations found in 29 CFR 1910.134 or European Standard EN 149. Use a NIOSH/MSHA or European Standard EN 149 approved respirator if exposure limits are exceeded or if irritation or other symptoms are experienced.
Recommended Filter type:	Particulates filter conforming to EN 143.
Hygiene Measures	Handle in accordance with good industrial hygiene and safety practice.

9. Physical and chemical properties

Physical State	Powder Solid
Appearance	Dark yellow
Odor	aromatic
Odor Threshold	No information available
pH	Not applicable
Melting Point/Range	175 - 179 °C / 347 - 354.2 °F
Boiling Point/Range	495 °C / 923 °F @ 760 mmHg
Flash Point	No information available
Evaporation Rate	Not applicable
Flammability (solid,gas)	No information available
Flammability or explosive limits	
Upper	No data available
Lower	No data available
Vapor Pressure	No information available
Vapor Density	Not applicable
Specific Gravity	No information available
Solubility	Insoluble in water
Partition coefficient; n-octanol/water	No data available
Autoignition Temperature	Not applicable
Decomposition Temperature	No information available
Viscosity	Not applicable
Molecular Formula	C20H12
Molecular Weight	252.31

10. Stability and reactivity

Reactive Hazard	None known, based on information available
Stability	Stable under normal conditions.
Conditions to Avoid	Incompatible products.
Incompatible Materials	Oxidizing agent
Hazardous Decomposition Products	Carbon monoxide (CO), Carbon dioxide (CO_2)
Hazardous Polymerization	Hazardous polymerization does not occur.
Hazardous Reactions	None under normal processing.

11. Toxicological information

Acute Toxicity

Product Information
Component Information
Toxicologically Synergistic Products No information available

Delayed and immediate effects as well as chronic effects from short and long-term exposure

Irritation No information available

Sensitization May cause sensitization by skin contact

Carcinogenicity The table below indicates whether each agency has listed any ingredient as a carcinogen.

Component	CAS No	IARC	NTP	ACGIH	OSHA	Mexico
Benzo[a]pyrene	50-32-8	Group 1	Reasonably Anticipated	A2	X	A2

IARC (International Agency for Research on Cancer)

IARC (International Agency for Research on Cancer)
Group 1 - Carcinogenic to Humans
Group 2A - Probably Carcinogenic to Humans
Group 2B - Possibly Carcinogenic to Humans

NTP: (National Toxicity Program)

NTP: (National Toxicity Program)
Known - Known Carcinogen
Reasonably Anticipated - Reasonably Anticipated to be a Human Carcinogen

ACGIH: (American Conference of Governmental Industrial Hygienists)

ACGIH: (American Conference of Governmental Industrial Hygienists)
A1 - Known Human Carcinogen
A2 - Suspected Human Carcinogen
A3 - Animal Carcinogen

Mutagenic Effects No information available

Reproductive Effects No information available.

Developmental Effects No information available.

Teratogenicity No information available.

STOT - single exposure None known
STOT - repeated exposure None known

Aspiration hazard No information available

Symptoms / effects,both acute and delayed Symptoms of allergic reaction may include rash, itching, swelling, trouble breathing, tingling of the hands and feet, dizziness, lightheadedness, chest pain, muscle pain or flushing

Endocrine Disruptor Information

Component	EU - Endocrine Disrupters Candidate List	EU - Endocrine Disruptors - Evaluated Substances	Japan - Endocrine Disruptor Information
Benzo[a]pyrene	Group III Chemical	Not applicable	Not applicable

Other Adverse Effects The toxicological properties have not been fully investigated.

12. Ecological information

Ecotoxicity
Very toxic to aquatic organisms, may cause long-term adverse effects in the aquatic environment. The product contains following substances which are hazardous for the environment.

Persistence and Degradability May persist

Bioaccumulation/ Accumulation No information available.

Mobility Is not likely mobile in the environment due its low water solubility.

Component	log Pow
Benzo[a]pyrene	6.06

13. Disposal considerations

Waste Disposal Methods Chemical waste generators must determine whether a discarded chemical is classified as a hazardous waste. Chemical waste generators must also consult local, regional, and national hazardous waste regulations to ensure complete and accurate classification.

Component	RCRA - U Series Wastes	RCRA - P Series Wastes
Benzo[a]pyrene - 50-32-8	U022	-

14. Transport information

DOT

UN-No UN3077
Proper Shipping Name Environmentally hazardous substances, solid, n.o.s.
Technical Name Benzo[a]pyrene
Hazard Class 9
Packing Group III

TDG

UN-No UN3077
Proper Shipping Name Environmentally hazardous substances, solid, n.o.s.
Hazard Class 9
Packing Group III

IATA

UN-No UN3077
Proper Shipping Name Environmentally hazardous substances, solid, n.o.s.
Hazard Class 9
Packing Group III

IMDG/IMO

UN-No UN3077
Proper Shipping Name Environmentally hazardous substances, solid, n.o.s.
Hazard Class 9
Packing Group III

15. Regulatory information

United States of America Inventory

Component	CAS No	TSCA	TSCA Inventory notification - Active-Inactive	TSCA - EPA Regulatory Flags
Benzo[a]pyrene	50-32-8	X	ACTIVE	-

Legend:
TSCA US EPA (TSCA) - Toxic Substances Control Act, (40 CFR Part 710)
X - Listed
'-' - Not Listed

TSCA - Per 40 CFR 751, Regulation of Certain Chemical Substances & Mixtures, Under TSCA Section 6(h) (PBT) Not applicable

TSCA 12(b) - Notices of Export Not applicable

International Inventories

Canada (DSL/NDSL), Europe (EINECS/ELINCS/NLP), Philippines (PICCS), Japan (ENCS), Japan (ISHL), Australia (AICS), China (IECSC), Korea (KECL).

Component	CAS No	DSL	NDSL	EINECS	PICCS	ENCS	ISHL	AICS	IECSC	KECL
Benzo[a]pyrene	50-32-8	X	-	200-028-5	X	-		-	X	KE-05-0184

KECL - NIER number or KE number (http://ncis.nier.go.kr/en/main.do)

U.S. Federal Regulations

SARA 313
Section 313 of Title III of the Superfund Amendments and Reauthorization Act of 1986 (SARA). This product contains a chemical or chemicals which are subject to the reporting requirements of the Act and Title 40 of the Code of Federal Regulations, Part 372. Note that PBT chemicals are not eligible for the de minimis exemption. For these chemicals, supplier notification limits are provided.
> 0 % = no low concentration cut-off set, supplier notification limit applies.

Component	CAS No	Weight %	SARA 313 - Threshold Values %	SARA 313 - Reporting threasholds
Benzo[a]pyrene	50-32-8	> 96	> 0 %	RT = 100 lb

SARA 311/312 Hazard Categories
Should this product meet EPCRA 311/312 Tier reporting criteria at 40 CFR 370, refer to Section 2 of this SDS for appropriate classifications.

CWA (Clean Water Act)

Component	CWA - Hazardous Substances	CWA - Reportable Quantities	CWA - Toxic Pollutants	CWA - Priority Pollutants
Benzo[a]pyrene	-	-	X	X

Clean Air Act Not applicable

OSHA - Occupational Safety and Health Administration Not applicable

CERCLA
This material, as supplied, contains one or more substances regulated as a hazardous substance under the Comprehensive Environmental Response Compensation and Liability Act (CERCLA) (40 CFR 302) or the Superfund Amendments and Reauthorization Act (SARA) (40 CFR 355).

Component	Hazardous Substances RQs	CERCLA Extremely Hazardous Substances RQs	SARA Reportable Quantity (RQ)
Benzo[a]pyrene	1 lb	-	1 lb 0.454 kg

California Proposition 65 This product contains the following Proposition 65 chemicals.

Component	CAS No	California Prop. 65	Prop 65 NSRL	Category
Benzo[a]pyrene	50-32-8	Carcinogen	0.06 µg/day	Carcinogen

U.S. State Right-to-Know Regulations

Component	Massachusetts	New Jersey	Pennsylvania	Illinois	Rhode Island
Benzo[a]pyrene	X	X	X	X	X

U.S. Department of Transportation
Reportable Quantity (RQ): Y
DOT Marine Pollutant N
DOT Severe Marine Pollutant N

U.S. Department of Homeland Security This product does not contain any DHS chemicals.

Other International Regulations

Mexico - Grade No information available

Authorisation/Restrictions according to EU REACH

Component	CAS No	REACH (1907/2006) - Annex XIV - Substances Subject to Authorization	REACH (1907/2006) - Annex XVII - Restrictions on Certain Dangerous Substances	REACH Regulation (EC 1907/2006) article 59 - Candidate List of Substances of Very High Concern (SVHC)
Benzo[a]pyrene	50-32-8	-	Use restricted. See item 72. (see link for restriction details) Use restricted. See item 30. (see link for restriction details) Use restricted. See item 28. (see link for restriction details) Use restricted. See item 50[a]. (see link for restriction details) Use restricted. See item 29. (see link for restriction details) Use restricted. See item 75. (see link for restriction details)	SVHC Candidate list - 200-028-5 - Carcinogenic (article 57a); Mutagenic (Article 57b); Toxic for reproduction (Article 57c); PBT (Article 57d); vPvB (Article 57e)

After the sunset date the use of this substance requires either an authorization or can only be used for exempted uses, e.g. use in scientific research and development which includes routine analytics or use as intermediate.

REACH links
https://echa.europa.eu/authorisation-list
https://echa.europa.eu/substances-restricted-under-reach
https://echa.europa.eu/candidate-list-table

Safety, health and environmental regulations/legislation specific for the substance or mixture

Component	CAS No	OECD HPV	Persistent Organic Pollutant	Ozone Depletion Potential	Restriction of Hazardous Substances (RoHS)
Benzo[a]pyrene	50-32-8	Not applicable	Annex III - Substance subject to release reduction	Not applicable	Not applicable

Contains component(s) that meet a 'definition' of per & poly fluoroalkyl substance (PFAS)?
See table for values

PFAS Legend
Listed = Meets the PFAS definition of the named authority

Other International Regulations

Component	CAS No	Seveso III Directive (2012/18/EC) - Qualifying Quantities	Seveso III Directive (2012/18/EC) - Qualifying Quantities	Rotterdam Convention (PIC)	Basel Convention (Hazardous Waste)

		for Major Accident Notification	for Safety Report Requirements		
Benzo[a]pyrene	50-32-8	Not applicable	Not applicable	Not applicable	Not applicable

16. Other information

Prepared By
Health, Safety and Environmental Department
Email: chem.techinfo@thermofisher.com
www.thermofisher.com

Revision Date 25-Mar-2024
Print Date 25-Mar-2024
Revision Summary New emergency telephone response service provider.

Disclaimer
The information provided in this Safety Data Sheet is correct to the best of our knowledge, information and belief at the date of its publication. The information given is designed only as a guidance for safe handling, use, processing, storage, transportation, disposal and release and is not to be considered a warranty or quality specification. The information relates only to the specific material designated and may not be valid for such material used in combination with any other materials or in any process, unless specified in the text

End of SDS

SAFETY DATA SHEET

Version 8.3
Revision Date 09/07/2024
Print Date 12/07/2024

SECTION 1: Identification of the substance/mixture and of the company/undertaking

1.1 Product identifiers

Product name : Benzo[ghi]fluoranthene

Product Number : BCR139
Brand : Sigma-Aldrich
CAS-No. : 203-12-3

1.2 Relevant identified uses of the substance or mixture and uses advised against

Identified uses : Laboratory chemicals, Synthesis of substances

Uses advised against : The product is being supplied under the TSCA R&D Exemption (40 CFR Section 720.36). It is the recipient's responsibility to comply with the requirements of the R&D exemption. The product may not be used for a non-exempt commercial purpose under TSCA unless appropriate consent is granted in writing by MilliporeSigma.

1.3 Details of the supplier of the safety data sheet

Company : Sigma-Aldrich Inc.
3050 SPRUCE ST
ST. LOUIS MO 63103
UNITED STATES

Telephone : +1 314 771-5765
Fax : +1 800 325-5052

1.4 Emergency telephone

Emergency Phone # : 800-424-9300 CHEMTREC (USA) +1-703-527-3887 CHEMTREC (International) 24 Hours/day; 7 Days/week

SECTION 2: Hazards identification

2.1 Classification of the substance or mixture

Not a hazardous substance or mixture.

2.2 GHS Label elements, including precautionary statements

Not a hazardous substance or mixture.

2.3 Hazards not otherwise classified (HNOC) or not covered by GHS - none

The life science business of Merck KGaA, Darmstadt, Germany
operates as MilliporeSigma in the US and Canada

SECTION 3: Composition/information on ingredients

3.1 Substances

Formula	:	C18H10
Molecular weight	:	226.27 g/mol
CAS-No.	:	203-12-3

No components need to be disclosed according to the applicable regulations.

SECTION 4: First aid measures

4.1 Description of first-aid measures

If inhaled
After inhalation: fresh air.

In case of skin contact
In case of skin contact: Take off immediately all contaminated clothing. Rinse skin with water/ shower.

In case of eye contact
After eye contact: rinse out with plenty of water. Remove contact lenses.

If swallowed
After swallowing: make victim drink water (two glasses at most). Consult doctor if feeling unwell.

4.2 Most important symptoms and effects, both acute and delayed

The most important known symptoms and effects are described in the labelling (see section 2.2) and/or in section 11

4.3 Indication of any immediate medical attention and special treatment needed

No data available

SECTION 5: Firefighting measures

5.1 Extinguishing media

Suitable extinguishing media
Water Foam Carbon dioxide (CO2) Dry powder

Unsuitable extinguishing media
For this substance/mixture no limitations of extinguishing agents are given.

5.2 Special hazards arising from the substance or mixture

Carbon oxides
Combustible.
Development of hazardous combustion gases or vapours possible in the event of fire.

5.3 Advice for firefighters

In the event of fire, wear self-contained breathing apparatus.

The life science business of Merck KGaA, Darmstadt, Germany
operates as MilliporeSigma in the US and Canada

5.4 Further information

Prevent fire extinguishing water from contaminating surface water or the ground water system.

SECTION 6: Accidental release measures

6.1 Personal precautions, protective equipment and emergency procedures

Advice for non-emergency personnel: Avoid inhalation of dusts. Evacuate the danger area, observe emergency procedures, consult an expert.
For personal protection see section 8.

6.2 Environmental precautions

Do not let product enter drains.

6.3 Methods and materials for containment and cleaning up

Cover drains. Collect, bind, and pump off spills. Observe possible material restrictions (see sections 7 and 10). Take up dry. Dispose of properly. Clean up affected area. Avoid generation of dusts.

6.4 Reference to other sections

For disposal see section 13.

SECTION 7: Handling and storage

7.1 Precautions for safe handling

For precautions see section 2.2.

7.2 Conditions for safe storage, including any incompatibilities

Storage conditions
Tightly closed. Dry.
Storage stability Recommended storage temperature
2 - 8 °C
Storage class
Storage class (TRGS 510): 11: Combustible Solids

7.3 Specific end use(s)

Apart from the uses mentioned in section 1.2 no other specific uses are stipulated

SECTION 8: Exposure controls/personal protection

8.1 Control parameters

Ingredients with workplace control parameters
Contains no substances with occupational exposure limit values.

8.2 Exposure controls

Appropriate engineering controls
Change contaminated clothing. Wash hands after working with substance.

The life science business of Merck KGaA, Darmstadt, Germany
operates as MilliporeSigma in the US and Canada

Personal protective equipment

Eye/face protection
Use equipment for eye protection tested and approved under appropriate government standards such as NIOSH (US) or EN 166(EU). Safety glasses

Skin protection
Handle with impervious gloves.

This recommendation applies only to the product stated in the safety data sheet, supplied by us and for the designated use. When dissolving in or mixing with other substances and under conditions deviating from those stated in EN 16523-1 please contact the supplier of CE-approved gloves (e.g. KCL GmbH, D-36124 Eichenzell, Internet: www.kcl.de).

Full contact
Material: Nitrile rubber
Minimum layer thickness: 0.11 mm
Break through time: 480 min
Material tested:KCL 741 Dermatril® L

Splash contact
Material: Nitrile rubber
Minimum layer thickness: 0.11 mm
Break through time: 480 min
Material tested:KCL 741 Dermatril® L

Respiratory protection
Recommended Filter type: Filter type P1
The entrepeneur has to ensure that maintenance, cleaning and testing of respiratory protective devices are carried out according to the instructions of the producer. These measures have to be properly documented.
required when dusts are generated.
Our recommendations on filtering respiratory protection are based on the following standards: DIN EN 143, DIN 14387 and other accompanying standards relating to the used respiratory protection system.

Control of environmental exposure
Do not let product enter drains.

SECTION 9: Physical and chemical properties

9.1 Information on basic physical and chemical properties

a)	Appearance	Form: solid
b)	Odor	No data available
c)	Odor Threshold	No data available
d)	pH	No data available
e)	Melting point/freezing point	Melting point: 140 °C (284 °F)

The life science business of Merck KGaA, Darmstadt, Germany
operates as MilliporeSigma in the US and Canada

f)	Initial boiling point and boiling range	No data available
g)	Flash point	No data available
h)	Evaporation rate	No data available
i)	Flammability (solid, gas)	No data available
j)	Upper/lower flammability or explosive limits	No data available
k)	Vapor pressure	No data available
l)	Vapor density	No data available
m)	Density	No data available
	Relative density	No data available
n)	Water solubility	slightly soluble
o)	Partition coefficient: n-octanol/water	log Pow: 5.46 at 25 °C (77 °F) - Potential bioaccumulation
p)	Autoignition temperature	No data available
q)	Decomposition temperature	No data available
r)	Viscosity	No data available
s)	Explosive properties	No data available
t)	Oxidizing properties	none

9.2 Other safety information
No data available

SECTION 10: Stability and reactivity

10.1 Reactivity
The following applies in general to flammable organic substances and mixtures: in correspondingly fine distribution, when whirled up a dust explosion potential may generally be assumed.

10.2 Chemical stability
The product is chemically stable under standard ambient conditions (room temperature) .

10.3 Possibility of hazardous reactions
No data available

10.4 Conditions to avoid
no information available

The life science business of Merck KGaA, Darmstadt, Germany
operates as MilliporeSigma in the US and Canada

10.5 Incompatible materials
Strong oxidizing agents

10.6 Hazardous decomposition products
In the event of fire: see section 5

SECTION 11: Toxicological information

11.1 Information on toxicological effects

Acute toxicity
Oral: No data available
Inhalation: No data available
Dermal: No data available

Skin corrosion/irritation
No data available

Serious eye damage/eye irritation
No data available

Respiratory or skin sensitization
No data available

Germ cell mutagenicity
No data available

Carcinogenicity

IARC: No ingredient of this product present at levels greater than or equal to 0.1% is identified as probable, possible or confirmed human carcinogen by IARC.

NTP: No ingredient of this product present at levels greater than or equal to 0.1% is identified as a known or anticipated carcinogen by NTP.

OSHA: No component of this product present at levels greater than or equal to 0.1% is on OSHA's list of regulated carcinogens.

Reproductive toxicity
No data available

Specific target organ toxicity - single exposure
No data available

Specific target organ toxicity - repeated exposure
No data available

Aspiration hazard
No data available

11.2 Additional Information

To the best of our knowledge, the chemical, physical, and toxicological properties have not been thoroughly investigated.

The life science business of Merck KGaA, Darmstadt, Germany
operates as MilliporeSigma in the US and Canada

SECTION 12: Ecological information

12.1 Toxicity
No data available

12.2 Persistence and degradability
No data available

12.3 Bioaccumulative potential
No data available

12.4 Mobility in soil
No data available

12.5 Results of PBT and vPvB assessment
PBT/vPvB assessment not available as chemical safety assessment not required/not conducted

12.6 Endocrine disrupting properties
No data available

12.7 Other adverse effects
No data available

SECTION 13: Disposal considerations

13.1 Waste treatment methods

Product
Waste material must be disposed of in accordance with the national and local regulations. Leave chemicals in original containers. No mixing with other waste. Handle uncleaned containers like the product itself.

SECTION 14: Transport information

DOT (US)
Not dangerous goods

IMDG
Not dangerous goods

IATA
Not dangerous goods

Further information
Not classified as dangerous in the meaning of transport regulations.

The life science business of Merck KGaA, Darmstadt, Germany
operates as MilliporeSigma in the US and Canada

SECTION 15: Regulatory information

CERCLA Reportable Quantity

This material does not contain any components with a CERCLA RQ.

SARA 304 Extremely Hazardous Substances Reportable Quantity

This material does not contain any components with a section 304 EHS RQ.

SARA 302 Extremely Hazardous Substances Threshold Planning Quantity

This material does not contain any components with a section 302 EHS TPQ.

SARA 313 : This material does not contain any chemical components with known CAS numbers that exceed the threshold (De Minimis) reporting levels established by SARA Title III, Section 313.

US State Regulations

Massachusetts Right To Know

No components are subject to the Massachusetts Right to Know Act.

Maine Chemicals of High Concern

Product does not contain any listed chemicals

Vermont Chemicals of High Concern

Product does not contain any listed chemicals

Washington Chemicals of High Concern

Product does not contain any listed chemicals

The ingredients of this product are reported in the following inventories:

TSCA : Product contains substance(s) not listed on TSCA inventory.

TSCA list

No substances are subject to a Significant New Use Rule.

No substances are subject to TSCA 12(b) export notification requirements.

The life science business of Merck KGaA, Darmstadt, Germany
operates as MilliporeSigma in the US and Canada

SECTION 16: Other information

Further information

The information is believed to be correct but is not exhaustive and will be used solely as a guideline, which is based on current knowledge of the chemical substance or mixture and is applicable to appropriate safety precautions for the product. It does not represent any guarantee of the properties of the product. Sigma-Aldrich Corporation and its Affiliates shall not be held liable for any damage resulting from handling or from contact with the above product. See www.sigma-aldrich.com and/or the reverse side of invoice or packing slip for additional terms and conditions of sale.

Copyright 2020 Sigma-Aldrich Co. LLC. License granted to make unlimited paper copies for internal use only.

The branding on the header and/or footer of this document may temporarily not visually match the product purchased as we transition our branding. However, all of the information in the document regarding the product remains unchanged and matches the product ordered. For further information please contact mlsbranding@sial.com.

Version: 8.3 Revision Date: 09/07/2024 Print Date: 12/07/2024

The life science business of Merck KGaA, Darmstadt, Germany
operates as MilliporeSigma in the US and Canada

Fisher Scientific

Part of Thermo Fisher Scientific

SAFETY DATA SHEET

Creation Date 01-May-2012 **Revision Date** 23-Jan-2015 **Revision Number** 2

1. Identification

Product Name **Benzoic acid**

Cat No. : **A63-500; A65-500; A68-30**

Synonyms Benzenecarboxylic acid; Benzenemethanoic acid; Phenylcarboxylic acid; Phenylformic acid; Benzeneformic acid; Carboxybenzene

Recommended Use Laboratory chemicals.

Uses advised against No Information available

Details of the supplier of the safety data sheet

Company
Fisher Scientific
One Reagent Lane
Fair Lawn, NJ 07410
Tel: (201) 796-7100

Emergency Telephone Number
CHEMTREC®, Inside the USA: 800-424-9300
CHEMTREC®, Outside the USA: 001-703-527-3887

2. Hazard(s) identification

Classification

This chemical is considered hazardous by the 2012 OSHA Hazard Communication Standard (29 CFR 1910.1200)

Skin Corrosion/irritation	Category 2
Serious Eye Damage/Eye Irritation	Category 1
Specific target organ toxicity - (repeated exposure)	Category 1
Target Organs - Lungs.	

Label Elements

Signal Word
Danger

Hazard Statements
Causes skin irritation
Causes serious eye damage
Causes damage to organs through prolonged or repeated exposure



Precautionary Statements
Prevention
Wash face, hands and any exposed skin thoroughly after handling
Wear protective gloves/protective clothing/eye protection/face protection
Do not breathe dust/fume/gas/mist/vapors/spray
Do not eat, drink or smoke when using this product
Response
Get medical attention/advice if you feel unwell
Skin
IF ON SKIN: Wash with plenty of soap and water
If skin irritation occurs: Get medical advice/attention
Take off contaminated clothing and wash before reuse
Eyes
IF IN EYES: Rinse cautiously with water for several minutes. Remove contact lenses, if present and easy to do. Continue rinsing
Immediately call a POISON CENTER or doctor/physician
Disposal
Dispose of contents/container to an approved waste disposal plant
Hazards not otherwise classified (HNOC)
May form combustible dust concentrations in air

3. Composition / information on ingredients

Component	CAS-No	Weight %
Benzoic acid	65-85-0	>95

4. First-aid measures

Eye Contact Rinse immediately with plenty of water, also under the eyelids, for at least 15 minutes. Immediate medical attention is required.

Skin Contact Wash off immediately with plenty of water for at least 15 minutes. Obtain medical attention.

Inhalation Remove from exposure, lie down. Move to fresh air. If breathing is difficult, give oxygen. If not breathing, give artificial respiration. Obtain medical attention.

Ingestion Do not induce vomiting. Obtain medical attention.

Most important symptoms/effects Causes eye burns. Repeated or prolonged skin contact may cause allergic reactions with susceptible persons.

Notes to Physician Treat symptomatically

5. Fire-fighting measures

Suitable Extinguishing Media Water spray. Carbon dioxide (CO_2). Dry chemical. chemical foam.

Unsuitable Extinguishing Media No information available

Flash Point 121 °C / 249.8 °F
Method - No information available

Autoignition Temperature Not applicable 570 °C / 1058 °F
Explosion Limits
Upper No data available
Lower No data available
Sensitivity to Mechanical Impact No information available
Sensitivity to Static Discharge No information available

Specific Hazards Arising from the Chemical
Dust can form an explosive mixture in air.

Hazardous Combustion Products
Carbon monoxide (CO) Carbon dioxide (CO_2)
Protective Equipment and Precautions for Firefighters
As in any fire, wear self-contained breathing apparatus pressure-demand, MSHA/NIOSH (approved or equivalent) and full protective gear.

NFPA

Health	Flammability	Instability	Physical hazards
3	1	0	N/A

6. Accidental release measures

Personal Precautions Use personal protective equipment. Ensure adequate ventilation.
Environmental Precautions See Section 12 for additional ecological information.

Methods for Containment and Clean Up Sweep up or vacuum up spillage and collect in suitable container for disposal. Avoid dust formation.

7. Handling and storage

Handling Avoid contact with skin and eyes. Avoid ingestion and inhalation. Do not breathe dust.

Storage Keep in a dry, cool and well-ventilated place. Keep container tightly closed. Keep away from heat and sources of ignition.

8. Exposure controls / personal protection

Exposure Guidelines This product does not contain any hazardous materials with occupational exposure limits established by the region specific regulatory bodies.

Engineering Measures Ensure adequate ventilation, especially in confined areas. Ensure that eyewash stations and safety showers are close to the workstation location.

Personal Protective Equipment

Eye/face Protection Wear appropriate protective eyeglasses or chemical safety goggles as described by OSHA's eye and face protection regulations in 29 CFR 1910.133 or European Standard EN166.

Skin and body protection Wear appropriate protective gloves and clothing to prevent skin exposure.

Respiratory Protection Follow the OSHA respirator regulations found in 29 CFR 1910.134 or European Standard EN 149. Use a NIOSH/MSHA or European Standard EN 149 approved respirator if exposure limits are exceeded or if irritation or other symptoms are experienced.

Hygiene Measures Handle in accordance with good industrial hygiene and safety practice.

9. Physical and chemical properties

Physical State	Solid
Appearance	Off-white
Odor	aromatic
Odor Threshold	No information available
pH	2.5-3.5 2.9 g/l water
Melting Point/Range	121 - 123 °C / 249.8 - 253.4 °F
Boiling Point/Range	249 °C / 480.2 °F @ 760 mmHg
Flash Point	121 °C / 249.8 °F

Evaporation Rate	Not applicable
Flammability (solid,gas)	No information available
Flammability or explosive limits	
Upper	No data available
Lower	No data available
Vapor Pressure	1.3 hPa @ 96 °C
Vapor Density	Not applicable
Relative Density	No information available
Solubility	soluble
Partition coefficient; n-octanol/water	No data available
Autoignition Temperature	Not applicable 570 °C / 1058 °F
Decomposition Temperature	No information available
Viscosity	Not applicable
Molecular Formula	C7 H6 O2
Molecular Weight	122.12

10. Stability and reactivity

Reactive Hazard None known, based on information available

Stability Stable under normal conditions.

Conditions to Avoid Incompatible products. Avoid dust formation.

Incompatible Materials Strong acids, Strong bases, Strong oxidizing agents, Strong reducing agents, Metals

Hazardous Decomposition Products Carbon monoxide (CO), Carbon dioxide (CO_2)

Hazardous Polymerization Hazardous polymerization does not occur.

Hazardous Reactions Aqueous solution, May react with metals and lead to the formation of flammable hydrogen gas.

11. Toxicological information

Acute Toxicity

Product Information

Component Information

Component	LD50 Oral	LD50 Dermal	LC50 Inhalation
Benzoic acid	1700 mg/kg (Rat) 2565 mg/kg (Rat)	Not listed	26 mg/m³ (Rat) 1 h

Toxicologically Synergistic Products No information available

Delayed and immediate effects as well as chronic effects from short and long-term exposure

Irritation Irritating to eyes, respiratory system and skin

Sensitization No information available

Carcinogenicity The table below indicates whether each agency has listed any ingredient as a carcinogen.

Component	CAS-No	IARC	NTP	ACGIH	OSHA	Mexico
Benzoic acid	65-85-0	Not listed	Not listed	Not listed	Not listed	Not listed

Mutagenic Effects Not mutagenic in AMES Test

Reproductive Effects No information available.

Developmental Effects No information available.

Teratogenicity No information available.

STOT - single exposure None known
STOT - repeated exposure Lungs

Aspiration hazard No information available

Symptoms / effects,both acute and delayed No information available
Endocrine Disruptor Information No information available

Other Adverse Effects The toxicological properties have not been fully investigated. See actual entry in RTECS for complete information.

12. Ecological information

Ecotoxicity

.

Component	Freshwater Algae	Freshwater Fish	Microtox	Water Flea
Benzoic acid	5 mg/L EC50 = 3 h	180 mg/L LC50 96 h	EC50 = 16.85 mg/L 30 min EC50 = 16.9 mg/L 15 min	300 mg/L EC50 = 24 h 860 mg/L EC50 = 48 h

Persistence and Degradability Soluble in water Persistence is unlikely based on information available.
Bioaccumulation/ Accumulation No information available.

Mobility Is not likely mobile in the environment due its low water solubility. Will likely be mobile in the environment due to its water solubility.

Component	log Pow
Benzoic acid	1.93

13. Disposal considerations

Waste Disposal Methods Chemical waste generators must determine whether a discarded chemical is classified as a hazardous waste. Chemical waste generators must also consult local, regional, and national hazardous waste regulations to ensure complete and accurate classification.

14. Transport information

DOT Not regulated
TDG Not regulated
IATA Not regulated
IMDG/IMO Not regulated

15. Regulatory information

International Inventories

Component	TSCA	DSL	NDSL	EINECS	ELINCS	NLP	PICCS	ENCS	AICS	IECSC	KECL
Benzoic acid	X	X	-	200-618-2	-		X	X	X	X	X

Legend:
X - Listed
E - Indicates a substance that is the subject of a Section 5(e) Consent order under TSCA.
F - Indicates a substance that is the subject of a Section 5(f) Rule under TSCA.
N - Indicates a polymeric substance containing no free-radical initiator in its inventory name but is considered to cover the designated polymer made with any free-radical initiator regardless of the amount used.
P - Indicates a commenced PMN substance
R - Indicates a substance that is the subject of a Section 6 risk management rule under TSCA.
S - Indicates a substance that is identified in a proposed or final Significant New Use Rule
T - Indicates a substance that is the subject of a Section 4 test rule under TSCA.
XU - Indicates a substance exempt from reporting under the Inventory Update Rule, i.e. Partial Updating of the TSCA Inventory Data Base Production and Site Reports (40 CFR 710(B).
Y1 - Indicates an exempt polymer that has a number-average molecular weight of 1,000 or greater.
Y2 - Indicates an exempt polymer that is a polyester and is made only from reactants included in a specified list of low concern reactants that comprises one of the eligibility criteria for the exemption rule.

U.S. Federal Regulations

TSCA 12(b) Not applicable

SARA 313 Not applicable

SARA 311/312 Hazardous Categorization

Acute Health Hazard	Yes
Chronic Health Hazard	Yes
Fire Hazard	No
Sudden Release of Pressure Hazard	No
Reactive Hazard	No

Clean Water Act

Component	CWA - Hazardous Substances	CWA - Reportable Quantities	CWA - Toxic Pollutants	CWA - Priority Pollutants
Benzoic acid	X	5000 lb	-	-

Clean Air Act Not applicable

OSHA Occupational Safety and Health Administration
Not applicable

CERCLA
This material, as supplied, contains one or more substances regulated as a hazardous substance under the Comprehensive Environmental Response Compensation and Liability Act (CERCLA) (40 CFR 302)

Component	Hazardous Substances RQs	CERCLA EHS RQs
Benzoic acid	5000 lb	-

California Proposition 65 This product does not contain any Proposition 65 chemicals

State Right-to-Know

Component	Massachusetts	New Jersey	Pennsylvania	Illinois	Rhode Island
Benzoic acid	X	X	X	-	-

U.S. Department of Transportation

Reportable Quantity (RQ):	N
DOT Marine Pollutant	N
DOT Severe Marine Pollutant	N

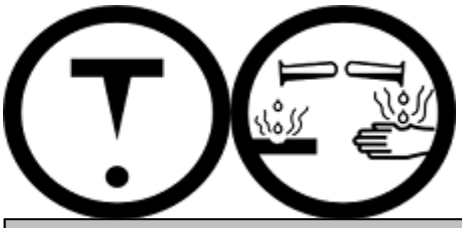
U.S. Department of Homeland Security
This product does not contain any DHS chemicals.

Other International Regulations

Mexico - Grade No information available

Canada
This product has been classified in accordance with the hazard criteria of the Controlled Products Regulations (CPR) and the MSDS contains all the information required by the CPR

WHMIS Hazard Class E Corrosive material
D2A Very toxic materials



16. Other information

Prepared By
Regulatory Affairs
Thermo Fisher Scientific
Email: EMSDS.RA@thermofisher.com

Creation Date 01-May-2012
Revision Date 23-Jan-2015
Print Date 23-Jan-2015
Revision Summary This document has been updated to comply with the US OSHA HazCom 2012 Standard replacing the current legislation under 29 CFR 1910.1200 to align with the Globally Harmonized System of Classification and Labeling of Chemicals (GHS)

Disclaimer

The information provided on this Safety Data Sheet is correct to the best of our knowledge, information and belief at the date of its publication. The information given is designed only as a guide for safe handling, use, processing, storage, transportation, disposal and release and is not to be considered as a warranty or quality specification. The information relates only to the specific material designated and may not be valid for such material used in combination with any other material or in any process, unless specified in the text.

End of SDS

SAFETY DATA SHEET

Version 4.12
Revision Date 06/18/2015
Print Date 11/13/2016

1. PRODUCT AND COMPANY IDENTIFICATION

1.1 Product identifiers

Product name	:	Benzyl alcohol
Product Number	:	305197
Brand	:	Sigma-Aldrich
Index-No.	:	603-057-00-5
CAS-No.	:	100-51-6

1.2 Relevant identified uses of the substance or mixture and uses advised against

Identified uses	:	Laboratory chemicals, Manufacture of substances

1.3 Details of the supplier of the safety data sheet

Company	:	Sigma-Aldrich 3050 Spruce Street SAINT LOUIS MO 63103 USA
Telephone	:	+1 800-325-5832
Fax	:	+1 800-325-5052

1.4 Emergency telephone number

Emergency Phone #	:	+1-703-527-3887 (CHEMTREC)

2. HAZARDS IDENTIFICATION

2.1 Classification of the substance or mixture

GHS Classification in accordance with 29 CFR 1910 (OSHA HCS)
Acute toxicity, Oral (Category 4), H302
Acute toxicity, Inhalation (Category 4), H332
Eye irritation (Category 2A), H319
Acute aquatic toxicity (Category 2), H401

For the full text of the H-Statements mentioned in this Section, see Section 16.

2.2 GHS Label elements, including precautionary statements

Pictogram



Signal word: Warning

Hazard statement(s)

H302 + H332	Harmful if swallowed or if inhaled
H319	Causes serious eye irritation.
H401	Toxic to aquatic life.

Precautionary statement(s)

P261	Avoid breathing dust/ fume/ gas/ mist/ vapours/ spray.
P264	Wash skin thoroughly after handling.
P270	Do not eat, drink or smoke when using this product.
P271	Use only outdoors or in a well-ventilated area.
P273	Avoid release to the environment.
P280	Wear eye protection/ face protection.

P301 + P312 + P330	IF SWALLOWED: Call a POISON CENTER or doctor/ physician if you feel unwell. Rinse mouth.
P304 + P340 + P312	IF INHALED: Remove person to fresh air and keep comfortable for breathing. Call a POISON CENTER or doctor/ physician if you feel unwell.
P305 + P351 + P338	IF IN EYES: Rinse cautiously with water for several minutes. Remove contact lenses, if present and easy to do. Continue rinsing.
P337 + P313	If eye irritation persists: Get medical advice/ attention.
P501	Dispose of contents/ container to an approved waste disposal plant.

2.3 Hazards not otherwise classified (HNOC) or not covered by GHS

May form explosive peroxides.

3. COMPOSITION/INFORMATION ON INGREDIENTS

3.1 Substances

Synonyms	:	Benzenemethanol
Formula	:	C_7H_8O
Molecular weight	:	108.14 g/mol
CAS-No.	:	100-51-6
EC-No.	:	202-859-9
Index-No.	:	603-057-00-5
Registration number	:	01-2119492630-38-XXXX

Hazardous components

Component	Classification	Concentration
Benzyl alcohol		
	Acute Tox. 4; Eye Irrit. 2A; Aquatic Acute 2; H302 + H332, H319, H401	<= 100 %

For the full text of the H-Statements mentioned in this Section, see Section 16.

4. FIRST AID MEASURES

4.1 Description of first aid measures

General advice

Move out of dangerous area.Consult a physician. Show this safety data sheet to the doctor in attendance.

If inhaled

If breathed in, move person into fresh air. If not breathing, give artificial respiration. Consult a physician.

In case of skin contact

Wash off with soap and plenty of water. Consult a physician.

In case of eye contact

Rinse thoroughly with plenty of water for at least 15 minutes and consult a physician.

If swallowed

Never give anything by mouth to an unconscious person. Rinse mouth with water. Consult a physician.

4.2 Most important symptoms and effects, both acute and delayed

The most important known symptoms and effects are described in the labelling (see section 2.2) and/or in section 11

4.3 Indication of any immediate medical attention and special treatment needed

No data available

5. FIREFIGHTING MEASURES

5.1 Extinguishing media

Suitable extinguishing media

Use water spray, alcohol-resistant foam, dry chemical or carbon dioxide.

5.2 Special hazards arising from the substance or mixture
Carbon oxides

5.3 Advice for firefighters
Wear self-contained breathing apparatus for firefighting if necessary.

5.4 Further information
No data available

6. ACCIDENTAL RELEASE MEASURES

6.1 Personal precautions, protective equipment and emergency procedures
Use personal protective equipment. Avoid breathing vapours, mist or gas. Ensure adequate ventilation.
For personal protection see section 8.

6.2 Environmental precautions
Prevent further leakage or spillage if safe to do so. Do not let product enter drains. Discharge into the environment must be avoided.

6.3 Methods and materials for containment and cleaning up
Soak up with inert absorbent material and dispose of as hazardous waste. Keep in suitable, closed containers for disposal.

6.4 Reference to other sections
For disposal see section 13.

7. HANDLING AND STORAGE

7.1 Precautions for safe handling
Avoid contact with skin and eyes. Avoid inhalation of vapour or mist.
For precautions see section 2.2.

7.2 Conditions for safe storage, including any incompatibilities
Keep container tightly closed in a dry and well-ventilated place.

Handle and store under inert gas. hygroscopic
Storage class (TRGS 510): Combustible liquids

7.3 Specific end use(s)
Apart from the uses mentioned in section 1.2 no other specific uses are stipulated

8. EXPOSURE CONTROLS/PERSONAL PROTECTION

8.1 Control parameters

Components with workplace control parameters

Component	CAS-No.	Value	Control parameters	Basis
Benzyl alcohol	100-51-6	TWA	10.000000 ppm	USA. Workplace Environmental Exposure Levels (WEEL)

8.2 Exposure controls

Appropriate engineering controls
Handle in accordance with good industrial hygiene and safety practice. Wash hands before breaks and at the end of workday.

Personal protective equipment

Eye/face protection
Face shield and safety glasses Use equipment for eye protection tested and approved under appropriate government standards such as NIOSH (US) or EN 166(EU).

Skin protection
Handle with gloves. Gloves must be inspected prior to use. Use proper glove removal technique (without touching glove's outer surface) to avoid skin contact with this product. Dispose of contaminated gloves after use in accordance with applicable laws and good laboratory practices. Wash and dry hands.

Full contact

Material: butyl-rubber
Minimum layer thickness: 0.3 mm
Break through time: 480 min
Material tested:Butoject® (KCL 897 / Aldrich Z677647, Size M)

Splash contact
Material: Nitrile rubber
Minimum layer thickness: 0.4 mm
Break through time: 43 min
Material tested:Camatril® (KCL 730 / Aldrich Z677442, Size M)

data source: KCL GmbH, D-36124 Eichenzell, phone +49 (0)6659 87300, e-mail sales@kcl.de, test method: EN374
If used in solution, or mixed with other substances, and under conditions which differ from EN 374, contact the supplier of the CE approved gloves. This recommendation is advisory only and must be evaluated by an industrial hygienist and safety officer familiar with the specific situation of anticipated use by our customers. It should not be construed as offering an approval for any specific use scenario.

Body Protection
Complete suit protecting against chemicals, The type of protective equipment must be selected according to the concentration and amount of the dangerous substance at the specific workplace.

Respiratory protection
Where risk assessment shows air-purifying respirators are appropriate use a full-face respirator with multi-purpose combination (US) or type ABEK (EN 14387) respirator cartridges as a backup to engineering controls. If the respirator is the sole means of protection, use a full-face supplied air respirator. Use respirators and components tested and approved under appropriate government standards such as NIOSH (US) or CEN (EU).

Control of environmental exposure
Prevent further leakage or spillage if safe to do so. Do not let product enter drains. Discharge into the environment must be avoided.

9. PHYSICAL AND CHEMICAL PROPERTIES

9.1 Information on basic physical and chemical properties

a)	Appearance	Form: liquid, clear Colour: colourless
b)	Odour	No data available
c)	Odour Threshold	No data available
d)	pH	No data available
e)	Melting point/freezing point	Melting point/range: -16 - -13 °C (3 - 9 °F)
f)	Initial boiling point and boiling range	203 - 205 °C (397 - 401 °F)
g)	Flash point	96 °C (205 °F) - closed cup
h)	Evaporation rate	No data available
i)	Flammability (solid, gas)	No data available
j)	Upper/lower flammability or explosive limits	No data available
k)	Vapour pressure	5.00 hPa (3.75 mmHg) at 77 °C (171 °F) 17.7 hPa (13.3 mmHg) at 100 °C (212 °F) 0.125 hPa (0.094 mmHg) at 25 °C (77 °F)
l)	Vapour density	3.73 - (Air = 1.0)
m)	Relative density	1.045 g/mL at 25 °C (77 °F)
n)	Water solubility	33 g/l at 20 °C (68 °F)
o)	Partition coefficient: n-	log Pow: 1.1log Pow: 1.05 at 20 °C (68 °F)

	octanol/water	
p)	Auto-ignition temperature	No data available
q)	Decomposition temperature	No data available
r)	Viscosity	No data available
s)	Explosive properties	No data available
t)	Oxidizing properties	No data available

9.2 Other safety information

Surface tension	39 mN/m at 20 °C (68 °F)
Relative vapour density	3.73 - (Air = 1.0)

10. STABILITY AND REACTIVITY

10.1 Reactivity
No data available

10.2 Chemical stability
hygroscopic
Stable under recommended storage conditions.
Test for peroxide formation before distillation or evaporation. Test for peroxide formation or discard after 1 year.
Stable under recommended storage conditions.

10.3 Possibility of hazardous reactions
No data available

10.4 Conditions to avoid
A mixture of benzyl alcohol and 58% sulfuric acid decomposed violently when heated to 180°C. Benzyl alcohol containing 1.4% hydrogen bromide and 1.1% of an iron(II) salt polymerized exothermally when heated above 100°C.

10.5 Incompatible materials
Strong oxidizing agents

10.6 Hazardous decomposition products
Other decomposition products - No data available
In the event of fire: see section 5

11. TOXICOLOGICAL INFORMATION

11.1 Information on toxicological effects

Acute toxicity
LD50 Oral - Rat - 1,230 mg/kg
Remarks: Behavioral:Somnolence (general depressed activity). Behavioral:Excitement. Behavioral:Coma.

LD50 Oral - Rat - male - 1,620 mg/kg

Dermal: No data available

No data available

Skin corrosion/irritation
Skin - Rabbit
Result: No skin irritation - 24 h
(OECD Test Guideline 404)

Serious eye damage/eye irritation
Eyes - Rabbit
Result: Eye irritation - 24 h
(OECD Test Guideline 405)

Respiratory or skin sensitisation
No data available

Germ cell mutagenicity
No data available

Carcinogenicity

IARC: No component of this product present at levels greater than or equal to 0.1% is identified as probable, possible or confirmed human carcinogen by IARC.

ACGIH: No component of this product present at levels greater than or equal to 0.1% is identified as a carcinogen or potential carcinogen by ACGIH.

NTP: No component of this product present at levels greater than or equal to 0.1% is identified as a known or anticipated carcinogen by NTP.

OSHA: No component of this product present at levels greater than or equal to 0.1% is identified as a carcinogen or potential carcinogen by OSHA.

Reproductive toxicity
No data available

No data available

Specific target organ toxicity - single exposure
No data available

Specific target organ toxicity - repeated exposure
No data available

Aspiration hazard
No data available

Additional Information
RTECS: DN3150000

Central nervous system depression

Liver - Irregularities - Based on Human Evidence
Liver - Irregularities - Based on Human Evidence

12. ECOLOGICAL INFORMATION

12.1 Toxicity

Toxicity to fish	LC50 - Lepomis macrochirus (Bluegill) - 10 mg/l - 96 h
	LC50 - Pimephales promelas (fathead minnow) - 460 mg/l - 96 h
Toxicity to daphnia and other aquatic invertebrates	EC50 - Daphnia magna (Water flea) - 55 mg/l - 24 h
	- Daphnia magna (Water flea) - 230 mg/l - 48 h (OECD Test Guideline 202)

12.2 Persistence and degradability

Biodegradability	Biotic/Aerobic - Exposure time 28 d Result: 92 - 96 % - Readily biodegradable aerobic Biochemical oxygen demand - Exposure time 7 d Result: 92 - 96 % - Readily biodegradable (OECD Test Guideline 301C)

12.3 Bioaccumulative potential

No data available

12.4 Mobility in soil
No data available

12.5 Results of PBT and vPvB assessment
PBT/vPvB assessment not available as chemical safety assessment not required/not conducted

12.6 Other adverse effects

An environmental hazard cannot be excluded in the event of unprofessional handling or disposal.
Toxic to aquatic life.

13. DISPOSAL CONSIDERATIONS

13.1 Waste treatment methods

Product
Offer surplus and non-recyclable solutions to a licensed disposal company. Contact a licensed professional waste disposal service to dispose of this material.

Contaminated packaging
Dispose of as unused product.

14. TRANSPORT INFORMATION

DOT (US)
UN number: 3334 Class: 9
Proper shipping name: A Aviation regulated liquid, n.o.s. (Benzyl alcohol)
Reportable Quantity (RQ):

Poison Inhalation Hazard: No

IMDG
Not dangerous goods

IATA
UN number: 3334 Class: 9 Packing group: III
Proper shipping name: Aviation regulated liquid, n.o.s. (Benzyl alcohol)

15. REGULATORY INFORMATION

SARA 302 Components
No chemicals in this material are subject to the reporting requirements of SARA Title III, Section 302.

SARA 313 Components
This material does not contain any chemical components with known CAS numbers that exceed the threshold (De Minimis) reporting levels established by SARA Title III, Section 313.

SARA 311/312 Hazards
Acute Health Hazard, Chronic Health Hazard

Massachusetts Right To Know Components

	CAS-No.	Revision Date
Benzyl alcohol	100-51-6	1993-04-24

Pennsylvania Right To Know Components

	CAS-No.	Revision Date
Benzyl alcohol	100-51-6	1993-04-24

New Jersey Right To Know Components

	CAS-No.	Revision Date
Benzyl alcohol	100-51-6	1993-04-24

California Prop. 65 Components
This product does not contain any chemicals known to State of California to cause cancer, birth defects, or any other reproductive harm.

16. OTHER INFORMATION

Full text of H-Statements referred to under sections 2 and 3.

Acute Tox. Acute toxicity

Aquatic Acute	Acute aquatic toxicity
Eye Irrit.	Eye irritation
H302	Harmful if swallowed.
H302 + H332	Harmful if swallowed or if inhaled
H319	Causes serious eye irritation.

HMIS Rating

Health hazard:	2
Chronic Health Hazard:	*
Flammability:	1
Physical Hazard	0

NFPA Rating

Health hazard:	2
Fire Hazard:	1
Reactivity Hazard:	0

Further information

Copyright 2015 Sigma-Aldrich Co. LLC. License granted to make unlimited paper copies for internal use only.
The above information is believed to be correct but does not purport to be all inclusive and shall be used only as a guide. The information in this document is based on the present state of our knowledge and is applicable to the product with regard to appropriate safety precautions. It does not represent any guarantee of the properties of the product. Sigma-Aldrich Corporation and its Affiliates shall not be held liable for any damage resulting from handling or from contact with the above product. See www.sigma-aldrich.com and/or the reverse side of invoice or packing slip for additional terms and conditions of sale.

Preparation Information

Sigma-Aldrich Corporation
Product Safety – Americas Region
1-800-521-8956

Version: 4.12 Revision Date: 06/18/2015 Print Date: 11/13/2016

SAFETY DATA SHEET

Version 4.6
Revision Date 12/29/2015
Print Date 01/29/2016

1. PRODUCT AND COMPANY IDENTIFICATION

1.1 Product identifiers

Product name : Beryllium

Product Number : 378135
Brand : Aldrich

CAS-No. : 7440-41-7

1.2 Relevant identified uses of the substance or mixture and uses advised against

Identified uses : Laboratory chemicals, Synthesis of substances

1.3 Details of the supplier of the safety data sheet

Company : Sigma-Aldrich
3050 Spruce Street
SAINT LOUIS MO 63103
USA

Telephone : +1 800-325-5832
Fax : +1 800-325-5052

1.4 Emergency telephone number

Emergency Phone # : (314) 776-6555

2. HAZARDS IDENTIFICATION

2.1 Classification of the substance or mixture

GHS Classification in accordance with 29 CFR 1910 (OSHA HCS)
Acute toxicity, Oral (Category 3), H301
Acute toxicity, Inhalation (Category 2), H330
Skin irritation (Category 2), H315
Eye irritation (Category 2A), H319
Skin sensitisation (Category 1), H317
Carcinogenicity (Category 1B), H350
Specific target organ toxicity - single exposure (Category 3), Respiratory system, H335
Specific target organ toxicity - repeated exposure (Category 1), H372

For the full text of the H-Statements mentioned in this Section, see Section 16.

2.2 GHS Label elements, including precautionary statements

Pictogram



Signal word Danger

Hazard statement(s)
H301 Toxic if swallowed.
H315 Causes skin irritation.
H317 May cause an allergic skin reaction.
H319 Causes serious eye irritation.
H330 Fatal if inhaled.
H335 May cause respiratory irritation.
H350 May cause cancer.

H372	Causes damage to organs through prolonged or repeated exposure.

Precautionary statement(s)

P201	Obtain special instructions before use.
P202	Do not handle until all safety precautions have been read and understood.
P260	Do not breathe dust/ fume/ gas/ mist/ vapours/ spray.
P264	Wash skin thoroughly after handling.
P270	Do not eat, drink or smoke when using this product.
P271	Use only outdoors or in a well-ventilated area.
P272	Contaminated work clothing should not be allowed out of the workplace.
P280	Wear protective gloves/ protective clothing/ eye protection/ face protection.
P284	Wear respiratory protection.
P301 + P310 + P330	IF SWALLOWED: Immediately call a POISON CENTER or doctor/ physician. Rinse mouth.
P302 + P352	IF ON SKIN: Wash with plenty of soap and water.
P304 + P340 + P310	IF INHALED: Remove person to fresh air and keep comfortable for breathing. Immediately call a POISON CENTER or doctor/ physician.
P305 + P351 + P338	IF IN EYES: Rinse cautiously with water for several minutes. Remove contact lenses, if present and easy to do. Continue rinsing.
P308 + P313	IF exposed or concerned: Get medical advice/ attention.
P333 + P313	If skin irritation or rash occurs: Get medical advice/ attention.
P337 + P313	If eye irritation persists: Get medical advice/ attention.
P362	Take off contaminated clothing and wash before reuse.
P403 + P233	Store in a well-ventilated place. Keep container tightly closed.
P405	Store locked up.
P501	Dispose of contents/ container to an approved waste disposal plant.

2.3 Hazards not otherwise classified (HNOC) or not covered by GHS - none

3. COMPOSITION/INFORMATION ON INGREDIENTS

3.1 Substances

Formula	:	Be
Molecular weight	:	9.01 g/mol
CAS-No.	:	7440-41-7
EC-No.	:	231-150-7

Hazardous components

Component	Classification	Concentration
Berylium foil		
	Acute Tox. 3; Acute Tox. 2; Skin Irrit. 2; Eye Irrit. 2A; Skin Sens. 1; Carc. 1B; STOT SE 3; STOT RE 1; H301, H315, H317, H319, H330, H335, H350, H372	<= 100 %

For the full text of the H-Statements mentioned in this Section, see Section 16.

4. FIRST AID MEASURES

4.1 Description of first aid measures

General advice
Consult a physician. Show this safety data sheet to the doctor in attendance.Move out of dangerous area.

If inhaled
If breathed in, move person into fresh air. If not breathing, give artificial respiration. Consult a physician.

In case of skin contact
Wash off with soap and plenty of water. Take victim immediately to hospital. Consult a physician.

In case of eye contact
Rinse thoroughly with plenty of water for at least 15 minutes and consult a physician.

If swallowed
Never give anything by mouth to an unconscious person. Rinse mouth with water. Consult a physician.

4.2 Most important symptoms and effects, both acute and delayed
The most important known symptoms and effects are described in the labelling (see section 2.2) and/or in section 11

4.3 Indication of any immediate medical attention and special treatment needed
No data available

5. FIREFIGHTING MEASURES

5.1 Extinguishing media

Suitable extinguishing media
Use water spray, alcohol-resistant foam, dry chemical or carbon dioxide.

5.2 Special hazards arising from the substance or mixture
Beryllium oxides

5.3 Advice for firefighters
Wear self-contained breathing apparatus for firefighting if necessary.

5.4 Further information
No data available

6. ACCIDENTAL RELEASE MEASURES

6.1 Personal precautions, protective equipment and emergency procedures
Wear respiratory protection. Avoid dust formation. Avoid breathing vapours, mist or gas. Ensure adequate ventilation. Evacuate personnel to safe areas. Avoid breathing dust.
For personal protection see section 8.

6.2 Environmental precautions
Prevent further leakage or spillage if safe to do so. Do not let product enter drains.

6.3 Methods and materials for containment and cleaning up
Pick up and arrange disposal without creating dust. Sweep up and shovel. Keep in suitable, closed containers for disposal.

6.4 Reference to other sections
For disposal see section 13.

7. HANDLING AND STORAGE

7.1 Precautions for safe handling
Avoid contact with skin and eyes. Avoid formation of dust and aerosols.Further processing of solid materials may result in the formation of combustible dusts. The potential for combustible dust formation should be taken into consideration before additional processing occurs.
Provide appropriate exhaust ventilation at places where dust is formed.
For precautions see section 2.2.

7.2 Conditions for safe storage, including any incompatibilities
Keep container tightly closed in a dry and well-ventilated place.

Keep in a dry place.
Storage class (TRGS 510): Non-combustible, acute toxic Cat. 1 and 2 / very toxic hazardous materials

7.3 Specific end use(s)
Apart from the uses mentioned in section 1.2 no other specific uses are stipulated

8. EXPOSURE CONTROLS/PERSONAL PROTECTION

8.1 Control parameters

Components with workplace control parameters

Component	CAS-No.	Value	Control parameters	Basis
Berylium foil	7440-41-7	TWA	2.000000 mg/m3	USA. Occupational Exposure Limits (OSHA) - Table Z-2
		CEIL	5.000000 mg/m3	USA. Occupational Exposure Limits (OSHA) - Table Z-2
		Peak	25.000000 mg/m3	USA. Occupational Exposure Limits (OSHA) - Table Z-2
		TWA	2.000000microg ram per cubic meter	USA. Occupational Exposure Limits (OSHA) - Table Z-2
	Remarks	Z27.29-1970		
		CEIL	5.000000microg ram per cubic meter	USA. Occupational Exposure Limits (OSHA) - Table Z-2
		Z27.29-1970		
		Peak	25.000000micro gram per cubic meter	USA. Occupational Exposure Limits (OSHA) - Table Z-2
		Z27.29-1970		
		TWA	0.000050 mg/m3	USA. ACGIH Threshold Limit Values (TLV)
		Beryllium sensitization Chronic beryllium disease (berylliosis) Confirmed human carcinogen Danger of cutaneous absorption Sensitizer		
		C	0.000500 mg/m3	USA. NIOSH Recommended Exposure Limits
		Potential Occupational Carcinogen See Appendix A		
		See Table Z-2		
		TWA	2.000000microg ram per cubic meter	USA. Occupational Exposure Limits (OSHA) - Table Z-2
		Z27.29-1970		
		TWA	2.000000microg ram per cubic meter	USA. Occupational Exposure Limits (OSHA) - Table Z-2
		Z27.29-1970		
		CEIL	5.000000microg ram per cubic meter	USA. Occupational Exposure Limits (OSHA) - Table Z-2
		Z27.29-1970		
		CEIL	5.000000microg ram per cubic meter	USA. Occupational Exposure Limits (OSHA) - Table Z-2
		Z27.29-1970		
		Peak	25.000000micro gram per cubic meter	USA. Occupational Exposure Limits (OSHA) - Table Z-2
		Z27.29-1970		
		Peak	25.000000micro gram per cubic meter	USA. Occupational Exposure Limits (OSHA) - Table Z-2
		Z27.29-1970		
		TWA	0.000050 mg/m3	USA. ACGIH Threshold Limit Values (TLV)
		Beryllium sensitization		

		Chronic beryllium disease (berylliosis) Adopted values or notations enclosed are those for which changes are proposed in the NIC See Notice of Intended Changes (NIC) Confirmed human carcinogen Danger of cutaneous absorption Sensitizer		
		C	0.000500 mg/m3	USA. NIOSH Recommended Exposure Limits
		Potential Occupational Carcinogen See Appendix A		
		See Table Z-2		
		TWA	2microgram per cubic meter	USA. Occupational Exposure Limits (OSHA) - Table Z-2
		Z27.29-1970		
		CEIL	5microgram per cubic meter	USA. Occupational Exposure Limits (OSHA) - Table Z-2
		Z27.29-1970		
		Peak	25microgram per cubic meter	USA. Occupational Exposure Limits (OSHA) - Table Z-2
		Z27.29-1970		
		C	0.0005 mg/m3	USA. NIOSH Recommended Exposure Limits
		Potential Occupational Carcinogen See Appendix A		

8.2 Exposure controls

Appropriate engineering controls
Avoid contact with skin, eyes and clothing. Wash hands before breaks and immediately after handling the product.

Personal protective equipment

Eye/face protection
Face shield and safety glasses Use equipment for eye protection tested and approved under appropriate government standards such as NIOSH (US) or EN 166(EU).

Skin protection
Handle with gloves. Gloves must be inspected prior to use. Use proper glove removal technique (without touching glove's outer surface) to avoid skin contact with this product. Dispose of contaminated gloves after use in accordance with applicable laws and good laboratory practices. Wash and dry hands.

Full contact
Material: Nitrile rubber
Minimum layer thickness: 0.11 mm
Break through time: 480 min
Material tested:Dermatril® (KCL 740 / Aldrich Z677272, Size M)

Splash contact
Material: Nitrile rubber
Minimum layer thickness: 0.11 mm
Break through time: 480 min
Material tested:Dermatril® (KCL 740 / Aldrich Z677272, Size M)

data source: KCL GmbH, D-36124 Eichenzell, phone +49 (0)6659 87300, e-mail sales@kcl.de, test method: EN374
If used in solution, or mixed with other substances, and under conditions which differ from EN 374, contact the supplier of the CE approved gloves. This recommendation is advisory only and must be evaluated by an industrial hygienist and safety officer familiar with the specific situation of anticipated use by our customers. It should not be construed as offering an approval for any specific use scenario.

Body Protection
Complete suit protecting against chemicals, The type of protective equipment must be selected according to the concentration and amount of the dangerous substance at the specific workplace.

Respiratory protection
Where risk assessment shows air-purifying respirators are appropriate use a full-face particle respirator type N100 (US) or type P3 (EN 143) respirator cartridges as a backup to engineering controls. If the respirator is the sole means of protection, use a full-face supplied air respirator. Use respirators and components tested and approved under appropriate government standards such as NIOSH (US) or CEN (EU).

Control of environmental exposure
Prevent further leakage or spillage if safe to do so. Do not let product enter drains.

9. PHYSICAL AND CHEMICAL PROPERTIES

9.1 Information on basic physical and chemical properties

a)	Appearance	Form: powder Colour: grey
b)	Odour	odourless
c)	Odour Threshold	No data available
d)	pH	No data available
e)	Melting point/freezing point	Melting point/range: 1,278 °C (2,332 °F) - lit.
f)	Initial boiling point and boiling range	2,970 °C (5,378 °F) - lit.
g)	Flash point	No data available
h)	Evaporation rate	No data available
i)	Flammability (solid, gas)	No data available
j)	Upper/lower flammability or explosive limits	No data available
k)	Vapour pressure	No data available
l)	Vapour density	No data available
m)	Relative density	1.85 g/cm3 at 25 °C (77 °F)
n)	Water solubility	No data available
o)	Partition coefficient: n-octanol/water	No data available
p)	Auto-ignition temperature	No data available
q)	Decomposition temperature	No data available
r)	Viscosity	No data available
s)	Explosive properties	No data available
t)	Oxidizing properties	No data available

9.2 Other safety information
No data available

10. STABILITY AND REACTIVITY

10.1 Reactivity
No data available

10.2 Chemical stability
Stable under recommended storage conditions.

10.3 Possibility of hazardous reactions
No data available

10.4 Conditions to avoid
No data available

10.5 Incompatible materials
Alkali metals

10.6 Hazardous decomposition products
Other decomposition products - No data available
In the event of fire: see section 5

11. TOXICOLOGICAL INFORMATION

11.1 Information on toxicological effects

Acute toxicity
No data available

Inhalation: No data available

Dermal: No data available

LD50 Intravenous - Rat - 0.496 mg/kg
Remarks: Liver:Hepatitis (hepatocellular necrosis), zonal.

Skin corrosion/irritation
No data available

Serious eye damage/eye irritation
No data available

Respiratory or skin sensitisation
No data available

Germ cell mutagenicity
Hamster
Lungs
Result: negative

Carcinogenicity

Carcinogenicity - Rat - Intratracheal
Tumorigenic:Neoplastic by RTECS criteria. Lungs, Thorax, or Respiration:Tumors. Lungs, Thorax, or Respiration:Bronchiogenic carcinoma.

Carcinogenicity - Rabbit - Intravenous
Tumorigenic:Equivocal tumorigenic agent by RTECS criteria. Musculoskeletal:Tumors.

Possible human carcinogen

IARC:	1 - Group 1: Carcinogenic to humans (Berylium foil)
NTP:	Known to be human carcinogen (Berylium foil)
	Known to be human carcinogenThe reference note has been added by TD based on the background information of the NTP. (Berylium foil)
OSHA:	No component of this product present at levels greater than or equal to 0.1% is identified as a carcinogen or potential carcinogen by OSHA.

Reproductive toxicity
No data available

No data available

Specific target organ toxicity - single exposure
No data available

Specific target organ toxicity - repeated exposure
No data available

Aspiration hazard
No data available

Additional Information
RTECS: DS1750000

12. ECOLOGICAL INFORMATION

12.1 Toxicity
No data available

12.2 Persistence and degradability
No data available

12.3 Bioaccumulative potential
No data available

12.4 Mobility in soil
No data available

12.5 Results of PBT and vPvB assessment
PBT/vPvB assessment not available as chemical safety assessment not required/not conducted

12.6 Other adverse effects

No data available

13. DISPOSAL CONSIDERATIONS

13.1 Waste treatment methods

Product
Offer surplus and non-recyclable solutions to a licensed disposal company. Contact a licensed professional waste disposal service to dispose of this material. Dissolve or mix the material with a combustible solvent and burn in a chemical incinerator equipped with an afterburner and scrubber.

Contaminated packaging
Dispose of as unused product.

14. TRANSPORT INFORMATION

DOT (US)
UN number: 1567 Class: 6.1 (4.1) Packing group: II
Proper shipping name: Beryllium, powder
Reportable Quantity (RQ): 10 lbs

Poison Inhalation Hazard: No

IMDG
UN number: 1567 Class: 6.1 (4.1) Packing group: II EMS-No: F-G, S-G
Proper shipping name: BERYLLIUM POWDER

IATA
UN number: 1567 Class: 6.1 (4.1) Packing group: II
Proper shipping name: Beryllium powder

15. REGULATORY INFORMATION

SARA 302 Components
No chemicals in this material are subject to the reporting requirements of SARA Title III, Section 302.

SARA 313 Components
The following components are subject to reporting levels established by SARA Title III, Section 313:

	CAS-No.	Revision Date
Berylium foil	7440-41-7	1993-04-24

SARA 311/312 Hazards

Acute Health Hazard, Chronic Health Hazard

Massachusetts Right To Know Components

	CAS-No.	Revision Date
Berylium foil	7440-41-7	1993-04-24

Pennsylvania Right To Know Components

	CAS-No.	Revision Date
Berylium foil	7440-41-7	1993-04-24

New Jersey Right To Know Components

	CAS-No.	Revision Date
Berylium foil	7440-41-7	1993-04-24

California Prop. 65 Components

WARNING! This product contains a chemical known to the State of California to cause cancer.	CAS-No.	Revision Date
Berylium foil	7440-41-7	2008-10-10

16. OTHER INFORMATION

Full text of H-Statements referred to under sections 2 and 3.

Acute Tox.	Acute toxicity
Carc.	Carcinogenicity
Eye Irrit.	Eye irritation
H301	Toxic if swallowed.
H315	Causes skin irritation.
H317	May cause an allergic skin reaction.
H319	Causes serious eye irritation.
H330	Fatal if inhaled.
H335	May cause respiratory irritation.
H350	May cause cancer.
H372	Causes damage to organs through prolonged or repeated exposure.
Skin Irrit.	Skin irritation
Skin Sens.	Skin sensitisation

HMIS Rating

Health hazard:	4
Chronic Health Hazard:	*
Flammability:	0
Physical Hazard	0

NFPA Rating

Health hazard:	4
Fire Hazard:	3
Reactivity Hazard:	3

Further information

Copyright 2015 Sigma-Aldrich Co. LLC. License granted to make unlimited paper copies for internal use only.
The above information is believed to be correct but does not purport to be all inclusive and shall be used only as a guide. The information in this document is based on the present state of our knowledge and is applicable to the product with regard to appropriate safety precautions. It does not represent any guarantee of the properties of the product. Sigma-Aldrich Corporation and its Affiliates shall not be held liable for any damage resulting from handling or from contact with the above product. See www.sigma-aldrich.com and/or the reverse side of invoice or packing slip for additional terms and conditions of sale.

Preparation Information

Sigma-Aldrich Corporation
Product Safety – Americas Region
1-800-521-8956

SAFETY DATA SHEET

Version 5.6
Revision Date 05/23/2016
Print Date 06/22/2017

1. PRODUCT AND COMPANY IDENTIFICATION

1.1 Product identifiers

Product name : β-HCH

Product Number : 33376
Brand : Sigma-Aldrich
Index-No. : 602-042-00-0

CAS-No. : 319-85-7

1.2 Relevant identified uses of the substance or mixture and uses advised against

Identified uses : Laboratory chemicals, Synthesis of substances

1.3 Details of the supplier of the safety data sheet

Company : Sigma-Aldrich
3050 Spruce Street
SAINT LOUIS MO 63103
USA

Telephone : +1 800-325-5832
Fax : +1 800-325-5052

1.4 Emergency telephone number

Emergency Phone # : +1-703-527-3887 (CHEMTREC)

2. HAZARDS IDENTIFICATION

2.1 Classification of the substance or mixture

GHS Classification in accordance with 29 CFR 1910 (OSHA HCS)
Acute toxicity, Oral (Category 3), H301
Acute toxicity, Dermal (Category 4), H312
Carcinogenicity (Category 2), H351
Acute aquatic toxicity (Category 1), H400
Chronic aquatic toxicity (Category 1), H410

For the full text of the H-Statements mentioned in this Section, see Section 16.

2.2 GHS Label elements, including precautionary statements

Pictogram



Signal word Danger

Hazard statement(s)
H301 Toxic if swallowed.
H312 Harmful in contact with skin.
H351 Suspected of causing cancer.
H410 Very toxic to aquatic life with long lasting effects.

Precautionary statement(s)
P201 Obtain special instructions before use.
P202 Do not handle until all safety precautions have been read and understood.

P264	Wash skin thoroughly after handling.
P270	Do not eat, drink or smoke when using this product.
P273	Avoid release to the environment.
P280	Wear protective gloves/ protective clothing.
P301 + P310	IF SWALLOWED: Immediately call a POISON CENTER/doctor.
P302 + P352	IF ON SKIN: Wash with plenty of soap and water.
P308 + P313	IF exposed or concerned: Get medical advice/ attention.
P322	Specific measures (see supplemental first aid instructions on this label).
P330	Rinse mouth.
P363	Wash contaminated clothing before reuse.
P391	Collect spillage.
P405	Store locked up.
P501	Dispose of contents/ container to an approved waste disposal plant.

2.3 Hazards not otherwise classified (HNOC) or not covered by GHS - none

3. COMPOSITION/INFORMATION ON INGREDIENTS

3.1 Substances

Formula	:	$C_6H_6Cl_6$
Molecular weight	:	290.83 g/mol
CAS-No.	:	319-85-7
EC-No.	:	206-271-3
Index-No.	:	602-042-00-0

Hazardous components

Component	Classification	Concentration
(1α,2β,3α,4β,5α,6β)-1,2,3,4,5,6-Hexachlorocyclohexane		
	Acute Tox. 3; Acute Tox. 4; Carc. 2; Aquatic Acute 1; Aquatic Chronic 1; H301, H312, H351, H410	<= 100 %

For the full text of the H-Statements mentioned in this Section, see Section 16.

4. FIRST AID MEASURES

4.1 Description of first aid measures

General advice
Consult a physician. Show this safety data sheet to the doctor in attendance.Move out of dangerous area.

If inhaled
If breathed in, move person into fresh air. If not breathing, give artificial respiration. Consult a physician.

In case of skin contact
Wash off with soap and plenty of water. Take victim immediately to hospital. Consult a physician.

In case of eye contact
Flush eyes with water as a precaution.

If swallowed
Never give anything by mouth to an unconscious person. Rinse mouth with water. Consult a physician.

4.2 Most important symptoms and effects, both acute and delayed
The most important known symptoms and effects are described in the labelling (see section 2.2) and/or in section 11

4.3 Indication of any immediate medical attention and special treatment needed
No data available

5. FIREFIGHTING MEASURES

5.1 Extinguishing media

Suitable extinguishing media
Use water spray, alcohol-resistant foam, dry chemical or carbon dioxide.

5.2 Special hazards arising from the substance or mixture
No data available

5.3 Advice for firefighters
Wear self-contained breathing apparatus for firefighting if necessary.

5.4 Further information
No data available

6. ACCIDENTAL RELEASE MEASURES

6.1 Personal precautions, protective equipment and emergency procedures
Wear respiratory protection. Avoid dust formation. Avoid breathing vapours, mist or gas. Ensure adequate ventilation. Evacuate personnel to safe areas. Avoid breathing dust.
For personal protection see section 8.

6.2 Environmental precautions
Prevent further leakage or spillage if safe to do so. Do not let product enter drains. Discharge into the environment must be avoided.

6.3 Methods and materials for containment and cleaning up
Pick up and arrange disposal without creating dust. Sweep up and shovel. Keep in suitable, closed containers for disposal.

6.4 Reference to other sections
For disposal see section 13.

7. HANDLING AND STORAGE

7.1 Precautions for safe handling
Avoid contact with skin and eyes. Avoid formation of dust and aerosols.
Provide appropriate exhaust ventilation at places where dust is formed.
For precautions see section 2.2.

7.2 Conditions for safe storage, including any incompatibilities
Keep container tightly closed in a dry and well-ventilated place.

7.3 Specific end use(s)
Apart from the uses mentioned in section 1.2 no other specific uses are stipulated

8. EXPOSURE CONTROLS/PERSONAL PROTECTION

8.1 Control parameters

Components with workplace control parameters
Contains no substances with occupational exposure limit values.

8.2 Exposure controls

Appropriate engineering controls
Avoid contact with skin, eyes and clothing. Wash hands before breaks and immediately after handling the product.

Personal protective equipment

Eye/face protection
Face shield and safety glasses Use equipment for eye protection tested and approved under appropriate government standards such as NIOSH (US) or EN 166(EU).

Skin protection
Handle with gloves. Gloves must be inspected prior to use. Use proper glove removal technique (without touching glove's outer surface) to avoid skin contact with this product. Dispose of contaminated gloves after use in accordance with applicable laws and good laboratory practices. Wash and dry hands.

Full contact
Material: Nitrile rubber
Minimum layer thickness: 0.11 mm
Break through time: 480 min
Material tested:Dermatril® (KCL 740 / Aldrich Z677272, Size M)

Splash contact
Material: Nitrile rubber
Minimum layer thickness: 0.11 mm
Break through time: 480 min
Material tested:Dermatril® (KCL 740 / Aldrich Z677272, Size M)

data source: KCL GmbH, D-36124 Eichenzell, phone +49 (0)6659 87300, e-mail sales@kcl.de, test method: EN374
If used in solution, or mixed with other substances, and under conditions which differ from EN 374, contact the supplier of the CE approved gloves. This recommendation is advisory only and must be evaluated by an industrial hygienist and safety officer familiar with the specific situation of anticipated use by our customers. It should not be construed as offering an approval for any specific use scenario.

Body Protection
Complete suit protecting against chemicals, The type of protective equipment must be selected according to the concentration and amount of the dangerous substance at the specific workplace.

Respiratory protection
Where risk assessment shows air-purifying respirators are appropriate use a full-face particle respirator type N100 (US) or type P3 (EN 143) respirator cartridges as a backup to engineering controls. If the respirator is the sole means of protection, use a full-face supplied air respirator. Use respirators and components tested and approved under appropriate government standards such as NIOSH (US) or CEN (EU).

Control of environmental exposure
Prevent further leakage or spillage if safe to do so. Do not let product enter drains. Discharge into the environment must be avoided.

9. PHYSICAL AND CHEMICAL PROPERTIES

9.1 Information on basic physical and chemical properties

a)	Appearance	Form: solid Colour: colourless
b)	Odour	No data available
c)	Odour Threshold	No data available
d)	pH	No data available
e)	Melting point/freezing point	> 300.0 °C (> 572.0 °F)
f)	Initial boiling point and boiling range	No data available
g)	Flash point	No data available
h)	Evaporation rate	No data available
i)	Flammability (solid, gas)	No data available
j)	Upper/lower flammability or explosive limits	No data available
k)	Vapour pressure	No data available
l)	Vapour density	No data available
m)	Relative density	No data available
n)	Water solubility	insoluble
o)	Partition coefficient: n-	log Pow: 3.78

	octanol/water	
p)	Auto-ignition temperature	No data available
q)	Decomposition temperature	No data available
r)	Viscosity	No data available
s)	Explosive properties	No data available
t)	Oxidizing properties	No data available

9.2 Other safety information
No data available

10. STABILITY AND REACTIVITY

10.1 Reactivity
No data available

10.2 Chemical stability
Stable under recommended storage conditions.

10.3 Possibility of hazardous reactions
No data available

10.4 Conditions to avoid
No data available

10.5 Incompatible materials
Strong oxidizing agents

10.6 Hazardous decomposition products
Hazardous decomposition products formed under fire conditions. - Carbon oxides, Hydrogen chloride gas
Other decomposition products - No data available
In the event of fire: see section 5

11. TOXICOLOGICAL INFORMATION

11.1 Information on toxicological effects

Acute toxicity
LD50 Oral - Rat - 6,000 mg/kg

Inhalation: No data available

Dermal: No data available

No data available

Skin corrosion/irritation
No data available

Serious eye damage/eye irritation
No data available

Respiratory or skin sensitisation
No data available

Germ cell mutagenicity
No data available

Carcinogenicity

This product is or contains a component that has been reported to be possibly carcinogenic based on its IARC, ACGIH, NTP, or EPA classification.

Limited evidence of carcinogenicity in animal studies

IARC: 2B - Group 2B: Possibly carcinogenic to humans ((1α,2β,3α,4β,5α,6β)-1,2,3,4,5,6-Hexachlorocyclohexane)

ACGIH: No component of this product present at levels greater than or equal to 0.1% is identified as a carcinogen or potential carcinogen by ACGIH.

NTP: Reasonably anticipated to be a human carcinogen ((1α,2β,3α,4β,5α,6β)-1,2,3,4,5,6-Hexachlorocyclohexane)

OSHA: No component of this product present at levels greater than or equal to 0.1% is identified as a carcinogen or potential carcinogen by OSHA.

Reproductive toxicity
No data available

No data available

Specific target organ toxicity - single exposure
No data available

Specific target organ toxicity - repeated exposure
No data available

Aspiration hazard
No data available

Additional Information
RTECS: GV4375000

To the best of our knowledge, the chemical, physical, and toxicological properties have not been thoroughly investigated.

Blood -

12. ECOLOGICAL INFORMATION

12.1 Toxicity

Toxicity to fish	LC50 - Poecilia reticulata (guppy) - 1.6 mg/l - 96.0 h

12.2 Persistence and degradability
No data available

12.3 Bioaccumulative potential

Bioaccumulation	Cyprinus carpio (Carp) - 35 d - 0.05 mg/l
	Bioconcentration factor (BCF): 500

12.4 Mobility in soil
No data available

12.5 Results of PBT and vPvB assessment
PBT/vPvB assessment not available as chemical safety assessment not required/not conducted

12.6 Other adverse effects
An environmental hazard cannot be excluded in the event of unprofessional handling or disposal.
Very toxic to aquatic life with long lasting effects.

13. DISPOSAL CONSIDERATIONS

13.1 Waste treatment methods

Product
Offer surplus and non-recyclable solutions to a licensed disposal company. Contact a licensed professional waste disposal service to dispose of this material. Dissolve or mix the material with a combustible solvent and burn in a chemical incinerator equipped with an afterburner and scrubber.

Contaminated packaging
Dispose of as unused product.

14. TRANSPORT INFORMATION

DOT (US)

UN number: 2811 Class: 6.1 Packing group: III
Proper shipping name: Toxic solids, organic, n.o.s. ((1α,2β,3α,4β,5α,6β)-1,2,3,4,5,6-Hexachlorocyclohexane)
Reportable Quantity (RQ): 1 lbs
Marine pollutant:yes
Poison Inhalation Hazard: No

IMDG

UN number: 2811 Class: 6.1 Packing group: III EMS-No: F-A, S-A
Proper shipping name: TOXIC SOLID, ORGANIC, N.O.S. ((1α,2β,3α,4β,5α,6β)-1,2,3,4,5,6-Hexachlorocyclohexane)

IATA

UN number: 2811 Class: 6.1 Packing group: III
Proper shipping name: Toxic solid, organic, n.o.s. ((1α,2β,3α,4β,5α,6β)-1,2,3,4,5,6-Hexachlorocyclohexane)

15. REGULATORY INFORMATION

SARA 302 Components

No chemicals in this material are subject to the reporting requirements of SARA Title III, Section 302.

SARA 313 Components

This material does not contain any chemical components with known CAS numbers that exceed the threshold (De Minimis) reporting levels established by SARA Title III, Section 313.

SARA 311/312 Hazards

Acute Health Hazard, Chronic Health Hazard

California Prop. 65 Components

WARNING! This product contains a chemical known to the State of California to cause cancer. (1α,2β,3α,4β,5α,6β)-1,2,3,4,5,6-Hexachlorocyclohexane	CAS-No. 319-85-7	Revision Date 2009-02-01

16. OTHER INFORMATION

Full text of H-Statements referred to under sections 2 and 3.

Acute Tox.	Acute toxicity
Aquatic Acute	Acute aquatic toxicity
Aquatic Chronic	Chronic aquatic toxicity
Carc.	Carcinogenicity
H301	Toxic if swallowed.
H312	Harmful in contact with skin.
H351	Suspected of causing cancer.
H400	Very toxic to aquatic life.
H410	Very toxic to aquatic life with long lasting effects.

HMIS Rating

Health hazard:	2
Chronic Health Hazard:	*
Flammability:	0
Physical Hazard	0

NFPA Rating

Health hazard:	1
Fire Hazard:	0
Reactivity Hazard:	0

Further information

Copyright 2016 Sigma-Aldrich Co. LLC. License granted to make unlimited paper copies for internal use only.
The above information is believed to be correct but does not purport to be all inclusive and shall be used only as a guide. The information in this document is based on the present state of our knowledge and is applicable to the product with regard to appropriate safety precautions. It does not represent any guarantee of the properties of the product. Sigma-Aldrich Corporation and its Affiliates shall not be held liable for any damage resulting from handling or from contact with the above product. See www.sigma-aldrich.com and/or the reverse side of invoice or packing slip for additional terms and conditions of sale.

Preparation Information

Sigma-Aldrich Corporation
Product Safety – Americas Region
1-800-521-8956

Version: 5.6 Revision Date: 05/23/2016 Print Date: 06/22/2017

SAFETY DATA SHEET

Version 4.12
Revision Date 08/30/2016
Print Date 11/14/2016

1. PRODUCT AND COMPANY IDENTIFICATION

1.1 Product identifiers

Product name : Bis-(2-chloroisopropyl) ether

Product Number : 48498
Brand : Supelco

CAS-No. : 108-60-1

1.2 Relevant identified uses of the substance or mixture and uses advised against

Identified uses : Laboratory chemicals, Synthesis of substances

1.3 Details of the supplier of the safety data sheet

Company : Sigma-Aldrich
3050 Spruce Street
SAINT LOUIS MO 63103
USA

Telephone : +1 800-325-5832
Fax : +1 800-325-5052

1.4 Emergency telephone number

Emergency Phone # : +1-703-527-3887 (CHEMTREC)

2. HAZARDS IDENTIFICATION

2.1 Classification of the substance or mixture

GHS Classification in accordance with 29 CFR 1910 (OSHA HCS)
Flammable liquids (Category 4), H227
Acute toxicity, Oral (Category 3), H301
Acute toxicity, Inhalation (Category 4), H332

For the full text of the H-Statements mentioned in this Section, see Section 16.

2.2 GHS Label elements, including precautionary statements

Pictogram



Signal word Danger

Hazard statement(s)
H227 Combustible liquid.
H301 Toxic if swallowed.
H332 Harmful if inhaled.

Precautionary statement(s)
P210 Keep away from heat/sparks/open flames/hot surfaces. No smoking.
P261 Avoid breathing dust/ fume/ gas/ mist/ vapours/ spray.
P264 Wash skin thoroughly after handling.
P270 Do not eat, drink or smoke when using this product.
P271 Use only outdoors or in a well-ventilated area.
P280 Wear protective gloves/ eye protection/ face protection.
P301 + P310 + P330 IF SWALLOWED: Immediately call a POISON CENTER/doctor. Rinse

	mouth.
P304 + P340 + P312	IF INHALED: Remove person to fresh air and keep comfortable for breathing. Call a POISON CENTER/doctor if you feel unwell.
P370 + P378	In case of fire: Use dry sand, dry chemical or alcohol-resistant foam to extinguish.
P403 + P235	Store in a well-ventilated place. Keep cool.
P405	Store locked up.
P501	Dispose of contents/ container to an approved waste disposal plant.

2.3 Hazards not otherwise classified (HNOC) or not covered by GHS - none

3. COMPOSITION/INFORMATION ON INGREDIENTS

3.1 Substances

Synonyms	:	2-Chloroisopropyl ether Bis(2-Chloro-1-methylethyl) ether
Formula	:	$C_6H_{12}Cl_2O$
Molecular weight	:	171.06 g/mol
CAS-No.	:	108-60-1
EC-No.	:	203-598-3

Hazardous components

Component	Classification	Concentration
Bis(2-chloro-1-methylethyl) ether		
	Flam. Liq. 4; Acute Tox. 3; Acute Tox. 4; H227, H301, H332	<= 100 %

For the full text of the H-Statements mentioned in this Section, see Section 16.

4. FIRST AID MEASURES

4.1 Description of first aid measures

General advice
Consult a physician. Show this safety data sheet to the doctor in attendance.Move out of dangerous area.

If inhaled
If breathed in, move person into fresh air. If not breathing, give artificial respiration. Consult a physician.

In case of skin contact
Wash off with soap and plenty of water. Take victim immediately to hospital. Consult a physician.

In case of eye contact
Flush eyes with water as a precaution.

If swallowed
Do NOT induce vomiting. Never give anything by mouth to an unconscious person. Rinse mouth with water. Consult a physician.

4.2 Most important symptoms and effects, both acute and delayed
The most important known symptoms and effects are described in the labelling (see section 2.2) and/or in section 11

4.3 Indication of any immediate medical attention and special treatment needed
No data available

5. FIREFIGHTING MEASURES

5.1 Extinguishing media

Suitable extinguishing media
Use water spray, alcohol-resistant foam, dry chemical or carbon dioxide.

5.2 Special hazards arising from the substance or mixture
No data available

5.3 Advice for firefighters
Wear self-contained breathing apparatus for firefighting if necessary.

5.4 Further information
Use water spray to cool unopened containers.

6. ACCIDENTAL RELEASE MEASURES

6.1 Personal precautions, protective equipment and emergency procedures
Wear respiratory protection. Avoid breathing vapours, mist or gas. Ensure adequate ventilation. Remove all sources of ignition. Evacuate personnel to safe areas. Beware of vapours accumulating to form explosive concentrations. Vapours can accumulate in low areas.
For personal protection see section 8.

6.2 Environmental precautions
Prevent further leakage or spillage if safe to do so. Do not let product enter drains.

6.3 Methods and materials for containment and cleaning up
Contain spillage, and then collect with an electrically protected vacuum cleaner or by wet-brushing and place in container for disposal according to local regulations (see section 13). Keep in suitable, closed containers for disposal.

6.4 Reference to other sections
For disposal see section 13.

7. HANDLING AND STORAGE

7.1 Precautions for safe handling
Avoid contact with skin and eyes. Avoid inhalation of vapour or mist.
Keep away from sources of ignition - No smoking.Take measures to prevent the build up of electrostatic charge.
For precautions see section 2.2.

7.2 Conditions for safe storage, including any incompatibilities
Keep container tightly closed in a dry and well-ventilated place. Containers which are opened must be carefully resealed and kept upright to prevent leakage.

Recommended storage temperature 2 - 8 °C

7.3 Specific end use(s)
Apart from the uses mentioned in section 1.2 no other specific uses are stipulated

8. EXPOSURE CONTROLS/PERSONAL PROTECTION

8.1 Control parameters

Components with workplace control parameters
Contains no substances with occupational exposure limit values.
Hazardous components without workplace control parameters

8.2 Exposure controls

Appropriate engineering controls
Avoid contact with skin, eyes and clothing. Wash hands before breaks and immediately after handling the product.

Personal protective equipment

Eye/face protection
Face shield and safety glasses Use equipment for eye protection tested and approved under appropriate government standards such as NIOSH (US) or EN 166(EU).

Skin protection
Handle with gloves. Gloves must be inspected prior to use. Use proper glove removal technique (without touching glove's outer surface) to avoid skin contact with this product. Dispose of contaminated gloves after use in accordance with applicable laws and good laboratory practices. Wash and dry hands.

Body Protection
Complete suit protecting against chemicals, The type of protective equipment must be selected according to the concentration and amount of the dangerous substance at the specific workplace.

Respiratory protection
Where risk assessment shows air-purifying respirators are appropriate use a full-face respirator with multi-purpose combination (US) or type ABEK (EN 14387) respirator cartridges as a backup to engineering controls. If the respirator is the sole means of protection, use a full-face supplied air respirator. Use respirators and components tested and approved under appropriate government standards such as NIOSH (US) or CEN (EU).

Control of environmental exposure
Prevent further leakage or spillage if safe to do so. Do not let product enter drains.

9. PHYSICAL AND CHEMICAL PROPERTIES

9.1 Information on basic physical and chemical properties

a)	Appearance	Form: liquid Colour: colourless
b)	Odour	No data available
c)	Odour Threshold	No data available
d)	pH	No data available
e)	Melting point/freezing point	Melting point/range: -101.8 - -96.8 °C (-151.2 - -142.2 °F)
f)	Initial boiling point and boiling range	187 °C (369 °F)
g)	Flash point	85 °C (185 °F)
h)	Evaporation rate	No data available
i)	Flammability (solid, gas)	No data available
j)	Upper/lower flammability or explosive limits	No data available
k)	Vapour pressure	No data available
l)	Vapour density	No data available
m)	Relative density	5.9 g/cm3
n)	Water solubility	No data available
o)	Partition coefficient: n-octanol/water	No data available
p)	Auto-ignition temperature	No data available
q)	Decomposition temperature	No data available
r)	Viscosity	No data available
s)	Explosive properties	No data available
t)	Oxidizing properties	No data available

9.2 Other safety information
No data available

10. STABILITY AND REACTIVITY

10.1 Reactivity
No data available

10.2 Chemical stability
Stable under recommended storage conditions.

10.3 Possibility of hazardous reactions
No data available

10.4 Conditions to avoid
Heat, flames and sparks.

10.5 Incompatible materials
Strong oxidizing agents

10.6 Hazardous decomposition products
Hazardous decomposition products formed under fire conditions. - Carbon oxides, Hydrogen chloride gas
Other decomposition products - No data available
In the event of fire: see section 5

11. TOXICOLOGICAL INFORMATION

11.1 Information on toxicological effects

Acute toxicity
LD50 Oral - Rat - 220 - 270 mg/kg

LC50 Inhalation - Rat - 8 h - 350 mg/l

Skin corrosion/irritation
Serious eye damage/eye irritation
Respiratory or skin sensitisation
Germ cell mutagenicity
Carcinogenicity

IARC: No component of this product present at levels greater than or equal to 0.1% is identified as probable, possible or confirmed human carcinogen by IARC.

NTP: No component of this product present at levels greater than or equal to 0.1% is identified as a known or anticipated carcinogen by NTP.

OSHA: No component of this product present at levels greater than or equal to 0.1% is identified as a carcinogen or potential carcinogen by OSHA.

Reproductive toxicity

Specific target organ toxicity - single exposure

Specific target organ toxicity - repeated exposure

Aspiration hazard

Additional Information
RTECS: Not available

To the best of our knowledge, the chemical, physical, and toxicological properties have not been thoroughly investigated.

To the best of our knowledge, the chemical, physical, and toxicological properties have not been thoroughly investigated.

12. ECOLOGICAL INFORMATION

12.1 Toxicity

12.2 Persistence and degradability

12.3 Bioaccumulative potential

12.4 Mobility in soil

12.5 Results of PBT and vPvB assessment
PBT/vPvB assessment not available as chemical safety assessment not required/not conducted

12.6 Other adverse effects

13. DISPOSAL CONSIDERATIONS

13.1 Waste treatment methods

Product
This combustible material may be burned in a chemical incinerator equipped with an afterburner and scrubber. Offer surplus and non-recyclable solutions to a licensed disposal company. Contact a licensed professional waste disposal service to dispose of this material.

Contaminated packaging
Dispose of as unused product.

14. TRANSPORT INFORMATION

DOT (US)
UN number: 2490 Class: 6.1 Packing group: II
Proper shipping name: Dichloroisopropyl ether
Reportable Quantity (RQ): 1000 lbs

Poison Inhalation Hazard: No

IMDG
UN number: 2490 Class: 6.1 Packing group: II EMS-No: F-A, S-A
Proper shipping name: DICHLOROISOPROPYL ETHER

IATA
UN number: 2490 Class: 6.1 Packing group: II
Proper shipping name: Dichloroisopropyl ether

15. REGULATORY INFORMATION

SARA 302 Components
No chemicals in this material are subject to the reporting requirements of SARA Title III, Section 302.

SARA 313 Components
The following components are subject to reporting levels established by SARA Title III, Section 313:

	CAS-No.	Revision Date
Bis(2-chloro-1-methylethyl) ether	108-60-1	2007-07-01

SARA 311/312 Hazards
Fire Hazard, Acute Health Hazard

Massachusetts Right To Know Components

	CAS-No.	Revision Date
Bis(2-chloro-1-methylethyl) ether	108-60-1	2007-07-01

Pennsylvania Right To Know Components

	CAS-No.	Revision Date
Bis(2-chloro-1-methylethyl) ether	108-60-1	2007-07-01

New Jersey Right To Know Components

	CAS-No.	Revision Date
Bis(2-chloro-1-methylethyl) ether	108-60-1	2007-07-01

California Prop. 65 Components

WARNING! This product contains a chemical known to the State of California to cause cancer.	CAS-No.	Revision Date
Bis(2-chloro-1-methylethyl) ether	108-60-1	2007-09-28

16. OTHER INFORMATION

Full text of H-Statements referred to under sections 2 and 3.

Acute Tox.	Acute toxicity
Flam. Liq.	Flammable liquids
H227	Combustible liquid.
H301	Toxic if swallowed.
H332	Harmful if inhaled.

HMIS Rating

Health hazard:	2
Chronic Health Hazard:	
Flammability:	2
Physical Hazard	0

NFPA Rating

Health hazard:	1
Fire Hazard:	2
Reactivity Hazard:	0

Further information

Copyright 2016 Sigma-Aldrich Co. LLC. License granted to make unlimited paper copies for internal use only.
The above information is believed to be correct but does not purport to be all inclusive and shall be used only as a guide. The information in this document is based on the present state of our knowledge and is applicable to the product with regard to appropriate safety precautions. It does not represent any guarantee of the properties of the product. Sigma-Aldrich Corporation and its Affiliates shall not be held liable for any damage resulting from handling or from contact with the above product. See www.sigma-aldrich.com and/or the reverse side of invoice or packing slip for additional terms and conditions of sale.

Preparation Information

Sigma-Aldrich Corporation
Product Safety – Americas Region
1-800-521-8956

Version: 4.12 Revision Date: 08/30/2016 Print Date: 11/14/2016

SAFETY DATA SHEET

Version 5.11
Revision Date 06/18/2015
Print Date 02/11/2016

1. PRODUCT AND COMPANY IDENTIFICATION

1.1 Product identifiers

Product name : Bis(2-ethylhexyl) phthalate

Product Number : 80030
Brand : Sigma-Aldrich
Index-No. : 607-317-00-9

CAS-No. : 117-81-7

1.2 Relevant identified uses of the substance or mixture and uses advised against

Identified uses : Laboratory chemicals, Manufacture of substances

1.3 Details of the supplier of the safety data sheet

Company : Sigma-Aldrich
3050 Spruce Street
SAINT LOUIS MO 63103
USA

Telephone : +1 800-325-5832
Fax : +1 800-325-5052

1.4 Emergency telephone number

Emergency Phone # : (314) 776-6555

2. HAZARDS IDENTIFICATION

2.1 Classification of the substance or mixture

GHS Classification in accordance with 29 CFR 1910 (OSHA HCS)
Reproductive toxicity (Category 1B), H360

For the full text of the H-Statements mentioned in this Section, see Section 16.

2.2 GHS Label elements, including precautionary statements

Pictogram



Signal word Danger

Hazard statement(s)
H360 May damage fertility or the unborn child.

Precautionary statement(s)
P201 Obtain special instructions before use.
P202 Do not handle until all safety precautions have been read and understood.
P281 Use personal protective equipment as required.
P308 + P313 IF exposed or concerned: Get medical advice/ attention.
P405 Store locked up.
P501 Dispose of contents/ container to an approved waste disposal plant.

2.3 Hazards not otherwise classified (HNOC) or not covered by GHS

Endocrine disrupting chemical(s)

3. COMPOSITION/INFORMATION ON INGREDIENTS

3.1 Substances

Synonyms	:	'Dioctyl' phthalate Phthalic acid bis(2-ethylhexyl ester) DEHP
Formula	:	$C_{24}H_{38}O_4$
Molecular weight	:	390.56 g/mol
CAS-No.	:	117-81-7
EC-No.	:	204-211-0
Index-No.	:	607-317-00-9
Registration number	:	01-2119484611-38-XXXX

Hazardous components

Component	Classification	Concentration
bis(2-Ethylhexyl) phthalate Included in the Candidate List of Substances of Very High Concern (SVHC) according to Regulation (EC) No. 1907/2006 (REACH)		
	Repr. 1B; H360	<= 100 %

For the full text of the H-Statements mentioned in this Section, see Section 16.

4. FIRST AID MEASURES

4.1 Description of first aid measures

General advice
Consult a physician. Show this safety data sheet to the doctor in attendance.Move out of dangerous area.

If inhaled
If breathed in, move person into fresh air. If not breathing, give artificial respiration. Consult a physician.

In case of skin contact
Wash off with soap and plenty of water. Consult a physician.

In case of eye contact
Rinse thoroughly with plenty of water for at least 15 minutes and consult a physician.

If swallowed
Never give anything by mouth to an unconscious person. Rinse mouth with water. Consult a physician.

4.2 Most important symptoms and effects, both acute and delayed
The most important known symptoms and effects are described in the labelling (see section 2.2) and/or in section 11

4.3 Indication of any immediate medical attention and special treatment needed
No data available

5. FIREFIGHTING MEASURES

5.1 Extinguishing media

Suitable extinguishing media
Use water spray, alcohol-resistant foam, dry chemical or carbon dioxide.

5.2 Special hazards arising from the substance or mixture
Carbon oxides

5.3 Advice for firefighters
Wear self-contained breathing apparatus for firefighting if necessary.

5.4 Further information
No data available

6. ACCIDENTAL RELEASE MEASURES

6.1 Personal precautions, protective equipment and emergency procedures

Use personal protective equipment. Avoid breathing vapours, mist or gas. Ensure adequate ventilation. Evacuate personnel to safe areas.
For personal protection see section 8.

6.2 Environmental precautions

Prevent further leakage or spillage if safe to do so. Do not let product enter drains.

6.3 Methods and materials for containment and cleaning up

Soak up with inert absorbent material and dispose of as hazardous waste. Keep in suitable, closed containers for disposal.

6.4 Reference to other sections

For disposal see section 13.

7. HANDLING AND STORAGE

7.1 Precautions for safe handling

Avoid contact with skin and eyes. Avoid inhalation of vapour or mist.
For precautions see section 2.2.

7.2 Conditions for safe storage, including any incompatibilities

Keep container tightly closed in a dry and well-ventilated place. Containers which are opened must be carefully resealed and kept upright to prevent leakage.

7.3 Specific end use(s)

Apart from the uses mentioned in section 1.2 no other specific uses are stipulated

8. EXPOSURE CONTROLS/PERSONAL PROTECTION

8.1 Control parameters

Components with workplace control parameters

Component	CAS-No.	Value	Control parameters	Basis
bis(2-Ethylhexyl) phthalate	117-81-7	TWA	5.000000 mg/m3	USA. ACGIH Threshold Limit Values (TLV)
	Remarks	Lower Respiratory Tract irritation Confirmed animal carcinogen with unknown relevance to humans		
		TWA	5.000000 mg/m3	USA. NIOSH Recommended Exposure Limits
		Potential Occupational Carcinogen See Appendix A		
		ST	10.000000 mg/m3	USA. NIOSH Recommended Exposure Limits
		Potential Occupational Carcinogen See Appendix A		
		TWA	5.000000 mg/m3	USA. Occupational Exposure Limits (OSHA) - Table Z-1 Limits for Air Contaminants

8.2 Exposure controls

Appropriate engineering controls

Handle in accordance with good industrial hygiene and safety practice. Wash hands before breaks and at the end of workday.

Personal protective equipment

Eye/face protection

Safety glasses with side-shields conforming to EN166 Use equipment for eye protection tested and approved under appropriate government standards such as NIOSH (US) or EN 166(EU).

Skin protection
Handle with gloves. Gloves must be inspected prior to use. Use proper glove removal technique (without touching glove's outer surface) to avoid skin contact with this product. Dispose of contaminated gloves after use in accordance with applicable laws and good laboratory practices. Wash and dry hands.

Full contact
Material: Nitrile rubber
Minimum layer thickness: 0.2 mm
Break through time: 480 min
Material tested:Dermatril® P (KCL 743 / Aldrich Z677388, Size M)

Splash contact
Material: Nitrile rubber
Minimum layer thickness: 0.11 mm
Break through time: 230 min
Material tested:Dermatril® (KCL 740 / Aldrich Z677272, Size M)

data source: KCL GmbH, D-36124 Eichenzell, phone +49 (0)6659 87300, e-mail sales@kcl.de, test method: EN374
If used in solution, or mixed with other substances, and under conditions which differ from EN 374, contact the supplier of the CE approved gloves. This recommendation is advisory only and must be evaluated by an industrial hygienist and safety officer familiar with the specific situation of anticipated use by our customers. It should not be construed as offering an approval for any specific use scenario.

Body Protection
impervious clothing, The type of protective equipment must be selected according to the concentration and amount of the dangerous substance at the specific workplace.

Respiratory protection
Where risk assessment shows air-purifying respirators are appropriate use a full-face respirator with multi-purpose combination (US) or type ABEK (EN 14387) respirator cartridges as a backup to engineering controls. If the respirator is the sole means of protection, use a full-face supplied air respirator. Use respirators and components tested and approved under appropriate government standards such as NIOSH (US) or CEN (EU).

Control of environmental exposure
Prevent further leakage or spillage if safe to do so. Do not let product enter drains.

9. PHYSICAL AND CHEMICAL PROPERTIES

9.1 Information on basic physical and chemical properties

a)	Appearance	Form: liquid
b)	Odour	No data available
c)	Odour Threshold	No data available
d)	pH	No data available
e)	Melting point/freezing point	-50.0 °C (-58.0 °F)
f)	Initial boiling point and boiling range	386 °C (727 °F) - lit.
g)	Flash point	207.0 °C (404.6 °F) - closed cup
h)	Evaporation rate	No data available
i)	Flammability (solid, gas)	No data available
j)	Upper/lower flammability or explosive limits	Lower explosion limit: 0.3 %(V)
k)	Vapour pressure	1.6 hPa (1.2 mmHg) at 93.0 °C (199.4 °F)
l)	Vapour density	No data available
m)	Relative density	0.985 g/cm3 at 20 °C (68 °F)
n)	Water solubility	insoluble

o)	Partition coefficient: n-octanol/water	No data available
p)	Auto-ignition temperature	390.0 °C (734.0 °F)
q)	Decomposition temperature	No data available
r)	Viscosity	No data available
s)	Explosive properties	No data available
t)	Oxidizing properties	No data available

9.2 Other safety information
No data available

10. STABILITY AND REACTIVITY

10.1 Reactivity
No data available

10.2 Chemical stability
Stable under recommended storage conditions.

10.3 Possibility of hazardous reactions
No data available

10.4 Conditions to avoid
No data available

10.5 Incompatible materials
Strong oxidizing agents

10.6 Hazardous decomposition products
Other decomposition products - No data available
In the event of fire: see section 5

11. TOXICOLOGICAL INFORMATION

11.1 Information on toxicological effects

Acute toxicity
LD50 Oral - Rat - 30,000 mg/kg

Inhalation: No data available

LD50 Dermal - Rabbit - 25,000 mg/kg

No data available

Skin corrosion/irritation
Skin - Rabbit
Result: Mild skin irritation - 24 h

Serious eye damage/eye irritation
Eyes - Rabbit
Result: Mild eye irritation - 24 h

Respiratory or skin sensitisation
Maximisation Test (GPMT) - Guinea pig
Result: Does not cause skin sensitisation.
(OECD Test Guideline 406)

Germ cell mutagenicity
No data available

Carcinogenicity

This product is or contains a component that has been reported to be possibly carcinogenic based on its IARC, ACGIH, NTP, or EPA classification.

IARC: 2B - Group 2B: Possibly carcinogenic to humans (bis(2-Ethylhexyl) phthalate)

NTP: Reasonably anticipated to be a human carcinogen (bis(2-Ethylhexyl) phthalate)

OSHA: No component of this product present at levels greater than or equal to 0.1% is identified as a carcinogen or potential carcinogen by OSHA.

Reproductive toxicity
May cause congenital malformation in the fetus.
Presumed human reproductive toxicant

May cause reproductive disorders.

Specific target organ toxicity - single exposure
No data available

Specific target organ toxicity - repeated exposure
No data available

Aspiration hazard
No data available

Additional Information
RTECS: TI0350000

Effects due to ingestion may include:, Gastrointestinal disturbance

Kidney -

12. ECOLOGICAL INFORMATION

12.1 Toxicity

Toxicity to fish	LC50 - Pimephales promelas (fathead minnow) - > 0.67 mg/l - 96 h
	LC50 - Oncorhynchus mykiss (rainbow trout) - > 0.32 mg/l - 96 h
	LC50 - Cyprinodon variegatus (sheepshead minnow) - > 0.17 mg/l - 96 h
	LC50 - Lepomis macrochirus (Bluegill) - > 0.20 mg/l - 96 h
	NOEC - other fish - > 0.3 mg/l - 96 h
Toxicity to daphnia and other aquatic invertebrates	Immobilization EC50 - Daphnia magna (Water flea) - > 0.16 mg/l - 48 h

12.2 Persistence and degradability

Biodegradability	Result: - Readily biodegradable (OECD Test Guideline 301)

12.3 Bioaccumulative potential

Bioaccumulation	Oncorhynchus mykiss (rainbow trout) - 100 d - 0.014 mg/l Bioconcentration factor (BCF): 113 Remarks: Does not bioaccumulate.

12.4 Mobility in soil
No data available

12.5 Results of PBT and vPvB assessment
PBT/vPvB assessment not available as chemical safety assessment not required/not conducted

12.6 Other adverse effects

No data available

13. DISPOSAL CONSIDERATIONS

13.1 Waste treatment methods

Product
Offer surplus and non-recyclable solutions to a licensed disposal company. Contact a licensed professional waste disposal service to dispose of this material. Dissolve or mix the material with a combustible solvent and burn in a chemical incinerator equipped with an afterburner and scrubber.

Contaminated packaging
Dispose of as unused product.

14. TRANSPORT INFORMATION

DOT (US)
UN number: 3082 Class: 9 Packing group: III
Proper shipping name: Environmentally hazardous substance, liquid, n.o.s. (bis(2-Ethylhexyl) phthalate)
Reportable Quantity (RQ): 100 lbs

Poison Inhalation Hazard: No

IMDG
Not dangerous goods

IATA
Not dangerous goods

15. REGULATORY INFORMATION

SARA 302 Components
No chemicals in this material are subject to the reporting requirements of SARA Title III, Section 302.

SARA 313 Components
The following components are subject to reporting levels established by SARA Title III, Section 313:

	CAS-No.	Revision Date
bis(2-Ethylhexyl) phthalate	117-81-7	2007-07-01

SARA 311/312 Hazards
Chronic Health Hazard

Massachusetts Right To Know Components

	CAS-No.	Revision Date
bis(2-Ethylhexyl) phthalate	117-81-7	2007-07-01

Pennsylvania Right To Know Components

	CAS-No.	Revision Date
bis(2-Ethylhexyl) phthalate	117-81-7	2007-07-01

New Jersey Right To Know Components

	CAS-No.	Revision Date
bis(2-Ethylhexyl) phthalate	117-81-7	2007-07-01

California Prop. 65 Components

WARNING! This product contains a chemical known to the State of California to cause cancer. bis(2-Ethylhexyl) phthalate	CAS-No. 117-81-7	Revision Date 2009-02-01
WARNING: This product contains a chemical known to the State of California to cause birth defects or other reproductive harm. bis(2-Ethylhexyl) phthalate	CAS-No. 117-81-7	Revision Date 2009-02-01

16. OTHER INFORMATION

Full text of H-Statements referred to under sections 2 and 3.

H360	May damage fertility or the unborn child.
Repr.	Reproductive toxicity

HMIS Rating

Health hazard:	0
Chronic Health Hazard:	*
Flammability:	1
Physical Hazard	0

NFPA Rating

Health hazard:	0
Fire Hazard:	1
Reactivity Hazard:	0

Further information

Copyright 2015 Sigma-Aldrich Co. LLC. License granted to make unlimited paper copies for internal use only.
The above information is believed to be correct but does not purport to be all inclusive and shall be used only as a guide. The information in this document is based on the present state of our knowledge and is applicable to the product with regard to appropriate safety precautions. It does not represent any guarantee of the properties of the product. Sigma-Aldrich Corporation and its Affiliates shall not be held liable for any damage resulting from handling or from contact with the above product. See www.sigma-aldrich.com and/or the reverse side of invoice or packing slip for additional terms and conditions of sale.

Preparation Information

Sigma-Aldrich Corporation
Product Safety – Americas Region
1-800-521-8956

Version: 5.11 Revision Date: 06/18/2015 Print Date: 02/11/2016

Safety Data Sheet
acc. to OSHA HCS

Printing date 03/05/2019 *Reviewed on 03/05/2019*

1 Identification

· **Product identifier**

· **Product Name: BTEX Standard**

· **Part Number:** BTEX
· **Application of the substance / the mixture** Certified Reference Material

· **Details of the supplier of the safety data sheet**
· **Manufacturer/Supplier:**
SPEX CertiPrep, LLC.
203 Norcross Ave, Metuchen,
NJ 08840 USA

· **Information department:** product safety department
· **Emergency telephone number:**
Emergency Phone Number (24 hours)
CHEMTREC (800-424-9300)
Outside US: 703-527-3887

2 Hazard(s) identification

· **Classification of the substance or mixture**



GHS02 Flame

Flam. Liq. 2 H225 Highly flammable liquid and vapor.



GHS06 Skull and crossbones

Acute Tox. 3 H331 Toxic if inhaled.



GHS08 Health hazard

STOT SE 1 H370 Causes damage to organs.

· **Label elements**
· **GHS label elements** The product is classified and labeled according to the Globally Harmonized System (GHS).
· **Hazard pictograms**



GHS02 GHS06 GHS08

· **Signal word** Danger

· **Hazard-determining components of labeling:**
methanol
· **Hazard statements**
H225 Highly flammable liquid and vapor.
H331 Toxic if inhaled.
H370 Causes damage to organs.
· **Precautionary statements**
Keep away from heat/sparks/open flames/hot surfaces. - No smoking.
Use explosion-proof electrical/ventilating/lighting/equipment.
Do not breathe dust/fume/gas/mist/vapors/spray.
If on skin (or hair): Take off immediately all contaminated clothing. Rinse skin with water/shower.
Store locked up.
Dispose of contents/container in accordance with local/regional/national/international regulations.
· **Classification system:**
· **NFPA ratings (scale 0 - 4)**



Health = 1
Fire = 3
Reactivity = 0

(Contd. on page 2)

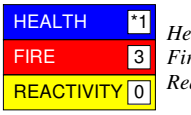
Safety Data Sheet
acc. to OSHA HCS

Printing date 03/05/2019 Reviewed on 03/05/2019

Product Name: BTEX Standard

(Contd. of page 1)

· **HMIS-ratings (scale 0 - 4)**



*Health = *1*
Fire = 3
Reactivity = 0

· **Other hazards**
· **Results of PBT and vPvB assessment**
· **PBT:** Not applicable.
· **vPvB:** Not applicable.

3 Composition/information on ingredients

· **Chemical characterization: Mixtures**
· **Description:** Mixture of the substances listed below with nonhazardous additions.

· **Dangerous components:**		
67-56-1	methanol	99.88%

· **Chemical identification of the substance/preparation**		
71-43-2	benzene	0.02%
95-47-6	o-xylene	0.02%
106-42-3	p-xylene	0.02%
108-88-3	toluene	0.02%
100-41-4	ethylbenzene	0.02%
108-38-3	m-xylene	0.02%

4 First-aid measures

· **Description of first aid measures**
· **General information:**
Immediately remove any clothing soiled by the product.
Remove breathing apparatus only after contaminated clothing have been completely removed.
In case of irregular breathing or respiratory arrest provide artificial respiration.
· **After inhalation:**
Supply fresh air or oxygen; call for doctor.
In case of unconsciousness place patient stably in side position for transportation.
· **After skin contact:** Immediately wash with water and soap and rinse thoroughly.
· **After eye contact:** Rinse opened eye for several minutes under running water. Then consult a doctor.
· **After swallowing:** Do not give anything to eat or drink - Do not induce vomitting
· **Information for Doctor:**
· **Most important symptoms and effects, both acute and delayed** No further relevant information available.
· **Indication of any immediate medical attention and special treatment needed** No further relevant information available.

5 Fire-fighting measures

· **Extinguishing media**
· **Suitable extinguishing agents:** CO2, extinguishing powder or water spray. Fight larger fires with water spray or alcohol resistant foam.
· **Special hazards arising from the substance or mixture** During heating or in case of fire poisonous gases are produced.
· **Advice for firefighters**
· **Protective equipment:** Mouth respiratory protective device.

6 Accidental release measures

· **Personal precautions, protective equipment and emergency procedures**
Mount respiratory protective device.
Wear protective equipment. Keep unprotected persons away.
· **Environmental precautions:**
Dilute with plenty of water.
Do not allow to enter sewers/ surface or ground water.
· **Methods and material for containment and cleaning up:**
Absorb with liquid-binding material (sand, diatomite, acid binders, universal binders, sawdust).
Dispose contaminated material as waste according to item 13.
Ensure adequate ventilation.

(Contd. on page 3)

Safety Data Sheet
acc. to OSHA HCS

Product Name: BTEX Standard

(Contd. of page 2)

· **Reference to other sections**
See Section 7 for information on safe handling.
See Section 8 for information on personal protection equipment.
See Section 13 for disposal information.
· **Protective Action Criteria for Chemicals**

· **PAC-1:**		
67-56-1	methanol	530 ppm
71-43-2	benzene	52 ppm
108-88-3	toluene	67 ppm
100-41-4	ethylbenzene	33 ppm
108-38-3	m-xylene	130 ppm

· **PAC-2:**		
67-56-1	methanol	2,100 ppm
71-43-2	benzene	800 ppm
108-88-3	toluene	560 ppm
100-41-4	ethylbenzene	1100* ppm
108-38-3	m-xylene	920 ppm

· **PAC-3:**		
67-56-1	methanol	7200* ppm
71-43-2	benzene	4000* ppm
108-88-3	toluene	3700* ppm
100-41-4	ethylbenzene	1800* ppm
108-38-3	m-xylene	2500* ppm

7 Handling and storage

· **Handling:**
· **Precautions for safe handling**
Ensure good ventilation/exhaustion at the workplace.
Open and handle receptacle with care.
Prevent formation of aerosols.
· **Information about protection against explosions and fires:**
Keep ignition sources away - Do not smoke.
Protect against electrostatic charges.
Keep respiratory protective device available.

· **Conditions for safe storage, including any incompatibilities**
· **Storage:**
· **Requirements to be met by storerooms and receptacles:** Store in a cool location.
· **Information about storage in one common storage facility:** Not required.
· **Further information about storage conditions:**
Keep receptacle tightly sealed.
Store in cool, dry conditions in well sealed receptacles.
· **Specific end use(s)** No further relevant information available.

8 Exposure controls/personal protection

· **Additional information about design of technical systems:** No further data; see item 7.

· **Control parameters**

· **Components with limit values that require monitoring at the workplace:**	
67-56-1 methanol	
PEL	Long-term value: 260 mg/m³, 200 ppm
REL	Short-term value: 325 mg/m³, 250 ppm Long-term value: 260 mg/m³, 200 ppm Skin
TLV	Short-term value: 328 mg/m³, 250 ppm Long-term value: 262 mg/m³, 200 ppm Skin; BEI

(Contd. on page 4)

Safety Data Sheet
acc. to OSHA HCS

Product Name: BTEX Standard

(Contd. of page 3)

· **Ingredients with biological limit values:**

67-56-1 methanol

BEI 15 mg/L
Medium: urine
Time: end of shift
Parameter: Methanol (background, nonspecific)

· **Additional information:** The lists that were valid during the creation were used as basis.

· **Exposure controls**
· **Personal protective equipment:**
· **General protective and hygienic measures:**
Keep away from foodstuffs, beverages and feed.
Immediately remove all soiled and contaminated clothing.
Wash hands before breaks and at the end of work.
Store protective clothing separately.
· **Respiratory protection:**
In case of brief exposure or low pollution use respiratory filter device. In case of intensive or longer exposure use respiratory protective device that is independent of circulating air.
· **Protection of hands:**



Protective gloves

The glove material has to be impermeable and resistant to the product/ the substance/ the preparation.
Due to missing tests no recommendation to the glove material can be given for the product/ the preparation/ the chemical mixture.
Selection of the glove material on consideration of the penetration times, rates of diffusion and the degradation
· **Material of gloves**
The selection of the suitable gloves does not only depend on the material, but also on further marks of quality and varies from manufacturer to manufacturer. As the product is a preparation of several substances, the resistance of the glove material can not be calculated in advance and has therefore to be checked prior to the application.
· **Penetration time of glove material**
The exact break through time has to be found out by the manufacturer of the protective gloves and has to be observed.
· **Eye protection:**



Tightly sealed goggles

9 Physical and chemical properties

· **Information on basic physical and chemical properties**	
· **General Information**	
· **Appearance:**	
Form:	Liquid
Color:	According to product specification
· **Odor:**	Characteristic
· **Odour Threshold:**	Not applicable.
· **pH-value:**	Not applicable.
· **Change in condition**	
Melting point/Melting range:	Undetermined.
Boiling point/Boiling range:	64.7 °C (148.5 °F)
· **Flash point:**	< 23 °C (<73.4 °F)
· **Flammability (solid, gaseous):**	Not applicable.
· **Ignition temperature:**	455 °C (851 °F)
· **Decomposition temperature:**	Not applicable.
· **Auto igniting:**	Product is not selfigniting.
· **Danger of explosion:**	Product is not explosive. However, formation of explosive air/vapor mixtures are possible.
· **Explosion limits:**	
Lower:	5.5 Vol %
Upper:	44 Vol %

(Contd. on page 5)

Safety Data Sheet
acc. to OSHA HCS

Product Name: BTEX Standard

(Contd. of page 4)

· **Vapor pressure at 20 °C (68 °F):**	128 hPa (96 mm Hg)
· **Density at 20 °C (68 °F)**	0.79009 g/cm³ (6.5933 lbs/gal)
· **Relative density**	Not applicable.
· **Vapor density**	Not applicable.
· **Evaporation rate**	Not applicable.
· **Solubility in / Miscibility with**	
Water:	Fully miscible.
· **Partition coefficient (n-octanol/water):**	Not applicable.
· **Viscosity:**	
Dynamic:	Not applicable.
Kinematic:	Not applicable.
· **Solvent content:**	
Organic solvents:	100.0 %
VOC content:	100.00 %
Solids content:	0.0 %
· **Other information**	No further relevant information available.

10 Stability and reactivity

· **Reactivity** No further relevant information available.
· **Chemical stability**
· **Thermal decomposition / conditions to be avoided:** No decomposition if used according to specifications.
· **Possibility of hazardous reactions** No dangerous reactions known.
· **Conditions to avoid** No further relevant information available.
· **Incompatible materials:** No further relevant information available.
· **Hazardous decomposition products:** No dangerous decomposition products known.

11 Toxicological information

· **Information on toxicological effects**
· **Acute toxicity:**

· **LD/LC50 values that are relevant for classification:**

67-56-1 methanol

Oral	LD50	5,628 mg/kg (rat)
Dermal	LD50	15,800 mg/kg (rabbit)

· **Primary irritant effect:**
· **on the eye:** No irritating effect.
· **Sensitization:** No sensitizing effects known.
· **Additional toxicological information:**
The product shows the following dangers according to internally approved calculation methods for preparations:
Toxic

· **Carcinogenic categories**

· **IARC (International Agency for Research on Cancer)**

71-43-2	benzene	1
95-47-6	o-xylene	3
106-42-3	p-xylene	3
108-88-3	toluene	3
100-41-4	ethylbenzene	2B
108-38-3	m-xylene	3

· **NTP (National Toxicology Program)**

71-43-2	benzene	K

· **OSHA-Ca (Occupational Safety & Health Administration)**

71-43-2	benzene

(Contd. on page 6)

Safety Data Sheet
acc. to OSHA HCS

Product Name: BTEX Standard

(Contd. of page 5)

12 Ecological information

· **Toxicity**
· **Aquatic toxicity:** No further relevant information available.
· **Persistence and degradability** No further relevant information available.
· **Behavior in environmental systems:**
· **Bioaccumulative potential** No further relevant information available.
· **Mobility in soil** No further relevant information available.
· **Additional ecological information:**
· **General notes:**
Water hazard class 1 (Self-assessment): slightly hazardous for water
Do not allow undiluted product or large quantities of it to reach ground water, water course or sewage system.
· **Results of PBT and vPvB assessment**
· **PBT:** Not applicable.
· **vPvB:** Not applicable.
· **Other adverse effects** No further relevant information available.

13 Disposal considerations

· **Waste treatment methods**
· **Recommendation:** Must not be disposed of together with household garbage. Do not allow product to reach sewage system.

· **Uncleaned packagings:**
· **Recommendation:** Disposal must be made according to official regulations.
· **Recommended cleansing agent:** Water, if necessary with cleansing agents.

14 Transport information

· **UN-Number**	
· **DOT, ADR, IMDG, IATA**	UN1230
· **UN proper shipping name**	
· **DOT**	Methanol
· **ADR**	1230 METHANOL
· **IMDG, IATA**	METHANOL
· **Transport hazard class(es)**	
· **DOT**	
· **Class**	3 Flammable liquids
· **Label**	3, 6.1
· **ADR**	
· **Class**	3 Flammable liquids
· **Label**	3+6.1
· **IMDG**	
· **Class**	3 Flammable liquids

(Contd. on page 7)

Safety Data Sheet
acc. to OSHA HCS

Product Name: BTEX Standard

(Contd. of page 6)

· **Label**	3/6.1
· **IATA**	
	
· **Class**	3 Flammable liquids
· **Label**	3 (6.1)
· **Packing group**	
· **DOT, ADR, IMDG, IATA**	II
· **Environmental hazards:**	Not applicable.
· **Special precautions for user**	Warning: Flammable liquids
· **Danger code (Kemler):**	336
· **EMS Number:**	F-E,S-D
· **Stowage Category**	B
· **Stowage Code**	SW2 Clear of living quarters.
· **Transport in bulk according to Annex II of MARPOL73/78 and the IBC Code**	Not applicable.
· **Transport/Additional information:**	
· **ADR**	
· **Excepted quantities (EQ)**	Code: E2 Maximum net quantity per inner packaging: 30 ml Maximum net quantity per outer packaging: 500 ml
· **IMDG**	
· **Limited quantities (LQ)**	1L
· **Excepted quantities (EQ)**	Code: E2 Maximum net quantity per inner packaging: 30 ml Maximum net quantity per outer packaging: 500 ml
· **UN "Model Regulation":**	UN 1230 METHANOL, 3 (6.1), II

15 Regulatory information

· **Safety, health and environmental regulations/legislation specific for the substance or mixture**
· **Sara**

· **Section 313 (Specific toxic chemical listings):**
All ingredients are listed.

· **TSCA (Toxic Substances Control Act):**
All ingredients are listed.

· **Proposition 65**

· **Chemicals known to cause cancer:**

71-43-2	benzene
100-41-4	ethylbenzene

· **Chemicals known to cause reproductive toxicity for females:**
None of the ingredients is listed.

· **Chemicals known to cause reproductive toxicity for males:**

71-43-2	benzene

· **Chemicals known to cause developmental toxicity:**

67-56-1	methanol
71-43-2	benzene
108-88-3	toluene

· **Carcinogenic categories**

· **EPA (Environmental Protection Agency)**

71-43-2	benzene	A, K/L
95-47-6	o-xylene	I
106-42-3	p-xylene	I
108-88-3	toluene	II

(Contd. on page 8)

Safety Data Sheet
acc. to OSHA HCS

Product Name: BTEX Standard

(Contd. of page 7)

100-41-4	ethylbenzene	D
108-38-3	m-xylene	I

· **TLV (Threshold Limit Value established by ACGIH)**

71-43-2	benzene	A1
95-47-6	o-xylene	A4
106-42-3	p-xylene	A4
108-88-3	toluene	A4
100-41-4	ethylbenzene	A3
108-38-3	m-xylene	A4

· **NIOSH-Ca (National Institute for Occupational Safety and Health)**

71-43-2	benzene

· **GHS label elements** The product is classified and labeled according to the Globally Harmonized System (GHS).
· **Hazard pictograms**



GHS02 GHS06 GHS08

· **Signal word** Danger

· **Hazard-determining components of labeling:**
methanol
· **Hazard statements**
H225 Highly flammable liquid and vapor.
H331 Toxic if inhaled.
H370 Causes damage to organs.
· **Precautionary statements**
Keep away from heat/sparks/open flames/hot surfaces. - No smoking.
Use explosion-proof electrical/ventilating/lighting/equipment.
Do not breathe dust/fume/gas/mist/vapors/spray.
If on skin (or hair): Take off immediately all contaminated clothing. Rinse skin with water/shower.
Store locked up.
Dispose of contents/container in accordance with local/regional/national/international regulations.
· **Chemical safety assessment:** A Chemical Safety Assessment has not been carried out.

16 Other information

This information is based on our present knowledge. However, this shall not constitute a guarantee for any specific product features and shall not establish a legally valid contractual relationship.

· **Department issuing SDS:** product safety department
· **Contact:**
SPEX CertiPrep, LLC.
1-732-549-7144
· **Date of preparation / last revision** 03/05/2019 / -
· **Abbreviations and acronyms:**
ADR: Accord européen sur le transport des marchandises dangereuses par Route (European Agreement concerning the International Carriage of Dangerous Goods by Road)
IMDG: International Maritime Code for Dangerous Goods
DOT: US Department of Transportation
IATA: International Air Transport Association
ACGIH: American Conference of Governmental Industrial Hygienists
EINECS: European Inventory of Existing Commercial Chemical Substances
ELINCS: European List of Notified Chemical Substances
CAS: Chemical Abstracts Service (division of the American Chemical Society)
NFPA: National Fire Protection Association (USA)
HMIS: Hazardous Materials Identification System (USA)
VOC: Volatile Organic Compounds (USA, EU)
LC50: Lethal concentration, 50 percent
LD50: Lethal dose, 50 percent
PBT: Persistent, Bioaccumulative and Toxic
vPvB: very Persistent and very Bioaccumulative
NIOSH: National Institute for Occupational Safety
OSHA: Occupational Safety & Health
TLV: Threshold Limit Value
PEL: Permissible Exposure Limit
REL: Recommended Exposure Limit
BEI: Biological Exposure Limit
Flam. Liq. 2: Flammable liquids – Category 2
Acute Tox. 3: Acute toxicity – Category 3
STOT SE 1: Specific target organ toxicity (single exposure) – Category 1

SAFETY DATA SHEET

Revision Date 24-Dec-2021 **Revision Number** 4

1. Identification

Product Name **Cadmium**

Cat No. : **C3-500**

CAS No 7440-43-9
Synonyms No information available

Recommended Use Laboratory chemicals.
Uses advised against Food, drug, pesticide or biocidal product use.

Details of the supplier of the safety data sheet

Company
Fisher Scientific Company
One Reagent Lane
Fair Lawn, NJ 07410
Tel: (201) 796-7100

Emergency Telephone Number CHEMTREC®, Inside the USA: 800-424-9300
CHEMTREC®, Outside the USA: 001-703-527-3887

2. Hazard(s) identification

Classification
This chemical is considered hazardous by the 2012 OSHA Hazard Communication Standard (29 CFR 1910.1200)

Flammable solids	Category 2
Acute oral toxicity	Category 4
Acute dermal toxicity	Category 4
Acute Inhalation Toxicity - Dusts and Mists	Category 2
Germ Cell Mutagenicity	Category 2
Carcinogenicity	Category 1A
Reproductive Toxicity	Category 2
Specific target organ toxicity (single exposure)	Category 3
Target Organs - Respiratory system.	
Specific target organ toxicity - (repeated exposure)	Category 1
Target Organs - Kidney, Blood.	
Combustible dust	Yes

Label Elements

Signal Word

Danger

Hazard Statements
Flammable solid
May form combustible dust concentrations in air
Fatal if inhaled
Harmful if swallowed
Harmful in contact with skin
May cause respiratory irritation
Suspected of causing genetic defects
May cause cancer
Suspected of damaging fertility. Suspected of damaging the unborn child
Causes damage to organs through prolonged or repeated exposure



Precautionary Statements
Prevention
Obtain special instructions before use
Do not handle until all safety precautions have been read and understood
Use personal protective equipment as required
Wash face, hands and any exposed skin thoroughly after handling
Do not eat, drink or smoke when using this product
Do not breathe dust/fume/gas/mist/vapors/spray
Use only outdoors or in a well-ventilated area
Ground/bond container and receiving equipment
Use explosion-proof electrical/ventilating/lighting equipment
Response
IF exposed or concerned: Get medical attention/advice
Inhalation
IF INHALED: Remove victim to fresh air and keep at rest in a position comfortable for breathing
Immediately call a POISON CENTER or doctor/physician
Skin
IF ON SKIN: Wash with plenty of soap and water
Wash contaminated clothing before reuse
Call a POISON CENTER or doctor/physician if you feel unwell
Ingestion
IF SWALLOWED: Call a POISON CENTER or doctor/physician if you feel unwell
Rinse mouth
Fire
Fight fire with normal precautions from a reasonable distance
Evacuate area
Storage
Store locked up
Store in a well-ventilated place. Keep container tightly closed
Disposal
Dispose of contents/container to an approved waste disposal plant
Hazards not otherwise classified (HNOC)
Very toxic to aquatic life with long lasting effects
WARNING. Cancer and Reproductive Harm - https://www.p65warnings.ca.gov/.

3. Composition/Information on Ingredients

Component	CAS No	Weight %
Cadmium	7440-43-9	100

4. First-aid measures

General Advice Show this safety data sheet to the doctor in attendance. Immediate medical attention is required.

Eye Contact Rinse immediately with plenty of water, also under the eyelids, for at least 15 minutes. In the case of contact with eyes, rinse immediately with plenty of water and seek medical advice.

Skin Contact Wash off immediately with plenty of water for at least 15 minutes. Immediate medical attention is required.

Inhalation Remove to fresh air. If not breathing, give artificial respiration. Do not use mouth-to-mouth method if victim ingested or inhaled the substance; give artificial respiration with the aid of a pocket mask equipped with a one-way valve or other proper respiratory medical device. Immediate medical attention is required.

Ingestion Do NOT induce vomiting. Call a physician or poison control center immediately.

Most important symptoms and effects None reasonably foreseeable. . Kidney disorders: May cause harm to the unborn child: Blood disorders

Notes to Physician Treat symptomatically

5. Fire-fighting measures

Unsuitable Extinguishing Media No information available

Flash Point No information available
Method - No information available

Autoignition Temperature No information available

Explosion Limits
Upper No data available
Lower No data available
Sensitivity to Mechanical Impact No information available
Sensitivity to Static Discharge No information available

Specific Hazards Arising from the Chemical
Thermal decomposition can lead to release of irritating gases and vapors. Fine dust dispersed in air may ignite. Dust can form an explosive mixture with air. Pyrophoric properties of solids and liquids. Do not allow run-off from fire-fighting to enter drains or water courses.

Hazardous Combustion Products
Toxic fumes.
Protective Equipment and Precautions for Firefighters
As in any fire, wear self-contained breathing apparatus pressure-demand, MSHA/NIOSH (approved or equivalent) and full protective gear. Thermal decomposition can lead to release of irritating gases and vapors.

NFPA

Health	Flammability	Instability	Physical hazards
4	1	0	N/A

6. Accidental release measures

Personal Precautions Ensure adequate ventilation. Use personal protective equipment as required. Avoid dust

formation. Keep people away from and upwind of spill/leak. Evacuate personnel to safe areas.

Environmental Precautions Do not flush into surface water or sanitary sewer system. Do not allow material to contaminate ground water system. Prevent product from entering drains. Local authorities should be advised if significant spillages cannot be contained.

Methods for Containment and Clean Up Sweep up and shovel into suitable containers for disposal. Avoid dust formation.

7. Handling and storage

Handling Wear personal protective equipment/face protection. Do not get in eyes, on skin, or on clothing. Avoid dust formation. Use only under a chemical fume hood. Do not breathe (dust, vapor, mist, gas). Do not ingest. If swallowed then seek immediate medical assistance.

Storage. Keep containers tightly closed in a dry, cool and well-ventilated place. Store under an inert atmosphere. Incompatible Materials. Strong oxidizing agents. Strong acids. Sulfur oxides.

8. Exposure controls / personal protection

Exposure Guidelines

Component	ACGIH TLV	OSHA PEL	NIOSH IDLH	Mexico OEL (TWA)
Cadmium	TWA: 0.01 mg/m³ TWA: 0.002 mg/m³	Ceiling: 0.3 mg/m³ Ceiling: 0.6 mg/m³ (Vacated) STEL: 0.3 ppm TWA: 0.1 mg/m³ TWA: 0.2 mg/m³ TWA: 5 µg/m³	IDLH: 9 mg/m³	TWA: 0.01 mg/m³ TWA: 0.002 mg/m³

Legend

ACGIH - American Conference of Governmental Industrial Hygienists
OSHA - Occupational Safety and Health Administration
NIOSH IDLH: NIOSH - National Institute for Occupational Safety and Health

Engineering Measures Use only under a chemical fume hood. Ensure that eyewash stations and safety showers are close to the workstation location.

Personal Protective Equipment

Eye/face Protection Wear appropriate protective eyeglasses or chemical safety goggles as described by OSHA's eye and face protection regulations in 29 CFR 1910.133 or European Standard EN166.

Skin and body protection Wear appropriate protective gloves and clothing to prevent skin exposure.

Respiratory Protection Follow the OSHA respirator regulations found in 29 CFR 1910.134 or European Standard EN 149. Use a NIOSH/MSHA or European Standard EN 149 approved respirator if exposure limits are exceeded or if irritation or other symptoms are experienced.

Hygiene Measures When using do not eat, drink or smoke. Provide regular cleaning of equipment, work area and clothing. Avoid contact with skin, eyes or clothing. Wash hands before breaks and immediately after handling the product. Keep away from food, drink and animal feeding stuffs.

9. Physical and chemical properties

Physical State Solid

Appearance	Silver
Odor	Odorless
Odor Threshold	No information available
pH	No information available
Melting Point/Range	321 °C / 609.8 °F
Boiling Point/Range	765 °C / 1409 °F @ 760 mmHg
Flash Point	No information available
Evaporation Rate	Not applicable
Flammability (solid,gas)	No information available
Flammability or explosive limits	
Upper	No data available
Lower	No data available
Vapor Pressure	No information available
Vapor Density	Not applicable
Specific Gravity	8.64 @ 25°C
Solubility	Insoluble in water
Partition coefficient; n-octanol/water	No data available
Autoignition Temperature	No information available
Decomposition Temperature	No information available
Viscosity	Not applicable
Molecular Formula	Cd
Molecular Weight	112.40

10. Stability and reactivity

Reactive Hazard None known, based on information available

Stability Stable under recommended storage conditions. Moisture sensitive. Air sensitive.

Conditions to Avoid Incompatible products. Excess heat. Avoid dust formation. Exposure to air or moisture over prolonged periods.

Incompatible Materials Strong oxidizing agents, Strong acids, Sulfur oxides

Hazardous Decomposition Products Toxic fumes

Hazardous Polymerization Hazardous polymerization does not occur.

Hazardous Reactions None under normal processing.

11. Toxicological information

Acute Toxicity

Product Information

Component Information

Component	LD50 Oral	LD50 Dermal	LC50 Inhalation
Cadmium	LD50 = 2330 mg/kg (Rat)	Not listed	LC50 = 25 mg/m³ (Rat) 30 min

Toxicologically Synergistic Products No information available

Delayed and immediate effects as well as chronic effects from short and long-term exposure

Irritation No information available

Sensitization No information available

Carcinogenicity The table below indicates whether each agency has listed any ingredient as a carcinogen.

Component	CAS No	IARC	NTP	ACGIH	OSHA	Mexico
Cadmium	7440-43-9	Group 1	Known	A2	X	A2

IARC (International Agency for Research on Cancer)	*IARC (International Agency for Research on Cancer)* *Group 1 - Carcinogenic to Humans* *Group 2A - Probably Carcinogenic to Humans* *Group 2B - Possibly Carcinogenic to Humans*
NTP: (National Toxicity Program)	*NTP: (National Toxicity Program)* *Known - Known Carcinogen* *Reasonably Anticipated - Reasonably Anticipated to be a Human Carcinogen*
ACGIH: (American Conference of Governmental Industrial Hygienists)	*A1 - Known Human Carcinogen* *A2 - Suspected Human Carcinogen* *A3 - Animal Carcinogen* *ACGIH: (American Conference of Governmental Industrial Hygienists)*

Mutagenic Effects Possible risk of irreversible effects

Reproductive Effects Possible risk of impaired fertility. May cause harm to the unborn child.

Developmental Effects No information available.

Teratogenicity No information available.

STOT - single exposure Respiratory system
STOT - repeated exposure Kidney Blood

Aspiration hazard No information available

Symptoms / effects,both acute and delayed Kidney disorders: May cause harm to the unborn child: Blood disorders

Endocrine Disruptor Information No information available

Other Adverse Effects The toxicological properties have not been fully investigated.

12. Ecological information



Ecotoxicity

The product contains following substances which are hazardous for the environment. Very toxic to aquatic organisms, may cause long-term adverse effects in the aquatic environment.

Component	Freshwater Algae	Freshwater Fish	Microtox	Water Flea
Cadmium	Not listed	LC50: 0.0004 - 0.003 mg/L, 96h (Pimephales promelas) LC50: = 0.016 mg/L, 96h (Oryzias latipes) LC50: = 21.1 mg/L, 96h flow-through (Lepomis macrochirus) LC50: = 0.24 mg/L, 96h static (Cyprinus carpio) LC50: = 4.26 mg/L, 96h semi-static (Cyprinus carpio) LC50: = 0.002 mg/L, 96h	Not listed	EC50: = 0.0244 mg/L, 48h Static (Daphnia magna)

		(Cyprinus carpio) LC50: = 0.006 mg/L, 96h static (Oncorhynchus mykiss) LC50: = 0.003 mg/L, 96h flow-through (Oncorhynchus mykiss)		

Persistence and Degradability No information available

Bioaccumulation/ Accumulation No information available.

Mobility No information available.

13. Disposal considerations

Waste Disposal Methods Chemical waste generators must determine whether a discarded chemical is classified as a hazardous waste. Chemical waste generators must also consult local, regional, and national hazardous waste regulations to ensure complete and accurate classification.

14. Transport information

DOT

UN-No	UN2930
Proper Shipping Name	Toxic solid, flammable, organic, n.o.s.
Technical Name	Cadmium
Hazard Class	6.1
Subsidiary Hazard Class	4.1
Packing Group	I

TDG

UN-No	UN2930
Proper Shipping Name	Toxic solid, flammable, organic, n.o.s.
Hazard Class	6.1
Subsidiary Hazard Class	4.1
Packing Group	I

IATA

UN-No	UN2930
Proper Shipping Name	Toxic solid, flammable, organic, n.o.s.
Hazard Class	6.1
Subsidiary Hazard Class	4.1
Packing Group	I

IMDG/IMO

UN-No	UN2930
Proper Shipping Name	Toxic solid, flammable, organic, n.o.s.
Hazard Class	6.1
Subsidiary Hazard Class	4.1
Packing Group	I

15. Regulatory information

United States of America Inventory

Component	CAS No	TSCA	TSCA Inventory notification - Active-Inactive	TSCA - EPA Regulatory Flags
Cadmium	7440-43-9	X	ACTIVE	-

Legend:
TSCA US EPA (TSCA) - Toxic Substances Control Act, (40 CFR Part 710)
X - Listed
'-' - Not Listed

TSCA 12(b) - Notices of Export Not applicable

International Inventories

Canada (DSL/NDSL), Europe (EINECS/ELINCS/NLP), Philippines (PICCS), Japan (ENCS), Japan (ISHL), Australia (AICS), China (IECSC), Korea (KECL).

Component	CAS No	DSL	NDSL	EINECS	PICCS	ENCS	ISHL	AICS	IECSC	KECL
Cadmium	7440-43-9	X	-	231-152-8	X	X		X	X	KE-04397

KECL - NIER number or KE number (http://ncis.nier.go.kr/en/main.do)

U.S. Federal Regulations

SARA 313

Component	CAS No	Weight %	SARA 313 - Threshold Values %
Cadmium	7440-43-9	100	0.1

SARA 311/312 Hazard Categories See section 2 for more information

CWA (Clean Water Act)

Component	CWA - Hazardous Substances	CWA - Reportable Quantities	CWA - Toxic Pollutants	CWA - Priority Pollutants
Cadmium	-	-	X	X

Clean Air Act

OSHA - Occupational Safety and Health Administration Not applicable

Component	Specifically Regulated Chemicals	Highly Hazardous Chemicals
Cadmium	5 µg/m³ TWA 2.5 µg/m³ Action Level	-

CERCLA This material, as supplied, contains one or more substances regulated as a hazardous substance under the Comprehensive Environmental Response Compensation and Liability Act (CERCLA) (40 CFR 302)

Component	Hazardous Substances RQs	CERCLA EHS RQs
Cadmium	10 lb	-

California Proposition 65 This product contains the following Proposition 65 chemicals.

Component	CAS No	California Prop. 65	Prop 65 NSRL	Category
Cadmium	7440-43-9	Carcinogen Developmental Male Reproductive	0.05 µg/day	Developmental Carcinogen

U.S. State Right-to-Know Regulations

Component	Massachusetts	New Jersey	Pennsylvania	Illinois	Rhode Island
Cadmium	X	X	X	X	X

U.S. Department of Transportation

Reportable Quantity (RQ): Y
DOT Marine Pollutant N
DOT Severe Marine Pollutant N

U.S. Department of Homeland Security This product does not contain any DHS chemicals.

Other International Regulations

Mexico - Grade No information available

Authorisation/Restrictions according to EU REACH

Component	REACH (1907/2006) - Annex XIV - Substances Subject to Authorization	REACH (1907/2006) - Annex XVII - Restrictions on Certain Dangerous Substances	REACH Regulation (EC 1907/2006) article 59 - Candidate List of Substances of Very High Concern (SVHC)
Cadmium	-	Use restricted. See item 72. (see link for restriction details) Use restricted. See item 23. (see link for restriction details) Use restricted. See item 28. (see link for restriction details) Use restricted. See item 75. (see link for restriction details)	SVHC Candidate list - 231-152-8 - Carcinogenic, Article 57a;Specific target organ toxicity after repeated exposure, Article 57(f) - human health

After the sunset date the use of this substance requires either an authorization or can only be used for exempted uses, e.g. use in scientific research and development which includes routine analytics or use as intermediate.

https://echa.europa.eu/authorisation-list
https://echa.europa.eu/substances-restricted-under-reach
https://echa.europa.eu/candidate-list-table

Safety, health and environmental regulations/legislation specific for the substance or mixture

Component	CAS No	OECD HPV	Persistent Organic Pollutant	Ozone Depletion Potential	Restriction of Hazardous Substances (RoHS)
Cadmium	7440-43-9	Listed	Not applicable	Not applicable	0.01% (Max. Conc.)

Component	CAS No	Seveso III Directive (2012/18/EC) - Qualifying Quantities for Major Accident Notification	Seveso III Directive (2012/18/EC) - Qualifying Quantities for Safety Report Requirements	Rotterdam Convention (PIC)	Basel Convention (Hazardous Waste)
Cadmium	7440-43-9	Not applicable	Not applicable	Not applicable	Annex I - Y26

16. Other information

Prepared By Regulatory Affairs
Thermo Fisher Scientific
Email: EMSDS.RA@thermofisher.com

Revision Date 24-Dec-2021
Print Date 24-Dec-2021
Revision Summary This document has been updated to comply with the US OSHA HazCom 2012 Standard replacing the current legislation under 29 CFR 1910.1200 to align with the Globally Harmonized System of Classification and Labeling of Chemicals (GHS).

Disclaimer
The information provided in this Safety Data Sheet is correct to the best of our knowledge, information and belief at the date of its publication. The information given is designed only as a guidance for safe handling, use, processing, storage, transportation, disposal and release and is not to be considered a warranty or quality specification. The information relates only to the specific material designated and may not be valid for such material used in combination with any other materials or in any process, unless specified in the text

End of SDS

SECTION 1: Identification of the substance/mixture and of the company/ undertaking

1.1 Product identifier

Calcium metal, granular (102780)

Calcium metal, granular ; CAS No. : 7440-70-2 ; EC No. : 231-179-5 ; Index No. : 020-001-00-X ; REACH No. : 01-2119516038-45-XXXX

1.2 Relevant identified uses of the substance or mixture and uses advised against

Relevant identified uses

For manufacturing, processing, laboratory or repacking use only.

Uses advised against

Uses other than those recommended.

1.3 Details of the supplier of the safety data sheet

Supplier (manufacturer/importer/only representative/downstream user/distributor)

DC Fine Chemicals Ltd

Street : 88 Hill Top

Postal code/City : NW11 6DY London United Kingdom

Telephone : +44 (0)20 7586 6800

Telefax : +44 (0)20 7504 1701

Information contact : info@dcfinechemicals.com

1.4 Emergency telephone number

(Only available during office hours; Monday-Friday; 08:00-18:00)

SECTION 2: Hazards identification

2.1 Classification of the substance or mixture

Classification according to Regulation (EC) No 1272/2008 [CLP]

Water-react. 2 ; H261 - Substances or mixtures which, in contact with water, emit flammable gases : Category 2 ; In contact with water releases flammable gases.

2.2 Label elements

Labelling according to Regulation (EC) No. 1272/2008 [CLP]

Hazard pictograms



Flame (GHS02)

Signal word

DANGER

Hazard statements

H261 In contact with water releases flammable gases.

Precautionary statements

P223	Do not allow contact with water.
P231+P232	Handle and store contents under inert gas. Protect from moisture.
P280	Wear protective gloves/protective clothing/eye protection/face protection.
P302+P335+P334	IF ON SKIN: Brush off loose particles from skin. Immerse in cool water [or wrap in wet bandages].
P370+P378	In case of fire: Use ... to extinguish.
P402+P404	Store in a dry place. Store in a closed container.

2.3 Other hazards

None

SECTION 3: Composition/information on ingredients

3.1 Substances

Substance name : Calcium metal, granular

Index No. : 020-001-00-X

EC No. : 231-179-5

REACH No. : 01-2119516038-45-XXXX

CAS No. : 7440-70-2

Purity : 100 % [mass]

SECTION 4: First aid measures

4.1 Description of first aid measures

Remove contaminated, saturated clothing immediately. After contact with skin, wash immediately with plenty of water and soap. After contact with the eyes, rinse with water with the eyelids open for a sufficient length of time, then consult an ophthalmologist immediately. Remove victim out of the danger area. When in doubt or if symptoms are observed, get medical advice.

4.2 Most important symptoms and effects, both acute and delayed

Do NOT induce vomiting. Never give anything by mouth to an unconscious person or a person with cramps.

4.3 Indication of any immediate medical attention and special treatment needed

In case of doubt or when symptoms of feeling unwell persist, get medical attention. Never administer anything orally to persons who are unconscious.

SECTION 5: Firefighting measures

The product is Highly inflammable, it can cause or considerably worsen a fire, the necessary prevention measures should be taken and risks avoided. In case of fire, the following measures are recommended:

5.1 Extinguishing media

Suitable extinguishing media

Extinguisher powder or CO2. In case of more serious fires, also alcohol-resistant foam and water spray.

Unsuitable extinguishing media

Do not use a direct stream of water to extinguish. In the presence of electrical voltage, you cannot use water or foam as extinguishing media.

5.2 Special hazards arising from the substance or mixture

In case of fire may be liberated: Pyrolysis products, toxic

5.3 Advice for firefighters

Wear a self-contained breathing apparatus and chemical protective clothing. Do not inhale explosion and combustion gases. In case of fire: Wear self-contained breathing apparatus.

SECTION 6: Accidental release measures

6.1 Personal precautions, protective equipment and emergency procedures

For non-emergency personnel

Wear a self-contained breathing apparatus and chemical protective clothing.

For emergency responders

Eliminate possible ignition points and ventilate the area. No smoking. Avoid breathing fumes.For exposure control and individual protection measures, see section 8.

6.2 Environmental precautions

Do not allow to enter into surface water or drains. In case of gas escape or of entry into waterways, soil or drains, inform the responsible authorities. Retain contaminated washing water and dispose it.

6.3 Methods and material for containment and cleaning up

For containment

Collect in closed and suitable containers for disposal.

For cleaning up

The contaminated area should be cleaned up immediately with: Water Soak up inert absorbent and dispose as waste requiring special attention. Absorb with liquid-binding material (sand, diatomaceous earth, acid- or universal binding agents). Avoid dust formation. Clear spills immediately.

6.4 Reference to other sections

Reference to other sections Disposal: see section 13 Personal protection equipment: see section 8

SECTION 7: Handling and storage

7.1 Precautions for safe handling

In case of insufficient ventilation and/or through use, explosive/highly flammable mixtures may develop.

Protective measures



When using do not eat, drink, smoke, sniff. Wear personal protection equipment (refer to section 8).

Measures to prevent aerosol and dust generation

Vapours can form explosive mixtures with air. Take precautionary measures against static discharges. Use only in well-ventilated areas. Do not breathe gas/fumes/vapour/spray. Do not breathe dust.

Environmental precautions

Use appropriate container to avoid environmental contamination.

Specific requirements or handling rules

Handle and open container with care.

Advices on general occupational hygiene

Take care for general good hygiene and housekeeping.

7.2 Conditions for safe storage, including any incompatibilities

Technical measures and storage conditions

Storage temperature :
Keep in a cool, well-ventilated place. Keep away from sources of ignition - No smoking.

Requirements for storage rooms and vessels

Only use containers specifically approved for the substance/product.

Hints on joint storage

Store at least 3 metres apart from: Chemicals/products that react together readily Protect against Humidity. UV-radiation/sunlight

Storage class (TRGS 510) : 4.3

7.3 Specific end use(s)

None

SECTION 8: Exposure controls/personal protection

8.1 Control parameters

None

8.2 Exposure controls

Only wear fitting, comfortable and clean protective clothing.

Personal protection equipment

Eye/face protection



Eye glasses with side protection Face protection shield EN 166

Skin protection

Hand protection



Tested protective gloves must be worn EN ISO 374

Body protection

For the protection against direct skin contact, body protective clothing is essential (in addition to the usual working clothes). Wear anti-static footwear and clothing Wash contaminated clothing prior to re-use.



Respiratory protection

If technical exhaust or ventilation measures are not possible or insufficient, respiratory protection must be worn.



Particle filter device (EN 143).

Thermal hazards

No special measures are necessary.

Environmental exposure controls

No information available.

SECTION 9: Physical and chemical properties

9.1 Information on basic physical and chemical properties

Appearance : solid

Safety characteristics

Melting point/freezing point :	(1013 hPa)	850	°C	
Initial boiling point and boiling range :	(1013 hPa)	1175	°C	
Decomposition temperature :	(1013 hPa)	No data available		
Flash point :		No data available		
Auto-ignition temperature :		No data available		
Lower explosion limit :		No data available		
Upper explosion limit :		No data available		
Vapour pressure :	(50 °C)	No data available		
Density :	(20 °C)	No data available		
Solvent separation test :	(20 °C)	not applicable		
Water solubility :	(20 °C)	4	g/l	
Fat solubility :	(20 °C)	No data available.		
pH :		14		
log P O/W :		No data available		
Flow time :	(20 °C)	No data available		DIN-cup 4 mm
Viscosity :	(20 °C)	No data available		
Relative vapour density :	(20 °C)	No data available		
Evaporation rate :		No data available		
Flammable solids :	No data available.			
Flammable gases :	No data available.			
Explosive properties :	No data available.			

9.2 Other information

None

SECTION 10: Stability and reactivity

10.1 Reactivity

The product does not present hazards by their reactivity.

10.2 Chemical stability

The product is chemically stable under recommended conditions of storage, use and temperature. Safe handling: see

section 7

10.3 Possibility of hazardous reactions
The product does not present possibility of hazardous reactions.

10.4 Conditions to avoid
Avoid any improper handling.

10.5 Incompatible materials
Keep away from oxidising agents and from highly alkaline or acidic materials in order to prevent exothermic reactions.

10.6 Hazardous decomposition products
In case of fire may be liberated: Hazardous combustion products

SECTION 11: Toxicological information

11.1 Information on hazard classes as defined in Regulation (EC) No 1272/2008
Acute toxicity
No information available.
Corrosion
Skin corrosion/irritation
No information available.
Serious eye damage/eye irritation
No information available.
Respiratory or skin sensitisation
No information available.
CMR effects (carcinogenicity, mutagenicity and toxicity for reproduction)
Carcinogenicity
No information available.
Germ cell mutagenicity
No information available.
Reproductive toxicity
No information available.
STOT-single exposure
No information available.
STOT-repeated exposure
No information available.
Aspiration hazard
No information available.

11.2 Information on other hazards
No information available.

SECTION 12: Ecological information

12.1 Toxicity
Aquatic toxicity
Acute (short-term) toxicity to crustacea

Parameter :	EC50 (Calcium metal, granular ; CAS No. : 7440-70-2)
Species :	Daphnia magna (Big water flea)
Evaluation parameter :	Acute (short-term) toxicity to crustacea
Effective dose :	330 mg/l
Exposure time :	48 hour(s)

12.2 Persistence and degradability
No information available.

12.3 Bioaccumulative potential
No information available.

12.4 Mobility in soil
No information available.

12.5 Results of PBT and vPvB assessment
This substance does not meet the PBT/vPvB criteria of REACH, Annex XIII.

12.6 Endocrine disrupting properties
No information available.

12.7 Other adverse effects
No information available.

SECTION 13: Disposal considerations

13.1 Waste treatment methods
The allocation of waste identity numbers/waste descriptions must be carried out according to the EEC, specific to the industry and process. Do not dump into sewers or waterways. Waste and empty containers must be handled and eliminated according to current, local/national legislation. Follow the provisions of Directive 2008/98/EC regarding waste management.

Product/Packaging disposal
Waste treatment options
Recycle according to official regulations. Evidence for disposal must be provided.

Appropriate disposal / Product
Dispose of waste according to applicable legislation.

Appropriate disposal / Package
Non-contaminated packages must be recycled or disposed of. Contaminated packages must be completely emptied and can be re-used following proper cleaning. Packing which cannot be properly cleaned must be disposed of. Handle contaminated packages in the same way as the substance itself.

SECTION 14: Transport information

14.1 UN number
UN 1401

14.2 UN proper shipping name
Land transport (ADR/RID)
CALCIUM

Sea transport (IMDG)
CALCIUM

Air transport (ICAO-TI / IATA-DGR)

CALCIUM

14.3 Transport hazard class(es)

Land transport (ADR/RID)

Class(es) :	4.3
Classification code :	W2
Hazard identification number (Kemler No.) :	423
Tunnel restriction code :	D/E
Special provisions :	LQ 500 g · E 2
Hazard label(s) :	4.3

Sea transport (IMDG)

Class(es) :	4.3
EmS-No. :	F-G / S-O
Special provisions :	LQ 500 g · E 2 · IMDG-Code segregation group 26 · IMDG-Code segregation group 35
Hazard label(s) :	4.3

Air transport (ICAO-TI / IATA-DGR)

Class(es) :	4.3
Special provisions :	E 2
Hazard label(s) :	4.3

14.4 Packing group

II

14.5 Environmental hazards

Land transport (ADR/RID) : No
Sea transport (IMDG) : No
Air transport (ICAO-TI / IATA-DGR) : No

14.6 Special precautions for user

Hazard label(s) :



14.7 Transport in bulk according to Annex II of Marpol and the IBC Code

No information available.

SECTION 15: Regulatory information

15.1 Safety, health and environmental regulations/legislation specific for the substance or mixture

Safety Data Sheet according to Regulation (EC) No. 1907/2006 (REACH) Classification according to Regulation (EC) No 1272/2008 [CLP] according to Regulation (EU) No. 2020/878

EU legislation

Authorisations and/or restrictions on use

Restrictions on use

Regulation (EC) No. 1907/2006 (REACH), Annex XVII (restrictions)

Use restriction according to REACH annex XVII, no. : 3

National regulations
Water hazard class
Class : nwg (Non-hazardous to water)

15.2 Chemical Safety Assessment
No information available.

SECTION 16: Other information

16.1 Indication of changes
None

16.2 Abbreviations and acronyms

ADR:	European Agreement concerning the International Carriage of Dangerous Goods by Road
ASTM:	ASTM International, originally known as American Society for Testing and Materials (ASTM)
EINECS:	European Inventory of Existing Commercial Chemical Substances
EC50:	Effective Concentration 50 (Maximum Effective Concentration for 0% of Individuals)
LC50:	Lethal Concentration 50 (Lethal Concentration for 50% of Individuals)
IC50:	Inhibitor Concentration 50 (Inhibitory Concentration for 50% of Individuals)
NOEL:	No Observed Effect Level (Maximum dose without effect)
DNEL:	Derived No Effect Level (Derived no-effect dose)
DMEL:	Derived Minimum Effect Level (Derived dose of minimal effect)
CLP:	Classification, Labelling and Packaging
CSR:	Chemical Safety Report
LD50:	Lethal Dose 50 (Lethal Dose for 50% of Individuals)
IATA:	International Air Transport Association
ICAO:	International Civil Aviation Organization
Codice IMDG:	International Maritime Dangerous Goods code
PBT:	Persistent, bioaccumulative and toxic
RID:	Regulations concerning the international rail transport of Dangerous Goods
STEL:	Short term exposure limit
TLV:	Threshold limit value
TWA:	Time Weighted Average
UE:	European Union
vPvB:	Very persistent very bioaccumulative
N.D.:	Uvailable
N.A.:	Not applicable
VwVwS.:	Text of Administrative Regulation on the Classification of Substances hazardous to waters into Water Hazard Classes

16.3 Key literature references and sources for data
None

16.4 Relevant H- and EUH-phrases (Number and full text)
H261 In contact with water releases flammable gases.

16.5 Training advice
None

16.6 Additional information
None

The above information describes exclusively the safety requirements of the product and is based on our present-day knowledge. The information is intended to give you advice about the safe handling of the product named in this safety data sheet, for storage, processing, transport and disposal. The information cannot be transferred to other products. In the case of mixing the product with other products or in the case of processing, the information on this safety data sheet is not necessarily valid for the new made-up material.

SAFETY DATA SHEET

Version 3.8
Revision Date 10/12/2015
Print Date 01/29/2016

1. PRODUCT AND COMPANY IDENTIFICATION

1.1 Product identifiers

Product name : Carbazole

Product Number : C5132
Brand : Sigma

CAS-No. : 86-74-8

1.2 Relevant identified uses of the substance or mixture and uses advised against

Identified uses : Laboratory chemicals, Synthesis of substances

1.3 Details of the supplier of the safety data sheet

Company : Sigma-Aldrich
3050 Spruce Street
SAINT LOUIS MO 63103
USA

Telephone : +1 800-325-5832
Fax : +1 800-325-5052

1.4 Emergency telephone number

Emergency Phone # : (314) 776-6555

2. HAZARDS IDENTIFICATION

2.1 Classification of the substance or mixture

GHS Classification in accordance with 29 CFR 1910 (OSHA HCS)
Carcinogenicity (Category 2), H351
Chronic aquatic toxicity (Category 4), H413

For the full text of the H-Statements mentioned in this Section, see Section 16.

2.2 GHS Label elements, including precautionary statements

Pictogram



Signal word Warning

Hazard statement(s)
H351 Suspected of causing cancer.
H413 May cause long lasting harmful effects to aquatic life.

Precautionary statement(s)
P201 Obtain special instructions before use.
P202 Do not handle until all safety precautions have been read and understood.
P273 Avoid release to the environment.
P281 Use personal protective equipment as required.
P308 + P313 IF exposed or concerned: Get medical advice/ attention.
P405 Store locked up.
P501 Dispose of contents/ container to an approved waste disposal plant.

2.3 Hazards not otherwise classified (HNOC) or not covered by GHS - none

3. COMPOSITION/INFORMATION ON INGREDIENTS

3.1 Substances

Formula	:	$C_{12}H_9N$
Molecular weight	:	167.21 g/mol
CAS-No.	:	86-74-8
EC-No.	:	201-696-0

Hazardous components

Component	Classification	Concentration
Carbazole		
	Carc. 2; Aquatic Chronic 4; H351, H413	<= 100 %

For the full text of the H-Statements mentioned in this Section, see Section 16.

4. FIRST AID MEASURES

4.1 Description of first aid measures

General advice
Consult a physician. Show this safety data sheet to the doctor in attendance.Move out of dangerous area.

If inhaled
If breathed in, move person into fresh air. If not breathing, give artificial respiration. Consult a physician.

In case of skin contact
Wash off with soap and plenty of water. Consult a physician.

In case of eye contact
Flush eyes with water as a precaution.

If swallowed
Never give anything by mouth to an unconscious person. Rinse mouth with water. Consult a physician.

4.2 Most important symptoms and effects, both acute and delayed
The most important known symptoms and effects are described in the labelling (see section 2.2) and/or in section 11

4.3 Indication of any immediate medical attention and special treatment needed
No data available

5. FIREFIGHTING MEASURES

5.1 Extinguishing media

Suitable extinguishing media
Use water spray, alcohol-resistant foam, dry chemical or carbon dioxide.

5.2 Special hazards arising from the substance or mixture
Carbon oxides, Nitrogen oxides (NOx)

5.3 Advice for firefighters
Wear self-contained breathing apparatus for firefighting if necessary.

5.4 Further information
No data available

6. ACCIDENTAL RELEASE MEASURES

6.1 Personal precautions, protective equipment and emergency procedures
Use personal protective equipment. Avoid dust formation. Avoid breathing vapours, mist or gas. Ensure adequate ventilation. Evacuate personnel to safe areas. Avoid breathing dust.
For personal protection see section 8.

6.2 Environmental precautions
Prevent further leakage or spillage if safe to do so. Do not let product enter drains. Discharge into the environment must be avoided.

6.3 Methods and materials for containment and cleaning up
Pick up and arrange disposal without creating dust. Sweep up and shovel. Keep in suitable, closed containers for disposal.

6.4 Reference to other sections
For disposal see section 13.

7. HANDLING AND STORAGE

7.1 Precautions for safe handling
Avoid contact with skin and eyes. Avoid formation of dust and aerosols.Further processing of solid materials may result in the formation of combustible dusts. The potential for combustible dust formation should be taken into consideration before additional processing occurs.
Provide appropriate exhaust ventilation at places where dust is formed.
For precautions see section 2.2.

7.2 Conditions for safe storage, including any incompatibilities
Keep container tightly closed in a dry and well-ventilated place.

Keep in a dry place.

7.3 Specific end use(s)
Apart from the uses mentioned in section 1.2 no other specific uses are stipulated

8. EXPOSURE CONTROLS/PERSONAL PROTECTION

8.1 Control parameters

Components with workplace control parameters
Contains no substances with occupational exposure limit values.

8.2 Exposure controls

Appropriate engineering controls
Handle in accordance with good industrial hygiene and safety practice. Wash hands before breaks and at the end of workday.

Personal protective equipment

Eye/face protection
Safety glasses with side-shields conforming to EN166 Use equipment for eye protection tested and approved under appropriate government standards such as NIOSH (US) or EN 166(EU).

Skin protection
Handle with gloves. Gloves must be inspected prior to use. Use proper glove removal technique (without touching glove's outer surface) to avoid skin contact with this product. Dispose of contaminated gloves after use in accordance with applicable laws and good laboratory practices. Wash and dry hands.

Full contact
Material: Nitrile rubber
Minimum layer thickness: 0.11 mm
Break through time: 480 min
Material tested:Dermatril® (KCL 740 / Aldrich Z677272, Size M)

Splash contact
Material: Nitrile rubber
Minimum layer thickness: 0.11 mm
Break through time: 480 min
Material tested:Dermatril® (KCL 740 / Aldrich Z677272, Size M)

data source: KCL GmbH, D-36124 Eichenzell, phone +49 (0)6659 87300, e-mail sales@kcl.de, test method: EN374
If used in solution, or mixed with other substances, and under conditions which differ from EN 374, contact the supplier of the CE approved gloves. This recommendation is advisory only and must be evaluated by an industrial hygienist and safety officer familiar with the specific situation of anticipated use by our customers. It should not be construed as offering an approval for any specific use scenario.

Body Protection
Impervious clothing, The type of protective equipment must be selected according to the concentration and amount of the dangerous substance at the specific workplace.

Respiratory protection
Where risk assessment shows air-purifying respirators are appropriate use a full-face particle respirator type N100 (US) or type P3 (EN 143) respirator cartridges as a backup to engineering controls. If the respirator is the sole means of protection, use a full-face supplied air respirator. Use respirators and components tested and approved under appropriate government standards such as NIOSH (US) or CEN (EU).

Control of environmental exposure
Prevent further leakage or spillage if safe to do so. Do not let product enter drains. Discharge into the environment must be avoided.

9. PHYSICAL AND CHEMICAL PROPERTIES

9.1 Information on basic physical and chemical properties

a)	Appearance	Form: powder Colour: beige
b)	Odour	No data available
c)	Odour Threshold	No data available
d)	pH	No data available
e)	Melting point/freezing point	Melting point/range: 243 - 246 °C (469 - 475 °F)
f)	Initial boiling point and boiling range	355 °C (671 °F)
g)	Flash point	220.0 °C (428.0 °F) - closed cup
h)	Evaporation rate	No data available
i)	Flammability (solid, gas)	The product is not flammable.
j)	Upper/lower flammability or explosive limits	No data available
k)	Vapour pressure	533 hPa (400 mmHg) at 323 °C (613 °F)
l)	Vapour density	No data available
m)	Relative density	1.1 g/cm3 at 18 °C (64 °F)
n)	Water solubility	0.00091 g/l at 25 °C (77 °F)
o)	Partition coefficient: n-octanol/water	log Pow: 3.72 at 22 °C (72 °F)
p)	Auto-ignition temperature	> 600 °C (> 1,112 °F) at 1,013 hPa (760 mmHg)
q)	Decomposition temperature	No data available
r)	Viscosity	No data available
s)	Explosive properties	No data available
t)	Oxidizing properties	No data available

9.2 Other safety information
No data available

10. STABILITY AND REACTIVITY

10.1 Reactivity
No data available

10.2 Chemical stability
Stable under recommended storage conditions.

10.3 Possibility of hazardous reactions
No data available

10.4 Conditions to avoid
No data available

10.5 Incompatible materials
Oxidizing agents

10.6 Hazardous decomposition products
Other decomposition products - No data available
In the event of fire: see section 5

11. TOXICOLOGICAL INFORMATION

11.1 Information on toxicological effects

Acute toxicity
LD0 Oral - Rat - > 16,000 mg/kg
(OECD Test Guideline 401)

Inhalation: No data available

Dermal: No data available

No data available

Skin corrosion/irritation
Skin - Rabbit
Result: No skin irritation
(OECD Test Guideline 404)

Serious eye damage/eye irritation
Eyes - Rabbit
Result: No eye irritation

Respiratory or skin sensitisation
No data available

Germ cell mutagenicity
No data available

Carcinogenicity

Carcinogenicity - Mouse - male and female - Oral
hepatocellular carcinoma

Limited evidence of carcinogenicity in animal studies

IARC:	2B - Group 2B: Possibly carcinogenic to humans (Carbazole)
ACGIH:	No component of this product present at levels greater than or equal to 0.1% is identified as a carcinogen or potential carcinogen by ACGIH.
NTP:	No component of this product present at levels greater than or equal to 0.1% is identified as a known or anticipated carcinogen by NTP.
OSHA:	No component of this product present at levels greater than or equal to 0.1% is identified as a carcinogen or potential carcinogen by OSHA.

Reproductive toxicity
No data available

No data available

Specific target organ toxicity - single exposure
No data available

Specific target organ toxicity - repeated exposure
No data available

Aspiration hazard
No data available

Additional Information
RTECS: FE3150000

To the best of our knowledge, the chemical, physical, and toxicological properties have not been thoroughly investigated.

12. ECOLOGICAL INFORMATION

12.1 Toxicity

Toxicity to fish	LC50 - Pimephales promelas (fathead minnow) - > 0.93 mg/l - 96.0 h Remarks: No toxicity at the limit of solubility
Toxicity to daphnia and other aquatic invertebrates	EC50 - Daphnia magna (Water flea) - 2.30 - 4.90 mg/l - 48 h Remarks: No toxicity at the limit of solubility
Toxicity to algae	Growth inhibition NOEC - Scenedesmus acuminatus - > 0.4 mg/l - 96 h Remarks: No toxicity at the limit of solubility

12.2 Persistence and degradability
No data available

12.3 Bioaccumulative potential

Bioaccumulation	Cyprinus carpio (Carp) - 42 d - 0.05 mg/l Bioconcentration factor (BCF): 241 Cyprinus carpio (Carp) - 42 d - 0.005 mg/l Bioconcentration factor (BCF): 200

12.4 Mobility in soil
No data available

12.5 Results of PBT and vPvB assessment
PBT/vPvB assessment not available as chemical safety assessment not required/not conducted

12.6 Other adverse effects
An environmental hazard cannot be excluded in the event of unprofessional handling or disposal.

13. DISPOSAL CONSIDERATIONS

13.1 Waste treatment methods

Product
Contact a licensed professional waste disposal service to dispose of this material. Dissolve or mix the material with a combustible solvent and burn in a chemical incinerator equipped with an afterburner and scrubber. Offer surplus and non-recyclable solutions to a licensed disposal company.

Contaminated packaging
Dispose of as unused product.

14. TRANSPORT INFORMATION

DOT (US)
Not dangerous goods

IMDG
UN number: 3077 Class: 9 Packing group: III EMS-No: F-A, S-F
Proper shipping name: ENVIRONMENTALLY HAZARDOUS SUBSTANCE, SOLID, N.O.S. (Carbazole)
Marine pollutant:yes
IATA
UN number: 3077 Class: 9 Packing group: III
Proper shipping name: Environmentally hazardous substance, solid, n.o.s. (Carbazole)

Further information
EHS-Mark required (ADR 2.2.9.1.10, IMDG code 2.10.3) for single packagings and combination packagings containing inner packagings with Dangerous Goods > 5L for liquids or > 5kg for solids.

15. REGULATORY INFORMATION

SARA 302 Components
No chemicals in this material are subject to the reporting requirements of SARA Title III, Section 302.

SARA 313 Components
This material does not contain any chemical components with known CAS numbers that exceed the threshold (De Minimis) reporting levels established by SARA Title III, Section 313.

SARA 311/312 Hazards
Chronic Health Hazard

Massachusetts Right To Know Components
No components are subject to the Massachusetts Right to Know Act.

Pennsylvania Right To Know Components

	CAS-No.	Revision Date
Carbazole	86-74-8	2009-07-17

New Jersey Right To Know Components

	CAS-No.	Revision Date
Carbazole	86-74-8	2009-07-17

California Prop. 65 Components

WARNING! This product contains a chemical known to the State of California to cause cancer.	CAS-No.	Revision Date
Carbazole	86-74-8	2007-09-28

16. OTHER INFORMATION

Full text of H-Statements referred to under sections 2 and 3.

Aquatic Chronic	Chronic aquatic toxicity
Carc.	Carcinogenicity
H351	Suspected of causing cancer.
H413	May cause long lasting harmful effects to aquatic life.

HMIS Rating

Health hazard:	2
Chronic Health Hazard:	
Flammability:	0
Physical Hazard	0

NFPA Rating

Health hazard:	2
Fire Hazard:	0
Reactivity Hazard:	0
Health hazard:	2
Fire Hazard:	1
Reactivity Hazard:	0

Further information

Copyright 2015 Sigma-Aldrich Co. LLC. License granted to make unlimited paper copies for internal use only.
The above information is believed to be correct but does not purport to be all inclusive and shall be used only as a guide. The information in this document is based on the present state of our knowledge and is applicable to the product with regard to appropriate safety precautions. It does not represent any guarantee of the properties of the product. Sigma-Aldrich Corporation and its Affiliates shall not be held liable for any damage resulting from handling or from contact with the above product. See www.sigma-aldrich.com and/or the reverse side of invoice or packing slip for additional terms and conditions of sale.

Preparation Information

Sigma-Aldrich Corporation
Product Safety – Americas Region
1-800-521-8956

Version: 3.8 Revision Date: 10/12/2015 Print Date: 01/29/2016

SAFETY DATA SHEET

Version 5.6
Revision Date 12/10/2015
Print Date 02/09/2016

1. PRODUCT AND COMPANY IDENTIFICATION

1.1 Product identifiers

Product name : Carbon disulfide

Product Number : 180173
Brand : Sigma-Aldrich
Index-No. : 006-003-00-3

CAS-No. : 75-15-0

1.2 Relevant identified uses of the substance or mixture and uses advised against

Identified uses : Laboratory chemicals, Synthesis of substances

1.3 Details of the supplier of the safety data sheet

Company : Sigma-Aldrich
3050 Spruce Street
SAINT LOUIS MO 63103
USA

Telephone : +1 800-325-5832
Fax : +1 800-325-5052

1.4 Emergency telephone number

Emergency Phone # : (314) 776-6555

2. HAZARDS IDENTIFICATION

2.1 Classification of the substance or mixture

GHS Classification in accordance with 29 CFR 1910 (OSHA HCS)
Flammable liquids (Category 2), H225
Acute toxicity, Inhalation (Category 4), H332
Skin irritation (Category 2), H315
Eye irritation (Category 2A), H319
Reproductive toxicity (Category 2), H361
Specific target organ toxicity - repeated exposure, Inhalation (Category 1), H372
Acute aquatic toxicity (Category 2), H401

For the full text of the H-Statements mentioned in this Section, see Section 16.

2.2 GHS Label elements, including precautionary statements

Pictogram



Signal word Danger

Hazard statement(s)

H225	Highly flammable liquid and vapour.
H315	Causes skin irritation.
H319	Causes serious eye irritation.
H332	Harmful if inhaled.
H361	Suspected of damaging fertility or the unborn child.
H372	Causes damage to organs through prolonged or repeated exposure if inhaled.

H401	Toxic to aquatic life.

Precautionary statement(s)

P201	Obtain special instructions before use.
P202	Do not handle until all safety precautions have been read and understood.
P210	Keep away from heat/sparks/open flames/hot surfaces. No smoking.
P233	Keep container tightly closed.
P240	Ground/bond container and receiving equipment.
P241	Use explosion-proof electrical/ ventilating/ lighting/ equipment.
P242	Use only non-sparking tools.
P243	Take precautionary measures against static discharge.
P260	Do not breathe dust/ fume/ gas/ mist/ vapours/ spray.
P264	Wash skin thoroughly after handling.
P270	Do not eat, drink or smoke when using this product.
P271	Use only outdoors or in a well-ventilated area.
P273	Avoid release to the environment.
P280	Wear protective gloves/ protective clothing/ eye protection/ face protection.
P303 + P361 + P353	IF ON SKIN (or hair): Take off immediately all contaminated clothing. Rinse skin with water/shower.
P304 + P340 + P312	IF INHALED: Remove person to fresh air and keep comfortable for breathing. Call a POISON CENTER or doctor/ physician if you feel unwell.
P305 + P351 + P338	IF IN EYES: Rinse cautiously with water for several minutes. Remove contact lenses, if present and easy to do. Continue rinsing.
P308 + P313	IF exposed or concerned: Get medical advice/ attention.
P332 + P313	If skin irritation occurs: Get medical advice/ attention.
P337 + P313	If eye irritation persists: Get medical advice/ attention.
P362	Take off contaminated clothing and wash before reuse.
P370 + P378	In case of fire: Use dry sand, dry chemical or alcohol-resistant foam to extinguish.
P403 + P235	Store in a well-ventilated place. Keep cool.
P405	Store locked up.
P501	Dispose of contents/ container to an approved waste disposal plant.

2.3 Hazards not otherwise classified (HNOC) or not covered by GHS - none

3. COMPOSITION/INFORMATION ON INGREDIENTS

3.1 Substances

Formula	:	CS_2
Molecular weight	:	76.14 g/mol
CAS-No.	:	75-15-0
EC-No.	:	200-843-6
Index-No.	:	006-003-00-3

Hazardous components

Component	Classification	Concentration
Carbon disulphide		
	Flam. Liq. 2; Acute Tox. 4; Skin Irrit. 2; Eye Irrit. 2A; Repr. 2; STOT RE 1; Aquatic Acute 2; H225, H315, H319, H332, H361, H372, H401	<= 100 %

For the full text of the H-Statements mentioned in this Section, see Section 16.

4. FIRST AID MEASURES

4.1 Description of first aid measures

General advice
Consult a physician. Show this safety data sheet to the doctor in attendance.Move out of dangerous area.

If inhaled
If breathed in, move person into fresh air. If not breathing, give artificial respiration. Consult a physician.

In case of skin contact
Wash off with soap and plenty of water. Take victim immediately to hospital. Consult a physician.

In case of eye contact
Rinse thoroughly with plenty of water for at least 15 minutes and consult a physician.

If swallowed
Do NOT induce vomiting. Never give anything by mouth to an unconscious person. Rinse mouth with water. Consult a physician.

4.2 Most important symptoms and effects, both acute and delayed
The most important known symptoms and effects are described in the labelling (see section 2.2) and/or in section 11

4.3 Indication of any immediate medical attention and special treatment needed
No data available

5. FIREFIGHTING MEASURES

5.1 Extinguishing media

Suitable extinguishing media
Use water spray, alcohol-resistant foam, dry chemical or carbon dioxide.

5.2 Special hazards arising from the substance or mixture
Carbon oxides, Sulphur oxides
Flash back possible over considerable distance., Container explosion may occur under fire conditions., Vapours may form explosive mixture with air., May explode when heated.

5.3 Advice for firefighters
Wear self-contained breathing apparatus for firefighting if necessary.

5.4 Further information
Use water spray to cool unopened containers.

6. ACCIDENTAL RELEASE MEASURES

6.1 Personal precautions, protective equipment and emergency procedures
Use personal protective equipment. Avoid breathing vapours, mist or gas. Ensure adequate ventilation. Remove all sources of ignition. Evacuate personnel to safe areas. Beware of vapours accumulating to form explosive concentrations. Vapours can accumulate in low areas.
For personal protection see section 8.

6.2 Environmental precautions
Prevent further leakage or spillage if safe to do so. Do not let product enter drains. Discharge into the environment must be avoided.

6.3 Methods and materials for containment and cleaning up
Contain spillage, and then collect with an electrically protected vacuum cleaner or by wet-brushing and place in container for disposal according to local regulations (see section 13).

6.4 Reference to other sections
For disposal see section 13.

7. HANDLING AND STORAGE

7.1 Precautions for safe handling
Avoid contact with skin and eyes. Avoid inhalation of vapour or mist.

Use explosion-proof equipment.Keep away from sources of ignition - No smoking.Take measures to prevent the build up of electrostatic charge.
For precautions see section 2.2.

7.2 Conditions for safe storage, including any incompatibilities

Keep container tightly closed in a dry and well-ventilated place. Containers which are opened must be carefully resealed and kept upright to prevent leakage.

Refrigerate before opening.
Storage class (TRGS 510): Flammable liquids

7.3 Specific end use(s)

Apart from the uses mentioned in section 1.2 no other specific uses are stipulated

8. EXPOSURE CONTROLS/PERSONAL PROTECTION

8.1 Control parameters

Components with workplace control parameters

Component	CAS-No.	Value	Control parameters	Basis
Carbon disulphide	75-15-0	TWA	1 ppm	USA. ACGIH Threshold Limit Values (TLV)
	Remarks	Peripheral Nervous System impairment Substances for which there is a Biological Exposure Index or Indices (see BEI® section) Not classifiable as a human carcinogen Danger of cutaneous absorption		
		TWA	1.000000 ppm	USA. ACGIH Threshold Limit Values (TLV)
		Peripheral Nervous System impairment Substances for which there is a Biological Exposure Index or Indices (see BEI® section) Not classifiable as a human carcinogen Danger of cutaneous absorption		
		TWA	20.000000 ppm	USA. Occupational Exposure Limits (OSHA) - Table Z-2
		Z37.3-1968		
		CEIL	30.000000 ppm	USA. Occupational Exposure Limits (OSHA) - Table Z-2
		Z37.3-1968		
		Peak	100.000000 ppm	USA. Occupational Exposure Limits (OSHA) - Table Z-2
		Z37.3-1968		
		TWA	1.000000 ppm 3.000000 mg/m3	USA. NIOSH Recommended Exposure Limits
		Potential for dermal absorption		
		ST	10.000000 ppm 30.000000 mg/m3	USA. NIOSH Recommended Exposure Limits
		Potential for dermal absorption		
		See Table Z-2		
		TWA	20 ppm	USA. Occupational Exposure Limits (OSHA) - Table Z-2
		Z37.3-1968		
		CEIL	30 ppm	USA. Occupational Exposure Limits (OSHA) - Table Z-2
		Z37.3-1968		

		Peak	100 ppm	USA. Occupational Exposure Limits (OSHA) - Table Z-2
		Z37.3-1968		

Biological occupational exposure limits

Component	CAS-No.	Parameters	Value	Biological specimen	Basis
Carbon disulphide	75-15-0	2-Thiothiazolidine-4-carboxylix acid (TTCA)	0.5000 mg/g	Urine	ACGIH - Biological Exposure Indices (BEI)
	Remarks	End of shift (As soon as possible after exposure ceases)			

8.2 Exposure controls

Appropriate engineering controls
Handle in accordance with good industrial hygiene and safety practice. Wash hands before breaks and at the end of workday.

Personal protective equipment

Eye/face protection
Face shield and safety glasses Use equipment for eye protection tested and approved under appropriate government standards such as NIOSH (US) or EN 166(EU).

Skin protection
Handle with gloves. Gloves must be inspected prior to use. Use proper glove removal technique (without touching glove's outer surface) to avoid skin contact with this product. Dispose of contaminated gloves after use in accordance with applicable laws and good laboratory practices. Wash and dry hands.

Full contact
Material: Fluorinated rubber
Minimum layer thickness: 0.7 mm
Break through time: 480 min
Material tested:Vitoject® (KCL 890 / Aldrich Z677698, Size M)

Splash contact
Material: Fluorinated rubber
Minimum layer thickness: 0.7 mm
Break through time: 480 min
Material tested:Vitoject® (KCL 890 / Aldrich Z677698, Size M)

data source: KCL GmbH, D-36124 Eichenzell, phone +49 (0)6659 87300, e-mail sales@kcl.de, test method: EN374
If used in solution, or mixed with other substances, and under conditions which differ from EN 374, contact the supplier of the CE approved gloves. This recommendation is advisory only and must be evaluated by an industrial hygienist and safety officer familiar with the specific situation of anticipated use by our customers. It should not be construed as offering an approval for any specific use scenario.

Body Protection
Complete suit protecting against chemicals, Flame retardant antistatic protective clothing., The type of protective equipment must be selected according to the concentration and amount of the dangerous substance at the specific workplace.

Respiratory protection
Where risk assessment shows air-purifying respirators are appropriate use a full-face respirator with multi-purpose combination (US) or type AXBEK (EN 14387) respirator cartridges as a backup to engineering controls. If the respirator is the sole means of protection, use a full-face supplied air respirator. Use respirators and components tested and approved under appropriate government standards such as NIOSH (US) or CEN (EU).

Control of environmental exposure
Prevent further leakage or spillage if safe to do so. Do not let product enter drains. Discharge into the environment must be avoided.

9. PHYSICAL AND CHEMICAL PROPERTIES

9.1 Information on basic physical and chemical properties

a)	Appearance	Form: liquid Colour: colourless
b)	Odour	Stench.
c)	Odour Threshold	No data available
d)	pH	No data available
e)	Melting point/freezing point	Melting point/range: -112 °C (-170 °F) - lit.
f)	Initial boiling point and boiling range	46 °C (115 °F) - lit.
g)	Flash point	-30 °C (-22 °F) - closed cup
h)	Evaporation rate	No data available
i)	Flammability (solid, gas)	No data available
j)	Upper/lower flammability or explosive limits	Upper explosion limit: 50 %(V) Lower explosion limit: 1.3 %(V)
k)	Vapour pressure	394.956 hPa (296.241 mmHg) at 20 °C (68 °F) 1,342.711 hPa (1,007.116 mmHg) at 55 °C (131 °F)
l)	Vapour density	2.63 - (Air = 1.0)
m)	Relative density	1.266 g/mL at 25 °C (77 °F)
n)	Water solubility	2.9 g/l at 20 °C (68 °F) - OECD Test Guideline 105
o)	Partition coefficient: n-octanol/water	log Pow: 2.7 at 25 °C (77 °F)
p)	Auto-ignition temperature	97 - 107 °C (207 - 225 °F)
q)	Decomposition temperature	No data available
r)	Viscosity	No data available
s)	Explosive properties	No data available
t)	Oxidizing properties	No data available

9.2 Other safety information

Surface tension	71.9 mN/m at 19.5 °C (67.1 °F)
Relative vapour density	2.63 - (Air = 1.0)

10. STABILITY AND REACTIVITY

10.1 Reactivity
No data available

10.2 Chemical stability
Stable under recommended storage conditions.

10.3 Possibility of hazardous reactions
Vapours may form explosive mixture with air.

10.4 Conditions to avoid
Heat, flames and sparks.

10.5 Incompatible materials
Alkali metals, Zinc, Amines, Azides, Oxidizing agents

10.6 Hazardous decomposition products

Other decomposition products - No data available
In the event of fire: see section 5

11. TOXICOLOGICAL INFORMATION

11.1 Information on toxicological effects

Acute toxicity
LD50 Oral - Rat - female - > 2,000 mg/kg
(OECD Test Guideline 423)

LC50 Inhalation - Rat - male and female - 4 h - 10.35 mg/l
(OECD Test Guideline 403)

Dermal: No data available

No data available

Skin corrosion/irritation
No data available

Serious eye damage/eye irritation
No data available

Respiratory or skin sensitisation
- Mouse
Result: Does not cause skin sensitisation.
(OECD Test Guideline 429)

Germ cell mutagenicity
Laboratory experiments have shown mutagenic effects.

Ames test
Salmonella typhimurium
Result: negative

Carcinogenicity

IARC:	No component of this product present at levels greater than or equal to 0.1% is identified as probable, possible or confirmed human carcinogen by IARC.
NTP:	No component of this product present at levels greater than or equal to 0.1% is identified as a known or anticipated carcinogen by NTP.
OSHA:	No component of this product present at levels greater than or equal to 0.1% is identified as a carcinogen or potential carcinogen by OSHA.

Reproductive toxicity
Suspected human reproductive toxicant

May cause reproductive disorders.

Specific target organ toxicity - single exposure
No data available

Specific target organ toxicity - repeated exposure
No data available

Aspiration hazard
No data available

Additional Information
RTECS: FF6650000

May cause convulsions.

Liver - Irregularities - Based on Human Evidence
Liver - Irregularities - Based on Human Evidence

12. ECOLOGICAL INFORMATION

12.1 Toxicity

Toxicity to fish	LC50 - Poecilia reticulata (guppy) - 4 mg/l - 96 h (OECD Test Guideline 203)
Toxicity to daphnia and other aquatic invertebrates	Immobilization EC50 - Daphnia magna (Water flea) - 2.1 mg/l - 48 h (OECD Test Guideline 202)
Toxicity to algae	Growth inhibition EC50 - Chlorella pyrenoidosa - 21 mg/l - 96 h (OECD Test Guideline 201)

12.2 Persistence and degradability

Biodegradability: aerobic - Exposure time 28 d
Result: > 80 % - Readily biodegradable
(OECD Test Guideline 301D)

12.3 Bioaccumulative potential

12.4 Mobility in soil

No data available

12.5 Results of PBT and vPvB assessment

PBT/vPvB assessment not available as chemical safety assessment not required/not conducted

12.6 Other adverse effects

An environmental hazard cannot be excluded in the event of unprofessional handling or disposal.
Toxic to aquatic life.

No data available

13. DISPOSAL CONSIDERATIONS

13.1 Waste treatment methods

Product
Burn in a chemical incinerator equipped with an afterburner and scrubber but exert extra care in igniting as this material is highly flammable. Offer surplus and non-recyclable solutions to a licensed disposal company. Contact a licensed professional waste disposal service to dispose of this material.

Contaminated packaging
Dispose of as unused product.

14. TRANSPORT INFORMATION

DOT (US)
UN number: 1131 Class: 3 (6.1) Packing group: I
Proper shipping name: Carbon disulfide
Reportable Quantity (RQ): 100 lbs

Poison Inhalation Hazard: No

IMDG
UN number: 1131 Class: 3 (6.1) Packing group: I EMS-No: F-E, S-D
Proper shipping name: CARBON DISULPHIDE

IATA
UN number: 1131 Class: 3 (6.1)
Proper shipping name: Carbon disulphide
IATA Passenger: Not permitted for transport
IATA Cargo: Not permitted for transport

15. REGULATORY INFORMATION

SARA 302 Components

The following components are subject to reporting levels established by SARA Title III, Section 302:

	CAS-No.	Revision Date
Carbon disulphide	75-15-0	2007-07-01

SARA 313 Components

The following components are subject to reporting levels established by SARA Title III, Section 313:

	CAS-No.	Revision Date
Carbon disulphide	75-15-0	2007-07-01

SARA 311/312 Hazards

Fire Hazard, Acute Health Hazard, Chronic Health Hazard

Massachusetts Right To Know Components

	CAS-No.	Revision Date
Carbon disulphide	75-15-0	2007-07-01

Pennsylvania Right To Know Components

	CAS-No.	Revision Date
Carbon disulphide	75-15-0	2007-07-01

New Jersey Right To Know Components

	CAS-No.	Revision Date
Carbon disulphide	75-15-0	2007-07-01

California Prop. 65 Components

WARNING: This product contains a chemical known to the State of California to cause birth defects or other reproductive harm.

	CAS-No.	Revision Date
Carbon disulphide	75-15-0	2008-06-17

16. OTHER INFORMATION

Full text of H-Statements referred to under sections 2 and 3.

Acute Tox.	Acute toxicity
Aquatic Acute	Acute aquatic toxicity
Eye Irrit.	Eye irritation
Flam. Liq.	Flammable liquids
H225	Highly flammable liquid and vapour.
H315	Causes skin irritation.
H319	Causes serious eye irritation.
H332	Harmful if inhaled.
H361	Suspected of damaging fertility or the unborn child.
H372	Causes damage to organs through prolonged or repeated exposure if inhaled.
H401	Toxic to aquatic life.
Repr.	Reproductive toxicity

HMIS Rating

Health hazard:	2
Chronic Health Hazard:	*
Flammability:	3
Physical Hazard	0

NFPA Rating

Health hazard:	2
Fire Hazard:	3
Reactivity Hazard:	0

Further information

Copyright 2015 Sigma-Aldrich Co. LLC. License granted to make unlimited paper copies for internal use only.
The above information is believed to be correct but does not purport to be all inclusive and shall be used only as a guide. The information in this document is based on the present state of our knowledge and is applicable to the product with regard to appropriate safety precautions. It does not represent any guarantee of the properties of the product. Sigma-Aldrich Corporation and its Affiliates shall not be held liable for any damage resulting from handling or from contact with the above product. See www.sigma-aldrich.com and/or the reverse side of invoice or packing slip for additional terms and conditions of sale.

Preparation Information

Sigma-Aldrich Corporation
Product Safety – Americas Region
1-800-521-8956

Version: 5.6 Revision Date: 12/10/2015 Print Date: 02/09/2016

SAFETY DATA SHEET

Version 5.10
Revision Date 01/06/2016
Print Date 03/03/2016

1. PRODUCT AND COMPANY IDENTIFICATION

1.1 Product identifiers

Product name : Carbon tetrachloride

Product Number : 319961
Brand : Sigma-Aldrich
Index-No. : 602-008-00-5

CAS-No. : 56-23-5

1.2 Relevant identified uses of the substance or mixture and uses advised against

Identified uses : Laboratory chemicals, Synthesis of substances

1.3 Details of the supplier of the safety data sheet

Company : Sigma-Aldrich
3050 Spruce Street
SAINT LOUIS MO 63103
USA

Telephone : +1 800-325-5832
Fax : +1 800-325-5052

1.4 Emergency telephone number

Emergency Phone # : (314) 776-6555

2. HAZARDS IDENTIFICATION

2.1 Classification of the substance or mixture

GHS Classification in accordance with 29 CFR 1910 (OSHA HCS)
Acute toxicity, Oral (Category 3), H301
Acute toxicity, Inhalation (Category 3), H331
Acute toxicity, Dermal (Category 3), H311
Skin sensitisation (Sub-category 1B), H317
Carcinogenicity (Category 2), H351
Specific target organ toxicity - repeated exposure, Inhalation (Category 1), Liver, Kidney, H372
Acute aquatic toxicity (Category 3), H402
Chronic aquatic toxicity (Category 3), H412
Hazardous to the ozone layer (Category 1), H420

For the full text of the H-Statements mentioned in this Section, see Section 16.

2.2 GHS Label elements, including precautionary statements

Pictogram



Signal word Danger

Hazard statement(s)

H301 + H311 + H331	Toxic if swallowed, in contact with skin or if inhaled
H317	May cause an allergic skin reaction.
H351	Suspected of causing cancer.
H372	Causes damage to organs (Liver, Kidney) through prolonged or repeated exposure if inhaled.

H412	Harmful to aquatic life with long lasting effects.

Precautionary statement(s)

P201	Obtain special instructions before use.
P202	Do not handle until all safety precautions have been read and understood.
P260	Do not breathe dust/ fume/ gas/ mist/ vapours/ spray.
P264	Wash skin thoroughly after handling.
P270	Do not eat, drink or smoke when using this product.
P271	Use only outdoors or in a well-ventilated area.
P272	Contaminated work clothing should not be allowed out of the workplace.
P273	Avoid release to the environment.
P280	Wear protective gloves/ protective clothing/ eye protection/ face protection.
P301 + P310 + P330	IF SWALLOWED: Immediately call a POISON CENTER or doctor/ physician. Rinse mouth.
P302 + P352 + P312	IF ON SKIN: Wash with plenty of soap and water. Call a POISON CENTER or doctor/ physician if you feel unwell.
P304 + P340 + P311	IF INHALED: Remove person to fresh air and keep comfortable for breathing. Call a POISON CENTER or doctor/ physician.
P308 + P313	IF exposed or concerned: Get medical advice/ attention.
P333 + P313	If skin irritation or rash occurs: Get medical advice/ attention.
P362	Take off contaminated clothing and wash before reuse.
P403 + P233	Store in a well-ventilated place. Keep container tightly closed.
P405	Store locked up.
P501	Dispose of contents/ container to an approved waste disposal plant.
P502	Refer to manufacturer/ supplier for information on recovery/ recycling.

2.3 Hazards not otherwise classified (HNOC) or not covered by GHS

Rapidly absorbed through skin.

3. COMPOSITION/INFORMATION ON INGREDIENTS

3.1 Substances

Synonyms	:	Tetrachloromethane
Formula	:	CCl_4CCl_4
Molecular weight	:	153.82 g/mol
CAS-No.	:	56-23-5
EC-No.	:	200-262-8
Index-No.	:	602-008-00-5

Hazardous components

Component	Classification	Concentration
Tetrachloromethane		
	Acute Tox. 3; Skin Sens. 1B; Carc. 2; STOT RE 1; Aquatic Acute 3; Aquatic Chronic 3; Ozone 1; H301 + H311 + H331, H317, H351, H372, H412	<= 100 %

For the full text of the H-Statements mentioned in this Section, see Section 16.

4. FIRST AID MEASURES

4.1 Description of first aid measures

General advice

Move out of dangerous area.Consult a physician. Show this safety data sheet to the doctor in attendance.

If inhaled

If breathed in, move person into fresh air. If not breathing, give artificial respiration. Consult a physician.

In case of skin contact
Wash off with soap and plenty of water. Take victim immediately to hospital. Consult a physician.

In case of eye contact
Flush eyes with water as a precaution.

If swallowed
Never give anything by mouth to an unconscious person. Rinse mouth with water. Consult a physician.

4.2 Most important symptoms and effects, both acute and delayed
The most important known symptoms and effects are described in the labelling (see section 2.2) and/or in section 11

4.3 Indication of any immediate medical attention and special treatment needed
No data available

5. FIREFIGHTING MEASURES

5.1 Extinguishing media

Suitable extinguishing media
Use water spray, alcohol-resistant foam, dry chemical or carbon dioxide.

5.2 Special hazards arising from the substance or mixture
Carbon oxides, Hydrogen chloride gas

5.3 Advice for firefighters
Wear self-contained breathing apparatus for firefighting if necessary.

5.4 Further information
No data available

6. ACCIDENTAL RELEASE MEASURES

6.1 Personal precautions, protective equipment and emergency procedures
Wear respiratory protection. Avoid breathing vapours, mist or gas. Ensure adequate ventilation. Evacuate personnel to safe areas.
For personal protection see section 8.

6.2 Environmental precautions
Prevent further leakage or spillage if safe to do so. Do not let product enter drains. Discharge into the environment must be avoided.

6.3 Methods and materials for containment and cleaning up
Soak up with inert absorbent material and dispose of as hazardous waste. Keep in suitable, closed containers for disposal.

6.4 Reference to other sections
For disposal see section 13.

7. HANDLING AND STORAGE

7.1 Precautions for safe handling
Avoid contact with skin and eyes. Avoid inhalation of vapour or mist.
For precautions see section 2.2.

7.2 Conditions for safe storage, including any incompatibilities
Keep container tightly closed in a dry and well-ventilated place. Containers which are opened must be carefully resealed and kept upright to prevent leakage.
Storage class (TRGS 510): Non-combustible, acute toxic Cat. 1 and 2 / very toxic hazardous materials

7.3 Specific end use(s)
Apart from the uses mentioned in section 1.2 no other specific uses are stipulated

8. EXPOSURE CONTROLS/PERSONAL PROTECTION

8.1 Control parameters

Components with workplace control parameters

Component	CAS-No.	Value	Control parameters	Basis
Tetrachloromethane	56-23-5	TWA	5.000000 ppm	USA. ACGIH Threshold Limit Values (TLV)
	Remarks	Liver damage Suspected human carcinogen Danger of cutaneous absorption		
		STEL	10.000000 ppm	USA. ACGIH Threshold Limit Values (TLV)
		Liver damage Suspected human carcinogen Danger of cutaneous absorption		
		ST	2.000000 ppm 12.600000 mg/m3	USA. NIOSH Recommended Exposure Limits
		Potential Occupational Carcinogen See Appendix A		
		TWA	10.000000 ppm	USA. Occupational Exposure Limits (OSHA) - Table Z-2
		Z37.17-1967		
		CEIL	25.000000 ppm	USA. Occupational Exposure Limits (OSHA) - Table Z-2
		Z37.17-1967		
		Peak	200.000000 ppm	USA. Occupational Exposure Limits (OSHA) - Table Z-2
		Z37.17-1967		
		See Table Z-2		
		TWA	5 ppm	USA. ACGIH Threshold Limit Values (TLV)
		Liver damage Suspected human carcinogen Danger of cutaneous absorption		
		STEL	10 ppm	USA. ACGIH Threshold Limit Values (TLV)
		Liver damage Suspected human carcinogen Danger of cutaneous absorption		
		ST	2 ppm 12.6 mg/m3	USA. NIOSH Recommended Exposure Limits
		Potential Occupational Carcinogen See Appendix A		
		See Table Z-2		
		TWA	10 ppm	USA. Occupational Exposure Limits (OSHA) - Table Z-2
		Z37.17-1967		
		CEIL	25 ppm	USA. Occupational Exposure Limits (OSHA) - Table Z-2
		Z37.17-1967		
		Peak	200 ppm	USA. Occupational Exposure Limits (OSHA) - Table Z-2
		Z37.17-1967		
		TWA	2 ppm 12.6 mg/m3	USA. OSHA - TABLE Z-1 Limits for Air Contaminants - 1910.1000

8.2 Exposure controls

Appropriate engineering controls
Avoid contact with skin, eyes and clothing. Wash hands before breaks and immediately after handling the product.

Personal protective equipment

Eye/face protection
Face shield and safety glasses Use equipment for eye protection tested and approved under appropriate government standards such as NIOSH (US) or EN 166(EU).

Skin protection
Handle with gloves. Gloves must be inspected prior to use. Use proper glove removal technique (without touching glove's outer surface) to avoid skin contact with this product. Dispose of contaminated gloves after use in accordance with applicable laws and good laboratory practices. Wash and dry hands.

Full contact
Material: Fluorinated rubber
Minimum layer thickness: 0.7 mm
Break through time: 480 min
Material tested:Vitoject® (KCL 890 / Aldrich Z677698, Size M)

Splash contact
Material: Nitrile rubber
Minimum layer thickness: 0.4 mm
Break through time: 240 min
Material tested:Camatril® (KCL 730 / Aldrich Z677442, Size M)

data source: KCL GmbH, D-36124 Eichenzell, phone +49 (0)6659 87300, e-mail sales@kcl.de, test method: EN374
If used in solution, or mixed with other substances, and under conditions which differ from EN 374, contact the supplier of the CE approved gloves. This recommendation is advisory only and must be evaluated by an industrial hygienist and safety officer familiar with the specific situation of anticipated use by our customers. It should not be construed as offering an approval for any specific use scenario.

Body Protection
Complete suit protecting against chemicals, The type of protective equipment must be selected according to the concentration and amount of the dangerous substance at the specific workplace.

Respiratory protection
Where risk assessment shows air-purifying respirators are appropriate use a full-face respirator with multi-purpose combination (US) or type ABEK (EN 14387) respirator cartridges as a backup to engineering controls. If the respirator is the sole means of protection, use a full-face supplied air respirator. Use respirators and components tested and approved under appropriate government standards such as NIOSH (US) or CEN (EU).

Control of environmental exposure
Prevent further leakage or spillage if safe to do so. Do not let product enter drains. Discharge into the environment must be avoided.

9. PHYSICAL AND CHEMICAL PROPERTIES

9.1 Information on basic physical and chemical properties

a)	Appearance	Form: liquid Colour: colourless
b)	Odour	sweet
c)	Odour Threshold	No data available
d)	pH	No data available
e)	Melting point/freezing point	Melting point/range: -23 °C (-9 °F) - lit.
f)	Initial boiling point and boiling range	76 - 77 °C (169 - 171 °F) - lit.
g)	Flash point	does not flash
h)	Evaporation rate	No data available
i)	Flammability (solid, gas)	No data available
j)	Upper/lower	No data available

	flammability or explosive limits	
k)	Vapour pressure	45 hPa (34 mmHg) at 0.3 °C (32.5 °F) 120 hPa (90 mmHg) at 19.8 °C (67.6 °F) 14,549 hPa (10,913 mmHg) at 24 °C (75 °F)
l)	Vapour density	No data available
m)	Relative density	1.594 g/cm3 at 25 °C (77 °F)
n)	Water solubility	0.8461 g/l at 20 °C (68 °F)
o)	Partition coefficient: n-octanol/water	log Pow: 2.83 at 25 °C (77 °F)
p)	Auto-ignition temperature	No data available
q)	Decomposition temperature	No data available
r)	Viscosity	No data available
s)	Explosive properties	No data available
t)	Oxidizing properties	No data available

9.2 Other safety information

Surface tension	26.7 mN/m at 20 °C (68 °F) 19.5 mN/m at 80 °C (176 °F)

10. STABILITY AND REACTIVITY

10.1 Reactivity
No data available

10.2 Chemical stability
Stable under recommended storage conditions.

10.3 Possibility of hazardous reactions
No data available

10.4 Conditions to avoid
No data available

10.5 Incompatible materials
Strong oxidizing agents

10.6 Hazardous decomposition products
Other decomposition products - No data available
In the event of fire: see section 5

11. TOXICOLOGICAL INFORMATION

11.1 Information on toxicological effects

Acute toxicity
LD50 Oral - Rat - 2,350 mg/kg

LC50 Inhalation - Rat - 4 h - 8000 ppm

LD50 Dermal - Rabbit - > 20,000 mg/kg

No data available

Skin corrosion/irritation
Skin - Rabbit
Result: Mild skin irritation - 24 h
(Draize Test)

Serious eye damage/eye irritation
Eyes - Rabbit
Result: Mild eye irritation - 24 h
(Draize Test)

Respiratory or skin sensitisation
- Mouse
Result: The product is a skin sensitiser, sub-category 1B.
(OECD Test Guideline 429)

Germ cell mutagenicity
No data available

Carcinogenicity

This product is or contains a component that has been reported to be probably carcinogenic based on its IARC, OSHA, ACGIH, NTP, or EPA classification. Limited evidence of carcinogenicity in animal studies

IARC:	2B - Group 2B: Possibly carcinogenic to humans (Tetrachloromethane)
NTP:	Reasonably anticipated to be a human carcinogen (Tetrachloromethane)
OSHA:	No component of this product present at levels greater than or equal to 0.1% is identified as a carcinogen or potential carcinogen by OSHA.

Reproductive toxicity
No data available

No data available

Specific target organ toxicity - single exposure
No data available

Specific target organ toxicity - repeated exposure
Inhalation - Causes damage to organs through prolonged or repeated exposure. - Liver, Kidney

Aspiration hazard
No data available

Additional Information
RTECS: FG4900000

Vomiting, Diarrhoea, Abdominal pain, Nausea, Dizziness, Headache, Damage to the eyes., Liver injury may occur., Kidney injury may occur., Exposure to and/or consumption of alcohol may increase toxic effects., Contact with skin can cause:, Pain, Erythema, hyperemia

12. ECOLOGICAL INFORMATION

12.1 Toxicity

Toxicity to fish	mortality LC50 - Danio rerio (zebra fish) - 24.3 mg/l - 96 h
Toxicity to daphnia and other aquatic invertebrates	Immobilization EC50 - Daphnia magna (Water flea) - 35 mg/l - 48 h (OECD Test Guideline 202)
Toxicity to algae	Growth inhibition EC50 - Algae - 20 mg/l - 72 h (OECD Test Guideline 201)

12.2 Persistence and degradability
No data available

12.3 Bioaccumulative potential

Bioaccumulation	Lepomis macrochirus (Bluegill) - 21 d - 52.3 µg/l
	Bioconcentration factor (BCF): 30

12.4 Mobility in soil
No data available

12.5 Results of PBT and vPvB assessment
PBT/vPvB assessment not available as chemical safety assessment not required/not conducted

12.6 Other adverse effects
An environmental hazard cannot be excluded in the event of unprofessional handling or disposal.
Harmful to aquatic life with long lasting effects.

13. DISPOSAL CONSIDERATIONS

13.1 Waste treatment methods

Product
Offer surplus and non-recyclable solutions to a licensed disposal company. Contact a licensed professional waste disposal service to dispose of this material. Dissolve or mix the material with a combustible solvent and burn in a chemical incinerator equipped with an afterburner and scrubber.

Contaminated packaging
Dispose of as unused product.

14. TRANSPORT INFORMATION

DOT (US)
UN number: 1846 Class: 6.1 Packing group: II
Proper shipping name: Carbon tetrachloride
Reportable Quantity (RQ): 10 lbs

Poison Inhalation Hazard: No

IMDG
UN number: 1846 Class: 6.1 Packing group: II EMS-No: F-A, S-A
Proper shipping name: CARBON TETRACHLORIDE
Marine pollutant: yes

IATA
UN number: 1846 Class: 6.1 Packing group: II
Proper shipping name: Carbon tetrachloride

15. REGULATORY INFORMATION

SARA 302 Components
No chemicals in this material are subject to the reporting requirements of SARA Title III, Section 302.

SARA 313 Components
The following components are subject to reporting levels established by SARA Title III, Section 313:

	CAS-No.	Revision Date
Tetrachloromethane	56-23-5	2007-07-01

SARA 311/312 Hazards
Acute Health Hazard, Chronic Health Hazard

Massachusetts Right To Know Components

	CAS-No.	Revision Date
Tetrachloromethane	56-23-5	2007-07-01

Pennsylvania Right To Know Components

	CAS-No.	Revision Date
Tetrachloromethane	56-23-5	2007-07-01

New Jersey Right To Know Components

	CAS-No.	Revision Date
Tetrachloromethane	56-23-5	2007-07-01

California Prop. 65 Components

	CAS-No.	Revision Date
WARNING! This product contains a chemical known to the State of California to cause cancer.	56-23-5	2007-09-28

16. OTHER INFORMATION

Full text of H-Statements referred to under sections 2 and 3.

Acute Tox.	Acute toxicity
Aquatic Acute	Acute aquatic toxicity
Aquatic Chronic	Chronic aquatic toxicity
Carc.	Carcinogenicity
H301	Toxic if swallowed.
H301 + H311 + H331	Toxic if swallowed, in contact with skin or if inhaled
H311	Toxic in contact with skin.
H317	May cause an allergic skin reaction.
H331	Toxic if inhaled.
H351	Suspected of causing cancer.

HMIS Rating

Health hazard:	2
Chronic Health Hazard:	*
Flammability:	0
Physical Hazard	0

NFPA Rating

Health hazard:	2
Fire Hazard:	0
Reactivity Hazard:	0

Further information

Copyright 2016 Sigma-Aldrich Co. LLC. License granted to make unlimited paper copies for internal use only.
The above information is believed to be correct but does not purport to be all inclusive and shall be used only as a guide. The information in this document is based on the present state of our knowledge and is applicable to the product with regard to appropriate safety precautions. It does not represent any guarantee of the properties of the product. Sigma-Aldrich Corporation and its Affiliates shall not be held liable for any damage resulting from handling or from contact with the above product. See www.sigma-aldrich.com and/or the reverse side of invoice or packing slip for additional terms and conditions of sale.

Preparation Information

Sigma-Aldrich Corporation
Product Safety – Americas Region
1-800-521-8956

Version: 5.10 Revision Date: 01/06/2016 Print Date: 03/03/2016

Safety Data Sheet

Revision Date: 05/11/15
www.restek.com

1. IDENTIFICATION

Catalog Number / Product Name:	**32207, 32207-5XX, & 32307 / alpha-Chlordane Standard**
Company:	Restek Corporation
Address:	110 Benner Circle Bellefonte, Pa. 16823
Phone#:	814-353-1300
Fax#:	814-353-1309
Emergency#:	1-800-424-9300 (CHEMTREC) +1 703-741-5970 (Outside the US)
Email:	sds@restek.com
Revision Number:	6
Intended use:	For Laboratory use only

2. HAZARD(S)IDENTIFICATION

Emergency Overview:

GHS Hazard Symbols:



GHS Classification:

Specific Target Organ Systemic Toxicity (STOT) - Single Exposure Category 1
Flammable Liquid Category 2
Acute Toxicity - Inhalation Dust / Mist Category 3
Acute Toxicity - Inhalation Vapour Category 3
Acute Toxicity - Inhalation Gas Category 3
Acute Toxicity - Dermal Category 3
Acute Toxicity - Oral Category 3

GHS Signal Word:

Danger

GHS Hazard:

Highly flammable liquid and vapour.
Toxic if swallowed, in contact with skin or if inhaled.
Toxic if inhaled.
Causes damage to organs.

GHS Precautions:

Safety Precautions:

Keep away from heat/sparks/open flames/hot surfaces. – No smoking.
Ground/bond container and receiving equipment.
Use explosion-proof electrical/ventilation and lighting equipment.
Use only non-sparking tools.
Take precautionary measures against static discharge.
Do not breathe dust/fume/gas/mist/vapours/spray.
Wash hands and skin thoroughly after handling.
Do no eat, drink or smoke when using this product.
Use only outdoors or in a well-ventilated area.
Wear protective gloves/protective clothing/eye protection/face protection.

First Aid Measures:

IF SWALLOWED: Immediately call a POISON CENTER/doctor/....
IF ON SKIN: Wash with plenty of soap and water.
IF ON SKIN (or hair): Remove/Take off immediately all contaminated clothing. Rinse skin with water/shower.
IF INHALED: Remove victim to fresh air and keep at rest in a position comfortable for breathing.
IF exposed: Call a POISON CENTER or doctor/physician.
Call a POISON CENTER or doctor/physician if you feel unwell.
Specific treatment see section 4.

Specific measures see section 4.
Rinse mouth.
Remove/Take off immediately all contaminated clothing.
Wash contaminated clothing before reuse.
In case of fire: Use extinguishing media in section 5 for extinction.

Storage: Store in a well-ventilated place. Keep container tightly closed.
Store in a well-ventilated place. Keep cool.
Store locked up.

Disposal: Dispose of contents/container according to section 13 of the SDS.

Single Exposure Target Organs: No data available.

Repeated Exposure Target Organs: No data available.

3. COMPOSITION / INFORMATION ON INGREDIENT

Chemical Name	CAS #	EINEC #	% Composition
methanol	67-56-1	200-659-6	99.900000
cis-chlordane	5103-71-9		0.100000

4. FIRST-AID MEASURES

Inhalation: Remove to fresh air. If breathing is difficult, have a trained individual administer oxygen. If not breathing, give artificial respiration and have a trained individual administer oxygen. Get medical attention immediately

Eyes: Flush eyes with plenty of water for at least 20 minutes retracting eyelids often. Tilt the head to prevent chemical from transferring to the uncontaminated eye. Get immediate medical attention.

Skin Contact: Wash with soap and water. Remove contaminated clothing and launder. Get medical attention if irritation develops or persists.

Ingestion: Do not induce vomiting and seek medical attention immediately. Drink two glasses of water or milk to dilute. Provide medical care provider with this SDS.

5. FIRE- FIGHTING MEASURES

Extinguishing Media: Use alcohol resistant foam, carbon dioxide, or dry chemical extinguishing agents. Water may be ineffective but water spray can be used extinguish a fire if swept across the base of the flames. Water can absorb heat and keep exposed material from being damaged by fire.

Fire and/or Explosion Hazards: Vapors may be ignited by sparks, flames or other sources of ignition if material is above the flash point giving rise to a fire (Class B). Vapors are heavier than air and may travel to a source of ignition and flash back.

Fire Fighting Methods and Protection: Do not enter fire area without proper protection including self-contained breathing apparatus and full protective equipment. Fight fire from a safe distance and a protected location due to the potential of hazardous vapors and decomposition products. Flammable component(s) of this material may be lighter than water and burn while floating on the surface.

Hazardous Combustion Products: Carbon dioxide, Carbon monoxide

6. ACCIDENTAL RELEASE MEASURES

Personal Precautions and Equipment: Exposure to the spilled material may be severely irritating or toxic. Follow personal protective equipment recommendations found in Section 8 of this SDS. Personal protective equipment needs must be evaluated based on information provided on this sheet and the special circumstances created by the spill including; the material spilled, the quantity of the spill, the area in which the spill occurred, and the expertise of employees in the area responding to the spill. Never exceed any occupational exposure limits.

Methods for Clean-up: Prevent the spread of any spill to minimize harm to human health and the environment if safe to do so. Wear complete and proper personal protective equipment following the recommendation of Section 8 at a minimum. Dike with suitable absorbent material like granulated clay. Gather and store in a sealed container pending a waste disposal

evaluation.

7. HANDLING AND STORAGE

Handling Technical Measures and Precautions: Toxic or severely irritating material. Avoid contacting and avoid breathing the material. Use only in a well ventilated area. Use spark-proof tools and explosion-proof equipment

Storage Technical Measures and Conditions: Store in a cool dry ventilated location. Isolate from incompatible materials and conditions. Keep container(s) closed. Keep away from sources of ignition

8. EXPOSURE CONTROLS / PERSONAL PROTECTION

United States:

Chemical Name	CAS No.	IDLH	ACGIH STEL	ACGIH TLV-TWA	OSHA Exposure Limit
methanol	67-56-1	6000 ppm IDLH	250 ppm STEL	200 ppm TWA	200 ppm TWA; 260 mg/m3 TWA
cis-chlordane	5103-71-9	ND		No TLV	No data available.

Personal Protection:

Engineering Measures: Local exhaust ventilation is recommended when generating excessive levels of vapors from handling or thermal processing.

Respiratory Protection: Respiratory protection may be required to avoid overexposure when handling this product. General or local exhaust ventilation is the preferred means of protection. Use a respirator if general room ventilation is not available or sufficient to eliminate symptoms.If an exposure limit is exceeded or if an operator is experiencing symptoms of inhalation overexposure as explained in Section 3, provide respiratory protection.

Eye Protection: Wear chemically resistant safety glasses with side shields when handling this product. Do not wear contact lenses.

Skin Protection: Wear protective gloves. Inspect gloves for chemical break-through and replace at regular intervals. Clean protective equipment regularly. Wash hands and other exposed areas with mild soap and water before eating, drinking, and when leaving work

9. PHYSICAL AND CHEMICAL PROPERTIES

Appearance, color: No data available.
Odor: Mild
Physical State: No data available.
pH: No data available
Vapor Density: 1.1 (air = 1)
Melting Point: -98 °C
Flash Point: 52
Flammability: Highly Flammable
Upper Flammable/Explosive Limit, % in air: 36.0
Lower Flammable/Explosive Limit, % in air: 6.0
Autoignition Temperature: 464 deg C
Decomposition Temperature: No data available.
Specific Gravity: 0.791 - 0.792 g/cm3 at 20 °C
Evaporation Rate: No data available.
Odor Threshold: No data available.
Solubility: Moderate; 50-99%
Partition Coefficient: n-octanol in water: No data available.
VOC % by weight: 99.90
Molecular Weight: 32.04

10. STABILITY AND REACTIVITY

Stability: Stable under normal conditions.
Conditions to Avoid: No data available.
Materials to Avoid / Chemical Incompatiability: Strong oxidizing agents
Hazardous Decomposition Products: Carbon dioxide Carbon monoxide

11. TOXICOLOGICAL INFORMATION

Routes of Entry: Inhalation, Skin Contact, Eye Contact, Ingestion
Target Organs Potentially Affected By Exposure: Eyes, Central nervous system stimulation, Skin, GI Tract, Respiratory Tract
Chemical Interactions That Change Toxicity: None Known

Immediate (Acute) Health Effects by Route of Exposure:

Inhalation Irritation:	Can cause moderate respiratory irritation, dizziness, weakness, fatigue, nausea and headache.
Inhalation Toxicity:	Harmful! Can cause systemic damage (see "Target Organs)Methanol can cause central nervous system depression and overexposure can cause damage to the optic nerve resulting in visual impairment or blindness.
Skin Contact:	Can cause moderate skin irritation, defatting, and dermatitis. Not likely to cause permanent damage.
Eye Contact:	Can cause moderate irritation, tearing and reddening, but not likely to permanently injure eye tissue.
Ingestion Irritation:	Irritating to mouth, throat, and stomach. Can cause abdominal discomfort, nausea, vomiting and diarrhea.Highly toxic and may be fatal if swallowed.
Ingestion Toxicity:	Toxic if swallowed. May cause target organ failure and/or death.May be fatal if swallowed.

Long-Term (Chronic) Health Effects:

Carcinogenicity:	No data.
Reproductive and Developmental Toxicity:	Contains a known human reproductive and/or developmental hazard.
Inhalation:	Upon prolonged and/or repeated exposure, can cause moderate respiratory irritation, dizziness, weakness, fatigue, nausea and headache.Harmful! Can cause systemic damage upon prolonged and/or repeated exposure (see "Target Organs)
Skin Contact:	Upon prolonged or repeated contact, can cause moderate skin irritation, defatting, and dermatitis. Not likely to cause permanent damage.
Ingestion:	Toxic if swallowed. May cause target organ failure and/or death.

Component Toxicological Data:

NIOSH:

Chemical Name	CAS No.	LD50/LC50
Methanol	67-56-1	Oral LD50 Rat 5628 mg/kg (Source: NLM_CIP); Inhalation LC50 Rat 83.2 mg/L 4 h (Source: IUCLID)

Component Carcinogenic Data:

OSHA:

Chemical Name	CAS No.
No data available.	

ACGIH:

Chemical Name	CAS No.
No data available.	

NIOSH:

Chemical Name	CAS No.
No data available.	

NTP:

Chemical Name	CAS No.
No data available.	

IARC:

Chemical Name	CAS No.	Group No.
No data.		Group 1
No data.		Group 2A
cis-Chlordane	5103-71-9	Group 2B

12. ECOLOGICAL INFORMATION

Overview:	Moderate ecological hazard. This product may be dangerous to plants and/or wildlife.
Mobility:	No data
Persistence:	No data

Bioaccumulation: No data
Degradability: Biodegrades slowly.
Ecological Toxicity Data: No data available.

13. DISPOSAL CONSIDERATIONS

Waste Description of Spent Product: Spent or discarded material is a hazardous waste.
Disposal Methods: Dispose of by incineration following Federal, State, Local, or Provincial regulations.
Waste Disposal of Packaging: Comply with all Local, State, Federal, and Provincial Environmental Regulations.

14. TRANSPORTATION INFORMATION

United States:
DOT Proper Shipping Name: Methanol
UN Number: UN1230
Hazard Class: 3
Packing Group: II

International:
IATA Proper Shipping Name: Methanol
UN Number: UN1230
Hazard Class: 3 (6.1)
Packing Group: II

Marine Pollutant: No

Chemical Name	CAS#	Marine Pollutant	Severe Marine Pollutant
No data available.			

15. REGULATORY INFORMATION

United States:

Chemical Name	CAS#	CERCLA	SARA 313	SARA EHS 313	TSCA
methanol	67-56-1	X	X	-	X
cis-chlordane	5103-71-9	X	-	-	-

The following chemicals are listed on CA Prop 65:

Chemical Name	CAS #	Regulation
Methanol	67-56-1	Prop 65 Devolop Tox

State Right To Know Listing:

Chemical Name	CAS#	New Jersey	Massachusetts	Pennsylvania	California
methanol	67-56-1	X	X	X	X
cis-chlordane	5103-71-9	-	-	-	-

16. OTHER INFORMATION

Prior Version Date: 04/22/14
Disclaimer: Restek Corporation provides the descriptions, data and information contained herein in good faith but makes no representation as to its comprehensiveness or accuracy. It is provided for your guidance only. Because many factors may affect processing or application/use, Restek Corporation recommends you perform an assessment to determine the suitability of a product for your particular purpose prior to use. No warranties of any kind, either expressed or implied, including fitness for a particular purpose, are made regarding prodcuts described, data or information set forth. In no case shall the descriptions, information, or data provided be considered a part of our terms and conditions of sale. Further, the descriptions, data and information furnished hereunder are given gratis. No obligation or liability for the description, data and information given are assumed. All such being given and accepted at your risk.

SAFETY DATA SHEET

Version 6.4
Revision Date 03/08/2024
Print Date 05/12/2024

SECTION 1: Identification of the substance/mixture and of the company/undertaking

1.1 Product identifiers

Product name : Chlorobenzene-$^{13}C_6$

Product Number : 488534
Brand : Aldrich
Index-No. : 602-033-00-1
CAS-No. : 287389-52-0

1.2 Relevant identified uses of the substance or mixture and uses advised against

Identified uses : Laboratory chemicals, Synthesis of substances

1.3 Details of the supplier of the safety data sheet

Company : Sigma-Aldrich Inc.
3050 SPRUCE ST
ST. LOUIS MO 63103
UNITED STATES

Telephone : +1 314 771-5765
Fax : +1 800 325-5052

1.4 Emergency telephone

Emergency Phone # : 800-424-9300 CHEMTREC (USA) +1-703-527-3887 CHEMTREC (International) 24 Hours/day; 7 Days/week

SECTION 2: Hazards identification

2.1 Classification of the substance or mixture

GHS Classification in accordance with 29 CFR 1910 (OSHA HCS)

Flammable liquids (Category 3), H226
Acute toxicity, Inhalation (Category 4), H332
Short-term (acute) aquatic hazard (Category 2), H401
Long-term (chronic) aquatic hazard (Category 2), H411

For the full text of the H-Statements mentioned in this Section, see Section 16.

2.2 GHS Label elements, including precautionary statements

The life science business of Merck KGaA, Darmstadt, Germany
operates as MilliporeSigma in the US and Canada

Pictogram



Signal Word Warning

Hazard Statements

H226	Flammable liquid and vapor.
H332	Harmful if inhaled.
H411	Toxic to aquatic life with long lasting effects.

Precautionary Statements

P210	Keep away from heat/ sparks/ open flames/ hot surfaces. No smoking.
P233	Keep container tightly closed.
P240	Ground/bond container and receiving equipment.
P241	Use explosion-proof electrical/ ventilating/ lighting/ equipment.
P242	Use only non-sparking tools.
P243	Take precautionary measures against static discharge.
P261	Avoid breathing mist or vapors.
P271	Use only outdoors or in a well-ventilated area.
P273	Avoid release to the environment.
P280	Wear protective gloves/ eye protection/ face protection.
P303 + P361 + P353	IF ON SKIN (or hair): Take off immediately all contaminated clothing. Rinse skin with water/ shower.
P304 + P340 + P312	IF INHALED: Remove person to fresh air and keep comfortable for breathing. Call a POISON CENTER/ doctor if you feel unwell.
P370 + P378	In case of fire: Use dry sand, dry chemical or alcohol-resistant foam to extinguish.
P391	Collect spillage.
P403 + P235	Store in a well-ventilated place. Keep cool.
P501	Dispose of contents/ container to an approved waste disposal plant.

2.3 Hazards not otherwise classified (HNOC) or not covered by GHS - none

SECTION 3: Composition/information on ingredients

3.1 Substances

Formula	:	$^{13}C_6H_5Cl$
Molecular weight	:	118.45 g/mol
CAS-No.	:	287389-52-0
Index-No.	:	602-033-00-1

Component	Classification	Concentration
Chlorobenzene-13C6		
	Flam. Liq. 3; Acute Tox. 4; Aquatic Acute 2; Aquatic Chronic 2; H226, H332, H401, H411	<= 100 %

For the full text of the H-Statements mentioned in this Section, see Section 16.

The life science business of Merck KGaA, Darmstadt, Germany
operates as MilliporeSigma in the US and Canada

SECTION 4: First aid measures

4.1 Description of first-aid measures

General advice
Show this material safety data sheet to the doctor in attendance.

If inhaled
After inhalation: fresh air. If breathing stops: mouth-to-mouth breathing or artificial respiration. Oxygen if necessary. Immediately call in physician.

In case of skin contact
In case of skin contact: Take off immediately all contaminated clothing. Rinse skin with water/ shower.

In case of eye contact
After eye contact: rinse out with plenty of water. Remove contact lenses.

If swallowed
After swallowing: make victim drink water (two glasses at most). Consult doctor if feeling unwell.

4.2 Most important symptoms and effects, both acute and delayed
The most important known symptoms and effects are described in the labelling (see section 2.2) and/or in section 11

4.3 Indication of any immediate medical attention and special treatment needed
No data available

SECTION 5: Firefighting measures

5.1 Extinguishing media

Suitable extinguishing media
Water Foam Carbon dioxide (CO2) Dry powder

Unsuitable extinguishing media
For this substance/mixture no limitations of extinguishing agents are given.

5.2 Special hazards arising from the substance or mixture
Carbon oxides
Hydrogen chloride gas
Combustible.
Vapors are heavier than air and may spread along floors.
Forms explosive mixtures with air at elevated temperatures.
Development of hazardous combustion gases or vapours possible in the event of fire.

5.3 Advice for firefighters
Stay in danger area only with self-contained breathing apparatus. Prevent skin contact by keeping a safe distance or by wearing suitable protective clothing.

The life science business of Merck KGaA, Darmstadt, Germany
operates as MilliporeSigma in the US and Canada

5.4 Further information

Remove container from danger zone and cool with water. Suppress (knock down) gases/vapors/mists with a water spray jet. Prevent fire extinguishing water from contaminating surface water or the ground water system.

SECTION 6: Accidental release measures

6.1 Personal precautions, protective equipment and emergency procedures

Advice for non-emergency personnel: Do not breathe vapors, aerosols. Avoid substance contact. Ensure adequate ventilation. Keep away from heat and sources of ignition.
Evacuate the danger area, observe emergency procedures, consult an expert.
For personal protection see section 8.

6.2 Environmental precautions

Do not let product enter drains. Risk of explosion.

6.3 Methods and materials for containment and cleaning up

Cover drains. Collect, bind, and pump off spills. Observe possible material restrictions (see sections 7 and 10). Take up with liquid-absorbent material (e.g. Chemizorb®). Dispose of properly. Clean up affected area.

6.4 Reference to other sections

For disposal see section 13.

SECTION 7: Handling and storage

7.1 Precautions for safe handling

Advice on safe handling
Work under hood. Do not inhale substance/mixture. Avoid generation of vapours/aerosols.

Advice on protection against fire and explosion
Keep away from open flames, hot surfaces and sources of ignition.Take precautionary measures against static discharge.

Hygiene measures
Immediately change contaminated clothing. Apply preventive skin protection. Wash hands and face after working with substance.
For precautions see section 2.2.

7.2 Conditions for safe storage, including any incompatibilities

Storage conditions
Keep container tightly closed in a dry and well-ventilated place. Keep away from heat and sources of ignition.

Storage class
Storage class (TRGS 510): 3: Flammable liquids

7.3 Specific end use(s)

Apart from the uses mentioned in section 1.2 no other specific uses are stipulated

The life science business of Merck KGaA, Darmstadt, Germany
operates as MilliporeSigma in the US and Canada

SECTION 8: Exposure controls/personal protection

8.1 Control parameters

Ingredients with workplace control parameters

Component	CAS-No.	Value	Control parameters	Basis
Chlorobenzene-13C6	287389-52-0	TWA	10 ppm	USA. ACGIH Threshold Limit Values (TLV)
	Remarks	Confirmed animal carcinogen with unknown relevance to humans		
		TWA	75 ppm 350 mg/m3	USA. Occupational Exposure Limits (OSHA) - Table Z-1 Limits for Air Contaminants
		PEL	10 ppm 46 mg/m3	California permissible exposure limits for chemical contaminants (Title 8, Article 107)

Biological occupational exposure limits

Component	CAS-No.	Parameters	Value	Biological specimen	Basis
Chlorobenzene-13C6	287389-52-0	4-Chlorocatechol	100mg/g creatinine	Urine	ACGIH - Biological Exposure Indices (BEI)
	Remarks	End of shift at end of workweek			
		p-Chlorophenol	20mg/g creatinine	Urine	ACGIH - Biological Exposure Indices (BEI)
		End of shift at end of workweek			

8.2 Exposure controls

Appropriate engineering controls
Immediately change contaminated clothing. Apply preventive skin protection. Wash hands and face after working with substance.

Personal protective equipment

Eye/face protection
Use equipment for eye protection tested and approved under appropriate government standards such as NIOSH (US) or EN 166(EU). Safety glasses

Skin protection
required

Body Protection
Flame retardant antistatic protective clothing.

Respiratory protection
Recommended Filter type: Filter type ABEK

The life science business of Merck KGaA, Darmstadt, Germany
operates as MilliporeSigma in the US and Canada

The entrepeneur has to ensure that maintenance, cleaning and testing of respiratory protective devices are carried out according to the instructions of the producer. These measures have to be properly documented.
required when vapours/aerosols are generated.
Our recommendations on filtering respiratory protection are based on the following standards: DIN EN 143, DIN 14387 and other accompanying standards relating to the used respiratory protection system.

Control of environmental exposure
Do not let product enter drains. Risk of explosion.

SECTION 9: Physical and chemical properties

9.1 Information on basic physical and chemical properties

a)	Appearance	Form: liquid
b)	Odor	No data available
c)	Odor Threshold	No data available
d)	pH	No data available
e)	Melting point/freezing point	Melting point/range: -45 °C (-49 °F) - lit.
f)	Initial boiling point and boiling range	132 °C 270 °F - lit.
g)	Flash point	23.9 °C (75.0 °F) - closed cup
h)	Evaporation rate	No data available
i)	Flammability (solid, gas)	No data available
j)	Upper/lower flammability or explosive limits	No data available
k)	Vapor pressure	No data available
l)	Vapor density	No data available
m)	Density	1.164 g/mL at 25 °C (77 °F)1.164 g/cm3 at 25 °C (77 °F)
	Relative density	No data available
n)	Water solubility	No data available
o)	Partition coefficient: n-octanol/water	log Pow: 5.0
p)	Autoignition temperature	No data available
q)	Decomposition temperature	No data available
r)	Viscosity	No data available

The life science business of Merck KGaA, Darmstadt, Germany
operates as MilliporeSigma in the US and Canada

s) Explosive properties No data available

t) Oxidizing properties No data available

9.2 Other safety information
No data available

SECTION 10: Stability and reactivity

10.1 Reactivity
Vapor/air-mixtures are explosive at intense warming.

10.2 Chemical stability
The product is chemically stable under standard ambient conditions (room temperature) .

10.3 Possibility of hazardous reactions
No data available

10.4 Conditions to avoid
Heating.

10.5 Incompatible materials
Strong oxidizing agents

10.6 Hazardous decomposition products
In the event of fire: see section 5

SECTION 11: Toxicological information

11.1 Information on toxicological effects

Acute toxicity
Oral: No data available
LC50 Inhalation - 4.0 h - 11.0 mg/l - vapor

Inhalation: No data available
Dermal: No data available

Skin corrosion/irritation
Remarks: No data available

Serious eye damage/eye irritation
No data available

Respiratory or skin sensitization
No data available

Germ cell mutagenicity
No data available

Carcinogenicity

IARC: No ingredient of this product present at levels greater than or equal to 0.1% is identified as probable, possible or confirmed human carcinogen by IARC.

The life science business of Merck KGaA, Darmstadt, Germany
operates as MilliporeSigma in the US and Canada

NTP: No ingredient of this product present at levels greater than or equal to 0.1% is identified as a known or anticipated carcinogen by NTP.

OSHA: No component of this product present at levels greater than or equal to 0.1% is on OSHA's list of regulated carcinogens.

Reproductive toxicity
No data available

Specific target organ toxicity - single exposure
No data available

Specific target organ toxicity - repeated exposure
No data available

Aspiration hazard
No data available

11.2 Additional Information

Incoordination., To the best of our knowledge, the chemical, physical, and toxicological properties have not been thoroughly investigated.

Stomach - Irregularities - Based on Human Evidence

Stomach - Irregularities - Based on Human Evidence

SECTION 12: Ecological information

12.1 Toxicity
No data available

12.2 Persistence and degradability
No data available

12.3 Bioaccumulative potential
No data available

12.4 Mobility in soil
No data available

12.5 Results of PBT and vPvB assessment
PBT/vPvB assessment not available as chemical safety assessment not required/not conducted

12.6 Endocrine disrupting properties
No data available

12.7 Other adverse effects
No data available

The life science business of Merck KGaA, Darmstadt, Germany
operates as MilliporeSigma in the US and Canada

SECTION 13: Disposal considerations

13.1 Waste treatment methods

Product
Waste material must be disposed of in accordance with the national and local regulations. Leave chemicals in original containers. No mixing with other waste. Handle uncleaned containers like the product itself. See www.retrologistik.com for processes regarding the return of chemicals and containers, or contact us there if you have further questions.

SECTION 14: Transport information

DOT (US)
UN number: 1134 Class: 3 Packing group: III
Proper shipping name: Chlorobenzene
Reportable Quantity (RQ): 100 lbs
Reportable Quantity (RQ): 100 lbs
Poison Inhalation Hazard: No

IMDG
UN number: 1134 Class: 3 Packing group: III EMS-No: F-E, S-D
Proper shipping name: CHLOROBENZENE
Marine pollutant : yes

IATA
UN number: 1134 Class: 3 Packing group: III
Proper shipping name: Chlorobenzene

SECTION 15: Regulatory information

SARA 302 Components
This material does not contain any components with a section 302 EHS TPQ.

SARA 313 Components
The following components are subject to reporting levels established by SARA Title III, Section 313:

	CAS-No.	Revision Date
Chlorobenzene-13C6	287389-52-0	2007-07-01

SARA 311/312 Hazards
Fire Hazard, Chronic Health Hazard

Reportable Quantity : D021 lbs

Massachusetts Right To Know Components

	CAS-No.	Revision Date
Chlorobenzene-13C6	287389-52-0	2007-07-01

The life science business of Merck KGaA, Darmstadt, Germany
operates as MilliporeSigma in the US and Canada

SECTION 16: Other information

Further information

The information is believed to be correct but is not exhaustive and will be used solely as a guideline, which is based on current knowledge of the chemical substance or mixture and is applicable to appropriate safety precautions for the product. It does not represent any guarantee of the properties of the product. Sigma-Aldrich Corporation and its Affiliates shall not be held liable for any damage resulting from handling or from contact with the above product. See www.sigma-aldrich.com and/or the reverse side of invoice or packing slip for additional terms and conditions of sale.

Copyright 2020 Sigma-Aldrich Co. LLC. License granted to make unlimited paper copies for internal use only.

The branding on the header and/or footer of this document may temporarily not visually match the product purchased as we transition our branding. However, all of the information in the document regarding the product remains unchanged and matches the product ordered. For further information please contact mlsbranding@sial.com.

Version: 6.4 Revision Date: 03/08/2024 Print Date: 05/12/2024

The life science business of Merck KGaA, Darmstadt, Germany
operates as MilliporeSigma in the US and Canada

SAFETY DATA SHEET

Version 6.11
Revision Date 09/06/2024
Print Date 09/07/2024

SECTION 1: Identification of the substance/mixture and of the company/undertaking

1.1 Product identifiers

Product name : Chloroform

Product Number : 288306
Brand : Sigma-Aldrich
Index-No. : 602-006-00-4
CAS-No. : 67-66-3

1.2 Relevant identified uses of the substance or mixture and uses advised against

Identified uses : Laboratory chemicals, Synthesis of substances

Uses advised against : The product is being supplied under the TSCA R&D Exemption (40 CFR Section 720.36). It is the recipient's responsibility to comply with the requirements of the R&D exemption. The product may not be used for a non-exempt commercial purpose under TSCA unless appropriate consent is granted in writing by MilliporeSigma.

1.3 Details of the supplier of the safety data sheet

Company : Sigma-Aldrich Inc.
3050 SPRUCE ST
ST. LOUIS MO 63103
UNITED STATES

Telephone : +1 314 771-5765
Fax : +1 800 325-5052

1.4 Emergency telephone

Emergency Phone # : 800-424-9300 CHEMTREC (USA) +1-703-527-3887 CHEMTREC (International) 24 Hours/day; 7 Days/week

SECTION 2: Hazards identification

2.1 Classification of the substance or mixture

GHS Classification in accordance with 29 CFR 1910 (OSHA HCS)

Acute toxicity, Oral (Category 4), H302
Acute toxicity, Inhalation (Category 3), H331
Skin irritation (Category 2), H315

The life science business of Merck KGaA, Darmstadt, Germany
operates as MilliporeSigma in the US and Canada

Eye irritation (Category 2A), H319
Carcinogenicity (Category 2), H351
Reproductive toxicity (Category 2), H361
Specific target organ toxicity - single exposure (Category 3), Central nervous system, H336
Specific target organ toxicity - repeated exposure, Oral (Category 1), Liver, Kidney, H372
Short-term (acute) aquatic hazard (Category 3), H402

For the full text of the H-Statements mentioned in this Section, see Section 16.

2.2 GHS Label elements, including precautionary statements

Pictogram



Signal Word: Danger

Hazard Statements

H302	Harmful if swallowed.
H315	Causes skin irritation.
H319	Causes serious eye irritation.
H331	Toxic if inhaled.
H336	May cause drowsiness or dizziness.
H351	Suspected of causing cancer.
H361	Suspected of damaging fertility or the unborn child.
H372	Causes damage to organs (Liver, Kidney) through prolonged or repeated exposure if swallowed.
H402	Harmful to aquatic life.

Precautionary Statements

P201	Obtain special instructions before use.
P202	Do not handle until all safety precautions have been read and understood.
P260	Do not breathe mist or vapors.
P264	Wash skin thoroughly after handling.
P270	Do not eat, drink or smoke when using this product.
P271	Use only outdoors or in a well-ventilated area.
P273	Avoid release to the environment.
P280	Wear protective gloves/ protective clothing/ eye protection/ face protection.
P301 + P312 + P330	IF SWALLOWED: Call a POISON CENTER/ doctor if you feel unwell. Rinse mouth.
P302 + P352	IF ON SKIN: Wash with plenty of soap and water.
P304 + P340 + P311	IF INHALED: Remove person to fresh air and keep comfortable for breathing. Call a POISON CENTER/ doctor.
P305 + P351 + P338	IF IN EYES: Rinse cautiously with water for several minutes. Remove contact lenses, if present and easy to do. Continue rinsing.
P308 + P313	IF exposed or concerned: Get medical advice/ attention.
P332 + P313	If skin irritation occurs: Get medical advice/ attention.
P337 + P313	If eye irritation persists: Get medical advice/ attention.
P362	Take off contaminated clothing and wash before reuse.
P403 + P233	Store in a well-ventilated place. Keep container tightly closed.
P405	Store locked up.
P501	Dispose of contents/ container to an approved waste disposal

The life science business of Merck KGaA, Darmstadt, Germany
operates as MilliporeSigma in the US and Canada

plant.

2.3 Hazards not otherwise classified (HNOC) or not covered by GHS - none

SECTION 3: Composition/information on ingredients

3.1 Substances

Synonyms : Trichloromethane
Methylidyne trichloride

Formula : $CHCl_3$
Molecular weight : 119.38 g/mol
CAS-No. : 67-66-3
EC-No. : 200-663-8
Index-No. : 602-006-00-4

Component	Classification	Concentration
Chloroform		
	Acute Tox. 4; Acute Tox. 3; Skin Irrit. 2; Eye Irrit. 2A; Carc. 2; Repr. 2; STOT SE 3; STOT RE 1; Aquatic Acute 3; H302, H331, H315, H319, H351, H361, H336, H372, H402 Concentration limits: 20 %: STOT SE 3, H336;	<= 100 %

ethanol		
	Flam. Liq. 2; Eye Irrit. 2A; H225, H319 Concentration limits: >= 50 %: Eye Irrit. 2A, H319;	>= 1 - < 5 %

For the full text of the H-Statements mentioned in this Section, see Section 16.

SECTION 4: First aid measures

4.1 Description of first-aid measures

General advice
First aiders need to protect themselves. Show this material safety data sheet to the doctor in attendance.

If inhaled
After inhalation: fresh air. Immediately call in physician. If breathing stops: immediately apply artificial respiration, if necessary also oxygen.

The life science business of Merck KGaA, Darmstadt, Germany
operates as MilliporeSigma in the US and Canada

In case of skin contact
In case of skin contact: Take off immediately all contaminated clothing. Rinse skin with water/ shower. Consult a physician.

In case of eye contact
After eye contact: rinse out with plenty of water. Call in ophthalmologist. Remove contact lenses.

If swallowed
After swallowing: immediately make victim drink water (two glasses at most). Consult a physician.

4.2 Most important symptoms and effects, both acute and delayed
The most important known symptoms and effects are described in the labelling (see section 2.2) and/or in section 11

4.3 Indication of any immediate medical attention and special treatment needed
No data available

SECTION 5: Firefighting measures

5.1 Extinguishing media

Suitable extinguishing media
Water Foam Carbon dioxide (CO2) Dry powder

Unsuitable extinguishing media
For this substance/mixture no limitations of extinguishing agents are given.

5.2 Special hazards arising from the substance or mixture
Carbon oxides
Hydrogen chloride gas
Combustible.
Development of hazardous combustion gases or vapours possible in the event of fire.

5.3 Advice for firefighters
Stay in danger area only with self-contained breathing apparatus. Prevent skin contact by keeping a safe distance or by wearing suitable protective clothing.

5.4 Further information
Suppress (knock down) gases/vapors/mists with a water spray jet. Prevent fire extinguishing water from contaminating surface water or the ground water system.

SECTION 6: Accidental release measures

6.1 Personal precautions, protective equipment and emergency procedures
Advice for non-emergency personnel: Do not breathe vapors, aerosols. Avoid substance contact. Ensure adequate ventilation. Evacuate the danger area, observe emergency procedures, consult an expert.
For personal protection see section 8.

6.2 Environmental precautions
Do not let product enter drains.

The life science business of Merck KGaA, Darmstadt, Germany
operates as MilliporeSigma in the US and Canada

6.3 Methods and materials for containment and cleaning up

Cover drains. Collect, bind, and pump off spills. Observe possible material restrictions (see sections 7 and 10). Take up carefully with liquid-absorbent material (e.g. Chemizorb®). Dispose of properly. Clean up affected area.

6.4 Reference to other sections

For disposal see section 13.

SECTION 7: Handling and storage

7.1 Precautions for safe handling

Advice on safe handling

Work under hood. Do not inhale substance/mixture. Avoid generation of vapours/aerosols.

Hygiene measures

Immediately change contaminated clothing. Apply preventive skin protection. Wash hands and face after working with substance.
For precautions see section 2.2.

7.2 Conditions for safe storage, including any incompatibilities

Storage conditions

Tightly closed. Keep in a well-ventilated place. Keep locked up or in an area accessible only to qualified or authorized persons.

Storage class

Storage class (TRGS 510): 6.1D: Non-combustible, acute toxic Cat.3 / toxic hazardous materials or hazardous materials causing chronic effects

7.3 Specific end use(s)

Apart from the uses mentioned in section 1.2 no other specific uses are stipulated

SECTION 8: Exposure controls/personal protection

8.1 Control parameters

Ingredients with workplace control parameters

Component	CAS-No.	Value	Control parameters	Basis
Chloroform	67-66-3	TWA	10 ppm	USA. ACGIH Threshold Limit Values (TLV)
	Remarks	Confirmed animal carcinogen with unknown relevance to humans		
		ST	2 ppm 9.78 mg/m3	USA. NIOSH Recommended Exposure Limits
		Potential Occupational Carcinogen		

The life science business of Merck KGaA, Darmstadt, Germany
operates as MilliporeSigma in the US and Canada

		C	50 ppm 240 mg/m3	USA. Occupational Exposure Limits (OSHA) - Table Z-1 Limits for Air Contaminants
		PEL	2 ppm 9.78 mg/m3	California permissible exposure limits for chemical contaminants (Title 8, Article 107)
ethanol	64-17-5	TWA	1,000 ppm 1,900 mg/m3	USA. Occupational Exposure Limits (OSHA) - Table Z-1 Limits for Air Contaminants
		STEL	1,000 ppm	USA. ACGIH Threshold Limit Values (TLV)
		Confirmed animal carcinogen with unknown relevance to humans		
		TWA	1,000 ppm 1,900 mg/m3	USA. NIOSH Recommended Exposure Limits
		PEL	1,000 ppm 1,900 mg/m3	California permissible exposure limits for chemical contaminants (Title 8, Article 107)

8.2 Exposure controls

Appropriate engineering controls
Immediately change contaminated clothing. Apply preventive skin protection. Wash hands and face after working with substance.

Personal protective equipment

Eye/face protection
Use equipment for eye protection tested and approved under appropriate government standards such as NIOSH (US) or EN 166(EU). Safety glasses

Skin protection
This recommendation applies only to the product stated in the safety data sheet, supplied by us and for the designated use. When dissolving in or mixing with other substances and under conditions deviating from those stated in EN 16523-1 please contact the supplier of CE-approved gloves (e.g. KCL GmbH, D-36124 Eichenzell, Internet: www.kcl.de).
Full contact
Material: Viton®
Minimum layer thickness: 0.7 mm
Break through time: 480 min
Material tested:Vitoject® (KCL 890 / Aldrich Z677698, Size M)

This recommendation applies only to the product stated in the safety data sheet, supplied by us and for the designated use. When dissolving in or mixing with other substances and under conditions deviating from those stated in EN 16523-1 please contact the supplier of CE-approved gloves (e.g. KCL GmbH, D-36124 Eichenzell, Internet: www.kcl.de).
Splash contact
Material: butyl-rubber
Minimum layer thickness: 0.7 mm
Break through time: 10 min

The life science business of Merck KGaA, Darmstadt, Germany
operates as MilliporeSigma in the US and Canada

Material tested:Butoject® (KCL 898)

Body Protection
protective clothing

Respiratory protection
Recommended Filter type: Filter type AX
The entrepeneur has to ensure that maintenance, cleaning and testing of respiratory protective devices are carried out according to the instructions of the producer. These measures have to be properly documented.
required when vapours/aerosols are generated.
Our recommendations on filtering respiratory protection are based on the following standards: DIN EN 143, DIN 14387 and other accompanying standards relating to the used respiratory protection system.

Control of environmental exposure
Do not let product enter drains.

SECTION 9: Physical and chemical properties

9.1 Information on basic physical and chemical properties

a)	Appearance	Form: liquid, clear Color: colorless
b)	Odor	sweet
c)	Odor Threshold	205 ppm
d)	pH	No data available
e)	Melting point/freezing point	Melting point: -64 °C (-83 °F)
f)	Initial boiling point and boiling range	60.5 - 61.5 °C 140.9 - 142.7 °F at 1,013.25 hPa
g)	Flash point	() - Regulation (EC) No. 440/2008, Annex, A.9does not flash
h)	Evaporation rate	No data available
i)	Flammability (solid, gas)	No data available
j)	Upper/lower flammability or explosive limits	No data available
k)	Vapor pressure	210 hPa at 20 °C (68 °F)
l)	Vapor density	4.12 - (Air = 1.0)
m)	Density	1.49 g/cm3 at 25 °C (77 °F)
	Relative density	No data available
n)	Water solubility	8.7 g/l at 23 °C (73 °F) - OECD Test Guideline 105 - soluble
o)	Partition coefficient: n-octanol/water	No data available

The life science business of Merck KGaA, Darmstadt, Germany
operates as MilliporeSigma in the US and Canada

p)	Autoignition temperature	No data available
q)	Decomposition temperature	Distillable in an undecomposed state at normal pressure.
r)	Viscosity	No data available
s)	Explosive properties	Not classified as explosive.
t)	Oxidizing properties	none

9.2 Other safety information

Solubility in other solvents	organic solvent at 20 °C (68 °F) - miscible
Relative vapor density	4.12 - (Air = 1.0)

SECTION 10: Stability and reactivity

10.1 Reactivity

No data available

10.2 Chemical stability

The product is chemically stable under standard ambient conditions (room temperature) .
Contains the following stabilizer(s):
ethanol (>=0.5 - <=1 %)

10.3 Possibility of hazardous reactions

Risk of explosion with:
Ammonia
Amines
nitrogen oxides
bases
Oxygen
alkali amides
organic nitro compounds
strong alkalis
Fluorine
peroxi compounds
Alkaline earth metals
Alkali metals
Powdered metals
Methanol
with
alcoholates
Methanol
with
strong alkalis
Iron
in powder form
various alloys

The life science business of Merck KGaA, Darmstadt, Germany
operates as MilliporeSigma in the US and Canada

sensitive to shock
Methanol
with
Sodium hydroxide
magnesium
in powder form
Oxygen
with
alkali compounds
Aluminum
in powder form
Acetone
with
alkali compounds
Potassium
sensitive to shock
sodium
sensitive to shock
Violent reactions possible with:
phosphines
bis(dimethylamino)dimethyl tin
nonmetallic hydrogen compounds
Powdered metals
Light metals
Ketones
mineral acids
Strong oxidizing agents
semimetallic hydrogen compounds

10.4 Conditions to avoid
no information available

10.5 Incompatible materials
No data available

10.6 Hazardous decomposition products
In the event of fire: see section 5

SECTION 11: Toxicological information

11.1 Information on toxicological effects

Acute toxicity
Acute toxicity estimate Oral - 912.56 mg/kg
(Calculation method)
LD50 Oral - Rat - male - 908 mg/kg
(OECD Test Guideline 401)
Acute toxicity estimate Inhalation - 4 h - 3.12 mg/l - vapor(Calculation method)

LC50 Inhalation - Rat - 6 h - 9.17 mg/l - vapor

The life science business of Merck KGaA, Darmstadt, Germany
operates as MilliporeSigma in the US and Canada

Acute toxicity estimate Inhalation - Expert judgment - 4 h - 3.1 mg/l - vapor

Dermal: No data available
No data available

Skin corrosion/irritation
Skin - Rabbit
Result: Irritating to skin. - 24 h
Remarks: (ECHA)
Remarks: Drying-out effect resulting in rough and chapped skin.
Skin - Rabbit
Result: slight irritation
Remarks: (IUCLID)

Serious eye damage/eye irritation
Eyes - Rabbit
Result: Irritating to eyes.
Remarks: (ECHA)
Remarks: (Regulation (EC) No 1272/2008, Annex VI)

Respiratory or skin sensitization
Maximization Test - Guinea pig
Result: negative
(Regulation (EC) No. 440/2008, Annex, B.6)

Germ cell mutagenicity
Test Type: Ames test
Test system: Escherichia coli/Salmonella typhimurium
Metabolic activation: with and without metabolic activation
Result: negative
Remarks: (ECHA)
Test Type: unscheduled DNA synthesis assay
Test system: Liver
Metabolic activation: without metabolic activation
Result: negative
Remarks: (ECHA)

Test Type: Micronucleus test
Species: Rat
Cell type: Red blood cells (erythrocytes)
Application Route: Oral
Method: OECD Test Guideline 474
Result: negative

Test Type: unscheduled DNA synthesis assay
Species: Rat
Cell type: Liver cells
Application Route: Oral
Method: OECD Test Guideline 486
Result: negative

Test Type: in vivo assay
Species: Mouse

The life science business of Merck KGaA, Darmstadt, Germany
operates as MilliporeSigma in the US and Canada

Application Route: Inhalation

Result: negative
Remarks: (ECHA)

Carcinogenicity
Suspected of causing cancer.

IARC: 2B - Group 2B: Possibly carcinogenic to humans (Chloroform)

NTP: RAHC - Reasonably anticipated to be a human carcinogen (Chloroform)

OSHA: No component of this product present at levels greater than or equal to 0.1% is on OSHA's list of regulated carcinogens.

Reproductive toxicity
Suspected of damaging the unborn child.

Specific target organ toxicity - single exposure
May cause drowsiness or dizziness.

Specific target organ toxicity - repeated exposure
Oral - Causes damage to organs through prolonged or repeated exposure.
- Liver, Kidney

Aspiration hazard
No data available

11.2 Additional Information

Repeated dose toxicity - Rat - female - Oral - NOAEL (No observed adverse effect level) - 34 mg/kg

Vomiting, Cough, irritant effects, Shortness of breath, respiratory arrest, narcosis, Dizziness, Nausea, agitation, spasms, inebriation, Headache, Stomach/intestinal disorders, ataxia (impaired locomotor coordination), cardiovascular disorders
Drying-out effect resulting in rough and chapped skin.
To the best of our knowledge, the chemical, physical, and toxicological properties have not been thoroughly investigated.

Stomach - Irregularities - Based on Human Evidence

SECTION 12: Ecological information

12.1 Toxicity

Toxicity to daphnia and other aquatic invertebrates	static test EC50 - Crassostrea gigas - 152.5 mg/l - 48 h Remarks: (ECHA)
Toxicity to algae	static test ErC50 - Chlamydomonas reinhardtii (green algae) - 13.3 mg/l - 72 h Remarks: (ECHA)

The life science business of Merck KGaA, Darmstadt, Germany
operates as MilliporeSigma in the US and Canada

Toxicity to daphnia and other aquatic invertebrates(Chronic toxicity)	semi-static test NOEC - Daphnia magna (Water flea) - 6.3 mg/l - 21 d Remarks: (ECHA)

12.2 Persistence and degradability
No data available

12.3 Bioaccumulative potential
No data available

12.4 Mobility in soil
No data available

12.5 Results of PBT and vPvB assessment
PBT/vPvB assessment not available as chemical safety assessment not required/not conducted

12.6 Endocrine disrupting properties
No data available

12.7 Other adverse effects
No data available

SECTION 13: Disposal considerations

13.1 Waste treatment methods

Product
Waste material must be disposed of in accordance with the national and local regulations. Leave chemicals in original containers. No mixing with other waste. Handle uncleaned containers like the product itself.

SECTION 14: Transport information

DOT (US)
UN number: 1888 Class: 6.1 Packing group: III
Proper shipping name: ChloroformSOLUTION

Reportable Quantity (RQ): 10 lbs
Reportable Quantity (RQ): 10 lbs
Poison Inhalation Hazard: No

IMDG
UN number: 1888 Class: 6.1 Packing group: III EMS-No: F-A, S-A
Proper shipping name: CHLOROFORMSOLUTION

The life science business of Merck KGaA, Darmstadt, Germany
operates as MilliporeSigma in the US and Canada

IATA
UN number: 1888 Class: 6.1 Packing group: III
Proper shipping name: ChloroformSOLUTION

SECTION 15: Regulatory information

CERCLA Reportable Quantity

Components	CAS-No.	Component RQ (lbs)	Calculated product RQ (lbs)
Chloroform	67-66-3	10	10
Chloroform	67-66-3	10	10 (D022)

SARA 304 Extremely Hazardous Substances Reportable Quantity

Components	CAS-No.	Component RQ (lbs)	Calculated product RQ (lbs)
Chloroform	67-66-3	10	10

SARA 302 Extremely Hazardous Substances Threshold Planning Quantity

Components	CAS-No.	Component TPQ (lbs)
Chloroform	67-66-3	10000

SARA 313 : The following components are subject to reporting levels established by SARA Title III, Section 313:

Chloroform 67-66-3 >= 90 - <= 100 %

US State Regulations

Massachusetts Right To Know

Chloroform 67-66-3
ethanol 64-17-5

Pennsylvania Right To Know

Chloroform 67-66-3
ethanol 64-17-5

Maine Chemicals of High Concern

Product does not contain any listed chemicals

Vermont Chemicals of High Concern

Product does not contain any listed chemicals

Washington Chemicals of High Concern

Product does not contain any listed chemicals

California Prop. 65

WARNING: This product can expose you to chemicals including Chloroform, which is/are known to the State of California to cause cancer and birth defects or other reproductive harm. For more information go to www.P65Warnings.ca.gov.

The ingredients of this product are reported in the following inventories:

TSCA : All substances listed as active on the TSCA inventory

The life science business of Merck KGaA, Darmstadt, Germany
operates as MilliporeSigma in the US and Canada

TSCA list

No substances are subject to a Significant New Use Rule.

No substances are subject to TSCA 12(b) export notification requirements.

SECTION 16: Other information

Further information

The information is believed to be correct but is not exhaustive and will be used solely as a guideline, which is based on current knowledge of the chemical substance or mixture and is applicable to appropriate safety precautions for the product. It does not represent any guarantee of the properties of the product. Sigma-Aldrich Corporation and its Affiliates shall not be held liable for any damage resulting from handling or from contact with the above product. See www.sigma-aldrich.com and/or the reverse side of invoice or packing slip for additional terms and conditions of sale.

Copyright 2020 Sigma-Aldrich Co. LLC. License granted to make unlimited paper copies for internal use only.

The branding on the header and/or footer of this document may temporarily not visually match the product purchased as we transition our branding. However, all of the information in the document regarding the product remains unchanged and matches the product ordered. For further information please contact mlsbranding@sial.com.

Version: 6.11 Revision Date: 09/06/2024 Print Date: 09/07/2024

The life science business of Merck KGaA, Darmstadt, Germany
operates as MilliporeSigma in the US and Canada

SAFETY DATA SHEET

Version 6.8
Revision Date 09/07/2024
Print Date 09/08/2024

SECTION 1: Identification of the substance/mixture and of the company/undertaking

1.1 Product identifiers

Product name : Chromium

Product Number : 266299
Brand : Aldrich
CAS-No. : 7440-47-3

1.2 Relevant identified uses of the substance or mixture and uses advised against

Identified uses : Laboratory chemicals, Synthesis of substances

Uses advised against : The product is being supplied under the TSCA R&D Exemption (40 CFR Section 720.36). It is the recipient's responsibility to comply with the requirements of the R&D exemption. The product may not be used for a non-exempt commercial purpose under TSCA unless appropriate consent is granted in writing by MilliporeSigma.

1.3 Details of the supplier of the safety data sheet

Company : Sigma-Aldrich Inc.
3050 SPRUCE ST
ST. LOUIS MO 63103
UNITED STATES

Telephone : +1 314 771-5765
Fax : +1 800 325-5052

1.4 Emergency telephone

Emergency Phone # : 800-424-9300 CHEMTREC (USA) +1-703-527-3887 CHEMTREC (International) 24 Hours/day; 7 Days/week

SECTION 2: Hazards identification

2.1 Classification of the substance or mixture

Not a hazardous substance or mixture.

2.2 GHS Label elements, including precautionary statements

Not a hazardous substance or mixture.

2.3 Hazards not otherwise classified (HNOC) or not covered by GHS - none

The life science business of Merck KGaA, Darmstadt, Germany
operates as MilliporeSigma in the US and Canada

SECTION 3: Composition/information on ingredients

3.1 Substances

Formula : Cr
Molecular weight : 52.00 g/mol
CAS-No. : 7440-47-3
EC-No. : 231-157-5

Component	Classification	Concentration
chromium		
		<= 100 %

SECTION 4: First aid measures

4.1 Description of first-aid measures

If inhaled
After inhalation: fresh air.

In case of skin contact
In case of skin contact: Take off immediately all contaminated clothing. Rinse skin with water/ shower.

In case of eye contact
After eye contact: rinse out with plenty of water. Remove contact lenses.

If swallowed
After swallowing: make victim drink water (two glasses at most). Consult doctor if feeling unwell.

4.2 Most important symptoms and effects, both acute and delayed

The most important known symptoms and effects are described in the labelling (see section 2.2) and/or in section 11

4.3 Indication of any immediate medical attention and special treatment needed

No data available

SECTION 5: Firefighting measures

5.1 Extinguishing media

Unsuitable extinguishing media
For this substance/mixture no limitations of extinguishing agents are given.

5.2 Special hazards arising from the substance or mixture

Chromium oxides

5.3 Advice for firefighters

In the event of fire, wear self-contained breathing apparatus.

The life science business of Merck KGaA, Darmstadt, Germany
operates as MilliporeSigma in the US and Canada

5.4 Further information
none

SECTION 6: Accidental release measures

6.1 Personal precautions, protective equipment and emergency procedures
Advice for non-emergency personnel: Avoid inhalation of dusts. Evacuate the danger area, observe emergency procedures, consult an expert.
For personal protection see section 8.

6.2 Environmental precautions
No special precautionary measures necessary.

6.3 Methods and materials for containment and cleaning up
Observe possible material restrictions (see sections 7 and 10). Take up dry. Dispose of properly. Clean up affected area. Avoid generation of dusts.

6.4 Reference to other sections
For disposal see section 13.

SECTION 7: Handling and storage

7.1 Precautions for safe handling
For precautions see section 2.2.

7.2 Conditions for safe storage, including any incompatibilities

Storage conditions
Tightly closed. Dry.

Air sensitive.

Storage class
Storage class (TRGS 510): 11: Combustible Solids

7.3 Specific end use(s)
Apart from the uses mentioned in section 1.2 no other specific uses are stipulated

SECTION 8: Exposure controls/personal protection

8.1 Control parameters

Ingredients with workplace control parameters

The life science business of Merck KGaA, Darmstadt, Germany
operates as MilliporeSigma in the US and Canada

Component	CAS-No.	Value	Control parameters	Basis
chromium	7440-47-3	TWA	0.5 mg/m3	USA. ACGIH Threshold Limit Values (TLV)
		PEL	0.5 mg/m3	California permissible exposure limits for chemical contaminants (Title 8, Article 107)
		TWA	1 mg/m3	USA. Occupational Exposure Limits (OSHA) - Table Z-1 Limits for Air Contaminants

Biological occupational exposure limits

Component	CAS-No.	Parameters	Value	Biological specimen	Basis
chromium	7440-47-3	Total chromium	0.7 µg/l	Urine	ACGIH - Biological Exposure Indices (BEI)
	Remarks	End of shift at end of workweek			

8.2 Exposure controls

Appropriate engineering controls
Change contaminated clothing. Wash hands after working with substance.

Personal protective equipment

Eye/face protection
Use equipment for eye protection tested and approved under appropriate government standards such as NIOSH (US) or EN 166(EU). Safety glasses

Skin protection
Handle with gloves. Gloves must be inspected prior to use. Use proper glove removal technique (without touching glove's outer surface) to avoid skin contact with this product. Dispose of contaminated gloves after use in accordance with applicable laws and good laboratory practices. Wash and dry hands.

Full contact
Material: Nitrile rubber
Minimum layer thickness: 0.11 mm
Break through time: 480 min
Material tested:Dermatril® (KCL 740 / Aldrich Z677272, Size M)

Splash contact
Material: Nitrile rubber
Minimum layer thickness: 0.11 mm
Break through time: 480 min
Material tested:Dermatril® (KCL 740 / Aldrich Z677272, Size M)

data source: KCL GmbH, D-36124 Eichenzell, phone +49 (0)6659 87300, e-mail sales@kcl.de, test method: EN374
If used in solution, or mixed with other substances, and under conditions which differ from EN 374, contact the supplier of the EC approved gloves. This recommendation is advisory only and must be evaluated by an industrial hygienist and safety officer familiar with the specific situation of anticipated use by our

The life science business of Merck KGaA, Darmstadt, Germany
operates as MilliporeSigma in the US and Canada

customers. It should not be construed as offering an approval for any specific use scenario.

Respiratory protection
Recommended Filter type: Filter type P1
The entrepeneur has to ensure that maintenance, cleaning and testing of respiratory protective devices are carried out according to the instructions of the producer. These measures have to be properly documented.
required when dusts are generated.
Our recommendations on filtering respiratory protection are based on the following standards: DIN EN 143, DIN 14387 and other accompanying standards relating to the used respiratory protection system.

Control of environmental exposure
No special precautionary measures necessary.

SECTION 9: Physical and chemical properties

9.1 Information on basic physical and chemical properties

a)	Appearance	Form: powder Color: light gray
b)	Odor	odorless
c)	Odor Threshold	No data available
d)	pH	No data available
e)	Melting point/freezing point	Melting point/ range: 1,857 °C (3,375 °F) - lit.
f)	Initial boiling point and boiling range	2,672 °C 4,842 °F - lit.
g)	Flash point	()Not applicable
h)	Evaporation rate	No data available
i)	Flammability (solid, gas)	No data available
j)	Upper/lower flammability or explosive limits	No data available
k)	Vapor pressure	No data available
l)	Vapor density	No data available
m)	Density	7.14 g/mL at 25 °C (77 °F) - lit.
	Relative density	No data available
n)	Water solubility	insoluble
o)	Partition coefficient: n-octanol/water	Not applicable for inorganic substances

The life science business of Merck KGaA, Darmstadt, Germany
operates as MilliporeSigma in the US and Canada

p)	Autoignition temperature	No data available
q)	Decomposition temperature	No data available
r)	Viscosity	No data available
s)	Explosive properties	No data available
t)	Oxidizing properties	none

9.2 Other safety information
No data available

SECTION 10: Stability and reactivity

10.1 Reactivity
No data available

10.2 Chemical stability
The product is chemically stable under standard ambient conditions (room temperature) .

10.3 Possibility of hazardous reactions
No data available

10.4 Conditions to avoid
no information available

10.5 Incompatible materials
Strong acids, Strong oxidizing agents

10.6 Hazardous decomposition products
In the event of fire: see section 5

SECTION 11: Toxicological information

11.1 Information on toxicological effects

Acute toxicity
Oral: No data available
Inhalation: No data available
Dermal: No data available
No data available

Skin corrosion/irritation
Remarks: No data available

Serious eye damage/eye irritation
Remarks: No data available

Respiratory or skin sensitization
No data available

Germ cell mutagenicity

The life science business of Merck KGaA, Darmstadt, Germany
operates as MilliporeSigma in the US and Canada

No data available

Carcinogenicity

IARC: No ingredient of this product present at levels greater than or equal to 0.1% is identified as probable, possible or confirmed human carcinogen by IARC.

NTP: No ingredient of this product present at levels greater than or equal to 0.1% is identified as a known or anticipated carcinogen by NTP.

OSHA: No component of this product present at levels greater than or equal to 0.1% is on OSHA's list of regulated carcinogens.

Reproductive toxicity
No data available

Specific target organ toxicity - single exposure
No data available

Specific target organ toxicity - repeated exposure
No data available

Aspiration hazard
No data available

11.2 Additional Information

RTECS: GB4200000
To the best of our knowledge, the chemical, physical, and toxicological properties have not been thoroughly investigated.

Stomach - Irregularities - Based on Human Evidence

Stomach - Irregularities - Based on Human Evidence

SECTION 12: Ecological information

12.1 Toxicity

Toxicity to fish	LC50 - Cyprinus carpio (Carp) - 14.3 mg/l - 96 h
Toxicity to daphnia and other aquatic invertebrates	EC50 - Daphnia magna (Water flea) - 0.07 mg/l - 48 h

12.2 Persistence and degradability

The methods for determining biodegradability are not applicable to inorganic substances.

12.3 Bioaccumulative potential

Bioaccumulation	Oncorhynchus mykiss (rainbow trout) - 30 d - 50 µg/l(chromium)
	Bioconcentration factor (BCF): 1.03 - 1.22

12.4 Mobility in soil

No data available

The life science business of Merck KGaA, Darmstadt, Germany
operates as MilliporeSigma in the US and Canada

12.5 Results of PBT and vPvB assessment

PBT/vPvB assessment not available as chemical safety assessment not required/not conducted

12.6 Endocrine disrupting properties

No data available

12.7 Other adverse effects

No data available

SECTION 13: Disposal considerations

13.1 Waste treatment methods

Product

Waste material must be disposed of in accordance with the national and local regulations. Leave chemicals in original containers. No mixing with other waste. Handle uncleaned containers like the product itself.

SECTION 14: Transport information

DOT (US)

UN number: 3077 Class: 9 Packing group: III

Proper shipping name: Environmentally hazardous substance, solid, n.o.s. (chromium)

Reportable Quantity (RQ): 5000 lbs

Reportable Quantity (RQ): 10 lbs

Poison Inhalation Hazard: No

IMDG

Not dangerous goods

IATA

Not dangerous goods

Further information

Not classified as dangerous in the meaning of transport regulations.

SECTION 15: Regulatory information

CERCLA Reportable Quantity

Components	CAS-No.	Component RQ (lbs)	Calculated product RQ (lbs)
chromium	7440-47-3	5000	5000

The life science business of Merck KGaA, Darmstadt, Germany
operates as MilliporeSigma in the US and Canada

SARA 304 Extremely Hazardous Substances Reportable Quantity

This material does not contain any components with a section 304 EHS RQ.

SARA 302 Extremely Hazardous Substances Threshold Planning Quantity

This material does not contain any components with a section 302 EHS TPQ.

SARA 311/312 Hazards : Chronic Health Hazard

SARA 313 : The following components are subject to reporting levels established by SARA Title III, Section 313:

chromium	7440-47-3	>= 90 - <= 100 %

US State Regulations

Massachusetts Right To Know

chromium	7440-47-3

Pennsylvania Right To Know

chromium	7440-47-3

Maine Chemicals of High Concern

Product does not contain any listed chemicals

Vermont Chemicals of High Concern

Product does not contain any listed chemicals

Washington Chemicals of High Concern

Product does not contain any listed chemicals

The ingredients of this product are reported in the following inventories:

TSCA : All substances listed as active on the TSCA inventory

TSCA list

No substances are subject to a Significant New Use Rule.

No substances are subject to TSCA 12(b) export notification requirements.

SECTION 16: Other information

Further information

The information is believed to be correct but is not exhaustive and will be used solely as a guideline, which is based on current knowledge of the chemical substance or mixture and is applicable to appropriate safety precautions for the product. It does not represent any guarantee of the properties of the product. Sigma-Aldrich Corporation and its Affiliates shall not be held liable for any damage resulting from handling or from contact with the above product. See www.sigma-aldrich.com and/or the reverse side of invoice or packing slip for additional terms and conditions of sale.

Copyright 2020 Sigma-Aldrich Co. LLC. License granted to make unlimited paper copies for internal use only.

The life science business of Merck KGaA, Darmstadt, Germany
operates as MilliporeSigma in the US and Canada

The branding on the header and/or footer of this document may temporarily not visually match the product purchased as we transition our branding. However, all of the information in the document regarding the product remains unchanged and matches the product ordered. For further information please contact mlsbranding@sial.com.

The life science business of Merck KGaA, Darmstadt, Germany
operates as MilliporeSigma in the US and Canada

SAFETY DATA SHEET

Based on Directive 2001/58/EC of the Commission of the European Communities

CHRYSENE

1. Identification of the substance/preparation and of the company/undertaking

1.1 Identification of the substance or preparation:

Synonyms: none
CAS No. : 218-01-9
EC index No. : 601-048-00-0
EINECS No. : 205-923-4
RTECS No. : GC0700000
BCR number : BCR-269
NFPA code : N.D.
Molecular weight : 228.30
Formula : C18H12

1.2 Use of the substance or the preparation:
Certified reference material for laboratory use only

1.3 Company/undertaking identification:
Institute for Reference Materials and Measurements
Retieseweg
B-2440 Geel
Tel. : +32 14 57 12 11
Fax : +32 14 58 42 73

1.4 Telephone number for emergency:
+32 70 245 245
Antigifcentrum
p/a Militair Hospitaal Koningin Astrid, Bruynstraat, B-1120 Brussel

2. Composition/information on ingredients

Hazardous ingredients	CAS No. EINECS No.	Conc. in %	Hazard symbol	Risks (R-phrases)
chrysene	218-01-9 205-923-4	100	T;N	45-50/53 (1)

(1) For R-phrases in full: see heading 16

3. Hazards identification

- May cause cancer
- Very toxic to aquatic organisms, may cause long-term adverse effects in the aquatic environment

4. First aid measures

4.1 Eye contact:
- Consult a doctor/medical service if irritation persists
- Rinse immediately with water

4.2 Skin contact:
- Consult a doctor/medical service if irritation persists
- Wash with water and soap
- Wipe off dry product from skin
- Remove clothing before washing

4.3 After inhalation:
- Consult a doctor/medical service if breathing problems develop
- Remove the victim into fresh air
- Unconscious: maintain adequate airway and respiration

4.4 After ingestion:
- Consult a doctor/medical service if you feel unwell
- Immediately give lots of water to drink
- Never give water to an unconscious person

- Do not induce vomiting

5. Fire-fighting measures

5.1 Suitable extinguishing media:
- Water spray
- Alcohol foam
- Polymer foam
- ABC powder
- Carbon dioxide

5.2 Unsuitable extinguishing media:
- Solid water jet ineffective as extinguishing medium

5.3 Special exposure hazards:
- Not easily combustible
- Upon combustion CO and CO2 are formed

5.4 Instructions:
- Take account of toxic firefighting water
- Use firefighting water moderately and contain it

5.5 Special protective equipment for firefighters:
- Heat/fire exposure: compressed air/oxygen apparatus
- Dust cloud production: compressed air/oxygen apparatus

6. Accidental release measures

6.1 Personal protection/precautions: see heading 8.1/8.3/10.3

6.2 Environmental precautions:
- Prevent soil and water pollution
- Substance must not be discharged into the sewer
- Dam up the solid spill

6.3 Methods for cleaning up:
- Stop dust cloud by covering with sand/earth
- Carefully collect the spill/leftovers
- Scoop solid spill into closing containers
- Spill must not return in its original container
- Take collected spill to manufacturer/competent authority
- Clean contaminated surfaces with an excess of water
- Wash clothing and equipment after handling

7. Handling and storage

7.1 Handling:
- Observe strict hygiene
- Avoid prolonged and repeated contact with skin
- Avoid raising dust
- Do not discharge the waste into the drain
- Remove contaminated clothing immediately

7.2 Storage:
- Keep container tightly closed. Store only in a limited quantity. Store in a dry area. Store in a dark area.
- Keep away from: heat sources, ignition sources, oxidizing agents, acids

Storage temperature	:	N.D.	**°C**
Quantity limits	:	N.D.	**kg**
Storage life	:	N.D.	
Materials for packaging	:		

- suitable : no data available
- to avoid : no data available

7.3 Specific uses:
- See information supplied by the manufacturer

8. Exposure controls/Personal protection

8.1 Exposure limit values:

TLV-TWA	:	not listed
TLV-STEL	:	not listed
TLV-Ceiling	:	not listed
OES-LTEL	:	not listed
OES-STEL	:	not listed
MEL-LTEL	:	not listed
MEL-STEL	:	not listed
MAK	:	not listed
TRK	:	not listed
MAC-TGG 8 h	:	not listed
MAC-TGG 15 min.	:	not listed
MAC-Ceiling	:	not listed
VME-8 h	:	not listed
VLE-15 min.	:	not listed
GWBB-8 h	:	not listed
GWK-15 min.	:	not listed
Momentary value	:	not listed
EC	:	not listed
EC-STEL	:	not listed

Sampling methods:

- Chrysene (Polynuclear aromatic Hydrocarbons)	NIOSH 5515
- Chrysene	OSHA 58
- Chrysene (Polynuclear aromatic Hydrocarbons)	NIOSH 5506

8.2 Exposure controls:

8.2.1 Occupational exposure controls:
- Measure the concentration in the air regularly
- Work under local exhaust/ventilation

8.2.2 Environmental exposure controls: see heading 13

8.3 Personal protection:

8.3.1 respiratory protection:
- Dust production: dust mask with filter type P3
- High dust production: compressed air/oxygen apparatus

8.3.2 hand protection:
- Gloves
  Suitable materials: No data available

- Breakthrough time: N.D.

8.3.3 eye protection:
- Safety glasses
- In case of dust production: protective goggles

8.3.4 skin protection:
- Protective clothing
- In case of dust production: head/neck protection
  Suitable materials: No data available

9. Physical and chemical properties

9.1 General information:

Appearance (at 20°C)	:	Crystalline solid / Flakes
Odour	:	Odourless
Colour	:	White

9.2 Important health, safety and environmental information:

pH value	:	N.D.	
Boiling point/boiling range	:	448	**°C**
Flashpoint	:	N.D.	**°C**
Explosion limits	:	N.D.	**vol%** (**°C**)
Vapour pressure (at 20°C)	:	N.D.	**hPa**
Vapour pressure (at 50°C)	:	N.D.	**hPa**
Relative density (at 20°C)	:	1.27	
Water solubility	:	< 0.001	**g/100 ml**
Soluble in	:	N.D.	
Relative vapour density	:	N.D.	
Viscosity	:	N.D.	**Pa.s**
Partition coëfficient n-octanol/water	:	5.61/5.73	
Evaporation rate			
ratio to butyl acetate	:	N.D.	
ratio to ether	:	N.D.	

9.3 Other information:

Melting point/melting range	:	256	**°C**
Auto-ignition point	:	N.D.	**°C**
Saturation concentration	:	N.D.	**g/m^3**

10. Stability and reactivity

10.1 Conditions to avoid/reactivity:
- Stable under normal conditions

10.2 Materials to avoid:
- Keep away from: heat sources, ignition sources, oxidizing agents, acids

10.3 Hazardous decomposition products:
- Upon combustion CO and CO2 are formed
- Reacts violently with (strong) oxidizers
- Decomposes on exposure to (strong) acids

11. Toxicological information

11.1 Acute toxicity:

LD50 oral rat	:	N.D.	**mg/kg**
LD50 dermal rat	:	N.D.	**mg/kg**
LD50 dermal rabbit	:	N.D.	**mg/kg**
LC50 inhalation rat	:	N.D.	**mg/1/4 h**
LC50 inhalation rat	:	N.D.	**ppm/4 h**

11.2 Chronic toxicity:

EC carc. cat.	:	2
EC muta. cat.	:	3
EC repr. cat.	:	not listed
Carcinogenicity (TLV)	:	A3
Carcinogenicity (MAC)	:	K
Carcinogenicity (VME)	:	not listed
Carcinogenicity (GWBB)	:	not listed
Carcinogenicity (MAK)	:	2
Mutagenicity (MAK)	:	not listed
Teratogenicity (MAK)	:	-
IARC classification	:	3

11.3 Routes of exposure: ingestion, inhalation, eyes and skin
Caution! Substance is absorbed through the skin

11.4 Acute effects/symptoms:

AFTER SKIN CONTACT
- Slight irritation

11.5 Chronic effects:

- Probably human carcinogenic
- No certainty about human mutagenic properties

ON CONTINUOUS/REPEATED EXPOSURE/CONTACT:
- No specific information available

SIMILAR PRODUCTS CAUSE FOLLOWING SYMPTOMS:
- Feeling of weakness
- Photoallergy
- Cracking of the skin
- Skin rash/inflammation
- Skin cancer
- Lung tissue affection/degeneration
- Enlargement/affection of the liver
- Affection of the renal tissue

12. Ecological information

12.1 Ecotoxicity:

- LC50 (24 h) : 0.0007 mg/l (DAPHNIA MAGNA)
- LC50 (24 h) : >6.7 mg/l (RANA SP.)

12.2 Mobility:

- **Volatile organic compounds (VOC):** N.D.%

- Forming sediments in water
- Adsorbs into the soil
- Insoluble in water

For other physicochemical properties see heading 9.

12.3 Persistence and degradability:

- **biodegradation BOD_5** : N.D. **% ThOD**
- **water** : - Not readily biodegradable in water
- **soil** : **T ½:** > 77 **days**

12.4 Bioaccumulative potential:
- **log P_{ow}** : 5.61/5.73
- **BCF** : 4440 (LAMELLIBRANCHIATA)
- Highly bioaccumulative

12.5 Other adverse effects:

- **WGK** : 3 (Classification based on the R-phrases in compliance with Verwaltungsvorschrift wassergefährdender Stoffe (VwVwS) of 17 May 1999)
- **Effect on the ozone layer** : Not dangerous for the ozone layer (Council Regulation (EC) 3093/94)
- **Greenhouse effect** : no data available
- **Effect on waste water purification** : no data available

13. Disposal considerations

13.1 Provisions relating to waste:

- Waste material code (91/689/EEC, Council Decision
- 2001/118/EC, O.J. L47 of 16/2/2001): 16 05 06 (laboratory chemicals, consisting of or containing dangerous substances, including mixtures of laboratory)
- Waste material code (Flanders): 001, 045, 691
- Waste code (Germany): 59302
- Hazardous waste (91/689/EEC)

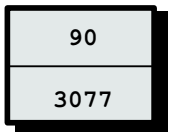
13.2 Disposal methods:

- Dissolve or mix with a combustible solvent
- Remove to an authorized incinerator equipped with an afterburner and a flue gas scrubber
- Do not discharge into surface water (2000/60/EEC, Council

13.3 Packaging/Container:

- Waste material code packaging (91/689/EEC, Council Decision
- 2001/118/EC, O.J. L47 of 16/2/2001): 15 01 10 (packaging containing residues of or contaminated by dangerous substances)

14. Transport information



14.1 Classification of the substance in compliance with UN Recommendations

UN number	: 3077
CLASS	: 9
SUB RISKS	: -
PACKING	: III
PROPER SHIPPING NAME	: UN 3077, Environmentally hazardous substance, solid, n.o.s. (chrysene)

14.2 ADR (transport by road)

CLASS	: 9
PACKING	: III
DANGER LABEL TANKS	: 9
DANGER LABEL PACKAGES	: 9

14.3 RID (transport by rail)

CLASS	: 9
PACKING	: III
DANGER LABEL TANKS	: 9
DANGER LABEL PACKAGES	: 9

14.4 ADNR (transport by inland waterways)

CLASS	: 9
PACKING	: III
DANGER LABEL TANKS	: 9
DANGER LABEL PACKAGES	: 9

14.5 IMDG (maritime transport)

CLASS	: 9
SUB RISKS	: -
PACKING	: III
MFAG	: -
EMS	: -
MARINE POLLUTANT	: P

14.6 ICAO (air transport)

CLASS	: 9
SUB RISKS	: -
PACKING	: III
PACKING INSTRUCTIONS PASSENGER AIRCRAFT	:
PACKING INSTRUCTIONS CARGO AIRCRAFT	:

14.7 Special precautions in connection with transport : none

14.8 Limited quantities (LQ) :

When substances and their packaging meet the conditions established by ADR/RID/ADNR in chapter 3.4, **only** the following prescriptions shall be complied with:
each package shall display a diamond-shaped figure with the following inscription:
- 'UN 3077'
or, in the case of different goods with different identification numbers within a single package:
- the letters 'LQ'

15. Regulatory information

Enumerated in substance list Annex I of directive 67/548/EEC et sequens



Toxic



Dangerous for the environment

R45 : May cause cancer
R50/53 : Very toxic to aquatic organisms, may cause long-term adverse effects in the aquatic environment

S53 : Avoid exposure - obtain special instructions before use
S45 : In case of accident or if you feel unwell, seek medical advice (show the label where possible)
S60 : This material and/or its container must be disposed of as hazardous waste
S61 : Avoid release to the environment. Refer to special instructions/safety data sheets.

16. Other information

The information provided on this MSDS is correct to the best of our knowledge, information and belief at the date of its publication. The information given is designed only as a guidance for safe handling, use, processing, storage, transportation, disposal and release and is not to be considered as a warranty or quality specification. The information relates only to the specific material designated and may not be valid for such material used in combination with any other material or in any process, unless specified in the text.

N.A. = NOT APPLICABLE
N.D. = NOT DETERMINED
***** = INTERNAL CLASSIFICATION

Full text of any R-phrases referred to under heading 2:

R45 : May cause cancer
R50/53 : Very toxic to aquatic organisms, may cause long-term adverse effects in the aquatic environment

Exposure limits:
TLV : Threshold Limit Value - ACGIH USA 2000
OES : Occupational Exposure Standards - United Kingdom 1999
MEL : Maximum Exposure Limits - United Kingdom 1999
MAK : Maximale Arbeitsplatzkonzentrationen - Germany 2001
TRK : Technische Richtkonzentrationen - Germany 2001
MAC : Maximale aanvaarde concentratie - The Netherlands 2002
VME : Valeurs limites de Moyenne d'Exposition - France 1999
VLE : Valeurs limites d'Exposition à court terme - France 1999
GWBB : Grenswaarde beroepsmatige blootstelling - Belgium 1998
GWK : Grenswaarde kortstondige blootstelling - Belgium 1998
EC : Indicative occupational exposure limit values - directive 2000/39/EC

Chronic toxicity:
K : List of the carcinogenic substances and processes - The Netherlands 2002

SAFETY DATA SHEET

Version 4.4
Revision Date 12/01/2015
Print Date 02/11/2016

1. PRODUCT AND COMPANY IDENTIFICATION

1.1 Product identifiers

Product name : cis-Dichloroethylene

Product Number : 48597
Brand : Supelco
Index-No. : 602-026-00-3

CAS-No. : 156-59-2

1.2 Relevant identified uses of the substance or mixture and uses advised against

Identified uses : Laboratory chemicals, Synthesis of substances

1.3 Details of the supplier of the safety data sheet

Company : Sigma-Aldrich
3050 Spruce Street
SAINT LOUIS MO 63103
USA

Telephone : +1 800-325-5832
Fax : +1 800-325-5052

1.4 Emergency telephone number

Emergency Phone # : (314) 776-6555

2. HAZARDS IDENTIFICATION

2.1 Classification of the substance or mixture

GHS Classification in accordance with 29 CFR 1910 (OSHA HCS)
Flammable liquids (Category 2), H225
Acute toxicity, Inhalation (Category 4), H332
Acute aquatic toxicity (Category 3), H402
Chronic aquatic toxicity (Category 3), H412

For the full text of the H-Statements mentioned in this Section, see Section 16.

2.2 GHS Label elements, including precautionary statements

Pictogram



Signal word Danger

Hazard statement(s)
H225 Highly flammable liquid and vapour.
H332 Harmful if inhaled.
H412 Harmful to aquatic life with long lasting effects.

Precautionary statement(s)
P210 Keep away from heat/sparks/open flames/hot surfaces. No smoking.
P233 Keep container tightly closed.
P240 Ground/bond container and receiving equipment.
P241 Use explosion-proof electrical/ ventilating/ lighting/ equipment.
P242 Use only non-sparking tools.

P243	Take precautionary measures against static discharge.
P261	Avoid breathing dust/ fume/ gas/ mist/ vapours/ spray.
P271	Use only outdoors or in a well-ventilated area.
P273	Avoid release to the environment.
P280	Wear protective gloves/ protective clothing/ eye protection/ face protection.
P303 + P361 + P353	IF ON SKIN (or hair): Remove/ Take off immediately all contaminated clothing. Rinse skin with water/ shower.
P304 + P340	IF INHALED: Remove victim to fresh air and keep at rest in a position comfortable for breathing.
P312	Call a POISON CENTER or doctor/ physician if you feel unwell.
P370 + P378	In case of fire: Use dry sand, dry chemical or alcohol-resistant foam for extinction.
P403 + P235	Store in a well-ventilated place. Keep cool.
P501	Dispose of contents/ container to an approved waste disposal plant.

2.3 Hazards not otherwise classified (HNOC) or not covered by GHS - none

3. COMPOSITION/INFORMATION ON INGREDIENTS

3.1 Substances

Formula	:	C2H2Cl2
Molecular weight	:	96.94 g/mol
CAS-No.	:	156-59-2
EC-No.	:	205-859-7
Index-No.	:	602-026-00-3

Hazardous components

Component	Classification	Concentration
cis-Dichloroethylene		
	Flam. Liq. 2; Acute Tox. 4; Aquatic Acute 3; Aquatic Chronic 3; H225, H332, H412	<= 100 %

For the full text of the H-Statements mentioned in this Section, see Section 16.

4. FIRST AID MEASURES

4.1 Description of first aid measures

General advice
Consult a physician. Show this safety data sheet to the doctor in attendance.Move out of dangerous area.

If inhaled
If breathed in, move person into fresh air. If not breathing, give artificial respiration. Consult a physician.

In case of skin contact
Wash off with soap and plenty of water. Consult a physician.

In case of eye contact
Flush eyes with water as a precaution.

If swallowed
Do NOT induce vomiting. Never give anything by mouth to an unconscious person. Rinse mouth with water. Consult a physician.

4.2 Most important symptoms and effects, both acute and delayed
The most important known symptoms and effects are described in the labelling (see section 2.2) and/or in section 11

4.3 Indication of any immediate medical attention and special treatment needed
No data available

5. FIREFIGHTING MEASURES

5.1 Extinguishing media

Suitable extinguishing media
Use water spray, alcohol-resistant foam, dry chemical or carbon dioxide.

5.2 Special hazards arising from the substance or mixture
Carbon oxides, Hydrogen chloride gas

5.3 Advice for firefighters
Wear self-contained breathing apparatus for firefighting if necessary.

5.4 Further information
Use water spray to cool unopened containers.

6. ACCIDENTAL RELEASE MEASURES

6.1 Personal precautions, protective equipment and emergency procedures
Use personal protective equipment. Avoid breathing vapours, mist or gas. Ensure adequate ventilation. Remove all sources of ignition. Evacuate personnel to safe areas. Beware of vapours accumulating to form explosive concentrations. Vapours can accumulate in low areas.
For personal protection see section 8.

6.2 Environmental precautions
Prevent further leakage or spillage if safe to do so. Do not let product enter drains. Discharge into the environment must be avoided.

6.3 Methods and materials for containment and cleaning up
Contain spillage, and then collect with an electrically protected vacuum cleaner or by wet-brushing and place in container for disposal according to local regulations (see section 13).

6.4 Reference to other sections
For disposal see section 13.

7. HANDLING AND STORAGE

7.1 Precautions for safe handling
Avoid contact with skin and eyes. Avoid inhalation of vapour or mist.
Use explosion-proof equipment.Keep away from sources of ignition - No smoking.Take measures to prevent the build up of electrostatic charge.
For precautions see section 2.2.

7.2 Conditions for safe storage, including any incompatibilities
Keep container tightly closed in a dry and well-ventilated place. Containers which are opened must be carefully resealed and kept upright to prevent leakage.

Recommended storage temperature 2 - 8 °C

Handle and store under inert gas. Air and moisture sensitive. Light sensitive.

7.3 Specific end use(s)
Apart from the uses mentioned in section 1.2 no other specific uses are stipulated

8. EXPOSURE CONTROLS/PERSONAL PROTECTION

8.1 Control parameters

Components with workplace control parameters

Component	CAS-No.	Value	Control parameters	Basis
cis-Dichloroethylene	156-59-2	TWA	200 ppm	USA. ACGIH Threshold Limit Values (TLV)
	Remarks	Central Nervous System impairment Eye irritation		

8.2 Exposure controls

Appropriate engineering controls
Handle in accordance with good industrial hygiene and safety practice. Wash hands before breaks and at the end of workday.

Personal protective equipment

Eye/face protection
Face shield and safety glasses Use equipment for eye protection tested and approved under appropriate government standards such as NIOSH (US) or EN 166(EU).

Skin protection
Handle with gloves. Gloves must be inspected prior to use. Use proper glove removal technique (without touching glove's outer surface) to avoid skin contact with this product. Dispose of contaminated gloves after use in accordance with applicable laws and good laboratory practices. Wash and dry hands.

Body Protection
Complete suit protecting against chemicals, Flame retardant antistatic protective clothing., The type of protective equipment must be selected according to the concentration and amount of the dangerous substance at the specific workplace.

Respiratory protection
Where risk assessment shows air-purifying respirators are appropriate use a full-face respirator with multi-purpose combination (US) or type AXBEK (EN 14387) respirator cartridges as a backup to engineering controls. If the respirator is the sole means of protection, use a full-face supplied air respirator. Use respirators and components tested and approved under appropriate government standards such as NIOSH (US) or CEN (EU).

Control of environmental exposure
Prevent further leakage or spillage if safe to do so. Do not let product enter drains. Discharge into the environment must be avoided.

9. PHYSICAL AND CHEMICAL PROPERTIES

9.1 Information on basic physical and chemical properties

a)	Appearance	Form: liquid Colour: light yellow
b)	Odour	No data available
c)	Odour Threshold	No data available
d)	pH	No data available
e)	Melting point/freezing point	-80.0 °C (-112.0 °F)
f)	Initial boiling point and boiling range	60.0 - 61.0 °C (140.0 - 141.8 °F)
g)	Flash point	6.0 °C (42.8 °F) - closed cup
h)	Evaporation rate	No data available
i)	Flammability (solid, gas)	No data available
j)	Upper/lower flammability or explosive limits	No data available
k)	Vapour pressure	No data available
l)	Vapour density	No data available
m)	Relative density	1.28 g/cm3
n)	Water solubility	No data available
o)	Partition coefficient: n-octanol/water	No data available

p)	Auto-ignition temperature	No data available
q)	Decomposition temperature	No data available
r)	Viscosity	No data available
s)	Explosive properties	No data available
t)	Oxidizing properties	No data available

9.2 Other safety information
No data available

10. STABILITY AND REACTIVITY

10.1 Reactivity
No data available

10.2 Chemical stability
Stable under recommended storage conditions.

10.3 Possibility of hazardous reactions
Vapours may form explosive mixture with air.

10.4 Conditions to avoid
Heat, flames and sparks. Extremes of temperature and direct sunlight.

10.5 Incompatible materials
Oxidizing agents

10.6 Hazardous decomposition products
Other decomposition products - No data available
In the event of fire: see section 5

11. TOXICOLOGICAL INFORMATION

11.1 Information on toxicological effects

Acute toxicity
LC50 Inhalation - Rat - 13700 ppm
Remarks: Behavioral:Somnolence (general depressed activity). Liver:Fatty liver degeneration.

Dermal: No data available

No data available

Skin corrosion/irritation
No data available

Serious eye damage/eye irritation
No data available

Respiratory or skin sensitisation
No data available

Germ cell mutagenicity
No data available

Carcinogenicity

IARC:	No component of this product present at levels greater than or equal to 0.1% is identified as probable, possible or confirmed human carcinogen by IARC.
NTP:	No component of this product present at levels greater than or equal to 0.1% is identified as a known or anticipated carcinogen by NTP.
OSHA:	No component of this product present at levels greater than or equal to 0.1% is identified as a carcinogen or potential carcinogen by OSHA.

Reproductive toxicity
No data available

No data available

Specific target organ toxicity - single exposure
No data available

Specific target organ toxicity - repeated exposure
No data available

Aspiration hazard
No data available

Additional Information
RTECS: KV9420000

narcosis, To the best of our knowledge, the chemical, physical, and toxicological properties have not been thoroughly investigated.

12. ECOLOGICAL INFORMATION

12.1 Toxicity
No data available

12.2 Persistence and degradability
No data available

12.3 Bioaccumulative potential
No data available

12.4 Mobility in soil
No data available

12.5 Results of PBT and vPvB assessment
PBT/vPvB assessment not available as chemical safety assessment not required/not conducted

12.6 Other adverse effects
An environmental hazard cannot be excluded in the event of unprofessional handling or disposal.
Harmful to aquatic life.

13. DISPOSAL CONSIDERATIONS

13.1 Waste treatment methods

Product
Burn in a chemical incinerator equipped with an afterburner and scrubber but exert extra care in igniting as this material is highly flammable. Offer surplus and non-recyclable solutions to a licensed disposal company. Contact a licensed professional waste disposal service to dispose of this material.

Contaminated packaging
Dispose of as unused product.

14. TRANSPORT INFORMATION

DOT (US)
UN number: 1150 Class: 3 Packing group: II
Proper shipping name: 1,2-Dichloroethylene

Poison Inhalation Hazard: No

IMDG
UN number: 1150 Class: 3 Packing group: II EMS-No: F-E, S-D
Proper shipping name: 1,2-DICHLOROETHYLENE

IATA
UN number: 1150 Class: 3 Packing group: II
Proper shipping name: 1,2-Dichloroethylene

15. REGULATORY INFORMATION

SARA 302 Components
No chemicals in this material are subject to the reporting requirements of SARA Title III, Section 302.

SARA 313 Components
This material does not contain any chemical components with known CAS numbers that exceed the threshold (De Minimis) reporting levels established by SARA Title III, Section 313.

SARA 311/312 Hazards
Fire Hazard

Massachusetts Right To Know Components

	CAS-No.	Revision Date
cis-Dichloroethylene	156-59-2	1993-04-24

Pennsylvania Right To Know Components

	CAS-No.	Revision Date
cis-Dichloroethylene	156-59-2	1993-04-24

New Jersey Right To Know Components

	CAS-No.	Revision Date
cis-Dichloroethylene	156-59-2	1993-04-24

California Prop. 65 Components
This product does not contain any chemicals known to State of California to cause cancer, birth defects, or any other reproductive harm.

16. OTHER INFORMATION

Full text of H-Statements referred to under sections 2 and 3.

Acute Tox.	Acute toxicity
Aquatic Acute	Acute aquatic toxicity
Aquatic Chronic	Chronic aquatic toxicity
Flam. Liq.	Flammable liquids
H225	Highly flammable liquid and vapour.
H332	Harmful if inhaled.
H402	Harmful to aquatic life.

HMIS Rating

Health hazard:	1
Chronic Health Hazard:	*
Flammability:	3
Physical Hazard	1

NFPA Rating

Health hazard:	2
Fire Hazard:	3
Reactivity Hazard:	0

Further information
Copyright 2015 Sigma-Aldrich Co. LLC. License granted to make unlimited paper copies for internal use only.
The above information is believed to be correct but does not purport to be all inclusive and shall be used only as a guide. The information in this document is based on the present state of our knowledge and is applicable to the product with regard to appropriate safety precautions. It does not represent any guarantee of the properties of the product. Sigma-Aldrich Corporation and its Affiliates shall not be held liable for any damage resulting from handling or from contact with the above product. See www.sigma-aldrich.com and/or the reverse side of invoice or packing slip for additional terms and conditions of sale.

Preparation Information
Sigma-Aldrich Corporation
Product Safety – Americas Region
1-800-521-8956

Version: 4.4 Revision Date: 12/01/2015 Print Date: 02/11/2016

SAFETY DATA SHEET

Version 5.4
Revision Date 12/01/2015
Print Date 03/03/2016

1. PRODUCT AND COMPANY IDENTIFICATION

1.1 Product identifiers

Product name : *cis*-1,2-Dichloroethylene

Product Number : D62004
Brand : Aldrich
Index-No. : 602-026-00-3

CAS-No. : 156-59-2

1.2 Relevant identified uses of the substance or mixture and uses advised against

Identified uses : Laboratory chemicals, Synthesis of substances

1.3 Details of the supplier of the safety data sheet

Company : Sigma-Aldrich
3050 Spruce Street
SAINT LOUIS MO 63103
USA

Telephone : +1 800-325-5832
Fax : +1 800-325-5052

1.4 Emergency telephone number

Emergency Phone # : (314) 776-6555

2. HAZARDS IDENTIFICATION

2.1 Classification of the substance or mixture

GHS Classification in accordance with 29 CFR 1910 (OSHA HCS)
Flammable liquids (Category 2), H225
Acute toxicity, Inhalation (Category 4), H332
Acute aquatic toxicity (Category 3), H402
Chronic aquatic toxicity (Category 3), H412

For the full text of the H-Statements mentioned in this Section, see Section 16.

2.2 GHS Label elements, including precautionary statements

Pictogram



Signal word Danger

Hazard statement(s)
H225 Highly flammable liquid and vapour.
H332 Harmful if inhaled.
H412 Harmful to aquatic life with long lasting effects.

Precautionary statement(s)
P210 Keep away from heat/sparks/open flames/hot surfaces. No smoking.
P233 Keep container tightly closed.
P240 Ground/bond container and receiving equipment.
P241 Use explosion-proof electrical/ ventilating/ lighting/ equipment.
P242 Use only non-sparking tools.

P243	Take precautionary measures against static discharge.
P261	Avoid breathing dust/ fume/ gas/ mist/ vapours/ spray.
P271	Use only outdoors or in a well-ventilated area.
P273	Avoid release to the environment.
P280	Wear protective gloves/ protective clothing/ eye protection/ face protection.
P303 + P361 + P353	IF ON SKIN (or hair): Remove/ Take off immediately all contaminated clothing. Rinse skin with water/ shower.
P304 + P340	IF INHALED: Remove victim to fresh air and keep at rest in a position comfortable for breathing.
P312	Call a POISON CENTER or doctor/ physician if you feel unwell.
P370 + P378	In case of fire: Use dry sand, dry chemical or alcohol-resistant foam for extinction.
P403 + P235	Store in a well-ventilated place. Keep cool.
P501	Dispose of contents/ container to an approved waste disposal plant.

2.3 Hazards not otherwise classified (HNOC) or not covered by GHS - none

3. COMPOSITION/INFORMATION ON INGREDIENTS

3.1 Substances

Synonyms	:	cis-Acetylene dichloride
Formula	:	$C_2H_2Cl_2$
Molecular weight	:	96.94 g/mol
CAS-No.	:	156-59-2
EC-No.	:	205-859-7
Index-No.	:	602-026-00-3

Hazardous components

Component	Classification	Concentration
cis-Dichloroethylene		
	Flam. Liq. 2; Acute Tox. 4; Aquatic Acute 3; Aquatic Chronic 3; H225, H332, H412	<= 100 %

For the full text of the H-Statements mentioned in this Section, see Section 16.

4. FIRST AID MEASURES

4.1 Description of first aid measures

General advice
Consult a physician. Show this safety data sheet to the doctor in attendance.Move out of dangerous area.

If inhaled
If breathed in, move person into fresh air. If not breathing, give artificial respiration. Consult a physician.

In case of skin contact
Wash off with soap and plenty of water. Consult a physician.

In case of eye contact
Flush eyes with water as a precaution.

If swallowed
Do NOT induce vomiting. Never give anything by mouth to an unconscious person. Rinse mouth with water. Consult a physician.

4.2 Most important symptoms and effects, both acute and delayed
The most important known symptoms and effects are described in the labelling (see section 2.2) and/or in section 11

4.3 Indication of any immediate medical attention and special treatment needed
No data available

5. FIREFIGHTING MEASURES

5.1 Extinguishing media

Suitable extinguishing media
Use water spray, alcohol-resistant foam, dry chemical or carbon dioxide.

5.2 Special hazards arising from the substance or mixture
Carbon oxides, Hydrogen chloride gas

5.3 Advice for firefighters
Wear self-contained breathing apparatus for firefighting if necessary.

5.4 Further information
Use water spray to cool unopened containers.

6. ACCIDENTAL RELEASE MEASURES

6.1 Personal precautions, protective equipment and emergency procedures
Use personal protective equipment. Avoid breathing vapours, mist or gas. Ensure adequate ventilation. Remove all sources of ignition. Evacuate personnel to safe areas. Beware of vapours accumulating to form explosive concentrations. Vapours can accumulate in low areas.
For personal protection see section 8.

6.2 Environmental precautions
Prevent further leakage or spillage if safe to do so. Do not let product enter drains. Discharge into the environment must be avoided.

6.3 Methods and materials for containment and cleaning up
Contain spillage, and then collect with an electrically protected vacuum cleaner or by wet-brushing and place in container for disposal according to local regulations (see section 13).

6.4 Reference to other sections
For disposal see section 13.

7. HANDLING AND STORAGE

7.1 Precautions for safe handling
Avoid contact with skin and eyes. Avoid inhalation of vapour or mist.
Use explosion-proof equipment.Keep away from sources of ignition - No smoking.Take measures to prevent the build up of electrostatic charge.
For precautions see section 2.2.

7.2 Conditions for safe storage, including any incompatibilities
Keep container tightly closed in a dry and well-ventilated place. Containers which are opened must be carefully resealed and kept upright to prevent leakage.

Handle and store under inert gas. Air and moisture sensitive. Light sensitive.

7.3 Specific end use(s)
Apart from the uses mentioned in section 1.2 no other specific uses are stipulated

8. EXPOSURE CONTROLS/PERSONAL PROTECTION

8.1 Control parameters

Components with workplace control parameters

Component	CAS-No.	Value	Control parameters	Basis
cis-Dichloroethylene	156-59-2	TWA	200 ppm	USA. ACGIH Threshold Limit Values (TLV)
	Remarks	Central Nervous System impairment Eye irritation		

8.2 Exposure controls

Appropriate engineering controls
Handle in accordance with good industrial hygiene and safety practice. Wash hands before breaks and at the end of workday.

Personal protective equipment

Eye/face protection
Face shield and safety glasses Use equipment for eye protection tested and approved under appropriate government standards such as NIOSH (US) or EN 166(EU).

Skin protection
Handle with gloves. Gloves must be inspected prior to use. Use proper glove removal technique (without touching glove's outer surface) to avoid skin contact with this product. Dispose of contaminated gloves after use in accordance with applicable laws and good laboratory practices. Wash and dry hands.

Body Protection
Complete suit protecting against chemicals, Flame retardant antistatic protective clothing., The type of protective equipment must be selected according to the concentration and amount of the dangerous substance at the specific workplace.

Respiratory protection
Where risk assessment shows air-purifying respirators are appropriate use a full-face respirator with multi-purpose combination (US) or type AXBEK (EN 14387) respirator cartridges as a backup to engineering controls. If the respirator is the sole means of protection, use a full-face supplied air respirator. Use respirators and components tested and approved under appropriate government standards such as NIOSH (US) or CEN (EU).

Control of environmental exposure
Prevent further leakage or spillage if safe to do so. Do not let product enter drains. Discharge into the environment must be avoided.

9. PHYSICAL AND CHEMICAL PROPERTIES

9.1 Information on basic physical and chemical properties

a)	Appearance	Form: liquid Colour: light yellow
b)	Odour	No data available
c)	Odour Threshold	No data available
d)	pH	No data available
e)	Melting point/freezing point	Melting point/range: -80 °C (-112 °F) - lit.
f)	Initial boiling point and boiling range	60 °C (140 °F) - lit.
g)	Flash point	6.0 °C (42.8 °F) - closed cup
h)	Evaporation rate	No data available
i)	Flammability (solid, gas)	No data available
j)	Upper/lower flammability or explosive limits	No data available
k)	Vapour pressure	No data available
l)	Vapour density	No data available
m)	Relative density	1.284 g/cm3 at 25 °C (77 °F)
n)	Water solubility	No data available
o)	Partition coefficient: n-octanol/water	No data available

p)	Auto-ignition temperature	No data available
q)	Decomposition temperature	No data available
r)	Viscosity	No data available
s)	Explosive properties	No data available
t)	Oxidizing properties	No data available

9.2 Other safety information
No data available

10. STABILITY AND REACTIVITY

10.1 Reactivity
No data available

10.2 Chemical stability
Stable under recommended storage conditions.

10.3 Possibility of hazardous reactions
Vapours may form explosive mixture with air.

10.4 Conditions to avoid
Heat, flames and sparks. Extremes of temperature and direct sunlight.

10.5 Incompatible materials
Oxidizing agents

10.6 Hazardous decomposition products
Other decomposition products - No data available
In the event of fire: see section 5

11. TOXICOLOGICAL INFORMATION

11.1 Information on toxicological effects

Acute toxicity
LC50 Inhalation - Rat - 13700 ppm
Remarks: Behavioral:Somnolence (general depressed activity). Liver:Fatty liver degeneration.

Dermal: No data available

No data available

Skin corrosion/irritation
No data available

Serious eye damage/eye irritation
No data available

Respiratory or skin sensitisation
No data available

Germ cell mutagenicity
No data available

Carcinogenicity

IARC:	No component of this product present at levels greater than or equal to 0.1% is identified as probable, possible or confirmed human carcinogen by IARC.
NTP:	No component of this product present at levels greater than or equal to 0.1% is identified as a known or anticipated carcinogen by NTP.
OSHA:	No component of this product present at levels greater than or equal to 0.1% is identified as a carcinogen or potential carcinogen by OSHA.

Reproductive toxicity
No data available

No data available

Specific target organ toxicity - single exposure
No data available

Specific target organ toxicity - repeated exposure
No data available

Aspiration hazard
No data available

Additional Information
RTECS: KV9420000

narcosis, To the best of our knowledge, the chemical, physical, and toxicological properties have not been thoroughly investigated.

12. ECOLOGICAL INFORMATION

12.1 Toxicity
No data available

12.2 Persistence and degradability
No data available

12.3 Bioaccumulative potential
No data available

12.4 Mobility in soil
No data available

12.5 Results of PBT and vPvB assessment
PBT/vPvB assessment not available as chemical safety assessment not required/not conducted

12.6 Other adverse effects
An environmental hazard cannot be excluded in the event of unprofessional handling or disposal.
Harmful to aquatic life.

13. DISPOSAL CONSIDERATIONS

13.1 Waste treatment methods

Product
Burn in a chemical incinerator equipped with an afterburner and scrubber but exert extra care in igniting as this material is highly flammable. Offer surplus and non-recyclable solutions to a licensed disposal company. Contact a licensed professional waste disposal service to dispose of this material.

Contaminated packaging
Dispose of as unused product.

14. TRANSPORT INFORMATION

DOT (US)
UN number: 1150 Class: 3 Packing group: II
Proper shipping name: 1,2-Dichloroethylene

Poison Inhalation Hazard: No

IMDG
UN number: 1150 Class: 3 Packing group: II EMS-No: F-E, S-D
Proper shipping name: 1,2-DICHLOROETHYLENE

IATA
UN number: 1150 Class: 3 Packing group: II
Proper shipping name: 1,2-Dichloroethylene

15. REGULATORY INFORMATION

SARA 302 Components
No chemicals in this material are subject to the reporting requirements of SARA Title III, Section 302.

SARA 313 Components
This material does not contain any chemical components with known CAS numbers that exceed the threshold (De Minimis) reporting levels established by SARA Title III, Section 313.

SARA 311/312 Hazards
Fire Hazard

Massachusetts Right To Know Components

	CAS-No.	Revision Date
cis-Dichloroethylene	156-59-2	1993-04-24

Pennsylvania Right To Know Components

	CAS-No.	Revision Date
cis-Dichloroethylene	156-59-2	1993-04-24

New Jersey Right To Know Components

	CAS-No.	Revision Date
cis-Dichloroethylene	156-59-2	1993-04-24

California Prop. 65 Components
This product does not contain any chemicals known to State of California to cause cancer, birth defects, or any other reproductive harm.

16. OTHER INFORMATION

Full text of H-Statements referred to under sections 2 and 3.

Acute Tox.	Acute toxicity
Aquatic Acute	Acute aquatic toxicity
Aquatic Chronic	Chronic aquatic toxicity
Flam. Liq.	Flammable liquids
H225	Highly flammable liquid and vapour.
H332	Harmful if inhaled.
H402	Harmful to aquatic life.

HMIS Rating

Health hazard:	1
Chronic Health Hazard:	*
Flammability:	3
Physical Hazard	1

NFPA Rating

Health hazard:	2
Fire Hazard:	3
Reactivity Hazard:	0

Further information
Copyright 2015 Sigma-Aldrich Co. LLC. License granted to make unlimited paper copies for internal use only.
The above information is believed to be correct but does not purport to be all inclusive and shall be used only as a guide. The information in this document is based on the present state of our knowledge and is applicable to the product with regard to appropriate safety precautions. It does not represent any guarantee of the properties of the product. Sigma-Aldrich Corporation and its Affiliates shall not be held liable for any damage resulting from handling or from contact with the above product. See www.sigma-aldrich.com and/or the reverse side of invoice or packing slip for additional terms and conditions of sale.

Preparation Information
Sigma-Aldrich Corporation
Product Safety – Americas Region
1-800-521-8956

Version: 5.4 Revision Date: 12/01/2015 Print Date: 03/03/2016

SAFETY DATA SHEET

Version 6.12
Revision Date 09/08/2024
Print Date 09/09/2024

SECTION 1: Identification of the substance/mixture and of the company/undertaking

1.1 Product identifiers

Product name : Cobalt

Product Number : 266647
Brand : Aldrich
Index-No. : 027-001-00-9
CAS-No. : 7440-48-4

1.2 Relevant identified uses of the substance or mixture and uses advised against

Identified uses : Laboratory chemicals, Synthesis of substances

Uses advised against : The product is being supplied under the TSCA R&D Exemption (40 CFR Section 720.36). It is the recipient's responsibility to comply with the requirements of the R&D exemption. The product may not be used for a non-exempt commercial purpose under TSCA unless appropriate consent is granted in writing by MilliporeSigma.

1.3 Details of the supplier of the safety data sheet

Company : Sigma-Aldrich Inc.
3050 SPRUCE ST
ST. LOUIS MO 63103
UNITED STATES

Telephone : +1 314 771-5765
Fax : +1 800 325-5052

1.4 Emergency telephone

Emergency Phone # : 800-424-9300 CHEMTREC (USA) +1-703-527-3887 CHEMTREC (International) 24 Hours/day; 7 Days/week

SECTION 2: Hazards identification

2.1 Classification of the substance or mixture

GHS Classification in accordance with 29 CFR 1910 (OSHA HCS)

Flammable solids (Category 1), H228
Eye irritation (Category 2A), H319
Respiratory sensitization (Category 1), H334

The life science business of Merck KGaA, Darmstadt, Germany
operates as MilliporeSigma in the US and Canada

Skin sensitization (Category 1), H317
Germ cell mutagenicity (Category 2), H341
Carcinogenicity (Category 1B), H350
Reproductive toxicity (Category 1B), H360
Long-term (chronic) aquatic hazard (Category 4), H413

For the full text of the H-Statements mentioned in this Section, see Section 16.

2.2 GHS Label elements, including precautionary statements

Pictogram



Signal Word: Danger

Hazard Statements

H228	Flammable solid.
H317	May cause an allergic skin reaction.
H319	Causes serious eye irritation.
H334	May cause allergy or asthma symptoms or breathing difficulties if inhaled.
H341	Suspected of causing genetic defects.
H350	May cause cancer.
H360	May damage fertility or the unborn child.
H413	May cause long lasting harmful effects to aquatic life.

Precautionary Statements

P201	Obtain special instructions before use.
P202	Do not handle until all safety precautions have been read and understood.
P210	Keep away from heat/ sparks/ open flames/ hot surfaces. No smoking.
P240	Ground/bond container and receiving equipment.
P241	Use explosion-proof electrical/ ventilating/ lighting/ equipment.
P261	Avoid breathing dust.
P264	Wash skin thoroughly after handling.
P272	Contaminated work clothing must not be allowed out of the workplace.
P273	Avoid release to the environment.
P280	Wear protective gloves/ protective clothing/ eye protection/ face protection.
P285	In case of inadequate ventilation wear respiratory protection.
P302 + P352	IF ON SKIN: Wash with plenty of soap and water.
P304 + P341	IF INHALED: If breathing is difficult, remove person to fresh air and keep comfortable for breathing.
P305 + P351 + P338	IF IN EYES: Rinse cautiously with water for several minutes. Remove contact lenses, if present and easy to do. Continue rinsing.
P308 + P313	IF exposed or concerned: Get medical advice/ attention.
P333 + P313	If skin irritation or rash occurs: Get medical advice/ attention.
P337 + P313	If eye irritation persists: Get medical advice/ attention.
P342 + P311	If experiencing respiratory symptoms: Call a POISON CENTER/ doctor.
P363	Wash contaminated clothing before reuse.

The life science business of Merck KGaA, Darmstadt, Germany
operates as MilliporeSigma in the US and Canada

P370 + P378	In case of fire: Use dry sand, dry chemical or alcohol-resistant foam to extinguish.
P405	Store locked up.
P501	Dispose of contents/ container to an approved waste disposal plant.

2.3 Hazards not otherwise classified (HNOC) or not covered by GHS - none

SECTION 3: Composition/information on ingredients

3.1 Substances

Formula	:	Co
Molecular weight	:	58.93 g/mol
CAS-No.	:	7440-48-4
EC-No.	:	231-158-0
Index-No.	:	027-001-00-9

Component	Classification	Concentration
Cobalt		
	Flam. Sol. 1; Eye Irrit. 2A; Resp. Sens. 1; Skin Sens. 1; Muta. 2; Carc. 1B; Repr. 1B; Aquatic Chronic 4; H228, H319, H334, H317, H341, H350, H360, H413	<= 100 %

For the full text of the H-Statements mentioned in this Section, see Section 16.

SECTION 4: First aid measures

4.1 Description of first-aid measures

General advice
First aiders need to protect themselves. Show this material safety data sheet to the doctor in attendance.

If inhaled
After inhalation: fresh air. Call in physician.

In case of skin contact
In case of skin contact: Take off immediately all contaminated clothing. Rinse skin with water/ shower. Consult a physician.

In case of eye contact
After eye contact: rinse out with plenty of water. Call in ophthalmologist. Remove contact lenses.

If swallowed
After swallowing: immediately make victim drink water (two glasses at most). Consult a physician.

The life science business of Merck KGaA, Darmstadt, Germany
operates as MilliporeSigma in the US and Canada

4.2 Most important symptoms and effects, both acute and delayed
The most important known symptoms and effects are described in the labelling (see section 2.2) and/or in section 11

4.3 Indication of any immediate medical attention and special treatment needed
No data available

SECTION 5: Firefighting measures

5.1 Extinguishing media

Suitable extinguishing media
Use extinguishing measures that are appropriate to local circumstances and the surrounding environment.

Unsuitable extinguishing media
For this substance/mixture no limitations of extinguishing agents are given.

5.2 Special hazards arising from the substance or mixture
Cobalt/cobalt oxides
Not combustible.
Ambient fire may liberate hazardous vapours.

5.3 Advice for firefighters
Stay in danger area only with self-contained breathing apparatus. Prevent skin contact by keeping a safe distance or by wearing suitable protective clothing.

5.4 Further information
Prevent fire extinguishing water from contaminating surface water or the ground water system.

SECTION 6: Accidental release measures

6.1 Personal precautions, protective equipment and emergency procedures
Advice for non-emergency personnel: Avoid generation and inhalation of dusts in all circumstances. Avoid substance contact. Ensure adequate ventilation. Keep away from heat and sources of ignition. Evacuate the danger area, observe emergency procedures, consult an expert.
For personal protection see section 8.

6.2 Environmental precautions
Do not let product enter drains. Risk of explosion.

6.3 Methods and materials for containment and cleaning up
Cover drains. Collect, bind, and pump off spills. Observe possible material restrictions (see sections 7 and 10). Take up carefully. Dispose of properly. Clean up affected area. Avoid generation of dusts.

6.4 Reference to other sections
For disposal see section 13.

The life science business of Merck KGaA, Darmstadt, Germany
operates as MilliporeSigma in the US and Canada

SECTION 7: Handling and storage

7.1 Precautions for safe handling

Advice on safe handling
Work under hood. Do not inhale substance/mixture.

Advice on protection against fire and explosion
Keep away from open flames, hot surfaces and sources of ignition.Take precautionary measures against static discharge.

Hygiene measures
Immediately change contaminated clothing. Apply preventive skin protection. Wash hands and face after working with substance.
For precautions see section 2.2.

7.2 Conditions for safe storage, including any incompatibilities

Storage conditions
Tightly closed. Keep away from heat and sources of ignition. Keep locked up or in an area accessible only to qualified or authorized persons.

Air sensitive. Handle and store under inert gas.

Storage class
Storage class (TRGS 510): 4.1B: Flammable solid hazardous materials

7.3 Specific end use(s)

Apart from the uses mentioned in section 1.2 no other specific uses are stipulated

SECTION 8: Exposure controls/personal protection

8.1 Control parameters

Ingredients with workplace control parameters

Component	CAS-No.	Value	Control parameters	Basis
Cobalt	7440-48-4	TWA	0.05 mg/m3	USA. NIOSH Recommended Exposure Limits
		TWA	0.05 mg/m3	USA. NIOSH Recommended Exposure Limits
		TWA	0.1 mg/m3	USA. Occupational Exposure Limits (OSHA) - Table Z-1 Limits for Air Contaminants
		PEL	0.02 mg/m3	California permissible exposure limits for chemical contaminants (Title 8, Article 107)
		TWA	0.005 mg/m3	USA. ACGIH Threshold Limit Values (TLV)
	Remarks	Respiratory sensitization Suspected human carcinogen		

The life science business of Merck KGaA, Darmstadt, Germany
operates as MilliporeSigma in the US and Canada

		TWA	0.02 mg/m3	USA. ACGIH Threshold Limit Values (TLV)
		Dermal Sensitization Respiratory sensitization Confirmed animal carcinogen with unknown relevance to humans		

Biological occupational exposure limits

Component	CAS-No.	Parameters	Value	Biological specimen	Basis
Cobalt	7440-48-4	Cobalt	15 µg/l	Urine	ACGIH - Biological Exposure Indices (BEI)
	Remarks	End of shift at end of workweek			
		Cobalt		Urine	ACGIH - Biological Exposure Indices (BEI)
		End of shift at end of workweek			

8.2 Exposure controls

Appropriate engineering controls
Immediately change contaminated clothing. Apply preventive skin protection. Wash hands and face after working with substance.

Personal protective equipment

Eye/face protection
Use equipment for eye protection tested and approved under appropriate government standards such as NIOSH (US) or EN 166(EU). Safety glasses

Skin protection
Handle with impervious gloves.

This recommendation applies only to the product stated in the safety data sheet, supplied by us and for the designated use. When dissolving in or mixing with other substances and under conditions deviating from those stated in EN 16523-1 please contact the supplier of CE-approved gloves (e.g. KCL GmbH, D-36124 Eichenzell, Internet: www.kcl.de).

Full contact
Material: Nitrile rubber
Minimum layer thickness: 0.11 mm
Break through time: 480 min
Material tested:KCL 741 Dermatril® L

Splash contact
Material: Nitrile rubber
Minimum layer thickness: 0.11 mm
Break through time: 480 min
Material tested:KCL 741 Dermatril® L

Body Protection
Flame retardant antistatic protective clothing.

The life science business of Merck KGaA, Darmstadt, Germany
operates as MilliporeSigma in the US and Canada

Respiratory protection
Recommended Filter type: Filter type P3
The entrepeneur has to ensure that maintenance, cleaning and testing of respiratory protective devices are carried out according to the instructions of the producer. These measures have to be properly documented.
required when dusts are generated.
Our recommendations on filtering respiratory protection are based on the following standards: DIN EN 143, DIN 14387 and other accompanying standards relating to the used respiratory protection system.

Control of environmental exposure
Do not let product enter drains. Risk of explosion.

SECTION 9: Physical and chemical properties

9.1 Information on basic physical and chemical properties

a)	Appearance	Form: powder
b)	Odor	No data available
c)	Odor Threshold	No data available
d)	pH	No data available
e)	Melting point/freezing point	No data available
f)	Initial boiling point and boiling range	2,900 °C 5,252 °F - lit.
g)	Flash point	()Not applicable
h)	Evaporation rate	No data available
i)	Flammability (solid, gas)	The substance or mixture is a flammable solid with the category 1.
j)	Upper/lower flammability or explosive limits	No data available
k)	Vapor pressure	No data available
l)	Vapor density	No data available
m)	Density	8.9 g/mL at 25 °C (77 °F) - lit.
	Relative density	No data available
n)	Water solubility	No data available
o)	Partition coefficient: n-octanol/water	log Pow: 5.0
p)	Autoignition temperature	No data available
q)	Decomposition temperature	No data available

The life science business of Merck KGaA, Darmstadt, Germany
operates as MilliporeSigma in the US and Canada

r)	Viscosity	No data available
s)	Explosive properties	No data available
t)	Oxidizing properties	none

9.2 Other safety information
No data available

SECTION 10: Stability and reactivity

10.1 Reactivity
No data available

10.2 Chemical stability
The product is chemically stable under standard ambient conditions (room temperature) .

10.3 Possibility of hazardous reactions
No data available

10.4 Conditions to avoid
no information available

10.5 Incompatible materials
Oxidizing agents, Mineral acidsAcetylene, Hydrazinium nitrate, Material readily reacts with acids generating flammable and/or explosive hydrogen gas.

10.6 Hazardous decomposition products
In the event of fire: see section 5

SECTION 11: Toxicological information

11.1 Information on toxicological effects

Acute toxicity
LD50 Oral - Rat - 6,171 mg/kg
Remarks: Behavioral:Somnolence (general depressed activity).
Behavioral:Ataxia.
Diarrhea
Inhalation: No data available
Dermal: No data available

Skin corrosion/irritation
No data available

Serious eye damage/eye irritation
Eyes - Rabbit
Result: Causes serious eye irritation.
(OECD Test Guideline 405)

Respiratory or skin sensitization
May cause allergic respiratory and skin reactions

Germ cell mutagenicity

The life science business of Merck KGaA, Darmstadt, Germany
operates as MilliporeSigma in the US and Canada

Suspected of causing genetic defects.

Carcinogenicity
Presumed to have carcinogenic potential for humans

IARC: 2A - Group 2A: Probably carcinogenic to humans (Cobalt)

2A - Group 2A: Probably carcinogenic to humans (Cobalt)

NTP: No ingredient of this product present at levels greater than or equal to 0.1% is identified as a known or anticipated carcinogen by NTP.

OSHA: No component of this product present at levels greater than or equal to 0.1% is on OSHA's list of regulated carcinogens.

Reproductive toxicity
May damage fertility.

Specific target organ toxicity - single exposure
No data available

Specific target organ toxicity - repeated exposure
No data available

Aspiration hazard
No data available

11.2 Additional Information

RTECS: GF8750000
Kidney injury may occur., Damage to the eyes., Lung irritation, Throat., Rash, Vomiting, Diarrhea
To the best of our knowledge, the chemical, physical, and toxicological properties have not been thoroughly investigated.

SECTION 12: Ecological information

12.1 Toxicity

Toxicity to fish	LC50 - Danio rerio (zebra fish) - 100.01 mg/l - 96 h
Toxicity to daphnia and other aquatic invertebrates	static test EC50 - Daphnia magna (Water flea) - > 100 mg/l - 48 h (OECD Test Guideline 202)
Toxicity to algae	static test ErC50 - Pseudokirchneriella subcapitata (green algae) - 0.270 mg/l - 70 h (OECD Test Guideline 201)

12.2 Persistence and degradability
The methods for determining biodegradability are not applicable to inorganic substances.

12.3 Bioaccumulative potential
No data available

12.4 Mobility in soil
No data available

The life science business of Merck KGaA, Darmstadt, Germany
operates as MilliporeSigma in the US and Canada

12.5 Results of PBT and vPvB assessment

PBT/vPvB assessment not available as chemical safety assessment not required/not conducted

12.6 Endocrine disrupting properties

No data available

12.7 Other adverse effects

No data available

SECTION 13: Disposal considerations

13.1 Waste treatment methods

Product

Waste material must be disposed of in accordance with the national and local regulations. Leave chemicals in original containers. No mixing with other waste. Handle uncleaned containers like the product itself.

SECTION 14: Transport information

DOT (US)

UN number: 3089 Class: 4.1 Packing group: II
Proper shipping name: Metal powders, flammable, n.o.s.
Reportable Quantity (RQ):
Poison Inhalation Hazard: No

IMDG

UN number: 3089 Class: 4.1 Packing group: II EMS-No: F-G, S-G
Proper shipping name: METAL POWDER, FLAMMABLE, N.O.S.

IATA

UN number: 3089 Class: 4.1 Packing group: II
Proper shipping name: Metal powder, flammable, n.o.s.

SECTION 15: Regulatory information

CERCLA Reportable Quantity

This material does not contain any components with a CERCLA RQ.

SARA 304 Extremely Hazardous Substances Reportable Quantity

This material does not contain any components with a section 304 EHS RQ.

SARA 302 Extremely Hazardous Substances Threshold Planning Quantity

This material does not contain any components with a section 302 EHS TPQ.

The life science business of Merck KGaA, Darmstadt, Germany
operates as MilliporeSigma in the US and Canada

SARA 311/312 Hazards : Fire Hazard
Acute Health Hazard
Chronic Health Hazard

SARA 313 : The following components are subject to reporting levels established by SARA Title III, Section 313:

Cobalt	7440-48-4	>= 90 - <= 100 %

US State Regulations

Massachusetts Right To Know

Cobalt	7440-48-4

Pennsylvania Right To Know

Cobalt	7440-48-4

Maine Chemicals of High Concern

Product does not contain any listed chemicals

Vermont Chemicals of High Concern

Cobalt	7440-48-4

Washington Chemicals of High Concern

Cobalt	7440-48-4

California Prop. 65

WARNING: This product can expose you to chemicals including Cobalt, which is/are known to the State of California to cause cancer. For more information go to www.P65Warnings.ca.gov.

The ingredients of this product are reported in the following inventories:

TSCA : All substances listed as active on the TSCA inventory

TSCA list

No substances are subject to a Significant New Use Rule.

No substances are subject to TSCA 12(b) export notification requirements.

SECTION 16: Other information

Further information

The information is believed to be correct but is not exhaustive and will be used solely as a guideline, which is based on current knowledge of the chemical substance or mixture and is applicable to appropriate safety precautions for the product. It does not represent any guarantee of the properties of the product. Sigma-Aldrich Corporation and its Affiliates shall not be held liable for any damage resulting from handling or from contact with the above product. See www.sigma-aldrich.com and/or the reverse side of invoice or packing slip for additional terms and conditions of sale.

Copyright 2020 Sigma-Aldrich Co. LLC. License granted to make unlimited paper copies for internal use only.

The life science business of Merck KGaA, Darmstadt, Germany
operates as MilliporeSigma in the US and Canada

The branding on the header and/or footer of this document may temporarily not visually match the product purchased as we transition our branding. However, all of the information in the document regarding the product remains unchanged and matches the product ordered. For further information please contact mlsbranding@sial.com.
Version: 6.12 Revision Date: 09/08/2024 Print Date: 09/09/2024

The life science business of Merck KGaA, Darmstadt, Germany
operates as MilliporeSigma in the US and Canada

SAFETY DATA SHEET

Version 6.9
Revision Date 09/07/2024
Print Date 09/08/2024

SECTION 1: Identification of the substance/mixture and of the company/undertaking

1.1 Product identifiers

Product name : Copper

Product Number : 349178
Brand : Aldrich
Index-No. : 029-024-00-X
CAS-No. : 7440-50-8

1.2 Relevant identified uses of the substance or mixture and uses advised against

Identified uses : Laboratory chemicals, Synthesis of substances

Uses advised against : The product is being supplied under the TSCA R&D Exemption (40 CFR Section 720.36). It is the recipient's responsibility to comply with the requirements of the R&D exemption. The product may not be used for a non-exempt commercial purpose under TSCA unless appropriate consent is granted in writing by MilliporeSigma.

1.3 Details of the supplier of the safety data sheet

Company : Sigma-Aldrich Inc.
3050 SPRUCE ST
ST. LOUIS MO 63103
UNITED STATES

Telephone : +1 314 771-5765
Fax : +1 800 325-5052

1.4 Emergency telephone

Emergency Phone # : 800-424-9300 CHEMTREC (USA) +1-703-527-3887 CHEMTREC (International) 24 Hours/day; 7 Days/week

SECTION 2: Hazards identification

2.1 Classification of the substance or mixture

Not a hazardous substance or mixture.

2.2 GHS Label elements, including precautionary statements

No hazard pictogram, no signal word, no hazard statement(s), no precautionary statement(s) required.

The life science business of Merck KGaA, Darmstadt, Germany
operates as MilliporeSigma in the US and Canada

2.3 Hazards not otherwise classified (HNOC) or not covered by GHS - none

SECTION 3: Composition/information on ingredients

3.1 Substances

Formula	:	Cu
Molecular weight	:	63.55 g/mol
CAS-No.	:	7440-50-8
EC-No.	:	231-159-6
Index-No.	:	029-024-00-X

Component	Classification	Concentration
Copper(bulk)		
		<= 100 %

SECTION 4: First aid measures

4.1 Description of first-aid measures

If inhaled
After inhalation: fresh air.

In case of skin contact
In case of skin contact: Take off immediately all contaminated clothing. Rinse skin with water/ shower.

In case of eye contact
After eye contact: rinse out with plenty of water. Remove contact lenses.

If swallowed
After swallowing: make victim drink water (two glasses at most). Consult doctor if feeling unwell.

4.2 Most important symptoms and effects, both acute and delayed
The most important known symptoms and effects are described in the labelling (see section 2.2) and/or in section 11

4.3 Indication of any immediate medical attention and special treatment needed
No data available

SECTION 5: Firefighting measures

5.1 Extinguishing media

Suitable extinguishing media
Use extinguishing measures that are appropriate to local circumstances and the surrounding environment.

Unsuitable extinguishing media
For this substance/mixture no limitations of extinguishing agents are given.

The life science business of Merck KGaA, Darmstadt, Germany
operates as MilliporeSigma in the US and Canada

5.2 Special hazards arising from the substance or mixture
Copper oxides
Not combustible.
Ambient fire may liberate hazardous vapours.

5.3 Advice for firefighters
In the event of fire, wear self-contained breathing apparatus.

5.4 Further information
Prevent fire extinguishing water from contaminating surface water or the ground water system.

SECTION 6: Accidental release measures

6.1 Personal precautions, protective equipment and emergency procedures
Advice for non-emergency personnel: Avoid inhalation of dusts. Ensure adequate ventilation. Evacuate the danger area, observe emergency procedures, consult an expert. For personal protection see section 8.

6.2 Environmental precautions
Do not let product enter drains.

6.3 Methods and materials for containment and cleaning up
Cover drains. Collect, bind, and pump off spills. Observe possible material restrictions (see sections 7 and 10). Take up dry. Dispose of properly. Clean up affected area. Avoid generation of dusts.

6.4 Reference to other sections
For disposal see section 13.

SECTION 7: Handling and storage

7.1 Precautions for safe handling
For precautions see section 2.2.

7.2 Conditions for safe storage, including any incompatibilities

Storage conditions
Tightly closed. Dry.

Store under inert gas. Air sensitive.

Storage class
Storage class (TRGS 510): 13: Non Combustible Solids

7.3 Specific end use(s)
Apart from the uses mentioned in section 1.2 no other specific uses are stipulated

The life science business of Merck KGaA, Darmstadt, Germany
operates as MilliporeSigma in the US and Canada

SECTION 8: Exposure controls/personal protection

8.1 Control parameters

Ingredients with workplace control parameters

Component	CAS-No.	Value	Control parameters	Basis
Copper(bulk)	7440-50-8	TWA	1 mg/m3	USA. ACGIH Threshold Limit Values (TLV)
		TWA	0.2 mg/m3	USA. ACGIH Threshold Limit Values (TLV)
		TWA	1 mg/m3	USA. NIOSH Recommended Exposure Limits
		TWA	1 mg/m3	USA. NIOSH Recommended Exposure Limits
		TWA	1 mg/m3	USA. Occupational Exposure Limits (OSHA) - Table Z-1 Limits for Air Contaminants
		TWA	0.1 mg/m3	USA. Occupational Exposure Limits (OSHA) - Table Z-1 Limits for Air Contaminants
		PEL	0.1 mg/m3	California permissible exposure limits for chemical contaminants (Title 8, Article 107)

8.2 Exposure controls

Appropriate engineering controls
Change contaminated clothing. Wash hands after working with substance.

Personal protective equipment

Eye/face protection
Use equipment for eye protection tested and approved under appropriate government standards such as NIOSH (US) or EN 166(EU). Safety glasses

Skin protection
Handle with impervious gloves.

This recommendation applies only to the product stated in the safety data sheet, supplied by us and for the designated use. When dissolving in or mixing with other substances and under conditions deviating from those stated in EN 16523-1 please contact the supplier of CE-approved gloves (e.g. KCL GmbH, D-36124 Eichenzell, Internet: www.kcl.de).

Full contact
Material: Nitrile rubber
Minimum layer thickness: 0.11 mm
Break through time: 480 min
Material tested:KCL 741 Dermatril® L

Splash contact
Material: Nitrile rubber
Minimum layer thickness: 0.11 mm

The life science business of Merck KGaA, Darmstadt, Germany
operates as MilliporeSigma in the US and Canada

Break through time: 480 min
Material tested:KCL 741 Dermatril® L

Respiratory protection
Recommended Filter type: Filter type P2
The entrepeneur has to ensure that maintenance, cleaning and testing of respiratory protective devices are carried out according to the instructions of the producer. These measures have to be properly documented.
required when dusts are generated.
Our recommendations on filtering respiratory protection are based on the following standards: DIN EN 143, DIN 14387 and other accompanying standards relating to the used respiratory protection system.

Control of environmental exposure
Do not let product enter drains.

SECTION 9: Physical and chemical properties

9.1 Information on basic physical and chemical properties

a)	Appearance	Form: Foil
b)	Odor	No data available
c)	Odor Threshold	No data available
d)	pH	No data available
e)	Melting point/freezing point	Melting point/ range: 1,083.4 °C (1,982.1 °F) - lit.
f)	Initial boiling point and boiling range	2,567 °C 4,653 °F - lit.
g)	Flash point	()Not applicable
h)	Evaporation rate	No data available
i)	Flammability (solid, gas)	The product is not flammable.
j)	Upper/lower flammability or explosive limits	No data available
k)	Vapor pressure	No data available
l)	Vapor density	No data available
m)	Density	8.94 g/mL at 25 °C (77 °F) - lit.
	Relative density	No data available
n)	Water solubility	No data available
o)	Partition coefficient: n-octanol/water	Not applicable for inorganic substances
p)	Autoignition	No data available

The life science business of Merck KGaA, Darmstadt, Germany
operates as MilliporeSigma in the US and Canada

	temperature	
q)	Decomposition temperature	No data available
r)	Viscosity	No data available
s)	Explosive properties	No data available
t)	Oxidizing properties	none

9.2 Other safety information
No data available

SECTION 10: Stability and reactivity

10.1 Reactivity
No data available

10.2 Chemical stability
The product is chemically stable under standard ambient conditions (room temperature) .

10.3 Possibility of hazardous reactions
Exothermic reaction with:
Ethylene oxide
Fluorine
hydrogen sulphide
halogen-halogen compounds
alkali oxides
nitrides
Salts of hydrazine
Sulfuric acid
Risk of ignition or formation of inflammable gases or vapours with:
Oxidizing agents
Chlorine
Risk of explosion with:
Acetylene
azides
ammonium compounds
iodates
bromopropine
perchlorates
bromates
picrates
chlorates
Peroxides

10.4 Conditions to avoid
no information available

10.5 Incompatible materials
No data available

The life science business of Merck KGaA, Darmstadt, Germany
operates as MilliporeSigma in the US and Canada

10.6 Hazardous decomposition products

In the event of fire: see section 5

SECTION 11: Toxicological information

11.1 Information on toxicological effects

Acute toxicity
Oral: No data available
Inhalation: No data available
Dermal: No data available

Skin corrosion/irritation
No data available

Serious eye damage/eye irritation
No data available

Respiratory or skin sensitization
No data available

Germ cell mutagenicity
No data available

Carcinogenicity

IARC: No ingredient of this product present at levels greater than or equal to 0.1% is identified as probable, possible or confirmed human carcinogen by IARC.

NTP: No ingredient of this product present at levels greater than or equal to 0.1% is identified as a known or anticipated carcinogen by NTP.

OSHA: No component of this product present at levels greater than or equal to 0.1% is on OSHA's list of regulated carcinogens.

Reproductive toxicity
No data available

Specific target organ toxicity - single exposure
No data available

Specific target organ toxicity - repeated exposure
No data available

Aspiration hazard
No data available

11.2 Additional Information

RTECS: GL5325000
To the best of our knowledge, the chemical, physical, and toxicological properties have not been thoroughly investigated.

The life science business of Merck KGaA, Darmstadt, Germany
operates as MilliporeSigma in the US and Canada

SECTION 12: Ecological information

12.1 Toxicity
No data available

12.2 Persistence and degradability
The methods for determining biodegradability are not applicable to inorganic substances.

12.3 Bioaccumulative potential
No data available

12.4 Mobility in soil
No data available

12.5 Results of PBT and vPvB assessment
PBT/vPvB assessment not available as chemical safety assessment not required/not conducted

12.6 Endocrine disrupting properties
No data available

12.7 Other adverse effects
No data available

SECTION 13: Disposal considerations

13.1 Waste treatment methods

Product
Waste material must be disposed of in accordance with the national and local regulations. Leave chemicals in original containers. No mixing with other waste. Handle uncleaned containers like the product itself.

SECTION 14: Transport information

DOT (US)
Not dangerous goods

IMDG
Not dangerous goods

IATA
Not dangerous goods

Further information
Not classified as dangerous in the meaning of transport regulations.

The life science business of Merck KGaA, Darmstadt, Germany
operates as MilliporeSigma in the US and Canada

SECTION 15: Regulatory information

CERCLA Reportable Quantity

This material does not contain any components with a CERCLA RQ.

SARA 304 Extremely Hazardous Substances Reportable Quantity

This material does not contain any components with a section 304 EHS RQ.

SARA 302 Extremely Hazardous Substances Threshold Planning Quantity

This material does not contain any components with a section 302 EHS TPQ.

SARA 311/312 Hazards : No SARA Hazards

SARA 313 : This material does not contain any chemical components with known CAS numbers that exceed the threshold (De Minimis) reporting levels established by SARA Title III, Section 313.

US State Regulations

Massachusetts Right To Know

No components are subject to the Massachusetts Right to Know Act.

Pennsylvania Right To Know

Copper(bulk) 7440-50-8

Maine Chemicals of High Concern

Product does not contain any listed chemicals

Vermont Chemicals of High Concern

Product does not contain any listed chemicals

Washington Chemicals of High Concern

Product does not contain any listed chemicals

The ingredients of this product are reported in the following inventories:

TSCA : All substances listed as active on the TSCA inventory

TSCA list

No substances are subject to a Significant New Use Rule.

No substances are subject to TSCA 12(b) export notification requirements.

SECTION 16: Other information

Further information

The information is believed to be correct but is not exhaustive and will be used solely as a guideline, which is based on current knowledge of the chemical substance or mixture and is applicable to appropriate safety precautions for the product. It does not represent any guarantee of the properties of the product. Sigma-Aldrich Corporation and its

The life science business of Merck KGaA, Darmstadt, Germany
operates as MilliporeSigma in the US and Canada

Affiliates shall not be held liable for any damage resulting from handling or from contact with the above product. See www.sigma-aldrich.com and/or the reverse side of invoice or packing slip for additional terms and conditions of sale.
Copyright 2020 Sigma-Aldrich Co. LLC. License granted to make unlimited paper copies for internal use only.
The branding on the header and/or footer of this document may temporarily not visually match the product purchased as we transition our branding. However, all of the information in the document regarding the product remains unchanged and matches the product ordered. For further information please contact mlsbranding@sial.com.
Version: 6.9 Revision Date: 09/07/2024 Print Date: 09/08/2024

The life science business of Merck KGaA, Darmstadt, Germany
operates as MilliporeSigma in the US and Canada

SAFETY DATA SHEET

according to Regulation (EC) No. 1907/2006

Version 7.5
Revision Date 04.03.2024
Print Date 16.09.2024
GENERIC EU MSDS - NO COUNTRY SPECIFIC DATA - NO OEL DATA

SECTION 1: Identification of the substance/mixture and of the company/undertaking

1.1 Product identifiers

Product name	:	Cumene
Product Number	:	C87657
Brand	:	Aldrich
Index-No.	:	601-024-00-X
REACH No.	:	A registration number is not available for this substance as the substance or its uses are exempted from registration, the annual tonnage does not require a registration or the registration is envisaged for a later registration deadline.
CAS-No.	:	98-82-8

1.2 Relevant identified uses of the substance or mixture and uses advised against

Identified uses	:	Laboratory chemicals, Manufacture of substances

1.3 Details of the supplier of the safety data sheet

Company	:	Sigma-Aldrich Inc. 3050 SPRUCE ST ST. LOUIS MO 63103 UNITED STATES
Telephone	:	+1 314 771-5765
Fax	:	+1 800 325-5052

1.4 Emergency telephone

Emergency Phone #	:	800-424-9300 CHEMTREC (USA) +1-703-527-3887 CHEMTREC (International) 24 Hours/day; 7 Days/week

SECTION 2: Hazards identification

2.1 Classification of the substance or mixture

Flammable liquids, (Category 3)	H226: Flammable liquid and vapor.
Carcinogenicity, (Category 1B)	H350: May cause cancer.

The life science business of Merck operates as MilliporeSigma in the US and Canada

Specific target organ toxicity - single exposure, (Category 3), Respiratory system	H335: May cause respiratory irritation.
Aspiration hazard, (Category 1)	H304: May be fatal if swallowed and enters airways.
Long-term (chronic) aquatic hazard, (Category 2)	H411: Toxic to aquatic life with long lasting effects.

2.2 Label elements

Labelling according Regulation (EC) No 1272/2008

Pictogram



Signal Word	Danger
Hazard Statements	
H226	Flammable liquid and vapor.
H304	May be fatal if swallowed and enters airways.
H335	May cause respiratory irritation.
H350	May cause cancer.
H411	Toxic to aquatic life with long lasting effects.
Precautionary Statements	
P202	Do not handle until all safety precautions have been read and understood.
P210	Keep away from heat, hot surfaces, sparks, open flames and other ignition sources. No smoking.
P233	Keep container tightly closed.
P273	Avoid release to the environment.
P301 + P310	IF SWALLOWED: Immediately call a POISON CENTER/ doctor.
P331	Do NOT induce vomiting.
Supplemental Hazard Statements	none

Reduced Labeling (<= 125 ml)

Pictogram



Signal Word	Danger
Hazard Statements	
H350	May cause cancer.
H304	May be fatal if swallowed and enters airways.
Precautionary Statements	
P202	Do not handle until all safety precautions have been read and understood.
P301 + P310	IF SWALLOWED: Immediately call a POISON CENTER/ doctor.
P331	Do NOT induce vomiting.

The life science business of Merck operates as MilliporeSigma in the US and Canada

Supplemental Hazard Statements none

2.3 Other hazards

This substance/mixture contains no components considered to be either persistent, bioaccumulative and toxic (PBT), or very persistent and very bioaccumulative (vPvB) at levels of 0.1% or higher.

Ecological information:
The substance/mixture does not contain components considered to have endocrine disrupting properties according to REACH Article 57(f) or Commission Delegated regulation (EU) 2017/2100 or Commission Regulation (EU) 2018/605 at levels of 0.1% or higher.
Toxicological information:
The substance/mixture does not contain components considered to have endocrine disrupting properties according to REACH Article 57(f) or Commission Delegated regulation (EU) 2017/2100 or Commission Regulation (EU) 2018/605 at levels of 0.1% or higher.
May form explosive peroxides.

SECTION 3: Composition/information on ingredients

3.1 Substances

Synonyms : Isopropylbenzene

Formula : C_9H_{12}
Molecular weight : 120,19 g/mol
CAS-No. : 98-82-8
EC-No. : 202-704-5
Index-No. : 601-024-00-X

Component		Classification	Concentration
cumene			
CAS-No. EC-No. Index-No.	98-82-8 202-704-5 601-024-00-X	Flam. Liq. 3; Carc. 1B; STOT SE 3; Asp. Tox. 1; Aquatic Chronic 2; H226, H350, H335, H304, H411	<= 100 %

For the full text of the H-Statements mentioned in this Section, see Section 16.

SECTION 4: First aid measures

4.1 Description of first-aid measures

General advice
Show this material safety data sheet to the doctor in attendance.

If inhaled
After inhalation: fresh air. Call in physician.

In case of skin contact
In case of skin contact: Take off immediately all contaminated clothing. Rinse skin with water/ shower. Consult a physician.

The life science business of Merck operates as MilliporeSigma in the US and Canada

In case of eye contact
After eye contact: rinse out with plenty of water. Call in ophthalmologist. Remove contact lenses.

If swallowed
After swallowing: caution if victim vomits. Risk of aspiration! Keep airways free. Pulmonary failure possible after aspiration of vomit. Call a physician immediately.

4.2 Most important symptoms and effects, both acute and delayed
The most important known symptoms and effects are described in the labelling (see section 2.2) and/or in section 11

4.3 Indication of any immediate medical attention and special treatment needed
No data available

SECTION 5: Firefighting measures

5.1 Extinguishing media

Suitable extinguishing media
Carbon dioxide (CO2) Foam Dry powder

Unsuitable extinguishing media
For this substance/mixture no limitations of extinguishing agents are given.

5.2 Special hazards arising from the substance or mixture
Carbon oxides
Combustible.
Vapors are heavier than air and may spread along floors.
Forms explosive mixtures with air at elevated temperatures.
Development of hazardous combustion gases or vapours possible in the event of fire.

5.3 Advice for firefighters
Stay in danger area only with self-contained breathing apparatus. Prevent skin contact by keeping a safe distance or by wearing suitable protective clothing.

5.4 Further information
Remove container from danger zone and cool with water. Prevent fire extinguishing water from contaminating surface water or the ground water system.

SECTION 6: Accidental release measures

6.1 Personal precautions, protective equipment and emergency procedures
Advice for non-emergency personnel: Do not breathe vapors, aerosols. Avoid substance contact. Ensure adequate ventilation. Keep away from heat and sources of ignition.
Evacuate the danger area, observe emergency procedures, consult an expert.
For personal protection see section 8.

6.2 Environmental precautions
Do not let product enter drains. Risk of explosion.

6.3 Methods and materials for containment and cleaning up
Cover drains. Collect, bind, and pump off spills. Observe possible material restrictions (see sections 7 and 10). Take up carefully with liquid-absorbent material (e.g. Chemizorb®). Dispose of properly. Clean up affected area.

The life science business of Merck operates as MilliporeSigma in the US and Canada

6.4 Reference to other sections
For disposal see section 13.

SECTION 7: Handling and storage

7.1 Precautions for safe handling

Advice on safe handling
Work under hood. Do not inhale substance/mixture. Avoid generation of vapours/aerosols.

Advice on protection against fire and explosion
Keep away from open flames, hot surfaces and sources of ignition.Take precautionary measures against static discharge.

Hygiene measures
Immediately change contaminated clothing. Apply preventive skin protection. Wash hands and face after working with substance.
For precautions see section 2.2.

7.2 Conditions for safe storage, including any incompatibilities

Storage conditions
Keep container tightly closed in a dry and well-ventilated place. Keep away from heat and sources of ignition. Keep locked up or in an area accessible only to qualified or authorized persons.

Store under inert gas.

Storage class
Storage class (TRGS 510): 3: Flammable liquids

7.3 Specific end use(s)
Apart from the uses mentioned in section 1.2 no other specific uses are stipulated

SECTION 8: Exposure controls/personal protection

8.1 Control parameters

Ingredients with workplace control parameters

8.2 Exposure controls

Personal protective equipment

Eye/face protection
Use equipment for eye protection tested and approved under appropriate government standards such as NIOSH (US) or EN 166(EU). Safety glasses

Skin protection
This recommendation applies only to the product stated in the safety data sheet, supplied by us and for the designated use. When dissolving in or mixing with other substances and under conditions deviating from those stated in EN 16523-1 please

The life science business of Merck operates as MilliporeSigma in the US and Canada

contact the supplier of CE-approved gloves (e.g. KCL GmbH, D-36124 Eichenzell, Internet: www.kcl.de).
Full contact
Material: Viton®
Minimum layer thickness: 0,7 mm
Break through time: 480 min
Material tested:Vitoject® (KCL 890 / Aldrich Z677698, Size M)

This recommendation applies only to the product stated in the safety data sheet, supplied by us and for the designated use. When dissolving in or mixing with other substances and under conditions deviating from those stated in EN 16523-1 please contact the supplier of CE-approved gloves (e.g. KCL GmbH, D-36124 Eichenzell, Internet: www.kcl.de).
Splash contact
Material: Nitrile rubber
Minimum layer thickness: 0,4 mm
Break through time: 10 min
Material tested:Camatril® (KCL 730 / Aldrich Z677442, Size M)

Body Protection
Flame retardant antistatic protective clothing.

Respiratory protection
Recommended Filter type: Filter A (acc. to DIN 3181) for vapours of organic compounds

The entrepeneur has to ensure that maintenance, cleaning and testing of respiratory protective devices are carried out according to the instructions of the producer. These measures have to be properly documented.

Control of environmental exposure
Do not let product enter drains. Risk of explosion.

SECTION 9: Physical and chemical properties

9.1 Information on basic physical and chemical properties

a)	Physical state	liquid, clear
b)	Color	colorless
c)	Odor	aromatic
d)	Melting point/freezing point	Melting point/range: -96 °C - lit.
e)	Initial boiling point and boiling range	152 - 154 °C - lit.
f)	Flammability (solid, gas)	No data available
g)	Upper/lower flammability or explosive limits	Upper explosion limit: 6,0 %(V) Lower explosion limit: 0,9 %(V)
h)	Flash point	31,0 °C - closed cup

The life science business of Merck operates as MilliporeSigma in the US and Canada

i)	Autoignition temperature	425,0 °C
j)	Decomposition temperature	No data available
k)	pH	Not applicable
l)	Viscosity	Viscosity, kinematic: No data available Viscosity, dynamic: 0,79 mPa.s at 20 °C
m)	Water solubility	ca.0,05 g/l at 25 °C - slightly soluble
n)	Partition coefficient: n-octanol/water	log Pow: 3,55 at 23 °C - Bioaccumulation is not expected.
o)	Vapor pressure	11 hPa at 20,0 °C
p)	Density	0,864 g/mL at 25 °C - lit.
	Relative density	No data available
q)	Relative vapor density	No data available
r)	Particle characteristics	No data available
s)	Explosive properties	No data available
t)	Oxidizing properties	none

9.2 Other safety information

Surface tension	27,69 mN/m at 25 °C

SECTION 10: Stability and reactivity

10.1 Reactivity

Vapor/air-mixtures are explosive at intense warming.

10.2 Chemical stability

The product is chemically stable under standard ambient conditions (room temperature) .
Stable under recommended storage conditions.

10.3 Possibility of hazardous reactions

No data available

10.4 Conditions to avoid

Heating.

10.5 Incompatible materials

No data available

10.6 Hazardous decomposition products

In the event of fire: see section 5

The life science business of Merck operates as MilliporeSigma in the US and Canada

SECTION 11: Toxicological information

11.1 Information on toxicological effects

Acute toxicity
Symptoms: gastric pain, Vomiting
Symptoms: mucosal irritations, Cough, Shortness of breath, Headache, Nausea, Vomiting,
Possible damages:, damage of respiratory tract
Dermal: No data available

Skin corrosion/irritation
Skin - Rabbit
Result: No skin irritation
(OECD Test Guideline 404)
Remarks: Drying-out effect resulting in rough and chapped skin.

Serious eye damage/eye irritation
Eyes - Rabbit
Result: No eye irritation - 72 h
(OECD Test Guideline 405)

Respiratory or skin sensitization
Maximization Test - Guinea pig
Result: negative
(OECD Test Guideline 406)

Germ cell mutagenicity
Test Type: Mutagenicity (mammal cell test): chromosome aberration.
Test system: Chinese hamster ovary cells
Metabolic activation: with and without metabolic activation
Method: OECD Test Guideline 473
Result: negative
Test Type: Ames test
Test system: S. typhimurium
Metabolic activation: with and without metabolic activation
Method: OECD Test Guideline 471
Result: negative
Test Type: In vitro mammalian cell gene mutation test
Test system: Chinese hamster ovary cells
Metabolic activation: with and without metabolic activation
Method: OECD Test Guideline 476
Result: negative
Test Type: unscheduled DNA synthesis assay
Test system: rat hepatocytes
Metabolic activation: without metabolic activation
Method: OECD Test Guideline 482
Result: negative

Test Type: Micronucleus test
Species: Mouse
Cell type: Red blood cells (erythrocytes)
Application Route: inhalation (gas)
Method: OECD Test Guideline 474
Result: negative

The life science business of Merck operates as MilliporeSigma in the US and Canada

Test Type: Micronucleus test
Species: Rat
Cell type: Bone marrow
Application Route: Intraperitoneal
Method: OECD Test Guideline 474
Result: Positive results were obtained in some in vivo tests.

Carcinogenicity
Presumed to have carcinogenic potential for humans

Reproductive toxicity
No data available

Specific target organ toxicity - single exposure
Inhalation - May cause respiratory irritation. - Respiratory Tract
Remarks: Classified according to Regulation (EU) 1272/2008, Annex VI (Table 3.1/3.2)

Specific target organ toxicity - repeated exposure
No data available

Aspiration hazard
Aspiration may cause pulmonary edema and pneumonitis.

11.2 Additional Information

Endocrine disrupting properties

Product:

Assessment	The substance/mixture does not contain components considered to have endocrine disrupting properties according to REACH Article 57(f) or Commission Delegated regulation (EU) 2017/2100 or Commission Regulation (EU) 2018/605 at levels of 0.1% or higher.

RTECS: GR8575000
narcosis, Central nervous system depression, Dermatitis, Gastrointestinal disturbance, Damage to the lungs., Liver injury may occur., Kidney injury may occur.
To the best of our knowledge, the chemical, physical, and toxicological properties have not been thoroughly investigated.

After uptake of large quantities:

somnolence
Dizziness
narcosis

Effect potentiated by: ethanol

Handle in accordance with good industrial hygiene and safety practice.

The life science business of Merck operates as MilliporeSigma in the US and Canada

SECTION 12: Ecological information

12.1 Toxicity

Toxicity to fish	flow-through test LC50 - Cyprinodon variegatus (sheepshead minnow) - 4,7 mg/l - 96 h (US-EPA)
Toxicity to daphnia and other aquatic invertebrates	static test EC50 - Daphnia magna (Water flea) - 2,14 mg/l - 48 h (OECD Test Guideline 202)
Toxicity to algae	static test ErC50 - Desmodesmus subspicatus (green algae) - 2,01 mg/l - 72 h (OECD Test Guideline 201)
Toxicity to bacteria	static test EC50 - activated sludge - > 2.000 mg/l - 3 h (OECD Test Guideline 209)
Toxicity to daphnia and other aquatic invertebrates(Chronic toxicity)	semi-static test NOEC - Daphnia magna (Water flea) - 0,35 mg/l - 21 d (OECD Test Guideline 211)

12.2 Persistence and degradability

Biodegradability	aerobic - Exposure time 20 d Result: 70 % - Readily biodegradable. Remarks: (ECHA)

12.3 Bioaccumulative potential

No data available

12.4 Mobility in soil

No data available

12.5 Results of PBT and vPvB assessment

This substance/mixture contains no components considered to be either persistent, bioaccumulative and toxic (PBT), or very persistent and very bioaccumulative (vPvB) at levels of 0.1% or higher.

12.6 Endocrine disrupting properties

Product:

Assessment : The substance/mixture does not contain components considered to have endocrine disrupting properties according to REACH Article 57(f) or Commission Delegated regulation (EU) 2017/2100 or Commission Regulation (EU) 2018/605 at levels of 0.1% or higher.

12.7 Other adverse effects

Discharge into the environment must be avoided.

The life science business of Merck operates as MilliporeSigma in the US and Canada

SECTION 13: Disposal considerations

13.1 Waste treatment methods

No data available

SECTION 14: Transport information

14.1 UN number

ADR/RID: 1918 IMDG: 1918 IATA: 1918

14.2 UN proper shipping name

ADR/RID: ISOPROPYLBENZENE
IMDG: ISOPROPYLBENZENE
IATA: Isopropylbenzene

14.3 Transport hazard class(es)

ADR/RID: 3 IMDG: 3 IATA: 3

14.4 Packaging group

ADR/RID: III IMDG: III IATA: III

14.5 Environmental hazards

ADR/RID: yes IMDG Marine pollutant: yes IATA: no

14.6 Special precautions for user

Tunnel restriction code : (D/E)

Further information : No data available

SECTION 15: Regulatory information

15.1 Safety, health and environmental regulations/legislation specific for the substance or mixture

This material safety data sheet complies with the requirements of Regulation (EC) No. 1907/2006.

Authorisations and/or restrictions on use

REACH - Restrictions on the manufacture, placing on the market and use of certain dangerous substances, mixtures and articles (Annex XVII) : cumene

National legislation

Seveso III: Directive 2012/18/EU of the European Parliament and of the Council on the control of major-accident hazards involving dangerous substances.

E2 ENVIRONMENTAL HAZARDS

P5c FLAMMABLE LIQUIDS

The life science business of Merck operates as MilliporeSigma in the US and Canada

Other regulations
Observe work restrictions regarding maternity protection in accordance to Dir 92/85/EEC or stricter national regulations where applicable.

Take note of Dir 94/33/EC on the protection of young people at work.

15.2 Chemical Safety Assessment
For this product a chemical safety assessment was not carried out

SECTION 16: Other information

Full text of H-Statements

H226	Flammable liquid and vapor.
H304	May be fatal if swallowed and enters airways.
H335	May cause respiratory irritation.
H350	May cause cancer.
H411	Toxic to aquatic life with long lasting effects.

The life science business of Merck operates as MilliporeSigma in the US and Canada

Full text of other abbreviations

ADN - European Agreement concerning the International Carriage of Dangerous Goods by Inland Waterways; ADR - Agreement concerning the International Carriage of Dangerous Goods by Road; AIIC - Australian Inventory of Industrial Chemicals; ASTM - American Society for the Testing of Materials; bw - Body weight; CMR - Carcinogen, Mutagen or Reproductive Toxicant; DIN - Standard of the German Institute for Standardisation; DSL - Domestic Substances List (Canada); ECx - Concentration associated with x% response; ELx - Loading rate associated with x% response; EmS - Emergency Schedule; ENCS - Existing and New Chemical Substances (Japan); ErCx - Concentration associated with x% growth rate response; GHS - Globally Harmonized System; GLP - Good Laboratory Practice; IARC - International Agency for Research on Cancer; IATA - International Air Transport Association; IBC - International Code for the Construction and Equipment of Ships carrying Dangerous Chemicals in Bulk; IC50 - Half maximal inhibitory concentration; ICAO - International Civil Aviation Organization; IECSC - Inventory of Existing Chemical Substances in China; IMDG - International Maritime Dangerous Goods; IMO - International Maritime Organization; ISHL - Industrial Safety and Health Law (Japan); ISO - International Organisation for Standardization; KECI - Korea Existing Chemicals Inventory; LC50 - Lethal Concentration to 50 % of a test population; LD50 - Lethal Dose to 50% of a test population (Median Lethal Dose); MARPOL - International Convention for the Prevention of Pollution from Ships; n.o.s. - Not Otherwise Specified; NO(A)EC - No Observed (Adverse) Effect Concentration; NO(A)EL - No Observed (Adverse) Effect Level; NOELR - No Observable Effect Loading Rate; NZIoC - New Zealand Inventory of Chemicals; OECD - Organization for Economic Co-operation and Development; OPPTS - Office of Chemical Safety and Pollution Prevention; PBT - Persistent, Bioaccumulative and Toxic substance; PICCS - Philippines Inventory of Chemicals and Chemical Substances; (Q)SAR - (Quantitative) Structure Activity Relationship; REACH - Regulation (EC) No 1907/2006 of the European Parliament and of the Council concerning the Registration, Evaluation, Authorisation and Restriction of Chemicals; RID - Regulations concerning the International Carriage of Dangerous Goods by Rail; SADT - Self-Accelerating Decomposition Temperature; SDS - Safety Data Sheet; TCSI - Taiwan Chemical Substance Inventory; TECI - Thailand Existing Chemicals Inventory; TSCA - Toxic Substances Control Act (United States); UN - United Nations; UNRTDG - United Nations Recommendations on the Transport of Dangerous Goods; vPvB - Very Persistent and Very Bioaccumulative

Further information

The information is believed to be correct but is not exhaustive and will be used solely as a guideline, which is based on current knowledge of the chemical substance or mixture and is applicable to appropriate safety precautions for the product. It does not represent any guarantee of the properties of the product. Sigma-Aldrich Corporation and its Affiliates shall not be held liable for any damage resulting from handling or from contact with the above product. See www.sigma-aldrich.com and/or the reverse side of invoice or packing slip for additional terms and conditions of sale.

Copyright 2020 Sigma-Aldrich Co. LLC. License granted to make unlimited paper copies for internal use only.

The branding on the header and/or footer of this document may temporarily not visually match the product purchased as we transition our branding. However, all of the information in the document regarding the product remains unchanged and matches the product ordered. For further information please contact mlsbranding@sial.com.

The life science business of Merck operates as MilliporeSigma in the US and Canada

The life science business of Merck operates as MilliporeSigma in the US and Canada

AccuStandard, Inc.
125 Market St., New Haven, CT 06513 USA
Tel: 203-786-5290 Fax: 203-786-5287

SAFETY DATA SHEET

SECTION 1 - CHEMICAL PRODUCT AND COMPANY IDENTIFICATION

1.1 - Product Identifiers

Catalog Name: WC-CN-1X-1

Description: Cyanide Standard

1.2 - Relevant Identified Uses of the Substance or Mixture

Laboratory Chemical Reference Material

1.3 - Supplier Details

Company: AccuStandard, Inc.
125 Market St.
New Haven, CT 06513 USA

Telephone Number: 203-786-5290

Fax: 203-786-5287

Email: edocs@accustandard.com

1.4 - Emergency Telephone Number

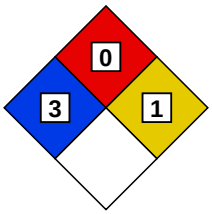
Emergency Phone #: AccuStandard, Inc.
1-203-502-7070 (USA)
+001-203-502-7070 (International)

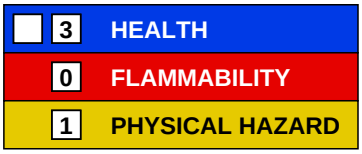
24 hours / 7 days a week

SECTION 2 - HAZARDS IDENTIFICATION

2.1 - GHS Label Elements







Signal Word: Danger

Hazard Codes:

H302 - Harmful if swallowed. (Acute toxicity, oral, category 4)

H314 - Causes skin burns. (Skin corrosion/irritation, category 1)

H318 - Causes serious eye damage. (Eye damage/irritation, category 1)

H332 - Harmful if inhaled. (Acute toxicity, inhalation, category 4)

Precautionary Codes:

P202 - This product should only by used by persons trained in the safe handling of hazardous chemicals.

P233 - Store in a tightly closed container. (P404)

P262 - Do not get in eyes, on skin or clothing.

P264 - Wash thoroughly after handling. Do not take internally. Eye wash and safety equipment should be readily available.

P280 - Protective gloves must be worn to prevent skin contact.

SECTION 2 - HAZARDS IDENTIFICATION *- continued*

2.1 - GHS Label Elements *- continued*

P284 - Respiratory Protection: If workplace exposure limit(s) of product or any component is exceeded (see TLV/PEL), or a risk assessment shows air-purifying respirators are appropriate, use of a NIOSH/MSHA approved air supplied respirator is advised. Use a full-face respirator with multi-purpose combination (US) or type ABEK (EN14387) respirator cartridges in absence of proper environmental control. Always use respirators and components tested and approved under appropriate government standards such as NIOSH (US) or CEN (EU). Engineering and/or administrative controls should be implemented to reduce exposure.

P331 - Ingestion: Do NOT induce vomiting. Call a physician or poison control center immediately. Give victim a glass of water a little at a time. Never give anything by mouth to an unconscious person. If vomiting occurs spontaneously, lower head below waist to prevent fluid from entering the lungs.

P338 - Eye contact: Immediately flush with plenty of water. After initial flushing, remove any contact lenses and continue flushing for at least 15 minutes. Assure adequate flushing by separating the eyelids with fingers.

P360 - Skin contact: Immediately flush skin with plenty amounts of water for at least 15 minutes while removing contaminated clothing and shoes. Get medical attention immediately. Thoroughly wash (or discard) clothing and shoes before reuse.

2.2 - Other Hazards

2.2.1 - Symptom of Exposure Health/Environment

Corrosive.

May cause stomach cramps and gastro-intestinal disturbances.

May cause burning sensation, coughing, wheezing, laryngitis, shortness of breath, headache, nausea and vomiting.

2.2.2 - Potential Health Effects

Causes serious eye damage. (Eye damage/irritation, category 1)

Causes skin burns. (Skin corrosion/irritation, category 1)

May be harmful if absorbed through the skin. (Acute toxicity, dermal, category 5)

Extremely destructive to tissue of the mucous membranes and upper respiratory tract.

Harmful if inhaled. (Acute toxicity, inhalation, category 4)

Harmful if swallowed. (Acute toxicity, oral, category 4)

2.2.3 - Routes of Entry

Inhalation, ingestion or skin contact.

2.2.4 - Carcinogenicity

This product is or contains a component that is not listed (ACGIH, IARC, NTP, OSHA) as a cancer causing agent.

SECTION 3 - COMPOSITION / ANALYTES DATA

Description: Cyanide Standard

			ACGIH -TLV (mg/m³)			OSHA -PEL (mg/m³)		
Analyte	CAS #	% Concentration	TWA	STEL	Skin	TWA	STEL	Skin
Potassium cyanide	151-50-8	0.025			X	5		X
Sodium hydroxide	1310-73-2	2.000	(C)2 (C)2			2		
Water	7732-18-5	97.975						

SECTION 4 - FIRST AID MEASURES

4.2 - Eye Contact

Eye contact: Immediately flush with plenty of water. After initial flushing, remove any contact lenses and continue flushing for at least 15 minutes. Assure adequate flushing by separating the eyelids with fingers. (P338)

4.3 - Skin Contact

Skin contact: Immediately flush skin with plenty amounts of water for at least 15 minutes while removing contaminated clothing and shoes. Get medical attention immediately. Thoroughly wash (or discard) clothing and shoes before reuse. (P360)

4.4 - Inhalation

Inhalation: Remove to fresh air. If not breathing, give artificial respiration or give oxygen by trained personnel. Seek immediate medical attention.

4.5 - Ingestion

Ingestion: Do NOT induce vomiting. Call a physician or poison control center immediately. Give victim a glass of water a little at a time. Never give anything by mouth to an unconscious person. If vomiting occurs spontaneously, lower head below waist to prevent fluid from entering the lungs. (P331)

SECTION 5 - FIRE FIGHTING MEASURES

5.1 - Flammable Properties

During a fire, irritating and highly toxic gases may be generated by thermal decomposition or combustion.

Reacts with most metals to form flammable hydrogen gas.

5.2 - Extinguishing Media

Do not use water.

Use dry chemical when fighting fires involving this material.

5.3 - Protection of Firefighters

As in any fire, wear self-contained breathing apparatus pressure demand, MSHA/NIOSH (approved or equivalent) and full protective gear.

SECTION 6 - ACCIDENTAL RELEASE MEASURES

6.1 - Spill Response

Wear a self-contained breathing apparatus and appropriate Personal protection. Prevent contact with skin or eyes. Ventilate area. Stop leak if you can do so without risk. Absorb on sand or vermiculite, take up and containerize for proper disposal. Flush spill area with water. Comply with Federal, State, and local regulations.

SECTION 7 - HANDLING AND STORAGE

Store in a tightly closed container. (P404)

Keep refrigerated.

Avoid metal containers.

Material is hygroscopic.

Avoid inhalation.

Use with adequate ventilation.

Do not get in eyes, on skin or clothing. (P262)

Avoid prolonged or repeated exposure.

This product should only by used by persons trained in the safe handling of hazardous chemicals. (P202)

SECTION 8 - EXPOSURE CONTROLS

8.1 - Engineering Controls/PPE

Wash thoroughly after handling. Do not take internally. Eye wash and safety equipment should be readily available. (P264)

8.2 - General Hygene Considerations

Respiratory Protection: If workplace exposure limit(s) of product or any component is exceeded (see TLV/PEL), or a risk assessment shows air-purifying respirators are appropriate, use of a NIOSH/MSHA approved air supplied respirator is advised. Use a full-face respirator with multi-purpose combination (US) or type ABEK (EN14387) respirator cartridges in absence of proper environmental control. Always use respirators and components tested and approved under appropriate government standards such as NIOSH (US) or CEN (EU). Engineering and/or administrative controls should be implemented to reduce exposure.

Material should be handled or transferred in an approved fume hood or with adequate ventilation.

Protective gloves must be worn to prevent skin contact. (P280)

(Chloroprene, natural rubber, nitrile, or equivalent)

Wear safety glasses with side shields (or googles) and a face shield.

Use eye protection tested and approved under the appropriate government standards such as NIOSH (US) or EN 166 (EU).

All recommendations are advisory only and must be evaluated by an industrial hygienist and/or safety officer familiar with the specific situation of anticipated use, such as concentration and amount of the substance in the workplace. Any recommendation should not be construed as offering an approval for any specific use of the product.

SECTION 9 - PHYSICAL AND CHEMICAL PROPERTIES

Appearance: Clear liquid

Odor: Practically odorless

Odor Threshold: N/A

pH: 13-14

Melting Point: -4 °C (5% soln)

Boiling Point: 102 °C (5% soln)

Flash Point: N/A

Evaporation Rate (Butyl Acetate=1): N/A

Flammability Class: N/A

Lower Flammability Level: N/A

Upper Flammability Level: N/A

Vapor Pressure: N/A

Vapor Density (Air = 1): >1 g/l

Specific Gravity: 1.05 g/cm3 (5% soln)

Solubility in Water: Soluble

Partition Coefficient: N/A

Autoignition Temperature: N/A

Decomposition Temperature: N/A

Viscosity: N/A

VOC Content: N/A

Percent Volatile: N/A

SECTION 10 - STABILITY AND REACTIVITY

Stability: Stable

Materials to Avoid: Oxidizers
Acids

Hazardous Decomposition: Sodium oxides

Hazardous Polymerization: Will not occur

Condition to Avoid: Prolonged exposure to air

SECTION 11 - TOXICOLOGICAL INFORMATION

Human Health Toxicity

See section 2 for specific toxicological information for the ingredients of this product.

LD50 (Oral): N/A

LD50 (Dermal) : N/A

LC50 (Inhalation): N/A

No specific human health toxicity information is available for this product.

No other information related to the toxicological properties of this product is available at this time.

SECTION 12 - ECOLOGICAL INFORMATION

Environmental Toxicity

By complying with sections 6 and 7 there should be no release to the environment.

LC50 (Fish): N/A

EC50 (Aquatic Invertebrate): N/A

BCF: N/A

No specific environmental toxicity information is available for this product.

No other information related to the ecological properties of this product is available at this time.

SECTION 13 - DISPOSAL CONSIDERATIONS

Recycle or incinerate at any EPA approved facility or dispose in compliance with Federal, State and local regulations. Empty containers must be triple-rinsed prior to disposal.

SECTION 14 - TRANSPORT INFORMATION

Transportation Information (DOT/IATA)

UN Number: UN1824

Class: 8

Packing Group: III

Proper Shipping Name: Sodium hydroxide solution

Poison by Inhalation: No

Marine Pollutant: No

SECTION 15 - REGULATORY INFORMATION

This product does not contain compounds subject to EU Regulation (EC) No 1907/2006 (REACH) on Annex XIV, Annex XVII, and/or Article 59.

SECTION 15 - REGULATORY INFORMATION *- continued*

All components are listed on the TSCA Inventory.

For laboratory, research and development use only. Not for manufacturing or commercial purposes.

In addition to federal and state regulations, local regulations may apply. Check with your local regulatory authorities.

SECTION 16 - OTHER INFORMATION

This document has been designed to meet the requirements of OSHA, ANSI, GHS and CHIPs regulations. Chemicals are classified using the Globally Harmonized System for Classification and Labeling of Chemicals and CLP Regulation (EC) No. 1272/2008.

The statements contained herein are offered for informational purposes only and are based on technical data that we believe to be accurate. The manufacturer will not assume any liability for the accuracy and completeness of this information. Final determination of the suitability of the material is the responsibility of the user. Although certain hazards are described herein, the user should not presume that these are the only hazards that exist. Since conditions and manner of use are outside of the manufacturers control, we make

NO WARRANTY OF MERCHANTABILITY, EXPRESSED OR IMPLIED, AND ASSUME NO LIABILITY RESULTING FROM ITS USE.

Legend : N/A = Not Available ND = Not Determined NR = Not Regulated

Alteration of any information contained herein without written permission from the manufacturer is strictly prohibited.

HMIS/NFPA HAZARD INDEX

0 - Minimal
1 - Slight
2 - Moderate
3 - Serious
4 - Severe

* - Additional Hazard

GHS HAZARD INDEX

Category 1 - Most Severe
Category 5 - Least Severe

**** End of Document ****

SAFETY DATA SHEET

Version 5.8
Revision Date 03/07/2015
Print Date 02/23/2016

1. PRODUCT AND COMPANY IDENTIFICATION

1.1 Product identifiers

Product name : Cyclohexane

Product Number : 320633
Brand : Aldrich
Index-No. : 601-017-00-1

CAS-No. : 110-82-7

1.2 Relevant identified uses of the substance or mixture and uses advised against

Identified uses : Laboratory chemicals, Manufacture of substances

1.3 Details of the supplier of the safety data sheet

Company : Sigma-Aldrich
3050 Spruce Street
SAINT LOUIS MO 63103
USA

Telephone : +1 800-325-5832
Fax : +1 800-325-5052

1.4 Emergency telephone number

Emergency Phone # : (314) 776-6555

2. HAZARDS IDENTIFICATION

2.1 Classification of the substance or mixture

GHS Classification in accordance with 29 CFR 1910 (OSHA HCS)
Flammable liquids (Category 2), H225
Skin irritation (Category 2), H315
Specific target organ toxicity - single exposure (Category 3), Central nervous system, H336
Aspiration hazard (Category 1), H304
Acute aquatic toxicity (Category 1), H400

For the full text of the H-Statements mentioned in this Section, see Section 16.

2.2 GHS Label elements, including precautionary statements

Pictogram



Signal word Danger

Hazard statement(s)
H225 Highly flammable liquid and vapour.
H304 May be fatal if swallowed and enters airways.
H315 Causes skin irritation.
H336 May cause drowsiness or dizziness.
H400 Very toxic to aquatic life.

Precautionary statement(s)
P210 Keep away from heat/sparks/open flames/hot surfaces. - No smoking.
P233 Keep container tightly closed.
P240 Ground/bond container and receiving equipment.

P241	Use explosion-proof electrical/ ventilating/ lighting/ equipment.
P242	Use only non-sparking tools.
P243	Take precautionary measures against static discharge.
P261	Avoid breathing dust/ fume/ gas/ mist/ vapours/ spray.
P264	Wash skin thoroughly after handling.
P271	Use only outdoors or in a well-ventilated area.
P273	Avoid release to the environment.
P280	Wear protective gloves/ eye protection/ face protection.
P301 + P310	IF SWALLOWED: Immediately call a POISON CENTER or doctor/ physician.
P303 + P361 + P353	IF ON SKIN (or hair): Remove/ Take off immediately all contaminated clothing. Rinse skin with water/ shower.
P304 + P340 + P312	IF INHALED: Remove victim to fresh air and keep at rest in a position comfortable for breathing. Call a POISON CENTER or doctor/ physician if you feel unwell.
P331	Do NOT induce vomiting.
P332 + P313	If skin irritation occurs: Get medical advice/ attention.
P362	Take off contaminated clothing and wash before reuse.
P370 + P378	In case of fire: Use dry sand, dry chemical or alcohol-resistant foam for extinction.
P391	Collect spillage.
P403 + P233	Store in a well-ventilated place. Keep container tightly closed.
P403 + P235	Store in a well-ventilated place. Keep cool.
P405	Store locked up.
P501	Dispose of contents/ container to an approved waste disposal plant.

2.3 Hazards not otherwise classified (HNOC) or not covered by GHS - none

3. COMPOSITION/INFORMATION ON INGREDIENTS

3.1 Substances

Formula	:	C_6H_{12}
Molecular weight	:	84.16 g/mol
CAS-No.	:	110-82-7
EC-No.	:	203-806-2
Index-No.	:	601-017-00-1

Hazardous components

Component	Classification	Concentration
Cyclohexane		
	Flam. Liq. 2; Skin Irrit. 2; STOT SE 3; Asp. Tox. 1; Aquatic Acute 1; H225, H304, H315, H336, H400	<= 100 %

For the full text of the H-Statements mentioned in this Section, see Section 16.

4. FIRST AID MEASURES

4.1 Description of first aid measures

General advice
Consult a physician. Show this safety data sheet to the doctor in attendance.Move out of dangerous area.

If inhaled
If breathed in, move person into fresh air. If not breathing, give artificial respiration. Consult a physician.

In case of skin contact
Wash off with soap and plenty of water. Consult a physician.

In case of eye contact
Flush eyes with water as a precaution.

If swallowed
Do NOT induce vomiting. Never give anything by mouth to an unconscious person. Rinse mouth with water. Consult a physician.

4.2 Most important symptoms and effects, both acute and delayed
The most important known symptoms and effects are described in the labelling (see section 2.2) and/or in section 11

4.3 Indication of any immediate medical attention and special treatment needed
No data available

5. FIREFIGHTING MEASURES

5.1 Extinguishing media

Suitable extinguishing media
Use water spray, alcohol-resistant foam, dry chemical or carbon dioxide.

5.2 Special hazards arising from the substance or mixture
No data available

5.3 Advice for firefighters
Wear self-contained breathing apparatus for firefighting if necessary.

5.4 Further information
Use water spray to cool unopened containers.

6. ACCIDENTAL RELEASE MEASURES

6.1 Personal precautions, protective equipment and emergency procedures
Use personal protective equipment. Avoid breathing vapours, mist or gas. Ensure adequate ventilation. Remove all sources of ignition. Evacuate personnel to safe areas. Beware of vapours accumulating to form explosive concentrations. Vapours can accumulate in low areas.
For personal protection see section 8.

6.2 Environmental precautions
Prevent further leakage or spillage if safe to do so. Do not let product enter drains. Discharge into the environment must be avoided.

6.3 Methods and materials for containment and cleaning up
Contain spillage, and then collect with an electrically protected vacuum cleaner or by wet-brushing and place in container for disposal according to local regulations (see section 13).

6.4 Reference to other sections
For disposal see section 13.

7. HANDLING AND STORAGE

7.1 Precautions for safe handling
Avoid contact with skin and eyes. Avoid inhalation of vapour or mist.
Use explosion-proof equipment.Keep away from sources of ignition - No smoking.Take measures to prevent the build up of electrostatic charge.
For precautions see section 2.2.

7.2 Conditions for safe storage, including any incompatibilities
Keep container tightly closed in a dry and well-ventilated place. Containers which are opened must be carefully resealed and kept upright to prevent leakage.
Storage class (TRGS 510): Flammable liquids

7.3 Specific end use(s)
Apart from the uses mentioned in section 1.2 no other specific uses are stipulated

8. EXPOSURE CONTROLS/PERSONAL PROTECTION

8.1 Control parameters

Components with workplace control parameters

Component	CAS-No.	Value	Control parameters	Basis
Cyclohexane	110-82-7	TWA	100.000000 ppm	USA. ACGIH Threshold Limit Values (TLV)
	Remarks	Central Nervous System impairment		
		TWA	300.000000 ppm 1,050.000000 mg/m3	USA. NIOSH Recommended Exposure Limits
		TWA	300.000000 ppm 1,050.000000 mg/m3	USA. Occupational Exposure Limits (OSHA) - Table Z-1 Limits for Air Contaminants
		The value in mg/m3 is approximate.		

8.2 Exposure controls

Appropriate engineering controls
Handle in accordance with good industrial hygiene and safety practice. Wash hands before breaks and at the end of workday.

Personal protective equipment

Eye/face protection
Face shield and safety glasses Use equipment for eye protection tested and approved under appropriate government standards such as NIOSH (US) or EN 166(EU).

Skin protection
Handle with gloves. Gloves must be inspected prior to use. Use proper glove removal technique (without touching glove's outer surface) to avoid skin contact with this product. Dispose of contaminated gloves after use in accordance with applicable laws and good laboratory practices. Wash and dry hands.

Full contact
Material: Nitrile rubber
Minimum layer thickness: 0.4 mm
Break through time: 480 min
Material tested:Camatril® (KCL 730 / Aldrich Z677442, Size M)

Splash contact
Material: Nitrile rubber
Minimum layer thickness: 0.11 mm
Break through time: 35 min
Material tested:Dermatril® (KCL 740 / Aldrich Z677272, Size M)

data source: KCL GmbH, D-36124 Eichenzell, phone +49 (0)6659 87300, e-mail sales@kcl.de, test method: EN374
If used in solution, or mixed with other substances, and under conditions which differ from EN 374, contact the supplier of the CE approved gloves. This recommendation is advisory only and must be evaluated by an industrial hygienist and safety officer familiar with the specific situation of anticipated use by our customers. It should not be construed as offering an approval for any specific use scenario.

Body Protection
Complete suit protecting against chemicals, Flame retardant antistatic protective clothing., The type of protective equipment must be selected according to the concentration and amount of the dangerous substance at the specific workplace.

Respiratory protection
Where risk assessment shows air-purifying respirators are appropriate use a full-face respirator with multi-purpose combination (US) or type ABEK (EN 14387) respirator cartridges as a backup to engineering controls. If the respirator is the sole means of protection, use a full-face supplied air respirator. Use respirators and components tested and approved under appropriate government standards such as NIOSH (US) or CEN (EU).

Control of environmental exposure
Prevent further leakage or spillage if safe to do so. Do not let product enter drains. Discharge into the environment must be avoided.

9. PHYSICAL AND CHEMICAL PROPERTIES

9.1 Information on basic physical and chemical properties

a)	Appearance	Form: liquid Colour: colourless
b)	Odour	No data available
c)	Odour Threshold	No data available
d)	pH	No data available
e)	Melting point/freezing point	Melting point/range: 4 - 7 °C (39 - 45 °F) - lit.
f)	Initial boiling point and boiling range	80.7 °C (177.3 °F) - lit.
g)	Flash point	-17.99 °C (-0.38 °F) - closed cup
h)	Evaporation rate	No data available
i)	Flammability (solid, gas)	No data available
j)	Upper/lower flammability or explosive limits	Upper explosion limit: 9 %(V) Lower explosion limit: 1 %(V)
k)	Vapour pressure	225.0 hPa (168.8 mmHg) at 37.7 °C (99.9 °F) 102.7 hPa (77.0 mmHg) at 20.0 °C (68.0 °F)
l)	Vapour density	No data available
m)	Relative density	0.779 g/cm3 at 25 °C (77 °F)
n)	Water solubility	No data available
o)	Partition coefficient: n-octanol/water	log Pow: 3.44
p)	Auto-ignition temperature	260.0 °C (500.0 °F)
q)	Decomposition temperature	No data available
r)	Viscosity	No data available
s)	Explosive properties	No data available
t)	Oxidizing properties	No data available

9.2 Other safety information

No data available

10. STABILITY AND REACTIVITY

10.1 Reactivity

No data available

10.2 Chemical stability

Stable under recommended storage conditions.

10.3 Possibility of hazardous reactions

Vapours may form explosive mixture with air.

10.4 Conditions to avoid

Heat, flames and sparks.

10.5 Incompatible materials

Strong oxidizing agents

10.6 Hazardous decomposition products

Other decomposition products - No data available
In the event of fire: see section 5

11. TOXICOLOGICAL INFORMATION

11.1 Information on toxicological effects

Acute toxicity
LD50 Oral - Rat - 12,705 mg/kg

LC50 Inhalation - Rat - 4 h - 34,000 mg/l
(OECD Test Guideline 403)

LD50 Dermal - Rabbit - > 2,000 mg/kg

No data available

Skin corrosion/irritation
Skin - Rabbit
Result: No skin irritation

Serious eye damage/eye irritation
Eyes - Rabbit
Result: Mild eye irritation

Respiratory or skin sensitisation
No data available

Germ cell mutagenicity
No data available

Carcinogenicity

IARC:	No component of this product present at levels greater than or equal to 0.1% is identified as probable, possible or confirmed human carcinogen by IARC.
ACGIH:	No component of this product present at levels greater than or equal to 0.1% is identified as a carcinogen or potential carcinogen by ACGIH.
NTP:	No component of this product present at levels greater than or equal to 0.1% is identified as a known or anticipated carcinogen by NTP.
OSHA:	No component of this product present at levels greater than or equal to 0.1% is identified as a carcinogen or potential carcinogen by OSHA.

Reproductive toxicity
No data available

No data available

Specific target organ toxicity - single exposure
No data available

Specific target organ toxicity - repeated exposure
No data available

Aspiration hazard
May be fatal if swallowed and enters airways.

Additional Information
RTECS: GU6300000

Central nervous system depression, Drowsiness, Irritability, Dizziness, Gastrointestinal disturbance, Lung irritation, chest pain, pulmonary edema

12. ECOLOGICAL INFORMATION

12.1 Toxicity

Toxicity to fish	flow-through test LC50 - Pimephales promelas (fathead minnow) - 4.53 mg/l -

	96 h (OECD Test Guideline 203)
Toxicity to daphnia and other aquatic invertebrates	Immobilization EC50 - Daphnia magna (Water flea) - 0.9 mg/l - 48 h (OECD Test Guideline 202)
Toxicity to algae	EC50 - Pseudokirchneriella subcapitata (green algae) - 3.4 mg/l - 72 h (OECD Test Guideline 201)

12.2 Persistence and degradability

Biodegradability Result: - Readily biodegradable

12.3 Bioaccumulative potential

No data available

12.4 Mobility in soil

No data available

12.5 Results of PBT and vPvB assessment

PBT/vPvB assessment not available as chemical safety assessment not required/not conducted

12.6 Other adverse effects

An environmental hazard cannot be excluded in the event of unprofessional handling or disposal.
Very toxic to aquatic life.

13. DISPOSAL CONSIDERATIONS

13.1 Waste treatment methods

Product

Burn in a chemical incinerator equipped with an afterburner and scrubber but exert extra care in igniting as this material is highly flammable. Offer surplus and non-recyclable solutions to a licensed disposal company. Contact a licensed professional waste disposal service to dispose of this material.

Contaminated packaging

Dispose of as unused product.

14. TRANSPORT INFORMATION

DOT (US)

UN number: 1145 Class: 3 Packing group: II
Proper shipping name: Cyclohexane
Reportable Quantity (RQ): 1000 lbs

Poison Inhalation Hazard: No

IMDG

UN number: 1145 Class: 3 Packing group: II EMS-No: F-E, S-D
Proper shipping name: CYCLOHEXANE
Marine pollutant:yes

IATA

UN number: 1145 Class: 3 Packing group: II
Proper shipping name: Cyclohexane

15. REGULATORY INFORMATION

SARA 302 Components

No chemicals in this material are subject to the reporting requirements of SARA Title III, Section 302.

SARA 313 Components

The following components are subject to reporting levels established by SARA Title III, Section 313:

	CAS-No.	Revision Date
Cyclohexane	110-82-7	2007-07-01

SARA 311/312 Hazards

Fire Hazard, Acute Health Hazard

Massachusetts Right To Know Components

	CAS-No.	Revision Date
Cyclohexane	110-82-7	2007-07-01

Pennsylvania Right To Know Components

	CAS-No.	Revision Date
Cyclohexane	110-82-7	2007-07-01

New Jersey Right To Know Components

	CAS-No.	Revision Date
Cyclohexane	110-82-7	2007-07-01

California Prop. 65 Components

This product does not contain any chemicals known to State of California to cause cancer, birth defects, or any other reproductive harm.

16. OTHER INFORMATION

Full text of H-Statements referred to under sections 2 and 3.

Aquatic Acute	Acute aquatic toxicity
Asp. Tox.	Aspiration hazard
Flam. Liq.	Flammable liquids
H225	Highly flammable liquid and vapour.
H304	May be fatal if swallowed and enters airways.
H315	Causes skin irritation.
H336	May cause drowsiness or dizziness.
H400	Very toxic to aquatic life.
Skin Irrit.	Skin irritation
STOT SE	Specific target organ toxicity - single exposure

HMIS Rating

Health hazard:	2
Chronic Health Hazard:	
Flammability:	3
Physical Hazard	0

NFPA Rating

Health hazard:	2
Fire Hazard:	3
Reactivity Hazard:	0

Further information

Copyright 2015 Sigma-Aldrich Co. LLC. License granted to make unlimited paper copies for internal use only.
The above information is believed to be correct but does not purport to be all inclusive and shall be used only as a guide. The information in this document is based on the present state of our knowledge and is applicable to the product with regard to appropriate safety precautions. It does not represent any guarantee of the properties of the product. Sigma-Aldrich Corporation and its Affiliates shall not be held liable for any damage resulting from handling or from contact with the above product. See www.sigma-aldrich.com and/or the reverse side of invoice or packing slip for additional terms and conditions of sale.

Preparation Information

Sigma-Aldrich Corporation
Product Safety – Americas Region
1-800-521-8956

Version: 5.8 Revision Date: 03/07/2015 Print Date: 02/23/2016

Safety Data Sheet
acc. to OSHA HCS

Printing date 01/15/2024 Revision date 01/15/2024

*

1 Identification

· **Product identifier**

· **Trade name: p,p'-DDE**
· **Synonym**
1,1'-(2,2-dichloroethenylidene)bis[4-chloro-benzene]
4,4'-DDE
4,4'-Dichlorodiphenyldichloroethylene
p,p'-Dichlorodiphenyldichloroethylene
NSC 1153

· **Article number:** 24241
· **CAS Number:**
72-55-9
· **EC number:**
200-784-6
· **Application of the substance / the mixture**
This product is for research use - Not for human or veterinary diagnostic or therapeutic use.

· **Details of the supplier of the safety data sheet**
· **Manufacturer/Supplier:**
Cayman Chemical Co.
1180 E. Ellsworth Rd.
Ann Arbor, MI 48108
USA

· **Information department:** Product safety department
· **Emergency telephone number:**
During normal opening times: +1 (734) 971-3335
US/CANADA: 800-424-9300
Outside US/CANADA: 703-741-5970

2 Hazard(s) identification

· **Classification of the substance or mixture**


GHS06 Skull and crossbones

Acute Toxicity - Oral 3 H301 Toxic if swallowed.


GHS08 Health hazard

Carcinogenicity 2 H351 Suspected of causing cancer.

Specific Target Organ Toxicity - Repeated Exposure 1 H372 Causes damage to organs through prolonged or repeated exposure.

(Contd. on page 2)

Safety Data Sheet
acc. to OSHA HCS

Printing date 01/15/2024 Revision date 01/15/2024

Trade name: p,p'-DDE

(Contd. from page 1)



GHS09 Environment

Aquatic Acute 1 H400 Very toxic to aquatic life.
Aquatic Chronic 1 H410 Very toxic to aquatic life with long lasting effects.

· **Label elements**
· **GHS label elements**
The substance is classified and labeled according to the Globally Harmonized System (GHS).
· **Hazard pictograms**



GHS06 GHS08 GHS09

· **Signal word** Danger
· **Hazard statements**
H301 Toxic if swallowed.
H351 Suspected of causing cancer.
H372 Causes damage to organs through prolonged or repeated exposure.
H410 Very toxic to aquatic life with long lasting effects.
· **Precautionary statements**
P201 Obtain special instructions before use.
P202 Do not handle until all safety precautions have been read and understood.
P260 Do not breathe dust/fume/gas/mist/vapors/spray.
P264 Wash thoroughly after handling.
P270 Do not eat, drink or smoke when using this product.
P273 Avoid release to the environment.
P280 Wear protective gloves/protective clothing/eye protection/face protection.
P301+P310 If swallowed: Immediately call a poison center/doctor.
P321 Specific treatment (see on this label).
P330 Rinse mouth.
P308+P313 IF exposed or concerned: Get medical advice/attention.
P314 Get medical advice/attention if you feel unwell.
P391 Collect spillage.
P405 Store locked up.
P501 Dispose of contents/container in accordance with local/regional/national/international regulations.
· **Classification system:**
· **NFPA ratings (scale 0 - 4)**



Health = 1
Fire = 0
Reactivity = 0

· **HMIS-ratings (scale 0 - 4)**



Health = 1
Fire = 0
Reactivity = 0

(Contd. on page 3)

Safety Data Sheet
acc. to OSHA HCS

Printing date 01/15/2024 Revision date 01/15/2024

Trade name: p,p'-DDE

(Contd. from page 2)

· **Other hazards**
· **Results of PBT and vPvB assessment**
· **PBT:** Not applicable.
· **vPvB:** Not applicable.

3 Composition/information on ingredients

· **Chemical characterization: Substances**
· **CAS No. Description**
72-55-9 p,p'-DDE
· **Identification number(s)**
· **EC number:** 200-784-6

4 First-aid measures

· **Description of first aid measures**
· **General information:**
Immediately remove any clothing soiled by the product.
Symptoms of poisoning may even occur after several hours; therefore medical observation for at least 48 hours after the accident.
In case of irregular breathing or respiratory arrest provide artificial respiration.
· **After inhalation:** In case of unconsciousness place patient stably in side position for transportation.
· **After skin contact:** Immediately wash with water and soap and rinse thoroughly.
· **After eye contact:** Rinse opened eye for several minutes under running water. Then consult a doctor.
· **After swallowing:** Do not induce vomiting; immediately call for medical help.
· **Information for doctor:**
· **Most important symptoms and effects, both acute and delayed**
No further relevant information available.
· **Indication of any immediate medical attention and special treatment needed**
No further relevant information available.

5 Fire-fighting measures

· **Extinguishing media**
· **Suitable extinguishing agents:**
Use fire fighting measures that suit the environment.
A solid water stream may be inefficient.
· **Special hazards arising from the substance or mixture** No further relevant information available.
· **Advice for firefighters**
· **Protective equipment:** No special measures required.

6 Accidental release measures

· **Personal precautions, protective equipment and emergency procedures** Not required.
· **Environmental precautions:**
Inform respective authorities in case of seepage into water course or sewage system.
Do not allow to enter sewers/ surface or ground water.
· **Methods and material for containment and cleaning up:**
Dispose contaminated material as waste according to section 13.

(Contd. on page 4)

Safety Data Sheet
acc. to OSHA HCS

Printing date 01/15/2024 Revision date 01/15/2024

Trade name: p,p'-DDE

(Contd. from page 3)

· **Reference to other sections**
See Section 7 for information on safe handling.
See Section 8 for information on personal protection equipment.
See Section 13 for disposal information.
· **Protective Action Criteria for Chemicals**
· **PAC-1:** 6.5 mg/m³
· **PAC-2:** 72 mg/m³
· **PAC-3:** 170 mg/m³

*
7 Handling and storage

· **Handling:**
· **Precautions for safe handling** Thorough dedusting.
· **Information about protection against explosions and fires:** No special measures required.

· **Conditions for safe storage, including any incompatibilities**
· **Storage:** Store in accordance with information listed on the product insert.
· **Requirements to be met by storerooms and receptacles:** No special requirements.
· **Information about storage in one common storage facility:** Not required.
· **Further information about storage conditions:** None.
· **Specific end use(s)** No further relevant information available.

8 Exposure controls/personal protection

· **Additional information about design of technical systems:** No further data; see section 7.

· **Control parameters**
· **Components with limit values that require monitoring at the workplace:** Not required.
· **Additional information:** The lists that were valid during the creation were used as basis.

· **Exposure controls**
· **Personal protective equipment:**
· **General protective and hygienic measures:**
Keep away from foodstuffs, beverages and feed.
Immediately remove all soiled and contaminated clothing.
Wash hands before breaks and at the end of work.
Store protective clothing separately.
· **Breathing equipment:**
In case of brief exposure or low pollution use respiratory filter device. In case of intensive or longer exposure use respiratory protective device that is independent of circulating air.
· **Protection of hands:**



Protective gloves

The glove material has to be impermeable and resistant to the product/ the substance/ the preparation.
Due to missing tests no recommendation to the glove material can be given for the product/ the preparation/ the chemical mixture.
Selection of the glove material on consideration of the penetration times, rates of diffusion and the degradation
· **Material of gloves**
The selection of the suitable gloves does not only depend on the material, but also on further marks of quality and varies from manufacturer to manufacturer.

(Contd. on page 5)

Safety Data Sheet
acc. to OSHA HCS

Printing date 01/15/2024 Revision date 01/15/2024

Trade name: p,p'-DDE

(Contd. from page 4)

· **Penetration time of glove material**
The exact break through time has to be found out by the manufacturer of the protective gloves and has to be observed.
· **Eye protection:**



Tightly sealed goggles

*
9 Physical and chemical properties

· **Information on basic physical and chemical properties**	
· **General Information**	
· **Appearance:**	
Form:	Solid
Color:	Not determined.
· **Odor:**	Characteristic
· **Structural Formula**	C14H8Cl4
· **Molecular Weight**	318 g/mol
· **Odor threshold:**	Not determined.
· **pH-value:**	Not applicable.
· **Change in condition**	
Melting point/Melting range:	Undetermined.
Boiling point/Boiling range:	Undetermined.
· **Flash point:**	Not applicable.
· **Flammability (solid, gaseous):**	Product is not flammable.
· **Decomposition temperature:**	Not determined.
· **Ignition temperature:**	Not determined.
· **Danger of explosion:**	Product does not present an explosion hazard.
· **Explosion limits:**	
Lower:	Not determined.
Upper:	Not determined.
· **Vapor pressure:**	Not applicable.
· **Density:**	Not determined.
· **Relative density**	Not determined.
· **Vapor density**	Not applicable.
· **Evaporation rate**	Not applicable.
· **Solubility in / Miscibility with**	
Water:	Not determined.
· **Partition coefficient (n-octanol/water):**	Not determined.
· **Viscosity:**	
Dynamic:	Not applicable.
Kinematic:	Not applicable.
SOLUBILITY	Chloroform: Slightly Soluble

(Contd. on page 6)

Safety Data Sheet
acc. to OSHA HCS

Printing date 01/15/2024 Revision date 01/15/2024

Trade name: p,p'-DDE

(Contd. from page 5)

· **Other information** No further relevant information available.

10 Stability and reactivity

· **Reactivity** No further relevant information available.
· **Chemical stability**
· **Thermal decomposition / conditions to be avoided:**
No decomposition if used according to specifications.
· **Possibility of hazardous reactions** No dangerous reactions known.
· **Conditions to avoid** No further relevant information available.
· **Incompatible materials:** strong bases, strong oxidizing agents
· **Hazardous decomposition products:** carbon oxides, hydrogen chloride

11 Toxicological information

· **RTECS Number** KV9450000
· **Information on toxicological effects**
· **Acute toxicity:**

· **LD/LC50 values that are relevant for classification:**		
Oral	LD50	880 mg/kg (rat)
	Intraperitoneal LD50	500 µg/kg (mouse)
	Intraperitoneal LD50	159 mg/kg (rat)

· **Primary irritant effect:**
· **on the skin:** No irritant effect.
· **on the eye:** No irritating effect.
· **Sensitization:** No sensitizing effects known.
· **Additional toxicological information:**

· **Carcinogenic categories**
· **IARC (International Agency for Research on Cancer)** Substance is not listed.
· **NTP (National Toxicology Program)** Substance is not listed.
· **OSHA-Ca (Occupational Safety & Health Administration)** Substance is not listed.

12 Ecological information

· **Toxicity**
· **Aquatic toxicity:** No further relevant information available.
· **Persistence and degradability** No further relevant information available.
· **Behavior in environmental systems:**
· **Bioaccumulative potential** No further relevant information available.
· **Mobility in soil** No further relevant information available.
· **Ecotoxical effects:**
· **Remark:** Very toxic for fish
· **Additional ecological information:**
· **General notes:**
Water hazard class 3 (Assessment by list): extremely hazardous for water
Do not allow product to reach ground water, water course or sewage system, even in small quantities.
Danger to drinking water if even extremely small quantities leak into the ground.
Also poisonous for fish and plankton in water bodies.

(Contd. on page 7)

Safety Data Sheet
acc. to OSHA HCS

Printing date 01/15/2024 Revision date 01/15/2024

Trade name: p,p'-DDE

(Contd. from page 6)

Very toxic for aquatic organisms
· **Results of PBT and vPvB assessment**
· **PBT:** Not applicable.
· **vPvB:** Not applicable.
· **Other adverse effects** No further relevant information available.

13 Disposal considerations

· **Waste treatment methods**
· **Recommendation:**
Must not be disposed of together with household garbage. Do not allow product to reach sewage system.

· **Uncleaned packagings:**
· **Recommendation:** Disposal must be made according to official regulations.

14 Transport information

· **UN-Number**	
· **DOT, IMDG, IATA**	UN2811
· **UN proper shipping name**	
· **DOT**	Toxic solids, organic, n.o.s. (p,p'-DDE)
· **IMDG**	TOXIC SOLID, ORGANIC, N.O.S. (p,p'-DDE)
· **IATA**	Toxic solid, organic, n.o.s. (p,p'-DDE)
· **Transport hazard class(es)**	
· **DOT**	
· **Class**	6.1 Toxic substances
· **Label**	6.1
· **IMDG, IATA**	
· **Class**	6.1 Toxic substances
· **Label**	6.1
· **Packing group**	
· **DOT, IMDG, IATA**	III
· **Environmental hazards:**	Environmentally hazardous substance, solid
· **Special precautions for user**	Warning: Toxic substances
· **Hazard identification number (Kemler code):**	60
· **EMS Number:**	F-A,S-A

(Contd. on page 8)

Safety Data Sheet
acc. to OSHA HCS

Printing date 01/15/2024 Revision date 01/15/2024

Trade name: p,p'-DDE

(Contd. from page 7)

· **Stowage Category**	A
· **Transport in bulk according to Annex II of MARPOL73/78 and the IBC Code**	Not applicable.
· **Transport/Additional information:**	
· **DOT**	
· **Quantity limitations**	On passenger aircraft/rail: 100 kg On cargo aircraft only: 200 kg
· **Hazardous substance:**	1 lbs, 0.454 kg
· **IMDG**	
· **Limited quantities (LQ)**	5 kg
· **Excepted quantities (EQ)**	Code: E1 Maximum net quantity per inner packaging: 30 g Maximum net quantity per outer packaging: 1000 g
· **IATA**	
· **Remarks:**	When sold in quantities of less than or equal to 1 mL, or 1 g, with an Excepted Quantity Code of E1, E2, E4, or E5, this item meets the De Minimis Quantities exemption, per IATA 2.6.10. Therefore packaging does not have to be labeled as Dangerous Goods/Excepted Quantity.
· **UN "Model Regulation":**	UN 2811 TOXIC SOLID, ORGANIC, N.O.S. (P,P'-DDE), 6.1, III, ENVIRONMENTALLY HAZARDOUS

15 Regulatory information

· **Safety, health and environmental regulations/legislation specific for the substance or mixture**
No further relevant information available.
· **Sara**
· **Section 355 (extremely hazardous substances):** Substance is not listed.
· **Section 313 (Specific toxic chemical listings):** Substance is not listed.
· **TSCA (Toxic Substances Control Act):** Substance is not listed.
· **Hazardous Air Pollutants** Substance is not listed.
· **Proposition 65**
· **Chemicals known to cause cancer:** Substance is listed.
· **Chemicals known to cause reproductive toxicity for females:** Substance is not listed.
· **Chemicals known to cause reproductive toxicity for males:** Substance is listed.
· **Chemicals known to cause developmental toxicity:** Substance is listed.

· **Carcinogenic categories**
· **EPA (Environmental Protection Agency)** B2
· **TLV (Threshold Limit Value)** Substance is not listed.
· **NIOSH-Ca (National Institute for Occupational Safety and Health)** Substance is not listed.
· **Chemical safety assessment:** A Chemical Safety Assessment has not been carried out.

16 Other information

All chemicals may pose unknown hazards and should be used with caution. This SDS applies only to the material as packaged. If this product is combined with other materials, deteriorates, or becomes contaminated, it may pose hazards not mentioned in this SDS. Cayman Chemical Company assumes no responsibility for incidental or consequential damages, including lost profits, arising from the use of

(Contd. on page 9)

Safety Data Sheet
acc. to OSHA HCS

Printing date 01/15/2024 Revision date 01/15/2024

Trade name: p,p'-DDE

(Contd. from page 8)

these data. It shall be the user's responsibility to develop proper methods of handling and personal protection based on the actual conditions of use. While this SDS is based on technical data judged to be reliable, Cayman Chemical Company assumes no responsibility for the completeness or accuracy of the information contained herein.

· **Department issuing SDS:** Environment protection department.
· **Contact:** -
· **Date of preparation / last revision** 01/15/2024
· **Abbreviations and acronyms:**
IMDG: International Maritime Code for Dangerous Goods
DOT: US Department of Transportation
IATA: International Air Transport Association
EINECS: European Inventory of Existing Commercial Chemical Substances
CAS: Chemical Abstracts Service (division of the American Chemical Society)
NFPA: National Fire Protection Association (USA)
HMIS: Hazardous Materials Identification System (USA)
LC50: Lethal concentration, 50 percent
LD50: Lethal dose, 50 percent
PBT: Persistent, Bioaccumulative and Toxic
vPvB: very Persistent and very Bioaccumulative
NIOSH: National Institute for Occupational Safety
OSHA: Occupational Safety & Health
TLV: Threshold Limit Value
PEL: Permissible Exposure Limit
REL: Recommended Exposure Limit
Acute Toxicity - Oral 3: Acute toxicity – Category 3
Carcinogenicity 2: Carcinogenicity – Category 2
Specific Target Organ Toxicity - Repeated Exposure 1: Specific target organ toxicity (repeated exposure) – Category 1
Aquatic Acute 1: Hazardous to the aquatic environment - acute aquatic hazard – Category 1
Aquatic Chronic 1: Hazardous to the aquatic environment - long-term aquatic hazard – Category 1
· *** Data compared to the previous version altered.**

Safety Data Sheet
acc. to OSHA HCS

Printing date 03/26/2019 Version Number 2 Reviewed on 03/26/2019

*

1 Identification

· **Product identifier**

· **Trade name: p,p'-DDT**

· **Part number:** FRSP-180J
· **CAS Number:**
50-29-3
· **EC number:**
200-024-3
· **Index number:**
602-045-00-7
· **Application of the substance / the mixture** Reagents and Standards for Analytical Chemical Laboratory Use

· **Details of the supplier of the safety data sheet**
· **Manufacturer/Supplier:**
Agilent Technologies, Inc.
5301 Stevens Creek Blvd.
Santa Clara, CA 95051 USA

· **Information department:**
Telephone: 800-227-9770
e-mail: pdl-msds_author@agilent.com
· **Emergency telephone number:** CHEMTREC®: 1-800-424-9300

2 Hazard(s) identification

· **Classification of the substance or mixture**



GHS06 Skull and crossbones

Acute Tox. 3 H301 Toxic if swallowed.
Acute Tox. 3 H311 Toxic in contact with skin.



GHS08 Health hazard

Carc. 2 H351 Suspected of causing cancer.
STOT RE 1 H372 Causes damage to organs through prolonged or repeated exposure.

· **Label elements**
· **GHS label elements** The substance is classified and labeled according to the Globally Harmonized System (GHS).
· **Hazard pictograms**



GHS06



GHS08

· **Signal word** Danger

· **Hazard-determining components of labeling:**
DDT (common name not adopted by ISO)
· **Hazard statements**
Toxic if swallowed or in contact with skin.

(Contd. on page 2)

Safety Data Sheet
acc. to OSHA HCS

(Contd. of page 1)

Suspected of causing cancer.
Causes damage to organs through prolonged or repeated exposure.

· **Precautionary statements**
Obtain special instructions before use.
Do not handle until all safety precautions have been read and understood.
Do not breathe dust/fume/gas/mist/vapors/spray.
Wash thoroughly after handling.
Do not eat, drink or smoke when using this product.
Wear protective gloves/protective clothing/eye protection/face protection.
If swallowed: Immediately call a poison center/doctor.
Specific treatment (see on this label).
Rinse mouth.
If on skin: Wash with plenty of water.
IF exposed or concerned: Get medical advice/attention.
Call a poison center/doctor if you feel unwell.
Get medical advice/attention if you feel unwell.
Take off immediately all contaminated clothing and wash it before reuse.
Store locked up.
Dispose of contents/container in accordance with local/regional/national/international regulations.

· **Classification system:**
· **NFPA ratings (scale 0 - 4)**



Health = 2
Fire = 2
Reactivity = 0

· **HMIS-ratings (scale 0 - 4)**



Health = 2
Fire = 2
Reactivity = 0

· **Other hazards**
· **Results of PBT and vPvB assessment**
· **PBT:** Not applicable.
· **vPvB:** Not applicable.

3 Composition/information on ingredients

· **Chemical characterization: Substances**
· **CAS No. Description**
50-29-3 DDT (common name not adopted by ISO)
· **Identification number(s)**
· **EC number:** 200-024-3
· **Index number:** 602-045-00-7

(Contd. on page 3)

Safety Data Sheet
acc. to OSHA HCS

(Contd. of page 2)

4 First-aid measures

· **Description of first aid measures**
· **General information:**
Immediately remove any clothing soiled by the product.
Symptoms of poisoning may even occur after several hours; therefore medical observation for at least 48 hours after the accident.
In case of irregular breathing or respiratory arrest provide artificial respiration.
· **After inhalation:** In case of unconsciousness place patient stably in side position for transportation.
· **After skin contact:** Immediately wash with water and soap and rinse thoroughly.
· **After eye contact:** Rinse opened eye for several minutes under running water. Then consult a doctor.
· **After swallowing:** Do not induce vomiting; immediately call for medical help.
· **Information for doctor:**
· **Most important symptoms and effects, both acute and delayed** No further relevant information available.
· **Indication of any immediate medical attention and special treatment needed**
No further relevant information available.

5 Fire-fighting measures

· **Extinguishing media**
· **Suitable extinguishing agents:**
CO2, extinguishing powder or water spray. Fight larger fires with water spray or alcohol resistant foam.
· **Special hazards arising from the substance or mixture**
During heating or in case of fire poisonous gases are produced.
· **Advice for firefighters**
· **Protective equipment:** Mouth respiratory protective device.

6 Accidental release measures

· **Personal precautions, protective equipment and emergency procedures** Mount respiratory protective device.
· **Environmental precautions:** Do not allow to enter sewers/ surface or ground water.
· **Methods and material for containment and cleaning up:**
Dispose contaminated material as waste according to item 13.
Ensure adequate ventilation.
· **Reference to other sections**
See Section 7 for information on safe handling.
See Section 8 for information on personal protection equipment.
See Section 13 for disposal information.
· **Protective Action Criteria for Chemicals**

· **PAC-1:**
3 mg/m³
· **PAC-2:**
34 mg/m³
· **PAC-3:**
210 mg/m³

(Contd. on page 4)

(Contd. of page 3)

7 Handling and storage

· **Handling:**
· **Precautions for safe handling**
Thorough dedusting.
Ensure good ventilation/exhaustion at the workplace.
Open and handle receptacle with care.
· **Information about protection against explosions and fires:** Keep respiratory protective device available.

· **Conditions for safe storage, including any incompatibilities**
· **Storage:**
· **Requirements to be met by storerooms and receptacles:** No special requirements.
· **Information about storage in one common storage facility:** Not required.
· **Further information about storage conditions:** Keep receptacle tightly sealed.
· **Specific end use(s)** No further relevant information available.

*

8 Exposure controls/personal protection

· **Additional information about design of technical systems:** No further data; see item 7.

· **Control parameters**

· **Components with limit values that require monitoring at the workplace:**	
50-29-3 DDT (common name not adopted by ISO)	
PEL	Long-term value: 1 mg/m³ Skin
REL	Long-term value: 0.5 mg/m³ See Pocket Guide App. A
TLV	Long-term value: 1 mg/m³

· **Additional information:** The lists that were valid during the creation were used as basis.

· **Exposure controls**
· **Personal protective equipment:**
· **General protective and hygienic measures:**
Keep away from foodstuffs, beverages and feed.
Immediately remove all soiled and contaminated clothing.
Wash hands before breaks and at the end of work.
Store protective clothing separately.
Avoid contact with the eyes and skin.
· **Breathing equipment:**
When used as intended with Agilent instruments, the use of the product under normal laboratory conditions and with standard practices does not result in significant airborne exposures and therefore respiratory protection is not needed.
Under an emergency condition where a respirator is deemed necessary, use a NIOSH or equivalent approved device/equipment with appropriate organic or acid gas cartridge.
· **Protection of hands:**
Although not recommended for constant contact with the chemicals or for clean-up, nitrile gloves 11-13 mil thickness are recommended for normal use. The breakthrough time is 1 hr. For cleaning a spill where there is direct contact of the chemical, butyl rubber gloves are recommended 12-15 mil thickness with breakthrough times exceeding 4 hrs. Supplier recommendations should be followed.

(Contd. on page 5)

Safety Data Sheet
acc. to OSHA HCS

(Contd. of page 4)

· **Material of gloves**
For normal use: nitrile rubber, 11-13 mil thickness
For direct contact with the chemical: butyl rubber, 12-15 mil thickness
The selection of the suitable gloves does not only depend on the material, but also on further marks of quality and varies from manufacturer to manufacturer.
· **Penetration time of glove material**
For normal use: nitrile rubber: 1 hour
For direct contact with the chemical: butyl rubber: >4 hours
· **Eye protection:**



Tightly sealed goggles

*
9 Physical and chemical properties

· **Information on basic physical and chemical properties**	
· **General Information**	
· **Appearance:**	
Form:	Solid
Color:	Not determined.
· **Odor:**	Characteristic
· **Odor threshold:**	Not determined.
· **pH-value:**	Not applicable.
· **Change in condition**	
Melting point/Melting range:	107-110 °C (224.6-230 °F)
Boiling point/Boiling range:	260 °C (500 °F)
· **Flash point:**	72-77 °C (161.6-170.6 °F)
· **Flammability (solid, gaseous):**	Product is not flammable.
· **Decomposition temperature:**	Not determined.
· **Auto igniting:**	Not determined.
· **Danger of explosion:**	Product does not present an explosion hazard.
· **Explosion limits:**	
Lower:	Not determined.
Upper:	Not determined.
· **Vapor pressure at 20 °C (68 °F):**	0.0000016 hPa (0 mm Hg)
· **Density at 20 °C (68 °F):**	0.99 g/cm³ (8.26155 lbs/gal)
· **Relative density**	Not determined.
· **Vapor density**	Not applicable.
· **Evaporation rate**	Not applicable.
· **Solubility in / Miscibility with**	
Water at 20 °C (68 °F):	0.0000012 g/l
· **Partition coefficient (n-octanol/water):**	Not determined.

(Contd. on page 6)

Safety Data Sheet
acc. to OSHA HCS

(Contd. of page 5)

· **Viscosity:**	
Dynamic:	Not applicable.
Kinematic:	Not applicable.
VOC content:	0.00 % 0.0 g/l / 0.00 lb/gal
Solids content:	100.0 %
· **Other information**	No further relevant information available.

10 Stability and reactivity

· **Reactivity** No further relevant information available.
· **Chemical stability**
· **Thermal decomposition / conditions to be avoided:** No decomposition if used according to specifications.
· **Possibility of hazardous reactions** No dangerous reactions known.
· **Conditions to avoid** No further relevant information available.
· **Incompatible materials:** No further relevant information available.
· **Hazardous decomposition products:** No dangerous decomposition products known.

11 Toxicological information

· **Information on toxicological effects**
· **Acute toxicity:**

· **LD/LC50 values that are relevant for classification:**

ATE (Acute Toxicity Estimate)		
Oral	LD50	87 mg/kg (rat)
Dermal	LD50	300 mg/kg (rabbit)

50-29-3 DDT (common name not adopted by ISO)		
Oral	LD50	87 mg/kg (rat)
Dermal	LD50	2,510 mg/kg (rat)
		300 mg/kg (rabbit)

· **Primary irritant effect:**
· **on the skin:** No irritant effect.
· **on the eye:** No irritating effect.
· **Sensitization:** No sensitizing effects known.
· **Additional toxicological information:**

· **Carcinogenic categories**

· **IARC (International Agency for Research on Cancer)**
2A

· **NTP (National Toxicology Program)**
R

(Contd. on page 7)

Safety Data Sheet
acc. to OSHA HCS

(Contd. of page 6)

· **OSHA-Ca (Occupational Safety & Health Administration)**

Substance is not listed.

12 Ecological information

· **Toxicity**
· **Aquatic toxicity:** No further relevant information available.
· **Persistence and degradability** No further relevant information available.
· **Behavior in environmental systems:**
· **Bioaccumulative potential** No further relevant information available.
· **Mobility in soil** No further relevant information available.
· **Additional ecological information:**
· **General notes:**
Water hazard class 3 (Assessment by list): extremely hazardous for water
Do not allow product to reach ground water, water course or sewage system, even in small quantities.
Danger to drinking water if even extremely small quantities leak into the ground.
· **Results of PBT and vPvB assessment**
· **PBT:** Not applicable.
· **vPvB:** Not applicable.
· **Other adverse effects** No further relevant information available.

13 Disposal considerations

· **Waste treatment methods**
· **Recommendation:**
Must not be disposed of together with household garbage. Do not allow product to reach sewage system.

· **Uncleaned packagings:**
· **Recommendation:** Disposal must be made according to official regulations.

*
14 Transport information

· **UN-Number**
· **DOT, IMDG, IATA** UN2811

· **UN proper shipping name**
· **DOT** Toxic solids, organic, n.o.s. (DDT (common name not adopted by ISO))
· **IMDG, IATA** TOXIC SOLID, ORGANIC, N.O.S. (DDT (common name not adopted by ISO))

· **Transport hazard class(es)**

· **DOT, IMDG, IATA**



· **Class** 6.1 Toxic substances

(Contd. on page 8)

Safety Data Sheet
acc. to OSHA HCS

Trade name: p,p'-DDT

(Contd. of page 7)

· **Label**	6.1
· **Packing group** · **DOT, IMDG, IATA**	III
· **Environmental hazards:**	Not applicable.
· **Special precautions for user** · **Danger code (Kemler):** · **EMS Number:** · **Stowage Category**	Warning: Toxic substances 60 F-A,S-A A
· **Transport in bulk according to Annex II of MARPOL73/78 and the IBC Code**	Not applicable.
· **Transport/Additional information:**	
· **DOT**	
· **Quantity limitations**	On passenger aircraft/rail: 100 kg On cargo aircraft only: 200 kg
· **Hazardous substance:**	1 lbs, 0.454 kg
· **IMDG**	
· **Limited quantities (LQ)**	5 kg
· **Excepted quantities (EQ)**	Code: E1 Maximum net quantity per inner packaging: 30 g Maximum net quantity per outer packaging: 1000 g
· **UN "Model Regulation":**	UN 2811 TOXIC SOLID, ORGANIC, N.O.S. (DDT (COMMON NAME NOT ADOPTED BY ISO)), 6.1, III, ENVIRONMENTALLY HAZARDOUS

15 Regulatory information

· **Safety, health and environmental regulations/legislation specific for the substance or mixture**
· **Sara**

· **Section 355 (extremely hazardous substances):**
Substance is not listed.

· **Section 313 (Specific toxic chemical listings):**
Substance is not listed.

· **TSCA (Toxic Substances Control Act):**
Substance is listed.

· **TSCA new (21st Century Act): (Substances not listed)**

50-29-3	DDT (common name not adopted by ISO)

· **Proposition 65**

· **Chemicals known to cause cancer:**
Substance is listed.

· **Chemicals known to cause reproductive toxicity for females:**
Substance is listed.

(Contd. on page 9)

Safety Data Sheet
acc. to OSHA HCS

(Contd. of page 8)

· **Chemicals known to cause reproductive toxicity for males:**
Substance is listed.

· **Chemicals known to cause developmental toxicity:**
Substance is listed.

· **Carcinogenic categories**

· **EPA (Environmental Protection Agency)**
B2

· **TLV (Threshold Limit Value established by ACGIH)**
A3

· **NIOSH-Ca (National Institute for Occupational Safety and Health)**
Substance is listed.

· **Chemical safety assessment:** A Chemical Safety Assessment has not been carried out.

*
16 Other information

The information contained in this document is based on Agilent's state of knowledge at the time of preparation. No warranty as to its accurateness, completeness or suitability for a particular purpose is expressed or implied.

· **Date of preparation / last revision** 03/26/2019 / 1

· **Abbreviations and acronyms:**
ADR: Accord européen sur le transport des marchandises dangereuses par Route (European Agreement concerning the International Carriage of Dangerous Goods by Road)
IMDG: International Maritime Code for Dangerous Goods
DOT: US Department of Transportation
IATA: International Air Transport Association
ACGIH: American Conference of Governmental Industrial Hygienists
EINECS: European Inventory of Existing Commercial Chemical Substances
CAS: Chemical Abstracts Service (division of the American Chemical Society)
NFPA: National Fire Protection Association (USA)
HMIS: Hazardous Materials Identification System (USA)
VOC: Volatile Organic Compounds (USA, EU)
LC50: Lethal concentration, 50 percent
LD50: Lethal dose, 50 percent
PBT: Persistent, Bioaccumulative and Toxic
vPvB: very Persistent and very Bioaccumulative
NIOSH: National Institute for Occupational Safety
OSHA: Occupational Safety & Health
TLV: Threshold Limit Value
PEL: Permissible Exposure Limit
REL: Recommended Exposure Limit
Acute Tox. 3: Acute toxicity – Category 3
Carc. 2: Carcinogenicity – Category 2
STOT RE 1: Specific target organ toxicity (repeated exposure) – Category 1

· *** Data compared to the previous version altered.**

SAFETY DATA SHEET

Version 5.5
Revision Date 06/02/2016
Print Date 11/17/2016

1. PRODUCT AND COMPANY IDENTIFICATION

1.1 Product identifiers

Product name : δ-BHC

Product Number : 48495
Brand : Supelco
Index-No. : 602-042-00-0

CAS-No. : 319-86-8

1.2 Relevant identified uses of the substance or mixture and uses advised against

Identified uses : Laboratory chemicals, Synthesis of substances

1.3 Details of the supplier of the safety data sheet

Company : Sigma-Aldrich
3050 Spruce Street
SAINT LOUIS MO 63103
USA

Telephone : +1 800-325-5832
Fax : +1 800-325-5052

1.4 Emergency telephone number

Emergency Phone # : +1-703-527-3887 (CHEMTREC)

2. HAZARDS IDENTIFICATION

2.1 Classification of the substance or mixture

GHS Classification in accordance with 29 CFR 1910 (OSHA HCS)
Acute toxicity, Oral (Category 3), H301
Acute toxicity, Dermal (Category 4), H312
Carcinogenicity (Category 2), H351
Acute aquatic toxicity (Category 1), H400
Chronic aquatic toxicity (Category 1), H410

For the full text of the H-Statements mentioned in this Section, see Section 16.

2.2 GHS Label elements, including precautionary statements

Pictogram



Signal word Danger

Hazard statement(s)
H301 Toxic if swallowed.
H312 Harmful in contact with skin.
H351 Suspected of causing cancer.
H410 Very toxic to aquatic life with long lasting effects.

Precautionary statement(s)
P201 Obtain special instructions before use.
P202 Do not handle until all safety precautions have been read and understood.

P264	Wash skin thoroughly after handling.
P270	Do not eat, drink or smoke when using this product.
P273	Avoid release to the environment.
P280	Wear protective gloves/ protective clothing/ eye protection/ face protection.
P301 + P310 + P330	IF SWALLOWED: Immediately call a POISON CENTER/doctor. Rinse mouth.
P302 + P352 + P312	IF ON SKIN: Wash with plenty of water.Call a POISON CENTER/doctor if you feel unwell.
P308 + P313	IF exposed or concerned: Get medical advice/ attention.
P363	Wash contaminated clothing before reuse.
P391	Collect spillage.
P405	Store locked up.
P501	Dispose of contents/ container to an approved waste disposal plant.

2.3 Hazards not otherwise classified (HNOC) or not covered by GHS - none

3. COMPOSITION/INFORMATION ON INGREDIENTS

3.1 Substances

Synonyms	:	δ-1,2,3,4,5,6-Hexachlorocyclohexane
Formula	:	C6H6Cl6
Molecular weight	:	290.8 g/mol
CAS-No.	:	319-86-8
EC-No.	:	206-272-9
Index-No.	:	602-042-00-0

Hazardous components

Component	Classification	Concentration
1α,2α,3α,4β,5α,6β)-1,2,3,4,5,6-Hexachlorocyclohexane		
	Acute Tox. 3; Acute Tox. 4; Carc. 2; Aquatic Acute 1; Aquatic Chronic 1; H301, H312, H351, H410	<= 100 %

For the full text of the H-Statements mentioned in this Section, see Section 16.

4. FIRST AID MEASURES

4.1 Description of first aid measures

General advice
Consult a physician. Show this safety data sheet to the doctor in attendance.Move out of dangerous area.

If inhaled
If breathed in, move person into fresh air. If not breathing, give artificial respiration. Consult a physician.

In case of skin contact
Wash off with soap and plenty of water. Take victim immediately to hospital. Consult a physician.

In case of eye contact
Flush eyes with water as a precaution.

If swallowed
Never give anything by mouth to an unconscious person. Rinse mouth with water. Consult a physician.

4.2 Most important symptoms and effects, both acute and delayed
The most important known symptoms and effects are described in the labelling (see section 2.2) and/or in section 11

4.3 Indication of any immediate medical attention and special treatment needed
No data available

5. FIREFIGHTING MEASURES

5.1 Extinguishing media

Suitable extinguishing media
Use water spray, alcohol-resistant foam, dry chemical or carbon dioxide.

5.2 Special hazards arising from the substance or mixture
No data available

5.3 Advice for firefighters
Wear self-contained breathing apparatus for firefighting if necessary.

5.4 Further information
No data available

6. ACCIDENTAL RELEASE MEASURES

6.1 Personal precautions, protective equipment and emergency procedures
Wear respiratory protection. Avoid dust formation. Avoid breathing vapours, mist or gas. Ensure adequate ventilation. Evacuate personnel to safe areas. Avoid breathing dust.
For personal protection see section 8.

6.2 Environmental precautions
Prevent further leakage or spillage if safe to do so. Do not let product enter drains. Discharge into the environment must be avoided.

6.3 Methods and materials for containment and cleaning up
Pick up and arrange disposal without creating dust. Sweep up and shovel. Keep in suitable, closed containers for disposal.

6.4 Reference to other sections
For disposal see section 13.

7. HANDLING AND STORAGE

7.1 Precautions for safe handling
Avoid contact with skin and eyes. Avoid formation of dust and aerosols.Further processing of solid materials may result in the formation of combustible dusts. The potential for combustible dust formation should be taken into consideration before additional processing occurs.
Provide appropriate exhaust ventilation at places where dust is formed.
For precautions see section 2.2.

7.2 Conditions for safe storage, including any incompatibilities
Keep container tightly closed in a dry and well-ventilated place.

7.3 Specific end use(s)
Apart from the uses mentioned in section 1.2 no other specific uses are stipulated

8. EXPOSURE CONTROLS/PERSONAL PROTECTION

8.1 Control parameters

Components with workplace control parameters
Contains no substances with occupational exposure limit values.
Hazardous components without workplace control parameters

8.2 Exposure controls

Appropriate engineering controls
Avoid contact with skin, eyes and clothing. Wash hands before breaks and immediately after handling the product.

Personal protective equipment

Eye/face protection
Face shield and safety glasses Use equipment for eye protection tested and approved under appropriate government standards such as NIOSH (US) or EN 166(EU).

Skin protection
Handle with gloves. Gloves must be inspected prior to use. Use proper glove removal technique (without touching glove's outer surface) to avoid skin contact with this product. Dispose of contaminated gloves after use in accordance with applicable laws and good laboratory practices. Wash and dry hands.

Full contact
Material: Nitrile rubber
Minimum layer thickness: 0.11 mm
Break through time: 480 min
Material tested:Dermatril® (KCL 740 / Aldrich Z677272, Size M)

Splash contact
Material: Nitrile rubber
Minimum layer thickness: 0.11 mm
Break through time: 480 min
Material tested:Dermatril® (KCL 740 / Aldrich Z677272, Size M)

data source: KCL GmbH, D-36124 Eichenzell, phone +49 (0)6659 87300, e-mail sales@kcl.de, test method: EN374
If used in solution, or mixed with other substances, and under conditions which differ from EN 374, contact the supplier of the CE approved gloves. This recommendation is advisory only and must be evaluated by an industrial hygienist and safety officer familiar with the specific situation of anticipated use by our customers. It should not be construed as offering an approval for any specific use scenario.

Body Protection
Complete suit protecting against chemicals, The type of protective equipment must be selected according to the concentration and amount of the dangerous substance at the specific workplace.

Respiratory protection
Where risk assessment shows air-purifying respirators are appropriate use a full-face particle respirator type N100 (US) or type P3 (EN 143) respirator cartridges as a backup to engineering controls. If the respirator is the sole means of protection, use a full-face supplied air respirator. Use respirators and components tested and approved under appropriate government standards such as NIOSH (US) or CEN (EU).

Control of environmental exposure
Prevent further leakage or spillage if safe to do so. Do not let product enter drains. Discharge into the environment must be avoided.

9. PHYSICAL AND CHEMICAL PROPERTIES

9.1 Information on basic physical and chemical properties

a)	Appearance	Form: solid
b)	Odour	No data available
c)	Odour Threshold	No data available
d)	pH	No data available
e)	Melting point/freezing point	No data available
f)	Initial boiling point and boiling range	No data available
g)	Flash point	No data available
h)	Evaporation rate	No data available
i)	Flammability (solid, gas)	No data available
j)	Upper/lower flammability or explosive limits	No data available
k)	Vapour pressure	No data available
l)	Vapour density	No data available
m)	Relative density	No data available

n)	Water solubility	No data available
o)	Partition coefficient: n-octanol/water	No data available
p)	Auto-ignition temperature	No data available
q)	Decomposition temperature	No data available
r)	Viscosity	No data available
s)	Explosive properties	No data available
t)	Oxidizing properties	No data available

9.2 Other safety information
No data available

10. STABILITY AND REACTIVITY

10.1 Reactivity
No data available

10.2 Chemical stability
Stable under recommended storage conditions.

10.3 Possibility of hazardous reactions
No data available

10.4 Conditions to avoid
No data available

10.5 Incompatible materials
Strong oxidizing agents

10.6 Hazardous decomposition products
Hazardous decomposition products formed under fire conditions. - Carbon oxides, Hydrogen chloride gas
Other decomposition products - No data available
In the event of fire: see section 5

11. TOXICOLOGICAL INFORMATION

11.1 Information on toxicological effects

Acute toxicity
LD50 Oral - Rat - 1,000 mg/kg

Inhalation: No data available

No data available

Skin corrosion/irritation
No data available

Serious eye damage/eye irritation
No data available

Respiratory or skin sensitisation
No data available

Germ cell mutagenicity
No data available

Carcinogenicity

This product is or contains a component that has been reported to be possibly carcinogenic based on its IARC, ACGIH, NTP, or EPA classification.

Limited evidence of carcinogenicity in animal studies

IARC: 2B - Group 2B: Possibly carcinogenic to humans (1α,2α,3α,4β,5α,6β)-1,2,3,4,5,6-Hexachlorocyclohexane)

NTP: Reasonably anticipated to be a human carcinogen (1α,2α,3α,4β,5α,6β)-1,2,3,4,5,6-Hexachlorocyclohexane)

OSHA: No component of this product present at levels greater than or equal to 0.1% is identified as a carcinogen or potential carcinogen by OSHA.

Reproductive toxicity
No data available

No data available

Specific target organ toxicity - single exposure
No data available

Specific target organ toxicity - repeated exposure
No data available

Aspiration hazard
No data available

Additional Information
RTECS: GV4550000

To the best of our knowledge, the chemical, physical, and toxicological properties have not been thoroughly investigated.

Central nervous system -

12. ECOLOGICAL INFORMATION

12.1 Toxicity

Toxicity to fish	LC50 - other fish - 2.83 mg/l - 96.0 h

12.2 Persistence and degradability
No data available

12.3 Bioaccumulative potential
Bioaccumulation other fish - 33 d
- 0.955 mg/l

Bioconcentration factor (BCF): 326

12.4 Mobility in soil
No data available

12.5 Results of PBT and vPvB assessment
PBT/vPvB assessment not available as chemical safety assessment not required/not conducted

12.6 Other adverse effects
An environmental hazard cannot be excluded in the event of unprofessional handling or disposal.
Very toxic to aquatic life with long lasting effects.

13. DISPOSAL CONSIDERATIONS

13.1 Waste treatment methods

Product
Offer surplus and non-recyclable solutions to a licensed disposal company. Contact a licensed professional waste disposal service to dispose of this material. Dissolve or mix the material with a combustible solvent and burn in a chemical incinerator equipped with an afterburner and scrubber.

Contaminated packaging
Dispose of as unused product.

14. TRANSPORT INFORMATION

DOT (US)
UN number: 3077 Class: 9 Packing group: III
Proper shipping name: Environmentally hazardous substances, solid, n.o.s. (1α,2α,3α,4β,5α,6β)-1,2,3,4,5,6-Hexachlorocyclohexane)
Reportable Quantity (RQ): 1 lbs

Poison Inhalation Hazard: No

IMDG
UN number: 3077 Class: 9 Packing group: III EMS-No: F-A, S-F
Proper shipping name: ENVIRONMENTALLY HAZARDOUS SUBSTANCE, SOLID, N.O.S. (1α,2α,3α,4β,5α,6β)-1,2,3,4,5,6-Hexachlorocyclohexane)
Marine pollutant:yes

IATA
UN number: 3077 Class: 9 Packing group: III
Proper shipping name: Environmentally hazardous substance, solid, n.o.s. (1α,2α,3α,4β,5α,6β)-1,2,3,4,5,6-Hexachlorocyclohexane)

Further information
EHS-Mark required (ADR 2.2.9.1.10, IMDG code 2.10.3) for single packagings and combination packagings containing inner packagings with Dangerous Goods > 5L for liquids or > 5kg for solids.

15. REGULATORY INFORMATION

SARA 302 Components
No chemicals in this material are subject to the reporting requirements of SARA Title III, Section 302.

SARA 313 Components
This material does not contain any chemical components with known CAS numbers that exceed the threshold (De Minimis) reporting levels established by SARA Title III, Section 313.

SARA 311/312 Hazards
Acute Health Hazard, Chronic Health Hazard

Massachusetts Right To Know Components

	CAS-No.	Revision Date
1α,2α,3α,4β,5α,6β)-1,2,3,4,5,6-Hexachlorocyclohexane	319-86-8	1993-04-24

Pennsylvania Right To Know Components

	CAS-No.	Revision Date
1α,2α,3α,4β,5α,6β)-1,2,3,4,5,6-Hexachlorocyclohexane	319-86-8	1993-04-24

New Jersey Right To Know Components

	CAS-No.	Revision Date
1α,2α,3α,4β,5α,6β)-1,2,3,4,5,6-Hexachlorocyclohexane	319-86-8	1993-04-24

California Prop. 65 Components

WARNING! This product contains a chemical known to the State of California to cause cancer.	CAS-No.	Revision Date
1α,2α,3α,4β,5α,6β)-1,2,3,4,5,6-Hexachlorocyclohexane	319-86-8	2015-08-14

16. OTHER INFORMATION

Full text of H-Statements referred to under sections 2 and 3.

Acute Tox.	Acute toxicity
Aquatic Acute	Acute aquatic toxicity
Aquatic Chronic	Chronic aquatic toxicity

Carc.	Carcinogenicity
H301	Toxic if swallowed.
H312	Harmful in contact with skin.
H351	Suspected of causing cancer.
H400	Very toxic to aquatic life.
H410	Very toxic to aquatic life with long lasting effects.

HMIS Rating

Health hazard:	2
Chronic Health Hazard:	*
Flammability:	0
Physical Hazard	0

NFPA Rating

Health hazard:	1
Fire Hazard:	0
Reactivity Hazard:	0

Further information

Copyright 2016 Sigma-Aldrich Co. LLC. License granted to make unlimited paper copies for internal use only.
The above information is believed to be correct but does not purport to be all inclusive and shall be used only as a guide. The information in this document is based on the present state of our knowledge and is applicable to the product with regard to appropriate safety precautions. It does not represent any guarantee of the properties of the product. Sigma-Aldrich Corporation and its Affiliates shall not be held liable for any damage resulting from handling or from contact with the above product. See www.sigma-aldrich.com and/or the reverse side of invoice or packing slip for additional terms and conditions of sale.

Preparation Information

Sigma-Aldrich Corporation
Product Safety – Americas Region
1-800-521-8956

Version: 5.5 Revision Date: 06/02/2016 Print Date: 11/17/2016

SAFETY DATA SHEET

Version 6.9
Revision Date 03/04/2024
Print Date 07/13/2024

SECTION 1: Identification of the substance/mixture and of the company/undertaking

1.1 Product identifiers

Product name : Dibenz[*a*,*h*]anthracene

Product Number : 48574
Brand : Supelco
Index-No. : 601-041-00-2
CAS-No. : 53-70-3

1.2 Relevant identified uses of the substance or mixture and uses advised against

Identified uses : Laboratory chemicals, Synthesis of substances

Uses advised against : The product is being supplied under the TSCA R&D Exemption (40 CFR Section 720.36). It is the recipient's responsibility to comply with the requirements of the R&D exemption. The product may not be used for a non-exempt commercial purpose under TSCA unless appropriate consent is granted in writing by MilliporeSigma.

1.3 Details of the supplier of the safety data sheet

Company : Sigma-Aldrich Inc.
3050 SPRUCE ST
ST. LOUIS MO 63103
UNITED STATES

Telephone : +1 314 771-5765
Fax : +1 800 325-5052

1.4 Emergency telephone

Emergency Phone # : 800-424-9300 CHEMTREC (USA) +1-703-527-3887 CHEMTREC (International) 24 Hours/day; 7 Days/week

SECTION 2: Hazards identification

2.1 Classification of the substance or mixture

GHS Classification in accordance with 29 CFR 1910 (OSHA HCS)

Carcinogenicity (Category 1B), H350
Short-term (acute) aquatic hazard (Category 1), H400
Long-term (chronic) aquatic hazard (Category 1), H410

The life science business of Merck KGaA, Darmstadt, Germany
operates as MilliporeSigma in the US and Canada

For the full text of the H-Statements mentioned in this Section, see Section 16.

2.2 GHS Label elements, including precautionary statements

Pictogram



Signal Word Danger

Hazard Statements

H350	May cause cancer.
H410	Very toxic to aquatic life with long lasting effects.

Precautionary Statements

P201	Obtain special instructions before use.
P202	Do not handle until all safety precautions have been read and understood.
P273	Avoid release to the environment.
P280	Wear protective gloves/ protective clothing/ eye protection/ face protection.
P308 + P313	IF exposed or concerned: Get medical advice/ attention.
P391	Collect spillage.
P405	Store locked up.
P501	Dispose of contents/ container to an approved waste disposal plant.

2.3 Hazards not otherwise classified (HNOC) or not covered by GHS - none

SECTION 3: Composition/information on ingredients

3.1 Substances

Synonyms : 1,2:5,6-Dibenzanthracene

Formula : $C_{22}H_{14}$
Molecular weight : 278.35 g/mol
CAS-No. : 53-70-3
EC-No. : 200-181-8
Index-No. : 601-041-00-2

Component	Classification	Concentration
Dibenz[a,h]anthracene		
	Carc. 1B; Aquatic Acute 1; Aquatic Chronic 1; H350, H400, H410 Concentration limits: >= 0.01 %: Carc. 1B, H350; M-Factor - Aquatic Acute: 1 - Aquatic Chronic: 100	<= 100 %

For the full text of the H-Statements mentioned in this Section, see Section 16.

The life science business of Merck KGaA, Darmstadt, Germany
operates as MilliporeSigma in the US and Canada

SECTION 4: First aid measures

4.1 Description of first-aid measures

General advice
Show this material safety data sheet to the doctor in attendance.

If inhaled
After inhalation: fresh air. Call in physician.

In case of skin contact
In case of skin contact: Take off immediately all contaminated clothing. Rinse skin with water/ shower. Consult a physician.

In case of eye contact
After eye contact: rinse out with plenty of water. Call in ophthalmologist. Remove contact lenses.

If swallowed
After swallowing: immediately make victim drink water (two glasses at most). Consult a physician.

4.2 Most important symptoms and effects, both acute and delayed
The most important known symptoms and effects are described in the labelling (see section 2.2) and/or in section 11

4.3 Indication of any immediate medical attention and special treatment needed
No data available

SECTION 5: Firefighting measures

5.1 Extinguishing media

Suitable extinguishing media
Water Foam Carbon dioxide (CO2) Dry powder

Unsuitable extinguishing media
For this substance/mixture no limitations of extinguishing agents are given.

5.2 Special hazards arising from the substance or mixture
Carbon oxides
Combustible.
Development of hazardous combustion gases or vapours possible in the event of fire.

5.3 Advice for firefighters
Stay in danger area only with self-contained breathing apparatus. Prevent skin contact by keeping a safe distance or by wearing suitable protective clothing.

5.4 Further information
Prevent fire extinguishing water from contaminating surface water or the ground water system.

The life science business of Merck KGaA, Darmstadt, Germany
operates as MilliporeSigma in the US and Canada

SECTION 6: Accidental release measures

6.1 Personal precautions, protective equipment and emergency procedures

Advice for non-emergency personnel: Avoid generation and inhalation of dusts in all circumstances. Avoid substance contact. Ensure adequate ventilation. Evacuate the danger area, observe emergency procedures, consult an expert.
For personal protection see section 8.

6.2 Environmental precautions

Do not let product enter drains.

6.3 Methods and materials for containment and cleaning up

Cover drains. Collect, bind, and pump off spills. Observe possible material restrictions (see sections 7 and 10). Take up carefully. Dispose of properly. Clean up affected area. Avoid generation of dusts.

6.4 Reference to other sections

For disposal see section 13.

SECTION 7: Handling and storage

7.1 Precautions for safe handling

Advice on safe handling
Work under hood. Do not inhale substance/mixture.

Hygiene measures
Immediately change contaminated clothing. Apply preventive skin protection. Wash hands and face after working with substance.
For precautions see section 2.2.

7.2 Conditions for safe storage, including any incompatibilities

Storage conditions
Tightly closed. Dry. Keep in a well-ventilated place. Keep locked up or in an area accessible only to qualified or authorized persons.

Storage class
Storage class (TRGS 510): 6.1C: Combustible, acute toxic Cat.3 / toxic compounds or compounds which causing chronic effects

7.3 Specific end use(s)

Apart from the uses mentioned in section 1.2 no other specific uses are stipulated

SECTION 8: Exposure controls/personal protection

8.1 Control parameters

Ingredients with workplace control parameters

The life science business of Merck KGaA, Darmstadt, Germany
operates as MilliporeSigma in the US and Canada

Component	CAS-No.	Value	Control parameters	Basis
Dibenz[a,h]anthracene	53-70-3	PEL	0.2 mg/m3	California permissible exposure limits for chemical contaminants (Title 8, Article 107)

Biological occupational exposure limits

Component	CAS-No.	Parameters	Value	Biological specimen	Basis
Dibenz[a,h]anthracene	53-70-3	1-Hydroxypyrene	2.5 µg/l	Urine	ACGIH - Biological Exposure Indices (BEI)
	Remarks	End of shift at end of workweek			
		3-hydroxybenzo(a)pyrene		Urine	ACGIH - Biological Exposure Indices (BEI)
		End of shift at end of workweek			

8.2 Exposure controls

Appropriate engineering controls
Immediately change contaminated clothing. Apply preventive skin protection. Wash hands and face after working with substance.

Personal protective equipment

Eye/face protection
Use equipment for eye protection tested and approved under appropriate government standards such as NIOSH (US) or EN 166(EU). Safety glasses

Skin protection
Handle with gloves. Gloves must be inspected prior to use. Use proper glove removal technique (without touching glove's outer surface) to avoid skin contact with this product. Dispose of contaminated gloves after use in accordance with applicable laws and good laboratory practices. Wash and dry hands.

Full contact
Material: Nitrile rubber
Minimum layer thickness: 0.11 mm
Break through time: 480 min
Material tested:Dermatril® (KCL 740 / Aldrich Z677272, Size M)

Splash contact
Material: Nitrile rubber
Minimum layer thickness: 0.11 mm
Break through time: 480 min
Material tested:Dermatril® (KCL 740 / Aldrich Z677272, Size M)

data source: KCL GmbH, D-36124 Eichenzell, phone +49 (0)6659 87300, e-mail sales@kcl.de, test method: EN374
If used in solution, or mixed with other substances, and under conditions which differ from EN 374, contact the supplier of the EC approved gloves. This

The life science business of Merck KGaA, Darmstadt, Germany
operates as MilliporeSigma in the US and Canada

recommendation is advisory only and must be evaluated by an industrial hygienist and safety officer familiar with the specific situation of anticipated use by our customers. It should not be construed as offering an approval for any specific use scenario.

Body Protection
protective clothing

Respiratory protection
Recommended Filter type: Filter type P3
The entrepeneur has to ensure that maintenance, cleaning and testing of respiratory protective devices are carried out according to the instructions of the producer. These measures have to be properly documented.
required when dusts are generated.
Our recommendations on filtering respiratory protection are based on the following standards: DIN EN 143, DIN 14387 and other accompanying standards relating to the used respiratory protection system.

Control of environmental exposure
Do not let product enter drains.

SECTION 9: Physical and chemical properties

9.1 Information on basic physical and chemical properties

a)	Appearance	Form: solid
b)	Odor	No data available
c)	Odor Threshold	No data available
d)	pH	No data available
e)	Melting point/freezing point	Melting point/range: 262 - 265 °C (504 - 509 °F) - lit.
f)	Initial boiling point and boiling range	524 °C 975 °F - lit.
g)	Flash point	()Not applicable
h)	Evaporation rate	No data available
i)	Flammability (solid, gas)	No data available
j)	Upper/lower flammability or explosive limits	No data available
k)	Vapor pressure	No data available
l)	Vapor density	No data available
m)	Density	No data available
	Relative density	No data available
n)	Water solubility	No data available

The life science business of Merck KGaA, Darmstadt, Germany
operates as MilliporeSigma in the US and Canada

o)	Partition coefficient: n-octanol/water	No data available
p)	Autoignition temperature	No data available
q)	Decomposition temperature	No data available
r)	Viscosity	No data available
s)	Explosive properties	No data available
t)	Oxidizing properties	none

9.2 Other safety information
No data available

SECTION 10: Stability and reactivity

10.1 Reactivity
The following applies in general to flammable organic substances and mixtures: in correspondingly fine distribution, when whirled up a dust explosion potential may generally be assumed.

10.2 Chemical stability
The product is chemically stable under standard ambient conditions (room temperature) .

10.3 Possibility of hazardous reactions
Violent reactions possible with:
strong oxidising agents

10.4 Conditions to avoid
no information available

10.5 Incompatible materials
No data available

10.6 Hazardous decomposition products
In the event of fire: see section 5

SECTION 11: Toxicological information

11.1 Information on toxicological effects

Acute toxicity
Oral: No data available
Inhalation: No data available
Dermal: No data available

Skin corrosion/irritation
No data available

The life science business of Merck KGaA, Darmstadt, Germany
operates as MilliporeSigma in the US and Canada

Serious eye damage/eye irritation
No data available

Respiratory or skin sensitization
No data available

Germ cell mutagenicity
No data available

Carcinogenicity
Presumed to have carcinogenic potential for humans

IARC: 2A - Group 2A: Probably carcinogenic to humans (Dibenz[a,h]anthracene)

NTP: RAHC - Reasonably anticipated to be a human carcinogen (Dibenz[a,h]anthracene)

OSHA: No component of this product present at levels greater than or equal to 0.1% is on OSHA's list of regulated carcinogens.

Reproductive toxicity
No data available

Specific target organ toxicity - single exposure
No data available

Specific target organ toxicity - repeated exposure
No data available

Aspiration hazard
No data available

11.2 Additional Information

RTECS: HN2625000
To the best of our knowledge, the chemical, physical, and toxicological properties have not been thoroughly investigated.

Lungs -

SECTION 12: Ecological information

12.1 Toxicity

Toxicity to daphnia and other aquatic invertebrates	EC50 - Daphnia magna (Water flea) - 0.496 mg/l - 48 h Remarks: (ECOTOX Database)
Toxicity to algae	NOEC - Raphidocelis subcapitata (freshwater green alga) - 0.00033 mg/l - 72 h Remarks: (ECOTOX Database)

12.2 Persistence and degradability
No data available

12.3 Bioaccumulative potential
No data available

The life science business of Merck KGaA, Darmstadt, Germany
operates as MilliporeSigma in the US and Canada

12.4 Mobility in soil
No data available

12.5 Results of PBT and vPvB assessment
PBT/vPvB assessment not available as chemical safety assessment not required/not conducted

12.6 Endocrine disrupting properties
No data available

12.7 Other adverse effects
Discharge into the environment must be avoided.

SECTION 13: Disposal considerations

13.1 Waste treatment methods

Product
Waste material must be disposed of in accordance with the national and local regulations. Leave chemicals in original containers. No mixing with other waste. Handle uncleaned containers like the product itself.

SECTION 14: Transport information

DOT (US)
UN number: 3077 Class: 9 Packing group: III
Proper shipping name: Environmentally hazardous substance, solid, n.o.s. (Dibenz[a,h]anthracene)
Reportable Quantity (RQ): 1 lbs
Poison Inhalation Hazard: No

IMDG
UN number: 3077 Class: 9 Packing group: III EMS-No: F-A, S-F
Proper shipping name: ENVIRONMENTALLY HAZARDOUS SUBSTANCE, SOLID, N.O.S. (Dibenz[a,h]anthracene)
Marine pollutant : yes
Marine pollutant : no

IATA
UN number: 3077 Class: 9 Packing group: III
Proper shipping name: Environmentally hazardous substance, solid, n.o.s. (Dibenz[a,h]anthracene)

Further information
EHS-Mark required (ADR 2.2.9.1.10, IMDG code 2.10.3) for single packagings and combination packagings containing inner packagings with Dangerous Goods > 5L for liquids or > 5kg for solids.

The life science business of Merck KGaA, Darmstadt, Germany
operates as MilliporeSigma in the US and Canada

SECTION 15: Regulatory information

SARA 302 Components
This material does not contain any components with a section 302 EHS TPQ.

SARA 313 Components
The following components are subject to reporting levels established by SARA Title III, Section 313:

	CAS-No.	Revision Date
Dibenz[a,h]anthracene	53-70-3	1993-02-16

SARA 311/312 Hazards
Chronic Health Hazard

Massachusetts Right To Know Components

	CAS-No.	Revision Date
Dibenz[a,h]anthracene	53-70-3	1993-02-16

Pennsylvania Right To Know Components

	CAS-No.	Revision Date
Dibenz[a,h]anthracene	53-70-3	1993-02-16

California Prop. 65 Components

	CAS-No.	Revision Date
, which is/are known to the State of California to cause cancer. For more information go to www.P65Warnings.ca.gov.Dibenz[a,h]anthracene	53-70-3	2007-09-28

SECTION 16: Other information

Further information
The information is believed to be correct but is not exhaustive and will be used solely as a guideline, which is based on current knowledge of the chemical substance or mixture and is applicable to appropriate safety precautions for the product. It does not represent any guarantee of the properties of the product. Sigma-Aldrich Corporation and its Affiliates shall not be held liable for any damage resulting from handling or from contact with the above product. See www.sigma-aldrich.com and/or the reverse side of invoice or packing slip for additional terms and conditions of sale.
Copyright 2020 Sigma-Aldrich Co. LLC. License granted to make unlimited paper copies for internal use only.
The branding on the header and/or footer of this document may temporarily not visually match the product purchased as we transition our branding. However, all of the information in the document regarding the product remains unchanged and matches the product ordered. For further information please contact mlsbranding@sial.com.
Version: 6.9 Revision Date: 03/04/2024 Print Date: 07/13/2024

The life science business of Merck KGaA, Darmstadt, Germany
operates as MilliporeSigma in the US and Canada

SAFETY DATA SHEET

Version 3.7
Revision Date 11/25/2014
Print Date 01/29/2016

1. PRODUCT AND COMPANY IDENTIFICATION

1.1 Product identifiers

Product name : Dibenzofuran

Product Number : 236373
Brand : Aldrich

CAS-No. : 132-64-9

1.2 Relevant identified uses of the substance or mixture and uses advised against

Identified uses : Laboratory chemicals, Manufacture of substances

1.3 Details of the supplier of the safety data sheet

Company : Sigma-Aldrich
3050 Spruce Street
SAINT LOUIS MO 63103
USA

Telephone : +1 800-325-5832
Fax : +1 800-325-5052

1.4 Emergency telephone number

Emergency Phone # : (314) 776-6555

2. HAZARDS IDENTIFICATION

2.1 Classification of the substance or mixture

GHS Classification in accordance with 29 CFR 1910 (OSHA HCS)
Acute toxicity, Oral (Category 4), H302
Acute aquatic toxicity (Category 2), H401
Chronic aquatic toxicity (Category 2), H411

For the full text of the H-Statements mentioned in this Section, see Section 16.

2.2 GHS Label elements, including precautionary statements

Pictogram



Signal word Warning

Hazard statement(s)
H302 Harmful if swallowed.
H411 Toxic to aquatic life with long lasting effects.

Precautionary statement(s)
P264 Wash skin thoroughly after handling.
P270 Do not eat, drink or smoke when using this product.
P273 Avoid release to the environment.
P301 + P312 + P330 IF SWALLOWED: Call a POISON CENTER or doctor/ physician if you feel unwell. Rinse mouth.
P391 Collect spillage.
P501 Dispose of contents/ container to an approved waste disposal plant.

2.3 Hazards not otherwise classified (HNOC) or not covered by GHS - none

3. COMPOSITION/INFORMATION ON INGREDIENTS

3.1 Substances

Synonyms : Diphenylene oxide

Formula : $C_{12}H_8O$
Molecular weight : 168.19 g/mol
CAS-No. : 132-64-9
EC-No. : 205-071-3

Hazardous components

Component	Classification	Concentration
Dibenzofuran		
	Acute Tox. 4; Aquatic Acute 2; Aquatic Chronic 2; H302, H411	<= 100 %

For the full text of the H-Statements mentioned in this Section, see Section 16.

4. FIRST AID MEASURES

4.1 Description of first aid measures

General advice
Consult a physician. Show this safety data sheet to the doctor in attendance.Move out of dangerous area.

If inhaled
If breathed in, move person into fresh air. If not breathing, give artificial respiration. Consult a physician.

In case of skin contact
Wash off with soap and plenty of water. Consult a physician.

In case of eye contact
Flush eyes with water as a precaution.

If swallowed
Never give anything by mouth to an unconscious person. Rinse mouth with water. Consult a physician.

4.2 Most important symptoms and effects, both acute and delayed

The most important known symptoms and effects are described in the labelling (see section 2.2) and/or in section 11

4.3 Indication of any immediate medical attention and special treatment needed

No data available

5. FIREFIGHTING MEASURES

5.1 Extinguishing media

Suitable extinguishing media
Use water spray, alcohol-resistant foam, dry chemical or carbon dioxide.

5.2 Special hazards arising from the substance or mixture

Carbon oxides

5.3 Advice for firefighters

Wear self-contained breathing apparatus for firefighting if necessary.

5.4 Further information

No data available

6. ACCIDENTAL RELEASE MEASURES

6.1 Personal precautions, protective equipment and emergency procedures

Use personal protective equipment. Avoid dust formation. Avoid breathing vapours, mist or gas. Ensure adequate ventilation. Avoid breathing dust.
For personal protection see section 8.

6.2 Environmental precautions
Prevent further leakage or spillage if safe to do so. Do not let product enter drains. Discharge into the environment must be avoided.

6.3 Methods and materials for containment and cleaning up
Pick up and arrange disposal without creating dust. Sweep up and shovel. Keep in suitable, closed containers for disposal.

6.4 Reference to other sections
For disposal see section 13.

7. HANDLING AND STORAGE

7.1 Precautions for safe handling
Avoid contact with skin and eyes. Avoid formation of dust and aerosols.Further processing of solid materials may result in the formation of combustible dusts. The potential for combustible dust formation should be taken into consideration before additional processing occurs.
Provide appropriate exhaust ventilation at places where dust is formed.
For precautions see section 2.2.

7.2 Conditions for safe storage, including any incompatibilities
Keep container tightly closed in a dry and well-ventilated place.
Storage class (TRGS 510): Non Combustible Solids

7.3 Specific end use(s)
Apart from the uses mentioned in section 1.2 no other specific uses are stipulated

8. EXPOSURE CONTROLS/PERSONAL PROTECTION

8.1 Control parameters

Components with workplace control parameters
Contains no substances with occupational exposure limit values.

8.2 Exposure controls

Appropriate engineering controls
Handle in accordance with good industrial hygiene and safety practice. Wash hands before breaks and at the end of workday.

Personal protective equipment

Eye/face protection
Safety glasses with side-shields conforming to EN166 Use equipment for eye protection tested and approved under appropriate government standards such as NIOSH (US) or EN 166(EU).

Skin protection
Handle with gloves. Gloves must be inspected prior to use. Use proper glove removal technique (without touching glove's outer surface) to avoid skin contact with this product. Dispose of contaminated gloves after use in accordance with applicable laws and good laboratory practices. Wash and dry hands.

Full contact
Material: Nitrile rubber
Minimum layer thickness: 0.11 mm
Break through time: 480 min
Material tested:Dermatril® (KCL 740 / Aldrich Z677272, Size M)

Splash contact
Material: Nitrile rubber
Minimum layer thickness: 0.11 mm
Break through time: 480 min
Material tested:Dermatril® (KCL 740 / Aldrich Z677272, Size M)

data source: KCL GmbH, D-36124 Eichenzell, phone +49 (0)6659 87300, e-mail sales@kcl.de, test method: EN374
If used in solution, or mixed with other substances, and under conditions which differ from EN 374, contact the supplier of the CE approved gloves. This recommendation is advisory only and must be evaluated by an

industrial hygienist and safety officer familiar with the specific situation of anticipated use by our customers. It should not be construed as offering an approval for any specific use scenario.

Body Protection
Complete suit protecting against chemicals, The type of protective equipment must be selected according to the concentration and amount of the dangerous substance at the specific workplace.

Respiratory protection
For nuisance exposures use type P95 (US) or type P1 (EU EN 143) particle respirator.For higher level protection use type OV/AG/P99 (US) or type ABEK-P2 (EU EN 143) respirator cartridges. Use respirators and components tested and approved under appropriate government standards such as NIOSH (US) or CEN (EU).

Control of environmental exposure
Prevent further leakage or spillage if safe to do so. Do not let product enter drains. Discharge into the environment must be avoided.

9. PHYSICAL AND CHEMICAL PROPERTIES

9.1 Information on basic physical and chemical properties

a)	Appearance	Form: crystalline Colour: white, beige
b)	Odour	No data available
c)	Odour Threshold	No data available
d)	pH	No data available
e)	Melting point/freezing point	Melting point/range: 80 - 82 °C (176 - 180 °F) - lit.
f)	Initial boiling point and boiling range	154 - 155 °C (309 - 311 °F) at 27 hPa (20 mmHg) - lit.
g)	Flash point	130.0 °C (266.0 °F) - closed cup
h)	Evaporation rate	No data available
i)	Flammability (solid, gas)	No data available
j)	Upper/lower flammability or explosive limits	No data available
k)	Vapour pressure	No data available
l)	Vapour density	No data available
m)	Relative density	No data available
n)	Water solubility	No data available
o)	Partition coefficient: n-octanol/water	log Pow: 3.77
p)	Auto-ignition temperature	No data available
q)	Decomposition temperature	No data available
r)	Viscosity	No data available
s)	Explosive properties	No data available
t)	Oxidizing properties	No data available

9.2 Other safety information
No data available

10. STABILITY AND REACTIVITY

10.1 Reactivity
No data available

10.2 Chemical stability
Stable under recommended storage conditions.

10.3 Possibility of hazardous reactions
No data available

10.4 Conditions to avoid
No data available

10.5 Incompatible materials
Strong oxidizing agents

10.6 Hazardous decomposition products
Other decomposition products - No data available
In the event of fire: see section 5

11. TOXICOLOGICAL INFORMATION

11.1 Information on toxicological effects

Acute toxicity
The preceding data, or interpretation of data, was determined using Quantitative Structure Activity Relationship (QSAR) modeling.

Inhalation: No data available

Dermal: No data available

No data available

Skin corrosion/irritation
No data available

Serious eye damage/eye irritation
No data available

Respiratory or skin sensitisation
No data available

Germ cell mutagenicity
No data available

Carcinogenicity

IARC: No component of this product present at levels greater than or equal to 0.1% is identified as probable, possible or confirmed human carcinogen by IARC.

ACGIH: No component of this product present at levels greater than or equal to 0.1% is identified as a carcinogen or potential carcinogen by ACGIH.

NTP: No component of this product present at levels greater than or equal to 0.1% is identified as a known or anticipated carcinogen by NTP.

OSHA: No component of this product present at levels greater than or equal to 0.1% is identified as a carcinogen or potential carcinogen by OSHA.

Reproductive toxicity
No data available

No data available

Specific target organ toxicity - single exposure
No data available

Specific target organ toxicity - repeated exposure
No data available

Aspiration hazard
No data available

Additional Information
RTECS: HP4430000

To the best of our knowledge, the chemical, physical, and toxicological properties have not been thoroughly investigated.

12. ECOLOGICAL INFORMATION

12.1 Toxicity

Toxicity to fish	NOEC - Cyprinodon variegatus (sheepshead minnow) - 1 mg/l - 96.0 h
	LC50 - Pimephales promelas (fathead minnow) - 1.05 mg/l - 96.0 h

12.2 Persistence and degradability
No data available

12.3 Bioaccumulative potential
No data available

12.4 Mobility in soil
No data available

12.5 Results of PBT and vPvB assessment
PBT/vPvB assessment not available as chemical safety assessment not required/not conducted

12.6 Other adverse effects
An environmental hazard cannot be excluded in the event of unprofessional handling or disposal.
Toxic to aquatic life with long lasting effects.

13. DISPOSAL CONSIDERATIONS

13.1 Waste treatment methods

Product
Offer surplus and non-recyclable solutions to a licensed disposal company.

Contaminated packaging
Dispose of as unused product.

14. TRANSPORT INFORMATION

DOT (US)
UN number: 3077 Class: 9 Packing group: III
Proper shipping name: Environmentally hazardous substance, solid, n.o.s. (Dibenzofuran)
Reportable Quantity (RQ): 100 lbs
Marine pollutant:yes
Poison Inhalation Hazard: No

IMDG
UN number: 3077 Class: 9 Packing group: III EMS-No: F-A, S-F
Proper shipping name: ENVIRONMENTALLY HAZARDOUS SUBSTANCE, SOLID, N.O.S. (Dibenzofuran)
Marine pollutant:yes

IATA
UN number: 3077 Class: 9 Packing group: III
Proper shipping name: Environmentally hazardous substance, solid, n.o.s. (Dibenzofuran)

15. REGULATORY INFORMATION

SARA 302 Components
No chemicals in this material are subject to the reporting requirements of SARA Title III, Section 302.

SARA 313 Components
The following components are subject to reporting levels established by SARA Title III, Section 313:

	CAS-No.	Revision Date

Dibenzofuran	132-64-9	2007-07-01

SARA 311/312 Hazards
Acute Health Hazard

Massachusetts Right To Know Components

	CAS-No.	Revision Date
Dibenzofuran	132-64-9	2007-07-01

Pennsylvania Right To Know Components

	CAS-No.	Revision Date
Dibenzofuran	132-64-9	2007-07-01

New Jersey Right To Know Components

	CAS-No.	Revision Date
Dibenzofuran	132-64-9	2007-07-01

California Prop. 65 Components
This product does not contain any chemicals known to State of California to cause cancer, birth defects, or any other reproductive harm.

16. OTHER INFORMATION

Full text of H-Statements referred to under sections 2 and 3.

Acute Tox.	Acute toxicity
Aquatic Acute	Acute aquatic toxicity
Aquatic Chronic	Chronic aquatic toxicity
H302	Harmful if swallowed.
H401	Toxic to aquatic life.
H411	Toxic to aquatic life with long lasting effects.

HMIS Rating

Health hazard:	1
Chronic Health Hazard:	
Flammability:	1
Physical Hazard	0

NFPA Rating

Health hazard:	2
Fire Hazard:	1
Reactivity Hazard:	0

Further information
Copyright 2014 Sigma-Aldrich Co. LLC. License granted to make unlimited paper copies for internal use only.
The above information is believed to be correct but does not purport to be all inclusive and shall be used only as a guide. The information in this document is based on the present state of our knowledge and is applicable to the product with regard to appropriate safety precautions. It does not represent any guarantee of the properties of the product. Sigma-Aldrich Corporation and its Affiliates shall not be held liable for any damage resulting from handling or from contact with the above product. See www.sigma-aldrich.com and/or the reverse side of invoice or packing slip for additional terms and conditions of sale.

Preparation Information
Sigma-Aldrich Corporation
Product Safety – Americas Region
1-800-521-8956

Version: 3.7 Revision Date: 11/25/2014 Print Date: 01/29/2016

SAFETY DATA SHEET

Version 3.11
Revision Date 03/03/2015
Print Date 05/01/2016

1. PRODUCT AND COMPANY IDENTIFICATION

1.1 Product identifiers

Product name : Dibutyl phthalate

Product Number : 152439
Brand : Aldrich
Index-No. : 607-318-00-4

CAS-No. : 84-74-2

1.2 Relevant identified uses of the substance or mixture and uses advised against

Identified uses : Laboratory chemicals, Manufacture of substances

1.3 Details of the supplier of the safety data sheet

Company : Sigma-Aldrich
3050 Spruce Street
SAINT LOUIS MO 63103
USA

Telephone : +1 800-325-5832
Fax : +1 800-325-5052

1.4 Emergency telephone number

Emergency Phone # : (314) 776-6555

2. HAZARDS IDENTIFICATION

2.1 Classification of the substance or mixture

GHS Classification in accordance with 29 CFR 1910 (OSHA HCS)
Reproductive toxicity (Category 1B), H360
Acute aquatic toxicity (Category 1), H400

For the full text of the H-Statements mentioned in this Section, see Section 16.

2.2 GHS Label elements, including precautionary statements

Pictogram



Signal word Danger

Hazard statement(s)
H360 May damage fertility or the unborn child.
H400 Very toxic to aquatic life.

Precautionary statement(s)
P201 Obtain special instructions before use.
P202 Do not handle until all safety precautions have been read and understood.
P273 Avoid release to the environment.
P281 Use personal protective equipment as required.
P308 + P313 IF exposed or concerned: Get medical advice/ attention.
P391 Collect spillage.
P405 Store locked up.
P501 Dispose of contents/ container to an approved waste disposal plant.

2.3 Hazards not otherwise classified (HNOC) or not covered by GHS - none

3. COMPOSITION/INFORMATION ON INGREDIENTS

3.1 Substances

Synonyms	:	n-Butyl phthalate Phthalic acid dibutyl ester DBP
Formula	:	$C_{16}H_{22}O_4$
Molecular weight	:	278.34 g/mol
CAS-No.	:	84-74-2
EC-No.	:	201-557-4
Index-No.	:	607-318-00-4
Registration number	:	01-2119493042-44-XXXX

Hazardous components

Component	Classification	Concentration
Dibutyl phthalate Included in the Candidate List of Substances of Very High Concern (SVHC) according to Regulation (EC) No. 1907/2006 (REACH)		
	Repr. 1B; Aquatic Acute 1; H360, H400	<= 100 %

For the full text of the H-Statements mentioned in this Section, see Section 16.

4. FIRST AID MEASURES

4.1 Description of first aid measures

General advice
Consult a physician. Show this safety data sheet to the doctor in attendance.Move out of dangerous area.

If inhaled
If breathed in, move person into fresh air. If not breathing, give artificial respiration. Consult a physician.

In case of skin contact
Wash off with soap and plenty of water. Consult a physician.

In case of eye contact
Flush eyes with water as a precaution.

If swallowed
Never give anything by mouth to an unconscious person. Rinse mouth with water. Consult a physician.

4.2 Most important symptoms and effects, both acute and delayed
The most important known symptoms and effects are described in the labelling (see section 2.2) and/or in section 11

4.3 Indication of any immediate medical attention and special treatment needed
No data available

5. FIREFIGHTING MEASURES

5.1 Extinguishing media

Suitable extinguishing media
Use water spray, alcohol-resistant foam, dry chemical or carbon dioxide.

5.2 Special hazards arising from the substance or mixture
Carbon oxides

5.3 Advice for firefighters
Wear self-contained breathing apparatus for firefighting if necessary.

5.4 Further information
No data available

6. ACCIDENTAL RELEASE MEASURES

6.1 Personal precautions, protective equipment and emergency procedures

Use personal protective equipment. Avoid breathing vapours, mist or gas. Ensure adequate ventilation. Evacuate personnel to safe areas.
For personal protection see section 8.

6.2 Environmental precautions

Prevent further leakage or spillage if safe to do so. Do not let product enter drains. Discharge into the environment must be avoided.

6.3 Methods and materials for containment and cleaning up

Soak up with inert absorbent material and dispose of as hazardous waste. Keep in suitable, closed containers for disposal.

6.4 Reference to other sections

For disposal see section 13.

7. HANDLING AND STORAGE

7.1 Precautions for safe handling

Avoid inhalation of vapour or mist.
For precautions see section 2.2.

7.2 Conditions for safe storage, including any incompatibilities

Keep container tightly closed in a dry and well-ventilated place. Containers which are opened must be carefully resealed and kept upright to prevent leakage.
Storage class (TRGS 510): Non-combustible, acute toxic Cat.3 / toxic hazardous materials or hazardous materials causing chronic effects

7.3 Specific end use(s)

Apart from the uses mentioned in section 1.2 no other specific uses are stipulated

8. EXPOSURE CONTROLS/PERSONAL PROTECTION

8.1 Control parameters

Components with workplace control parameters

Component	CAS-No.	Value	Control parameters	Basis
Dibutyl phthalate	84-74-2	TWA	5.000000 mg/m3	USA. ACGIH Threshold Limit Values (TLV)
	Remarks	Upper Respiratory Tract irritation Eye irritation Testicular damage		
		TWA	5 mg/m3	USA. ACGIH Threshold Limit Values (TLV)
		Upper Respiratory Tract irritation Eye irritation Testicular damage		
		TWA	5.000000 mg/m3	USA. Occupational Exposure Limits (OSHA) - Table Z-1 Limits for Air Contaminants
		TWA	5.000000 mg/m3	USA. NIOSH Recommended Exposure Limits

8.2 Exposure controls

Appropriate engineering controls
Handle in accordance with good industrial hygiene and safety practice. Wash hands before breaks and at the end of workday.

Personal protective equipment

Eye/face protection
Safety glasses with side-shields conforming to EN166 Use equipment for eye protection tested and approved under appropriate government standards such as NIOSH (US) or EN 166(EU).

Skin protection
Handle with gloves. Gloves must be inspected prior to use. Use proper glove removal technique (without touching glove's outer surface) to avoid skin contact with this product. Dispose of contaminated gloves after use in accordance with applicable laws and good laboratory practices. Wash and dry hands.

Full contact
Material: Nitrile rubber
Minimum layer thickness: 0.4 mm
Break through time: 480 min
Material tested:Camatril® (KCL 730 / Aldrich Z677442, Size M)

Splash contact
Material: Nature latex/chloroprene
Minimum layer thickness: 0.6 mm
Break through time: 120 min
Material tested:Lapren® (KCL 706 / Aldrich Z677558, Size M)

data source: KCL GmbH, D-36124 Eichenzell, phone +49 (0)6659 87300, e-mail sales@kcl.de, test method: EN374
If used in solution, or mixed with other substances, and under conditions which differ from EN 374, contact the supplier of the CE approved gloves. This recommendation is advisory only and must be evaluated by an industrial hygienist and safety officer familiar with the specific situation of anticipated use by our customers. It should not be construed as offering an approval for any specific use scenario.

Body Protection
impervious clothing, The type of protective equipment must be selected according to the concentration and amount of the dangerous substance at the specific workplace.

Respiratory protection
Where risk assessment shows air-purifying respirators are appropriate use a full-face respirator with multi-purpose combination (US) or type ABEK (EN 14387) respirator cartridges as a backup to engineering controls. If the respirator is the sole means of protection, use a full-face supplied air respirator. Use respirators and components tested and approved under appropriate government standards such as NIOSH (US) or CEN (EU).

Control of environmental exposure
Prevent further leakage or spillage if safe to do so. Do not let product enter drains. Discharge into the environment must be avoided.

9. PHYSICAL AND CHEMICAL PROPERTIES

9.1 Information on basic physical and chemical properties

a)	Appearance	Form: liquid, clear Colour: colourless
b)	Odour	No data available
c)	Odour Threshold	No data available
d)	pH	No data available
e)	Melting point/freezing point	Melting point/range: -35 °C (-31 °F) - lit.
f)	Initial boiling point and boiling range	340 °C (644 °F) - lit.
g)	Flash point	171.0 °C (339.8 °F) - closed cup
h)	Evaporation rate	No data available
i)	Flammability (solid, gas)	No data available
j)	Upper/lower	Lower explosion limit: 0.47 %(V)

	flammability or explosive limits	
k)	Vapour pressure	1.3 hPa (1.0 mmHg) at 147.0 °C (296.6 °F)
l)	Vapour density	No data available
m)	Relative density	1.043 g/cm3 at 25 °C (77 °F)
n)	Water solubility	0.0114 g/l at 25 °C (77 °F) - OECD Test Guideline 105 - slightly soluble
o)	Partition coefficient: n-octanol/water	No data available
p)	Auto-ignition temperature	402.0 °C (755.6 °F)
q)	Decomposition temperature	No data available
r)	Viscosity	18.8 mm2/s at 20 °C (68 °F) -
s)	Explosive properties	No data available
t)	Oxidizing properties	No data available

9.2 Other safety information
No data available

10. STABILITY AND REACTIVITY

10.1 Reactivity
No data available

10.2 Chemical stability
Stable under recommended storage conditions.

10.3 Possibility of hazardous reactions
No data available

10.4 Conditions to avoid
No data available

10.5 Incompatible materials
Strong oxidizing agents, Nitrates, Bases, acids, Chlorine

10.6 Hazardous decomposition products
Other decomposition products - No data available
In the event of fire: see section 5

11. TOXICOLOGICAL INFORMATION

11.1 Information on toxicological effects

Acute toxicity
LD50 Oral - Rat - 8,000 mg/kg

LC50 Inhalation - Rat - 4,250 mg/m3

LD50 Dermal - Rabbit - > 20,860 mg/kg

No data available

Skin corrosion/irritation
Skin - Rabbit
Result: No skin irritation
(OECD Test Guideline 404)

Serious eye damage/eye irritation
Eyes - Rabbit
Result: No eye irritation
(OECD Test Guideline 405)

Respiratory or skin sensitisation
Maximisation Test (GPMT) - Guinea pig
Result: Does not cause skin sensitisation.
(OECD Test Guideline 406)

Germ cell mutagenicity
No data available

Carcinogenicity

IARC: No component of this product present at levels greater than or equal to 0.1% is identified as probable, possible or confirmed human carcinogen by IARC.

ACGIH: No component of this product present at levels greater than or equal to 0.1% is identified as a carcinogen or potential carcinogen by ACGIH.

NTP: No component of this product present at levels greater than or equal to 0.1% is identified as a known or anticipated carcinogen by NTP.

OSHA: No component of this product present at levels greater than or equal to 0.1% is identified as a carcinogen or potential carcinogen by OSHA.

Reproductive toxicity
Presumed human reproductive toxicant

Overexposure may cause reproductive disorder(s) based on tests with laboratory animals.

Specific target organ toxicity - single exposure
No data available

Specific target organ toxicity - repeated exposure
No data available

Aspiration hazard
No data available

Additional Information
RTECS: TI0875000

Nausea, Dizziness, Headache, To the best of our knowledge, the chemical, physical, and toxicological properties have not been thoroughly investigated.

Central nervous system -

12. ECOLOGICAL INFORMATION

12.1 Toxicity

Toxicity to fish	LC50 - Pimephales promelas (fathead minnow) - 0.85 mg/l - 96.0 h
	NOEC - Pimephales promelas (fathead minnow) - 0.32 mg/l - 96.0 h
Toxicity to daphnia and other aquatic invertebrates	LC50 - Daphnia magna (Water flea) - 3.7 mg/l - 48 h

12.2 Persistence and degradability

Biodegradability	Result: 81 % - Readily biodegradable (C.4-C of the COUNCIL REGULATION (EC) No 440/2008)

12.3 Bioaccumulative potential

Bioaccumulation	Pimephales promelas (fathead minnow) - 11 d - 0.0348 mg/l Bioconcentration factor (BCF): 2,165 Remarks: Does not bioaccumulate.

12.4 Mobility in soil
No data available

12.5 Results of PBT and vPvB assessment

PBT/vPvB assessment not available as chemical safety assessment not required/not conducted

12.6 Other adverse effects

An environmental hazard cannot be excluded in the event of unprofessional handling or disposal.
Very toxic to aquatic life.

No data available

13. DISPOSAL CONSIDERATIONS

13.1 Waste treatment methods

Product

Offer surplus and non-recyclable solutions to a licensed disposal company. Contact a licensed professional waste disposal service to dispose of this material.

Contaminated packaging

Dispose of as unused product.

14. TRANSPORT INFORMATION

DOT (US)

UN number: 3082 Class: 9 Packing group: III
Proper shipping name: Environmentally hazardous substance, liquid, n.o.s. (Dibutyl phthalate)
Reportable Quantity (RQ): 10 lbs
Marine pollutant:yes
Poison Inhalation Hazard: No

IMDG

UN number: 3082 Class: 9 Packing group: III EMS-No: F-A, S-F
Proper shipping name: ENVIRONMENTALLY HAZARDOUS SUBSTANCE, LIQUID, N.O.S. (Dibutyl phthalate)
Marine pollutant:yes

IATA

UN number: 3082 Class: 9 Packing group: III
Proper shipping name: Environmentally hazardous substance, liquid, n.o.s. (Dibutyl phthalate)

15. REGULATORY INFORMATION

SARA 302 Components

No chemicals in this material are subject to the reporting requirements of SARA Title III, Section 302.

SARA 313 Components

The following components are subject to reporting levels established by SARA Title III, Section 313:

	CAS-No.	Revision Date
Dibutyl phthalate	84-74-2	2007-07-01

SARA 311/312 Hazards

Chronic Health Hazard

Massachusetts Right To Know Components

	CAS-No.	Revision Date
Dibutyl phthalate	84-74-2	2007-07-01

Pennsylvania Right To Know Components

	CAS-No.	Revision Date
Dibutyl phthalate	84-74-2	2007-07-01

New Jersey Right To Know Components

	CAS-No.	Revision Date
Dibutyl phthalate	84-74-2	2007-07-01

California Prop. 65 Components

	CAS-No.	Revision Date
WARNING: This product contains a chemical known to the State of California to cause birth defects or other reproductive harm.	84-74-2	2008-06-17
Dibutyl phthalate		

16. OTHER INFORMATION

Full text of H-Statements referred to under sections 2 and 3.

Aquatic Acute	Acute aquatic toxicity
H360	May damage fertility or the unborn child.
H400	Very toxic to aquatic life.
Repr.	Reproductive toxicity

HMIS Rating

Health hazard:	1
Chronic Health Hazard:	*
Flammability:	1
Physical Hazard	0

NFPA Rating

Health hazard:	2
Fire Hazard:	1
Reactivity Hazard:	0

Further information

Copyright 2015 Sigma-Aldrich Co. LLC. License granted to make unlimited paper copies for internal use only.
The above information is believed to be correct but does not purport to be all inclusive and shall be used only as a guide. The information in this document is based on the present state of our knowledge and is applicable to the product with regard to appropriate safety precautions. It does not represent any guarantee of the properties of the product. Sigma-Aldrich Corporation and its Affiliates shall not be held liable for any damage resulting from handling or from contact with the above product. See www.sigma-aldrich.com and/or the reverse side of invoice or packing slip for additional terms and conditions of sale.

Preparation Information

Sigma-Aldrich Corporation
Product Safety – Americas Region
1-800-521-8956

Version: 3.11 Revision Date: 03/03/2015 Print Date: 05/01/2016

SAFETY DATA SHEET

Halocarbon R-12 (Dichlorodifluoromethane)

Section 1. Identification

GHS product identifier : Halocarbon R-12 (Dichlorodifluoromethane)

Chemical name : dichlorodifluoromethane

Other means of identification : ASPEN R-12, Methane, dichlorodifluoro-; Refrigerant 12; Propellant 12; Halon 122; Genetron 12; Freon 12; Fluorocarbon 12; Difluorodichloromethane; DICHLORODIFLUOROMETHANE (FC 12); CFC-12

Product use : Synthetic/Analytical chemistry.

Synonym : ASPEN R-12, Methane, dichlorodifluoro-; Refrigerant 12; Propellant 12; Halon 122; Genetron 12; Freon 12; Fluorocarbon 12; Difluorodichloromethane; DICHLORODIFLUOROMETHANE (FC 12); CFC-12

SDS # : 001018

Supplier's details : Airgas USA, LLC and its affiliates
259 North Radnor-Chester Road
Suite 100
Radnor, PA 19087-5283
1-610-687-5253

Emergency telephone number (with hours of operation) : 1-866-734-3438

Section 2. Hazards identification

OSHA/HCS status : This material is considered hazardous by the OSHA Hazard Communication Standard (29 CFR 1910.1200).

Classification of the substance or mixture : GASES UNDER PRESSURE - Liquefied gas
HAZARDOUS TO THE OZONE LAYER - Category 1

GHS label elements

Hazard pictograms :



Signal word : Warning

Hazard statements : Contains gas under pressure; may explode if heated.
May cause frostbite.
May displace oxygen and cause rapid suffocation.
Harms public health and the environment by destroying ozone in the upper atmosphere.

Precautionary statements

General : Read and follow all Safety Data Sheets (SDS'S) before use. Read label before use. Keep out of reach of children. If medical advice is needed, have product container or label at hand. Close valve after each use and when empty. Use equipment rated for cylinder pressure. Do not open valve until connected to equipment prepared for use. Use a back flow preventative device in the piping. Use only equipment of compatible materials of construction. Always keep container in upright position.

Prevention : Use and store only outdoors or in a well ventilated place.

Response : Not applicable.

Storage : Protect from sunlight. Protect from sunlight when ambient temperature exceeds 52°C/125°F. Store in a well-ventilated place.

Disposal : Refer to manufacturer/supplier for information on recovery/recycling.

Powered by IHS

Section 2. Hazards identification

Hazards not otherwise classified : Liquid can cause burns similar to frostbite.

Section 3. Composition/information on ingredients

Substance/mixture : Substance

Chemical name : dichlorodifluoromethane

Other means of identification : ASPEN R-12, Methane, dichlorodifluoro-; Refrigerant 12; Propellant 12; Halon 122; Genetron 12; Freon 12; Fluorocarbon 12; Difluorodichloromethane; DICHLORODIFLUOROMETHANE (FC 12); CFC-12

CAS number/other identifiers

CAS number : 75-71-8

Product code : 001018

Ingredient name	%	CAS number
Methane, dichlorodifluoro-	100	75-71-8

There are no additional ingredients present which, within the current knowledge of the supplier and in the concentrations applicable, are classified as hazardous to health or the environment and hence require reporting in this section.

Occupational exposure limits, if available, are listed in Section 8.

Section 4. First aid measures

Description of necessary first aid measures

Eye contact : Immediately flush eyes with plenty of water, occasionally lifting the upper and lower eyelids. Check for and remove any contact lenses. Continue to rinse for at least 10 minutes. Get medical attention if irritation occurs.

Inhalation : Remove victim to fresh air and keep at rest in a position comfortable for breathing. If not breathing, if breathing is irregular or if respiratory arrest occurs, provide artificial respiration or oxygen by trained personnel. It may be dangerous to the person providing aid to give mouth-to-mouth resuscitation. Get medical attention if adverse health effects persist or are severe. If unconscious, place in recovery position and get medical attention immediately. Maintain an open airway. Loosen tight clothing such as a collar, tie, belt or waistband. In case of inhalation of decomposition products in a fire, symptoms may be delayed. The exposed person may need to be kept under medical surveillance for 48 hours.

Skin contact : Flush contaminated skin with plenty of water. Remove contaminated clothing and shoes. Get medical attention if symptoms occur. In case of contact with liquid, warm frozen tissues slowly with lukewarm water and get medical attention. Do not rub affected area. Wash clothing before reuse. Clean shoes thoroughly before reuse.

Ingestion : Remove victim to fresh air and keep at rest in a position comfortable for breathing. Get medical attention if adverse health effects persist or are severe. Ingestion of liquid can cause burns similar to frostbite. If frostbite occurs, get medical attention. Never give anything by mouth to an unconscious person. If unconscious, place in recovery position and get medical attention immediately. Maintain an open airway. Loosen tight clothing such as a collar, tie, belt or waistband. As this product rapidly becomes a gas when released, refer to the inhalation section.

Most important symptoms/effects, acute and delayed

Potential acute health effects

Eye contact : Liquid can cause burns similar to frostbite.

Inhalation : Exposure to decomposition products may cause a health hazard. Serious effects may be delayed following exposure.

Powered by IHS

Section 4. First aid measures

Skin contact : Dermal contact with rapidly evaporating liquid could result in freezing of the tissues or frostbite.

Frostbite : Try to warm up the frozen tissues and seek medical attention.

Ingestion : Ingestion of liquid can cause burns similar to frostbite.

Over-exposure signs/symptoms

Eye contact : Adverse symptoms may include the following:
frostbite

Inhalation : No specific data.

Skin contact : Adverse symptoms may include the following:
frostbite

Ingestion : Adverse symptoms may include the following:
frostbite

Indication of immediate medical attention and special treatment needed, if necessary

Notes to physician : In case of inhalation of decomposition products in a fire, symptoms may be delayed. The exposed person may need to be kept under medical surveillance for 48 hours.

Specific treatments : No specific treatment.

Protection of first-aiders : No action shall be taken involving any personal risk or without suitable training. It may be dangerous to the person providing aid to give mouth-to-mouth resuscitation.

See toxicological information (Section 11)

Section 5. Fire-fighting measures

Extinguishing media

Suitable extinguishing media : Use an extinguishing agent suitable for the surrounding fire.

Unsuitable extinguishing media : None known.

Specific hazards arising from the chemical : Contains gas under pressure. In a fire or if heated, a pressure increase will occur and the container may burst or explode.

Hazardous thermal decomposition products : Decomposition products may include the following materials:
carbon dioxide
carbon monoxide
halogenated compounds
carbonyl halides

Special protective actions for fire-fighters : Promptly isolate the scene by removing all persons from the vicinity of the incident if there is a fire. No action shall be taken involving any personal risk or without suitable training. Contact supplier immediately for specialist advice. Move containers from fire area if this can be done without risk. Use water spray to keep fire-exposed containers cool.

Special protective equipment for fire-fighters : Fire-fighters should wear appropriate protective equipment and self-contained breathing apparatus (SCBA) with a full face-piece operated in positive pressure mode. For incidents involving large quantities, thermally insulated undergarments and thick textile or leather gloves should be worn.

Powered by IHS

Section 6. Accidental release measures

Personal precautions, protective equipment and emergency procedures

For non-emergency personnel : No action shall be taken involving any personal risk or without suitable training. Evacuate surrounding areas. Keep unnecessary and unprotected personnel from entering. Do not touch or walk through spilled material. Avoid breathing gas. Provide adequate ventilation. Wear appropriate respirator when ventilation is inadequate. Put on appropriate personal protective equipment.

For emergency responders : If specialised clothing is required to deal with the spillage, take note of any information in Section 8 on suitable and unsuitable materials. See also the information in "For non-emergency personnel".

Environmental precautions : Ensure emergency procedures to deal with accidental gas releases are in place to avoid contamination of the environment. Avoid dispersal of spilled material and runoff and contact with soil, waterways, drains and sewers. Inform the relevant authorities if the product has caused environmental pollution (sewers, waterways, soil or air). May be harmful to the environment if released in large quantities.

Methods and materials for containment and cleaning up

Small spill : Immediately contact emergency personnel. Stop leak if without risk.

Large spill : Immediately contact emergency personnel. Stop leak if without risk. Note: see Section 1 for emergency contact information and Section 13 for waste disposal.

Section 7. Handling and storage

Precautions for safe handling

Protective measures : Put on appropriate personal protective equipment (see Section 8). Contains gas under pressure. Do not get in eyes or on skin or clothing. Avoid breathing gas. Avoid release to the environment. Refer to special instructions/safety data sheet. Empty containers retain product residue and can be hazardous. Do not puncture or incinerate container. Use equipment rated for cylinder pressure. Close valve after each use and when empty. Protect cylinders from physical damage; do not drag, roll, slide, or drop. Use a suitable hand truck for cylinder movement.

Advice on general occupational hygiene : Eating, drinking and smoking should be prohibited in areas where this material is handled, stored and processed. Workers should wash hands and face before eating, drinking and smoking. Remove contaminated clothing and protective equipment before entering eating areas. See also Section 8 for additional information on hygiene measures.

Conditions for safe storage, including any incompatibilities : Store in accordance with local regulations. Store in a segregated and approved area. Store away from direct sunlight in a dry, cool and well-ventilated area, away from incompatible materials (see Section 10). Keep container tightly closed and sealed until ready for use. Cylinders should be stored upright, with valve protection cap in place, and firmly secured to prevent falling or being knocked over. Cylinder temperatures should not exceed 52 °C (125 °F).

Section 8. Exposure controls/personal protection

Control parameters

Occupational exposure limits

Powered by IHS

Section 8. Exposure controls/personal protection

Ingredient name	Exposure limits
Methane, dichlorodifluoro-	**ACGIH TLV (United States, 3/2012).** TWA: 4950 mg/m³ 8 hours. TWA: 1000 ppm 8 hours. **NIOSH REL (United States, 1/2013).** TWA: 4950 mg/m³ 10 hours. TWA: 1000 ppm 10 hours. **OSHA PEL (United States, 6/2010).** TWA: 4950 mg/m³ 8 hours. TWA: 1000 ppm 8 hours. **OSHA PEL 1989 (United States, 3/1989).** TWA: 4950 mg/m³ 8 hours. TWA: 1000 ppm 8 hours.

Appropriate engineering controls : Good general ventilation should be sufficient to control worker exposure to airborne contaminants.

Environmental exposure controls : Emissions from ventilation or work process equipment should be checked to ensure they comply with the requirements of environmental protection legislation. In some cases, fume scrubbers, filters or engineering modifications to the process equipment will be necessary to reduce emissions to acceptable levels.

Individual protection measures

Hygiene measures : Wash hands, forearms and face thoroughly after handling chemical products, before eating, smoking and using the lavatory and at the end of the working period. Appropriate techniques should be used to remove potentially contaminated clothing. Wash contaminated clothing before reusing. Ensure that eyewash stations and safety showers are close to the workstation location.

Eye/face protection : Safety eyewear complying with an approved standard should be used when a risk assessment indicates this is necessary to avoid exposure to liquid splashes, mists, gases or dusts. If contact is possible, the following protection should be worn, unless the assessment indicates a higher degree of protection: safety glasses with side-shields.

Skin protection

Hand protection : Chemical-resistant, impervious gloves complying with an approved standard should be worn at all times when handling chemical products if a risk assessment indicates this is necessary. If contact with the liquid is possible, insulated gloves suitable for low temperatures should be worn. Considering the parameters specified by the glove manufacturer, check during use that the gloves are still retaining their protective properties. It should be noted that the time to breakthrough for any glove material may be different for different glove manufacturers. In the case of mixtures, consisting of several substances, the protection time of the gloves cannot be accurately estimated.

Body protection : Personal protective equipment for the body should be selected based on the task being performed and the risks involved and should be approved by a specialist before handling this product.

Other skin protection : Appropriate footwear and any additional skin protection measures should be selected based on the task being performed and the risks involved and should be approved by a specialist before handling this product.

Respiratory protection : Use a properly fitted, air-purifying or air-fed respirator complying with an approved standard if a risk assessment indicates this is necessary. Respirator selection must be based on known or anticipated exposure levels, the hazards of the product and the safe working limits of the selected respirator.

Powered by IHS

Section 9. Physical and chemical properties

Appearance

Physical state : Gas. [Liquefied gas]

Color : Colorless.

Molecular weight : 120.91 g/mole

Molecular formula : C-Cl2-F2

Boiling/condensation point : -29.8°C (-21.6°F)

Melting/freezing point : -158°C (-252.4°F)

Critical temperature : 111.85°C (233.3°F)

Odor : Characteristic.

Odor threshold : Not available.

pH : Not available.

Flash point : [Product does not sustain combustion.]

Burning time : Not applicable.

Burning rate : Not applicable.

Evaporation rate : Not available.

Flammability (solid, gas) : Not available.

Lower and upper explosive (flammable) limits : Not available.

Vapor pressure : 84.9 (psia)

Vapor density : 4.2 (Air = 1)

Specific Volume (ft^3/lb) : 3.1746

Gas Density (lb/ft^3) : 0.315

Relative density : Not applicable.

Solubility : Not available.

Solubility in water : 0.3 g/l

Partition coefficient: n-octanol/water : 2.16

Auto-ignition temperature : Not available.

Decomposition temperature : Not available.

SADT : Not available.

Viscosity : Not applicable.

Section 10. Stability and reactivity

Reactivity : No specific test data related to reactivity available for this product or its ingredients.

Chemical stability : The product is stable.

Possibility of hazardous reactions : Under normal conditions of storage and use, hazardous reactions will not occur.

Conditions to avoid : No specific data.

Hazardous decomposition products : Under normal conditions of storage and use, hazardous decomposition products should not be produced.

Powered by IHS

Section 10. Stability and reactivity

Hazardous polymerization : Under normal conditions of storage and use, hazardous polymerization will not occur.

Section 11. Toxicological information

Information on toxicological effects

Acute toxicity

Not available.

Irritation/Corrosion

Not available.

Sensitization

Not available.

Mutagenicity

Not available.

Carcinogenicity

Not available.

Reproductive toxicity

Not available.

Teratogenicity

Not available.

Specific target organ toxicity (single exposure)

Not available.

Specific target organ toxicity (repeated exposure)

Not available.

Aspiration hazard

Not available.

Information on the likely routes of exposure : Not available.

Potential acute health effects

Eye contact : Liquid can cause burns similar to frostbite.

Inhalation : Exposure to decomposition products may cause a health hazard. Serious effects may be delayed following exposure.

Skin contact : Dermal contact with rapidly evaporating liquid could result in freezing of the tissues or frostbite.

Ingestion : Ingestion of liquid can cause burns similar to frostbite.

Symptoms related to the physical, chemical and toxicological characteristics

Eye contact : Adverse symptoms may include the following:
frostbite

Inhalation : No specific data.

Skin contact : Adverse symptoms may include the following:
frostbite

Powered by IHS

Section 11. Toxicological information

Ingestion : Adverse symptoms may include the following:
frostbite

Delayed and immediate effects and also chronic effects from short and long term exposure

Short term exposure

Potential immediate effects : Not available.

Potential delayed effects : Not available.

Long term exposure

Potential immediate effects : Not available.

Potential delayed effects : Not available.

Potential chronic health effects

Not available.

General : No known significant effects or critical hazards.

Carcinogenicity : No known significant effects or critical hazards.

Mutagenicity : No known significant effects or critical hazards.

Teratogenicity : No known significant effects or critical hazards.

Developmental effects : No known significant effects or critical hazards.

Fertility effects : No known significant effects or critical hazards.

Numerical measures of toxicity

Acute toxicity estimates

Not available.

Section 12. Ecological information

Toxicity

Not available.

Persistence and degradability

Not available.

Bioaccumulative potential

Product/ingredient name	$LogP_{ow}$	BCF	Potential
Methane, dichlorodifluoro-	2.16	6.17	low

Mobility in soil

Soil/water partition coefficient (K_{OC}) : Not available.

Other adverse effects : No known significant effects or critical hazards.

Powered by IHS

Section 13. Disposal considerations

Disposal methods : The generation of waste should be avoided or minimized wherever possible. Disposal of this product, solutions and any by-products should at all times comply with the requirements of environmental protection and waste disposal legislation and any regional local authority requirements. Dispose of surplus and non-recyclable products via a licensed waste disposal contractor. Waste should not be disposed of untreated to the sewer unless fully compliant with the requirements of all authorities with jurisdiction. Empty Airgas-owned pressure vessels should be returned to Airgas. Waste packaging should be recycled. Incineration or landfill should only be considered when recycling is not feasible. This material and its container must be disposed of in a safe way. Empty containers or liners may retain some product residues. Do not puncture or incinerate container.

United States - RCRA Toxic hazardous waste "U" List

Ingredient	CAS #	Status	Reference number
Dichlorodifluoromethane; Methane, dichlorodifluoro-	75-71-8	Listed	U075

Section 14. Transport information

	DOT	TDG	Mexico	IMDG	IATA
UN number	UN1028	UN1028	UN1028	UN1028	UN1028
UN proper shipping name	DICHLORODIFLUOROMETHANE OR REFRIGERANT GAS R 12	DICHLORODIFLUOROMETHANE; OR REFRIGERANT GAS R 12	DICHLORODIFLUOROMETHANE OR REFRIGERANT GAS R 12	DICHLORODIFLUOROMETHANE (REFRIGERANT GAS R 12)	DICHLORODIFLUOROMETHANE
Transport hazard class(es)	2.2 	2.2 	2.2 	2.2 	2.2 
Packing group	-	-	-	-	-
Environment	No.	No.	No.	No.	No.
Additional information	**Reportable quantity** 5000 lbs / 2270 kg Package sizes shipped in quantities less than the product reportable quantity are not subject to the RQ (reportable quantity) transportation requirements. **Limited quantity** Yes. **Packaging instruction** **Passenger aircraft** Quantity limitation: 75 kg **Cargo aircraft** Quantity limitation: 150 kg **Special provisions** T50	**Explosive Limit and Limited Quantity Index** 0.125 **Passenger Carrying Road or Rail Index** 75	-	-	**Passenger and Cargo Aircraft** Quantity limitation: 75 kg **Cargo Aircraft Only** Quantity limitation: 150 kg

"Refer to CFR 49 (or authority having jurisdiction) to determine the information required for shipment of the product."

Powered by IHS

Section 14. Transport information

Special precautions for user : **Transport within user's premises:** always transport in closed containers that are upright and secure. Ensure that persons transporting the product know what to do in the event of an accident or spillage.

Transport in bulk according to Annex II of MARPOL 73/78 and the IBC Code : Not available.

Section 15. Regulatory information

U.S. Federal regulations : **TSCA 8(a) CDR Exempt/Partial exemption**: Not determined

TSCA 12(b) annual export notification: dichlorodifluoromethane

United States inventory (TSCA 8b): This material is listed or exempted.

Clean Air Act Section 112 (b) Hazardous Air Pollutants (HAPs) : Not listed

Clean Air Act Section 602 Class I Substances : Listed

Clean Air Act Section 602 Class II Substances : Not listed

DEA List I Chemicals (Precursor Chemicals) : Not listed

DEA List II Chemicals (Essential Chemicals) : Not listed

SARA 302/304

Composition/information on ingredients

No products were found.

SARA 304 RQ : Not applicable.

SARA 311/312

Classification : Sudden release of pressure

Composition/information on ingredients

Name	%	Fire hazard	Sudden release of pressure	Reactive	Immediate (acute) health hazard	Delayed (chronic) health hazard
Methane, dichlorodifluoro-	100	No.	Yes.	No.	No.	No.

SARA 313

	Product name	CAS number	%
Form R - Reporting requirements	dichlorodifluoromethane	75-71-8	100
Supplier notification	dichlorodifluoromethane	75-71-8	100

SARA 313 notifications must not be detached from the SDS and any copying and redistribution of the SDS shall include copying and redistribution of the notice attached to copies of the SDS subsequently redistributed.

State regulations

Massachusetts : This material is listed.

New York : This material is listed.

Powered by IHS

Section 15. Regulatory information

New Jersey : This material is listed.

Pennsylvania : This material is listed.

Canada inventory : This material is listed or exempted.

International regulations

International lists : **Australia inventory (AICS)**: This material is listed or exempted.
China inventory (IECSC): This material is listed or exempted.
Japan inventory: This material is listed or exempted.
Korea inventory: This material is listed or exempted.
Malaysia Inventory (EHS Register): Not determined.
New Zealand Inventory of Chemicals (NZIoC): This material is listed or exempted.
Philippines inventory (PICCS): This material is listed or exempted.
Taiwan inventory (CSNN): Not determined.

Chemical Weapons Convention List Schedule I Chemicals : Not listed

Chemical Weapons Convention List Schedule II Chemicals : Not listed

Chemical Weapons Convention List Schedule III Chemicals : Not listed

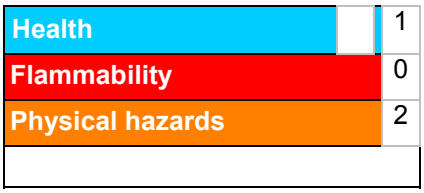
Canada

WHMIS (Canada) : Class A: Compressed gas.
CEPA Toxic substances: This material is listed.
Canadian ARET: This material is not listed.
Canadian NPRI: This material is listed.
Alberta Designated Substances: This material is not listed.
Ontario Designated Substances: This material is not listed.
Quebec Designated Substances: This material is not listed.

Section 16. Other information

Canada Label requirements : Class A: Compressed gas.

Hazardous Material Information System (U.S.A.)



Caution: HMIS® ratings are based on a 0-4 rating scale, with 0 representing minimal hazards or risks, and 4 representing significant hazards or risks Although HMIS® ratings are not required on SDSs under 29 CFR 1910. 1200, the preparer may choose to provide them. HMIS® ratings are to be used with a fully implemented HMIS® program. HMIS® is a registered mark of the National Paint & Coatings Association (NPCA). HMIS® materials may be purchased exclusively from J. J. Keller (800) 327-6868.

The customer is responsible for determining the PPE code for this material.

National Fire Protection Association (U.S.A.)



Powered by IHS

Section 16. Other information

Reprinted with permission from NFPA 704-2001, Identification of the Hazards of Materials for Emergency Response Copyright ©1997, National Fire Protection Association, Quincy, MA 02269. This reprinted material is not the complete and official position of the National Fire Protection Association, on the referenced subject which is represented only by the standard in its entirety.

Copyright ©2001, National Fire Protection Association, Quincy, MA 02269. This warning system is intended to be interpreted and applied only by properly trained individuals to identify fire, health and reactivity hazards of chemicals. The user is referred to certain limited number of chemicals with recommended classifications in NFPA 49 and NFPA 325, which would be used as a guideline only. Whether the chemicals are classified by NFPA or not, anyone using the 704 systems to classify chemicals does so at their own risk.

History

Date of printing : 5/21/2015.

Date of issue/Date of revision : 5/21/2015.

Date of previous issue : 5/21/2015.

Version : 2

Key to abbreviations : ATE = Acute Toxicity Estimate
BCF = Bioconcentration Factor
GHS = Globally Harmonized System of Classification and Labelling of Chemicals
IATA = International Air Transport Association
IBC = Intermediate Bulk Container
IMDG = International Maritime Dangerous Goods
LogPow = logarithm of the octanol/water partition coefficient
MARPOL 73/78 = International Convention for the Prevention of Pollution From Ships, 1973 as modified by the Protocol of 1978. ("Marpol" = marine pollution)
UN = United NationsACGIH – American Conference of Governmental Industrial Hygienists
AIHA – American Industrial Hygiene Association
CAS – Chemical Abstract Services
CEPA – Canadian Environmental Protection Act
CERCLA – Comprehensive Environmental Response, Compensation, and Liability Act (EPA)
CFR – United States Code of Federal Regulations
CPR – Controlled Products Regulations
DSL – Domestic Substances List
GWP – Global Warming Potential
IARC – International Agency for Research on Cancer
ICAO – International Civil Aviation Organisation
Inh – Inhalation
LC – Lethal concentration
LD – Lethal dosage
NDSL – Non-Domestic Substances List
NIOSH – National Institute for Occupational Safety and Health
TDG – Canadian Transportation of Dangerous Goods Act and Regulations
TLV – Threshold Limit Value
TSCA – Toxic Substances Control Act
WEEL – Workplace Environmental Exposure Level
WHMIS – Canadian Workplace Hazardous Material Information System

References : Not available.

Indicates information that has changed from previously issued version.

Other special considerations : WARNING: Contains (Dichlorodifluoromethane), a substance which harms the public health and environment by destroying ozone in the upper atmosphere.

Notice to reader

Powered by IHS

Section 16. Other information

To the best of our knowledge, the information contained herein is accurate. However, neither the above-named supplier, nor any of its subsidiaries, assumes any liability whatsoever for the accuracy or completeness of the information contained herein.

Final determination of suitability of any material is the sole responsibility of the user. All materials may present unknown hazards and should be used with caution. Although certain hazards are described herein, we cannot guarantee that these are the only hazards that exist.

Powered by IHS

SAFETY DATA SHEET

Version 5.5
Revision Date 02/28/2015
Print Date 02/09/2016

1. PRODUCT AND COMPANY IDENTIFICATION

1.1 Product identifiers

Product name : Dieldrin

Product Number : 291218
Brand : Aldrich
Index-No. : 602-049-00-9

CAS-No. : 60-57-1

1.2 Relevant identified uses of the substance or mixture and uses advised against

Identified uses : Laboratory chemicals, Manufacture of substances

1.3 Details of the supplier of the safety data sheet

Company : Sigma-Aldrich
3050 Spruce Street
SAINT LOUIS MO 63103
USA

Telephone : +1 800-325-5832
Fax : +1 800-325-5052

1.4 Emergency telephone number

Emergency Phone # : (314) 776-6555

2. HAZARDS IDENTIFICATION

2.1 Classification of the substance or mixture

GHS Classification in accordance with 29 CFR 1910 (OSHA HCS)
Acute toxicity, Oral (Category 2), H300
Acute toxicity, Dermal (Category 3), H311
Carcinogenicity (Category 2), H351
Specific target organ toxicity - repeated exposure, Oral (Category 1), H372
Acute aquatic toxicity (Category 1), H400
Chronic aquatic toxicity (Category 1), H410

For the full text of the H-Statements mentioned in this Section, see Section 16.

2.2 GHS Label elements, including precautionary statements

Pictogram



Signal word Danger

Hazard statement(s)
H300 Fatal if swallowed.
H311 Toxic in contact with skin.
H351 Suspected of causing cancer.
H372 Causes damage to organs through prolonged or repeated exposure if swallowed.
H410 Very toxic to aquatic life with long lasting effects.

Precautionary statement(s)
P201 Obtain special instructions before use.

P202	Do not handle until all safety precautions have been read and understood.
P260	Do not breathe dust/ fume/ gas/ mist/ vapours/ spray.
P264	Wash skin thoroughly after handling.
P270	Do not eat, drink or smoke when using this product.
P273	Avoid release to the environment.
P280	Wear protective gloves/ protective clothing.
P281	Use personal protective equipment as required.
P301 + P310 + P330	IF SWALLOWED: Immediately call a POISON CENTER or doctor/ physician. Rinse mouth.
P302 + P352 + P312	IF ON SKIN: Wash with plenty of soap and water. Call a POISON CENTER or doctor/ physician if you feel unwell.
P308 + P313	IF exposed or concerned: Get medical advice/ attention.
P361	Remove/Take off immediately all contaminated clothing.
P363	Wash contaminated clothing before reuse.
P391	Collect spillage.
P405	Store locked up.
P501	Dispose of contents/ container to an approved waste disposal plant.

2.3 Hazards not otherwise classified (HNOC) or not covered by GHS - none

3. COMPOSITION/INFORMATION ON INGREDIENTS

3.1 Substances

Synonyms : 1,2,3,4,10,10-Hexachloro-1,4,4a,5,6,7,8,8a-octahydro-6,7-epoxy-1,4:5,8-dimethanonaphthalene

Formula : $C_{12}H_8Cl_6O$

Molecular weight : 380.91 g/mol

CAS-No. : 60-57-1

EC-No. : 200-484-5

Index-No. : 602-049-00-9

Hazardous components

Component	Classification	Concentration
Dieldrin		
	Acute Tox. 2; Acute Tox. 3; Carc. 2; STOT RE 1; Aquatic Acute 1; Aquatic Chronic 1; H300, H311, H351, H372, H410	<= 100 %

For the full text of the H-Statements mentioned in this Section, see Section 16.

4. FIRST AID MEASURES

4.1 Description of first aid measures

General advice
Consult a physician. Show this safety data sheet to the doctor in attendance.Move out of dangerous area.

If inhaled
If breathed in, move person into fresh air. If not breathing, give artificial respiration. Consult a physician.

In case of skin contact
Wash off with soap and plenty of water. Take victim immediately to hospital. Consult a physician.

In case of eye contact
Flush eyes with water as a precaution.

If swallowed
Never give anything by mouth to an unconscious person. Rinse mouth with water. Consult a physician.

4.2 Most important symptoms and effects, both acute and delayed
The most important known symptoms and effects are described in the labelling (see section 2.2) and/or in section 11

4.3 Indication of any immediate medical attention and special treatment needed
No data available

5. FIREFIGHTING MEASURES

5.1 Extinguishing media

Suitable extinguishing media
Use water spray, alcohol-resistant foam, dry chemical or carbon dioxide.

5.2 Special hazards arising from the substance or mixture
Carbon oxides, Hydrogen chloride gas

5.3 Advice for firefighters
Wear self-contained breathing apparatus for firefighting if necessary.

5.4 Further information
No data available

6. ACCIDENTAL RELEASE MEASURES

6.1 Personal precautions, protective equipment and emergency procedures
Wear respiratory protection. Avoid dust formation. Avoid breathing vapours, mist or gas. Ensure adequate ventilation. Evacuate personnel to safe areas. Avoid breathing dust.
For personal protection see section 8.

6.2 Environmental precautions
Prevent further leakage or spillage if safe to do so. Do not let product enter drains. Discharge into the environment must be avoided.

6.3 Methods and materials for containment and cleaning up
Pick up and arrange disposal without creating dust. Sweep up and shovel. Keep in suitable, closed containers for disposal.

6.4 Reference to other sections
For disposal see section 13.

7. HANDLING AND STORAGE

7.1 Precautions for safe handling
Avoid contact with skin and eyes. Avoid formation of dust and aerosols.Further processing of solid materials may result in the formation of combustible dusts. The potential for combustible dust formation should be taken into consideration before additional processing occurs.
Provide appropriate exhaust ventilation at places where dust is formed.
For precautions see section 2.2.

7.2 Conditions for safe storage, including any incompatibilities
Keep container tightly closed in a dry and well-ventilated place.
Storage class (TRGS 510): Non-combustible, acute toxic Cat. 1 and 2 / very toxic hazardous materials

7.3 Specific end use(s)
Apart from the uses mentioned in section 1.2 no other specific uses are stipulated

8. EXPOSURE CONTROLS/PERSONAL PROTECTION

8.1 Control parameters

Components with workplace control parameters

Component	CAS-No.	Value	Control parameters	Basis
Dieldrin	60-57-1	TWA	0.100000 mg/m3	USA. ACGIH Threshold Limit Values (TLV)
	Remarks	Central Nervous System impairment Liver damage Reproductive effects Confirmed animal carcinogen with unknown relevance to humans Danger of cutaneous absorption		

		TWA	0.250000 mg/m3	USA. NIOSH Recommended Exposure Limits
		Potential Occupational Carcinogen See Appendix A Potential for dermal absorption		
		TWA	0.250000 mg/m3	USA. Occupational Exposure Limits (OSHA) - Table Z-1 Limits for Air Contaminants
		Skin designation		

8.2 Exposure controls

Appropriate engineering controls
Avoid contact with skin, eyes and clothing. Wash hands before breaks and immediately after handling the product.

Personal protective equipment

Eye/face protection
Face shield and safety glasses Use equipment for eye protection tested and approved under appropriate government standards such as NIOSH (US) or EN 166(EU).

Skin protection
Handle with gloves. Gloves must be inspected prior to use. Use proper glove removal technique (without touching glove's outer surface) to avoid skin contact with this product. Dispose of contaminated gloves after use in accordance with applicable laws and good laboratory practices. Wash and dry hands.

Full contact
Material: Nitrile rubber
Minimum layer thickness: 0.11 mm
Break through time: 480 min
Material tested:Dermatril® (KCL 740 / Aldrich Z677272, Size M)

Splash contact
Material: Nitrile rubber
Minimum layer thickness: 0.11 mm
Break through time: 480 min
Material tested:Dermatril® (KCL 740 / Aldrich Z677272, Size M)

data source: KCL GmbH, D-36124 Eichenzell, phone +49 (0)6659 87300, e-mail sales@kcl.de, test method: EN374
If used in solution, or mixed with other substances, and under conditions which differ from EN 374, contact the supplier of the CE approved gloves. This recommendation is advisory only and must be evaluated by an industrial hygienist and safety officer familiar with the specific situation of anticipated use by our customers. It should not be construed as offering an approval for any specific use scenario.

Body Protection
Complete suit protecting against chemicals, The type of protective equipment must be selected according to the concentration and amount of the dangerous substance at the specific workplace.

Respiratory protection
Where risk assessment shows air-purifying respirators are appropriate use a full-face particle respirator type N100 (US) or type P3 (EN 143) respirator cartridges as a backup to engineering controls. If the respirator is the sole means of protection, use a full-face supplied air respirator. Use respirators and components tested and approved under appropriate government standards such as NIOSH (US) or CEN (EU).

Control of environmental exposure
Prevent further leakage or spillage if safe to do so. Do not let product enter drains. Discharge into the environment must be avoided.

9. PHYSICAL AND CHEMICAL PROPERTIES

9.1 Information on basic physical and chemical properties

a)	Appearance	Form: solid
b)	Odour	No data available
c)	Odour Threshold	No data available

d)	pH	No data available
e)	Melting point/freezing point	Melting point/range: 143 - 144 °C (289 - 291 °F)
f)	Initial boiling point and boiling range	No data available
g)	Flash point	No data available
h)	Evaporation rate	No data available
i)	Flammability (solid, gas)	No data available
j)	Upper/lower flammability or explosive limits	No data available
k)	Vapour pressure	No data available
l)	Vapour density	No data available
m)	Relative density	No data available
n)	Water solubility	No data available
o)	Partition coefficient: n-octanol/water	No data available
p)	Auto-ignition temperature	No data available
q)	Decomposition temperature	No data available
r)	Viscosity	No data available
s)	Explosive properties	No data available
t)	Oxidizing properties	No data available

9.2 Other safety information
No data available

10. STABILITY AND REACTIVITY

10.1 Reactivity
No data available

10.2 Chemical stability
Stable under recommended storage conditions.

10.3 Possibility of hazardous reactions
No data available

10.4 Conditions to avoid
No data available

10.5 Incompatible materials
Strong oxidizing agents

10.6 Hazardous decomposition products
Other decomposition products - No data available
In the event of fire: see section 5

11. TOXICOLOGICAL INFORMATION

11.1 Information on toxicological effects

Acute toxicity
LD50 Oral - Mouse - 38.0 mg/kg

LD50 Oral - Dog - 65.0 mg/kg

LD50 Oral - Monkey - 3.0 mg/kg

LD50 Oral - Rabbit - 45.0 mg/kg

LD50 Oral - Pig - 38.0 mg/kg

LD50 Oral - Guinea pig - 49.0 mg/kg

LD50 Oral - Hamster - 60.0 mg/kg

LD50 Oral - Pigeon - 23.7 mg/kg

LD50 Oral - Chicken - 20.0 mg/kg
Remarks: Sense Organs and Special Senses (Nose, Eye, Ear, and Taste):Eye:Miosis (pupilliary constriction). Behavioral:Excitement. Behavioral:Food intake (animal).

LD50 Oral - Quail - 10.8 mg/kg
Remarks: Behavioral:Altered sleep time (including change in righting reflex). Behavioral:Somnolence (general depressed activity). Behavioral:Irritability.

LD50 Oral - Duck - 381.0 mg/kg

LD50 Oral - Mammal - 94.0 mg/kg
Remarks: Peripheral Nerve and Sensation:Flaccid paralysis without anesthesia (usually neuromuscular blockage). Behavioral:Tremor. Behavioral:Convulsions or effect on seizure threshold.

LD50 Oral - Bird (wild) - 13.3 mg/kg

LDLO Oral - Rat - 30.0 mg/kg
Remarks: Liver:Other changes.

LDLO Oral - Human - male - 65.0 mg/kg

LDLO Oral - Cat - 500 mg/kg
Remarks: Lungs, Thorax, or Respiration:Chronic pulmonary edema. Liver:Fatty liver degeneration. Kidney, Ureter, Bladder:Other changes.

TDLo Oral - Rat - 140 mg/kg
Remarks: Liver:Other changes. Blood:Other changes. Biochemical:Enzyme inhibition, induction, or change in blood or tissue levels: Other esterases.

TDLo Oral - Rat - 109 mg/kg
Remarks: Liver:Changes in liver weight.

TDLo Oral - Rat - 88 mg/kg
Remarks: Behavioral:Food intake (animal). Nutritional and Gross Metabolic:Weight loss or decreased weight gain. Biochemical:Enzyme inhibition, induction, or change in blood or tissue levels: Phosphatases.

Inhalation: No data available

LD50 Dermal - Rabbit - 250.0 mg/kg

No data available

Skin corrosion/irritation
No data available

Serious eye damage/eye irritation
No data available

Respiratory or skin sensitisation
No data available

Germ cell mutagenicity
No data available

Carcinogenicity

This product is or contains a component that is not classifiable as to its carcinogenicity based on its IARC, ACGIH, NTP, or EPA classification.

Limited evidence of carcinogenicity in animal studies

IARC: 3 - Group 3: Not classifiable as to its carcinogenicity to humans (Dieldrin)

NTP: No component of this product present at levels greater than or equal to 0.1% is identified as a known or anticipated carcinogen by NTP.

OSHA: No component of this product present at levels greater than or equal to 0.1% is identified as a carcinogen or potential carcinogen by OSHA.

Reproductive toxicity
No data available

No data available

Specific target organ toxicity - single exposure
No data available

Specific target organ toxicity - repeated exposure
Ingestion - Causes damage to organs through prolonged or repeated exposure.

Aspiration hazard
No data available

Additional Information
RTECS: IO1750000

Discomfort, Headache, Nausea, Vomiting, Dizziness, Tremors, tonic convulsions, clonic spasms, Coma., respiratory failure, To the best of our knowledge, the chemical, physical, and toxicological properties have not been thoroughly investigated.

Blood - Irregularities - Based on Human Evidence
Blood - Irregularities - Based on Human Evidence

12. ECOLOGICAL INFORMATION

12.1 Toxicity

Toxicity to fish	mortality LC50 - Carassius auratus (goldfish) - 1.6 µg/l - 96.0 h
Toxicity to daphnia and other aquatic invertebrates	Immobilization EC50 - Daphnia magna (Water flea) - 79.5 µg/l - 48 h

12.2 Persistence and degradability
No data available

12.3 Bioaccumulative potential
No data available

12.4 Mobility in soil
No data available

12.5 Results of PBT and vPvB assessment
PBT/vPvB assessment not available as chemical safety assessment not required/not conducted

12.6 Other adverse effects
An environmental hazard cannot be excluded in the event of unprofessional handling or disposal.
Very toxic to aquatic life.

13. DISPOSAL CONSIDERATIONS

13.1 Waste treatment methods

Product
Offer surplus and non-recyclable solutions to a licensed disposal company. Contact a licensed professional waste disposal service to dispose of this material. Dissolve or mix the material with a combustible solvent and burn in a chemical incinerator equipped with an afterburner and scrubber.

Contaminated packaging
Dispose of as unused product.

14. TRANSPORT INFORMATION

DOT (US)
UN number: 2811 Class: 6.1 Packing group: I
Proper shipping name: Toxic solids, organic, n.o.s. (Dieldrin)
Reportable Quantity (RQ): 1 lbs
Marine pollutant:yes
Poison Inhalation Hazard: No

IMDG
UN number: 2811 Class: 6.1 Packing group: I EMS-No: F-A, S-A
Proper shipping name: TOXIC SOLID, ORGANIC, N.O.S. (Dieldrin)
Marine pollutant:yes

IATA
UN number: 2811 Class: 6.1 Packing group: I
Proper shipping name: Toxic solid, organic, n.o.s. (Dieldrin)
IATA Passenger: Not permitted for transport

15. REGULATORY INFORMATION

SARA 302 Components
No chemicals in this material are subject to the reporting requirements of SARA Title III, Section 302.

SARA 313 Components
This material does not contain any chemical components with known CAS numbers that exceed the threshold (De Minimis) reporting levels established by SARA Title III, Section 313.

SARA 311/312 Hazards
Acute Health Hazard, Chronic Health Hazard

Massachusetts Right To Know Components

	CAS-No.	Revision Date
Dieldrin	60-57-1	1993-04-24

Pennsylvania Right To Know Components

	CAS-No.	Revision Date
Dieldrin	60-57-1	1993-04-24

New Jersey Right To Know Components

	CAS-No.	Revision Date
Dieldrin	60-57-1	1993-04-24

California Prop. 65 Components

WARNING! This product contains a chemical known to the State of California to cause cancer. Dieldrin	CAS-No. 60-57-1	Revision Date 2007-09-28

16. OTHER INFORMATION

Full text of H-Statements referred to under sections 2 and 3.

Acute Tox.	Acute toxicity
Aquatic Acute	Acute aquatic toxicity
Aquatic Chronic	Chronic aquatic toxicity
Carc.	Carcinogenicity
H300	Fatal if swallowed.
H311	Toxic in contact with skin.
H351	Suspected of causing cancer.
H372	Causes damage to organs through prolonged or repeated exposure if swallowed.
H400	Very toxic to aquatic life.
H410	Very toxic to aquatic life with long lasting effects.

HMIS Rating

Health hazard:	4
Chronic Health Hazard:	*
Flammability:	0
Physical Hazard	0

NFPA Rating

Health hazard:	2
Fire Hazard:	0
Reactivity Hazard:	0

Further information

Copyright 2015 Sigma-Aldrich Co. LLC. License granted to make unlimited paper copies for internal use only.
The above information is believed to be correct but does not purport to be all inclusive and shall be used only as a guide. The information in this document is based on the present state of our knowledge and is applicable to the product with regard to appropriate safety precautions. It does not represent any guarantee of the properties of the product. Sigma-Aldrich Corporation and its Affiliates shall not be held liable for any damage resulting from handling or from contact with the above product. See www.sigma-aldrich.com and/or the reverse side of invoice or packing slip for additional terms and conditions of sale.

Preparation Information

Sigma-Aldrich Corporation
Product Safety – Americas Region
1-800-521-8956

Version: 5.5 Revision Date: 02/28/2015 Print Date: 02/09/2016

SAFETY DATA SHEET

1. Identification

Product identifier **DIESEL FUELS**

Other means of identification

SDS number 102-GHS

Synonyms Diesel Fuels All Grades, Diesel Fuel No.2, Fuel Oil No.2, High Sulfur Diesel Fuel, Low Sulfur Diesel Fuel, Ultra Low Sulfur Diesel Fuel, CARB (California Air Resource Board) Diesel Fuel, Off-Road Diesel Fuel, Dyed Diesel Fuel, X Grade Diesel Fuel, X-1 Diesel Fuel, R5 ULSD, B5 ULS D See section 16 for complete information.

Recommended use Motor Fuel
Refinery feedstock.

Recommended restrictions None known.

Manufacturer/Importer/Supplier/Distributor information

Manufacturer/Supplier Valero Marketing & Supply Company and Affiliates
One Valero Way
San Antonio, TX 78269-6000

General Assistance 210-345-4593

E-Mail CorpHSE@valero.com

Contact Person Industrial Hygienist

Emergency Telephone 24 Hour Emergency 866-565-5220
1-800-424-9300 (CHEMTREC USA)

2. Hazard(s) identification

Physical hazards	Flammable liquids	Category 3
Health hazards	Acute toxicity, inhalation	Category 4
	Skin corrosion/irritation	Category 2
	Carcinogenicity	Category 2
	Reproductive toxicity	Category 2
	Specific target organ toxicity, repeated exposure	Category 2
	Aspiration hazard	Category 1
Environmental hazards	Hazardous to the aquatic environment, long-term hazard	Category 2

OSHA defined hazards Not classified.

Label elements



Signal word Danger

Hazard statement Flammable liquid and vapor. Harmful if inhaled. Causes skin irritation. Suspected of causing cancer. Suspected of damaging fertility or the unborn child. May cause damage to organs (blood, thymus, liver) through prolonged or repeated exposure. May be fatal if swallowed and enters airways.

Precautionary statement

Prevention Obtain special instructions before use. Do not handle until all safety precautions have been read and understood. Keep away from heat/sparks/open flames/hot surfaces. - No smoking. Keep container tightly closed. Ground/bond container and receiving equipment. Use explosion-proof electrical/ventilating/lighting equipment. Use only non-sparking tools. Take precautionary measures against static discharges. Do not breathe mist/vapors/spray. Wash thoroughly after handling. Wear protective gloves/protective clothing/eye protection/face protection. Use only outdoors or in a well-ventilated area.

Response	If skin irritation occurs: Get medical advice/attention. If inhaled: Remove person to fresh air and keep comfortable for breathing. If on skin (or hair): Take off immediately all contaminated clothing. Rinse skin with water/shower. If exposed or concerned: Get medical advice/attention. If swallowed: Immediately call a poison center/doctor. Take off contaminated clothing and wash before reuse. In case of fire: Use foam, carbon dioxide, dry powder or water fog for extinction.
Storage	Store locked up. Store in a well-ventilated place. Keep cool.
Disposal	Dispose of contents/container in accordance with local/regional/national/international regulations.
Hazard(s) not otherwise classified (HNOC)	None known.

3. Composition/information on ingredients

Mixtures

Chemical name	CAS number	%
Fuels, diesel, no. 2	68476-34-6	85 - 100
Biodiesel - Fatty acid methyl esters	67762-38-3	0 - 10
Fuels, diesel, C9-18-alkane branched and linear	1159170-26-9	0 - 5
n-Nonane	111-84-2	1 - 3
Octane (All isomers)	111-65-9	1 - 2
Hexane (Other isomers)	96-14-0	0 - 1
Naphthalene	91-20-3	0 - 1
n-Heptane	142-82-5	0 - 1
n-Hexane	110-54-3	0 - 1

4. First-aid measures

Inhalation	Move to fresh air. If breathing is difficult, give oxygen. If not breathing, give artificial respiration. Get medical attention.
Skin contact	Remove contaminated clothing and shoes. Wash off immediately with soap and plenty of water. Get medical attention if irritation develops or persists. Wash clothing separately before reuse. Destroy or thoroughly clean contaminated shoes. If high pressure injection under the skin occurs, always seek medical attention.
Eye contact	Immediately flush eyes with plenty of water for at least 15 minutes. Remove contact lenses, if present and easy to do. Continue rinsing. Get medical attention.
Ingestion	Rinse mouth thoroughly. Do not induce vomiting without advice from poison control center. Do not give mouth-to-mouth resuscitation. If vomiting occurs, keep head low so that stomach content does not get into the lungs. Never give anything by mouth to a victim who is unconscious or is having convulsions. Get medical attention immediately.
Most important symptoms/effects, acute and delayed	Irritation of nose and throat. Irritation of eyes and mucous membranes. Skin irritation. Unconsciousness. Corneal damage. Narcosis. Decrease in motor functions. Behavioral changes. Edema. Liver enlargement. Jaundice. Conjunctivitis. Proteinuria. Defatting of the skin. Rash. The toxicological properties of this product have not been thoroughly investigated. Use appropriate precautions. Hydrogen sulfide, a highly toxic gas, may be present. Signs and symptoms of overexposure to hydrogen sulfide include respiratory and eye irritation, dizziness, nausea, coughing, a sensation of dryness and pain in the nose, and loss of consciousness. Odor does not provide a reliable indicator of the presence of hazardous levels in the atmosphere.
Indication of immediate medical attention and special treatment needed	In case of shortness of breath, give oxygen. Keep victim warm. Keep victim under observation. Symptoms may be delayed. The toxicological properties of this material have not been fully investigated.
General information	If exposed or concerned: get medical attention/advice. Ensure that medical personnel are aware of the material(s) involved, and take precautions to protect themselves. Show this safety data sheet to the doctor in attendance. Wash contaminated clothing before re-use.

5. Fire-fighting measures

Suitable extinguishing media	Water spray. Water fog. Foam. Dry chemical powder. Carbon dioxide (CO2).

Unsuitable extinguishing media	Do not use a solid water stream as it may scatter and spread fire.
Specific hazards arising from the chemical	The product is flammable, and heating may generate vapors which may form explosive vapor/air mixtures. Thermal decomposition or combustion may liberate toxic gases or fumes.
Special protective equipment and precautions for firefighters	Wear full protective clothing, including helmet, self-contained positive pressure or pressure demand breathing apparatus, protective clothing and face mask.
Fire-fighting equipment/instructions	Wear full protective clothing, including helmet, self-contained positive pressure or pressure demand breathing apparatus, protective clothing and face mask. Withdraw immediately in case of rising sound from venting safety devices or any discoloration of tanks due to fire. Fight fire from maximum distance or use unmanned hose holders or monitor nozzles. Move containers from fire area if you can do it without risk. In the event of fire, cool tanks with water spray. Cool containers exposed to flames with water until well after the fire is out. For massive fire, use unmanned hose holders or monitor nozzles; if this is impossible, withdraw from area and let fire burn. Water runoff can cause environmental damage. Use compatible foam to minimize vapor generation as needed.

6. Accidental release measures

Personal precautions, protective equipment and emergency procedures	Keep unnecessary personnel away. Local authorities should be advised if significant spills cannot be contained. Keep upwind. Keep out of low areas. Ventilate closed spaces before entering. Do not touch damaged containers or spilled material unless wearing appropriate protective clothing. See Section 8 of the SDS for Personal Protective Equipment.
Methods and materials for containment and cleaning up	Eliminate all ignition sources (no smoking, flares, sparks, or flames in immediate area). Local authorities should be advised if significant spillages cannot be contained. Stop leak if you can do so without risk. This material is a water pollutant and should be prevented from contaminating soil or from entering sewage and drainage systems and bodies of water. Dike the spilled material, where this is possible. Prevent entry into waterways, sewers, basements or confined areas. Use non-sparking tools and explosion-proof equipment. Small Spills: Absorb spill with vermiculite or other inert material, then place in a container for chemical waste. Clean surface thoroughly to remove residual contamination. This material and its container must be disposed of as hazardous waste. Large Spills: Use a non-combustible material like vermiculite, sand or earth to soak up the product and place into a container for later disposal. Prevent product from entering drains. Do not allow material to contaminate ground water system. Should not be released into the environment. Clean up in accordance with all applicable regulations.
Environmental precautions	If facility or operation has an "oil or hazardous substance contingency plan", activate its procedures. Stay upwind and away from spill. Wear appropriate protective equipment including respiratory protection as conditions warrant. Do not enter or stay in area unless monitoring indicates that it is safe to do so. Isolate hazard area and restrict entry to emergency crew. Flammable. Review Firefighting Measures, Section 5, before proceeding with clean up. Keep all sources of ignition (flames, smoking, flares, etc.) and hot surfaces away from release. Contain spill in smallest possible area. Recover as much product as possible (e.g. by vacuuming). Stop leak if it can be done without risk. Use water spray to disperse vapors. Use compatible foam to minimize vapor generation as needed. Spilled material may be absorbed by an appropriate absorbent, and then handled in accordance with environmental regulations. Prevent spilled material from entering sewers, storm drains, other unauthorized treatment or drainage systems and natural waterways. Contact fire authorities and appropriate federal, state and local agencies. If spill of any amount is made into or upon navigable waters, the contiguous zone, or adjoining shorelines, contact the National Response Center at 1-800-424-8802. For highway or railways spills, contact Chemtrec at 1-800-424-9300.

7. Handling and storage

Precautions for safe handling	Eliminate sources of ignition. Avoid spark promoters. Ground/bond container and equipment. These alone may be insufficient to remove static electricity. Wear personal protective equipment. Avoid breathing mist/vapors/spray. Avoid contact with eyes, skin, and clothing. Do not taste or swallow. Avoid prolonged exposure. Use only with adequate ventilation. Wash thoroughly after handling. The product is combustible, and heating may generate vapors which may form explosive vapor/air mixtures. DO NOT handle, store or open near an open flame, sources of heat or sources of ignition. Protect material from direct sunlight. Take precautionary measures against static discharges. All equipment used when handling the product must be grounded. Use non-sparking tools and explosion-proof equipment. When using, do not eat, drink or smoke. Avoid release to the environment.

Conditions for safe storage, including any incompatibilities	Flammable liquid storage. Do not handle or store near an open flame, heat or other sources of ignition. This material can accumulate static charge which may cause spark and become an ignition source. The pressure in sealed containers can increase under the influence of heat. Keep container tightly closed in a cool, well-ventilated place. Keep away from food, drink and animal feedingstuffs. Keep out of the reach of children.

8. Exposure controls/personal protection

Occupational exposure limits

US. OSHA Table Z-1 Limits for Air Contaminants (29 CFR 1910.1000)

Components	Type	Value
Naphthalene (CAS 91-20-3)	PEL	50 mg/m3
		10 ppm
n-Heptane (CAS 142-82-5)	PEL	2000 mg/m3
		500 ppm
n-Hexane (CAS 110-54-3)	PEL	1800 mg/m3
		500 ppm
Octane (All isomers) (CAS 111-65-9)	PEL	2350 mg/m3
		500 ppm

US. ACGIH Threshold Limit Values

Components	Type	Value	Form
Fuels, diesel, no. 2 (CAS 68476-34-6)	TWA	100 mg/m3	Inhalable fraction and vapor.
Hexane (Other isomers) (CAS 96-14-0)	STEL	1000 ppm	
	TWA	500 ppm	
Naphthalene (CAS 91-20-3)	STEL	15 ppm	
	TWA	10 ppm	
n-Heptane (CAS 142-82-5)	STEL	500 ppm	
	TWA	400 ppm	
n-Hexane (CAS 110-54-3)	TWA	50 ppm	
n-Nonane (CAS 111-84-2)	TWA	200 ppm	
Octane (All isomers) (CAS 111-65-9)	TWA	300 ppm	

US. NIOSH: Pocket Guide to Chemical Hazards

Components	Type	Value
Hexane (Other isomers) (CAS 96-14-0)	Ceiling	1800 mg/m3
		510 ppm
	TWA	350 mg/m3
		100 ppm
Naphthalene (CAS 91-20-3)	STEL	75 mg/m3
		15 ppm
	TWA	50 mg/m3
		10 ppm
n-Heptane (CAS 142-82-5)	Ceiling	1800 mg/m3
		440 ppm
	TWA	350 mg/m3
		85 ppm
n-Hexane (CAS 110-54-3)	TWA	180 mg/m3
		50 ppm
n-Nonane (CAS 111-84-2)	TWA	1050 mg/m3
		200 ppm
Octane (All isomers) (CAS 111-65-9)	Ceiling	1800 mg/m3
		385 ppm
	TWA	350 mg/m3
		75 ppm

Biological limit values

ACGIH Biological Exposure Indices

Components	Value	Determinant	Specimen	Sampling Time
n-Hexane (CAS 110-54-3)	0.4 mg/l	2,5-Hexanedion, without hydrolysis	Urine	*
	0.4 mg/l	2,5-Hexanedi - on, without hydrolysis		*

* - For sampling details, please see the source document.

Exposure guidelines

US - California OELs: Skin designation

n-Hexane (CAS 110-54-3) Can be absorbed through the skin.

US ACGIH Threshold Limit Values: Skin designation

Fuels, diesel, no. 2 (CAS 68476-34-6) Can be absorbed through the skin.
Naphthalene (CAS 91-20-3) Can be absorbed through the skin.
n-Hexane (CAS 110-54-3) Can be absorbed through the skin.

Appropriate engineering controls Provide adequate general and local exhaust ventilation. Use process enclosures, local exhaust ventilation, or other engineering controls to control airborne levels below recommended exposure limits. Use explosion-proof equipment.

Individual protection measures, such as personal protective equipment

Eye/face protection Wear safety glasses. If splash potential exists, wear full face shield or chemical goggles.

Skin protection

Hand protection Wear chemical-resistant, impervious gloves. Suitable gloves can be recommended by the glove supplier. Be aware that the liquid may penetrate the gloves. Frequent change is advisable.

Other Full body suit and boots are recommended when handling large volumes or in emergency situations. Flame retardant protective clothing is recommended.

Respiratory protection Use a properly fitted, air-purifying or air-fed respirator complying with an approved standard if a risk assessment indicates this is necessary. Respirator selection must be based on known or anticipated exposure levels, the hazards of the product and the safe working limits of the selected respirator. If workplace exposure limits for product or components are exceeded, NIOSH approved equipment should be worn. Proper respirator selection should be determined by adequately trained personnel, based on the contaminants, the degree of potential exposure and published respiratory protection factors. This equipment should be available for nonroutine and emergency use.

Thermal hazards Wear appropriate thermal protective clothing, when necessary.

General hygiene considerations Consult supervisor for special handling instructions. Avoid contact with eyes. Avoid contact with skin. Keep away from food and drink. Wash hands before breaks and immediately after handling the product. Provide eyewash station and safety shower. Handle in accordance with good industrial hygiene and safety practice.

9. Physical and chemical properties

Appearance Liquid (may be dyed red).

Physical state Liquid.

Form Liquid.

Color Clear. Straw.

Odor Kerosene (strong).

Odor threshold Not available.

pH Not available.

Melting point/freezing point -60.07 °F (-51.15 °C) Estimated

Initial boiling point and boiling range 325 - 700 °F (162.78 - 371.11 °C)

Flash point > 100.0 °F (> 37.8 °C) Closed Cup

Evaporation rate 0.02

Flammability (solid, gas) Not available.

Upper/lower flammability or explosive limits

Flammability limit - lower (%)	0.4 %
Flammability limit - upper (%)	8 %
Explosive limit - lower (%)	Not available.
Explosive limit - upper (%)	Not available.
Vapor pressure	< 1 mm Hg (20°C)
Vapor density	3 (Air = 1)
Relative density	0.82 - 0.87
Relative density temperature	60 °F (15.56 °C)
Solubility(ies)	
Solubility (water)	Not available.
Partition coefficient (n-octanol/water)	Not available.
Auto-ignition temperature	494.96 °F (257.2 °C)
Decomposition temperature	Not available.
Viscosity	2 - 4.5 mm²/s

10. Stability and reactivity

Reactivity	Stable at normal conditions.
Chemical stability	Stable under normal temperature conditions and recommended use.
Possibility of hazardous reactions	Hazardous polymerization does not occur.
Conditions to avoid	Heat, flames and sparks. Ignition sources. Contact with incompatible materials. Do not pressurize, cut, weld, braze, solder, drill, grind or expose empty containers to heat, flame, sparks, static electricity, or other sources of ignition; they may explode and cause injury or death.
Incompatible materials	Strong oxidizing agents.
Hazardous decomposition products	No hazardous decomposition products are known.

11. Toxicological information

Information on likely routes of exposure

Ingestion	May be fatal if swallowed and enters airways.
Inhalation	Harmful if inhaled. In high concentrations, vapors and spray mists are narcotic and may cause headache, fatigue, dizziness and nausea.
Skin contact	Causes skin irritation.
Eye contact	May cause eye irritation.
Symptoms related to the physical, chemical and toxicological characteristics	Irritation of nose and throat. Irritation of eyes and mucous membranes. Skin irritation. Unconsciousness. Corneal damage. Narcosis. Decrease in motor functions. Behavioral changes. Edema. Liver enlargement. Jaundice. Conjunctivitis. Proteinuria. Defatting of the skin. Rash. The toxicological properties of this product have not been thoroughly investigated. Use appropriate precautions.

Information on toxicological effects

Acute toxicity	Harmful if inhaled. Harmful: may cause lung damage if swallowed. The toxicological properties of this material have not been fully investigated.

Components	**Species**	**Test Results**
Fuels, diesel, no. 2 (CAS 68476-34-6)		
Acute		
Inhalation		
LC50	Rat	4.1 mg/l, 4 hours

Components	Species	Test Results
Naphthalene (CAS 91-20-3)		
Acute		
Dermal		
LD50	Rabbit	> 2 g/kg
Oral		
LD50	Rat	490 mg/kg
n-Heptane (CAS 142-82-5)		
Acute		
Inhalation		
LC50	Rat	103 mg/l, 4 Hours
n-Hexane (CAS 110-54-3)		
Acute		
Oral		
LD50	Rat	28710 mg/kg
n-Nonane (CAS 111-84-2)		
Acute		
Inhalation		
LC50	Rat	3200 mg/l, 4 Hours
Octane (All isomers) (CAS 111-65-9)		
Acute		
Inhalation		
LC50	Rat	118 mg/l, 4 Hours

Skin corrosion/irritation Causes skin irritation.

Serious eye damage/eye irritation Based on available data, the classification criteria are not met.

Respiratory or skin sensitization

Respiratory sensitization Based on available data, the classification criteria are not met.

Skin sensitization Based on available data, the classification criteria are not met.

Germ cell mutagenicity Based on available data, the classification criteria are not met.

Carcinogenicity Suspected of causing cancer.
International Agency for Research on Cancer (IARC): Whole diesel engine exhaust – IARC Group 1. Exposure may cause lung cancer and also noted a positive association with an increased risk of bladder cancer.
Diesel exhaust has been reported to be an occupational hazard due to NIOSH-reported potential carcinogenic properties.

IARC Monographs. Overall Evaluation of Carcinogenicity

Fuels, diesel, no. 2 (CAS 68476-34-6)	3 Not classifiable as to carcinogenicity to humans.
Naphthalene (CAS 91-20-3)	2B Possibly carcinogenic to humans.

NTP Report on Carcinogens

Naphthalene (CAS 91-20-3)	Reasonably Anticipated to be a Human Carcinogen.

Reproductive toxicity Suspected of damaging fertility or the unborn child.
Napthalene interferes with embryo development in experimental animals at dose levels that cause maternal toxicity. In humans, excessive exposure to this agent may cause hemolytic anemia in the mother and fetus.

Specific target organ toxicity - single exposure Based on available data, the classification criteria are not met.

Specific target organ toxicity - repeated exposure May cause damage to the following organs through prolonged or repeated exposure: Blood. Liver. Thymus.

Aspiration hazard May be fatal if swallowed and enters airways.

Chronic effects Contains organic solvents which in case of overexposure may depress the central nervous system causing dizziness and intoxication. Repeated exposure to naphthalene may cause cataracts, allergic skin rashes, destruction of red blood cells, and anemia, jaundice, kidney and liver damage. Danger of serious damage to health by prolonged exposure. Prolonged or repeated overexposure may cause central nervous system, kidney, liver, and lung damage.

Further information Symptoms may be delayed. Hydrogen sulfide, a highly toxic gas, may be present. Signs and symptoms of overexposure to hydrogen sulfide include respiratory and eye irritation, dizziness, nausea, coughing, a sensation of dryness and pain in the nose, and loss of consciousness. Odor does not provide a reliable indicator of the presence of hazardous levels in the atmosphere. Toxicological properties of this material have not been fully investigated.

12. Ecological information

Ecotoxicity Toxic to aquatic organisms, may cause long-term adverse effects in the aquatic environment.

Components		Species	Test Results
Fuels, diesel, no. 2 (CAS 68476-34-6)			
Aquatic			
Acute			
Crustacea	EL50	Daphnia magna	68 mg/l, 48 hours
Fish	LL50	Oncorhynchus mykiss	65 mg/l, 96 hours
Naphthalene (CAS 91-20-3)			
Aquatic			
Crustacea	EC50	Water flea (Daphnia magna)	1.09 - 3.4 mg/l, 48 hours
Fish	LC50	Pink salmon (Oncorhynchus gorbuscha)	0.95 - 1.62 mg/l, 96 hours
n-Heptane (CAS 142-82-5)			
Aquatic			
Fish	LC50	Western mosquitofish (Gambusia affinis)	4924 mg/l, 96 hours
n-Hexane (CAS 110-54-3)			
Aquatic			
Fish	LC50	Fathead minnow (Pimephales promelas)	2.101 - 2.981 mg/l, 96 hours

Persistence and degradability Not available.

Bioaccumulative potential Not available.

Partition coefficient n-octanol / water (log Kow)

Hexane (Other isomers) (CAS 96-14-0)	3.6
Octane (All isomers) (CAS 111-65-9)	5.18
n-Heptane (CAS 142-82-5)	4.66
n-Hexane (CAS 110-54-3)	3.9
n-Nonane (CAS 111-84-2)	5.46

Mobility in soil Not available.

Other adverse effects Not available.

13. Disposal considerations

Disposal instructions Dispose in accordance with all applicable regulations. This material and its container must be disposed of as hazardous waste. Dispose of this material and its container to hazardous or special waste collection point. Incinerate the material under controlled conditions in an approved incinerator. Do not allow this material to drain into sewers/water supplies. Do not contaminate ponds, waterways or ditches with chemical or used container.

Hazardous waste code D001: Waste Flammable material with a flash point <140 °F

US RCRA Hazardous Waste U List: Reference

Naphthalene (CAS 91-20-3)	U165

Waste from residues / unused products Dispose of in accordance with local regulations.

Contaminated packaging Offer rinsed packaging material to local recycling facilities.

14. Transport information

DOT

UN number UN1202

UN proper shipping name Diesel fuel

Transport hazard class(es)

Class Combustible Liquid

Subsidiary risk -

Packing group III

Environmental hazards

Marine pollutant	Yes
Special precautions for user	Read safety instructions, SDS and emergency procedures before handling.
Special provisions	144, B1, IB3, T2, TP1
Packaging exceptions	150
Packaging non bulk	203
Packaging bulk	242

IATA

UN number	UN1202
UN proper shipping name	Diesel fuel
Transport hazard class(es)	
Class	3
Subsidiary risk	-
Label(s)	3
Packing group	III
Environmental hazards	Yes
ERG Code	3L
Special precautions for user	Read safety instructions, SDS and emergency procedures before handling.

IMDG

UN number	UN1202
UN proper shipping name	DIESEL FUEL
Transport hazard class(es)	
Class	3
Subsidiary risk	-
Label(s)	3
Packing group	III
Environmental hazards	
Marine pollutant	Yes
EmS	F-E, S-E
Special precautions for user	Read safety instructions, SDS and emergency procedures before handling.

Transport in bulk according to Annex II of MARPOL 73/78 and the IBC Code	Not applicable. However, this product is a liquid and if transported in bulk covered under MARPOL 73/78, Annex I.

15. Regulatory information

US federal regulations

TSCA Section 12(b) Export Notification (40 CFR 707, Subpt. D)

n-Nonane (CAS 111-84-2)	1.0 % One-Time Export Notification only.

US. OSHA Specifically Regulated Substances (29 CFR 1910.1001-1050)

Not listed.

CERCLA Hazardous Substance List (40 CFR 302.4)

Hexane (Other isomers) (CAS 96-14-0)	LISTED
Naphthalene (CAS 91-20-3)	LISTED
n-Heptane (CAS 142-82-5)	LISTED
n-Hexane (CAS 110-54-3)	LISTED
n-Nonane (CAS 111-84-2)	LISTED
Octane (All isomers) (CAS 111-65-9)	LISTED

Superfund Amendments and Reauthorization Act of 1986 (SARA)

Hazard categories	Immediate Hazard - No Delayed Hazard - No Fire Hazard - No Pressure Hazard - No Reactivity Hazard - No

SARA 302 Extremely hazardous substance

Not listed.

SARA 311/312 Hazardous chemical	Yes

SARA 313 (TRI reporting)

Chemical name	CAS number	% by wt.
Naphthalene	91-20-3	0 - 1

Other federal regulations

Clean Air Act (CAA) Section 112 Hazardous Air Pollutants (HAPs) List

Naphthalene (CAS 91-20-3)
n-Hexane (CAS 110-54-3)

Clean Air Act (CAA) Section 112(r) Accidental Release Prevention (40 CFR 68.130)

Not regulated.

Safe Drinking Water Act (SDWA) Not regulated.

US state regulations WARNING: This product contains chemicals known to the State of California to cause cancer and birth defects or other reproductive harm.

US. Massachusetts RTK - Substance List

Hexane (Other isomers) (CAS 96-14-0)
Naphthalene (CAS 91-20-3)
n-Heptane (CAS 142-82-5)
n-Hexane (CAS 110-54-3)
n-Nonane (CAS 111-84-2)
Octane (All isomers) (CAS 111-65-9)

US. New Jersey Worker and Community Right-to-Know Act

Fuels, diesel, no. 2 (CAS 68476-34-6)
Naphthalene (CAS 91-20-3)
n-Heptane (CAS 142-82-5)
n-Hexane (CAS 110-54-3)
n-Nonane (CAS 111-84-2)
Octane (All isomers) (CAS 111-65-9)

US. Pennsylvania Worker and Community Right-to-Know Law

Fuels, diesel, no. 2 (CAS 68476-34-6)
Hexane (Other isomers) (CAS 96-14-0)
Naphthalene (CAS 91-20-3)
n-Heptane (CAS 142-82-5)
n-Hexane (CAS 110-54-3)
n-Nonane (CAS 111-84-2)
Octane (All isomers) (CAS 111-65-9)

US. Rhode Island RTK

Naphthalene (CAS 91-20-3)
n-Hexane (CAS 110-54-3)

US. California Proposition 65

US - California Proposition 65 - Carcinogens & Reproductive Toxicity (CRT): Listed substance

Benzene (CAS 71-43-2)
Toluene (CAS 108-88-3)

International Inventories

Country(s) or region	Inventory name	On inventory (yes/no)*
Australia	Australian Inventory of Chemical Substances (AICS)	No
Canada	Domestic Substances List (DSL)	No
Canada	Non-Domestic Substances List (NDSL)	No
China	Inventory of Existing Chemical Substances in China (IECSC)	No
Europe	European Inventory of Existing Commercial Chemical Substances (EINECS)	No
Europe	European List of Notified Chemical Substances (ELINCS)	No
Japan	Inventory of Existing and New Chemical Substances (ENCS)	No
Korea	Existing Chemicals List (ECL)	No
New Zealand	New Zealand Inventory	No
Philippines	Philippine Inventory of Chemicals and Chemical Substances (PICCS)	No

Country(s) or region	Inventory name	On inventory (yes/no)*
United States & Puerto Rico	Toxic Substances Control Act (TSCA) Inventory	Yes

*A "Yes" indicates this product complies with the inventory requirements administered by the governing country(s).
A "No" indicates that one or more components of the product are not listed or exempt from listing on the inventory administered by the governing country(s).

16. Other information, including date of preparation or last revision

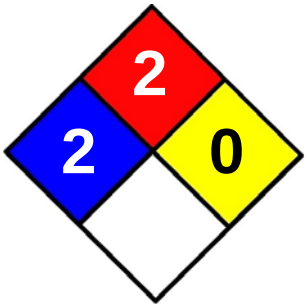
Issue date 13-May-2013

Revision date 23-May-2014

Version # 04

Further information HMIS® is a registered trade and service mark of the NPCA.

NFPA Ratings



Disclaimer This material Safety Data Sheet (SDS) was prepared in accordance with 29 CFR 1910.1200 by Valero Marketing & Supply Co., ("VALERO"). VALERO does not assume any liability arising out of product use by others. The information, recommendations, and suggestions presented in this SDS are based upon test results and data believed to be reliable. The end user of the product has the responsibility for evaluating the adequacy of the data under the conditions of use, determining the safety, toxicity and suitability of the product under these conditions, and obtaining additional or clarifying information where uncertainty exists. No guarantee expressed or implied is made as to the effects of such use , the results to be obtained, or the safety and toxicity of the product in any specific application. Furthermore, the information herein is not represented as absolutely complete, since it is not practicable to provide all the scientific and study information in the format of this document, plus additional information may be necessary under exceptional conditions of use, or because of applicable laws or government regulations.

SAFETY DATA SHEET

Version 5.2
Revision Date 06/27/2014
Print Date 11/17/2016

1. PRODUCT AND COMPANY IDENTIFICATION

1.1 Product identifiers

Product name : Endosulfan II (beta)

Product Number : 48578
Brand : Supelco

CAS-No. : 33213-65-9

1.2 Relevant identified uses of the substance or mixture and uses advised against

Identified uses : Laboratory chemicals, Manufacture of substances

1.3 Details of the supplier of the safety data sheet

Company : Sigma-Aldrich
3050 Spruce Street
SAINT LOUIS MO 63103
USA

Telephone : +1 800-325-5832
Fax : +1 800-325-5052

1.4 Emergency telephone number

Emergency Phone # : +1-703-527-3887 (CHEMTREC)

2. HAZARDS IDENTIFICATION

2.1 Classification of the substance or mixture

GHS Classification in accordance with 29 CFR 1910 (OSHA HCS)
Acute toxicity, Oral (Category 3), H301
Acute aquatic toxicity (Category 1), H400
Chronic aquatic toxicity (Category 1), H410

For the full text of the H-Statements mentioned in this Section, see Section 16.

2.2 GHS Label elements, including precautionary statements

Pictogram



Signal word Danger

Hazard statement(s)
H301 Toxic if swallowed.
H410 Very toxic to aquatic life with long lasting effects.

Precautionary statement(s)
P264 Wash skin thoroughly after handling.
P270 Do not eat, drink or smoke when using this product.
P273 Avoid release to the environment.
P301 + P310 IF SWALLOWED: Immediately call a POISON CENTER or doctor/ physician.
P321 Specific treatment (see supplemental first aid instructions on this label).
P330 Rinse mouth.
P391 Collect spillage.
P405 Store locked up.

P501 Dispose of contents/ container to an approved waste disposal plant.

2.3 Hazards not otherwise classified (HNOC) or not covered by GHS - none

3. COMPOSITION/INFORMATION ON INGREDIENTS

3.1 Substances

Synonyms : β-Endosulfan

Formula : C9H6Cl6O3S
Molecular Weight : 406.93 g/mol
CAS-No. : 33213-65-9

Hazardous components

Component	Classification	Concentration
β-Endosulfan		
	Acute Tox. 3; Aquatic Acute 1; Aquatic Chronic 1; H301, H410	-

For the full text of the H-Statements mentioned in this Section, see Section 16.

4. FIRST AID MEASURES

4.1 Description of first aid measures

General advice
Consult a physician. Show this safety data sheet to the doctor in attendance.Move out of dangerous area.

If inhaled
If breathed in, move person into fresh air. If not breathing, give artificial respiration. Consult a physician.

In case of skin contact
Wash off with soap and plenty of water. Take victim immediately to hospital. Consult a physician.

In case of eye contact
Flush eyes with water as a precaution.

If swallowed
Never give anything by mouth to an unconscious person. Rinse mouth with water. Consult a physician.

4.2 Most important symptoms and effects, both acute and delayed
The most important known symptoms and effects are described in the labelling (see section 2.2) and/or in section 11

4.3 Indication of any immediate medical attention and special treatment needed
no data available

5. FIREFIGHTING MEASURES

5.1 Extinguishing media

Suitable extinguishing media
Use water spray, alcohol-resistant foam, dry chemical or carbon dioxide.

5.2 Special hazards arising from the substance or mixture
Carbon oxides, Sulphur oxides, Hydrogen chloride gas

5.3 Advice for firefighters
Wear self contained breathing apparatus for fire fighting if necessary.

5.4 Further information
no data available

6. ACCIDENTAL RELEASE MEASURES

6.1 Personal precautions, protective equipment and emergency procedures
Wear respiratory protection. Avoid dust formation. Avoid breathing vapours, mist or gas. Ensure adequate ventilation. Evacuate personnel to safe areas. Avoid breathing dust.

For personal protection see section 8.

6.2 Environmental precautions
Prevent further leakage or spillage if safe to do so. Do not let product enter drains. Discharge into the environment must be avoided.

6.3 Methods and materials for containment and cleaning up
Pick up and arrange disposal without creating dust. Sweep up and shovel. Keep in suitable, closed containers for disposal.

6.4 Reference to other sections
For disposal see section 13.

7. HANDLING AND STORAGE

7.1 Precautions for safe handling
Avoid contact with skin and eyes. Avoid formation of dust and aerosols.
Provide appropriate exhaust ventilation at places where dust is formed.Normal measures for preventive fire protection.
For precautions see section 2.2.

7.2 Conditions for safe storage, including any incompatibilities
Keep container tightly closed in a dry and well-ventilated place.

7.3 Specific end use(s)
Apart from the uses mentioned in section 1.2 no other specific uses are stipulated

8. EXPOSURE CONTROLS/PERSONAL PROTECTION

8.1 Control parameters

Components with workplace control parameters
Contains no substances with occupational exposure limit values.

8.2 Exposure controls

Appropriate engineering controls
Avoid contact with skin, eyes and clothing. Wash hands before breaks and immediately after handling the product.

Personal protective equipment

Eye/face protection
Face shield and safety glasses Use equipment for eye protection tested and approved under appropriate government standards such as NIOSH (US) or EN 166(EU).

Skin protection
Handle with gloves. Gloves must be inspected prior to use. Use proper glove removal technique (without touching glove's outer surface) to avoid skin contact with this product. Dispose of contaminated gloves after use in accordance with applicable laws and good laboratory practices. Wash and dry hands.

Full contact
Material: Nitrile rubber
Minimum layer thickness: 0.11 mm
Break through time: 480 min
Material tested:Dermatril® (KCL 740 / Aldrich Z677272, Size M)

Splash contact
Material: Nitrile rubber
Minimum layer thickness: 0.11 mm
Break through time: 480 min
Material tested:Dermatril® (KCL 740 / Aldrich Z677272, Size M)

data source: KCL GmbH, D-36124 Eichenzell, phone +49 (0)6659 87300, e-mail sales@kcl.de, test method: EN374
If used in solution, or mixed with other substances, and under conditions which differ from EN 374, contact the supplier of the CE approved gloves. This recommendation is advisory only and must be evaluated by an industrial hygienist and safety officer familiar with the specific situation of anticipated use by our customers. It should not be construed as offering an approval for any specific use scenario.

Body Protection
Complete suit protecting against chemicals, The type of protective equipment must be selected according to the concentration and amount of the dangerous substance at the specific workplace.

Respiratory protection
Where risk assessment shows air-purifying respirators are appropriate use a full-face particle respirator type N99 (US) or type P2 (EN 143) respirator cartridges as a backup to engineering controls. If the respirator is the sole means of protection, use a full-face supplied air respirator. Use respirators and components tested and approved under appropriate government standards such as NIOSH (US) or CEN (EU).

Control of environmental exposure
Prevent further leakage or spillage if safe to do so. Do not let product enter drains. Discharge into the environment must be avoided.

9. PHYSICAL AND CHEMICAL PROPERTIES

9.1 Information on basic physical and chemical properties

a)	Appearance	Form: solid
b)	Odour	no data available
c)	Odour Threshold	no data available
d)	pH	no data available
e)	Melting point/freezing point	no data available
f)	Initial boiling point and boiling range	no data available
g)	Flash point	no data available
h)	Evapouration rate	no data available
i)	Flammability (solid, gas)	no data available
j)	Upper/lower flammability or explosive limits	no data available
k)	Vapour pressure	no data available
l)	Vapour density	no data available
m)	Relative density	no data available
n)	Water solubility	no data available
o)	Partition coefficient: n-octanol/water	no data available
p)	Auto-ignition temperature	no data available
q)	Decomposition temperature	no data available
r)	Viscosity	no data available
s)	Explosive properties	no data available
t)	Oxidizing properties	no data available

9.2 Other safety information
no data available

10. STABILITY AND REACTIVITY

10.1 Reactivity
no data available

10.2 Chemical stability
Stable under recommended storage conditions.

10.3 Possibility of hazardous reactions
no data available

10.4 Conditions to avoid
no data available

10.5 Incompatible materials
Strong oxidizing agents

10.6 Hazardous decomposition products
Other decomposition products - no data available
In the event of fire: see section 5

11. TOXICOLOGICAL INFORMATION

11.1 Information on toxicological effects

Acute toxicity
LD50 Oral - rat - 240.0 mg/kg

Inhalation: no data available

Dermal: no data available

no data available

Skin corrosion/irritation
no data available

Serious eye damage/eye irritation
no data available

Respiratory or skin sensitisation
no data available

Germ cell mutagenicity
no data available

Carcinogenicity

IARC: No component of this product present at levels greater than or equal to 0.1% is identified as probable, possible or confirmed human carcinogen by IARC.

ACGIH: No component of this product present at levels greater than or equal to 0.1% is identified as a carcinogen or potential carcinogen by ACGIH.

NTP: No component of this product present at levels greater than or equal to 0.1% is identified as a known or anticipated carcinogen by NTP.

OSHA: No component of this product present at levels greater than or equal to 0.1% is identified as a carcinogen or potential carcinogen by OSHA.

Reproductive toxicity
no data available

no data available

Specific target organ toxicity - single exposure
no data available

Specific target organ toxicity - repeated exposure
no data available

Aspiration hazard
no data available

Additional Information
RTECS: RB9875200

To the best of our knowledge, the chemical, physical, and toxicological properties have not been thoroughly investigated.

Kidney -

12. ECOLOGICAL INFORMATION

12.1 Toxicity

Toxicity to fish	LC50 - other fish - 0.0066 mg/l - 96 h
Toxicity to daphnia and other aquatic invertebrates	LC50 - Daphnia magna (Water flea) - > 0.1 - < 1 mg/l - 48 h

12.2 Persistence and degradability
no data available

12.3 Bioaccumulative potential
Bioaccumulation other fish - 21 d
- 0.0001 mg/l

Bioconcentration factor (BCF): 9,908

12.4 Mobility in soil
no data available

12.5 Results of PBT and vPvB assessment
PBT/vPvB assessment not available as chemical safety assessment not required/not conducted

12.6 Other adverse effects
An environmental hazard cannot be excluded in the event of unprofessional handling or disposal.
Very toxic to aquatic life with long lasting effects.

13. DISPOSAL CONSIDERATIONS

13.1 Waste treatment methods

Product
Offer surplus and non-recyclable solutions to a licensed disposal company. Contact a licensed professional waste disposal service to dispose of this material. Dissolve or mix the material with a combustible solvent and burn in a chemical incinerator equipped with an afterburner and scrubber.

Contaminated packaging
Dispose of as unused product.

14. TRANSPORT INFORMATION

DOT (US)
UN number: 2811 Class: 6.1 Packing group: III
Proper shipping name: Toxic solids, organic, n.o.s. (β-Endosulfan)
Reportable Quantity (RQ): 1 lbs
Marine pollutant: Marine pollutant
Poison Inhalation Hazard: No

IMDG
UN number: 2811 Class: 6.1 Packing group: III EMS-No: F-A, S-A
Proper shipping name: TOXIC SOLID, ORGANIC, N.O.S. (β-Endosulfan)
Marine pollutant: No

IATA
UN number: 2811 Class: 6.1 Packing group: III
Proper shipping name: Toxic solid, organic, n.o.s. (β-Endosulfan)

15. REGULATORY INFORMATION

SARA 302 Components

SARA 302: No chemicals in this material are subject to the reporting requirements of SARA Title III, Section 302.

SARA 313 Components
SARA 313: This material does not contain any chemical components with known CAS numbers that exceed the threshold (De Minimis) reporting levels established by SARA Title III, Section 313.

SARA 311/312 Hazards
Acute Health Hazard

Massachusetts Right To Know Components

	CAS-No.	Revision Date
β-Endosulfan	33213-65-9	1993-04-24

Pennsylvania Right To Know Components

	CAS-No.	Revision Date
β-Endosulfan	33213-65-9	1993-04-24

New Jersey Right To Know Components

	CAS-No.	Revision Date
β-Endosulfan	33213-65-9	1993-04-24

California Prop. 65 Components
This product does not contain any chemicals known to State of California to cause cancer, birth defects, or any other reproductive harm.

16. OTHER INFORMATION

Full text of H-Statements referred to under sections 2 and 3.

Acute Tox.	Acute toxicity
Aquatic Acute	Acute aquatic toxicity
Aquatic Chronic	Chronic aquatic toxicity
H301	Toxic if swallowed.
H400	Very toxic to aquatic life.
H410	Very toxic to aquatic life with long lasting effects.

HMIS Rating

Health hazard:	2
Chronic Health Hazard:	*
Flammability:	0
Physical Hazard	0

NFPA Rating

Health hazard:	2
Fire Hazard:	0
Reactivity Hazard:	0

Further information
Copyright 2014 Sigma-Aldrich Co. LLC. License granted to make unlimited paper copies for internal use only.
The above information is believed to be correct but does not purport to be all inclusive and shall be used only as a guide. The information in this document is based on the present state of our knowledge and is applicable to the product with regard to appropriate safety precautions. It does not represent any guarantee of the properties of the product. Sigma-Aldrich Corporation and its Affiliates shall not be held liable for any damage resulting from handling or from contact with the above product. See www.sigma-aldrich.com and/or the reverse side of invoice or packing slip for additional terms and conditions of sale.

Preparation Information
Sigma-Aldrich Corporation
Product Safety – Americas Region
1-800-521-8956

Version: 5.2 Revision Date: 06/27/2014 Print Date: 11/17/2016

SAFETY DATA SHEET

Version 5.1
Revision Date 06/27/2014
Print Date 04/20/2016

1. PRODUCT AND COMPANY IDENTIFICATION

1.1 Product identifiers

Product name : Endosulfan sulfate

Product Number : 36676
Brand : Sigma

CAS-No. : 1031-07-8

1.2 Relevant identified uses of the substance or mixture and uses advised against

Identified uses : Laboratory chemicals, Manufacture of substances

1.3 Details of the supplier of the safety data sheet

Company : Sigma-Aldrich
3050 Spruce Street
SAINT LOUIS MO 63103
USA

Telephone : +1 800-325-5832
Fax : +1 800-325-5052

1.4 Emergency telephone number

Emergency Phone # : (314) 776-6555

2. HAZARDS IDENTIFICATION

2.1 Classification of the substance or mixture

GHS Classification in accordance with 29 CFR 1910 (OSHA HCS)
Acute toxicity, Oral (Category 2), H300
Acute aquatic toxicity (Category 1), H400
Chronic aquatic toxicity (Category 1), H410

For the full text of the H-Statements mentioned in this Section, see Section 16.

2.2 GHS Label elements, including precautionary statements

Pictogram



Signal word Danger

Hazard statement(s)
H300 Fatal if swallowed.
H410 Very toxic to aquatic life with long lasting effects.

Precautionary statement(s)
P264 Wash skin thoroughly after handling.
P270 Do not eat, drink or smoke when using this product.
P273 Avoid release to the environment.
P301 + P310 IF SWALLOWED: Immediately call a POISON CENTER or doctor/ physician.
P321 Specific treatment (see supplemental first aid instructions on this label).
P330 Rinse mouth.
P391 Collect spillage.
P405 Store locked up.

P501 Dispose of contents/ container to an approved waste disposal plant.

2.3 Hazards not otherwise classified (HNOC) or not covered by GHS - none

3. COMPOSITION/INFORMATION ON INGREDIENTS

3.1 Substances

Formula : $C_9H_6Cl_6O_4S$
Molecular Weight : 422.92 g/mol
CAS-No. : 1031-07-8

Hazardous components

Component	Classification	Concentration
Endosulfan sulfate		
	Acute Tox. 2; Aquatic Acute 1; Aquatic Chronic 1; H300, H410	-

For the full text of the H-Statements mentioned in this Section, see Section 16.

4. FIRST AID MEASURES

4.1 Description of first aid measures

General advice
Consult a physician. Show this safety data sheet to the doctor in attendance.Move out of dangerous area.

If inhaled
If breathed in, move person into fresh air. If not breathing, give artificial respiration. Consult a physician.

In case of skin contact
Wash off with soap and plenty of water. Take victim immediately to hospital. Consult a physician.

In case of eye contact
Flush eyes with water as a precaution.

If swallowed
Never give anything by mouth to an unconscious person. Rinse mouth with water. Consult a physician.

4.2 Most important symptoms and effects, both acute and delayed
The most important known symptoms and effects are described in the labelling (see section 2.2) and/or in section 11

4.3 Indication of any immediate medical attention and special treatment needed
no data available

5. FIREFIGHTING MEASURES

5.1 Extinguishing media

Suitable extinguishing media
Use water spray, alcohol-resistant foam, dry chemical or carbon dioxide.

5.2 Special hazards arising from the substance or mixture
Carbon oxides, Sulphur oxides

5.3 Advice for firefighters
Wear self contained breathing apparatus for fire fighting if necessary.

5.4 Further information
no data available

6. ACCIDENTAL RELEASE MEASURES

6.1 Personal precautions, protective equipment and emergency procedures
Wear respiratory protection. Avoid dust formation. Avoid breathing vapours, mist or gas. Ensure adequate ventilation. Evacuate personnel to safe areas. Avoid breathing dust.
For personal protection see section 8.

6.2 Environmental precautions
Prevent further leakage or spillage if safe to do so. Do not let product enter drains. Discharge into the environment must be avoided.

6.3 Methods and materials for containment and cleaning up
Pick up and arrange disposal without creating dust. Sweep up and shovel. Keep in suitable, closed containers for disposal.

6.4 Reference to other sections
For disposal see section 13.

7. HANDLING AND STORAGE

7.1 Precautions for safe handling
Avoid contact with skin and eyes. Avoid formation of dust and aerosols.
Provide appropriate exhaust ventilation at places where dust is formed.Normal measures for preventive fire protection.
For precautions see section 2.2.

7.2 Conditions for safe storage, including any incompatibilities
Keep container tightly closed in a dry and well-ventilated place.

7.3 Specific end use(s)
Apart from the uses mentioned in section 1.2 no other specific uses are stipulated

8. EXPOSURE CONTROLS/PERSONAL PROTECTION

8.1 Control parameters

Components with workplace control parameters
Contains no substances with occupational exposure limit values.

8.2 Exposure controls

Appropriate engineering controls
Avoid contact with skin, eyes and clothing. Wash hands before breaks and immediately after handling the product.

Personal protective equipment

Eye/face protection
Face shield and safety glasses Use equipment for eye protection tested and approved under appropriate government standards such as NIOSH (US) or EN 166(EU).

Skin protection
Handle with gloves. Gloves must be inspected prior to use. Use proper glove removal technique (without touching glove's outer surface) to avoid skin contact with this product. Dispose of contaminated gloves after use in accordance with applicable laws and good laboratory practices. Wash and dry hands.

Full contact
Material: Nitrile rubber
Minimum layer thickness: 0.11 mm
Break through time: 480 min
Material tested:Dermatril® (KCL 740 / Aldrich Z677272, Size M)

Splash contact
Material: Nitrile rubber
Minimum layer thickness: 0.11 mm
Break through time: 480 min
Material tested:Dermatril® (KCL 740 / Aldrich Z677272, Size M)

data source: KCL GmbH, D-36124 Eichenzell, phone +49 (0)6659 87300, e-mail sales@kcl.de, test method: EN374
If used in solution, or mixed with other substances, and under conditions which differ from EN 374, contact the supplier of the CE approved gloves. This recommendation is advisory only and must be evaluated by an industrial hygienist and safety officer familiar with the specific situation of anticipated use by our customers. It should not be construed as offering an approval for any specific use scenario.

Body Protection
Complete suit protecting against chemicals, The type of protective equipment must be selected according to the concentration and amount of the dangerous substance at the specific workplace.

Respiratory protection
Where risk assessment shows air-purifying respirators are appropriate use a full-face particle respirator type N100 (US) or type P3 (EN 143) respirator cartridges as a backup to engineering controls. If the respirator is the sole means of protection, use a full-face supplied air respirator. Use respirators and components tested and approved under appropriate government standards such as NIOSH (US) or CEN (EU).

Control of environmental exposure
Prevent further leakage or spillage if safe to do so. Do not let product enter drains. Discharge into the environment must be avoided.

9. PHYSICAL AND CHEMICAL PROPERTIES

9.1 Information on basic physical and chemical properties

a)	Appearance	Form: solid
b)	Odour	no data available
c)	Odour Threshold	no data available
d)	pH	no data available
e)	Melting point/freezing point	179.0 - 182.0 °C (354.2 - 359.6 °F)
f)	Initial boiling point and boiling range	no data available
g)	Flash point	no data available
h)	Evapouration rate	no data available
i)	Flammability (solid, gas)	no data available
j)	Upper/lower flammability or explosive limits	no data available
k)	Vapour pressure	no data available
l)	Vapour density	no data available
m)	Relative density	no data available
n)	Water solubility	insoluble
o)	Partition coefficient: n-octanol/water	log Pow: 3.66
p)	Auto-ignition temperature	no data available
q)	Decomposition temperature	no data available
r)	Viscosity	no data available
s)	Explosive properties	no data available
t)	Oxidizing properties	no data available

9.2 Other safety information
no data available

10. STABILITY AND REACTIVITY

10.1 Reactivity
no data available

10.2 Chemical stability
Stable under recommended storage conditions.

10.3 Possibility of hazardous reactions
no data available

10.4 Conditions to avoid
no data available

10.5 Incompatible materials
Strong oxidizing agents

10.6 Hazardous decomposition products
Other decomposition products - no data available
In the event of fire: see section 5

11. TOXICOLOGICAL INFORMATION

11.1 Information on toxicological effects

Acute toxicity
LD50 Oral - rat - 18.0 mg/kg

Inhalation: no data available

Dermal: no data available

no data available

Skin corrosion/irritation
no data available

Serious eye damage/eye irritation
no data available

Respiratory or skin sensitisation
no data available

Germ cell mutagenicity
no data available

Carcinogenicity

IARC: No component of this product present at levels greater than or equal to 0.1% is identified as probable, possible or confirmed human carcinogen by IARC.

ACGIH: No component of this product present at levels greater than or equal to 0.1% is identified as a carcinogen or potential carcinogen by ACGIH.

NTP: No component of this product present at levels greater than or equal to 0.1% is identified as a known or anticipated carcinogen by NTP.

OSHA: No component of this product present at levels greater than or equal to 0.1% is identified as a carcinogen or potential carcinogen by OSHA.

Reproductive toxicity
no data available

no data available

Specific target organ toxicity - single exposure
no data available

Specific target organ toxicity - repeated exposure
no data available

Aspiration hazard
no data available

Additional Information
RTECS: RB9150000

Cholinesterase inhibitors can cause heavy salivation and secretion in the lungs, lachrymation, blurred vision, involuntary defecation, diarrhea, tremor, ataxia, sweating, hypothermia, lowered heart rate, and/or a fall in blood pressure as a result of their action at cholinergic nerve sites., Headache, Nausea, Vomiting, Dizziness, Drowsiness, Confusion., Weakness, Muscle cramps/spasms., Change in pupil size., Fever, Seizures., Incoordination., Convulsions, Coma.

12. ECOLOGICAL INFORMATION

12.1 Toxicity

Toxicity to fish	LC50 - Carassius auratus (goldfish) - > 0.01 - < 0.1 mg/l - 48.0 h
	LC50 - Leuciscus idus (Golden orfe) - > 0.01 - < 0.1 mg/l - 48.0 h
	LC50 - other fish - > 0.001 - < 0.01 mg/l - 48.0 h
Toxicity to daphnia and other aquatic invertebrates	EC50 - Daphnia magna (Water flea) - 0.76 mg/l - 48 h
	LC50 - Daphnia magna (Water flea) - > 0.1 - < 1 mg/l - 48 h

12.2 Persistence and degradability
no data available

12.3 Bioaccumulative potential
no data available

12.4 Mobility in soil
no data available

12.5 Results of PBT and vPvB assessment
PBT/vPvB assessment not available as chemical safety assessment not required/not conducted

12.6 Other adverse effects
An environmental hazard cannot be excluded in the event of unprofessional handling or disposal.
Very toxic to aquatic life.

13. DISPOSAL CONSIDERATIONS

13.1 Waste treatment methods

Product
Offer surplus and non-recyclable solutions to a licensed disposal company. Contact a licensed professional waste disposal service to dispose of this material. Dissolve or mix the material with a combustible solvent and burn in a chemical incinerator equipped with an afterburner and scrubber.

Contaminated packaging
Dispose of as unused product.

14. TRANSPORT INFORMATION

DOT (US)
UN number: 2811 Class: 6.1 Packing group: II
Proper shipping name: Toxic solids, organic, n.o.s. (Endosulfan sulfate)
Reportable Quantity (RQ): 1 lbs
Marine pollutant: No
Poison Inhalation Hazard: No

IMDG
UN number: 2811 Class: 6.1 Packing group: II EMS-No: F-A, S-A
Proper shipping name: TOXIC SOLID, ORGANIC, N.O.S. (Endosulfan sulfate)
Marine pollutant: No

IATA
UN number: 2811 Class: 6.1 Packing group: II
Proper shipping name: Toxic solid, organic, n.o.s. (Endosulfan sulfate)

15. REGULATORY INFORMATION

SARA 302 Components
SARA 302: No chemicals in this material are subject to the reporting requirements of SARA Title III, Section 302.

SARA 313 Components
SARA 313: This material does not contain any chemical components with known CAS numbers that exceed the threshold (De Minimis) reporting levels established by SARA Title III, Section 313.

SARA 311/312 Hazards
Acute Health Hazard

Massachusetts Right To Know Components

	CAS-No.	Revision Date
Endosulfan sulfate	1031-07-8	1993-04-24

Pennsylvania Right To Know Components

	CAS-No.	Revision Date
Endosulfan sulfate	1031-07-8	1993-04-24

New Jersey Right To Know Components

	CAS-No.	Revision Date
Endosulfan sulfate	1031-07-8	1993-04-24

California Prop. 65 Components
This product does not contain any chemicals known to State of California to cause cancer, birth defects, or any other reproductive harm.

16. OTHER INFORMATION

Full text of H-Statements referred to under sections 2 and 3.

Acute Tox.	Acute toxicity
Aquatic Acute	Acute aquatic toxicity
Aquatic Chronic	Chronic aquatic toxicity
H300	Fatal if swallowed.
H400	Very toxic to aquatic life.
H410	Very toxic to aquatic life with long lasting effects.

HMIS Rating

Health hazard:	3
Chronic Health Hazard:	*
Flammability:	0
Physical Hazard	0

NFPA Rating

Health hazard:	3
Fire Hazard:	0
Reactivity Hazard:	0

Further information
Copyright 2014 Sigma-Aldrich Co. LLC. License granted to make unlimited paper copies for internal use only.
The above information is believed to be correct but does not purport to be all inclusive and shall be used only as a guide. The information in this document is based on the present state of our knowledge and is applicable to the product with regard to appropriate safety precautions. It does not represent any guarantee of the properties of the product. Sigma-Aldrich Corporation and its Affiliates shall not be held liable for any damage resulting from handling or from contact with the above product. See www.sigma-aldrich.com and/or the reverse side of invoice or packing slip for additional terms and conditions of sale.

Preparation Information
Sigma-Aldrich Corporation
Product Safety – Americas Region
1-800-521-8956

Version: 5.1 Revision Date: 06/27/2014 Print Date: 04/20/2016

SAFETY DATA SHEET

Version 5.5
Revision Date 08/09/2016
Print Date 07/31/2019

1. PRODUCT AND COMPANY IDENTIFICATION

1.1 Product identifiers

Product name	:	Endrin
Product Number	:	49032
Brand	:	Supelco
Index-No.	:	602-051-00-X
CAS-No.	:	72-20-8

1.2 Relevant identified uses of the substance or mixture and uses advised against

Identified uses	:	Laboratory chemicals, Synthesis of substances

1.3 Details of the supplier of the safety data sheet

Company	:	Sigma-Aldrich 3050 Spruce Street SAINT LOUIS MO 63103 USA
Telephone	:	+1 800-325-5832
Fax	:	+1 800-325-5052

1.4 Emergency telephone number

Emergency Phone #	:	+1-703-527-3887 (CHEMTREC)

2. HAZARDS IDENTIFICATION

2.1 Classification of the substance or mixture

GHS Classification in accordance with 29 CFR 1910 (OSHA HCS)
Acute toxicity, Oral (Category 1), H300
Acute toxicity, Dermal (Category 2), H310
Acute aquatic toxicity (Category 1), H400
Chronic aquatic toxicity (Category 1), H410

For the full text of the H-Statements mentioned in this Section, see Section 16.

2.2 GHS Label elements, including precautionary statements

Pictogram



Signal word — Danger

Hazard statement(s)

H300 + H310	Fatal if swallowed or in contact with skin
H410	Very toxic to aquatic life with long lasting effects.

Precautionary statement(s)

P262	Do not get in eyes, on skin, or on clothing.
P264	Wash skin thoroughly after handling.
P270	Do not eat, drink or smoke when using this product.
P273	Avoid release to the environment.
P280	Wear protective gloves/ protective clothing.
P301 + P310 + P330	IF SWALLOWED: Immediately call a POISON CENTER/doctor. Rinse

	mouth.
P302 + P350 + P310	IF ON SKIN: Gently wash with plenty of soap and water. Immediately call a POISON CENTER or doctor/ physician.
P361	Remove/Take off immediately all contaminated clothing.
P363	Wash contaminated clothing before reuse.
P391	Collect spillage.
P405	Store locked up.
P501	Dispose of contents/ container to an approved waste disposal plant.

2.3 Hazards not otherwise classified (HNOC) or not covered by GHS - none

3. COMPOSITION/INFORMATION ON INGREDIENTS

3.1 Substances

Formula	:	$C_{12}H_8Cl_6O$
Molecular weight	:	380.91 g/mol
CAS-No.	:	72-20-8
EC-No.	:	200-775-7
Index-No.	:	602-051-00-X

Hazardous components

Component	Classification	Concentration
Endrin		
	Acute Tox. 1; Acute Tox. 2; Aquatic Acute 1; Aquatic Chronic 1; H300 + H310, H410	<= 100 %

For the full text of the H-Statements mentioned in this Section, see Section 16.

4. FIRST AID MEASURES

4.1 Description of first aid measures

General advice
Consult a physician. Show this safety data sheet to the doctor in attendance.Move out of dangerous area.

If inhaled
If breathed in, move person into fresh air. If not breathing, give artificial respiration. Consult a physician.

In case of skin contact
Wash off with soap and plenty of water. Take victim immediately to hospital. Consult a physician.

In case of eye contact
Flush eyes with water as a precaution.

If swallowed
Never give anything by mouth to an unconscious person. Rinse mouth with water. Consult a physician.

4.2 Most important symptoms and effects, both acute and delayed
The most important known symptoms and effects are described in the labelling (see section 2.2) and/or in section 11

4.3 Indication of any immediate medical attention and special treatment needed
No data available

5. FIREFIGHTING MEASURES

5.1 Extinguishing media

Suitable extinguishing media
Use water spray, alcohol-resistant foam, dry chemical or carbon dioxide.

5.2 Special hazards arising from the substance or mixture
No data available

5.3 Advice for firefighters
Wear self-contained breathing apparatus for firefighting if necessary.

5.4 Further information
No data available

6. ACCIDENTAL RELEASE MEASURES

6.1 Personal precautions, protective equipment and emergency procedures
Wear respiratory protection. Avoid dust formation. Avoid breathing vapours, mist or gas. Ensure adequate ventilation. Evacuate personnel to safe areas. Avoid breathing dust.
For personal protection see section 8.

6.2 Environmental precautions
Prevent further leakage or spillage if safe to do so. Do not let product enter drains. Discharge into the environment must be avoided.

6.3 Methods and materials for containment and cleaning up
Pick up and arrange disposal without creating dust. Sweep up and shovel. Keep in suitable, closed containers for disposal.

6.4 Reference to other sections
For disposal see section 13.

7. HANDLING AND STORAGE

7.1 Precautions for safe handling
Avoid contact with skin and eyes. Avoid formation of dust and aerosols.Further processing of solid materials may result in the formation of combustible dusts. The potential for combustible dust formation should be taken into consideration before additional processing occurs.
Provide appropriate exhaust ventilation at places where dust is formed.
For precautions see section 2.2.

7.2 Conditions for safe storage, including any incompatibilities
Keep container tightly closed in a dry and well-ventilated place.

Recommended storage temperature 2 - 8 °C

7.3 Specific end use(s)
Apart from the uses mentioned in section 1.2 no other specific uses are stipulated

8. EXPOSURE CONTROLS/PERSONAL PROTECTION

8.1 Control parameters

Components with workplace control parameters

Component	CAS-No.	Value	Control parameters	Basis
Endrin	72-20-8	TWA	0.100000 mg/m3	USA. ACGIH Threshold Limit Values (TLV)
	Remarks	Central Nervous System impairment Headache Liver damage Not classifiable as a human carcinogen Danger of cutaneous absorption		
		TWA	0.100000 mg/m3	USA. NIOSH Recommended Exposure Limits
		Potential for dermal absorption		
		TWA	0.100000 mg/m3	USA. Occupational Exposure Limits (OSHA) - Table Z-1 Limits for Air Contaminants
		Skin designation		

		PEL	0.1 mg/m3	California permissible exposure limits for chemical contaminants (Title 8, Article 107)
		Skin		

8.2 Exposure controls

Appropriate engineering controls
Avoid contact with skin, eyes and clothing. Wash hands before breaks and immediately after handling the product.

Personal protective equipment

Eye/face protection
Face shield and safety glasses Use equipment for eye protection tested and approved under appropriate government standards such as NIOSH (US) or EN 166(EU).

Skin protection
Handle with gloves. Gloves must be inspected prior to use. Use proper glove removal technique (without touching glove's outer surface) to avoid skin contact with this product. Dispose of contaminated gloves after use in accordance with applicable laws and good laboratory practices. Wash and dry hands.

Full contact
Material: Nitrile rubber
Minimum layer thickness: 0.11 mm
Break through time: 480 min
Material tested:Dermatril® (KCL 740 / Aldrich Z677272, Size M)

Splash contact
Material: Nitrile rubber
Minimum layer thickness: 0.11 mm
Break through time: 480 min
Material tested:Dermatril® (KCL 740 / Aldrich Z677272, Size M)

data source: KCL GmbH, D-36124 Eichenzell, phone +49 (0)6659 87300, e-mail sales@kcl.de, test method: EN374
If used in solution, or mixed with other substances, and under conditions which differ from EN 374, contact the supplier of the CE approved gloves. This recommendation is advisory only and must be evaluated by an industrial hygienist and safety officer familiar with the specific situation of anticipated use by our customers. It should not be construed as offering an approval for any specific use scenario.

Body Protection
Complete suit protecting against chemicals, The type of protective equipment must be selected according to the concentration and amount of the dangerous substance at the specific workplace.

Respiratory protection
Where risk assessment shows air-purifying respirators are appropriate use a full-face particle respirator type N100 (US) or type P3 (EN 143) respirator cartridges as a backup to engineering controls. If the respirator is the sole means of protection, use a full-face supplied air respirator. Use respirators and components tested and approved under appropriate government standards such as NIOSH (US) or CEN (EU).

Control of environmental exposure
Prevent further leakage or spillage if safe to do so. Do not let product enter drains. Discharge into the environment must be avoided.

9. PHYSICAL AND CHEMICAL PROPERTIES

9.1 Information on basic physical and chemical properties

a)	Appearance	Form: solid Colour: colourless
b)	Odour	No data available
c)	Odour Threshold	No data available
d)	pH	No data available
e)	Melting point/freezing point	No data available

f)	Initial boiling point and boiling range	No data available
g)	Flash point	No data available
h)	Evaporation rate	No data available
i)	Flammability (solid, gas)	No data available
j)	Upper/lower flammability or explosive limits	No data available
k)	Vapour pressure	No data available
l)	Vapour density	No data available
m)	Relative density	No data available
n)	Water solubility	insoluble
o)	Partition coefficient: n-octanol/water	log Pow: 5.20
p)	Auto-ignition temperature	No data available
q)	Decomposition temperature	226.0 °C (438.8 °F) -
r)	Viscosity	No data available
s)	Explosive properties	No data available
t)	Oxidizing properties	No data available

9.2 Other safety information
No data available

10. STABILITY AND REACTIVITY

10.1 Reactivity
No data available

10.2 Chemical stability
Stable under recommended storage conditions.

10.3 Possibility of hazardous reactions
No data available

10.4 Conditions to avoid
No data available

10.5 Incompatible materials
Strong oxidizing agents

10.6 Hazardous decomposition products
Hazardous decomposition products formed under fire conditions. - Carbon oxides, Hydrogen chloride gas
Other decomposition products - No data available
In the event of fire: see section 5

11. TOXICOLOGICAL INFORMATION

11.1 Information on toxicological effects

Acute toxicity
LD50 Oral - Rat - 3.0 mg/kg

Inhalation: No data available

LD50 Dermal - Rabbit - 60.0 mg/kg

No data available

Skin corrosion/irritation
No data available

Serious eye damage/eye irritation
No data available

Respiratory or skin sensitisation
No data available

Germ cell mutagenicity
No data available

Carcinogenicity

This product is or contains a component that is not classifiable as to its carcinogenicity based on its IARC, ACGIH, NTP, or EPA classification.

IARC: No component of this product present at levels greater than or equal to 0.1% is identified as probable, possible or confirmed human carcinogen by IARC.

NTP: No component of this product present at levels greater than or equal to 0.1% is identified as a known or anticipated carcinogen by NTP.

OSHA: No component of this product present at levels greater than or equal to 0.1% is identified as a carcinogen or potential carcinogen by OSHA.

Reproductive toxicity
No data available

No data available

Specific target organ toxicity - single exposure
No data available

Specific target organ toxicity - repeated exposure
No data available

Aspiration hazard
No data available

Additional Information
RTECS: Not available

To the best of our knowledge, the chemical, physical, and toxicological properties have not been thoroughly investigated.

Central nervous system -

12. ECOLOGICAL INFORMATION

12.1 Toxicity

Toxicity to fish	LC50 - Oncorhynchus mykiss (rainbow trout) - < 0.001 mg/l - 96.0 h
Toxicity to daphnia and other aquatic invertebrates	EC50 - Daphnia pulex (Water flea) - 0.02 mg/l - 48 h
	Immobilization EC50 - Daphnia magna (Water flea) - 0.0042 mg/l - 48 h

12.2 Persistence and degradability
No data available

12.3 Bioaccumulative potential
Bioaccumulation: Pimephales promelas (fathead minnow) - 56 d - 0.63 mg/l

Bioconcentration factor (BCF): 13,000

12.4 Mobility in soil
No data available

12.5 Results of PBT and vPvB assessment
PBT/vPvB assessment not available as chemical safety assessment not required/not conducted

12.6 Other adverse effects
An environmental hazard cannot be excluded in the event of unprofessional handling or disposal.
Very toxic to aquatic life with long lasting effects.

13. DISPOSAL CONSIDERATIONS

13.1 Waste treatment methods

Product
Offer surplus and non-recyclable solutions to a licensed disposal company. Contact a licensed professional waste disposal service to dispose of this material. Dissolve or mix the material with a combustible solvent and burn in a chemical incinerator equipped with an afterburner and scrubber.

Contaminated packaging
Dispose of as unused product.

14. TRANSPORT INFORMATION

DOT (US)
UN number: 2811 Class: 6.1 Packing group: I
Proper shipping name: Toxic solids, organic, n.o.s. (Endrin)
Reportable Quantity (RQ): 1 lbs
Marine pollutant:yes
Poison Inhalation Hazard: No

IMDG
UN number: 2811 Class: 6.1 Packing group: I EMS-No: F-A, S-A
Proper shipping name: TOXIC SOLID, ORGANIC, N.O.S. (Endrin)
Marine pollutant:yes

IATA
UN number: 2811 Class: 6.1 Packing group: I
Proper shipping name: Toxic solid, organic, n.o.s. (Endrin)

15. REGULATORY INFORMATION

SARA 302 Components
The following components are subject to reporting levels established by SARA Title III, Section 302:

	CAS-No.	Revision Date
Endrin	72-20-8	2007-07-01

SARA 313 Components
This material does not contain any chemical components with known CAS numbers that exceed the threshold (De Minimis) reporting levels established by SARA Title III, Section 313.

SARA 311/312 Hazards
Acute Health Hazard

Massachusetts Right To Know Components

	CAS-No.	Revision Date
Endrin	72-20-8	2007-07-01

Pennsylvania Right To Know Components

	CAS-No.	Revision Date
Endrin	72-20-8	2007-07-01

New Jersey Right To Know Components

	CAS-No.	Revision Date
Endrin	72-20-8	2007-07-01

California Prop. 65 Components
WARNING: This product contains a chemical known to the CAS-No. Revision Date

State of California to cause birth defects or other reproductive harm. Endrin	72-20-8	2007-09-28

16. OTHER INFORMATION

Full text of H-Statements referred to under sections 2 and 3.

Acute Tox.	Acute toxicity
Aquatic Acute	Acute aquatic toxicity
Aquatic Chronic	Chronic aquatic toxicity
H300	Fatal if swallowed.
H300 + H310	Fatal if swallowed or in contact with skin
H310	Fatal in contact with skin.

HMIS Rating

Health hazard:	4
Chronic Health Hazard:	
Flammability:	0
Physical Hazard	0

NFPA Rating

Health hazard:	3
Fire Hazard:	0
Reactivity Hazard:	0

Further information

Copyright 2016 Sigma-Aldrich Co. LLC. License granted to make unlimited paper copies for internal use only.
The above information is believed to be correct but does not purport to be all inclusive and shall be used only as a guide. The information in this document is based on the present state of our knowledge and is applicable to the product with regard to appropriate safety precautions. It does not represent any guarantee of the properties of the product. Sigma-Aldrich Corporation and its Affiliates shall not be held liable for any damage resulting from handling or from contact with the above product. See www.sigma-aldrich.com and/or the reverse side of invoice or packing slip for additional terms and conditions of sale.

Preparation Information

Sigma-Aldrich Corporation
Product Safety – Americas Region
1-800-521-8956

Version: 5.5 Revision Date: 08/09/2016 Print Date: 07/31/2019

SAFETY DATA SHEET

Version 4.10
Revision Date 07/09/2015
Print Date 02/23/2016

1. PRODUCT AND COMPANY IDENTIFICATION

1.1 Product identifiers

Product name : Ethyl Alcohol, pure

Product Number : 459836
Brand : Sigma-Aldrich
Index-No. : 603-002-00-5

CAS-No. : 64-17-5

1.2 Relevant identified uses of the substance or mixture and uses advised against

Identified uses : Laboratory chemicals, Manufacture of substances

1.3 Details of the supplier of the safety data sheet

Company : Sigma-Aldrich
3050 Spruce Street
SAINT LOUIS MO 63103
USA

Telephone : +1 800-325-5832
Fax : +1 800-325-5052

1.4 Emergency telephone number

Emergency Phone # : (314) 776-6555

2. HAZARDS IDENTIFICATION

2.1 Classification of the substance or mixture

GHS Classification in accordance with 29 CFR 1910 (OSHA HCS)
Flammable liquids (Category 2), H225
Eye irritation (Category 2A), H319

For the full text of the H-Statements mentioned in this Section, see Section 16.

2.2 GHS Label elements, including precautionary statements

Pictogram



Signal word Danger

Hazard statement(s)
H225 Highly flammable liquid and vapour.
H319 Causes serious eye irritation.

Precautionary statement(s)
P210 Keep away from heat/sparks/open flames/hot surfaces. - No smoking.
P233 Keep container tightly closed.
P240 Ground/bond container and receiving equipment.
P241 Use explosion-proof electrical/ ventilating/ lighting/ equipment.
P242 Use only non-sparking tools.
P243 Take precautionary measures against static discharge.
P264 Wash skin thoroughly after handling.
P280 Wear protective gloves/ eye protection/ face protection.
P303 + P361 + P353 IF ON SKIN (or hair): Take off immediately all contaminated clothing.

	Rinse skin with water/shower.
P305 + P351 + P338	IF IN EYES: Rinse cautiously with water for several minutes. Remove contact lenses, if present and easy to do. Continue rinsing.
P337 + P313	If eye irritation persists: Get medical advice/ attention.
P370 + P378	In case of fire: Use dry sand, dry chemical or alcohol-resistant foam to extinguish.
P403 + P235	Store in a well-ventilated place. Keep cool.
P501	Dispose of contents/ container to an approved waste disposal plant.

2.3 Hazards not otherwise classified (HNOC) or not covered by GHS - none

3. COMPOSITION/INFORMATION ON INGREDIENTS

3.1 Substances

Synonyms	:	Absolute alcohol
Formula	:	C_2H_6O
Molecular weight	:	46.07 g/mol
CAS-No.	:	64-17-5
EC-No.	:	200-578-6
Index-No.	:	603-002-00-5

Hazardous components

Component	Classification	Concentration
Ethanol		
	Flam. Liq. 2; Eye Irrit. 2A; H225, H319	<= 100 %

For the full text of the H-Statements mentioned in this Section, see Section 16.

4. FIRST AID MEASURES

4.1 Description of first aid measures

General advice
Consult a physician. Show this safety data sheet to the doctor in attendance.Move out of dangerous area.

If inhaled
If breathed in, move person into fresh air. If not breathing, give artificial respiration. Consult a physician.

In case of skin contact
Wash off with soap and plenty of water. Consult a physician.

In case of eye contact
Rinse thoroughly with plenty of water for at least 15 minutes and consult a physician.

If swallowed
Do NOT induce vomiting. Never give anything by mouth to an unconscious person. Rinse mouth with water. Consult a physician.

4.2 Most important symptoms and effects, both acute and delayed
The most important known symptoms and effects are described in the labelling (see section 2.2) and/or in section 11

4.3 Indication of any immediate medical attention and special treatment needed
No data available

5. FIREFIGHTING MEASURES

5.1 Extinguishing media

Suitable extinguishing media
Use water spray, alcohol-resistant foam, dry chemical or carbon dioxide.

5.2 Special hazards arising from the substance or mixture
Carbon oxides

5.3 Advice for firefighters
Wear self-contained breathing apparatus for firefighting if necessary.

5.4 Further information
Use water spray to cool unopened containers.

6. ACCIDENTAL RELEASE MEASURES

6.1 Personal precautions, protective equipment and emergency procedures
Use personal protective equipment. Avoid breathing vapours, mist or gas. Ensure adequate ventilation. Remove all sources of ignition. Evacuate personnel to safe areas. Beware of vapours accumulating to form explosive concentrations. Vapours can accumulate in low areas.
For personal protection see section 8.

6.2 Environmental precautions
Prevent further leakage or spillage if safe to do so. Do not let product enter drains.

6.3 Methods and materials for containment and cleaning up
Contain spillage, and then collect with an electrically protected vacuum cleaner or by wet-brushing and place in container for disposal according to local regulations (see section 13).

6.4 Reference to other sections
For disposal see section 13.

7. HANDLING AND STORAGE

7.1 Precautions for safe handling
Avoid contact with skin and eyes. Avoid inhalation of vapour or mist.
Use explosion-proof equipment.Keep away from sources of ignition - No smoking.Take measures to prevent the build up of electrostatic charge.
For precautions see section 2.2.

7.2 Conditions for safe storage, including any incompatibilities
Keep container tightly closed in a dry and well-ventilated place. Containers which are opened must be carefully resealed and kept upright to prevent leakage.

Hygroscopic.
Storage class (TRGS 510): Flammable liquids

7.3 Specific end use(s)
Apart from the uses mentioned in section 1.2 no other specific uses are stipulated

8. EXPOSURE CONTROLS/PERSONAL PROTECTION

8.1 Control parameters

Components with workplace control parameters

Component	CAS-No.	Value	Control parameters	Basis
Ethanol	64-17-5	TWA	1,000.000000 ppm	USA. ACGIH Threshold Limit Values (TLV)
	Remarks	Upper Respiratory Tract irritation Confirmed animal carcinogen with unknown relevance to humans		
		TWA	1,000 ppm 1,900 mg/m3	USA. OSHA - TABLE Z-1 Limits for Air Contaminants - 1910.1000
		TWA	1,000 ppm 1,900 mg/m3	USA. Occupational Exposure Limits (OSHA) - Table Z-1 Limits for Air Contaminants
		The value in mg/m3 is approximate.		
		TWA	1,000.000000 ppm 1,900.000000 mg/m3	USA. Occupational Exposure Limits (OSHA) - Table Z-1 Limits for Air Contaminants
		The value in mg/m3 is approximate.		

		TWA	1,000.000000 ppm 1,900.000000 mg/m3	USA. NIOSH Recommended Exposure Limits
		STEL	1,000.000000 ppm	USA. ACGIH Threshold Limit Values (TLV)
		Upper Respiratory Tract irritation Confirmed animal carcinogen with unknown relevance to humans		

8.2 Exposure controls

Appropriate engineering controls
Handle in accordance with good industrial hygiene and safety practice. Wash hands before breaks and at the end of workday.

Personal protective equipment

Eye/face protection
Face shield and safety glasses Use equipment for eye protection tested and approved under appropriate government standards such as NIOSH (US) or EN 166(EU).

Skin protection
Handle with gloves. Gloves must be inspected prior to use. Use proper glove removal technique (without touching glove's outer surface) to avoid skin contact with this product. Dispose of contaminated gloves after use in accordance with applicable laws and good laboratory practices. Wash and dry hands.

Full contact
Material: butyl-rubber
Minimum layer thickness: 0.3 mm
Break through time: 480 min
Material tested:Butoject® (KCL 897 / Aldrich Z677647, Size M)

Splash contact
Material: Nitrile rubber
Minimum layer thickness: 0.2 mm
Break through time: 38 min
Material tested:Dermatril® P (KCL 743 / Aldrich Z677388, Size M)

data source: KCL GmbH, D-36124 Eichenzell, phone +49 (0)6659 87300, e-mail sales@kcl.de, test method: EN374
If used in solution, or mixed with other substances, and under conditions which differ from EN 374, contact the supplier of the CE approved gloves. This recommendation is advisory only and must be evaluated by an industrial hygienist and safety officer familiar with the specific situation of anticipated use by our customers. It should not be construed as offering an approval for any specific use scenario.

Body Protection
impervious clothing, Flame retardant antistatic protective clothing., The type of protective equipment must be selected according to the concentration and amount of the dangerous substance at the specific workplace.

Respiratory protection
Where risk assessment shows air-purifying respirators are appropriate use a full-face respirator with multi-purpose combination (US) or type ABEK (EN 14387) respirator cartridges as a backup to engineering controls. If the respirator is the sole means of protection, use a full-face supplied air respirator. Use respirators and components tested and approved under appropriate government standards such as NIOSH (US) or CEN (EU).

Control of environmental exposure
Prevent further leakage or spillage if safe to do so. Do not let product enter drains.

9. PHYSICAL AND CHEMICAL PROPERTIES

9.1 Information on basic physical and chemical properties

a)	Appearance	Form: liquid, clear Colour: colourless
b)	Odour	No data available

c)	Odour Threshold	No data available
d)	pH	No data available
e)	Melting point/freezing point	Melting point/range: -114 °C (-173 °F)
f)	Initial boiling point and boiling range	78 °C (172 °F)
g)	Flash point	14.0 °C (57.2 °F) - closed cup
h)	Evaporation rate	No data available
i)	Flammability (solid, gas)	No data available
j)	Upper/lower flammability or explosive limits	Upper explosion limit: 19 %(V) Lower explosion limit: 3.3 %(V)
k)	Vapour pressure	59.5 hPa (44.6 mmHg) at 20.0 °C (68.0 °F)
l)	Vapour density	No data available
m)	Relative density	0.789 g/mL at 25 °C (77 °F)
n)	Water solubility	completely soluble
o)	Partition coefficient: n-octanol/water	log Pow: -0.349 at 24 °C (75 °F)
p)	Auto-ignition temperature	363.0 °C (685.4 °F)
q)	Decomposition temperature	No data available
r)	Viscosity	No data available
s)	Explosive properties	No data available
t)	Oxidizing properties	No data available

9.2 Other safety information
No data available

10. STABILITY AND REACTIVITY

10.1 Reactivity
No data available

10.2 Chemical stability
Stable under recommended storage conditions.

10.3 Possibility of hazardous reactions
Vapours may form explosive mixture with air.

10.4 Conditions to avoid
Heat, flames and sparks.

10.5 Incompatible materials
Alkali metals, Oxidizing agents, Peroxides

10.6 Hazardous decomposition products
Other decomposition products - No data available
In the event of fire: see section 5

11. TOXICOLOGICAL INFORMATION

11.1 Information on toxicological effects

Acute toxicity
LD50 Oral - Rat - 10,470 mg/kg

LC50 Inhalation - Rat - 4 h - 30,000 mg/l

LD50 Dermal - Rabbit - 15,800 mg/kg

No data available

Skin corrosion/irritation
Skin - Rabbit
Result: No skin irritation - 24 h
(OECD Test Guideline 404)

Serious eye damage/eye irritation
Eyes - Rabbit
Result: Moderate eye irritation
(OECD Test Guideline 405)

Respiratory or skin sensitisation
No data available

Germ cell mutagenicity
No data available

Carcinogenicity

Carcinogenicity - Mouse - Oral
Tumorigenic:Equivocal tumorigenic agent by RTECS criteria. Liver:Tumors. Blood:Lymphomas including Hodgkin's disease.

IARC:	No component of this product present at levels greater than or equal to 0.1% is identified as probable, possible or confirmed human carcinogen by IARC.
NTP:	No component of this product present at levels greater than or equal to 0.1% is identified as a known or anticipated carcinogen by NTP.
OSHA:	No component of this product present at levels greater than or equal to 0.1% is identified as a carcinogen or potential carcinogen by OSHA.

Reproductive toxicity
No data available

Reproductive toxicity - Human - female - Oral
Effects on Newborn: Apgar score (human only). Effects on Newborn: Other neonatal measures or effects. Effects on Newborn: Drug dependence.

Specific target organ toxicity - single exposure
No data available

Specific target organ toxicity - repeated exposure
No data available

Aspiration hazard
No data available

Additional Information
RTECS: KQ6300000

Central nervous system depression, narcosis, Damage to the heart., To the best of our knowledge, the chemical, physical, and toxicological properties have not been thoroughly investigated.

Stomach - Irregularities - Based on Human Evidence
Stomach - Irregularities - Based on Human Evidence

12. ECOLOGICAL INFORMATION

12.1 Toxicity

Toxicity to fish	LC50 - Pimephales promelas (fathead minnow) - 14,200 mg/l - 96 h
Toxicity to daphnia and other aquatic invertebrates	LC50 - Ceriodaphnia dubia (water flea) - 5,012 mg/l - 48 h

NOEC - Daphnia magna (Water flea) - 9.6 mg/l - 9 d

Toxicity to algae — EC50 - Chlorella vulgaris (Fresh water algae) - 275 mg/l - 72 h (OECD Test Guideline 201)

12.2 Persistence and degradability

Biodegradability — Result: 95 % - Readily biodegradable

12.3 Bioaccumulative potential

Due to the distribution coefficient n-octanol/water, accumulation in organisms is not expected.

12.4 Mobility in soil

No data available

12.5 Results of PBT and vPvB assessment

PBT/vPvB assessment not available as chemical safety assessment not required/not conducted

12.6 Other adverse effects

No data available

13. DISPOSAL CONSIDERATIONS

13.1 Waste treatment methods

Product

Burn in a chemical incinerator equipped with an afterburner and scrubber but exert extra care in igniting as this material is highly flammable. Offer surplus and non-recyclable solutions to a licensed disposal company. Contact a licensed professional waste disposal service to dispose of this material.

Contaminated packaging

Dispose of as unused product.

14. TRANSPORT INFORMATION

DOT (US)

UN number: 1170 Class: 3 Packing group: II
Proper shipping name: Ethanol
Reportable Quantity (RQ):

Poison Inhalation Hazard: No

IMDG

UN number: 1170 Class: 3 Packing group: II EMS-No: F-E, S-D
Proper shipping name: ETHANOL

IATA

UN number: 1170 Class: 3 Packing group: II
Proper shipping name: Ethanol

15. REGULATORY INFORMATION

SARA 302 Components

No chemicals in this material are subject to the reporting requirements of SARA Title III, Section 302.

SARA 313 Components

This material does not contain any chemical components with known CAS numbers that exceed the threshold (De Minimis) reporting levels established by SARA Title III, Section 313.

SARA 311/312 Hazards

Fire Hazard, Acute Health Hazard, Chronic Health Hazard

Massachusetts Right To Know Components

	CAS-No.	Revision Date
Ethanol	64-17-5	2007-03-01

Pennsylvania Right To Know Components

	CAS-No.	Revision Date

Ethanol	64-17-5	2007-03-01

New Jersey Right To Know Components

	CAS-No.	Revision Date
Ethanol	64-17-5	2007-03-01

California Prop. 65 Components

This product does not contain any chemicals known to State of California to cause cancer, birth defects, or any other reproductive harm.

16. OTHER INFORMATION

Full text of H-Statements referred to under sections 2 and 3.

Eye Irrit.	Eye irritation
Flam. Liq.	Flammable liquids
H225	Highly flammable liquid and vapour.
H319	Causes serious eye irritation.

HMIS Rating

Health hazard:	2
Chronic Health Hazard:	*
Flammability:	3
Physical Hazard	0

NFPA Rating

Health hazard:	2
Fire Hazard:	3
Reactivity Hazard:	0

Further information

Copyright 2015 Sigma-Aldrich Co. LLC. License granted to make unlimited paper copies for internal use only.
The above information is believed to be correct but does not purport to be all inclusive and shall be used only as a guide. The information in this document is based on the present state of our knowledge and is applicable to the product with regard to appropriate safety precautions. It does not represent any guarantee of the properties of the product. Sigma-Aldrich Corporation and its Affiliates shall not be held liable for any damage resulting from handling or from contact with the above product. See www.sigma-aldrich.com and/or the reverse side of invoice or packing slip for additional terms and conditions of sale.

Preparation Information

Sigma-Aldrich Corporation
Product Safety – Americas Region
1-800-521-8956

Version: 4.10 Revision Date: 07/09/2015 Print Date: 02/23/2016

MATHESON
ask. . .The Gas Professionals™

Safety Data Sheet

Material Name: ETHYL BENZENE **SDS ID: MAT08780**

Section 1 - PRODUCT AND COMPANY IDENTIFICATION

Material Name
ETHYL BENZENE
Synonyms
MTG MSDS 185; EB; PHENYLETHANE; ETHYLBENZENE; ETHYLBENZOL; ALPHA-METHYLTOLUENE; UN 1175; C8H10
Chemical Family
Hydrocarbons, aromatic
Product Use
industrial.
Restrictions on Use
None known.
Details of the supplier of the safety data sheet
MATHESON TRI-GAS, INC.
150 Allen Road, Suite 302
Basking Ridge, NJ 07920
General Information: 1-800-416-2505
Emergency #: 1-800-424-9300 (CHEMTREC)
Outside the US: 703-527-3887 (Call collect)

Section 2 - HAZARDS IDENTIFICATION

Classification in accordance with paragraph (d) of 29 CFR 1910.1200.
Flammable Liquids - Category 2
Aspiration Hazard - Category 1
Acute Toxicity - Inhalation - Dust/Mist - Category 4
Acute Toxicity - Inhalation - Vapor - Category 4
Skin Corrosion/Irritation - Category 2
Serious Eye Damage/Eye Irritation - Category 2A
Carcinogenicity - Category 2
Reproductive Toxicity - Category 1B
Specific target organ toxicity - Single exposure - Category 2
Specific target organ toxicity - Single exposure - Category 3
Specific Target Organ Toxicity - Repeated Exposure - Category 2 (ears , Ears)
Hazardous to the Aquatic Environment - Acute - Category 2
Hazardous to the Aquatic Environment - Chronic - Category 2
GHS Label Elements
Symbol(s)



Signal Word
Danger
Hazard Statement(s)

Highly flammable liquid and vapor.
Harmful if inhaled.
Causes skin irritation.
Causes serious eye irritation.
Suspected of causing cancer.
May damage fertility or the unborn child.
May cause damage to organs. (central nervous system)
May cause respiratory irritation.
May be fatal if swallowed and enters airways.
Toxic to aquatic life.

Precautionary Statement(s)

Prevention

Keep away from heat, sparks, open flame, and hot surfaces - No smoking.
Keep container tightly closed.
Ground/Bond container and receiving equipment.
Use explosion-proof electrical/ventilating/lighting equipment.
Use only non-sparking tools.
Take precautionary measures against static discharge.
Obtain special instructions before use.
Do not handle until all safety precautions have been read and understood.
Use Personal Protective equipment as required.
Do not breathe vapor or mist.
Use only outdoors or in a well-ventilated area.
Wear protective gloves and eye/face protection.
Wash thoroughly after handling.
Do not eat, drink or smoke when using this product.
Avoid release to the environment.

Response

In case of fire, use media appropriate for extinction.
IF exposed or concerned: Get medical advice/attention.
IF INHALED: Remove victim to fresh air and keep at rest in a position comfortable for breathing.
Call a POISON CENTER or doctor/physician if you feel unwell.
IF ON SKIN (or hair): Remove/Take off immediately all contaminated clothing. Rinse skin with water/shower.
If skin irritation occurs: Get medical advice/attention.
Wash contaminated clothing before reuse.
IF IN EYES: Rinse cautiously with water for several minutes. Remove contact lenses, if present and easy to do.
Continue rinsing.
If eye irritation persists: Get medical advice/attention.
IF SWALLOWED: Immediately call a POISON CENTER or doctor/physician.
Do NOT induce vomiting.

Storage

Store in a well-ventilated place.
Keep cool.
Keep container tightly closed.
Store locked up.

Disposal

Dispose in accordance with all applicable regulations.

Statement(s) of Unknown Acute Toxicity

Inhalation 0% of the mixture consists of ingredient(s) of unknown acute toxicity.

Statement(s) of Unknown Aquatic Toxicity
0% of the mixture consists of ingredient(s) of unknown acute aquatic toxicity.
0% of the mixture consists of ingredient(s) of unknown chronic aquatic toxicity.

Section 3 - COMPOSITION / INFORMATION ON INGREDIENTS

CAS	Component Name	Percent
100-41-4	ETHYL BENZENE	100

Section 4 - FIRST AID MEASURES

Inhalation
If adverse effects occur, remove to uncontaminated area. Give artificial respiration if not breathing. If breathing is difficult, oxygen should be administered by qualified personnel. Get immediate medical attention.
Skin
Wash skin with soap and water for at least 15 minutes while removing contaminated clothing and shoes. Get medical attention, if needed. Thoroughly clean and dry contaminated clothing and shoes before reuse.
Eyes
Flush eyes with plenty of water for at least 15 minutes. Remove contact lenses, if present and easy to do. Continue rinsing. Then get immediate medical attention.
Ingestion
aspiration hazard. Do NOT induce vomiting. When vomiting occurs, keep head lower than hips to help prevent aspiration. Get medical attention immediately. Give artificial respiration if not breathing.
Most Important Symptoms/Effects
Acute
respiratory tract irritation, skin irritation, eye irritation, central nervous system damage, lung damage (from aspiration)
Delayed
cancer, Reproductive Effects
Note to Physicians
For inhalation, consider oxygen.

Section 5 - FIRE FIGHTING MEASURES

Extinguishing Media
Suitable Extinguishing Media
regular dry chemical, carbon dioxide, water spray, regular foam, Large fires: Use water spray, fog or regular foam.
Unsuitable Extinguishing Media
Do not use high-pressure water streams.
Special Hazards Arising from the Chemical
Severe fire hazard. Vapor/air mixtures are explosive above flash point. The vapor is heavier than air. Vapors or gases may ignite at distant ignition sources and flash back. Electrostatic discharges may be generated by flow or agitation resulting in ignition or explosion.
Hazardous Combustion Products
Oxides of carbon
Fire Fighting Measures
Move container from fire area if it can be done without risk. Cool containers with water spray until well after the fire is out. Stay away from the ends of tanks. For fires in cargo or storage area: Cool containers with water from unmanned hose holder or monitor nozzles until well after fire is out. If this is impossible then take the following precautions: Keep unnecessary people away, isolate hazard area and deny entry. Let the fire burn. Withdraw immediately in case of rising sound from venting safety device or any discoloration of tanks due to fire. For tank,

rail car or tank truck: Evacuation radius: 800 meters (1/2 mile). Do not attempt to extinguish fire unless flow of material can be stopped first. Flood with fine water spray. Do not scatter spilled material with high-pressure water streams. Cool containers with water spray until well after the fire is out. Apply water from a protected location or from a safe distance. Avoid inhalation of material or combustion by-products. Stay upwind and keep out of low areas. Water may be ineffective.

Special Protective Equipment and Precautions for Firefighters

Wear full protective fire fighting gear including self contained breathing apparatus (SCBA) for protection against possible exposure.

Section 6 - ACCIDENTAL RELEASE MEASURES

Personal Precautions, Protective Equipment and Emergency Procedures

Wear personal protective clothing and equipment, see Section 8.

Methods and Materials for Containment and Cleaning Up

Avoid heat, flames, sparks and other sources of ignition. Eliminate all ignition sources if safe to do so. All equipment used when handling the product must be grounded. Do not touch or walk through spilled material. Stop leak if possible without personal risk. Prevent entry into waterways, sewers, basements, or confined areas. Reduce vapors with water spray. Absorb with sand or other non-combustible material. Collect spilled material in appropriate container for disposal. Dike for later disposal. Remove sources of ignition. Use water spray to reduce vapors or divert vapor cloud drift. Keep unnecessary people away, isolate hazard area and deny entry. Notify Local Emergency Planning Committee and State Emergency Response Commission for release greater than or equal to RQ (U.S. SARA Section 304). If release occurs in the U.S. and is reportable under CERCLA Section 103, notify the National Response Center at (800)424-8802 (USA) or (202)426-2675 (USA).

Environmental Precautions

Avoid release to the environment.

Section 7 - HANDLING AND STORAGE

Precautions for Safe Handling

Keep away from heat, sparks, open flame, and hot surfaces - No smoking. Keep container tightly closed. Ground/bond container and receiving equipment. Use explosion-proof electrical/ventilating/lighting equipment. Use only non-sparking tools. Take precautionary measures against static discharges. Obtain special instructions before use. Do not handle until all safety precautions have been read and understood. Use Personal Protective equipment as required. Do not breathe vapor or mist. Use only outdoors or in a well-ventilated area. Wear protective gloves/eye protection/face protection. Wash hands thoroughly after handling. Do not eat, drink, or smoke when using this product. Avoid release to the environment.

Conditions for Safe Storage, Including any Incompatibilities

Store in a well-ventilated place.
Keep cool.
Keep container tightly closed.
Store locked up.
Store and handle in accordance with all current regulations and standards. Store in a well-ventilated area. Keep cool. Keep container tightly closed. Keep locked up. Grounding and bonding required. Keep separated from incompatible substances. Protect from physical damage. Store outside or in a detached building. Store with flammable liquids. Subject to storage regulations: U.S. OSHA 29 CFR 1910.106.

Incompatible Materials

Acids, bases, oxidizing materials, combustible materials

Section 8 - EXPOSURE CONTROLS / PERSONAL PROTECTION

Component Exposure Limits

ETHYL BENZENE	**100-41-4**

ACGIH:	20 ppm TWA
NIOSH:	100 ppm TWA ; 435 mg/m3 TWA
	125 ppm STEL ; 545 mg/m3 STEL
	800 ppm IDLH (10% LEL)
Europe:	100 ppm TWA ; 442 mg/m3 TWA
	Possibility of significant uptake through the skin
	200 ppm STEL ; 884 mg/m3 STEL
OSHA (US):	100 ppm TWA ; 435 mg/m3 TWA
Mexico:	100 ppm TWA VLE-PPT ; 435 mg/m3 TWA VLE-PPT
	125 ppm STEL [PPT-CT]; 545 mg/m3 STEL [PPT-CT]

ACGIH - Threshold Limit Values - Biological Exposure Indices (BEI)
ETHYL BENZENE (100-41-4)
0.15 g/g creatinine Medium: urine Time: end of shift Parameter: Sum of mandelic acid and phenylglyoxylic acid (nonspecific)

Engineering Controls
Ventilation equipment should be explosion-resistant if explosive concentrations of material are present. Provide local exhaust or process enclosure ventilation system. Ensure compliance with applicable exposure limits.

Individual Protection Measures, such as Personal Protective Equipment

Eye/face protection
Wear splash resistant safety goggles with a faceshield. Provide an emergency eye wash fountain and quick drench shower in the immediate work area.

Skin Protection
Wear appropriate chemical resistant clothing.

Respiratory Protection
The following respirators and maximum use concentrations are drawn from NIOSH and/or OSHA. 800 ppm. Any air-purifying half-mask respirator equipped with organic vapor cartridge(s). Any air-purifying full-facepiece respirator (gas mask) with a chin-style, front-mounted or back-mounted organic vapor canister. Any powered, air-purifying respirator with organic vapor cartridge(s). Any supplied-air respirator. Any self-contained breathing apparatus with a full facepiece. Emergency or planned entry into unknown concentrations or IDLH conditions -. Any self-contained breathing apparatus that has a full facepiece and is operated in a pressure-demand or other positive-pressure mode. Any supplied-air respirator with a full facepiece that is operated in a pressure-demand or other positive-pressure mode in combination with an auxiliary self-contained breathing apparatus operated in pressure-demand or other positive-pressure mode. Escape -. Any air-purifying full-facepiece respirator (gas mask) with a chin-style, front-mounted or back-mounted organic vapor canister. Any appropriate escape-type, self-contained breathing apparatus. Any supplied-air respirator with a full facepiece that is operated in a pressure-demand or other positive-pressure mode in combination with an auxiliary self-contained breathing apparatus operated in pressure-demand or other positive-pressure mode. Any self-contained breathing apparatus that has a full facepiece and is operated in a pressure-demand or other positive-pressure mode.

Glove Recommendations
Wear appropriate chemical resistant gloves.

Section 9 - PHYSICAL AND CHEMICAL PROPERTIES

Appearance	Clear, colorless liquid	**Physical State**	liquid
Odor	aromatic odor	**Color**	colorless
Odor Threshold	140 ppm	**pH**	Not available
Melting Point	-95 °C (-139 °F)	**Boiling Point**	136 °C (277 °F)
Boiling Point Range	Not available	**Freezing point**	Not available
Evaporation Rate	<1 (Butyl acetate = 1)	**Flammability (solid, gas)**	Not available
Autoignition Temperature	432 °C (810 °F)	**Flash Point**	15 °C Closed Cup (59 °F)
Lower Explosive Limit	0.8 %	**Decomposition temperature**	Not available
Upper Explosive Limit	6.7 %	**Vapor Pressure**	7.1 mmHg @ 20 °C
Vapor Density (air=1)	3.66	**Specific Gravity (water=1)**	0.867
Water Solubility	0.015 %	**Partition coefficient: n-octanol/water**	154170.05
Viscosity	0.64 cp	**Kinematic viscosity**	Not available
Solubility (Other)	Not available	**Bioconcentration Factor (BCF)**	36.39
Density	Not available	**Henry's Law Constant**	0.00788 atm-m3/mole
KOC	520 (Estimated)	**Physical Form**	liquid
Volatility	100 %	**Molecular Formula**	C-H3-C-H2-C6-H5
Molecular Weight	106.17	**OSHA Flammability Class**	IB

Solvent Solubility
Soluble
alcohol, ether, Benzene, sulfur dioxide, carbon tetrachloride
Insoluble
ammonia

Section 10 - STABILITY AND REACTIVITY

Reactivity
No reactivity hazard is expected.
Chemical Stability
Stable at normal temperatures and pressure.

Possibility of Hazardous Reactions
Will not polymerize.
Conditions to Avoid
Avoid heat, flames, sparks and other sources of ignition. Containers may rupture or explode if exposed to heat. Keep out of water supplies and sewers.
Incompatible Materials
Acids, bases, oxidizing materials, combustible materials
Hazardous decomposition products
Oxides of carbon

Section 11 - TOXICOLOGICAL INFORMATION

Information on Likely Routes of Exposure
Inhalation
irritation (possibly severe), chest pain, difficulty breathing, emotional disturbances, headache, drowsiness, dizziness, loss of coordination, coma, cancer
Skin Contact
irritation
Eye Contact
irritation
Ingestion
nausea, vomiting, stomach pain, aspiration hazard
Acute and Chronic Toxicity
Component Analysis - LD50/LC50
The components of this material have been reviewed in various sources and the following selected endpoints are published:
ETHYL BENZENE (100-41-4)
Oral LD50 Rat 3500 mg/kg
Dermal LD50 Rabbit 15400 mg/kg
Inhalation LC50 Rat 17.4 mg/L 4 h
Product Toxicity Data
Acute Toxicity Estimate

Dermal	> 2000 mg/kg
Inhalation - Vapor	17.4 mg/L
Oral	> 2000 mg/kg

Immediate Effects
respiratory tract irritation, skin irritation, eye irritation, central nervous system damage, lung damage (from aspiration)
Delayed Effects
Reproductive Effects, cancer
Irritation/Corrosivity Data
respiratory tract irritation, skin irritation, eye irritation
Respiratory Sensitization
No data available.
Dermal Sensitization
No data available.
Component Carcinogenicity

ETHYL BENZENE	**100-41-4**
ACGIH:	A3 - Confirmed Animal Carcinogen with Unknown Relevance to Humans
IARC:	Monograph 77 [2000] (Group 2B (possibly carcinogenic to humans))
DFG:	Category 4 (no significant contribution to human cancer)
OSHA:	Present

Germ Cell Mutagenicity
No data available.
Tumorigenic Data
No data available
Reproductive Toxicity
Available data characterizes components of this product as reproductive hazards.
Specific Target Organ Toxicity - Single Exposure
central nervous system, Respiratory system
Specific Target Organ Toxicity - Repeated Exposure
No target organs identified.
Aspiration hazard
This material is an aspiration hazard.
Medical Conditions Aggravated by Exposure
kidney disorders, liver disorders, respiratory disorders, skin disorders and allergies
Additional Data
May cross the placenta.

Section 12 - ECOLOGICAL INFORMATION

Ecotoxicity
Toxic to aquatic life.
Component Analysis - Aquatic Toxicity

ETHYL BENZENE	**100-41-4**
Fish:	LC50 96 h Oncorhynchus mykiss 11 - 18 mg/L [static]; LC50 96 h Oncorhynchus mykiss 4.2 mg/L [semi-static]; LC50 96 h Pimephales promelas 7.55 - 11 mg/L [flow-through]; LC50 96 h Lepomis macrochirus 32 mg/L [static]; LC50 96 h Pimephales promelas 9.1 - 15.6 mg/L [static]; LC50 96 h Poecilia reticulata 9.6 mg/L [static]
Algae:	EC50 72 h Pseudokirchneriella subcapitata 4.6 mg/L IUCLID ; EC50 96 h Pseudokirchneriella subcapitata >438 mg/L IUCLID ; EC50 72 h Pseudokirchneriella subcapitata 2.6 - 11.3 mg/L [static] EPA ; EC50 96 h Pseudokirchneriella subcapitata 1.7 - 7.6 mg/L [static] EPA
Invertebrate:	EC50 48 h Daphnia magna 1.8 - 2.4 mg/L IUCLID

Persistence and Degradability
Not expected to undergo hydrolysis in the environment.
Bioaccumulative Potential
Bioconcentration potential in aquatic organisms is low based on a BCF value of 15.
Mobility

Expected to have moderate mobility in soil.

Section 13 - DISPOSAL CONSIDERATIONS

Disposal Methods
Dispose in accordance with all applicable regulations. Subject to disposal regulations: U.S. EPA 40 CFR 262.
Hazardous Waste Number(s): D001.
Component Waste Numbers
The U.S. EPA has not published waste numbers for this product's components.

Section 14 - TRANSPORT INFORMATION

US DOT Information:
Shipping Name: ETHYLBENZENE
Hazard Class: 3
UN/NA #: UN1175
Packing Group: II
Required Label(s): 3
Marine pollutant

IMDG Information:
Shipping Name: ETHYLBENZENE
Hazard Class: 3
UN#: UN1175
Packing Group: II
Required Label(s): 3
Marine pollutant
International Bulk Chemical Code
This material contains one or more of the following chemicals required by the IBC Code to be identified as dangerous chemicals in bulk.

ETHYL BENZENE	**100-41-4**
IBC Code:	Category Y

Section 15 - REGULATORY INFORMATION

U.S. Federal Regulations
This material contains one or more of the following chemicals required to be identified under SARA Section 302 (40 CFR 355 Appendix A), SARA Section 313 (40 CFR 372.65), CERCLA (40 CFR 302.4), TSCA 12(b), and/or require an OSHA process safety plan.

ETHYL BENZENE	**100-41-4**
SARA 313:	0.1 % de minimis concentration
CERCLA:	1000 lb final RQ ; 454 kg final RQ

SARA Section 311/312 (40 CFR 370 Subparts B and C) reporting categories
Flammable; Carcinogenicity; Acute toxicity; Reproductive Toxicity; Skin Corrosion/Irritation; Serious Eye Damage/Eye Irritation; Specific Target Organ Toxicity; Aspiration Hazard
U.S. State Regulations
The following components appear on one or more of the following state hazardous substances lists:

Component	CAS	CA	MA	MN	NJ	PA
ETHYL BENZENE	**100-41-4**	Yes	Yes	Yes	Yes	Yes

The following statement(s) are provided under the California Safe Drinking Water and Toxic Enforcement Act of 1986 (Proposition 65):
WARNING! This product contains a chemical known to the state of California to cause cancer

ETHYL BENZENE	**100-41-4**
Carc:	carcinogen , 6/11/2004

Canada Regulations
Canadian WHMIS Ingredient Disclosure List (IDL)
Components of this material have been checked against the Canadian WHMIS Ingredients Disclosure List. The List is composed of chemicals which must be identified on MSDSs if they are included in products which meet WHMIS criteria specified in the Controlled Products Regulations and are present above the threshold limits listed on the IDL

ETHYL BENZENE	**100-41-4**
	0.1 %

WHMIS Classification
B2
Component Analysis - Inventory
ETHYL BENZENE (100-41-4)

US	CA	EU	AU	PH	JP - ENCS	JP - ISHL	KR KECI - Annex 1	KR KECI - Annex 2	KR - REACH CCA	CN	NZ	MX	TW	VN - NCI (Draft)
Yes	DSL	EIN	Yes	Yes	Yes	Yes	Yes	No	No	Yes	Yes	Yes	Yes	Yes

Section 16 - OTHER INFORMATION

NFPA Ratings
Health: 2 Fire: 3 Reactivity: 0
Hazard Scale: 0 = Minimal 1 = Slight 2 = Moderate 3 = Serious 4 = Severe
Summary of Changes
Updated: 05/01/2015
Key / Legend
ACGIH - American Conference of Governmental Industrial Hygienists; ADR - European Road Transport; AU - Australia; BOD - Biochemical Oxygen Demand; C - Celsius; CA - Canada; CA/MA/MN/NJ/PA - California/Massachusetts/Minnesota/New Jersey/Pennsylvania*; CAS - Chemical Abstracts Service; CERCLA - Comprehensive Environmental Response, Compensation, and Liability Act; CFR - Code of Federal Regulations (US); CLP - Classification, Labelling, and Packaging; CN - China; CPR - Controlled Products Regulations; DFG - Deutsche Forschungsgemeinschaft; DOT - Department of Transportation; DSD - Dangerous Substance Directive; DSL - Domestic Substances List; EC – European Commission; EEC - European Economic Community; EIN - European Inventory of (Existing Commercial Chemical Substances); EINECS - European Inventory of Existing Commercial Chemical Substances; ENCS - Japan Existing and New Chemical Substance Inventory; EPA - Environmental Protection Agency; EU - European Union; F - Fahrenheit; IARC - International Agency for Research

on Cancer; IATA - International Air Transport Association; ICAO - International Civil Aviation Organization; IDL - Ingredient Disclosure List; IDLH - Immediately Dangerous to Life and Health; IMDG - International Maritime Dangerous Goods; ISHL - Japan Industrial Safety and Health Law; IUCLID - International Uniform Chemical Information Database; JP - Japan; Kow - Octanol/water partition coefficient; KR KECI Annex 1 - Korea Existing Chemicals Inventory (KECI) / Korea Existing Chemicals List (KECL); KR KECI Annex 2 - Korea Existing Chemicals Inventory (KECI) / Korea Existing Chemicals List (KECL) , KR - Korea; LD50/LC50 - Lethal Dose/ Lethal Concentration; LEL - Lower Explosive Limit; LLV - Level Limit Value; LOLI - List Of LIsts™ - ChemADVISOR's Regulatory Database; MAK - Maximum Concentration Value in the Workplace; MEL - Maximum Exposure Limits; MX – Mexico; NDSL – Non-Domestic Substance List (Canada); NFPA - National Fire Protection Agency; NIOSH - National Institute for Occupational Safety and Health; NJTSR - New Jersey Trade Secret Registry; NTP - National Toxicology Program; NZ - New Zealand; OSHA - Occupational Safety and Health Administration; PEL- Permissible Exposure Limit; PH - Philippines; RCRA - Resource Conservation and Recovery Act; REACH- Registration, Evaluation, Authorisation, and restriction of Chemicals; RID - European Rail Transport; SARA - Superfund Amendments and Reauthorization Act; STEL - Short-term Exposure Limit; TCCA – Korea Toxic Chemicals Control Act; TDG - Transportation of Dangerous Goods; TLV - Threshold Limit Value; TSCA - Toxic Substances Control Act; TW – Taiwan; TWA - Time Weighted Average; UEL - Upper Explosive Limit; UN/NA - United Nations /North American; US - United States; VLE - Exposure Limit Value (Mexico); VN NCI (Draft) - Vietnam National Chemicals Inventory (NCI) (Draft); WHMIS - Workplace Hazardous Materials Information System (Canada) .

Other Information

Disclaimer:

Matheson Tri-Gas, Inc. makes no express or implied warranties, guarantees or representations regarding the product or the information herein, including but not limited to any implied warranty or merchantability or fitness for use. Matheson Tri-Gas, Inc. shall not be liable for any personal injury, property or other damages of any nature, whether compensatory, consequential, exemplary, or otherwise, resulting from any publication, use or reliance upon the information herein.

SAFETY DATA SHEET

Helium

Section 1. Identification

GHS product identifier : Helium

Chemical name : Helium

Other means of identification : helium (dot); Helium-4; He; o-Helium; UN 1046

Product use : Synthetic/Analytical chemistry.

Synonym : helium (dot); Helium-4; He; o-Helium; UN 1046

SDS # : 001025

Supplier's details : Airgas USA, LLC and its affiliates
259 North Radnor-Chester Road
Suite 100
Radnor, PA 19087-5283
1-610-687-5253

Emergency telephone number (with hours of operation) : 1-866-734-3438

Section 2. Hazards identification

OSHA/HCS status : This material is considered hazardous by the OSHA Hazard Communication Standard (29 CFR 1910.1200).

Classification of the substance or mixture : GASES UNDER PRESSURE - Compressed gas

GHS label elements

Hazard pictograms :



Signal word : Warning

Hazard statements : Contains gas under pressure; may explode if heated.
May displace oxygen and cause rapid suffocation.

Precautionary statements

General : Read and follow all Safety Data Sheets (SDS'S) before use. Read label before use. Keep out of reach of children. If medical advice is needed, have product container or label at hand. Close valve after each use and when empty. Use equipment rated for cylinder pressure. Do not open valve until connected to equipment prepared for use. Use a back flow preventative device in the piping. Use only equipment of compatible materials of construction.

Prevention : Use and store only outdoors or in a well ventilated place.

Response : Not applicable.

Storage : Protect from sunlight. Protect from sunlight when ambient temperature exceeds 52°C/125°F. Store in a well-ventilated place.

Disposal : Not applicable.

Hazards not otherwise classified : In addition to any other important health or physical hazards, this product may displace oxygen and cause rapid suffocation.

Powered by IHS

Section 3. Composition/information on ingredients

Substance/mixture : Substance

Chemical name : Helium

Other means of identification : helium (dot); Helium-4; He; o-Helium; UN 1046

CAS number/other identifiers

CAS number : 7440-59-7

Product code : 001025

Ingredient name	%	CAS number
Helium	100	7440-59-7

There are no additional ingredients present which, within the current knowledge of the supplier and in the concentrations applicable, are classified as hazardous to health or the environment and hence require reporting in this section.

Occupational exposure limits, if available, are listed in Section 8.

Section 4. First aid measures

Description of necessary first aid measures

Eye contact : Immediately flush eyes with plenty of water, occasionally lifting the upper and lower eyelids. Check for and remove any contact lenses. Continue to rinse for at least 10 minutes. Get medical attention if irritation occurs.

Inhalation : Remove victim to fresh air and keep at rest in a position comfortable for breathing. If not breathing, if breathing is irregular or if respiratory arrest occurs, provide artificial respiration or oxygen by trained personnel. It may be dangerous to the person providing aid to give mouth-to-mouth resuscitation. Get medical attention if adverse health effects persist or are severe. If unconscious, place in recovery position and get medical attention immediately. Maintain an open airway. Loosen tight clothing such as a collar, tie, belt or waistband.

Skin contact : Flush contaminated skin with plenty of water. Remove contaminated clothing and shoes. Get medical attention if symptoms occur. Wash clothing before reuse. Clean shoes thoroughly before reuse.

Ingestion : As this product is a gas, refer to the inhalation section.

Most important symptoms/effects, acute and delayed

Potential acute health effects

Eye contact : Contact with rapidly expanding gas may cause burns or frostbite.

Inhalation : No known significant effects or critical hazards.

Skin contact : Contact with rapidly expanding gas may cause burns or frostbite.

Frostbite : Try to warm up the frozen tissues and seek medical attention.

Ingestion : As this product is a gas, refer to the inhalation section.

Over-exposure signs/symptoms

Eye contact : No specific data.

Inhalation : No specific data.

Skin contact : No specific data.

Ingestion : No specific data.

Indication of immediate medical attention and special treatment needed, if necessary

Notes to physician : Treat symptomatically. Contact poison treatment specialist immediately if large quantities have been ingested or inhaled.

Powered by IHS

Section 4. First aid measures

Specific treatments : No specific treatment.

Protection of first-aiders : No action shall be taken involving any personal risk or without suitable training. It may be dangerous to the person providing aid to give mouth-to-mouth resuscitation.

See toxicological information (Section 11)

Section 5. Fire-fighting measures

Extinguishing media

Suitable extinguishing media : Use an extinguishing agent suitable for the surrounding fire.

Unsuitable extinguishing media : None known.

Specific hazards arising from the chemical : Contains gas under pressure. In a fire or if heated, a pressure increase will occur and the container may burst or explode.

Hazardous thermal decomposition products : No specific data.

Special protective actions for fire-fighters : Promptly isolate the scene by removing all persons from the vicinity of the incident if there is a fire. No action shall be taken involving any personal risk or without suitable training. Contact supplier immediately for specialist advice. Move containers from fire area if this can be done without risk. Use water spray to keep fire-exposed containers cool.

Special protective equipment for fire-fighters : Fire-fighters should wear appropriate protective equipment and self-contained breathing apparatus (SCBA) with a full face-piece operated in positive pressure mode.

Section 6. Accidental release measures

Personal precautions, protective equipment and emergency procedures

For non-emergency personnel : No action shall be taken involving any personal risk or without suitable training. Evacuate surrounding areas. Keep unnecessary and unprotected personnel from entering. Avoid breathing gas. Provide adequate ventilation. Wear appropriate respirator when ventilation is inadequate. Put on appropriate personal protective equipment.

For emergency responders : If specialised clothing is required to deal with the spillage, take note of any information in Section 8 on suitable and unsuitable materials. See also the information in "For non-emergency personnel".

Environmental precautions : Ensure emergency procedures to deal with accidental gas releases are in place to avoid contamination of the environment. Inform the relevant authorities if the product has caused environmental pollution (sewers, waterways, soil or air).

Methods and materials for containment and cleaning up

Small spill : Immediately contact emergency personnel. Stop leak if without risk.

Large spill : Immediately contact emergency personnel. Stop leak if without risk. Note: see Section 1 for emergency contact information and Section 13 for waste disposal.

Powered by IHS

Section 7. Handling and storage

Precautions for safe handling

Protective measures : Put on appropriate personal protective equipment (see Section 8). Contains gas under pressure. Avoid contact with eyes, skin and clothing. Avoid breathing gas. Empty containers retain product residue and can be hazardous. Do not puncture or incinerate container. Use equipment rated for cylinder pressure. Close valve after each use and when empty. Protect cylinders from physical damage; do not drag, roll, slide, or drop. Use a suitable hand truck for cylinder movement.

Advice on general occupational hygiene : Eating, drinking and smoking should be prohibited in areas where this material is handled, stored and processed. Workers should wash hands and face before eating, drinking and smoking. Remove contaminated clothing and protective equipment before entering eating areas. See also Section 8 for additional information on hygiene measures.

Conditions for safe storage, including any incompatibilities : Store in accordance with local regulations. Store in a segregated and approved area. Store away from direct sunlight in a dry, cool and well-ventilated area, away from incompatible materials (see Section 10). Keep container tightly closed and sealed until ready for use. Cylinders should be stored upright, with valve protection cap in place, and firmly secured to prevent falling or being knocked over. Cylinder temperatures should not exceed 52 °C (125 °F).

Section 8. Exposure controls/personal protection

Control parameters

Occupational exposure limits

Ingredient name	Exposure limits
Helium	Oxygen Depletion [Asphyxiant]

Appropriate engineering controls : Good general ventilation should be sufficient to control worker exposure to airborne contaminants.

Environmental exposure controls : Emissions from ventilation or work process equipment should be checked to ensure they comply with the requirements of environmental protection legislation. In some cases, fume scrubbers, filters or engineering modifications to the process equipment will be necessary to reduce emissions to acceptable levels.

Individual protection measures

Hygiene measures : Wash hands, forearms and face thoroughly after handling chemical products, before eating, smoking and using the lavatory and at the end of the working period. Appropriate techniques should be used to remove potentially contaminated clothing. Wash contaminated clothing before reusing. Ensure that eyewash stations and safety showers are close to the workstation location.

Eye/face protection : Safety eyewear complying with an approved standard should be used when a risk assessment indicates this is necessary to avoid exposure to liquid splashes, mists, gases or dusts. If contact is possible, the following protection should be worn, unless the assessment indicates a higher degree of protection: safety glasses with side-shields.

Skin protection

Powered by IHS

Section 8. Exposure controls/personal protection

Hand protection : Chemical-resistant, impervious gloves complying with an approved standard should be worn at all times when handling chemical products if a risk assessment indicates this is necessary. Considering the parameters specified by the glove manufacturer, check during use that the gloves are still retaining their protective properties. It should be noted that the time to breakthrough for any glove material may be different for different glove manufacturers. In the case of mixtures, consisting of several substances, the protection time of the gloves cannot be accurately estimated.

Body protection : Personal protective equipment for the body should be selected based on the task being performed and the risks involved and should be approved by a specialist before handling this product.

Other skin protection : Appropriate footwear and any additional skin protection measures should be selected based on the task being performed and the risks involved and should be approved by a specialist before handling this product.

Respiratory protection : Use a properly fitted, air-purifying or air-fed respirator complying with an approved standard if a risk assessment indicates this is necessary. Respirator selection must be based on known or anticipated exposure levels, the hazards of the product and the safe working limits of the selected respirator.

Section 9. Physical and chemical properties

Appearance

Physical state : Gas. [Compressed gas.]

Color : Colorless.

Molecular weight : 4 g/mole

Molecular formula : He

Boiling/condensation point : -268.9°C (-452°F)

Melting/freezing point : -272.2°C (-458°F)

Critical temperature : -267.9°C (-450.2°F)

Odor : Odorless.

Odor threshold : Not available.

pH : Not available.

Flash point : [Product does not sustain combustion.]

Burning time : Not applicable.

Burning rate : Not applicable.

Evaporation rate : Not available.

Flammability (solid, gas) : Not available.

Lower and upper explosive (flammable) limits : Not available.

Vapor pressure : Not available.

Vapor density : 0.14 (Air = 1) Liquid Density@BP: 7.8 lb/ft3 (125 kg/m3)

Specific Volume (ft ^{3}/lb) : 96.1538

Gas Density (lb/ft ^{3}) : 0.0104

Relative density : Not applicable.

Solubility : Not available.

Solubility in water : Not available.

Partition coefficient: n-octanol/water : 0.28

Auto-ignition temperature : Not available.

Decomposition temperature : Not available.

Powered by IHS

Section 9. Physical and chemical properties

SADT : Not available.

Viscosity : Not applicable.

Section 10. Stability and reactivity

Reactivity : No specific test data related to reactivity available for this product or its ingredients.

Chemical stability : The product is stable.

Possibility of hazardous reactions : Under normal conditions of storage and use, hazardous reactions will not occur.

Conditions to avoid : No specific data.

Hazardous decomposition products : Under normal conditions of storage and use, hazardous decomposition products should not be produced.

Hazardous polymerization : Under normal conditions of storage and use, hazardous polymerization will not occur.

Section 11. Toxicological information

Information on toxicological effects

Acute toxicity

Not available.

Irritation/Corrosion

Not available.

Sensitization

Not available.

Mutagenicity

Not available.

Carcinogenicity

Not available.

Reproductive toxicity

Not available.

Teratogenicity

Not available.

Specific target organ toxicity (single exposure)

Not available.

Specific target organ toxicity (repeated exposure)

Not available.

Aspiration hazard

Not available.

Powered by IHS

Section 11. Toxicological information

Information on the likely routes of exposure : Not available.

Potential acute health effects

Eye contact : Contact with rapidly expanding gas may cause burns or frostbite.

Inhalation : No known significant effects or critical hazards.

Skin contact : Contact with rapidly expanding gas may cause burns or frostbite.

Ingestion : As this product is a gas, refer to the inhalation section.

Symptoms related to the physical, chemical and toxicological characteristics

Eye contact : No specific data.

Inhalation : No specific data.

Skin contact : No specific data.

Ingestion : No specific data.

Delayed and immediate effects and also chronic effects from short and long term exposure

Short term exposure

Potential immediate effects : Not available.

Potential delayed effects : Not available.

Long term exposure

Potential immediate effects : Not available.

Potential delayed effects : Not available.

Potential chronic health effects

Not available.

General : No known significant effects or critical hazards.

Carcinogenicity : No known significant effects or critical hazards.

Mutagenicity : No known significant effects or critical hazards.

Teratogenicity : No known significant effects or critical hazards.

Developmental effects : No known significant effects or critical hazards.

Fertility effects : No known significant effects or critical hazards.

Numerical measures of toxicity

Acute toxicity estimates

Not available.

Section 12. Ecological information

Toxicity

Not available.

Persistence and degradability

Not available.

Powered by IHS

Section 12. Ecological information

Bioaccumulative potential

Product/ingredient name	$LogP_{ow}$	BCF	Potential
Helium	0.28	-	low

Mobility in soil

Soil/water partition coefficient (K_{OC}) : Not available.

Other adverse effects : No known significant effects or critical hazards.

Section 13. Disposal considerations

Disposal methods : The generation of waste should be avoided or minimized wherever possible. Disposal of this product, solutions and any by-products should at all times comply with the requirements of environmental protection and waste disposal legislation and any regional local authority requirements. Dispose of surplus and non-recyclable products via a licensed waste disposal contractor. Waste should not be disposed of untreated to the sewer unless fully compliant with the requirements of all authorities with jurisdiction. Empty Airgas-owned pressure vessels should be returned to Airgas. Waste packaging should be recycled. Incineration or landfill should only be considered when recycling is not feasible. This material and its container must be disposed of in a safe way. Empty containers or liners may retain some product residues. Do not puncture or incinerate container.

Section 14. Transport information

	DOT	TDG	Mexico	IMDG	IATA
UN number	UN1046	UN1046	UN1046	UN1046	UN1046
UN proper shipping name	HELIUM, COMPRESSED	HELIUM, COMPRESSED	HELIUM, COMPRESSED	HELIUM, COMPRESSED	HELIUM, COMPRESSED
Transport hazard class(es)	2.2 	2.2 	2.2 	2.2 	2.2 
Packing group	-	-	-	-	-
Environment	No.	No.	No.	No.	No.
Additional information	**Limited quantity** Yes. **Packaging instruction** **Passenger aircraft** Quantity limitation: 75 kg **Cargo aircraft** Quantity limitation: 150 kg	**Explosive Limit and Limited Quantity Index** 0.125 **Passenger Carrying Road or Rail Index** 75	-	-	**Passenger and Cargo Aircraft**Quantity limitation: 75 kg **Cargo Aircraft Only** Quantity limitation: 150 kg

"Refer to CFR 49 (or authority having jurisdiction) to determine the information required for shipment of the product."

Powered by IHS

Section 14. Transport information

Special precautions for user : **Transport within user's premises:** always transport in closed containers that are upright and secure. Ensure that persons transporting the product know what to do in the event of an accident or spillage.

Transport in bulk according to Annex II of MARPOL 73/78 and the IBC Code : Not available.

Section 15. Regulatory information

U.S. Federal regulations : **TSCA 8(a) CDR Exempt/Partial exemption**: Not determined

United States inventory (TSCA 8b): This material is listed or exempted.

Clean Air Act Section 112 (b) Hazardous Air Pollutants (HAPs) : Not listed

Clean Air Act Section 602 Class I Substances : Not listed

Clean Air Act Section 602 Class II Substances : Not listed

DEA List I Chemicals (Precursor Chemicals) : Not listed

DEA List II Chemicals (Essential Chemicals) : Not listed

SARA 302/304

Composition/information on ingredients

No products were found.

SARA 304 RQ : Not applicable.

SARA 311/312

Classification : Sudden release of pressure

Composition/information on ingredients

Name	%	Fire hazard	Sudden release of pressure	Reactive	Immediate (acute) health hazard	Delayed (chronic) health hazard
Helium	100	No.	Yes.	No.	No.	No.

State regulations

Massachusetts : This material is listed.

New York : This material is not listed.

New Jersey : This material is listed.

Pennsylvania : This material is listed.

Canada inventory : This material is listed or exempted.

International regulations

Powered by IHS

Section 15. Regulatory information

International lists : **Australia inventory (AICS)**: This material is listed or exempted.
China inventory (IECSC): This material is listed or exempted.
Japan inventory: Not determined.
Korea inventory: This material is listed or exempted.
Malaysia Inventory (EHS Register): Not determined.
New Zealand Inventory of Chemicals (NZIoC): This material is listed or exempted.
Philippines inventory (PICCS): This material is listed or exempted.
Taiwan inventory (CSNN): Not determined.

Chemical Weapons Convention List Schedule I Chemicals : Not listed

Chemical Weapons Convention List Schedule II Chemicals : Not listed

Chemical Weapons Convention List Schedule III Chemicals : Not listed

Canada

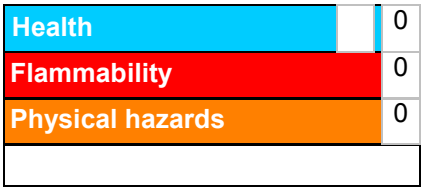
WHMIS (Canada) : Class A: Compressed gas.

CEPA Toxic substances: This material is not listed.
Canadian ARET: This material is not listed.
Canadian NPRI: This material is not listed.
Alberta Designated Substances: This material is not listed.
Ontario Designated Substances: This material is not listed.
Quebec Designated Substances: This material is not listed.

Section 16. Other information

Canada Label requirements : Class A: Compressed gas.

Hazardous Material Information System (U.S.A.)



Caution: HMIS® ratings are based on a 0-4 rating scale, with 0 representing minimal hazards or risks, and 4 representing significant hazards or risks Although HMIS® ratings are not required on SDSs under 29 CFR 1910. 1200, the preparer may choose to provide them. HMIS® ratings are to be used with a fully implemented HMIS® program. HMIS® is a registered mark of the National Paint & Coatings Association (NPCA). HMIS® materials may be purchased exclusively from J. J. Keller (800) 327-6868.

The customer is responsible for determining the PPE code for this material.

National Fire Protection Association (U.S.A.)



Reprinted with permission from NFPA 704-2001, Identification of the Hazards of Materials for Emergency Response Copyright ©1997, National Fire Protection Association, Quincy, MA 02269. This reprinted material is not the complete and official position of the National Fire Protection Association, on the referenced subject which is represented only by the standard in its entirety.

Powered by IHS

Section 16. Other information

Copyright ©2001, National Fire Protection Association, Quincy, MA 02269. This warning system is intended to be interpreted and applied only by properly trained individuals to identify fire, health and reactivity hazards of chemicals. The user is referred to certain limited number of chemicals with recommended classifications in NFPA 49 and NFPA 325, which would be used as a guideline only. Whether the chemicals are classified by NFPA or not, anyone using the 704 systems to classify chemicals does so at their own risk.

History

Date of printing : 10/15/2014.

Date of issue/Date of revision : 10/15/2014.

Date of previous issue : 10/2/2014.

Version : 0.02

Key to abbreviations : ATE = Acute Toxicity Estimate
BCF = Bioconcentration Factor
GHS = Globally Harmonized System of Classification and Labelling of Chemicals
IATA = International Air Transport Association
IBC = Intermediate Bulk Container
IMDG = International Maritime Dangerous Goods
LogPow = logarithm of the octanol/water partition coefficient
MARPOL 73/78 = International Convention for the Prevention of Pollution From Ships, 1973 as modified by the Protocol of 1978. ("Marpol" = marine pollution)
UN = United NationsACGIH – American Conference of Governmental Industrial Hygienists
AIHA – American Industrial Hygiene Association
CAS – Chemical Abstract Services
CEPA – Canadian Environmental Protection Act
CERCLA – Comprehensive Environmental Response, Compensation, and Liability Act (EPA)
CFR – United States Code of Federal Regulations
CPR – Controlled Products Regulations
DSL – Domestic Substances List
GWP – Global Warming Potential
IARC – International Agency for Research on Cancer
ICAO – International Civil Aviation Organisation
Inh – Inhalation
LC – Lethal concentration
LD – Lethal dosage
NDSL – Non-Domestic Substances List
NIOSH – National Institute for Occupational Safety and Health
TDG – Canadian Transportation of Dangerous Goods Act and Regulations
TLV – Threshold Limit Value
TSCA – Toxic Substances Control Act
WEEL – Workplace Environmental Exposure Level
WHMIS – Canadian Workplace Hazardous Material Information System

References : Not available.

Indicates information that has changed from previously issued version.

Notice to reader

To the best of our knowledge, the information contained herein is accurate. However, neither the above-named supplier, nor any of its subsidiaries, assumes any liability whatsoever for the accuracy or completeness of the information contained herein.
Final determination of suitability of any material is the sole responsibility of the user. All materials may present unknown hazards and should be used with caution. Although certain hazards are described herein, we cannot guarantee that these are the only hazards that exist.

Powered by IHS

MATERIAL SAFETY DATA SHEET
HORIBA INSTRUMENTS, INC.
17671 Armstrong Avenue, Irvine, CA 92614
(949) 250-4811

REVISION DATE MAY 2003

SECTION I: MATERIAL IDENTIFICATION

IDENTITY: Potassium hydrogen phthalate
P/N 350623, 527033, 696138-1, 9003001600, 100-4

CHEMICAL FORMULA: $C_6H_4(COOK)(COOH)$ ~1% in water

GENERIC NAME: pH 4 Buffer Solution

CHEMICAL FAMILY: Salt solution

OTHER DESIGNATION: pH 4 Standard Solution, Autocal solution, 100-4

IN CASE OF EMERGENCY CONTACT YOUR REGIONAL PLANT MANAGER

SECTION II: HAZARDOUS INGREDIENTS

Irritant: Eyes, nose and throat, skin.

This product contains the following toxic chemical(s) subject to Section 313 Title III reporting requirements (40 CFR Part 372): NONE

SECTION III: PHYSICAL DATA

MELTING POINT (*): 295-300°C

SPECIFIC GRAVITY (H_2O = 1): 1.636

VAPOR PRESSURE: N/A

PERCENT, VOLATILE BY VOLUME (%): None

SOLUBILITY IN WATER v/v @°C: 1.2% (cool water) CAS #: 877-24-7

APPEARANCE AND ODOR: Colorless liquid

SECTION IV:PHYSICAL DATA

FLASH POINT AND METHOD: N/A

FLAMMABLE LIMITS: None

EXTINGUISHING MEDIA: Determine based on surrounding combustibles.

SPECIAL FIRE FIGHTING PROCEDURES: None

UNUSUAL FIRE AND EXPLOSION HAZARDS: N/A

SECTION V: REACTIVITY DATA

STABILITY: Stable at normal temperature

INCOMPATIBILITY (MATERIALS TO AVOID): None

HAZARDOUS DECOMPOSITION PRODUCTS: None

HAZARDOUS POLYMERIZATION: None

SECTION VI: HEALTH HAZARD DATA

EMERGENCY AND FIRST AID PROCEDURES:

Eyes:	Wash eyes with clean water flowing for 10-15 minutes. Call doctor immediately.
Skin:	Take off contaminated clothing and wash skin with water.
Inhaled:	Move the patient into clear air. Keep patient warm and stable. Loosen clothing and use artificial respiration if necessary. Call doctor immediately.
Swallowed:	Give patient plenty of warm water/milk. Induce vomiting. Call doctor immediately. If patient is unconscious, do not give water/milk, but call doctor immediately.

SECTION VII: SPILL OR LEAK PROCEDURES

Highway or railway spills call Chemtrec (800) 424-9300

STEPS TO BE TAKEN IN CASE MATERIAL IS RELEASED OR SPILLED:
Collect as much material as possible. The place of leakage should be washed with plenty of water.

WASTE DISPOSAL METHOD:
Dispose as chemical waste.

SECTION VIII: SPECIAL PROTECTION INFORMATION

RESPIRATORY PROTECTION (SPECIFY TYPE):	Not normally required.
VENTILATION:	Not normally required.
OTHER PROTECTIVE EQUIPMENT:	Optional - eye mask, gloves and long-sleeve working clothes.

SECTION IX:SPECIAL PRECAUTIONS

PRECAUTIONS TO BE TAKEN IN HANDLING AND STORING:
After working, wash hands thoroughly.

OTHER PRECAUTIONS: None.

Safety Data Sheet

20ppm Hydrogen Sulfide, 60ppm Carbon Monoxide, 58% LEL Pentane Simulant, 15% VOL Oxygen; balance Nitrogen

Ideal Calibrations, LLC
2750 Oakwood Blvd.
Melvindale, MI 48122
(734) 956-0539
http://www.idealcalibrations.com/

Section 1: Product and Company Identification

Ideal Calibrations, LLC
2750 Oakwood Blvd.
Melvindale, MI 48122
(734) 956-0539
http://www.idealcalibrations.com/

Product Code: 20ppm Hydrogen Sulfide, 60ppm Carbon Monoxide, 58% LEL Pentane Simulant, 15% VOL Oxygen; balance Nitrogen
Part Number: 0219

Synonyms:
Recommended Use: Calibration of gas detection devices
Usage Restrictions: Do not use if current date is past expiration date on cylinder

Section 2: Hazards Identification



Warning

Hazard Classification:
Gases Under Pressure

Hazard Statements:
Contains gas under pressure; may explode if heated
Toxic to aquatic life

Precautionary Statements

Storage:
Protect from sunlight.
Store in well-ventilated place.

Generated by the SDS Manager from AsteRisk, LLC. All Rights Reserved

Section 3: Composition/Information on Ingredients

	CAS #	Concentration
Hydrogen Sulfide	7783-06-4	0.002
Carbon Monoxide	630-08-0	0.006
Methane	74-82-8	1.45
Oxygen	7782-44-7	15
Nitrogen	7727-37-9	83.542

	Chemical Substance	Chemical Family	Trade Names
Hydrogen Sulfide	HYDROGEN SULFIDE	Inorganic gases	HYDROGEN SULFIDE (H2S); DIHYDROGEN MONOSULFIDE; DIHYDROGEN SULFIDE; HYDROSULFURIC ACID; SULFUR DIHYDRIDE; SULFURETED HYDROGEN; SULFUR HYDRIDE; STINK DAMP; SEWER GAS; RCRA U135; UN 1053; H2S
Carbon Monoxide	CARBON MONOXIDE	Inorganic gases	CARBON OXIDE; CARBON OXIDE (CO); UN 1016; CO
Methane	METHANE, COMPRESSED GAS	Hydrocarbons, Aliphatic, Saturated	FIRE DAMP; MARSH GAS; METHYL HYDRIDE; NATURAL GAS; METHANE; UN 1971; R50; CH4
Oxygen	OXYGEN, COMPRESSED GAS	Inorganic gases	OXYGEN; DIOXYGEN; MOLECULAR OXYGEN; OXYGEN MOLECULE; PURE OXYGEN; UN 1072; O2
Nitrogen	NITROGEN, COMPRESSED GAS	Inorganic gases	DIATOMIC NITROGEN; DINITROGEN; NITROGEN; NITROGEN-14; NITROGEN GAS; UN 1066; N2

Section 4: First Aid Measures

	Skin Contact	Eye Contact	Ingestion	Inhalation	Note to Physicians
Hydrogen Sulfide	Wash skin with soap and water for at least 15 minutes while removing contaminated clothing and shoes. Get medical attention, if needed. Thoroughly clean and dry contaminated clothing and shoes before reuse.	Flush eyes with plenty of water for at least 15 minutes. Then get immediate medical attention.	If a large amount is swallowed, get medical attention.	If adverse effects occur, remove to uncontaminated area. Give artificial respiration if not breathing. If breathing is difficult, oxygen should be administered by qualified personnel. Get immediate medical attention.	For inhalation, consider oxygen.
Carbon Monoxide	Wash skin with soap and water for at least 15 minutes while removing contaminated clothing and shoes. Get medical attention, if needed. Thoroughly clean and dry contaminated clothing and shoes before reuse.	Flush eyes with plenty of water for at least 15 minutes. Then get immediate medical attention.	If a large amount is swallowed, get medical attention.	If adverse effects occur, remove to uncontaminated area. Give artificial respiration if not breathing. If breathing is difficult, oxygen should be administered by qualified personnel. Get immediate medical attention.	For inhalation, consider oxygen.
Methane	Wash exposed skin with soap and water.	Flush eyes with plenty of water.	If a large amount is swallowed, get medical attention.	If adverse effects occur, remove to uncontaminated area. Give artificial respiration if not breathing. If breathing is difficult, oxygen should be administered by qualified personnel. Get immediate medical attention.	For inhalation, consider oxygen.
Oxygen	None expected	None expected	Not likely route of exposure	If adverse effects occur, remove to uncontaminated area. Give artificial respiration if not breathing. Get immediate medical attention.	None

Generated by the SDS Manager from AsteRisk, LLC. All Rights Reserved

	Skin Contact	Eye Contact	Ingestion	Inhalation	Note to Physicians
Nitrogen	Wash exposed skin with soap and water.	Flush eyes with plenty of water.	If a large amount is swallowed, get medical attention.	If adverse effects occur, remove to uncontaminated area. Give artificial respiration if not breathing. If breathing is difficult, oxygen should be administered by qualified personnel. Get immediate medical attention.	For inhalation, consider oxygen.

Section 5: Fire Fighting Measures

	Suitable Extinguishing Media	Products of Combustion	Protection of Firefighters
Hydrogen Sulfide	Let burn unless leak can be stopped immediately. Large fires: Use regular foam or flood with fine water spray.	Sulfur oxides	▪ Any self-contained breathing apparatus with a full facepiece. ▪ Protective material types: butyl rubber, polyvinyl chloride (PVC), neoprene
Carbon Monoxide	Carbon dioxide, regular dry chemical Large fires: Use regular foam or flood with fine water spray.	Carbon dioxide	▪ Any supplied-air respirator with full facepiece and operated in a pressure-demand or other positive-pressure mode in combination with a separate escape supply. ▪ Any supplied-air respirator with full facepiece and operated in a pressure-demand or other positive-pressure mode in combination with a separate escape supply.
Methane	Carbon dioxide, regular dry chemical Large fires: Use regular foam or flood with fine water spray.	Carbon monoxide, carbon dioxide, water	▪ Respiratory protection may be needed for frequent or heavy exposure. Any self-contained breathing apparatus with a full facepiece. ▪ Respiratory protection may be needed for frequent or heavy exposure. Any self-contained breathing apparatus with a full facepiece.
Oxygen	Non-flammable. Use extinguishing agent appropriate for the material which is burning. Use water in large quantities for fires involving oxygen.	Oxides of burning material	▪ Respiratory protection may be needed for frequent or heavy exposure. ▪ None
Nitrogen	Non-flammable. Use suitable extinguishing media for surrounding fire. Cylinders may rupture or explode if exposed to heat.	Non-flammable	▪ Respiratory protection may be needed for frequent or heavy exposure.

Section 6: Accidental Release Measures

	Personal Precautions	Environmental Precautions	Methods for Containment
Hydrogen Sulfide	Keep unnecessary people away, isolate hazard area and deny entry. Stay upwind and keep out of low areas. Ventilate closed spaces before entering. Evacuation radius: 150 feet. For tank, rail car or tank truck: 800 meters (1/2 mile). Do not touch spilled material.	Avoid heat, flames, sparks and other sources of ignition.	Stop leak if possible without personal risk. Remove sources of ignition. Reduce vapors with water spray. Do not get water directly on material.
Carbon Monoxide	Keep unnecessary people away, isolate hazard area and deny entry. Ventilate closed spaces before entering.	Avoid heat, flames, sparks and other sources of ignition. Keep out of water supplies and sewers.	Stop leak if possible without personal risk. Reduce vapors with water spray. Remove sources of ignition.
Methane	Keep unnecessary people away, isolate hazard area and deny entry. Ventilate closed spaces before entering.	Avoid heat, flames, sparks and other sources of ignition.	Stop leak if possible without personal risk. Reduce vapors with water spray. Remove sources of ignition.
Oxygen	Keep unnecessary people away, isolate hazard area and deny entry. Ventilate closed spaces before entering.	Avoid contact with combustible materials.	Stop leak if possible without personal risk.
Nitrogen	Keep unnecessary people away, isolate hazard area and deny entry. Stay upwind and keep out of low areas.	No significant effects from contamination expected.	Stop leak if possible without personal risk.

	Methods for Cleanup	Other Information

Generated by the SDS Manager from AsteRisk, LLC. All Rights Reserved

	Methods for Cleanup	Other Information
Hydrogen Sulfide	Collect runoff for disposal as potential hazardous waste. Dike for later disposal. Absorb with sand or other non-combustible material. Add an alkaline material (lime, crushed limestone, sodium bicarbonate, or soda ash).	Notify Local Emergency Planning Committee and State Emergency Response Commission for release greater than or equal to RQ (U.S. SARA Section 304). If release occurs in the U.S. and is reportable under CERCLA Section 103, notify the National Response Center at (800)424-8802 (USA) or (202)426-2675 (USA).
Carbon Monoxide	Stop leak, evacuate area. Wear protective equipment.	Subject to California Safe Drinking Water and Toxic Enforcement Act of 1986 (Proposition 65).
Methane	Not available	Not available
Oxygen	Stop leak and ventilate	None
Nitrogen	N/A	N/A

Section 7: Handling and Storage

	Handling	Storage
Hydrogen Sulfide	Store and handle in accordance with all current regulations and standards. Protect from physical damage. Store outside or in a detached building. Store in a cool, dry place. Store in a well-ventilated area. Avoid contact with light. Grounding and bonding required. Subject to storage regulations: U.S. OSHA 29 CFR 1910.101. Notify State Emergency Response Commission for storage or use at amounts greater than or equal to the TPQ (U.S. EPA SARA Section 302). SARA Section 303 requires facilities storing a material with a TPQ to participate in local emergency response planning (U.S. EPA 40 CFR 355.30). Keep separated from incompatible substances.	Subject to handling regulations: U.S. OSHA 29 CFR 1910.119.
Carbon Monoxide	Keep separated from incompatible substances.	Store and handle in accordance with all current regulations and standards. Grounding and bonding required. Subject to storage regulations: U.S. OSHA 29 CFR 1910.101.
Methane	Store and handle in accordance with all current regulations and standards. Grounding and bonding required. Subject to storage regulations: U.S. OSHA 29 CFR 1910.101.	Keep separated from incompatible substances.
Oxygen	Store and handle in accordance with all current regulations and standards. Subject to storage regulations: U.S. OSHA 29 CFR 1910.101.	Keep separated from incompatible substances.
Nitrogen	Store and handle in accordance with all current regulations and standards. Subject to storage regulations: U.S. OSHA 29 CFR 1910.101.	Keep separated from incompatible substances.

Section 8: Exposure Controls/Personal Protection

	Exposure Guidelines
Hydrogen Sulfide	HYDROGEN SULFIDE: 20 ppm OSHA ceiling 50 ppm OSHA peak 10 minute(s) (once if no other measurable exposure occurs) 10 ppm (14 mg/m3) OSHA TWA (vacated by 58 FR 35338, June 30, 1993) 15 ppm (21 mg/m3) OSHA STEL (vacated by 58 FR 35338, June 30, 1993) 10 ppm ACGIH TWA 15 ppm ACGIH STEL 10 ppm (15 mg/m3) NIOSH recommended ceiling 10 minute(s) TLV-TWA: 1ppm Upper respiratory irritation (ACGIH)
Carbon Monoxide	CARBON MONOXIDE: 50 ppm (55 mg/m3) OSHA TWA 35 ppm (40 mg/m3) OSHA TWA (vacated by 58 FR 35338, June 30, 1993) 200 ppm (229 mg/m3) OSHA ceiling (vacated by 58 FR 35338, June 30, 1993) 25 ppm ACGIH TWA 35 ppm (40 mg/m3) NIOSH recommended TWA 10 hour(s) 200 ppm (229 mg/m3) NIOSH recommended ceiling
Methane	METHANE, COMPRESSED GAS: ALIPHATIC HYDROCARBON GASES ALKANE (C1-C4): 1000 ppm ACGIH TWA METHANE: No occupational exposure limits established. ALIPHATIC HYDROCARBON GASES ALKANE (C1-C4): 1000 ppm ACGIH TWA
Oxygen	OXYGEN, COMPRESSED GAS: No occupational exposure limits established.
Nitrogen	NITROGEN, COMPRESSED GAS: NITROGEN: ACGIH (simple asphyxiant)

Engineering Controls

Handle only in fully enclosed systems.

	Eye Protection	Skin Protection	Respiratory Protection
Hydrogen Sulfide	Wear splash resistant safety goggles with a face shield. Provide an emergency eye wash fountain and quick drench shower in the immediate work area.	Wear appropriate chemical resistant clothing.	Any self-contained breathing apparatus with a full facepiece.
Carbon Monoxide	Eye protection not required, but recommended.	Protective clothing is not required.	Any supplied-air respirator with full facepiece and operated in a pressure-demand or other positive-pressure mode in combination with a separate escape supply.

Generated by the SDS Manager from AsteRisk, LLC. All Rights Reserved

	Eye Protection	Skin Protection	Respiratory Protection
Methane	Eye protection not required, but recommended.	Protective clothing is not required.	Respiratory protection may be needed for frequent or heavy exposure. Any self-contained breathing apparatus with a full facepiece.
Oxygen	Eye protection not required, but recommended.	Protective clothing is not required.	Respiratory protection may be needed for frequent or heavy exposure.
Nitrogen	Eye protection not required, but recommended.	Protective clothing is not required.	Respiratory protection may be needed for frequent or heavy exposure.

General Hygiene considerations

- Avoid breathing vapor or mist
- Avoid contact with eyes and skin
- Wash thoroughly after handling and before eating or drinking

Section 9: Physical and Chemical Properties

	Physical State	Appearance	Color	Change in Appearance	Physical Form	Odor	Taste
Hydrogen Sulfide	Gas	Colorless	Colorless	N/A	Gas	Rotten egg odor	N/A
Carbon Monoxide	Gas	Colorless	Colorless	N/A	Gas	Odorless	Tasteless
Methane	Gas	Colorless	Colorless	N/A	Gas	Odorless	Tasteless
Oxygen	Gas	Clear	Colorless	N/A	Gas	Odorless	Tasteless
Nitrogen	Gas	Clear	Colorless	N/A	Gas	Odorless	Tasteless

	Flash Point	Flammability	Partition Coefficient	Autoignition Temperature	Upper Explosive Limits	Lower Explosive Limits
Hydrogen Sulfide	Flammable	Not available	Not available	500 F (260 C)	45.5%	3.9%
Carbon Monoxide	Flammable	Not available	1479.11 (log = 3.17) (estimated from water solubility)	1128-1202 F (609-650 C)	0.74	12.0-12.5%
Methane	-369 F (-223 C)	Not available	724.44 (log = 2.87) (estimated from water solubility)	999 F (537 C)	15%	5%
Oxygen	Not flammable	Not available	Not available	Nonflammable	Nonflammable	Nonflammable
Nitrogen	Not flammable	Not available	Not available	Nonflammable	Nonflammable	Nonflammable

	Boiling Point	Freezing Point	Vapor Pressure	Vapor Density	Specific Gravity	Water Solubility	pH	Odor Threshold	Evaporation Rate	Viscosity
Hydrogen Sulfide	-78 to -77 F (-61 to -60.3 C)	-123 F (-86 C)	15200 mmHg @ 25 C	1.2 (Air=1)	1.192	2.58-2.9% @ 20 C	4.5-<7 (saturated solution)	0.13 ppm	Not applicable	0.0128 cP @ 25 C
Carbon Monoxide	-312.7 F (-191.5 C)	-326 F (-199 C)	760 mmHg @ -191 C gas; cannot be liquefied at room temperature	0.968 (Air=1)	Not applicable	2.3% @ 20 C	Not applicable	Not available	Not applicable	0.01657 cP @ 0 C
Methane	-260 F (-162 C)	-297 F (-183 C)	760 mmHg @ -161 C	0.555 (Air=1)	Not applicable	3.5% @ 17 C	Not applicable	Not available	Not applicable	0.01118 cP @ 27 C
Oxygen	-297 F (-183 C)	-360 F (-218 C)	760 mmHg @ -183 C	1.1 (Air=1)	Not applicable	3.2% @ 25 C	Not applicable	Not available	Not applicable	0.02075 cP @ 25 C
Nitrogen	-321 F (-196 C)	-346 F (-210 C)	760 mmHg @ -196 C	0.967 (Air=1)	Not applicable	1.6% @ 20 C	Not applicable	Not available	Not applicable	0.01787 cP @ 27 C

	Molecular Weight	Molecular Formula	Density	Weight per Gallon	Volatility by Volume	Volatility	Solvent Solubility

Generated by the SDS Manager from AsteRisk, LLC. All Rights Reserved

	Molecular Weight	Molecular Formula	Density	Weight per Gallon	Volatility by Volume	Volatility	Solvent Solubility
Hydrogen Sulfide	34.08	H2-S	1.539 g/L @ 0 C	Not available	Not available	Not applicable	Soluble: Carbon disulfide, alcohol, ether, glycerol, gasolines, kerosene, crude oil, alkali solutions
Carbon Monoxide	28.01	C-O	1.250 g/L @ 0 C	Not available	100%	Not applicable	Soluble: Alcohol, benzene, acetic acid, ethyl acetate, chloroform, cuprous chloride solutions
Methane	16.04	C-H4	0.717 g/L @ 0 C	Not available	Not applicable	Not applicable	Soluble: Alcohol, ether, benzene, organic solvents
Oxygen	31.9988	O2	1.309 g/L @ 25 C	Not available	Not applicable	Not applicable	Soluble: Alcohol
Nitrogen	28.0134	N2	1.2506 g/L	Not available	100%	1	Soluble: Liquid ammonia

Section 10: Stability and Reactivity

	Stability	Conditions to Avoid	Incompatible Materials
Hydrogen Sulfide	Stable at normal temperatures and pressure.	Stable at normal temperatures and pressure.	Combustible materials, metals, oxidizing materials, halogens, metal oxides, metal salts, bases, rust, oxidants, oxygen, copper powder, acetaldehyde, silver fulminate
Carbon Monoxide	Stable at normal temperatures and pressure.	Stable at normal temperatures and pressure.	Oxidizing materials, halogens, metal oxides, metals, combustible materials, lithium
Methane	Stable at normal temperatures and pressure.	Stable at normal temperatures and pressure.	Halogens, oxidizing materials, combustible materials
Oxygen	Stable at normal temperatures and pressure.	Stable at normal temperatures and pressure.	Combustible materials, halo carbons, metals, bases, reducing agents, amines, metal salts, oxidizing materials, alkaline earth and alkali metals
Nitrogen	Stable at normal temperatures and pressure.	Stable at normal temperatures and pressure.	Metals, oxidizing materials

	Hazardous Decomposition Products	Possibility of Hazardous Reactions
Hydrogen Sulfide	Oxides of sulfur	Will not polymerize.
Carbon Monoxide	Oxides of carbon	Will not polymerize.
Methane	Oxides of carbon	Will not polymerize.
Oxygen	Miscellaneous decomposition products	Will not polymerize.
Nitrogen	Oxides of nitrogen	Will not polymerize.

Section 11: Toxicology Information

Acute Effects

	Oral LD50	Dermal LD50	Inhalation
Hydrogen Sulfide	444 ppm inhalation-rat LC50	Irritation 0.000125 ppm/5 hour(s) eyes-human	Irritation, lack of sense of smell, sensitivity to light, nausea, vomiting, difficulty breathing, headache, drowsiness, dizziness, disorientation, tremors, visual disturbances, suffocation, lung congestion, internal bleeding, heart damage, nerve damage, brain damage, coma, death
Carbon Monoxide	LC50 Inhalation Gas. Rat 1807 ppm 4 hours	Not available	Changes in body temperature, changes in blood pressure, nausea, vomiting, chest pain, difficulty breathing, irregular heartbeat, headache, drowsiness, dizziness, disorientation, hallucinations, pain in extremities, tremors, loss of coordination, hearing loss, visual disturbances, eye damage, suffocation, blood disorders, convulsions, coma
Methane	Not available	Not available	Nausea, vomiting, difficulty breathing, irregular heartbeat, headache, drowsiness, fatigue, dizziness, disorientation, mood swings, tingling sensation, loss of coordination, suffocation, convulsions, unconsciousness, coma
Oxygen	Not established	Not established	Irritation, changes in body temperature, nausea, difficulty breathing, irregular heartbeat, dizziness, disorientation, hallucinations, mood swings, pain in extremities, tremors, lung congestion, convulsions
Nitrogen	Not available	Not available	Nausea, vomiting, difficulty breathing, headache, drowsiness, dizziness, tingling sensation, loss of coordination, convulsions, coma

Generated by the SDS Manager from AsteRisk, LLC. All Rights Reserved

	Eye Irritation	Skin Irritation	Sensitization
Hydrogen Sulfide	Irritation, sensitivity to light, visual disturbances	Irritation liquid: frostbite	Acute toxicity, Category 2, inhalation; H330: Fatal if inhaled. Specific Target Organ Toxicity (single exposure), Category 3; H335: May cause respiratory irritation. Hazardous to the aquatic environment, Acute Category 1; H400: Very toxic to aquatic life
Carbon Monoxide	No information on significant adverse effects	No information on significant adverse effects	Acute toxicity, Category 3, inhalation; H331: Toxic if inhaled. Reproductive toxicity, Category 1A; H360D: May damage the unborn child. Specific Target Organ Toxicity (repeated exposure), Category 1; H372: Causes damage to organs through prolonged or repeated exposure.
Methane	No information on significant adverse effects	No information on significant adverse effects	Difficulty breathing
Oxygen	No information on significant adverse effects	No information on significant adverse effects	No significant target effects reported.
Nitrogen	Contact with rapidly expanding gas may cause burns or frostbite	No information on significant adverse effects	Difficulty breathing

Chronic Effects

	Carcinogenicity	Mutagenicity	Reproductive Effects	Developmental Effects
Hydrogen Sulfide	Not available	Not available	Available.	No data
Carbon Monoxide	Not available	Available.	Available.	No data
Methane	Not available	Not available	Not available	No data
Oxygen	Not known.	Available.	Available.	No data
Nitrogen	Not hazardous	Not available	Not available	No data

Section 12: Ecological Information

Fate and Transport

	Eco toxicity	Persistence / Degradability	Bioaccumulation / Accumulation	Mobility in Environment
Hydrogen Sulfide	Fish toxicity: Acute LC50 7 ug/L Fresh water Fish - Fathead minnow - Pimephales promelas - FRY 96 hours; 14.9 ug/L 96 hour(s) LC50 (Mortality) Fathead minnow (Pimeph Invertibrate toxicity: 9730 ug/L 1.5 hour(s) (Mortality) Mediterranean mussel (Mytilus galloprovincialis) Algal toxicity: Not available Phyto toxicity: Not available Other toxicity: Not available	Highly toxic to aquatic life.	Not available	Not available
Carbon Monoxide	Fish toxicity: 75000 ug/L 1 day(s) LC100 (Mortality) Orangespotted sunfish (Lepomis humilis) Invertibrate toxicity: Not available Algal toxicity: Not available Phyto toxicity: Not available Other toxicity: Not available	Relatively non-persistent in the environment. Highly volatile from water.	Not available	Not expected to leach through the soil or the sediment.
Methane	Fish toxicity: Not available Invertibrate toxicity: Not available Algal toxicity: Not available Phyto toxicity: Not available Other toxicity: Not available	Relatively non-persistent in the environment. Moderately volatile from water.	Accumulates very little in the bodies of living organisms.	Not expected to leach through the soil or the sediment.
Oxygen	Fish toxicity: Not available Invertibrate toxicity: Not available Algal toxicity: Not available Phyto toxicity: Not available Other toxicity: Not available	Not available	Low bioaccumulation	Not available
Nitrogen	Fish toxicity: Not available Invertibrate toxicity: Not available Algal toxicity: Not available Phyto toxicity: Not available Other toxicity: Not available	Not available	Not available	Not available

Generated by the SDS Manager from AsteRisk, LLC. All Rights Reserved

Section 13: Disposal Considerations

Hydrogen Sulfide	Dispose in accordance with all applicable regulations. Subject to disposal regulations: U.S. EPA 40 CFR 262. Hazardous Waste Number(s): U135.
Carbon Monoxide	Dispose in accordance with all applicable regulations. Subject to disposal regulations: U.S. EPA 40 CFR 262. Hazardous Waste Number(s): D001.
Methane	Dispose in accordance with all applicable regulations. Subject to disposal regulations: U.S. EPA 40 CFR 262. Hazardous Waste Number(s): D001.
Oxygen	Dispose in accordance with all applicable regulations. Subject to disposal regulations: U.S. EPA 40 CFR 262. Hazardous Waste Number(s): D001.
Nitrogen	Dispose in accordance with all applicable regulations.

Section 14: Transportation Information

U.S. DOT 49 CFR 172.101

DOT Information For This Mixture

Shipping Name	Compressed gas, n.o.s. (Nitrogen, Oxygen)
UN Number	UN1956
Hazard Class	2.2
Hazard Information	Non-Flammable Gas

Individual Component Information

	Proper Shipping Name	ID Number	Hazard Class or Division	Packing Group	Labeling Requirements	Passenger Aircraft or Railcar Quantity Limitations	Cargo Aircraft Only Quantity Limitations	Additional Shipping Description
Hydrogen Sulfide	Hydrogen sulfide	UN1053	2.3	Not applicable	2.3; 2.1	Forbidden	Forbidden	Toxic-Inhalation Hazard Zone B
Carbon Monoxide	Carbon monoxide, compressed	UN1016	2.3	Not applicable	2.3; 2.1	Forbidden	25 kg	Toxic-Inhalation Hazard Zone D
Methane	Methane, compressed	UN1971	2.1	Not applicable	2.1	Forbidden	150 kg	N/A
Oxygen	Oxygen, compressed	UN1072	2.2	Not available	2.2; 5.1	75 kg or L	150 kg	N/A
Nitrogen	Nitrogen, compressed	UN1066	2.2	Not applicable	2.2	75 kg or L	150 kg	N/A

Canadian Transportation of Dangerous Goods

	Shipping Name	UN Number	Class	Packing Group / Risk Group
Hydrogen Sulfide	HYDROGEN SULFIDE; or HYDROGEN SULPHIDE	UN1053	2.3; 2.1	Not applicable
Carbon Monoxide	Carbon monoxide, compressed	UN1016	2.3; 2.1	Not applicable
Methane	Methane, compressed	UN1971	2.1	Not applicable
Oxygen	Oxygen, compressed	UN1072	2.2; 5.1	Not applicable
Nitrogen	Nitrogen, compressed	UN1066	2.2	Not applicable

Section 15: Regulatory Information

U.S. Regulations

	CERCLA Sections	SARA 355.30	SARA 355.40
Hydrogen Sulfide	100 LBS RQ	500 LBS TPQ	100 LBS RQ
Carbon Monoxide	Not regulated.	Not regulated.	Not regulated.
Methane	Not regulated.	Not regulated.	Not regulated.
Oxygen	Not regulated.	Not regulated.	Not regulated.

Generated by the SDS Manager from AsteRisk, LLC. All Rights Reserved

Nitrogen	Not regulated.	Not regulated.	Not regulated.

SARA 370.21

	Acute	Chronic	Fire	Reactive	Sudden Release
Hydrogen Sulfide	Yes	No	Yes	No	Yes
Carbon Monoxide	Yes	No	Yes	No	Yes
Methane	Yes	No	Yes	No	Yes
Oxygen	No	No	Yes	No	Yes
Nitrogen	Yes	No	No	No	Yes

SARA 372.65

Hydrogen Sulfide	HYDROGEN SULFIDE: Administrative stay issued Aug. 22, 1994
Carbon Monoxide	Not regulated.
Methane	Not regulated.
Oxygen	Not regulated.
Nitrogen	Not regulated.

OSHA Process Safety

Hydrogen Sulfide	1500 LBS TQ
Carbon Monoxide	Not regulated.
Methane	Not regulated.
Oxygen	Not regulated.
Nitrogen	Not regulated.

State Regulations

	CA Proposition 65
Hydrogen Sulfide	Not regulated.
Carbon Monoxide	WARNING: This product can expose you to chemicals including Carbon Monoxide, which is known to the State of California to cause birth defects or other reproductive harm. For more information go to www.P65Warnings.ca.gov.
Methane	Not regulated.
Oxygen	Not regulated.
Nitrogen	Not regulated.

Canadian Regulations

	WHMIS Classification
Hydrogen Sulfide	A, B1, D1A, D2B.
Carbon Monoxide	A, B1, D1A, D2A.
Methane	A, B1
Oxygen	A,C
Nitrogen	A

National Inventory Status

	US Inventory (TSCA)	TSCA 12b Export Notification	Canada Inventory (DSL/NDSL)
Hydrogen Sulfide	Listed on inventory.	Not listed.	Listed on inventory.
Carbon Monoxide	Listed on inventory.	Not listed.	Listed on inventory.
Methane	Listed on inventory.	Not listed.	Listed on inventory.
Oxygen	Listed on inventory.	Not listed.	Not determined.
Nitrogen	Listed on inventory.	Not listed.	Listed on inventory.

Section 16: Other Information

	NFPA Rating
Hydrogen Sulfide	HEALTH=4 FIRE=4 REACTIVITY=0
Carbon Monoxide	HEALTH=2 FIRE=4 REACTIVITY=0
Methane	HEALTH=0 FIRE=4 REACTIVITY=0
Oxygen	HEALTH=0 FIRE=0 REACTIVITY=0 SPECIAL=OX
Nitrogen	HEALTH=0 FIRE=0 REACTIVITY=0 SPECIAL=SA

0 = minimal hazard, 1 = slight hazard, 2 = moderate hazard, 3 = severe hazard, 4 = extreme hazard

Generated by the SDS Manager from AsteRisk, LLC. All Rights Reserved

Safety Data Sheet

20ppm Hydrogen Sulfide, 60ppm Carbon Monoxide, 58% LEL Pentane Simulant, 15.0% VOL Oxygen, 2.5% VOL Carbon Dioxide; balance Nitrogen

Ideal Calibrations, LLC
2750 Oakwood Blvd.
Melvindale, MI 48122
(734) 956-0539
http://www.idealcalibrations.com/

Section 1: Product and Company Identification

Ideal Calibrations, LLC
2750 Oakwood Blvd.
Melvindale, MI 48122
(734) 956-0539
http://www.idealcalibrations.com/

Product Code: 20ppm Hydrogen Sulfide, 60ppm Carbon Monoxide, 58% LEL Pentane Simulant, 15.0% VOL Oxygen, 2.5% VOL Carbon Dioxide; balance Nitrogen
Part Number: 0522

Synonyms:
Recommended Use: Calibration of gas detection devices
Usage Restrictions: Do not use if current date is past expiration date on cylinder

Section 2: Hazards Identification



Warning

Hazard Classification:
Gases Under Pressure

Hazard Statements:
Contains gas under pressure; may explode if heated
Toxic to aquatic life

Precautionary Statements

Storage:
Protect from sunlight.
Store in well-ventilated place.

Generated by the SDS Manager from AsteRisk, LLC. All Rights Reserved

Section 3: Composition/Information on Ingredients

	CAS #	Concentration
Hydrogen Sulfide	7783-06-4	0.002
Carbon Monoxide	630-08-0	0.006
Methane	74-82-8	1.45
Oxygen	7782-44-7	15
Carbon Dioxide	124-38-9	2.5
Nitrogen	7727-37-9	81.042

	Chemical Substance	Chemical Family	Trade Names
Hydrogen Sulfide	HYDROGEN SULFIDE	Inorganic gases	HYDROGEN SULFIDE (H2S); DIHYDROGEN MONOSULFIDE; DIHYDROGEN SULFIDE; HYDROSULFURIC ACID; SULFUR DIHYDRIDE; SULFURETED HYDROGEN; SULFUR HYDRIDE; STINK DAMP; SEWER GAS; RCRA U135; UN 1053; H2S
Carbon Monoxide	CARBON MONOXIDE	Inorganic gases	CARBON OXIDE; CARBON OXIDE (CO); UN 1016; CO
Methane	METHANE, COMPRESSED GAS	Hydrocarbons, Aliphatic, Saturated	FIRE DAMP; MARSH GAS; METHYL HYDRIDE; NATURAL GAS; METHANE; UN 1971; R50; CH4
Oxygen	OXYGEN, COMPRESSED GAS	Inorganic gases	OXYGEN; DIOXYGEN; MOLECULAR OXYGEN; OXYGEN MOLECULE; PURE OXYGEN; UN 1072; O2
Carbon Dioxide	CARBON DIOXIDE, GAS	Inorganic gases	CARBONIC ACID GAS; CARBONIC ANHYDRIDE; CARBON DIOXIDE; CARBON OXIDE; UN 1013; CO2
Nitrogen	NITROGEN, COMPRESSED GAS	Inorganic gases	DIATOMIC NITROGEN; DINITROGEN; NITROGEN; NITROGEN-14; NITROGEN GAS; UN 1066; N2

Section 4: First Aid Measures

	Skin Contact	Eye Contact	Ingestion	Inhalation	Note to Physicians
Hydrogen Sulfide	Wash skin with soap and water for at least 15 minutes while removing contaminated clothing and shoes. Get medical attention, if needed. Thoroughly clean and dry contaminated clothing and shoes before reuse.	Flush eyes with plenty of water for at least 15 minutes. Then get immediate medical attention.	If a large amount is swallowed, get medical attention.	If adverse effects occur, remove to uncontaminated area. Give artificial respiration if not breathing. If breathing is difficult, oxygen should be administered by qualified personnel. Get immediate medical attention.	For inhalation, consider oxygen.
Carbon Monoxide	Wash skin with soap and water for at least 15 minutes while removing contaminated clothing and shoes. Get medical attention, if needed. Thoroughly clean and dry contaminated clothing and shoes before reuse.	Flush eyes with plenty of water for at least 15 minutes. Then get immediate medical attention.	If a large amount is swallowed, get medical attention.	If adverse effects occur, remove to uncontaminated area. Give artificial respiration if not breathing. If breathing is difficult, oxygen should be administered by qualified personnel. Get immediate medical attention.	For inhalation, consider oxygen.
Methane	Wash exposed skin with soap and water.	Flush eyes with plenty of water.	If a large amount is swallowed, get medical attention.	If adverse effects occur, remove to uncontaminated area. Give artificial respiration if not breathing. If breathing is difficult, oxygen should be administered by qualified personnel. Get immediate medical attention.	For inhalation, consider oxygen.

Generated by the SDS Manager from AsteRisk, LLC. All Rights Reserved

	Skin Contact	Eye Contact	Ingestion	Inhalation	Note to Physicians
Oxygen	None expected	None expected	Not likely route of exposure	If adverse effects occur, remove to uncontaminated area. Give artificial respiration if not breathing. Get immediate medical attention.	None
Carbon Dioxide	If frostbite or freezing occur, immediately flush with plenty of lukewarm water (105-115 F; 41-46 C). DO NOT USE HOT WATER. If warm water is not available, gently wrap affected parts in blankets. Get immediate medical attention.	Contact with liquid: Immediately flush eyes with plenty of water for at least 15 minutes. Then get immediate medical attention.	Do not induce vomiting.	If adverse effects occur, remove to uncontaminated area. Give artificial respiration if not breathing. If breathing is difficult, oxygen should be administered by qualified personnel. Get immediate medical attention.	For inhalation, consider oxygen.
Nitrogen	Wash exposed skin with soap and water.	Flush eyes with plenty of water.	If a large amount is swallowed, get medical attention.	If adverse effects occur, remove to uncontaminated area. Give artificial respiration if not breathing. If breathing is difficult, oxygen should be administered by qualified personnel. Get immediate medical attention.	For inhalation, consider oxygen.

Section 5: Fire Fighting Measures

	Suitable Extinguishing Media	Products of Combustion	Protection of Firefighters
Hydrogen Sulfide	Let burn unless leak can be stopped immediately. Large fires: Use regular foam or flood with fine water spray.	Sulfur oxides	▪ Any self-contained breathing apparatus with a full facepiece. ▪ Protective material types: butyl rubber, polyvinyl chloride (PVC), neoprene
Carbon Monoxide	Carbon dioxide, regular dry chemical Large fires: Use regular foam or flood with fine water spray.	Carbon dioxide	▪ Any supplied-air respirator with full facepiece and operated in a pressure-demand or other positive-pressure mode in combination with a separate escape supply. ▪ Any supplied-air respirator with full facepiece and operated in a pressure-demand or other positive-pressure mode in combination with a separate escape supply.
Methane	Carbon dioxide, regular dry chemical Large fires: Use regular foam or flood with fine water spray.	Carbon monoxide, carbon dioxide, water	▪ Respiratory protection may be needed for frequent or heavy exposure. Any self-contained breathing apparatus with a full facepiece. ▪ Respiratory protection may be needed for frequent or heavy exposure. Any self-contained breathing apparatus with a full facepiece.
Oxygen	Non-flammable. Use extinguishing agent appropriate for the material which is burning. Use water in large quantities for fires involving oxygen.	Oxides of burning material	▪ Respiratory protection may be needed for frequent or heavy exposure. ▪ None
Carbon Dioxide	Non-flammable	Non-flammable	▪ Any appropriate escape-type, self-contained breathing apparatus. ▪ Non-flammable
Nitrogen	Non-flammable. Use suitable extinguishing media for surrounding fire. Cylinders may rupture or explode if exposed to heat.	Non-flammable	▪ Respiratory protection may be needed for frequent or heavy exposure.

Section 6: Accidental Release Measures

	Personal Precautions	Environmental Precautions	Methods for Containment

Generated by the SDS Manager from AsteRisk, LLC. All Rights Reserved

	Personal Precautions	Environmental Precautions	Methods for Containment
Hydrogen Sulfide	Keep unnecessary people away, isolate hazard area and deny entry. Stay upwind and keep out of low areas. Ventilate closed spaces before entering. Evacuation radius: 150 feet. For tank, rail car or tank truck: 800 meters (1/2 mile). Do not touch spilled material.	Avoid heat, flames, sparks and other sources of ignition.	Stop leak if possible without personal risk. Remove sources of ignition. Reduce vapors with water spray. Do not get water directly on material.
Carbon Monoxide	Keep unnecessary people away, isolate hazard area and deny entry. Ventilate closed spaces before entering.	Avoid heat, flames, sparks and other sources of ignition. Keep out of water supplies and sewers.	Stop leak if possible without personal risk. Reduce vapors with water spray. Remove sources of ignition.
Methane	Keep unnecessary people away, isolate hazard area and deny entry. Ventilate closed spaces before entering.	Avoid heat, flames, sparks and other sources of ignition.	Stop leak if possible without personal risk. Reduce vapors with water spray. Remove sources of ignition.
Oxygen	Keep unnecessary people away, isolate hazard area and deny entry. Ventilate closed spaces before entering.	Avoid contact with combustible materials.	Stop leak if possible without personal risk.
Carbon Dioxide	Keep unnecessary people away, isolate hazard area and deny entry. Ventilate closed spaces before entering. Do not touch spilled material.	Subject to California Safe Drinking Water and Toxic Enforcement Act of 1986 (Proposition 65). Keep out of water supplies and sewers.	Stop leak if possible without personal risk.
Nitrogen	Keep unnecessary people away, isolate hazard area and deny entry. Stay upwind and keep out of low areas.	No significant effects from contamination expected.	Stop leak if possible without personal risk.

	Methods for Cleanup	Other Information
Hydrogen Sulfide	Collect runoff for disposal as potential hazardous waste. Dike for later disposal. Absorb with sand or other non-combustible material. Add an alkaline material (lime, crushed limestone, sodium bicarbonate, or soda ash).	Notify Local Emergency Planning Committee and State Emergency Response Commission for release greater than or equal to RQ (U.S. SARA Section 304). If release occurs in the U.S. and is reportable under CERCLA Section 103, notify the National Response Center at (800)424-8802 (USA) or (202)426-2675 (USA).
Carbon Monoxide	Stop leak, evacuate area. Wear protective equipment.	Subject to California Safe Drinking Water and Toxic Enforcement Act of 1986 (Proposition 65).
Methane	Not available	Not available
Oxygen	Stop leak and ventilate	None
Carbon Dioxide	Stop leak, evacuate, remove source of ignition.	None
Nitrogen	N/A	N/A

Section 7: Handling and Storage

	Handling	Storage
Hydrogen Sulfide	Store and handle in accordance with all current regulations and standards. Protect from physical damage. Store outside or in a detached building. Store in a cool, dry place. Store in a well-ventilated area. Avoid contact with light. Grounding and bonding required. Subject to storage regulations: U.S. OSHA 29 CFR 1910.101. Notify State Emergency Response Commission for storage or use at amounts greater than or equal to the TPQ (U.S. EPA SARA Section 302). SARA Section 303 requires facilities storing a material with a TPQ to participate in local emergency response planning (U.S. EPA 40 CFR 355.30). Keep separated from incompatible substances.	Subject to handling regulations: U.S. OSHA 29 CFR 1910.119.
Carbon Monoxide	Keep separated from incompatible substances.	Store and handle in accordance with all current regulations and standards. Grounding and bonding required. Subject to storage regulations: U.S. OSHA 29 CFR 1910.101.
Methane	Store and handle in accordance with all current regulations and standards. Grounding and bonding required. Subject to storage regulations: U.S. OSHA 29 CFR 1910.101.	Keep separated from incompatible substances.
Oxygen	Store and handle in accordance with all current regulations and standards. Subject to storage regulations: U.S. OSHA 29 CFR 1910.101.	Keep separated from incompatible substances.
Carbon Dioxide	Subject to storage regulations: U.S. OSHA 29 CFR 1910.101. Keep separated from incompatible substances.	Store and handle in accordance with all current regulations and standards
Nitrogen	Store and handle in accordance with all current regulations and standards. Subject to storage regulations: U.S. OSHA 29 CFR 1910.101.	Keep separated from incompatible substances.

Generated by the SDS Manager from AsteRisk, LLC. All Rights Reserved

Section 8: Exposure Controls/Personal Protection

	Exposure Guidelines
Hydrogen Sulfide	HYDROGEN SULFIDE: 20 ppm OSHA ceiling 50 ppm OSHA peak 10 minute(s) (once if no other measurable exposure occurs) 10 ppm (14 mg/m3) OSHA TWA (vacated by 58 FR 35338, June 30, 1993) 15 ppm (21 mg/m3) OSHA STEL (vacated by 58 FR 35338, June 30, 1993) 10 ppm ACGIH TWA 15 ppm ACGIH STEL 10 ppm (15 mg/m3) NIOSH recommended ceiling 10 minute(s) TLV-TWA: 1ppm Upper respiratory irritation (ACGIH)
Carbon Monoxide	CARBON MONOXIDE: 50 ppm (55 mg/m3) OSHA TWA 35 ppm (40 mg/m3) OSHA TWA (vacated by 58 FR 35338, June 30, 1993) 200 ppm (229 mg/m3) OSHA ceiling (vacated by 58 FR 35338, June 30, 1993) 25 ppm ACGIH TWA 35 ppm (40 mg/m3) NIOSH recommended TWA 10 hour(s) 200 ppm (229 mg/m3) NIOSH recommended ceiling
Methane	METHANE, COMPRESSED GAS: ALIPHATIC HYDROCARBON GASES ALKANE (C1-C4): 1000 ppm ACGIH TWA METHANE: No occupational exposure limits established. ALIPHATIC HYDROCARBON GASES ALKANE (C1-C4): 1000 ppm ACGIH TWA
Oxygen	OXYGEN, COMPRESSED GAS: No occupational exposure limits established.
Carbon Dioxide	CARBON DIOXIDE, GAS: CARBON DIOXIDE: 5000 ppm (9000 mg/m3) OSHA TWA 10000 ppm (18000 mg/m3) OSHA TWA (vacated by 58 FR 35338, June 30, 1993) 30000 ppm (54000 mg/m3) OSHA STEL (vacated by 58 FR 35338, June 30, 1993) 5000 ppm ACGIH TWA 30000 ppm ACGIH STEL 5000 ppm (9000 mg/m3) NIOSH recommended TWA 10 hour(s) 30000 ppm (54000 mg/m3) NIOSH recommended STEL
Nitrogen	NITROGEN, COMPRESSED GAS: NITROGEN: ACGIH (simple asphyxiant)

Engineering Controls

Handle only in fully enclosed systems.

	Eye Protection	Skin Protection	Respiratory Protection
Hydrogen Sulfide	Wear splash resistant safety goggles with a face shield. Provide an emergency eye wash fountain and quick drench shower in the immediate work area.	Wear appropriate chemical resistant clothing.	Any self-contained breathing apparatus with a full facepiece.
Carbon Monoxide	Eye protection not required, but recommended.	Protective clothing is not required.	Any supplied-air respirator with full facepiece and operated in a pressure-demand or other positive-pressure mode in combination with a separate escape supply.
Methane	Eye protection not required, but recommended.	Protective clothing is not required.	Respiratory protection may be needed for frequent or heavy exposure. Any self-contained breathing apparatus with a full facepiece.
Oxygen	Eye protection not required, but recommended.	Protective clothing is not required.	Respiratory protection may be needed for frequent or heavy exposure.
Carbon Dioxide	For the gas: Eye protection not required, but recommended. For the liquid: Wear splash resistant safety goggles. Contact lenses should not be worn. Provide an emergency eye wash fountain and quick drench shower in the immediate work area.	For the gas: Protective clothing is not required. For the liquid: Wear appropriate protective, cold insulating clothing.	Any appropriate escape-type, self-contained breathing apparatus.
Nitrogen	Eye protection not required, but recommended.	Protective clothing is not required.	Respiratory protection may be needed for frequent or heavy exposure.

General Hygiene considerations

- Avoid breathing vapor or mist
- Avoid contact with eyes and skin
- Wash thoroughly after handling and before eating or drinking

Section 9: Physical and Chemical Properties

	Physical State	Appearance	Color	Change in Appearance	Physical Form	Odor	Taste
Hydrogen Sulfide	Gas	Colorless	Colorless	N/A	Gas	Rotten egg odor	N/A
Carbon Monoxide	Gas	Colorless	Colorless	N/A	Gas	Odorless	Tasteless
Methane	Gas	Colorless	Colorless	N/A	Gas	Odorless	Tasteless
Oxygen	Gas	Clear	Colorless	N/A	Gas	Odorless	Tasteless
Carbon Dioxide	Gas	Colorless	Colorless	N/A	Gas	Odorless	Acid taste
Nitrogen	Gas	Clear	Colorless	N/A	Gas	Odorless	Tasteless

	Flash Point	Flammability	Partition Coefficient	Autoignition Temperature	Upper Explosive Limits	Lower Explosive Limits

Generated by the SDS Manager from AsteRisk, LLC. All Rights Reserved

	Flash Point	Flammability	Partition Coefficient	Autoignition Temperature	Upper Explosive Limits	Lower Explosive Limits
Hydrogen Sulfide	Flammable	Not available	Not available	500 F (260 C)	45.5%	3.9%
Carbon Monoxide	Flammable	Not available	1479.11 (log = 3.17) (estimated from water solubility)	1128-1202 F (609-650 C)	0.74	12.0-12.5%
Methane	-369 F (-223 C)	Not available	724.44 (log = 2.87) (estimated from water solubility)	999 F (537 C)	15%	5%
Oxygen	Not flammable	Not available	Not available	Nonflammable	Nonflammable	Nonflammable
Carbon Dioxide	Not flammable	Not available	N/A	Nonflammable	Nonflammable	Nonflammable
Nitrogen	Not flammable	Not available	Not available	Nonflammable	Nonflammable	Nonflammable

	Boiling Point	Freezing Point	Vapor Pressure	Vapor Density	Specific Gravity	Water Solubility	pH	Odor Threshold	Evaporation Rate	Viscosity
Hydrogen Sulfide	-78 to -77 F (-61 to -60.3 C)	-123 F (-86 C)	15200 mmHg @ 25 C	1.2 (Air=1)	1.192	2.58-2.9% @ 20 C	4.5-<7 (saturated solution)	0.13 ppm	Not applicable	0.0128 cP @ 25 C
Carbon Monoxide	-312.7 F (-191.5 C)	-326 F (-199 C)	760 mmHg @ -191 C gas; cannot be liquefied at room temperature	0.968 (Air=1)	Not applicable	2.3% @ 20 C	Not applicable	Not available	Not applicable	0.01657 cP @ 0 C
Methane	-260 F (-162 C)	-297 F (-183 C)	760 mmHg @ -161 C	0.555 (Air=1)	Not applicable	3.5% @ 17 C	Not applicable	Not available	Not applicable	0.01118 cP @ 27 C
Oxygen	-297 F (-183 C)	-360 F (-218 C)	760 mmHg @ -183 C	1.1 (Air=1)	Not applicable	3.2% @ 25 C	Not applicable	Not available	Not applicable	0.02075 cP @ 25 C
Carbon Dioxide	Not available	-71 F (-57 C) @ 4000 mmHg	43700 mmHg @ 21 C	1.5 (Air=1)	1.522 @ 21 C	Soluble	3.7 (saturated aqueous solution) @ 101.3 kPa (carbonic acid)	Not available	Not applicable	0.01657 cP @ 0 C
Nitrogen	-321 F (-196 C)	-346 F (-210 C)	760 mmHg @ -196 C	0.967 (Air=1)	Not applicable	1.6% @ 20 C	Not applicable	Not available	Not applicable	0.01787 cP @ 27 C

	Molecular Weight	Molecular Formula	Density	Weight per Gallon	Volatility by Volume	Volatility	Solvent Solubility
Hydrogen Sulfide	34.08	H2-S	1.539 g/L @ 0 C	Not available	Not available	Not applicable	Soluble: Carbon disulfide, alcohol, ether, glycerol, gasolines, kerosene, crude oil, alkali solutions
Carbon Monoxide	28.01	C-O	1.250 g/L @ 0 C	Not available	100%	Not applicable	Soluble: Alcohol, benzene, acetic acid, ethyl acetate, chloroform, cuprous chloride solutions
Methane	16.04	C-H4	0.717 g/L @ 0 C	Not available	Not applicable	Not applicable	Soluble: Alcohol, ether, benzene, organic solvents
Oxygen	31.9988	O2	1.309 g/L @ 25 C	Not available	Not applicable	Not applicable	Soluble: Alcohol
Carbon Dioxide	44.01	C-O2	0.114	Not available	Not applicable	Not applicable	Soluble: Alcohol, acetone, hydrocarbons, organic solvents
Nitrogen	28.0134	N2	1.2506 g/L	Not available	100%	1	Soluble: Liquid ammonia

Generated by the SDS Manager from AsteRisk, LLC. All Rights Reserved

Section 10: Stability and Reactivity

	Stability	Conditions to Avoid	Incompatible Materials
Hydrogen Sulfide	Stable at normal temperatures and pressure.	Stable at normal temperatures and pressure.	Combustible materials, metals, oxidizing materials, halogens, metal oxides, metal salts, bases, rust, oxidants, oxygen, copper powder, acetaldehyde, silver fulminate
Carbon Monoxide	Stable at normal temperatures and pressure.	Stable at normal temperatures and pressure.	Oxidizing materials, halogens, metal oxides, metals, combustible materials, lithium
Methane	Stable at normal temperatures and pressure.	Stable at normal temperatures and pressure.	Halogens, oxidizing materials, combustible materials
Oxygen	Stable at normal temperatures and pressure.	Stable at normal temperatures and pressure.	Combustible materials, halo carbons, metals, bases, reducing agents, amines, metal salts, oxidizing materials, alkaline earth and alkali metals
Carbon Dioxide	Stable at normal temperatures and pressure.	Stable at normal temperatures and pressure.	Combustible materials, oxidizing materials, metal salts, reducing agents, metal carbide, metals, bases
Nitrogen	Stable at normal temperatures and pressure.	Stable at normal temperatures and pressure.	Metals, oxidizing materials

	Hazardous Decomposition Products	Possibility of Hazardous Reactions
Hydrogen Sulfide	Oxides of sulfur	Will not polymerize.
Carbon Monoxide	Oxides of carbon	Will not polymerize.
Methane	Oxides of carbon	Will not polymerize.
Oxygen	Miscellaneous decomposition products	Will not polymerize.
Carbon Dioxide	Carbon monoxide	Will not polymerize.
Nitrogen	Oxides of nitrogen	Will not polymerize.

Section 11: Toxicology Information

Acute Effects

	Oral LD50	Dermal LD50	Inhalation
Hydrogen Sulfide	444 ppm inhalation-rat LC50	Irritation 0.000125 ppm/5 hour(s) eyes-human	Irritation, lack of sense of smell, sensitivity to light, nausea, vomiting, difficulty breathing, headache, drowsiness, dizziness, disorientation, tremors, visual disturbances, suffocation, lung congestion, internal bleeding, heart damage, nerve damage, brain damage, coma, death
Carbon Monoxide	LC50 Inhalation Gas. Rat 1807 ppm 4 hours	Not available	Changes in body temperature, changes in blood pressure, nausea, vomiting, chest pain, difficulty breathing, irregular heartbeat, headache, drowsiness, dizziness, disorientation, hallucinations, pain in extremities, tremors, loss of coordination, hearing loss, visual disturbances, eye damage, suffocation, blood disorders, convulsions, coma
Methane	Not available	Not available	Nausea, vomiting, difficulty breathing, irregular heartbeat, headache, drowsiness, fatigue, dizziness, disorientation, mood swings, tingling sensation, loss of coordination, suffocation, convulsions, unconsciousness, coma
Oxygen	Not established	Not established	Irritation, changes in body temperature, nausea, difficulty breathing, irregular heartbeat, dizziness, disorientation, hallucinations, mood swings, pain in extremities, tremors, lung congestion, convulsions
Carbon Dioxide	Not established	Not established	Ringing in the ears, nausea, irregular heartbeat, headache, drowsiness, dizziness, tingling sensation, visual disturbances, suffocation, convulsions, coma
Nitrogen	Not available	Not available	Nausea, vomiting, difficulty breathing, headache, drowsiness, dizziness, tingling sensation, loss of coordination, convulsions, coma

	Eye Irritation	Skin Irritation	Sensitization
Hydrogen Sulfide	Irritation, sensitivity to light, visual disturbances	Irritation liquid: frostbite	Acute toxicity, Category 2, inhalation; H330: Fatal if inhaled. Specific Target Organ Toxicity (single exposure), Category 3; H335: May cause respiratory irritation. Hazardous to the aquatic environment, Acute Category 1; H400: Very toxic to aquatic life
Carbon Monoxide	No information on significant adverse effects	No information on significant adverse effects	Acute toxicity, Category 3, inhalation; H331: Toxic if inhaled. Reproductive toxicity, Category 1A; H360D: May damage the unborn child. Specific Target Organ Toxicity (repeated exposure), Category 1; H372: Causes damage to organs through prolonged or repeated exposure.

Generated by the SDS Manager from AsteRisk, LLC. All Rights Reserved

	Eye Irritation	Skin Irritation	Sensitization
Methane	No information on significant adverse effects	No information on significant adverse effects	Difficulty breathing
Oxygen	No information on significant adverse effects	No information on significant adverse effects	No significant target effects reported.
Carbon Dioxide	Irritation, frostbite, blurred vision	Liquid: blisters, frostbite	Difficulty breathing
Nitrogen	Contact with rapidly expanding gas may cause burns or frostbite	No information on significant adverse effects	Difficulty breathing

Chronic Effects

	Carcinogenicity	Mutagenicity	Reproductive Effects	Developmental Effects
Hydrogen Sulfide	Not available	Not available	Available.	No data
Carbon Monoxide	Not available	Available.	Available.	No data
Methane	Not available	Not available	Not available	No data
Oxygen	Not known.	Available.	Available.	No data
Carbon Dioxide	Not available	Not established	Available.	No data
Nitrogen	Not hazardous	Not available	Not available	No data

Section 12: Ecological Information

Fate and Transport

	Eco toxicity	Persistence / Degradability	Bioaccumulation / Accumulation	Mobility in Environment
Hydrogen Sulfide	Fish toxicity: Acute LC50 7 ug/L Fresh water Fish - Fathead minnow - Pimephales promelas - FRY 96 hours; 14.9 ug/L 96 hour(s) LC50 (Mortality) Fathead minnow (Pimeph Invertibrate toxicity: 9730 ug/L 1.5 hour(s) (Mortality) Mediterranean mussel (Mytilus galloprovincialis) Algal toxicity: Not available Phyto toxicity: Not available Other toxicity: Not available	Highly toxic to aquatic life.	Not available	Not available
Carbon Monoxide	Fish toxicity: 75000 ug/L 1 day(s) LC100 (Mortality) Orangespotted sunfish (Lepomis humilis) Invertibrate toxicity: Not available Algal toxicity: Not available Phyto toxicity: Not available Other toxicity: Not available	Relatively non-persistent in the environment. Highly volatile from water.	Not available	Not expected to leach through the soil or the sediment.
Methane	Fish toxicity: Not available Invertibrate toxicity: Not available Algal toxicity: Not available Phyto toxicity: Not available Other toxicity: Not available	Relatively non-persistent in the environment. Moderately volatile from water.	Accumulates very little in the bodies of living organisms.	Not expected to leach through the soil or the sediment.
Oxygen	Fish toxicity: Not available Invertibrate toxicity: Not available Algal toxicity: Not available Phyto toxicity: Not available Other toxicity: Not available	Not available	Low bioaccumulation	Not available
Carbon Dioxide	Fish toxicity: 150000 ug/L 48 day(s) (Mortality) Brown trout (Salmo trutta) Invertibrate toxicity: Not available Algal toxicity: Not available Phyto toxicity: Not available Other toxicity: Not available	Relatively non-persistent in the environment. Moderately volatile from water.	Accumulates very little in the bodies of living organisms.	Leaches through the soil
Nitrogen	Fish toxicity: Not available Invertibrate toxicity: Not available Algal toxicity: Not available Phyto toxicity: Not available Other toxicity: Not available	Not available	Not available	Not available

Generated by the SDS Manager from AsteRisk, LLC. All Rights Reserved

Section 13: Disposal Considerations

Hydrogen Sulfide	Dispose in accordance with all applicable regulations. Subject to disposal regulations: U.S. EPA 40 CFR 262. Hazardous Waste Number(s): U135.
Carbon Monoxide	Dispose in accordance with all applicable regulations. Subject to disposal regulations: U.S. EPA 40 CFR 262. Hazardous Waste Number(s): D001.
Methane	Dispose in accordance with all applicable regulations. Subject to disposal regulations: U.S. EPA 40 CFR 262. Hazardous Waste Number(s): D001.
Oxygen	Dispose in accordance with all applicable regulations. Subject to disposal regulations: U.S. EPA 40 CFR 262. Hazardous Waste Number(s): D001.
Carbon Dioxide	Dispose in accordance with all applicable regulations.
Nitrogen	Dispose in accordance with all applicable regulations.

Section 14: Transportation Information

U.S. DOT 49 CFR 172.101

DOT Information For This Mixture

Shipping Name	Compressed gas, n.o.s. (Nitrogen, Oxygen)
UN Number	UN1956
Hazard Class	2.2
Hazard Information	Non-Flammable Gas

Individual Component Information

	Proper Shipping Name	ID Number	Hazard Class or Division	Packing Group	Labeling Requirements	Passenger Aircraft or Railcar Quantity Limitations	Cargo Aircraft Only Quantity Limitations	Additional Shipping Description
Hydrogen Sulfide	Hydrogen sulfide	UN1053	2.3	Not applicable	2.3; 2.1	Forbidden	Forbidden	Toxic-Inhalation Hazard Zone B
Carbon Monoxide	Carbon monoxide, compressed	UN1016	2.3	Not applicable	2.3; 2.1	Forbidden	25 kg	Toxic-Inhalation Hazard Zone D
Methane	Methane, compressed	UN1971	2.1	Not applicable	2.1	Forbidden	150 kg	N/A
Oxygen	Oxygen, compressed	UN1072	2.2	Not available	2.2; 5.1	75 kg or L	150 kg	N/A
Carbon Dioxide	Carbon dioxide	UN1013	2.2	Not applicable	2.2	75 kg or L	150kg	None
Nitrogen	Nitrogen, compressed	UN1066	2.2	Not applicable	2.2	75 kg or L	150 kg	N/A

Canadian Transportation of Dangerous Goods

	Shipping Name	UN Number	Class	Packing Group / Risk Group
Hydrogen Sulfide	HYDROGEN SULFIDE; or HYDROGEN SULPHIDE	UN1053	2.3; 2.1	Not applicable
Carbon Monoxide	Carbon monoxide, compressed	UN1016	2.3; 2.1	Not applicable
Methane	Methane, compressed	UN1971	2.1	Not applicable
Oxygen	Oxygen, compressed	UN1072	2.2; 5.1	Not applicable
Carbon Dioxide	Carbon dioxide	UN1013	2.2	Not applicable
Nitrogen	Nitrogen, compressed	UN1066	2.2	Not applicable

Section 15: Regulatory Information

U.S. Regulations

	CERCLA Sections	SARA 355.30	SARA 355.40

Generated by the SDS Manager from AsteRisk, LLC. All Rights Reserved

Hydrogen Sulfide	100 LBS RQ	500 LBS TPQ	100 LBS RQ
Carbon Monoxide	Not regulated.	Not regulated.	Not regulated.
Methane	Not regulated.	Not regulated.	Not regulated.
Oxygen	Not regulated.	Not regulated.	Not regulated.
Carbon Dioxide	Not regulated.	Not regulated.	Not regulated.
Nitrogen	Not regulated.	Not regulated.	Not regulated.

SARA 370.21

	Acute	Chronic	Fire	Reactive	Sudden Release
Hydrogen Sulfide	Yes	No	Yes	No	Yes
Carbon Monoxide	Yes	No	Yes	No	Yes
Methane	Yes	No	Yes	No	Yes
Oxygen	No	No	Yes	No	Yes
Carbon Dioxide	Yes	No	No	No	Yes
Nitrogen	Yes	No	No	No	Yes

SARA 372.65

Hydrogen Sulfide	HYDROGEN SULFIDE: Administrative stay issued Aug. 22, 1994
Carbon Monoxide	Not regulated.
Methane	Not regulated.
Oxygen	Not regulated.
Carbon Dioxide	Not regulated.
Nitrogen	Not regulated.

OSHA Process Safety

Hydrogen Sulfide	1500 LBS TQ
Carbon Monoxide	Not regulated.
Methane	Not regulated.
Oxygen	Not regulated.
Carbon Dioxide	Not regulated.
Nitrogen	Not regulated.

State Regulations

	CA Proposition 65
Hydrogen Sulfide	Not regulated.
Carbon Monoxide	WARNING: This product can expose you to chemicals including Carbon Monoxide, which is known to the State of California to cause birth defects or other reproductive harm. For more information go to www.P65Warnings.ca.gov.
Methane	Not regulated.
Oxygen	Not regulated.
Carbon Dioxide	Not regulated.
Nitrogen	Not regulated.

Canadian Regulations

	WHMIS Classification
Hydrogen Sulfide	A, B1, D1A, D2B.
Carbon Monoxide	A, B1, D1A, D2A.
Methane	A, B1
Oxygen	A,C
Carbon Dioxide	A
Nitrogen	A

National Inventory Status

	US Inventory (TSCA)	TSCA 12b Export Notification	Canada Inventory (DSL/NDSL)
Hydrogen Sulfide	Listed on inventory.	Not listed.	Listed on inventory.
Carbon Monoxide	Listed on inventory.	Not listed.	Listed on inventory.
Methane	Listed on inventory.	Not listed.	Listed on inventory.
Oxygen	Listed on inventory.	Not listed.	Not determined.
Carbon Dioxide	Listed on inventory.	Not listed.	Listed on inventory.
Nitrogen	Listed on inventory.	Not listed.	Listed on inventory.

Generated by the SDS Manager from AsteRisk, LLC. All Rights Reserved

Section 16: Other Information

	NFPA Rating
Hydrogen Sulfide	HEALTH=4 FIRE=4 REACTIVITY=0
Carbon Monoxide	HEALTH=2 FIRE=4 REACTIVITY=0
Methane	HEALTH=0 FIRE=4 REACTIVITY=0
Oxygen	HEALTH=0 FIRE=0 REACTIVITY=0 SPECIAL=OX
Carbon Dioxide	HEALTH=3 FIRE=0 REACTIVITY=0 SPECIAL=SA
Nitrogen	HEALTH=0 FIRE=0 REACTIVITY=0 SPECIAL=SA

0 = minimal hazard, 1 = slight hazard, 2 = moderate hazard, 3 = severe hazard, 4 = extreme hazard

Generated by the SDS Manager from AsteRisk, LLC. All Rights Reserved

SAFETY DATA SHEET

Creation Date 30-Oct-2009 **Revision Date** 24-Dec-2021 **Revision Number** 4

1. Identification

Product Name **Potassium hydrogen phthalate**

Cat No. : **AC177120000; AC177120025; AC177120050; AC177121000; AC177125000**

CAS No 877-24-7
Synonyms Potassium acid phthalate; Potassium biphthalate

Recommended Use Laboratory chemicals.
Uses advised against Food, drug, pesticide or biocidal product use.

Details of the supplier of the safety data sheet

Company
Fisher Scientific Company
One Reagent Lane
Fair Lawn, NJ 07410
Tel: (201) 796-7100

Acros Organics
One Reagent Lane
Fair Lawn, NJ 07410

Emergency Telephone Number For information **US** call: 001-800-ACROS-01 / **Europe** call: +32 14 57 52 11
Emergency Number **US:**001-201-796-7100 / **Europe:** +32 14 57 52 99
CHEMTREC Tel. No.**US:**001-800-424-9300 / **Europe:**001-703-527-3887

2. Hazard(s) identification

Classification
Classification under 2012 OSHA Hazard Communication Standard (29 CFR 1910.1200)

This chemical is not considered hazardous by the 2012 OSHA Hazard Communication Standard (29 CFR 1910.1200)

Label Elements
None required

Hazards not otherwise classified (HNOC)
None identified

3. Composition/Information on Ingredients

Component	CAS No	Weight %
1,2-Benzenedicarboxylic acid, monopotassium salt	877-24-7	>95

4. First-aid measures

Eye Contact Rinse immediately with plenty of water, also under the eyelids, for at least 15 minutes. Get medical attention if irritation persists.

Skin Contact Wash off immediately with plenty of water for at least 15 minutes. Get medical attention immediately if symptoms occur.

Inhalation Remove to fresh air. Get medical attention immediately if symptoms occur. If not breathing, give artificial respiration.

Ingestion Do NOT induce vomiting. Get medical attention.

Most important symptoms and effects No information available.

Notes to Physician Treat symptomatically

5. Fire-fighting measures

Suitable Extinguishing Media Water spray, carbon dioxide (CO2), dry chemical, alcohol-resistant foam.

Unsuitable Extinguishing Media No information available

Flash Point No information available
Method - No information available

Autoignition Temperature No information available
Explosion Limits
Upper No data available
Lower No data available
Sensitivity to Mechanical Impact No information available
Sensitivity to Static Discharge No information available

Specific Hazards Arising from the Chemical
Keep product and empty container away from heat and sources of ignition. Thermal decomposition can lead to release of irritating gases and vapors.

Hazardous Combustion Products
Carbon monoxide (CO). Carbon dioxide (CO_2).
Protective Equipment and Precautions for Firefighters
As in any fire, wear self-contained breathing apparatus pressure-demand, MSHA/NIOSH (approved or equivalent) and full protective gear.

NFPA

Health	Flammability	Instability	Physical hazards
1	1	0	N/A

6. Accidental release measures

Personal Precautions Ensure adequate ventilation. Use personal protective equipment as required. Avoid dust formation.

Environmental Precautions Should not be released into the environment. See Section 12 for additional Ecological Information.

Methods for Containment and Clean Up Sweep up and shovel into suitable containers for disposal. Avoid dust formation.

7. Handling and storage

Handling Wear personal protective equipment/face protection. Ensure adequate ventilation. Avoid contact with skin, eyes or clothing. Avoid ingestion and inhalation. Avoid dust formation.

Storage. Keep containers tightly closed in a dry, cool and well-ventilated place. Incompatible Materials. Strong oxidizing agents.

8. Exposure controls / personal protection

Exposure Guidelines This product does not contain any hazardous materials with occupational exposure limitsestablished by the region specific regulatory bodies.

Engineering Measures None under normal use conditions.

Personal Protective Equipment

Eye/face Protection Wear appropriate protective eyeglasses or chemical safety goggles as described by OSHA's eye and face protection regulations in 29 CFR 1910.133 or European Standard EN166.

Skin and body protection Wear appropriate protective gloves and clothing to prevent skin exposure.

Respiratory Protection No protective equipment is needed under normal use conditions.

Hygiene Measures Handle in accordance with good industrial hygiene and safety practice.

9. Physical and chemical properties

Physical State	Solid
Appearance	White
Odor	Odorless
Odor Threshold	No information available
pH	3.8-4.0 5% aq.sol
Melting Point/Range	295 - 300 °C / 563 - 572 °F
Boiling Point/Range	No information available
Flash Point	No information available
Evaporation Rate	Not applicable
Flammability (solid,gas)	No information available
Flammability or explosive limits	
Upper	No data available
Lower	No data available
Vapor Pressure	No information available
Vapor Density	Not applicable
Specific Gravity	No information available
Solubility	Slightly soluble in water
Partition coefficient; n-octanol/water	No data available
Autoignition Temperature	No information available
Decomposition Temperature	No information available
Viscosity	Not applicable
Molecular Formula	C8 H5 K O4
Molecular Weight	204.22

10. Stability and reactivity

Reactive Hazard None known, based on information available

Stability Stable under normal conditions.

Conditions to Avoid Incompatible products. Excess heat. Avoid dust formation.

Incompatible Materials Strong oxidizing agents

Hazardous Decomposition Products Carbon monoxide (CO), Carbon dioxide (CO_2)

Hazardous Polymerization Hazardous polymerization does not occur.

Hazardous Reactions None under normal processing.

11. Toxicological information

Acute Toxicity

Product Information

Component Information

Component	LD50 Oral	LD50 Dermal	LC50 Inhalation
1,2-Benzenedicarboxylic acid, monopotassium salt	LD50 > 3200 mg/kg (Rat)	>1000 mg/kg	Not listed

Toxicologically Synergistic Products No information available

Delayed and immediate effects as well as chronic effects from short and long-term exposure

Irritation No information available

Sensitization No information available

Carcinogenicity The table below indicates whether each agency has listed any ingredient as a carcinogen.

Component	CAS No	IARC	NTP	ACGIH	OSHA	Mexico
1,2-Benzenedicarboxylic acid, monopotassium salt	877-24-7	Not listed	Not listed	Not listed	Not listed	Not listed

Mutagenic Effects No information available

Reproductive Effects No information available.

Developmental Effects No information available.

Teratogenicity No information available.

STOT - single exposure None known

STOT - repeated exposure None known

Aspiration hazard No information available

Symptoms / effects,both acute and delayed No information available

Endocrine Disruptor Information No information available

Other Adverse Effects The toxicological properties have not been fully investigated.

12. Ecological information

Ecotoxicity

Do not empty into drains.

Persistence and Degradability Soluble in water Persistence is unlikely based on information available.

Bioaccumulation/ Accumulation No information available.

Mobility Will likely be mobile in the environment due to its water solubility.

13. Disposal considerations

Waste Disposal Methods Chemical waste generators must determine whether a discarded chemical is classified as a hazardous waste. Chemical waste generators must also consult local, regional, and national hazardous waste regulations to ensure complete and accurate classification.

14. Transport information

DOT Not regulated
TDG Not regulated
IATA Not regulated
IMDG/IMO Not regulated

15. Regulatory information

United States of America Inventory

Component	CAS No	TSCA	TSCA Inventory notification - Active-Inactive	TSCA - EPA Regulatory Flags
1,2-Benzenedicarboxylic acid, monopotassium salt	877-24-7	X	ACTIVE	-

Legend:
TSCA US EPA (TSCA) - Toxic Substances Control Act, (40 CFR Part 710)
X - Listed
'-' - Not Listed

TSCA 12(b) - Notices of Export Not applicable

International Inventories
Canada (DSL/NDSL), Europe (EINECS/ELINCS/NLP), Philippines (PICCS), Japan (ENCS), Japan (ISHL), Australia (AICS), China (IECSC), Korea (KECL).

Component	CAS No	DSL	NDSL	EINECS	PICCS	ENCS	ISHL	AICS	IECSC	KECL
1,2-Benzenedicarboxylic acid, monopotassium salt	877-24-7	X	-	212-889-4	X	X	X	X	X	KE-02310

KECL - NIER number or KE number (http://ncis.nier.go.kr/en/main.do)

U.S. Federal Regulations

SARA 313 Not applicable

SARA 311/312 Hazard Categories See section 2 for more information

CWA (Clean Water Act) Not applicable

Clean Air Act Not applicable

OSHA - Occupational Safety and Health Administration Not applicable

CERCLA Not applicable

California Proposition 65 This product does not contain any Proposition 65 chemicals.

U.S. State Right-to-Know Regulations Not applicable

U.S. Department of Transportation
Reportable Quantity (RQ): N
DOT Marine Pollutant N
DOT Severe Marine Pollutant N

U.S. Department of Homeland Security This product does not contain any DHS chemicals.

Other International Regulations

Mexico - Grade No information available

Authorisation/Restrictions according to EU REACH

Safety, health and environmental regulations/legislation specific for the substance or mixture

Component	CAS No	OECD HPV	Persistent Organic Pollutant	Ozone Depletion Potential	Restriction of Hazardous Substances (RoHS)
1,2-Benzenedicarboxylic acid, monopotassium salt	877-24-7	Not applicable	Not applicable	Not applicable	Not applicable

Component	CAS No	Seveso III Directive (2012/18/EC) - Qualifying Quantities for Major Accident Notification	Seveso III Directive (2012/18/EC) - Qualifying Quantities for Safety Report Requirements	Rotterdam Convention (PIC)	Basel Convention (Hazardous Waste)
1,2-Benzenedicarboxylic acid, monopotassium salt	877-24-7	Not applicable	Not applicable	Not applicable	Not applicable

16. Other information

Prepared By
Regulatory Affairs
Thermo Fisher Scientific
Email: EMSDS.RA@thermofisher.com

Creation Date 30-Oct-2009
Revision Date 24-Dec-2021
Print Date 24-Dec-2021
Revision Summary This document has been updated to comply with the US OSHA HazCom 2012 Standard replacing the current legislation under 29 CFR 1910.1200 to align with the Globally Harmonized System of Classification and Labeling of Chemicals (GHS).

Disclaimer
The information provided in this Safety Data Sheet is correct to the best of our knowledge, information and belief at the date of its publication. The information given is designed only as a guidance for safe handling, use, processing, storage, transportation, disposal and release and is not to be considered a warranty or quality specification. The information relates only to the specific material designated and may not be valid for such material used in combination with any other materials or in any process, unless specified in the text

End of SDS

HORIBA

SAFETY DATA SHEET

Section 1. Product and Company Identification

Product Name: 525-4, 500-4, 560-4 (pH 4.01 buffer solution)

Product code: 3999960018, 3999960029, 3999960146

Recommended use: For laboratory and Industrial use

Manufacturer / Supplier: Horiba Instruments (Singapore) Pte Ltd
83 Science Park Drive, #02-02A, The Curie
Singapore-118258
Contact No: +65 69089600

Section 2. Hazard identification

Classification of the Substance or Mixture: Mixture

The mixture is classified as not hazardous according to regulation (EC) 1272/2008, Globally Harmonized System (GHS)

GHS Label elements:

Signal word: No Signal word
Hazard statement: No Known significant effects or critical hazards

Precautionary statements:
General: Do not handle until all safety precautions have been read and understood

Other hazards which do not result in classification: None known

Section 3. Composition/ information on ingredients

Substance or Mixture: Mixture

CAS Numbers other identifiers:

Ingredients	CAS Number	Percentage
Potassium Hydrogen Phthalate	877-24-7	<2%
Water	7732-18-5	>98%

This product contains <0.01% other ingredient, not required to be listed as it is not hazardous to health and environment.

The exact percentage of composition has been withheld as a trade secret

Chemical formula: Not applicable

Section 4. First Aid Measures

Description of necessary first aid measures

Eye contact:	Immediately flush eyes with plenty of water, occasionally lifting the upper and lower eyelids. Remove any contact lenses. Get medical attention if irritation occurs.
Inhalation:	Remove victim to fresh air and keep at rest in a position comfortable for breathing. Get medical attention if symptoms occur.
Skin contact:	Flush contaminated skin with plenty of water. Remove contaminated clothing and shoes. Get medical attention if symptoms occur.
Ingestion:	Clean mouth with water. Remove victim to fresh air and keep at rest in a position comfortable for breathing. If material has been swallowed and the person is conscious, give small quantities of water to drink. Do not induce vomiting unless directed to do so by medical personnel. Get medical attention if symptoms occur.

Most important symptoms/effects, both acute and delayed

Potential acute health effects: No known significant effects or critical hazards

Over-exposure signs/symptoms: No specific data available

Indication of immediate medical attention and special treatment needed, if necessary

Notes to physician: Treat symptomatically. Contact poison treatment specialist immediately if large quantities have been ingested or inhaled.

See toxicological information (Section 11)

Section 5. Firefighting Measures

Extinguishing Media

Suitable extinguishing media: Use an extinguishing agent suitable for the surrounding fire.

Unsuitable extinguishing Media: No Information available

Specific hazards arising from the substance or mixture: No specific information available

Hazardous thermal decomposition products: No Specific data

Special protective actions for Fire-fighters: Promptly isolate the scene by removing all persons from the incident if there is fire. No action shall be taken involving any personal risk or without suitable training.

Special protective equipment for fire-fighters: Fire-fighters should wear appropriate protective equipment and self-contained breathing apparatus with a full face-piece operated in positive pressure mode.

Section 6. Accidental release Measures

Personal precautions, protective equipment and emergency procedures

For non-emergency personnel: No action shall be taken involving any personal risk or without suitable training. Evacuate surrounding areas. Keep unnecessary and unprotected personnel from entering. Do not touch or walk through spilled material

For emergency responders: If specialized clothing is required to deal with the spillage, take note of any information in section 8 on suitable and unsuitable materials. See also the information in "For non-emergency personnel"

Environmental precautions: Avoid dispersal of spilled material and runoff and contact with soil, waterways, drains and sewers. Inform the relevant authorities if the product has caused environmental pollution (sewers, water ways, soil and air

Methods and material for containment and cleaning up:

Method for Containment: Prevent further leakage or spillage if safe to do so.

Methods of cleaning up: Soak up with inert absorbent material. Pick up and transfer to properly labelled containers.

Section 7. Handling and storage

Precautions for safe handling

Protective measures: Put on appropriate personal protective equipment (see Section 8).

Advice on general occupational hygiene: Eating, drinking and smoking should be prohibited in areas where this material is handled, stored and processed. Workers should wash hands and face before eating, drinking and smoking. Remove contaminated clothing and protective equipment before entering eating areas.

Conditions for safe storage, including any incompatibilities: Store in accordance with local regulations. Store in original container protected from direct sunlight in a dry, cool and well-ventilated area, away from incompatible materials (see Section 10) and food and drink. Keep container tightly closed and sealed until ready for use. Containers that have been opened must be carefully resealed and kept upright to prevent leakage. Do not store in unlabelled containers. Use appropriate containment to avoid environmental contamination.

Section 8. Exposure controls/personal protection

Control parameters

Occupational exposure limits: None

Appropriate engineering controls: Good general ventilation should be sufficient to control worker exposure to airborne contaminants.

Environmental exposure controls: Emissions from ventilation or work process equipment should be checked to ensure they comply with the requirements of environmental protection legislation. In some cases, fume scrubbers, filters or engineering modifications to the process equipment will be necessary to reduce emissions to acceptable levels.

Individual protection measures

Hygiene measures: Wash hands, forearms and face thoroughly after handling chemical products, before eating, smoking and using the lavatory and at the end of the working period. Appropriate techniques should be used to remove potentially contaminated clothing. Wash contaminated clothing before reusing. Ensure that eyewash stations and safety showers are close to the workstation location.

Eye/face protection: Safety eyewear complying with an approved standard should be used when a risk assessment indicates this is necessary to avoid exposure to liquid splashes, mists, gases or dusts. If contact is possible, the following protection should be worn, unless the assessment indicates a higher degree of protection: safety glasses with side-shields.

Skin protection

Hand protection:	Chemical-resistant, impervious gloves complying with an approved standard should be worn at all times when handling chemical products if a risk assessment indicates this is necessary.
Body protection:	Personal protective equipment for the body should be selected based on the task being performed and the risks involved and should be approved by a specialist before handling this product.
Other skin protection:	Appropriate footwear and any additional skin protection measures should be selected based on the task being performed and the risks involved and should be approved by a specialist before handling this product.
Respiratory protection:	Based on the hazard and potential for exposure, select a respirator that meets the appropriate standard or certification. Respirators must be used according to a respiratory protection program to ensure proper fitting, training, and other important aspects of use.

Section 9. Physical and chemical properties

Appearance	
Physical state:	Liquid
Colour:	Colourless
Odour:	Odourless
Odour Threshold:	Not available
pH:	4.01
Melting Point:	Not available
Boiling Point:	100° C
Flash point:	[Product does not sustain combustion.]
Evaporation rate:	Not available
Flammability (solid, gas):	Not available
Lower and upper explosive (Flammable) limits:	Not available
Vapour pressure:	Not available
Vapour density:	Not available
Relative density:	Not available
Partition coefficient n- octanol/water:	Not available
Auto-ignition temperature:	Not available
Decomposition temperature:	Not available
Viscosity:	Not available

Section 10. Stability and reactivity

Reactivity:	No specific test data related to reactivity available for this product or its ingredients.
Chemical stability:	The product is stable
Possibility of hazardous reactions:	Hazardous reactions or instability may occur under certain conditions of storage or use.
Conditions to avoid:	No specific data
Incompatible materials:	No specific data
Hazardous decomposition Products:	Under normal conditions of storage and use, hazardous decomposition products should not be produced.

Section 11. Toxicological Information

Information on toxicological effects

Acute toxicity:	Not available
Irritation/Corrosion:	Not available
Sensitization:	Not available
Mutagenicity:	Not available
Carcinogenicity:	Not available
Reproductive toxicity:	Not available
Teratogenicity:	Not available
Specific target organ toxicity (single exposure):	Not available
Specific target organ toxicity (repeated exposure):	Not available
Aspiration hazard:	Not available
Information on the likely routes of exposure:	Not available

Potential acute effects:

Eye contact:	No known significant effects or critical hazards
Inhalation:	No known significant effects or critical hazards
Skin contact:	No known significant effects or critical hazards
Ingestion:	No known significant effects or critical hazards

Symptoms related to the physical, chemical and toxicological characteristics

Eye contact:	No specific data
Inhalation:	No specific data
Skin contact:	No specific data
Ingestion:	No specific data

Delayed and immediate effects and also chronic effects from short and long term exposure

Short term exposure

Potential immediate effects:	Not available
Potential delayed effects:	Not available

Long term exposure

Potential immediate effects	Not available
Potential delayed effects:	Not available

Potential chronic health effects:	Not available
General:	No known significant effects or critical hazards
Carcinogenicity:	No known significant effects or critical hazards
Mutagenicity:	No known significant effects or critical hazards
Teratogenicity:	No known significant effects or critical hazards
Developmental effects:	No known significant effects or critical hazards
Fertility effects:	No known significant effects or critical hazards

Numerical measures of toxicity

Acute toxicity estimates:	Not available

Section 12. Ecological information

Toxicity:	Not available
Persistence/degradability:	Not available

Bio accumulative potential: Not available

Mobility in soil
Soil/water
partition coefficient (K_{OC}): Not available

Other adverse effects: No known significant effects or critical hazards.

Section 13. Disposal consideration

Disposal methods: The generation of waste should be avoided or minimized wherever possible. Disposal of this product, solutions and any by-products should at all times comply with the requirements of environmental protection and waste disposal legislation and any regional local authority requirements. Dispose of surplus and non- recyclable products via a licensed waste disposal contractor. Waste should not be disposed of untreated to the sewer unless fully compliant with the requirements of all authorities with jurisdiction. Incineration or landfill should only be considered when recycling is not feasible. This material and its container must be disposed of in a safe way. Empty containers or liners may retain some product residues. Avoid dispersal of spilled material and runoff and contact with soil, waterways, drains and sewers.

Section 14. Transport information

	UN	IMDG	IATA
UN number	Not regulated.	Not regulated.	Not regulated.
UN proper shipping name	-	-	-
Transport hazard class(es)	-	-	-
Packing group	-	-	-
Environmental hazards	No.	No.	No.
Additional information	-	-	-

Special precautions for user: Transport within user's premises: always transport in closed containers that are upright and secure. Ensure that persons transporting the product know what to do in the event of an accident or spillage.

Section 15. Regulatory information

Safety, health and environmental regulations/legislation specific for the substance or mixture.
International Inventories:
USINV Complies

CANINV	Complies
EINECS/ELINCS	Complies
ENCS	Complies
IECSC	Complies
KECL	Complies
PICCS	Complies
AICS	Complies

Key of abbreviation:
USINV / TSCA: United States Toxic Substanc3es Control Act Section 8(b) Inventory
CANINV / DSL/NDSL: Canadian Domestic Substances List/Non-Domestic Substances List
EINECS/ELINCS: European Inventory of Existing Commercial Chemical Substances/EU List of Notified Chemical Substances
ENCS: Japanese Existing and New Chemical Substances
IECSC: Chinese Inventory of Existing Chemical Substances
KECL: Korean Existing and Evaluated Chemical Substances
PICCS: Philippines Inventory of Chemical and Chemical Substances
AICS: Australian Inventory of Chemical Substances

Chemical safety assessment:
A chemical safety assessment according to regulation (EC) No: 1907/2006 is not required.

Section 16. Other information

History:

Date of issue: 6 March 2018

Key of abbreviation:
ATE: Acute Toxicity Estimate
BCF: Bioconcentration Factor
GHS: Globally harmonized System of classification and labelling of chemicals
IATA: International Air Transport Association
IBC= Intermediate Bulk Container
IMDG International maritime Dangerous goods
LogPow = logarithm of the octanol/water partition coefficient
MARPOL = International Convention for the Prevention of Pollution From Ships, 1973 as modified by the Protocol of 1978. ("Marpol" = marine pollution)
UN = United Nations

Notice to reader:

To the best of our knowledge, the information contained herein is accurate. However, neither the above- named supplier, nor any of its subsidiaries, assumes any liability whatsoever for the accuracy or completeness of the information contained herein.

Final determination of suitability of any material is the sole responsibility of the user. All materials may present unknown hazards and should be used with caution. Although certain hazards are described herein, we cannot guarantee that these are the only hazards that exist.

HORIBA

SAFETY DATA SHEET

Section 1. Product and Company Identification

Product Name: 525-7, 500-7, 560-7 (pH 7 buffer solution)

Product code: 3999960020, 3999960031, 3999960147

Recommended use: For laboratory and Industrial use

Manufacturer / Supplier: Horiba Instruments (Singapore) Pte Ltd
83 Science Park Drive, #02-02A, The Curie
Singapore-118258
Contact No: +65 69089600

Section 2. Hazard identification

Classification of the Substance or Mixture: Mixture

The mixture is classified as not hazardous according to regulation (EC) 1272/2008, Globally Harmonized System (GHS)

GHS Label elements:

Signal word: No Signal word
Hazard statement: No Known significant effects or critical hazards

Precautionary statements:
General: Do not handle until all safety precautions have been read and understood

Other hazards which do not result in classification: None known

Section 3. Composition/ information on ingredients

Substance or Mixture: Mixture

CAS Numbers other identifiers:

Ingredients	CAS Number	Percentage
Potassium Dihydrogen Phosphate	7778-77-0	<1%
Disodium Hydrogen Phosphate	7558-79-4	<1%
Water	7732-18-5	>98%

This product contains <0.01% other ingredient, not required to be listed as it is not hazardous to health and environment.

The exact percentage of composition has been withheld as a trade secret

Chemical formula: Not applicable

Section 4. First Aid Measures

Description of necessary first aid measures

Eye contact:	Immediately flush eyes with plenty of water, occasionally lifting the upper and lower eyelids. Remove any contact lenses. Get medical attention if irritation occurs.
Inhalation:	Remove victim to fresh air and keep at rest in a position comfortable for breathing. Get medical attention if symptoms occur.
Skin contact:	Flush contaminated skin with plenty of water. Remove contaminated clothing and shoes. Get medical attention if symptoms occur.
Ingestion	Clean mouth with water. Remove victim to fresh air and keep at rest in a position comfortable for breathing. If material has been swallowed and the person is conscious, give small quantities of water to drink. Do not induce vomiting unless directed to do so by medical personnel. Get medical attention if symptoms occur.

Most important symptoms/effects, both acute and delayed

Potential acute health effects: No known significant effects or critical hazards

Over-exposure signs/symptoms: No specific data available

Indication of immediate medical attention and special treatment needed, if necessary

Notes to physician: Treat symptomatically. Contact poison treatment specialist immediately if large quantities have been ingested or inhaled.

See toxicological information (Section 11)

Section 5. Firefighting Measures

Extinguishing Media

Suitable extinguishing media: Use an extinguishing agent suitable for the surrounding fire.

Unsuitable extinguishing Media: No Information available

Specific hazards arising from the substance or mixture: No specific information available

Hazardous thermal decomposition products: No Specific data

Special protective actions for Fire-fighters: Promptly isolate the scene by removing all persons from the incident if there is fire. No action shall be taken involving any personal risk or without suitable training.

Special protective equipment for fire-fighters: Fire-fighters should wear appropriate protective equipment and self-contained breathing apparatus with a full face-piece operated in positive pressure mode.

Section 6. Accidental release Measures

Personal precautions, protective equipment and emergency procedures

For non-emergency personnel: No action shall be taken involving any personal risk or without suitable training. Evacuate surrounding areas. Keep unnecessary and unprotected personnel from entering. Do not touch or walk through spilled material

For emergency responders: If specialized clothing is required to deal with the spillage, take note of any information in section 8 on suitable and unsuitable materials. See also the information in “For non-emergency personnel”

Environmental precautions: Avoid dispersal of spilled material and runoff and contact with soil, waterways, drains and sewers. Inform the relevant authorities if the product has caused environmental pollution (sewers, water ways, soil and air

Methods and material for containment and cleaning up:

Method for Containment: Prevent further leakage or spillage if safe to do so.

Methods of cleaning up: Soak up with inert absorbent material. Pick up and transfer to properly labelled containers.

Section 7. Handling and storage

Precautions for safe handling
Protective measures: Put on appropriate personal protective equipment (see Section 8).

Advice on general occupational hygiene: Eating, drinking and smoking should be prohibited in areas where this material is handled, stored and processed. Workers should wash hands and face before eating, drinking and smoking. Remove contaminated clothing and protective equipment before entering eating areas.

Conditions for safe storage, including any incompatibilities: Store in accordance with local regulations. Store in original container protected from direct sunlight in a dry, cool and well-ventilated area, away from incompatible materials (see Section 10) and food and drink. Keep container tightly closed and sealed until ready for use. Containers that have been opened must be carefully resealed and kept upright to prevent leakage. Do not store in unlabelled containers. Use appropriate containment to avoid environmental contamination.

Section 8. Exposure controls/personal protection

Control parameters

Occupational exposure limits: None

Appropriate engineering controls: Good general ventilation should be sufficient to control worker exposure to airborne contaminants.

Environmental exposure controls: Emissions from ventilation or work process equipment should be checked to ensure they comply with the requirements of environmental protection legislation. In some cases, fume scrubbers, filters or engineering modifications to the process equipment will be necessary to reduce emissions to acceptable levels.

Individual protection measures
Hygiene measures: Wash hands, forearms and face thoroughly after handling chemical products, before eating, smoking and using the lavatory and at the end of the working period. Appropriate techniques should be used to remove potentially contaminated clothing. Wash contaminated clothing before reusing. Ensure that eyewash stations and safety showers are close to the workstation location.

Eye/face protection: Safety eyewear complying with an approved standard should be used when a risk assessment indicates this is necessary to avoid exposure to liquid splashes, mists, gases or dusts. If contact is possible, the following protection should be worn, unless the assessment indicates a higher degree of protection: safety glasses with side-shields.

Skin protection

Hand protection:	Chemical-resistant, impervious gloves complying with an approved standard should be worn at all times when handling chemical products if a risk assessment indicates this is necessary.
Body protection:	Personal protective equipment for the body should be selected based on the task being performed and the risks involved and should be approved by a specialist before handling this product.
Other skin protection:	Appropriate footwear and any additional skin protection measures should be selected based on the task being performed and the risks involved and should be approved by a specialist before handling this product.
Respiratory protection:	Based on the hazard and potential for exposure, select a respirator that meets the appropriate standard or certification. Respirators must be used according to a respiratory protection program to ensure proper fitting, training, and other important aspects of use.

Section 9. Physical and chemical properties

Appearance	
Physical state:	Liquid
Colour:	Colourless
Odour:	Odourless
Odour Threshold:	Not available
pH:	6.86
Melting Point:	Not available
Boiling Point:	100° C
Flash point:	[Product does not sustain combustion.]
Evaporation rate:	Not available
Flammability (solid, gas):	Not available
Lower and upper explosive (Flammable) limits:	Not available
Vapour pressure:	Not available
Vapour density:	Not available
Relative density:	Not available
Partition coefficient n- octanol/water:	Not available
Auto-ignition temperature:	Not available
Decomposition temperature:	Not available
Viscosity:	Not available

Section 10. Stability and reactivity

Reactivity:	No specific test data related to reactivity available for this product or its ingredients.
Chemical stability:	The product is stable
Possibility of hazardous reactions:	Hazardous reactions or instability may occur under certain conditions of storage or use.
Conditions to avoid:	No specific data
Incompatible materials:	No specific data
Hazardous decomposition Products:	Under normal conditions of storage and use, hazardous decomposition products should not be produced.

Section 11. Toxicological Information

Information on toxicological effects

Acute toxicity:	Not available
Irritation/Corrosion:	Not available
Sensitization:	Not available
Mutagenicity:	Not available
Carcinogenicity:	Not available
Reproductive toxicity:	Not available
Teratogenicity:	Not available
Specific target organ toxicity (single exposure):	Not available
Specific target organ toxicity (repeated exposure):	Not available
Aspiration hazard:	Not available
Information on the likely routes of exposure:	Not available

Potential acute effects:

Eye contact:	No known significant effects or critical hazards
Inhalation:	No known significant effects or critical hazards
Skin contact:	No known significant effects or critical hazards
Ingestion:	No known significant effects or critical hazards

Symptoms related to the physical, chemical and toxicological characteristics

Eye contact:	No specific data
Inhalation:	No specific data
Skin contact:	No specific data
Ingestion:	No specific data

Delayed and immediate effects and also chronic effects from short and long term exposure

Short term exposure

Potential immediate effects:	Not available
Potential delayed effects:	Not available

Long term exposure

Potential immediate effects:	Not available
Potential delayed effects:	Not available

Potential chronic health effects: Not available

General:	No known significant effects or critical hazards
Carcinogenicity:	No known significant effects or critical hazards
Mutagenicity:	No known significant effects or critical hazards
Teratogenicity:	No known significant effects or critical hazards
Developmental effects:	No known significant effects or critical hazards
Fertility effects:	No known significant effects or critical hazards

Numerical measures of toxicity

Acute toxicity estimates: Not available

Section 12. Ecological information

Toxicity: Not available

Persistence/degradability: Not available

Bio accumulative potential: Not available

Mobility in soil

Soil/water partition coefficient (K_{OC}): Not available

Other adverse effects: No known significant effects or critical hazards.

Section 13. Disposal consideration

Disposal methods: The generation of waste should be avoided or minimized wherever possible. Disposal of this product, solutions and any by-products should at all times comply with the requirements of environmental protection and waste disposal legislation and any regional local authority requirements. Dispose of surplus and non- recyclable products via a licensed waste disposal contractor. Waste should not be disposed of untreated to the sewer unless fully compliant with the requirements of all authorities with jurisdiction. Incineration or landfill should only be considered when recycling is not feasible. This material and its container must be disposed of in a safe way. Empty containers or liners may retain some product residues. Avoid dispersal of spilled material and runoff and contact with soil, waterways, drains and sewers.

Section 14. Transport information

	UN	IMDG	IATA
UN number	Not regulated.	Not regulated.	Not regulated.
UN proper shipping name	-	-	-
Transport hazard class(es)	-	-	-
Packing group	-	-	-
Environmental hazards	No.	No.	No.
Additional information	-	-	-

Special precautions for user: Transport within user's premises: always transport in closed containers that are upright and secure. Ensure that persons transporting the product know what to do in the event of an accident or spillage.

Section 15. Regulatory information

Safety, health and environmental regulations/legislation specific for the substance or mixture.

International Inventories:

USINV	Complies
CANINV	Complies
EINECS/ELINCS	Complies
ENCS	Complies

IECSC	Complies
KECL	Complies
PICCS	Complies
AICS	Complies

Key of abbreviation:
USINV / TSCA: United States Toxic Substanc3es Control Act Section 8(b) Inventory
CANINV / DSL/NDSL: Canadian Domestic Substances List/Non-Domestic Substances List
EINECS/ELINCS: European Inventory of Existing Commercial Chemical Substances/EU List of Notified Chemical Substances
ENCS: Japanese Existing and New Chemical Substances
IECSC: Chinese Inventory of Existing Chemical Substances
KECL: Korean Existing and Evaluated Chemical Substances
PICCS: Philippines Inventory of Chemical and Chemical Substances
AICS: Australian Inventory of Chemical Substances

Chemical safety assessment:
A chemical safety assessment according to regulation (EC) No: 1907/2006 is not required.

Section 16. Other information

History:

Date of issue: 28 Feb 2018

Key of abbreviation:
ATE: Acute Toxicity Estimate
BCF: Bioconcentration Factor
GHS: Globally harmonized System of classification and labelling of chemicals
IATA: International Air Transport Association
IBC= Intermediate Bulk Container
IMDG International maritime Dangerous goods
LogPow = logarithm of the octanol/water partition coefficient
MARPOL = International Convention for the Prevention of Pollution From Ships, 1973 as modified by the Protocol of 1978. ("Marpol" = marine pollution)
UN = United Nations

Notice to reader:

To the best of our knowledge, the information contained herein is accurate. However, neither the above- named supplier, nor any of its subsidiaries, assumes any liability whatsoever for the accuracy or completeness of the information contained herein.

Final determination of suitability of any material is the sole responsibility of the user. All materials may present unknown hazards and should be used with caution. Although certain hazards are described herein, we cannot guarantee that these are the only hazards that exist.

HORIBA

SAFETY DATA SHEET

Section 1. Product and Company Identification

Product Name: 525-10, 500-10, 560-10 (pH 10.01 buffer solution)

Product code: 3999960022, 3999960033, 3999960138

Recommended use: For laboratory and Industrial use

Manufacturer / Supplier: Horiba Instruments (Singapore) Pte Ltd
83 Science Park Drive, #02-02A, The Curie
Singapore-118258
Contact No: +65 69089600

Section 2. Hazard identification

Classification of the Substance or Mixture: Mixture

The mixture is classified as not hazardous according to regulation (EC) 1272/2008, Globally Harmonized System (GHS)

GHS Label elements:

Signal word: No Signal word
Hazard statement: No Known significant effects or critical hazards

Precautionary statements:
General: Do not handle until all safety precautions have been read and understood

Other hazards which do not result in classification: None known

Section 3. Composition/ information on ingredients

Substance or Mixture: Mixture

CAS Numbers other identifiers:

Ingredients	CAS Number	Percentage
Sodium Carbonate	497-19-8	<1%
Sodium Bicarbonate	144-55-8	<1%
Water	7732-18-5	>98%

This product contains <0.01% other ingredient, not required to be listed as it is not hazardous to health and environment.

The exact percentage of composition has been withheld as a trade secret

Chemical formula: Not applicable

Section 4. First Aid Measures

Description of necessary first aid measures

Eye contact:	Immediately flush eyes with plenty of water, occasionally lifting the upper and lower eyelids. Remove any contact lenses. Get medical attention if irritation occurs.
Inhalation:	Remove victim to fresh air and keep at rest in a position comfortable for breathing. Get medical attention if symptoms occur.
Skin contact:	Flush contaminated skin with plenty of water. Remove contaminated clothing and shoes. Get medical attention if symptoms occur.
Ingestion	Clean mouth with water. Remove victim to fresh air and keep at rest in a position comfortable for breathing. If material has been swallowed and the person is conscious, give small quantities of water to drink. Do not induce vomiting unless directed to do so by medical personnel. Get medical attention if symptoms occur.

Most important symptoms/effects, both acute and delayed

Potential acute health effects: No known significant effects or critical hazards

Over-exposure signs/symptoms: No specific data available

Indication of immediate medical attention and special treatment needed, if necessary

Notes to physician: Treat symptomatically. Contact poison treatment specialist immediately if large quantities have been ingested or inhaled.

See toxicological information (Section 11)

Section 5. Firefighting Measures

Extinguishing Media

Suitable extinguishing media: Use an extinguishing agent suitable for the surrounding fire.

Unsuitable extinguishing Media: No Information available

Specific hazards arising from the substance or mixture: No specific information available

Hazardous thermal decomposition products: No Specific data

Special protective actions for Fire-fighters: Promptly isolate the scene by removing all persons from the incident if there is fire. No action shall be taken involving any personal risk or without suitable training.

Special protective equipment for fire-fighters: Fire-fighters should wear appropriate protective equipment and self-contained breathing apparatus with a full face-piece operated in positive pressure mode.

Section 6. Accidental release Measures

Personal precautions, protective equipment and emergency procedures

For non-emergency personnel: No action shall be taken involving any personal risk or without suitable training. Evacuate

surrounding areas. Keep unnecessary and unprotected personnel from entering. Do not touch or walk through spilled material

For emergency responders: If specialized clothing is required to deal with the spillage, take note of any information in section 8 on suitable and unsuitable materials. See also the information in “For non-emergency personnel”

Environmental precautions: Avoid dispersal of spilled material and runoff and contact with soil, waterways, drains and sewers. Inform the relevant authorities if the product has caused environmental pollution (sewers, water ways, soil and air

Methods and material for containment and cleaning up:

Method for Containment: Prevent further leakage or spillage if safe to do so.

Methods of cleaning up: Soak up with inert absorbent material. Pick up and transfer to properly labelled containers.

Section 7. Handling and storage

Precautions for safe handling
Protective measures: Put on appropriate personal protective equipment (see Section 8).

Advice on general occupational hygiene: Eating, drinking and smoking should be prohibited in areas where this material is handled, stored and processed. Workers should wash hands and face before eating, drinking and smoking. Remove contaminated clothing and protective equipment before entering eating areas.

Conditions for safe storage, including any incompatibilities: Store in accordance with local regulations. Store in original container protected from direct sunlight in a dry, cool and well-ventilated area, away from incompatible materials (see Section 10) and food and drink. Keep container tightly closed and sealed until ready for use. Containers that have been opened must be carefully resealed and kept upright to prevent leakage. Do not store in unlabelled containers. Use appropriate containment to avoid environmental contamination.

Section 8. Exposure controls/personal protection

Control parameters

Occupational exposure limits: None

Appropriate engineering controls: Good general ventilation should be sufficient to control worker exposure to airborne contaminants.

Environmental exposure controls: Emissions from ventilation or work process equipment should be checked to ensure they comply with the requirements of environmental protection legislation. In some cases, fume scrubbers, filters or engineering modifications to the process equipment will be necessary to reduce emissions to acceptable levels.

Individual protection measures
Hygiene measures: Wash hands, forearms and face thoroughly after handling chemical products, before eating, smoking and using the lavatory and at the end of the working period. Appropriate techniques should be used to remove potentially contaminated clothing. Wash contaminated clothing before reusing. Ensure that eyewash stations and safety showers are close to the workstation location.

Eye/face protection: Safety eyewear complying with an approved standard should be used when a risk assessment indicates this is necessary to avoid exposure to liquid splashes, mists, gases or dusts. If contact is possible, the following protection should be worn, unless the assessment indicates a higher degree of protection: safety glasses with

side-shields.

Skin protection

Hand protection:	Chemical-resistant, impervious gloves complying with an approved standard should be worn at all times when handling chemical products if a risk assessment indicates this is necessary.
Body protection:	Personal protective equipment for the body should be selected based on the task being performed and the risks involved and should be approved by a specialist before handling this product.
Other skin protection:	Appropriate footwear and any additional skin protection measures should be selected based on the task being performed and the risks involved and should be approved by a specialist before handling this product.
Respiratory protection:	Based on the hazard and potential for exposure, select a respirator that meets the appropriate standard or certification. Respirators must be used according to a respiratory protection program to ensure proper fitting, training, and other important aspects of use.

Section 9. Physical and chemical properties

Appearance

Physical state:	Liquid
Colour:	Colourless
Odour:	Odourless
Odour Threshold:	Not available
pH:	10.01
Melting Point:	Not available
Boiling Point:	100° C
Flash point:	[Product does not sustain combustion.]
Evaporation rate:	Not available
Flammability (solid, gas):	Not available
Lower and upper explosive (Flammable) limits:	Not available
Vapour pressure:	Not available
Vapour density:	Not available
Relative density:	Not available
Partition coefficient n- octanol/water:	Not available
Auto-ignition temperature:	Not available
Decomposition temperature:	Not available
Viscosity:	Not available

Section 10. Stability and reactivity

Reactivity:	No specific test data related to reactivity available for this product or its ingredients.
Chemical stability:	The product is stable
Possibility of hazardous reactions:	Hazardous reactions or instability may occur under certain conditions of storage or use.
Conditions to avoid:	No specific data
Incompatible materials:	No specific data
Hazardous decomposition	

Products:	Under normal conditions of storage and use, hazardous decomposition products should not be produced.

Section 11. Toxicological Information

Information on toxicological effects

Acute toxicity:	Not available
Irritation/Corrosion:	Not available
Sensitization:	Not available
Mutagenicity:	Not available
Carcinogenicity:	Not available
Reproductive toxicity:	Not available
Teratogenicity:	Not available
Specific target organ: toxicity (single exposure):	Not available
Specific target organ toxicity (repeated exposure):	Not available
Aspiration hazard:	Not available
Information on the likely routes of exposure:	Not available

Potential acute effects:

Eye contact:	No known significant effects or critical hazards
Inhalation:	No known significant effects or critical hazards
Skin contact:	No known significant effects or critical hazards
Ingestion:	No known significant effects or critical hazards

Symptoms related to the physical, chemical and toxicological characteristics

Eye contact:	No specific data.
Inhalation:	No specific data.
Skin contact:	No specific data.
Ingestion:	No specific data.

Delayed and immediate effects and also chronic effects from short and long term exposure

Short term exposure

Potential immediate effect:	Not available
Potential delayed effects:	Not available

Long term exposure

Potential immediate effects:	Not available
Potential delayed effects:	Not available

Potential chronic health effects:	Not available
General:	No known significant effects or critical hazards
Carcinogenicity:	No known significant effects or critical hazards
Mutagenicity:	No known significant effects or critical hazards
Teratogenicity:	No known significant effects or critical hazards
Developmental effects:	No known significant effects or critical hazards
Fertility effects:	No known significant effects or critical hazards

Numerical measures of toxicity

Acute toxicity estimates:	Not available

Section 12. Ecological information

Toxicity:	Not available
Persistence/degradability:	Not available
Bio accumulative potential:	Not available

Mobility in soil
Soil/water partition coefficient (K_{OC}): Not available

Other adverse effects: No known significant effects or critical hazards.

Section 13. Disposal consideration

Disposal methods: The generation of waste should be avoided or minimized wherever possible. Disposal of this product, solutions and any by-products should at all times comply with the requirements of environmental protection and waste disposal legislation and any regional local authority requirements. Dispose of surplus and non- recyclable products via a licensed waste disposal contractor. Waste should not be disposed of untreated to the sewer unless fully compliant with the requirements of all authorities with jurisdiction. Incineration or landfill should only be considered when recycling is not feasible. This material and its container must be disposed of in a safe way. Empty containers or liners may retain some product residues. Avoid dispersal of spilled material and runoff and contact with soil, waterways, drains and sewers.

Section 14. Transport information

	UN	IMDG	IATA
UN number	Not regulated.	Not regulated.	Not regulated.
UN proper shipping name	-	-	-
Transport hazard class(es)	-	-	-
Packing group	-	-	-
Environmental hazards	No.	No.	No.
Additional information	-	-	-

Special precautions for user: Transport within user's premises: always transport in closed containers that are upright and secure. Ensure that persons transporting the product know what to do in the event of an accident or spillage.

Section 15. Regulatory information

Safety, health and environmental regulations/legislation specific for the substance or mixture.
International Inventories:

USINV	Complies
CANINV	Complies
EINECS/ELINCS	Complies
ENCS	Complies

IECSC	Complies
KECL	Complies
PICCS	Complies
AICS	Complies

Key of abbreviation:
USINV / TSCA: United States Toxic Substanc3es Control Act Section 8(b) Inventory
CANINV / DSL/NDSL: Canadian Domestic Substances List/Non-Domestic Substances List
EINECS/ELINCS: European Inventory of Existing Commercial Chemical Substances/EU List of Notified Chemical Substances
ENCS: Japanese Existing and New Chemical Substances
IECSC: Chinese Inventory of Existing Chemical Substances
KECL: Korean Existing and Evaluated Chemical Substances
PICCS: Philippines Inventory of Chemical and Chemical Substances
AICS: Australian Inventory of Chemical Substances

Chemical safety assessment:
A chemical safety assessment according to regulation (EC) No: 1907/2006 is not required.

Section 16. Other information

History:

Date of issue: 6 March 2018

Key of abbreviation:
ATE: Acute Toxicity Estimate
BCF: Bioconcentration Factor
GHS: Globally harmonized Syatem of classification and labelling of chemicals
IATA: International Air Transport Association
IBC= Intermediate Bulk Container
IMDG International maritime Dangerous goods
LogPow = logarithm of the octanol/water partition coefficient
MARPOL = International Convention for the Prevention of Pollution From Ships, 1973 as modified by the Protocol of 1978. ("Marpol" = marine pollution)
UN = United Nations

Notice to reader:

To the best of our knowledge, the information contained herein is accurate. However, neither the above- named supplier, nor any of its subsidiaries, assumes any liability whatsoever for the accuracy or completeness of the information contained herein.

Final determination of suitability of any material is the sole responsibility of the user. All materials may present unknown hazards and should be used with caution. Although certain hazards are described herein, we cannot guarantee that these are the only hazards that exist.

HORIBA

SAFETY DATA SHEET

Section 1. Product and Company Identification

Product Name: 525-3; 560-3 (internal filling solution for pH combination electrode)

Product code: 3999960023; 3999960139

Recommended use: For laboratory and Industrial use

Manufacturer / Supplier: Horiba Instruments (Singapore) Pte Ltd
83 Science Park Drive, #02-02A, The Curie
Singapore-118258
Contact No: +65 69089660

Section 2. Hazard identification

Classification of the Substance or Mixture: Mixture

The mixture is classified as not hazardous according to regulation (EC) 1272/2008, Globally Harmonized System (GHS)

GHS Label elements:

Signal word: No Signal word
Hazard statement: No Known significant effects or critical hazards

Precautionary statements:
General: Do not handle until all safety precautions have been read and understood

Other hazards which do not result in classification: None known

Section 3. Composition/ information on ingredients

Substance or Mixture: Mixture

CAS Numbers other identifiers:

Ingredients	CAS Number	Percentage
Potassium Chloride	7447-40-7	<25%
Water	7732-18-5	>75%

The exact percentage of composition has been withheld as a trade secret

Chemical formula: Not applicable

Section 4. First Aid Measures

Description of necessary first aid measures

Eye contact:	Immediately flush eyes with plenty of water, occasionally lifting the upper and lower eyelids. Remove any contact lenses. Get medical attention if irritation occurs.
Inhalation:	Remove victim to fresh air and keep at rest in a position comfortable for breathing. Get medical attention if symptoms occur.
Skin contact:	Flush contaminated skin with plenty of water. Remove contaminated clothing and shoes. Get medical attention if symptoms occur.
Ingestion:	Clean mouth with water. Remove victim to fresh air and keep at rest in a position comfortable for breathing. If material has been swallowed and the person is conscious, give small quantities of water to drink. Do not induce vomiting unless directed to do so by medical personnel. Get medical attention if symptoms occur.

Most important symptoms/effects, both acute and delayed

Potential acute health effects:

Eye contact: Causes eye irritation

Over-exposure signs/symptoms: No specific data available

Indication of immediate medical attention and special treatment needed, if necessary

Notes to physician: Treat symptomatically. Contact poison treatment specialist immediately if large quantities have been ingested or inhaled.

See toxicological information (Section 11)

Section 5. Firefighting Measures

Extinguishing Media

Suitable extinguishing media:	Use an extinguishing agent suitable for the surrounding fire.
Unsuitable extinguishing Media:	No Information available
Specific hazards arising from the substance or mixture:	No specific information available
Hazardous thermal decomposition products:	No Specific data
Special protective actions for Fire-fighters:	Promptly isolate the scene by removing all persons from the incident if there is fire. No action shall be taken involving any personal risk or without suitable training
Special protective equipment for fire-fighters	Fire-fighters should wear appropriate protective equipment self- contained breathing apparatus with a full face-piece operated in positive pressure mode.

Section 6. Accidental release Measures

Personal precautions, protective equipment and emergency procedures

For non-emergency personnel:	No action shall be taken involving any personal risk or without suitable training. Evacuate surrounding areas. Keep unnecessary and unprotected personnel from entering. Do not touch or walk through spilled material.
For emergency responders:	If specialized clothing is required to deal with the spillage, take note of any information

In section 8 on suitable and unsuitable materials. See also the information in “For non-emergency personnel”.

Environmental precautions: Avoid dispersal of spilled material and runoff and contact with soil, waterways, drains and sewers. Inform the relevant authorities if the product has caused environmental pollution (sewers, water ways, soil and air.

Methods and material for containment and cleaning up:

Method for Containment: Prevent further leakage or spillage if safe to do so.

Methods of cleaning up: Soak up with inert absorbent material. Pick up and transfer to properly labelled containers.

Section 7. Handling and storage

Precautions for safe handling
Protective measures: Put on appropriate personal protective equipment (see Section 8).

Advice on general occupational hygiene: Eating, drinking and smoking should be prohibited in areas where this material is handled, stored and processed. Workers should wash hands and face before eating, drinking and smoking. Remove contaminated clothing and protective equipment before entering eating areas.

Conditions for safe storage, including any incompatibilities: Store in accordance with local regulations. Store in original container protected from direct sunlight in a dry, cool and well-ventilated area, away from incompatible materials (see Section 10) and food and drink. Keep container tightly closed and sealed until ready for use. Containers that have been opened must be carefully resealed and kept upright to prevent leakage. Do not store in unlabelled containers. Use appropriate containment to avoid environmental contamination.

Section 8. Exposure controls/personal protection

Control parameters
Occupational exposure limits: None

Appropriate engineering controls: Good general ventilation should be sufficient to control worker exposure to airborne contaminants.

Environmental exposure controls: Emissions from ventilation or work process equipment should be checked to ensure they comply with the requirements of environmental protection legislation. In some cases, fume scrubbers, filters or engineering modifications to the process Equipment will be necessary to reduce emissions to acceptable levels.

Individual protection measures
Hygiene measures: Wash hands, forearms and face thoroughly after handling chemical products, before eating, smoking and using the lavatory and at the end of the working period. Appropriate techniques should be used to remove potentially contaminated clothing. Wash contaminated clothing before reusing. Ensure that eyewash stations and safety showers are close to the workstation location.

Eye/face protection: Safety eyewear complying with an approved standard should be used when a risk assessment indicates this is necessary to avoid exposure to liquid splashes, mists, gases or dusts. If contact is possible, the following protection should be worn, unless the assessment indicates a higher degree of protection: safety glasses with side-shields.

Skin protection
Hand protection: Chemical-resistant, impervious gloves complying with an approved standard should

	be worn at all times when handling chemical products if a risk assessment indicates this is necessary.
Body protection:	Personal protective equipment for the body should be selected based on the task being performed and the risks involved and should be approved by a specialist before handling this product.
Other skin protection:	Appropriate footwear and any additional skin protection measures should be selected based on the task being performed and the risks involved and should be approved by a specialist before handling this product.
Respiratory protection:	Based on the hazard and potential for exposure, select a respirator that meets the appropriate standard or certification. Respirators must be used according to a respiratory protection program to ensure proper fitting, training, and other important aspects of use.

Section 9. Physical and chemical properties

Appearance	
Physical state:	Liquid
Colour:	Colourless
Odour:	Odourless
Odour Threshold:	Not available
pH:	Not available
Melting Point:	Not available
Boiling Point:	100° C
Flash point:	[Product does not sustain combustion.]
Evaporation rate:	Not available
Flammability (solid, gas):	Not available
Lower and upper explosive: (Flammable) limits	Not available
Vapour pressure:	Not available
Vapour density:	Not available
Relative density:	Not available
Partition coefficient: n- octanol/water	Not available
Auto-ignition temperature:	Not available
Decomposition temperature:	Not available
Viscosity:	Not available

Section 10. Stability and reactivity

Reactivity:	No specific test data related to reactivity available for this product or its ingredients
Chemical stability:	The product is stable
Possibility of hazardous:	Under normal conditions of storage and use, hazardous reactions will not occur.
Conditions to avoid:	No specific data
Incompatible materials:	No specific data
Hazardous decomposition: Products	Under normal conditions of storage and use, hazardous decomposition products should be produced

Section 11. Toxicological Information

Information on toxicological effects

Acute toxicity:	Not available
Irritation/Corrosion:	Not available
Sensitization:	Not available
Mutagenicity:	Not available
Carcinogenicity:	Not available
Reproductive toxicity:	Not available
Teratogenicity:	Not available
Specific target organ toxicity (single exposure):	Not available
Specific target organ: toxicity (repeated exposure):	Not available
Aspiration hazard:	Not available
Information on the likely: routes of exposure	Not available

Potential acute health effects:

Eye contact:	Causes eye irritation
Inhalation:	No known significant effects or critical hazards
Skin contact:	No known significant effects or critical hazards
Ingestion:	No known significant effects or critical hazards

Symptoms related to the physical, chemical and toxicological characteristics

Eye contact:	Adverse symptoms may include irritation, watering and redness
Inhalation:	No specific data
Skin contact:	No specific data
Ingestion:	No specific data

Delayed and immediate effects and also chronic effects from short and long term exposure

Short term exposure

Potential immediate: effects	Not available
Potential delayed effects:	Not available

Long term exposure

Potential immediate: effects	Not available
Potential delayed effects:	Not available

Potential chronic health effects:	Not available
General:	No known significant effects or critical hazards
Carcinogenicity:	No known significant effects or critical hazards
Mutagenicity:	No known significant effects or critical hazards
Teratogenicity:	No known significant effects or critical hazards
Developmental effects:	No known significant effects or critical hazards
Fertility effects:	No known significant effects or critical hazards

Numerical measures of toxicity

Acute toxicity estimates:	Not available

Section 12. Ecological information

Toxicity: Not available

Persistence/degradability: Not available

Bio accumulative potential: Not available

Mobility in soil
Soil/water
partition coefficient (K_{OC}): Not available

Other adverse effects: No known significant effects or critical hazards.

Section 13. Disposal consideration

Disposal methods: The generation of waste should be avoided or minimized wherever possible. Disposal of this product, solutions and any by-products should at all times comply with the requirements of environmental protection and waste disposal legislation and any regional local authority requirements. Dispose of surplus and non- recyclable products via a licensed waste disposal contractor. Waste should not be disposed of untreated to the sewer unless fully compliant with the requirements of all authorities with jurisdiction. Incineration or landfill should only be considered when recycling is not feasible. This material and its container must be disposed of in a safe way. Empty containers or liners may retain some product residues. Avoid dispersal of spilled material and runoff and contact with soil, waterways, drains and sewers.

Section 14. Transport information

	UN	IMDG	IATA
UN number	Not regulated.	Not regulated.	Not regulated.
UN proper shipping name	-	-	-
Transport hazard class(es)	-	-	-
Packing group	-	-	-
Environmental hazards	No.	No.	No.
Additional information	-	-	-

Special precautions for user: Transport within user's premises: always transport in closed containers that are ` upright and secure. Ensure that persons transporting the product know what to do in the event of an accident or spillage.

Section 15. Regulatory information

Safety, health and environmental regulations/legislation specific for the substance or mixture.
International Inventories:

USINV	Complies
CANINV	Complies
EINECS/ELINCS	Complies
ENCS	Complies
IECSC	Complies
KECL	Complies
PICCS	Complies
AICS	Complies

Key of abbreviation:
USINV / TSCA: United States Toxic Substanc3es Control Act Section 8(b) Inventory
CANINV / DSL/NDSL: Canadian Domestic Substances List/Non-Domestic Substances List
EINECS/ELINCS: European Inventory of Existing Commercial Chemical Substances/EU List of Notified Chemical Substances
ENCS: Japanese Existing and New Chemical Substances
IECSC: Chinese Inventory of Existing Chemical Substances
KECL: Korean Existing and Evaluated Chemical Substances
PICCS: Philippines Inventory of Chemical and Chemical Substances
AICS: Australian Inventory of Chemical Substances

Chemical safety assessment:
A chemical safety assessment according to regulation (EC) No: 1907/2006 is not required.

Section 16. Other information

History:

Date of issue: 8 March 2018

Key of abbreviation:

ATE: Acute Toxicity Estimate

BCF: Bioconcentration Factor

GHS: Globally harmonized Syatem of classification and labelling of chemicals

IATA: International Air Transport Association

IBC= Intermediate Bulk Container

IMDG International maritime Dangerous goods

LogPow = logarithm of the octanol/water partition coefficient

MARPOL = International Convention for the Prevention of Pollution From Ships, 1973 as modified by the Protocol of 1978. ("Marpol" = marine pollution)

UN = United Nations

Notice to reader:

To the best of our knowledge, the information contained herein is accurate. However, neither the above- named supplier, nor any of its subsidiaries, assumes any liability whatsoever for the accuracy or completeness of the information contained herein.

Final determination of suitability of any material is the sole responsibility of the user. All materials may present unknown hazards and should be used with caution. Although certain hazards are described herein, we cannot guarantee that these are the only hazards that exist.

SAFETY DATA SHEET

Isobutylene

Section 1. Identification

GHS product identifier : Isobutylene

Chemical name : 2-methylpropene

Other means of identification : 1-Propene, 2-methyl-; Isobutene; Isobutylene; 1-Propene, 2-methyl- (isobutene); 1, 1-Dimethylethylene; Isopropylidenemethylene; iso-Butene; i-Butene; 2-Methylpropylene; 2-Methyl-2-propene; 2-Methyl-1-propene

Product type : Gas.

Product use : Synthetic/Analytical chemistry.

Synonym : 1-Propene, 2-methyl-; Isobutene; Isobutylene; 1-Propene, 2-methyl- (isobutene); 1, 1-Dimethylethylene; Isopropylidenemethylene; iso-Butene; i-Butene; 2-Methylpropylene; 2-Methyl-2-propene; 2-Methyl-1-propene

SDS # : 001031

Supplier's details : Airgas USA, LLC and its affiliates
259 North Radnor-Chester Road
Suite 100
Radnor, PA 19087-5283
1-610-687-5253

24-hour telephone : 1-866-734-3438

Section 2. Hazards identification

OSHA/HCS status : This material is considered hazardous by the OSHA Hazard Communication Standard (29 CFR 1910.1200).

Classification of the substance or mixture : FLAMMABLE GASES - Category 1
GASES UNDER PRESSURE - Liquefied gas

GHS label elements

Hazard pictograms :



Signal word : Danger

Hazard statements : Extremely flammable gas.
May form explosive mixtures with air.
Contains gas under pressure; may explode if heated.
May displace oxygen and cause rapid suffocation.

Precautionary statements

General : Read and follow all Safety Data Sheets (SDS'S) before use. Read label before use. Keep out of reach of children. If medical advice is needed, have product container or label at hand. Close valve after each use and when empty. Use equipment rated for cylinder pressure. Do not open valve until connected to equipment prepared for use. Use a back flow preventative device in the piping. Use only equipment of compatible materials of construction. Always keep container in upright position. Approach suspected leak area with caution.

Prevention : Keep away from heat, hot surfaces, sparks, open flames and other ignition sources. No smoking.

Response : Leaking gas fire: Do not extinguish, unless leak can be stopped safely. Eliminate all ignition sources if safe to do so.

Storage : Protect from sunlight. Store in a well-ventilated place.

Disposal : Not applicable.

Hazards not otherwise classified : In addition to any other important health or physical hazards, this product may displace oxygen and cause rapid suffocation.

Section 3. Composition/information on ingredients

Substance/mixture : Substance

Chemical name : 2-methylpropene

Other means of identification : 1-Propene, 2-methyl-; Isobutene; Isobutylene; 1-Propene, 2-methyl- (isobutene); 1, 1-Dimethylethylene; Isopropylidenemethylene; iso-Butene; i-Butene; 2-Methylpropylene; 2-Methyl-2-propene; 2-Methyl-1-propene

Product code : 001031

CAS number/other identifiers

CAS number : 115-11-7

Ingredient name	%	CAS number
Isobutylene	100	115-11-7

Any concentration shown as a range is to protect confidentiality or is due to batch variation.

There are no additional ingredients present which, within the current knowledge of the supplier and in the concentrations applicable, are classified as hazardous to health or the environment and hence require reporting in this section.

Occupational exposure limits, if available, are listed in Section 8.

Section 4. First aid measures

Description of necessary first aid measures

Eye contact : Immediately flush eyes with plenty of water, occasionally lifting the upper and lower eyelids. Check for and remove any contact lenses. Continue to rinse for at least 10 minutes. Get medical attention if irritation occurs.

Inhalation : Remove victim to fresh air and keep at rest in a position comfortable for breathing. If not breathing, if breathing is irregular or if respiratory arrest occurs, provide artificial respiration or oxygen by trained personnel. It may be dangerous to the person providing aid to give mouth-to-mouth resuscitation. Get medical attention if adverse health effects persist or are severe. If unconscious, place in recovery position and get medical attention immediately. Maintain an open airway. Loosen tight clothing such as a collar, tie, belt or waistband.

Skin contact : Flush contaminated skin with plenty of water. Remove contaminated clothing and shoes. To avoid the risk of static discharges and gas ignition, soak contaminated clothing thoroughly with water before removing it. Get medical attention if symptoms occur. Wash clothing before reuse. Clean shoes thoroughly before reuse.

Ingestion : As this product is a gas, refer to the inhalation section.

Most important symptoms/effects, acute and delayed

Potential acute health effects

Eye contact : No known significant effects or critical hazards.

Inhalation : No known significant effects or critical hazards.

Skin contact : No known significant effects or critical hazards.

Frostbite : Try to warm up the frozen tissues and seek medical attention.

Ingestion : As this product is a gas, refer to the inhalation section.

Over-exposure signs/symptoms

Eye contact : No specific data.

Inhalation : No specific data.

Skin contact : No specific data.

Ingestion : No specific data.

Indication of immediate medical attention and special treatment needed, if necessary

Notes to physician : Treat symptomatically. Contact poison treatment specialist immediately if large quantities have been ingested or inhaled.

Specific treatments : No specific treatment.

Section 4. First aid measures

Protection of first-aiders : No action shall be taken involving any personal risk or without suitable training. It may be dangerous to the person providing aid to give mouth-to-mouth resuscitation.

See toxicological information (Section 11)

Section 5. Fire-fighting measures

Extinguishing media

Suitable extinguishing media : Use an extinguishing agent suitable for the surrounding fire.

Unsuitable extinguishing media : None known.

Specific hazards arising from the chemical : Contains gas under pressure. Extremely flammable gas. In a fire or if heated, a pressure increase will occur and the container may burst, with the risk of a subsequent explosion.

Hazardous thermal decomposition products : Decomposition products may include the following materials:
carbon dioxide
carbon monoxide

Special protective actions for fire-fighters : Promptly isolate the scene by removing all persons from the vicinity of the incident if there is a fire. No action shall be taken involving any personal risk or without suitable training. Contact supplier immediately for specialist advice. Move containers from fire area if this can be done without risk. Use water spray to keep fire-exposed containers cool. If involved in fire, shut off flow immediately if it can be done without risk. If this is impossible, withdraw from area and allow fire to burn. Fight fire from protected location or maximum possible distance. Eliminate all ignition sources if safe to do so.

Special protective equipment for fire-fighters : Fire-fighters should wear appropriate protective equipment and self-contained breathing apparatus (SCBA) with a full face-piece operated in positive pressure mode.

Section 6. Accidental release measures

Personal precautions, protective equipment and emergency procedures

For non-emergency personnel : Accidental releases pose a serious fire or explosion hazard. No action shall be taken involving any personal risk or without suitable training. Evacuate surrounding areas. Keep unnecessary and unprotected personnel from entering. Shut off all ignition sources. No flares, smoking or flames in hazard area. Avoid breathing gas. Provide adequate ventilation. Wear appropriate respirator when ventilation is inadequate. Put on appropriate personal protective equipment.

For emergency responders : If specialized clothing is required to deal with the spillage, take note of any information in Section 8 on suitable and unsuitable materials. See also the information in "For non-emergency personnel".

Environmental precautions : Ensure emergency procedures to deal with accidental gas releases are in place to avoid contamination of the environment. Inform the relevant authorities if the product has caused environmental pollution (sewers, waterways, soil or air).

Methods and materials for containment and cleaning up

Small spill : Immediately contact emergency personnel. Stop leak if without risk. Use spark-proof tools and explosion-proof equipment.

Large spill : Immediately contact emergency personnel. Stop leak if without risk. Use spark-proof tools and explosion-proof equipment. Note: see Section 1 for emergency contact information and Section 13 for waste disposal.

Section 7. Handling and storage

Precautions for safe handling

Protective measures : Put on appropriate personal protective equipment (see Section 8). Contains gas under pressure. Avoid breathing gas. Use only with adequate ventilation. Wear appropriate respirator when ventilation is inadequate. Do not enter storage areas and confined spaces unless adequately ventilated. Do not puncture or incinerate container. Use equipment rated for cylinder pressure. Close valve after each use and when empty. Protect cylinders from physical damage; do not drag, roll, slide, or drop. Use a suitable hand truck for cylinder movement.

Use only non-sparking tools. Avoid contact with eyes, skin and clothing. Empty containers retain product residue and can be hazardous. Store and use away from heat, sparks, open flame or any other ignition source. Use explosion-proof electrical (ventilating, lighting and material handling) equipment.

Advice on general occupational hygiene : Eating, drinking and smoking should be prohibited in areas where this material is handled, stored and processed. Workers should wash hands and face before eating, drinking and smoking. Remove contaminated clothing and protective equipment before entering eating areas. See also Section 8 for additional information on hygiene measures.

Conditions for safe storage, including any incompatibilities : Store in accordance with local regulations. Store in a segregated and approved area. Store away from direct sunlight in a dry, cool and well-ventilated area, away from incompatible materials (see Section 10). Eliminate all ignition sources. Cylinders should be stored upright, with valve protection cap in place, and firmly secured to prevent falling or being knocked over. Cylinder temperatures should not exceed 52 °C (125 °F). Keep container tightly closed and sealed until ready for use. See Section 10 for incompatible materials before handling or use.

Section 8. Exposure controls/personal protection

Control parameters

Occupational exposure limits

Ingredient name	Exposure limits
Isobutylene	**ACGIH TLV (United States, 3/2017).** TWA: 250 ppm 8 hours.

Appropriate engineering controls : Use only with adequate ventilation. Use process enclosures, local exhaust ventilation or other engineering controls to keep worker exposure to airborne contaminants below any recommended or statutory limits. The engineering controls also need to keep gas, vapor or dust concentrations below any lower explosive limits. Use explosion-proof ventilation equipment.

Environmental exposure controls : Emissions from ventilation or work process equipment should be checked to ensure they comply with the requirements of environmental protection legislation. In some cases, fume scrubbers, filters or engineering modifications to the process equipment will be necessary to reduce emissions to acceptable levels.

Individual protection measures

Hygiene measures : Wash hands, forearms and face thoroughly after handling chemical products, before eating, smoking and using the lavatory and at the end of the working period. Appropriate techniques should be used to remove potentially contaminated clothing. Wash contaminated clothing before reusing. Ensure that eyewash stations and safety showers are close to the workstation location.

Eye/face protection : Safety eyewear complying with an approved standard should be used when a risk assessment indicates this is necessary to avoid exposure to liquid splashes, mists, gases or dusts. If contact is possible, the following protection should be worn, unless the assessment indicates a higher degree of protection: safety glasses with side-shields.

Skin protection

Section 8. Exposure controls/personal protection

Hand protection : Chemical-resistant, impervious gloves complying with an approved standard should be worn at all times when handling chemical products if a risk assessment indicates this is necessary. Considering the parameters specified by the glove manufacturer, check during use that the gloves are still retaining their protective properties. It should be noted that the time to breakthrough for any glove material may be different for different glove manufacturers. In the case of mixtures, consisting of several substances, the protection time of the gloves cannot be accurately estimated.

Body protection : Personal protective equipment for the body should be selected based on the task being performed and the risks involved and should be approved by a specialist before handling this product. When there is a risk of ignition from static electricity, wear anti-static protective clothing. For the greatest protection from static discharges, clothing should include anti-static overalls, boots and gloves.

Other skin protection : Appropriate footwear and any additional skin protection measures should be selected based on the task being performed and the risks involved and should be approved by a specialist before handling this product.

Respiratory protection : Based on the hazard and potential for exposure, select a respirator that meets the appropriate standard or certification. Respirators must be used according to a respiratory protection program to ensure proper fitting, training, and other important aspects of use. Respirator selection must be based on known or anticipated exposure levels, the hazards of the product and the safe working limits of the selected respirator.

Section 9. Physical and chemical properties

Appearance

Physical state : Gas. [Compressed gas.]

Color : Colorless.

Odor : Characteristic.

Odor threshold : Not available.

pH : Not available.

Melting point : -140.7°C (-221.3°F)

Boiling point : -6.9°C (19.6°F)

Critical temperature : 144.75°C (292.6°F)

Flash point : Closed cup: -76.1°C (-105°F)

Evaporation rate : Not available.

Flammability (solid, gas) : Extremely flammable in the presence of the following materials or conditions: open flames, sparks and static discharge and oxidizing materials.

Lower and upper explosive (flammable) limits : Lower: 1.8%
Upper: 9.6%

Vapor pressure : 24.3 (psig)

Vapor density : 1.94 (Air = 1)

Specific Volume (ft ^{3}/lb) : 6.6845

Gas Density (lb/ft ^{3}) : 0.1496 (25°C / 77 to °F)

Relative density : Not applicable.

Solubility : Not available.

Solubility in water : 0.26 g/l

Partition coefficient: n-octanol/water : 2.34

Auto-ignition temperature : 465°C (869°F)

Decomposition temperature : Not available.

Viscosity : Not applicable.

Flow time (ISO 2431) : Not available.

Molecular weight : 56.12 g/mole

Aerosol product

Heat of combustion : -45029034 J/kg

Section 10. Stability and reactivity

Reactivity : No specific test data related to reactivity available for this product or its ingredients.

Chemical stability : The product is stable.

Possibility of hazardous reactions : Under normal conditions of storage and use, hazardous reactions will not occur.

Conditions to avoid : Avoid all possible sources of ignition (spark or flame). Do not pressurize, cut, weld, braze, solder, drill, grind or expose containers to heat or sources of ignition.

Incompatible materials : Oxidizers

Hazardous decomposition products : Under normal conditions of storage and use, hazardous decomposition products should not be produced.

Hazardous polymerization : Under normal conditions of storage and use, hazardous polymerization will not occur.

Section 11. Toxicological information

Information on toxicological effects

Acute toxicity

Product/ingredient name	Result	Species	Dose	Exposure
Isobutylene	LC50 Inhalation Vapor	Rat	550000 mg/m³	4 hours

Irritation/Corrosion

Not available.

Sensitization

Not available.

Mutagenicity

Not available.

Carcinogenicity

Not available.

Reproductive toxicity

Not available.

Teratogenicity

Not available.

Specific target organ toxicity (single exposure)

Not available.

Specific target organ toxicity (repeated exposure)

Not available.

Aspiration hazard

Not available.

Information on the likely routes of exposure : Not available.

Potential acute health effects

Eye contact : No known significant effects or critical hazards.

Section 11. Toxicological information

Inhalation : No known significant effects or critical hazards.

Skin contact : No known significant effects or critical hazards.

Ingestion : As this product is a gas, refer to the inhalation section.

Symptoms related to the physical, chemical and toxicological characteristics

Eye contact : No specific data.

Inhalation : No specific data.

Skin contact : No specific data.

Ingestion : No specific data.

Delayed and immediate effects and also chronic effects from short and long term exposure

Short term exposure

Potential immediate effects : Not available.

Potential delayed effects : Not available.

Long term exposure

Potential immediate effects : Not available.

Potential delayed effects : Not available.

Potential chronic health effects

Not available.

General : No known significant effects or critical hazards.

Carcinogenicity : No known significant effects or critical hazards.

Mutagenicity : No known significant effects or critical hazards.

Teratogenicity : No known significant effects or critical hazards.

Developmental effects : No known significant effects or critical hazards.

Fertility effects : No known significant effects or critical hazards.

Numerical measures of toxicity

Acute toxicity estimates

Not available.

Section 12. Ecological information

Toxicity

Not available.

Persistence and degradability

Not available.

Bioaccumulative potential

Product/ingredient name	$LogP_{ow}$	BCF	Potential
Isobutylene	2.34	-	low

Mobility in soil

Soil/water partition coefficient (K_{OC}) : Not available.

Section 12. Ecological information

Other adverse effects : No known significant effects or critical hazards.

Section 13. Disposal considerations

Disposal methods : The generation of waste should be avoided or minimized wherever possible. Disposal of this product, solutions and any by-products should at all times comply with the requirements of environmental protection and waste disposal legislation and any regional local authority requirements. Dispose of surplus and non-recyclable products via a licensed waste disposal contractor. Waste should not be disposed of untreated to the sewer unless fully compliant with the requirements of all authorities with jurisdiction. Empty Airgas-owned pressure vessels should be returned to Airgas. Waste packaging should be recycled. Incineration or landfill should only be considered when recycling is not feasible. This material and its container must be disposed of in a safe way. Empty containers or liners may retain some product residues. Do not puncture or incinerate container.

Section 14. Transport information

	DOT	TDG	Mexico	IMDG	IATA
UN number	UN1055	UN1055	UN1055	UN1055	UN1055
UN proper shipping name	ISOBUTYLENE	ISOBUTYLENE	ISOBUTYLENE	ISOBUTYLENE	ISOBUTYLENE
Transport hazard class(es)	2.1 	2.1 	2.1 	2.1 	2.1 
Packing group	-	-	-	-	-
Environmental hazards	No.	No.	No.	No.	No.

"Refer to CFR 49 (or authority having jurisdiction) to determine the information required for shipment of the product."

Additional information

DOT Classification : **Limited quantity** Yes.
Quantity limitation Passenger aircraft/rail: Forbidden. Cargo aircraft: 150 kg.
Special provisions 19, T50

TDG Classification : Product classified as per the following sections of the Transportation of Dangerous Goods Regulations: 2.13-2.17 (Class 2).
Explosive Limit and Limited Quantity Index 0.125
ERAP Index 3000
Passenger Carrying Ship Index Forbidden
Passenger Carrying Road or Rail Index Forbidden
Special provisions 29

IATA : **Quantity limitation** Passenger and Cargo Aircraft: Forbidden. Cargo Aircraft Only: 150 kg.

Special precautions for user : **Transport within user's premises:** always transport in closed containers that are upright and secure. Ensure that persons transporting the product know what to do in the event of an accident or spillage.

Transport in bulk according to Annex II of MARPOL and the IBC Code : Not available.

Section 15. Regulatory information

U.S. Federal regulations : **TSCA 8(a) CDR Exempt/Partial exemption**: Not determined

Clean Air Act (CAA) 112 regulated flammable substances: Isobutylene

Clean Air Act Section 112 (b) Hazardous Air Pollutants (HAPs) : Not listed

Clean Air Act Section 602 Class I Substances : Not listed

Clean Air Act Section 602 Class II Substances : Not listed

DEA List I Chemicals (Precursor Chemicals) : Not listed

DEA List II Chemicals (Essential Chemicals) : Not listed

SARA 302/304

Composition/information on ingredients

No products were found.

SARA 304 RQ : Not applicable.

SARA 311/312

Classification : Refer to Section 2: Hazards Identification of this SDS for classification of substance.

State regulations

Massachusetts : This material is listed.

New York : This material is not listed.

New Jersey : This material is listed.

Pennsylvania : This material is listed.

International regulations

Chemical Weapon Convention List Schedules I, II & III Chemicals

Not listed.

Montreal Protocol (Annexes A, B, C, E)

Not listed.

Stockholm Convention on Persistent Organic Pollutants

Not listed.

Rotterdam Convention on Prior Informed Consent (PIC)

Not listed.

UNECE Aarhus Protocol on POPs and Heavy Metals

Not listed.

Inventory list

Australia : This material is listed or exempted.

Canada : This material is listed or exempted.

China : This material is listed or exempted.

Europe : This material is listed or exempted.

Japan : **Japan inventory (ENCS)**: This material is listed or exempted.
Japan inventory (ISHL): Not determined.

Malaysia : Not determined.

New Zealand : This material is listed or exempted.

Philippines : This material is listed or exempted.

Republic of Korea : This material is listed or exempted.

Section 15. Regulatory information

Taiwan : This material is listed or exempted.

Thailand : Not determined.

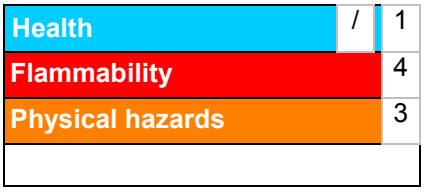
Turkey : Not determined.

United States : This material is listed or exempted.

Viet Nam : Not determined.

Section 16. Other information

Hazardous Material Information System (U.S.A.)



Caution: HMIS® ratings are based on a 0-4 rating scale, with 0 representing minimal hazards or risks, and 4 representing significant hazards or risks. Although HMIS® ratings and the associated label are not required on SDSs or products leaving a facility under 29 CFR 1910.1200, the preparer may choose to provide them. HMIS® ratings are to be used with a fully implemented HMIS® program. HMIS® is a registered trademark and service mark of the American Coatings Association, Inc.

The customer is responsible for determining the PPE code for this material. For more information on HMIS® Personal Protective Equipment (PPE) codes, consult the HMIS® Implementation Manual.

National Fire Protection Association (U.S.A.)



Reprinted with permission from NFPA 704-2001, Identification of the Hazards of Materials for Emergency Response Copyright ©1997, National Fire Protection Association, Quincy, MA 02269. This reprinted material is not the complete and official position of the National Fire Protection Association, on the referenced subject which is represented only by the standard in its entirety.

Copyright ©2001, National Fire Protection Association, Quincy, MA 02269. This warning system is intended to be interpreted and applied only by properly trained individuals to identify fire, health and reactivity hazards of chemicals. The user is referred to certain limited number of chemicals with recommended classifications in NFPA 49 and NFPA 325, which would be used as a guideline only. Whether the chemicals are classified by NFPA or not, anyone using the 704 systems to classify chemicals does so at their own risk.

Procedure used to derive the classification

Classification	Justification
FLAMMABLE GASES - Category 1 GASES UNDER PRESSURE - Liquefied gas	Expert judgment Expert judgment

History

Date of printing : 5/10/2018

Date of issue/Date of revision : 5/10/2018

Date of previous issue : 7/11/2016

Version : 0.02

Key to abbreviations : ATE = Acute Toxicity Estimate
BCF = Bioconcentration Factor
GHS = Globally Harmonized System of Classification and Labelling of Chemicals
IATA = International Air Transport Association
IBC = Intermediate Bulk Container
IMDG = International Maritime Dangerous Goods
LogPow = logarithm of the octanol/water partition coefficient
MARPOL = International Convention for the Prevention of Pollution From Ships, 1973

Section 16. Other information

as modified by the Protocol of 1978. ("Marpol" = marine pollution)
UN = United Nations

References : Not available.

Notice to reader

To the best of our knowledge, the information contained herein is accurate. However, neither the above-named supplier, nor any of its subsidiaries, assumes any liability whatsoever for the accuracy or completeness of the information contained herein.
Final determination of suitability of any material is the sole responsibility of the user. All materials may present unknown hazards and should be used with caution. Although certain hazards are described herein, we cannot guarantee that these are the only hazards that exist.

SAFETY DATA SHEET

Version 4.10
Revision Date 04/22/2016
Print Date 05/01/2016

1. PRODUCT AND COMPANY IDENTIFICATION

1.1 Product identifiers

Product name : Sudan Blue II

Product Number : 306436
Brand : Sigma-Aldrich

CAS-No. : 17354-14-2

1.2 Relevant identified uses of the substance or mixture and uses advised against

Identified uses : Laboratory chemicals, Synthesis of substances

1.3 Details of the supplier of the safety data sheet

Company : Sigma-Aldrich
3050 Spruce Street
SAINT LOUIS MO 63103
USA

Telephone : +1 800-325-5832
Fax : +1 800-325-5052

1.4 Emergency telephone number

Emergency Phone # : (314) 776-6555

2. HAZARDS IDENTIFICATION

2.1 Classification of the substance or mixture

Not a hazardous substance or mixture.

2.2 GHS Label elements, including precautionary statements

Not a hazardous substance or mixture.

2.3 Hazards not otherwise classified (HNOC) or not covered by GHS - none

3. COMPOSITION/INFORMATION ON INGREDIENTS

3.1 Substances

Synonyms : Solvent Blue 35

Formula : $C_{22}H_{26}N_2O_2$
Molecular weight : 350.45 g/mol
CAS-No. : 17354-14-2
EC-No. : 241-379-4

No components need to be disclosed according to the applicable regulations.

4. FIRST AID MEASURES

4.1 Description of first aid measures

General advice
Move out of dangerous area.

If inhaled
If breathed in, move person into fresh air. If not breathing, give artificial respiration.

In case of skin contact
Wash off with soap and plenty of water.

In case of eye contact
Flush eyes with water as a precaution.

If swallowed
Never give anything by mouth to an unconscious person. Rinse mouth with water.

4.2 Most important symptoms and effects, both acute and delayed
The most important known symptoms and effects are described in the labelling (see section 2.2) and/or in section 11

4.3 Indication of any immediate medical attention and special treatment needed
No data available

5. FIREFIGHTING MEASURES

5.1 Extinguishing media

Suitable extinguishing media
Use water spray, alcohol-resistant foam, dry chemical or carbon dioxide.

5.2 Special hazards arising from the substance or mixture
No data available

5.3 Advice for firefighters
Wear self-contained breathing apparatus for firefighting if necessary.

5.4 Further information
No data available

6. ACCIDENTAL RELEASE MEASURES

6.1 Personal precautions, protective equipment and emergency procedures
Avoid dust formation. Avoid breathing vapours, mist or gas.
For personal protection see section 8.

6.2 Environmental precautions
No special environmental precautions required.

6.3 Methods and materials for containment and cleaning up
Sweep up and shovel. Keep in suitable, closed containers for disposal.

6.4 Reference to other sections
For disposal see section 13.

7. HANDLING AND STORAGE

7.1 Precautions for safe handling
Further processing of solid materials may result in the formation of combustible dusts. The potential for combustible dust formation should be taken into consideration before additional processing occurs.
Provide appropriate exhaust ventilation at places where dust is formed.
For precautions see section 2.2.

7.2 Conditions for safe storage, including any incompatibilities
Keep container tightly closed in a dry and well-ventilated place.

Keep in a dry place.
Storage class (TRGS 510): Non Combustible Solids

7.3 Specific end use(s)
Apart from the uses mentioned in section 1.2 no other specific uses are stipulated

8. EXPOSURE CONTROLS/PERSONAL PROTECTION

8.1 Control parameters

Components with workplace control parameters
Contains no substances with occupational exposure limit values.

8.2 Exposure controls

Appropriate engineering controls
General industrial hygiene practice.

Personal protective equipment

Eye/face protection
Use equipment for eye protection tested and approved under appropriate government standards such as NIOSH (US) or EN 166(EU).

Skin protection
Handle with gloves. Gloves must be inspected prior to use. Use proper glove removal technique (without touching glove's outer surface) to avoid skin contact with this product. Dispose of contaminated gloves after use in accordance with applicable laws and good laboratory practices. Wash and dry hands.

Full contact
Material: Nitrile rubber
Minimum layer thickness: 0.11 mm
Break through time: 480 min
Material tested:Dermatril® (KCL 740 / Aldrich Z677272, Size M)

Splash contact
Material: Nitrile rubber
Minimum layer thickness: 0.11 mm
Break through time: 480 min
Material tested:Dermatril® (KCL 740 / Aldrich Z677272, Size M)

data source: KCL GmbH, D-36124 Eichenzell, phone +49 (0)6659 87300, e-mail sales@kcl.de, test method: EN374
If used in solution, or mixed with other substances, and under conditions which differ from EN 374, contact the supplier of the CE approved gloves. This recommendation is advisory only and must be evaluated by an industrial hygienist and safety officer familiar with the specific situation of anticipated use by our customers. It should not be construed as offering an approval for any specific use scenario.

Body Protection
Choose body protection in relation to its type, to the concentration and amount of dangerous substances, and to the specific work-place., The type of protective equipment must be selected according to the concentration and amount of the dangerous substance at the specific workplace.

Respiratory protection
Respiratory protection is not required. Where protection from nuisance levels of dusts are desired, use type N95 (US) or type P1 (EN 143) dust masks. Use respirators and components tested and approved under appropriate government standards such as NIOSH (US) or CEN (EU).

Control of environmental exposure
No special environmental precautions required.

9. PHYSICAL AND CHEMICAL PROPERTIES

9.1 Information on basic physical and chemical properties

a)	Appearance	Form: powder Colour: dark violet
b)	Odour	No data available
c)	Odour Threshold	No data available
d)	pH	No data available
e)	Melting point/freezing	Melting point/range: 120 - 122 °C (248 - 252 °F)

	point	
f)	Initial boiling point and boiling range	No data available
g)	Flash point	No data available
h)	Evaporation rate	No data available
i)	Flammability (solid, gas)	No data available
j)	Upper/lower flammability or explosive limits	No data available
k)	Vapour pressure	No data available
l)	Vapour density	No data available
m)	Relative density	No data available
n)	Water solubility	No data available
o)	Partition coefficient: n-octanol/water	No data available
p)	Auto-ignition temperature	No data available
q)	Decomposition temperature	No data available
r)	Viscosity	No data available
s)	Explosive properties	No data available
t)	Oxidizing properties	No data available

9.2 Other safety information
No data available

10. STABILITY AND REACTIVITY

10.1 Reactivity
No data available

10.2 Chemical stability
Stable under recommended storage conditions.

10.3 Possibility of hazardous reactions
No data available

10.4 Conditions to avoid
No data available

10.5 Incompatible materials
Strong oxidizing agents

10.6 Hazardous decomposition products
Hazardous decomposition products formed under fire conditions. - Carbon oxides, Nitrogen oxides (NOx)
Other decomposition products - No data available
In the event of fire: see section 5

11. TOXICOLOGICAL INFORMATION

11.1 Information on toxicological effects

Acute toxicity
No data available

Inhalation: No data available

Dermal: No data available

No data available

Skin corrosion/irritation
No data available

Serious eye damage/eye irritation
No data available

Respiratory or skin sensitisation
No data available

Germ cell mutagenicity
No data available

Carcinogenicity

IARC: No component of this product present at levels greater than or equal to 0.1% is identified as probable, possible or confirmed human carcinogen by IARC.

ACGIH: No component of this product present at levels greater than or equal to 0.1% is identified as a carcinogen or potential carcinogen by ACGIH.

NTP: No component of this product present at levels greater than or equal to 0.1% is identified as a known or anticipated carcinogen by NTP.

OSHA: No component of this product present at levels greater than or equal to 0.1% is identified as a carcinogen or potential carcinogen by OSHA.

Reproductive toxicity
No data available

No data available

Specific target organ toxicity - single exposure
No data available

Specific target organ toxicity - repeated exposure
No data available

Aspiration hazard
No data available

Additional Information
RTECS: Not available

To the best of our knowledge, the chemical, physical, and toxicological properties have not been thoroughly investigated.

12. ECOLOGICAL INFORMATION

12.1 Toxicity
No data available

12.2 Persistence and degradability
No data available

12.3 Bioaccumulative potential
No data available

12.4 Mobility in soil
No data available

12.5 Results of PBT and vPvB assessment
PBT/vPvB assessment not available as chemical safety assessment not required/not conducted

12.6 Other adverse effects

No data available

13. DISPOSAL CONSIDERATIONS

13.1 Waste treatment methods

Product
Offer surplus and non-recyclable solutions to a licensed disposal company. Contact a licensed professional waste disposal service to dispose of this material. Dissolve or mix the material with a combustible solvent and burn in a chemical incinerator equipped with an afterburner and scrubber.

Contaminated packaging
Dispose of as unused product.

14. TRANSPORT INFORMATION

DOT (US)
Not dangerous goods

IMDG
Not dangerous goods

IATA
Not dangerous goods

15. REGULATORY INFORMATION

SARA 302 Components
No chemicals in this material are subject to the reporting requirements of SARA Title III, Section 302.

SARA 313 Components
This material does not contain any chemical components with known CAS numbers that exceed the threshold (De Minimis) reporting levels established by SARA Title III, Section 313.

SARA 311/312 Hazards
No SARA Hazards

Massachusetts Right To Know Components
No components are subject to the Massachusetts Right to Know Act.

Pennsylvania Right To Know Components

	CAS-No.	Revision Date
1,4-Bis(butylamino)anthraquinone	17354-14-2	1989-08-11

New Jersey Right To Know Components

	CAS-No.	Revision Date
1,4-Bis(butylamino)anthraquinone	17354-14-2	1989-08-11

California Prop. 65 Components
This product does not contain any chemicals known to State of California to cause cancer, birth defects, or any other reproductive harm.

16. OTHER INFORMATION

HMIS Rating

Health hazard:	0
Chronic Health Hazard:	*
Flammability:	0
Physical Hazard	0

NFPA Rating

Health hazard:	0
Fire Hazard:	0
Reactivity Hazard:	0

Further information

Copyright 2016 Sigma-Aldrich Co. LLC. License granted to make unlimited paper copies for internal use only.
The above information is believed to be correct but does not purport to be all inclusive and shall be used only as a guide. The information in this document is based on the present state of our knowledge and is applicable to the product with regard to appropriate safety precautions. It does not represent any guarantee of the properties of the product. Sigma-Aldrich Corporation and its Affiliates shall not be held liable for any damage resulting from handling or from contact with the above product. See www.sigma-aldrich.com and/or the reverse side of invoice or packing slip for additional terms and conditions of sale.

Preparation Information

Sigma-Aldrich Corporation
Product Safety – Americas Region
1-800-521-8956

Version: 4.10 Revision Date: 04/22/2016 Print Date: 05/01/2016

SAFETY DATA SHEET

Creation Date 08-Nov-2010 **Revision Date** 18-Jun-2015 **Revision Number** 2

1. Identification

Product Name **Fluoranthene**

Cat No. : **AC119170000; AC119170250; AC119171000; AC119175000**

Synonyms Benzo[j,k]fluorene

Recommended Use Laboratory chemicals.

Uses advised against No Information available

Details of the supplier of the safety data sheet

Company
Fisher Scientific
One Reagent Lane
Fair Lawn, NJ 07410
Tel: (201) 796-7100

Entity / Business Name
Acros Organics
One Reagent Lane
Fair Lawn, NJ 07410

Emergency Telephone Number
For information **US** call: 001-800-ACROS-01 / **Europe** call: +32 14 57 52 11
Emergency Number **US:**001-201-796-7100 / **Europe:** +32 14 57 52 99
CHEMTREC Tel. No.**US:**001-800-424-9300 / **Europe:**001-703-527-3887

2. Hazard(s) identification

Classification
This chemical is considered hazardous by the 2012 OSHA Hazard Communication Standard (29 CFR 1910.1200)

Acute oral toxicity	Category 4

Label Elements

Signal Word
Warning

Hazard Statements
Harmful if swallowed



Precautionary Statements
Prevention
Wash face, hands and any exposed skin thoroughly after handling
Do not eat, drink or smoke when using this product
Ingestion
IF SWALLOWED: Call a POISON CENTER or doctor/physician if you feel unwell

Rinse mouth

Disposal

Dispose of contents/container to an approved waste disposal plant

Hazards not otherwise classified (HNOC)

Very toxic to aquatic life with long lasting effects

3. Composition / information on ingredients

Component	CAS-No	Weight %
Fluoranthene	206-44-0	>95

4. First-aid measures

Eye Contact Rinse immediately with plenty of water, also under the eyelids, for at least 15 minutes. Obtain medical attention.

Skin Contact Wash off immediately with soap and plenty of water while removing all contaminated clothes and shoes. Obtain medical attention.

Inhalation Move to fresh air. If breathing is difficult, give oxygen. Obtain medical attention.

Ingestion Do not induce vomiting. Get medical attention.

Most important symptoms/effects No information available.

Notes to Physician Treat symptomatically

5. Fire-fighting measures

Suitable Extinguishing Media Water spray. Carbon dioxide (CO_2). Dry chemical. alcohol-resistant foam.

Unsuitable Extinguishing Media No information available

Flash Point 100 °C / 212 °F

Method - No information available

Autoignition Temperature No information available

Explosion Limits

Upper No data available

Lower No data available

Sensitivity to Mechanical Impact No information available

Sensitivity to Static Discharge No information available

Specific Hazards Arising from the Chemical

Keep product and empty container away from heat and sources of ignition.

Hazardous Combustion Products

Carbon monoxide (CO) Carbon dioxide (CO_2)

Protective Equipment and Precautions for Firefighters

As in any fire, wear self-contained breathing apparatus pressure-demand, MSHA/NIOSH (approved or equivalent) and full protective gear.

NFPA

Health	Flammability	Instability	Physical hazards
2	0	0	N/A

6. Accidental release measures

Personal Precautions Ensure adequate ventilation. Use personal protective equipment.

Environmental Precautions See Section 12 for additional ecological information. Avoid release to the environment. Collect spillage.

Methods for Containment and Clean Up Sweep up or vacuum up spillage and collect in suitable container for disposal.

7. Handling and storage

Handling Ensure adequate ventilation. Wear personal protective equipment. Avoid contact with skin and eyes. Do not breathe dust. Do not breathe vapors or spray mist. Avoid dust formation.

Storage Keep in a dry, cool and well-ventilated place. Keep container tightly closed.

8. Exposure controls / personal protection

Exposure Guidelines This product does not contain any hazardous materials with occupational exposure limits established by the region specific regulatory bodies.

Engineering Measures Ensure adequate ventilation, especially in confined areas. Ensure that eyewash stations and safety showers are close to the workstation location.

Personal Protective Equipment

Eye/face Protection Wear appropriate protective eyeglasses or chemical safety goggles as described by OSHA's eye and face protection regulations in 29 CFR 1910.133 or European Standard EN166.

Skin and body protection Wear appropriate protective gloves and clothing to prevent skin exposure.

Respiratory Protection Follow the OSHA respirator regulations found in 29 CFR 1910.134 or European Standard EN 149. Use a NIOSH/MSHA or European Standard EN 149 approved respirator if exposure limits are exceeded or if irritation or other symptoms are experienced.

Hygiene Measures Handle in accordance with good industrial hygiene and safety practice.

9. Physical and chemical properties

Physical State	Powder Solid
Appearance	Light green
Odor	Odorless
Odor Threshold	No information available
pH	No information available
Melting Point/Range	109 - 111 °C / 228.2 - 231.8 °F
Boiling Point/Range	384 - 34 °C / 723.2 - 93.2 °F
Flash Point	100 °C / 212 °F
Evaporation Rate	No information available
Flammability (solid,gas)	No information available
Flammability or explosive limits	
Upper	No data available
Lower	No data available
Vapor Pressure	No information available
Vapor Density	No information available
Relative Density	No information available
Solubility	No information available
Partition coefficient; n-octanol/water	No data available
Autoignition Temperature	No information available
Decomposition Temperature	No information available
Viscosity	No information available
Molecular Formula	C16 H10
Molecular Weight	202.25

10. Stability and reactivity

Reactive Hazard None known, based on information available

Stability Stable under normal conditions.

Conditions to Avoid Incompatible products.

Incompatible Materials Strong oxidizing agents

Hazardous Decomposition Products Carbon monoxide (CO), Carbon dioxide (CO_2)

Hazardous Polymerization Hazardous polymerization does not occur.

Hazardous Reactions None under normal processing.

11. Toxicological information

Acute Toxicity

Product Information No acute toxicity information is available for this product

Component Information

Component	LD50 Oral	LD50 Dermal	LC50 Inhalation
Fluoranthene	2 g/kg (Rat)	3180 mg/kg (Rabbit)	Not listed

Toxicologically Synergistic Products No information available

Delayed and immediate effects as well as chronic effects from short and long-term exposure

Irritation No information available

Sensitization No information available

Carcinogenicity The table below indicates whether each agency has listed any ingredient as a carcinogen.

Component	CAS-No	IARC	NTP	ACGIH	OSHA	Mexico
Fluoranthene	206-44-0	Not listed	Not listed	Not listed	Not listed	Not listed

Mutagenic Effects No information available

Reproductive Effects No information available.

Developmental Effects No information available.

Teratogenicity No information available.

STOT - single exposure None known

STOT - repeated exposure None known

Aspiration hazard No information available

Symptoms / effects,both acute and delayed No information available

Endocrine Disruptor Information No information available

Other Adverse Effects The toxicological properties have not been fully investigated. See actual entry in RTECS for complete information.

12. Ecological information

Ecotoxicity

Very toxic to aquatic organisms, may cause long-term adverse effects in the aquatic environment.

Component	Freshwater Algae	Freshwater Fish	Microtox	Water Flea
Fluoranthene	Not listed	Oncorhynchus mykiss: LC50=0.0077 mg/L 96h	Not listed	EC50: 0.78 mg/L 20h

Persistence and Degradability No information available
Bioaccumulation/ Accumulation No information available.

Mobility .

Component	log Pow
Fluoranthene	5.33

13. Disposal considerations

Waste Disposal Methods Chemical waste generators must determine whether a discarded chemical is classified as a hazardous waste. Chemical waste generators must also consult local, regional, and national hazardous waste regulations to ensure complete and accurate classification.

Component	RCRA - U Series Wastes	RCRA - P Series Wastes
Fluoranthene - 206-44-0	U120	-

14. Transport information

DOT
- **UN-No** UN3077
- **Proper Shipping Name** ENVIRONMENTALLY HAZARDOUS SUBSTANCE,SOLID, N.O.S.
- **Proper technical name** (Fluoranthene)
- **Hazard Class** 9
- **Packing Group** III

TDG
- **UN-No** UN3077
- **Proper Shipping Name** ENVIRONMENTALLY HAZARDOUS SUBSTANCE,SOLID, N.O.S.
- **Hazard Class** 9
- **Packing Group** III

IATA
- **UN-No** UN3077
- **Proper Shipping Name** Environmentally hazardous substance, solid, n.o.s
- **Hazard Class** 9
- **Packing Group** III

IMDG/IMO
- **UN-No** UN3077
- **Proper Shipping Name** Environmentally hazardous substance, solid, n.o.s
- **Hazard Class** 9
- **Packing Group** III

15. Regulatory information

International Inventories

Component	TSCA	DSL	NDSL	EINECS	ELINCS	NLP	PICCS	ENCS	AICS	IECSC	KECL
Fluoranthene	X	-	X	205-912-4	-		-	X	X	X	-

Legend:
X - Listed
E - Indicates a substance that is the subject of a Section 5(e) Consent order under TSCA.
F - Indicates a substance that is the subject of a Section 5(f) Rule under TSCA.
N - Indicates a polymeric substance containing no free-radical initiator in its inventory name but is considered to cover the designated polymer made with any free-radical initiator regardless of the amount used.
P - Indicates a commenced PMN substance
R - Indicates a substance that is the subject of a Section 6 risk management rule under TSCA.
S - Indicates a substance that is identified in a proposed or final Significant New Use Rule
T - Indicates a substance that is the subject of a Section 4 test rule under TSCA.
XU - Indicates a substance exempt from reporting under the Inventory Update Rule, i.e. Partial Updating of the TSCA Inventory Data Base Production and Site Reports (40 CFR 710(B).

Y1 - Indicates an exempt polymer that has a number-average molecular weight of 1,000 or greater.
Y2 - Indicates an exempt polymer that is a polyester and is made only from reactants included in a specified list of low concern reactants that comprises one of the eligibility criteria for the exemption rule.

U.S. Federal Regulations

TSCA 12(b) Not applicable

SARA 313

Component	CAS-No	Weight %	SARA 313 - Threshold Values %
Fluoranthene	206-44-0	>95	1.0 0.1

SARA 311/312 Hazardous Categorization

Acute Health Hazard	Yes
Chronic Health Hazard	No
Fire Hazard	No
Sudden Release of Pressure Hazard	No
Reactive Hazard	No

Clean Water Act

Component	CWA - Hazardous Substances	CWA - Reportable Quantities	CWA - Toxic Pollutants	CWA - Priority Pollutants
Fluoranthene	-	-	X	X

Clean Air Act Not applicable

OSHA Occupational Safety and Health Administration
Not applicable

CERCLA
This material, as supplied, contains one or more substances regulated as a hazardous substance under the Comprehensive Environmental Response Compensation and Liability Act (CERCLA) (40 CFR 302)

Component	Hazardous Substances RQs	CERCLA EHS RQs
Fluoranthene	100 lb	-

California Proposition 65 This product does not contain any Proposition 65 chemicals

State Right-to-Know

Component	Massachusetts	New Jersey	Pennsylvania	Illinois	Rhode Island
Fluoranthene	X	X	X	-	-

U.S. Department of Transportation

Reportable Quantity (RQ):	N
DOT Marine Pollutant	N
DOT Severe Marine Pollutant	N

U.S. Department of Homeland Security
This product does not contain any DHS chemicals.

Other International Regulations

Mexico - Grade No information available

Canada
This product has been classified in accordance with the hazard criteria of the Controlled Products Regulations (CPR) and the MSDS contains all the information required by the CPR

WHMIS Hazard Class D1B Toxic materials



16. Other information

Prepared By	Regulatory Affairs Thermo Fisher Scientific Email: EMSDS.RA@thermofisher.com
Creation Date	08-Nov-2010
Revision Date	18-Jun-2015
Print Date	18-Jun-2015
Revision Summary	This document has been updated to comply with the US OSHA HazCom 2012 Standard replacing the current legislation under 29 CFR 1910.1200 to align with the Globally Harmonized System of Classification and Labeling of Chemicals (GHS)

Disclaimer

The information provided on this Safety Data Sheet is correct to the best of our knowledge, information and belief at the date of its publication. The information given is designed only as a guide for safe handling, use, processing, storage, transportation, disposal and release and is not to be considered as a warranty or quality specification. The information relates only to the specific material designated and may not be valid for such material used in combination with any other material or in any process, unless specified in the text.

End of SDS

SAFETY DATA SHEET

Revision Date 10-Feb-2015 **Revision Number** 1

1. Identification

Product Name **Fluorene**

Cat No. : **AC156130000; AC156130250; AC156131000; AC156135000**

Synonyms Diphenylenemethane

Recommended Use Laboratory chemicals.

Uses advised against No Information available

Details of the supplier of the safety data sheet

Company
Fisher Scientific
One Reagent Lane
Fair Lawn, NJ 07410
Tel: (201) 796-7100

Entity / Business Name
Acros Organics
One Reagent Lane
Fair Lawn, NJ 07410

Emergency Telephone Number
For information **US** call: 001-800-ACROS-01 / **Europe** call: +32 14 57 52 11
Emergency Number **US:**001-201-796-7100 / **Europe:** +32 14 57 52 99
CHEMTREC Tel. No.**US:**001-800-424-9300 / **Europe:**001-703-527-3887

2. Hazard(s) identification

Classification
Classification under 2012 OSHA Hazard Communication Standard (29 CFR 1910.1200)

Label Elements
None required

Hazards not otherwise classified (HNOC)
Very toxic to aquatic life with long lasting effects
May form combustible dust concentrations in air

3. Composition / information on ingredients

Component	CAS-No	Weight %
Fluorene	86-73-7	98

4. First-aid measures

Eye Contact Rinse immediately with plenty of water, also under the eyelids, for at least 15 minutes. Obtain medical attention.

Skin Contact Wash off immediately with soap and plenty of water while removing all contaminated

clothes and shoes. Obtain medical attention.

Inhalation Remove from exposure, lie down. Move to fresh air. Obtain medical attention.

Ingestion Clean mouth with water. Get medical attention.

Most important symptoms/effects No information available.
Notes to Physician Treat symptomatically

5. Fire-fighting measures

Suitable Extinguishing Media Water spray. Carbon dioxide (CO_2). Dry chemical. chemical foam.

Unsuitable Extinguishing Media No information available

Flash Point 151 °C / 303.8 °F
Method - No information available

Autoignition Temperature Not applicable
Explosion Limits
Upper No data available
Lower No data available
Sensitivity to Mechanical Impact No information available
Sensitivity to Static Discharge No information available

Specific Hazards Arising from the Chemical
Dust can form an explosive mixture in air. Do not allow run-off from fire fighting to enter drains or water courses.

Hazardous Combustion Products
None known
Protective Equipment and Precautions for Firefighters
As in any fire, wear self-contained breathing apparatus pressure-demand, MSHA/NIOSH (approved or equivalent) and full protective gear.

NFPA

Health	Flammability	Instability	Physical hazards
0	1	0	N/A

6. Accidental release measures

Personal Precautions Ensure adequate ventilation. Use personal protective equipment.
Environmental Precautions Do not flush into surface water or sanitary sewer system. Do not allow material to contaminate ground water system. Prevent product from entering drains. Local authorities should be advised if significant spillages cannot be contained.

Methods for Containment and Clean Up Sweep up or vacuum up spillage and collect in suitable container for disposal. Do not let this chemical enter the environment.

7. Handling and storage

Handling Avoid contact with skin and eyes. Do not breathe dust. Do not ingest.

Storage Keep in a dry, cool and well-ventilated place. Keep container tightly closed.

8. Exposure controls / personal protection

Exposure Guidelines This product does not contain any hazardous materials with occupational exposure limits established by the region specific regulatory bodies.

Engineering Measures Ensure adequate ventilation, especially in confined areas.

Personal Protective Equipment

Eye/face Protection	Wear appropriate protective eyeglasses or chemical safety goggles as described by OSHA's eye and face protection regulations in 29 CFR 1910.133 or European Standard EN166.
Skin and body protection	Wear appropriate protective gloves and clothing to prevent skin exposure.
Respiratory Protection	No protective equipment is needed under normal use conditions.
Hygiene Measures	Handle in accordance with good industrial hygiene and safety practice.

9. Physical and chemical properties

Physical State	Powder Solid
Appearance	Beige
Odor	Odorless
Odor Threshold	No information available
pH	No information available
Melting Point/Range	112 - 116 °C / 233.6 - 240.8 °F
Boiling Point/Range	298 °C / 568.4 °F @ 760 mmHg
Flash Point	151 °C / 303.8 °F
Evaporation Rate	Not applicable
Flammability (solid,gas)	No information available
Flammability or explosive limits	
Upper	No data available
Lower	No data available
Vapor Pressure	13 hPa @ 146 °C
Vapor Density	Not applicable
Relative Density	1.200
Solubility	No information available
Partition coefficient; n-octanol/water	No data available
Autoignition Temperature	Not applicable
Decomposition Temperature	No information available
Viscosity	Not applicable
Molecular Formula	C13 H10
Molecular Weight	166.22

10. Stability and reactivity

Reactive Hazard	None known, based on information available
Stability	Stable under normal conditions.
Conditions to Avoid	Incompatible products.
Incompatible Materials	Strong oxidizing agents
Hazardous Decomposition Products	None under normal use conditions
Hazardous Polymerization	No information available.
Hazardous Reactions	None under normal processing.

11. Toxicological information

Acute Toxicity

Product Information	No acute toxicity information is available for this product
Component Information	

Toxicologically Synergistic Products No information available

Delayed and immediate effects as well as chronic effects from short and long-term exposure

Irritation No information available

Sensitization No information available

Carcinogenicity The table below indicates whether each agency has listed any ingredient as a carcinogen.

Component	CAS-No	IARC	NTP	ACGIH	OSHA	Mexico
Fluorene	86-73-7	Not listed	Not listed	Not listed	Not listed	Not listed

Mutagenic Effects No information available

Reproductive Effects No information available.

Developmental Effects No information available.

Teratogenicity No information available.

STOT - single exposure None known
STOT - repeated exposure None known

Aspiration hazard No information available

Symptoms / effects,both acute and delayed No information available

Endocrine Disruptor Information No information available

Other Adverse Effects The toxicological properties have not been fully investigated. See actual entry in RTECS for complete information.

12. Ecological information

Ecotoxicity

Very toxic to aquatic organisms, may cause long-term adverse effects in the aquatic environment. The product contains following substances which are hazardous for the environment.

Persistence and Degradability Insoluble in water May persist
Bioaccumulation/ Accumulation No information available.

Mobility . Is not likely mobile in the environment due its low water solubility.

Component	log Pow
Fluorene	4.18

13. Disposal considerations

Waste Disposal Methods Chemical waste generators must determine whether a discarded chemical is classified as a hazardous waste. Chemical waste generators must also consult local, regional, and national hazardous waste regulations to ensure complete and accurate classification.

14. Transport information

DOT Not regulated
TDG Not regulated
IATA
- **UN-No** 3077
- **Proper Shipping Name** ENVIRONMENTALLY HAZARDOUS SUBSTANCE, SOLID, N.O.S.*
- **Hazard Class** 9
- **Packing Group** III

IMDG/IMO

UN-No	3077
Proper Shipping Name	ENVIRONMENTALLY HAZARDOUS SUBSTANCE, SOLID, N.O.S.
Hazard Class	9
Packing Group	III

15. Regulatory information

International Inventories

Component	TSCA	DSL	NDSL	EINECS	ELINCS	NLP	PICCS	ENCS	AICS	IECSC	KECL
Fluorene	X	X	-	201-695-5	-		X	X	X	X	-

Legend:
X - Listed
E - Indicates a substance that is the subject of a Section 5(e) Consent order under TSCA.
F - Indicates a substance that is the subject of a Section 5(f) Rule under TSCA.
N - Indicates a polymeric substance containing no free-radical initiator in its inventory name but is considered to cover the designated polymer made with any free-radical initiator regardless of the amount used.
P - Indicates a commenced PMN substance
R - Indicates a substance that is the subject of a Section 6 risk management rule under TSCA.
S - Indicates a substance that is identified in a proposed or final Significant New Use Rule
T - Indicates a substance that is the subject of a Section 4 test rule under TSCA.
XU - Indicates a substance exempt from reporting under the Inventory Update Rule, i.e. Partial Updating of the TSCA Inventory Data Base Production and Site Reports (40 CFR 710(B).
Y1 - Indicates an exempt polymer that has a number-average molecular weight of 1,000 or greater.
Y2 - Indicates an exempt polymer that is a polyester and is made only from reactants included in a specified list of low concern reactants that comprises one of the eligibility criteria for the exemption rule.

U.S. Federal Regulations

TSCA 12(b) Not applicable

SARA 313 Not applicable

SARA 311/312 Hazardous Categorization

Acute Health Hazard	No
Chronic Health Hazard	No
Fire Hazard	Yes
Sudden Release of Pressure Hazard	No
Reactive Hazard	No

Clean Water Act

Component	CWA - Hazardous Substances	CWA - Reportable Quantities	CWA - Toxic Pollutants	CWA - Priority Pollutants
Fluorene	-	-	X	X

Clean Air Act Not applicable

OSHA Occupational Safety and Health Administration
Not applicable

CERCLA
This material, as supplied, contains one or more substances regulated as a hazardous substance under the Comprehensive Environmental Response Compensation and Liability Act (CERCLA) (40 CFR 302)

Component	Hazardous Substances RQs	CERCLA EHS RQs
Fluorene	5000 lb	-

California Proposition 65 This product does not contain any Proposition 65 chemicals

State Right-to-Know

Component	Massachusetts	New Jersey	Pennsylvania	Illinois	Rhode Island
Fluorene	X	X	X	-	-

U.S. Department of Transportation

Reportable Quantity (RQ):	N
DOT Marine Pollutant	N
DOT Severe Marine Pollutant	N

U.S. Department of Homeland Security
This product does not contain any DHS chemicals.

Other International Regulations

Mexico - Grade No information available

Canada
This product has been classified in accordance with the hazard criteria of the Controlled Products Regulations (CPR) and the MSDS contains all the information required by the CPR

WHMIS Hazard Class B4 Flammable solid



16. Other information

Prepared By
Regulatory Affairs
Thermo Fisher Scientific
Email: EMSDS.RA@thermofisher.com

Revision Date 10-Feb-2015
Print Date 10-Feb-2015
Revision Summary This document has been updated to comply with the US OSHA HazCom 2012 Standard replacing the current legislation under 29 CFR 1910.1200 to align with the Globally Harmonized System of Classification and Labeling of Chemicals (GHS)

Disclaimer
The information provided on this Safety Data Sheet is correct to the best of our knowledge, information and belief at the date of its publication. The information given is designed only as a guide for safe handling, use, processing, storage, transportation, disposal and release and is not to be considered as a warranty or quality specification. The information relates only to the specific material designated and may not be valid for such material used in combination with any other material or in any process, unless specified in the text.

End of SDS

Safety Data Sheet

Material Name: Fuel Oil No. 2

SDS No. 0088
EU/CLP GHS

Synonyms: #2 Heating Oil; 2 Oil; Off-road Diesel Fuel

* * * Section 1 - Product and Company Identification * * *

Manufacturer Information

Hess Corporation
1 Hess Plaza
Woodbridge, NJ 07095-0961

Phone: 732-750-6000 Corporate EHS
Emergency # 800-424-9300 CHEMTREC
www.hess.com (Environment, Health, Safety Internet Website)

* * * Section 2 - Hazards Identification * * *

GHS Classification:

Flammable Liquids - Category 3
Acute Toxicity, Inhalation - Category 4
Skin Corrosion/Irritation – Category 2
Eye Damage/Irritation – Category 2
Carcinogenicity - Category 2
Specific Target Organ Toxicity (Single Exposure) – Category 3 (respiratory irritation, narcosis)
Aspiration Hazard – Category 1
Hazardous to the Aquatic Environment, Acute Hazard – Category 3

GHS LABEL ELEMENTS

Symbol(s)



Signal Word

DANGER

Hazard Statements

Flammable liquid and vapor.
Harmful if inhaled.
Causes skin irritation.
Causes eye irritation.
Suspected of causing cancer.
Suspected of causing genetic defects.
May cause respiratory irritation.
May cause drowsiness or dizziness.
May be fatal if swallowed and enters airways.
Harmful to aquatic life.

Precautionary Statements

Prevention

Keep away from heat/sparks/open flames/hot surfaces. No smoking
Keep container tightly closed.
Ground/bond container and receiving equipment.
Use explosion-proof electrical/ventilating/lighting/equipment.
Use only non-sparking tools.
Take precautionary measures against static discharge.
Wear protective gloves/protective clothing/eye protection/face protection.
Avoid breathing fume/mist/vapors/spray.
Use only outdoors or in a well-ventilated area.
Wash hands and forearms thoroughly after handling.
Obtain special instructions before use.
Do not handle until all safety precautions have been read and understood.
Avoid release to the environment.

Response

In case of fire: Use water spray, fog or foam.
If on skin (or hair): Wash with plenty of soap and water. Take off immediately all contaminated clothing and wash it before reuse. If skin irritation occurs, get medical advice/attention.
If inhaled: Remove person to fresh air and keep comfortable for breathing. Call a poison center or doctor if you feel unwell.
If in eyes: Rinse cautiously with water for several minutes. Remove contact lenses, if present and easy to do. Continue rinsing. If eye irritation persists: Get medical advice/attention.
If exposed or concerned: Get medical advice/attention.
If swallowed: Immediately all a poison center or doctor/physician if you feel unwell. Do NOT induce vomiting.

Storage

Store in a well ventilated place.
Keep cool. Keep container tightly closed.
Store locked up.

Disposal

Dispose of contents/container in accordance with local/regional/national/international regulations.

* * * Section 3 - Composition / Information on Ingredients * * *

CAS #	Component	Percent
68476-30-2	Fuel oil No. 2	100
91-20-3	Naphthalene	<0.1

A complex combination of hydrocarbons with carbon numbers in the range C9 and higher produced from the distillation of petroleum crude oil.

* * * Section 4 - First Aid Measures * * *

First Aid: Eyes

In case of contact with eyes, immediately flush with clean, low-pressure water for at least 15 min. Hold eyelids open to ensure adequate flushing. Seek medical attention.

First Aid: Skin

Remove contaminated clothing. Wash contaminated areas thoroughly with soap and water or with waterless hand cleanser. Obtain medical attention if irritation or redness develops.

First Aid: Ingestion

DO NOT INDUCE VOMITING. Do not give liquids. Obtain immediate medical attention. If spontaneous vomiting occurs, lean victim forward to reduce the risk of aspiration. Monitor for breathing difficulties. Small amounts of material which enter the mouth should be rinsed out until the taste is dissipated.

First Aid: Inhalation

Remove person to fresh air. If person is not breathing, provide artificial respiration. If necessary, provide additional oxygen once breathing is restored if trained to do so. Seek medical attention immediately.

* * * Section 5 - Fire Fighting Measures * * *

General Fire Hazards

See Section 9 for Flammability Properties.

Vapors may be ignited rapidly when exposed to heat, spark, open flame or other source of ignition. When mixed with air and exposed to an ignition source, flammable vapors can burn in the open or explode in confined spaces. Being heavier than air, vapors may travel long distances to an ignition source and flash back. Runoff to sewer may cause fire or explosion hazard.

Hazardous Combustion Products

Carbon monoxide, carbon dioxide and non-combusted hydrocarbons (smoke).

Extinguishing Media

SMALL FIRES: Any extinguisher suitable for Class B fires, dry chemical, CO2, water spray, fire fighting foam, or gaseous extinguishing agent.

LARGE FIRES: Water spray, fog or fire fighting foam. Water may be ineffective for fighting the fire, but may be used to cool fire-exposed containers.

Unsuitable Extinguishing Media

None

Fire Fighting Equipment/Instructions

Small fires in the incipient (beginning) stage may typically be extinguished using handheld portable fire extinguishers and other fire fighting equipment. Firefighting activities that may result in potential exposure to high heat, smoke or toxic by-products of combustion should require NIOSH/MSHA- approved pressure-demand self-contained breathing apparatus with full facepiece and full protective clothing. Isolate area around container involved in fire. Cool tanks, shells, and containers exposed to fire and excessive heat with water. For massive fires the use of unmanned hose holders or monitor nozzles may be advantageous to further minimize personnel exposure. Major fires may require withdrawal, allowing the tank to burn. Large storage tank fires typically require specially trained personnel and equipment to extinguish the fire, often including the need for properly applied fire fighting foam.

* * * Section 6 - Accidental Release Measures * * *

Recovery and Neutralization

Carefully contain and stop the source of the spill, if safe to do so.

Materials and Methods for Clean-Up

Take up with sand or other oil absorbing materials. Carefully shovel, scoop or sweep up into a waste container for reclamation or disposal.

Emergency Measures

Evacuate nonessential personnel and remove or secure all ignition sources. Consider wind direction; stay upwind and uphill, if possible. Evaluate the direction of product travel, diking, sewers, etc. to confirm spill areas. Spills may infiltrate subsurface soil and groundwater; professional assistance may be necessary to determine the extent of subsurface impact.

Personal Precautions and Protective Equipment

Response and clean-up crews must be properly trained and must utilize proper protective equipment (see Section 8).

Environmental Precautions

Protect bodies of water by diking, absorbents, or absorbent boom, if possible. Do not flush down sewer or drainage systems, unless system is designed and permitted to handle such material. The use of fire fighting foam may be useful in certain situations to reduce vapors. The proper use of water spray may effectively disperse product vapors or the liquid itself, preventing contact with ignition sources or areas/equipment that require protection.

Prevention of Secondary Hazards

None

* * * Section 7 - Handling and Storage * * *

Handling Procedures

Handle as a combustible liquid. Keep away from heat, sparks, excessive temperatures and open flame! No smoking or open flame in storage, use or handling areas. Bond and ground containers during product transfer to reduce the possibility of static-initiated fire or explosion.

Special slow load procedures for "switch loading" must be followed to avoid the static ignition hazard that can exist when this product is loaded into tanks previously containing low flash point products (such as gasoline) - see API Publication 2003, "Protection Against Ignitions Arising Out Of Static, Lightning and Stray Currents."

Storage Procedures

Keep containers closed and clearly labeled. Use approved vented storage containers. Empty product containers or vessels may contain explosive vapors. Do not pressurize, cut, heat, weld or expose such containers to sources of ignition.

Store in a well-ventilated area. This storage area should comply with NFPA 30 "Flammable and Combustible Liquid Code". Avoid storage near incompatible materials. The cleaning of tanks previously containing this product should follow API Recommended Practice (RP) 2013 "Cleaning Mobile Tanks In Flammable and Combustible Liquid Service" and API RP 2015 "Cleaning Petroleum Storage Tanks."

Incompatibilities

Keep away from strong oxidizers; Fluorel ®

* * * Section 8 - Exposure Controls / Personal Protection * * *

Component Exposure Limits

Fuel oil No. 2 (270-671-4)

ACGIH: 100 mg/m3 TWA (inhalable fraction and vapor, as total hydrocarbons, listed under Diesel fuel)
Skin - potential significant contribution to overall exposure by the cutaneous route (listed under Diesel fuel)

Belgium: 100 mg/m3 TWA (as total hydrocarbon, aerosol and vapor)
Skin (listed under Gas oil)

Portugal: 100 mg/m3 TWA [VLE-MP] (aerosol and vapor, as total Hydrocarbons, listed under Fuel diesel)

Naphthalene (202-049-5)

ACGIH: 15 ppm STEL
10 ppm TWA
Skin - potential significant contribution to overall exposure by the cutaneous route

Austria: 10 ppm TWA [TMW]; 50 mg/m3 TWA [TMW]
skin notation

Belgium: 15 ppm STEL; 80 mg/m3 STEL
10 ppm TWA; 53 mg/m3 TWA
Skin

Denmark: 10 ppm TWA; 50 mg/m3 TWA

Finland: 2 ppm STEL; 10 mg/m3 STEL
1 ppm TWA; 5 mg/m3 TWA

France: 10 ppm TWA [VME]; 50 mg/m3 TWA [VME]

Germany: 0.1 ppm TWA AGW (The risk of damage to the embryo or fetus can be excluded when MAK and BAT values are observed, inhalable fraction, exposure factor 1); 0.5 mg/m3 TWA AGW (The risk of damage to the embryo or fetus can be excluded when MAK and BAT values are observed, inhalable fraction, exposure factor 1)

Greece: 10 ppm TWA; 50 mg/m3 TWA

Ireland: 15 ppm STEL; 75 mg/m3 STEL
10 ppm TWA; 50 mg/m3 TWA

Netherlands: 80 mg/m3 STEL
50 mg/m3 TWA

Portugal: 10 ppm TWA [VLE-MP]

Spain: 15 ppm STEL [VLA-EC]; 80 mg/m3 STEL [VLA-EC]
10 ppm TWA [VLA-ED]; 53 mg/m3 TWA [VLA-ED]
skin - potential for cutaneous exposure

Sweden: 10 ppm LLV; 50 mg/m3 LLV
15 ppm STV; 80 mg/m3 STV

Engineering Measures

Use adequate ventilation to keep vapor concentrations of this product below occupational exposure and flammability limits, particularly in confined spaces.

Personal Protective Equipment: Respiratory

A NIOSH/MSHA-approved air-purifying respirator with organic vapor cartridges or canister may be permissible under certain circumstances where airborne concentrations are or may be expected to exceed exposure limits or for odor or irritation. Protection provided by air-purifying respirators is limited.

Use a positive pressure, air-supplied respirator if there is a potential for uncontrolled release, exposure levels are not known, in oxygen-deficient atmospheres, or any other circumstance where an air-purifying respirator may not provide adequate protection.

Personal Protective Equipment: Hands

Gloves constructed of nitrile, neoprene, or PVC are recommended.

Personal Protective Equipment: Eyes

Safety glasses or goggles are recommended where there is a possibility of splashing or spraying.

Personal Protective Equipment: Skin and Body

Chemical protective clothing such as of E.I. DuPont TyChem®, Saranex® or equivalent recommended based on degree of exposure. Note: The resistance of specific material may vary from product to product as well as with degree of exposure. Consult manufacturer specifications for further information.

* * * Section 9 - Physical & Chemical Properties * * *

Appearance:	Red or reddish/orange colored (dyed)	**Odor:**	Mild, petroleum distillate odor
Physical State:	Liquid	**pH:**	ND
Vapor Pressure:	0.009 psia @ 70 °F (21 °C)	**Vapor Density:**	>1.0
Boiling Point:	340 to 700 °F (171 to 371 °C)	**Melting Point:**	ND
Solubility (H2O):	Negligible	**Specific Gravity:**	AP 0.823-0871
Evaporation Rate:	Slow; varies with conditions	**VOC:**	ND
Octanol/H2O Coeff.:	ND	**Flash Point:**	100 °F (38 °C) minimum
Flash Point Method:	PMCC	**Upper Flammability Limit (UFL):**	7.5
Lower Flammability Limit (LFL):	0.6	**Burning Rate:**	ND
Auto Ignition:	494°F (257°C)		

* * * Section 10 - Chemical Stability & Reactivity Information * * *

Chemical Stability

This is a stable material.

Hazardous Reaction Potential

Will not occur.

Conditions to Avoid

Avoid high temperatures, open flames, sparks, welding, smoking and other ignition sources.

Incompatible Products

Keep away from strong oxidizers; Fluorel ®

Hazardous Decomposition Products

Carbon monoxide, carbon dioxide and non-combusted hydrocarbons (smoke).

* * * Section 11 - Toxicological Information * * *

Acute Toxicity

A: General Product Information

Harmful if swallowed.

B: Component Analysis - LD50/LC50

Fuel oil No. 2 (68476-30-2)

Oral LD50 Rat 12 g/kg; Dermal LD50 Rabbit 4720 µL/kg; Dermal LD50 Rabbit >2000 mg/kg; Inhalation LC50 Rat 4.6 mg/L 4 h

Naphthalene (91-20-3)

Inhalation LC50 Rat >340 mg/m3 1 h; Oral LD50 Rat 490 mg/kg; Dermal LD50 Rat >2500 mg/kg; Dermal LD50 Rabbit >20 g/kg

Product Mixture

Oral LD50 Rat 14.5 ml/kg; Dermal LD50 Rabbit >5 mL/kg; Guinea Pig Sensitization: negative; Primary dermal irritation: moderately irritating (Draize mean irritation score - 3.98 rabbits); Draize eye irritation: mildly irritating (Draize score, 48 hours, unwashed - 2.0 rabbits)

Potential Health Effects: Skin Corrosion Property/Stimulativeness

Practically non-toxic if absorbed following acute (single) exposure. May cause skin irritation with prolonged or repeated contact. Liquid may be absorbed through the skin in toxic amounts if large areas of skin are repeatedly exposed.

Potential Health Effects: Eye Critical Damage/ Stimulativeness

Contact with eyes may cause mild irritation.

Potential Health Effects: Ingestion

Ingestion may cause gastrointestinal disturbances, including irritation, nausea, vomiting and diarrhea, and central nervous system (brain) effects similar to alcohol intoxication. In severe cases, tremors, convulsions, loss of consciousness, coma, respiratory arrest, and death may occur.

Potential Health Effects: Inhalation

Excessive exposure may cause irritations to the nose, throat, lungs and respiratory tract. Central nervous system (brain) effects may include headache, dizziness, loss of balance and coordination, unconsciousness, coma, respiratory failure, and death.

WARNING: the burning of any hydrocarbon as a fuel in an area without adequate ventilation may result in hazardous levels of combustion products, including carbon monoxide, and inadequate oxygen levels, which may cause unconsciousness, suffocation, and death.

Respiratory Organs Sensitization/Skin Sensitization

This product is not reported to have any skin sensitization effects.

Generative Cell Mutagenicity

This product is not reported to have any mutagenic effects. Material of similar composition has been positive in a mutagenicity study.

Carcinogenicity

A: General Product Information

Suspected of causing cancer.

Dermal carcinogenicity: positive - mice

Studies have shown that similar products produce skin tumors in laboratory animals following repeated applications without washing or removal. The significance of this finding to human exposure has not been determined. Other studies with active skin carcinogens have shown that washing the animal's skin with soap and water between applications reduced tumor formation.

This product is similar to Diesel Fuel. IARC classifies whole diesel fuel exhaust particulates as probably carcinogenic to humans (Group 2A) and NIOSH regards it as a potential cause of occupational lung cancer based on animal studies and limited evidence in humans.

B: Component Carcinogenicity

Fuel oil No. 2 (68476-30-2)

ACGIH: A3 - Confirmed Animal Carcinogen with Unknown Relevance to Humans (listed under Diesel fuel)

Naphthalene (91-20-3)

ACGIH: A4 - Not Classifiable as a Human Carcinogen
NTP: Reasonably Anticipated To Be A Human Carcinogen (Possible Select Carcinogen)
IARC: Monograph 82 [2002] (Group 2B (possibly carcinogenic to humans))

Reproductive Toxicity

This product is not reported to have any reproductive toxicity effects.

Specified Target Organ General Toxicity: Single Exposure

This product is not reported to have any specific target organ general toxicity single exposure effects.

Specified Target Organ General Toxicity: Repeated Exposure

This product is not reported to have any specific target organ general toxicity repeat exposure effects.

Aspiration Respiratory Organs Hazard

The major health threat of ingestion occurs from the danger of aspiration (breathing) of liquid drops into the lungs, particularly from vomiting. Aspiration may result in chemical pneumonia (fluid in the lungs), severe lung damage, respiratory failure and even death.

* * * Section 12 - Ecological Information * * *

Ecotoxicity

A: General Product Information

Very toxic to aquatic life with long lasting effects. Keep out of sewers, drainage areas and waterways. Report spills and releases, as applicable, under Federal and State regulations.

B: Component Analysis - Ecotoxicity - Aquatic Toxicity

Fuel oil No. 2 (68476-30-2)

Test & Species		Conditions
96 Hr LC50 Pimephales promelas	35 mg/L [flow-through]	

Naphthalene (91-20-3)

Test & Species		Conditions
96 Hr LC50 Pimephales promelas	5.74-6.44 mg/L [flow-through]	
96 Hr LC50 Oncorhynchus mykiss	1.6 mg/L [flow-through]	

96 Hr LC50 Oncorhynchus mykiss	0.91-2.82 mg/L [static]
96 Hr LC50 Pimephales promelas	1.99 mg/L [static]
96 Hr LC50 Lepomis macrochirus	31.0265 mg/L [static]
72 Hr EC50 Skeletonema costatum	0.4 mg/L
48 Hr LC50 Daphnia magna	2.16 mg/L
48 Hr EC50 Daphnia magna	1.96 mg/L [Flow through]
48 Hr EC50 Daphnia magna	1.09 - 3.4 mg/L [Static]

Persistence/Degradability
No information available.

Bioaccumulation
No information available.

Mobility in Soil
No information available.

* * * Section 13 - Disposal Considerations * * *

Waste Disposal Instructions
See Section 7 for Handling Procedures. See Section 8 for Personal Protective Equipment recommendations.

Disposal of Contaminated Containers or Packaging
Dispose of contents/container in accordance with local/regional/national/international regulations.

* * * Section 14 - Transportation Information * * *

IATA Information
Shipping Name: Heating oil, light
UN #: 1202 **Hazard Class:** 3 **Packing Group:** III

ICAO Information
Shipping Name: Heating oil, light
UN #: 1202 **Hazard Class:** 3 **Packing Group:** III

IMDG Information
Shipping Name: Heating oil, light
UN #: 1202 **Hazard Class:** 3 **Packing Group:** III

* * * Section 15 - Regulatory Information * * *

Regulatory Information

Component Analysis – Inventory

Component/CAS	EC #	EEC	CAN	TSCA
Fuel oil No. 2 68476-30-2	270-671-4	EINECS	DSL	Yes
Naphthalene 91-20-3	202-049-5	EINECS	DSL	Yes

* * * Section 16 - Other Information * * *

Key/Legend

ACGIH = American Conference of Governmental Industrial Hygienists; ADG = Australian Code for the Transport of Dangerous Goods by Road and Rail; ADR/RID = European Agreement of Dangerous Goods by Road/Rail; AS = Standards Australia; DFG = Deutsche Forschungsgemeinschaft; DOT = Department of Transportation; DSL = Domestic Substances List; EEC = European Economic Community; EINECS = European Inventory of Existing Commercial Chemical Substances; ELINCS = European List of Notified Chemical Substances; EU = European Union; HMIS = Hazardous Materials Identification System; IARC = International Agency for Research on Cancer; IMO = International Maritime Organization; IATA = International Air Transport Association; MAK = Maximum Concentration Value in the Workplace; NDSL = Non-Domestic Substances List; NFPA = National Fire Protection Association; NOHSC = National Occupational Health & Safety Commission; NTP = National Toxicology Program; STEL = Short-term Exposure Limit; TDG = Transportation of Dangerous Goods; TLV = Threshold Limit Value; TSCA = Toxic Substances Control Act; TWA = Time Weighted Average

Literature References

None

Other Information

Information presented herein has been compiled from sources considered to be dependable, and is accurate and reliable to the best of our knowledge and belief, but is not guaranteed to be so. Since conditions of use are beyond our control, we make no warranties, expressed or implied, except those that may be contained in our written contract of sale or acknowledgment.

Vendor assumes no responsibility for injury to vendee or third persons proximately caused by the material if reasonable safety procedures are not adhered to as stipulated in the data sheet. Additionally, vendor assumes no responsibility for injury to vendee or third persons proximately caused by abnormal use of the material, even if reasonable safety procedures are followed. Furthermore, vendee assumes the risk in their use of the material.

End of Sheet

Safety Data Sheet - Version 5.0

Preparation Date 9/15/2015
Latest Revision Date (If Revised)
SDS Expiry Date 9/13/2018

1. IDENTIFICATION OF THE SUBSTANCE/MIXTURE AND OF THE COMPANY/UNDERTAKING

1.1 Product Identifier

Chemical Name γ-Chlordane

Catalogue # C327040

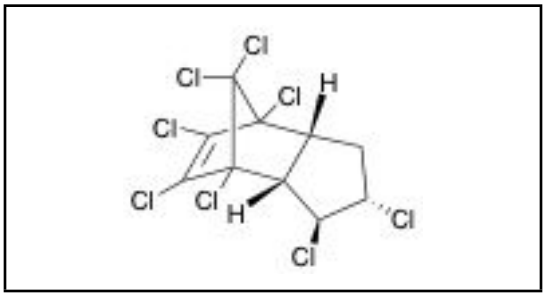
1.2 Relevant Identified Uses of the Substance or Mixture and Uses Advised Against

Product Uses To be used only for scientific research and development. Not for use in humans or animals.

1.3 Details of the Supplier of the Safety Data Sheet

Company Toronto Research Chemicals
2 Brisbane Road
Toronto, ON M3J 2J8
CANADA

Telephone +14166659696
FAX +14166654439
Email orders@trc-canada.com



1.4 Emergency Telephone Number

Emergency# +14166659696 between 0800-1700 (GMT-5)

2. HAZARDS IDENTIFICATION

WHMIS Classification (Canada)

D2A Very Toxic Material Causing Other Toxic Effects
Carcinogen

WHMIS Symbols (Canada)



2.1/2.2 Classification of the Substance or Mixture and Label Elements

GHS Hazards Classification (According to EU Regulation 1272/2008 and US OSHA 1910.1200)

Acute Toxicity, Oral (Category 4)
Carcinogenicity (Category 2)
Hazardous to the Aquatic Environment, Acute Hazard (Category 1)

EU Classification (According to EU Regulation 67/548/EEC)

Harmful if swallowed. May cause cancer. Very toxic to aquatic organisms.

EU Risk and Safety Statements (According to EU Regulation 67/548/EEC)

Hazard Statements	Hazard Codes
Harmful	Xn
Environmental Hazard	N





Risk Codes and Phrases

R22	Harmful if swallowed.
R45	May cause cancer.
R50	Very toxic to aquatic organisms.

Safety Precaution Codes and Phrases

S61	Avoid release to the environment. Refer to special instructions.

S36/37/39 Wear suitable protective clothing, gloves and eye/face protection.

GHS Hazards Identification (According to EU Regulation 1272/2008 and US OSHA 1910.1200)

Signal Word Warning



GHS Hazard Statements

H302	Harmful if swallowed.
H351	Suspected of causing cancer.
H400	Very toxic to aquatic life.

GHS Precautionary Statements

P273	Avoid release to the environment.
P281	Use personal protective equipment as required.

2.3 Unclassified Hazards/Hazards Not Otherwise Classified

No data available.

3. COMPOSITION/INFORMATION ON INGREDIENTS

3.1 Substances

Molecular Formula: $C_{10}H_6Cl_8$ **Molecular Weight:** 409.78

CAS Registry #: 5103-74-2 **EC#:** 225-826-0

Synonyms

(1R,2R,3aS,4S,7R,7aS)-rel-1,2,4,5,6,7,8,8-Octachloro-2,3,3a,4,7,7a-hexahydro-,4,7-methano-1H-indene; (1α,2β,3aα,4β,7β,7aα)-1,2,4,5,6,7,8,8-Octachloro-2,3,3a,4,7,7a-hexahydro-4,7-methano-1H-indene; 1β,2α,4α,5,6,7α,8,8-Octachloro-3aβ,4,7,7aβ-tetrahydro4,7-methanoindan; (±)-trans-Chlordane; trans-Chlordan; trans -1,2,4,5,6,7,8,8-Octachloro-3a,4,7,7a-tetrahydro-4,7-endo-methanoindan; trans-Chlordan; trans-Chlordane; β-Chlordan; β-Chlordane;

3.2 Mixtures

Not a mixture.

4. FIRST AID MEASURES

4.1 Description of First Aid Measures

General Advice

If medical attention is required, show this safety data sheet to the doctor.

If Inhaled

If inhaled, move person to fresh air. If not breathing, give artificial respiration and consult a physician.

In Case of Skin Contact

Wash affected area with soap and water. Consult a physician if any exposure symptoms are observed.

In Case of Eye Contact

Immediately rinse eyes with plenty of water for at least 15 minutes. Consult a physician.

If Swallowed

Never give anything by mouth to an unconscious person. Rinse mouth with water. Do NOT induce vomiting unless advised to do so by a physician or Poison Control Center. Seek medical attention.

4.2 Most Important Symptoms and Effects, Both Acute and Delayed

The most important known symptoms and effects are described in the labeling (see section 2.2) and/or in section 11.

4.3 Indication of any Immediate Medical Attention and Special Treatment Needed

No data available.

5. FIREFIGHTING MEASURES

5.1 Extinguishing Media

Conditions of flammability
Not flammable or combustible.

Suitable extinguishing media
Use water spray, alcohol-resistant foam, dry chemical or carbon dioxide.

Special protective equipment for firefighters
Wear self-contained breathing apparatus for firefighting if necessary.

5.2 Special Hazards Arising from the Substance or Mixture
Carbon oxides, Hydrogen chloride

5.3 Advice for Firefighters
Wear self contained breathing apparatus for fire fighting if necessary.

5.4 Further Information
No data available.

6. ACCIDENTAL RELEASE MEASURES

Personal precautions
Wear respiratory protection. Avoid dust formation. Avoid breathing vapours, mist or gas. Ensure adequate ventilation. Evacuate personnel to safe areas. Avoid breathing dust.

Environmental precautions
Prevent further leakage or spillage if safe to do so. Do not let product enter drains.

Method and materials for containment and cleaning up
Pick up and arrange disposal without creating dust. Sweep up and shovel. Keep in suitable, closed containers for disposal.

7. HANDLING AND STORAGE

Precautions for safe handling
Avoid contact with skin and eyes. Avoid formation of dust and aerosols.
Provide appropriate exhaust ventilation at places where dust is formed.

Conditions for safe storage
Keep container tightly closed in a dry and well-ventilated place.
Keep in a dry place.

Storage conditions: No Data Available

7.3 Specific End Uses
For scientific research and development only. Not for use in humans or animals.

8. EXPOSURE CONTROLS/PERSONAL PROTECTION

8.1 Control Parameters
Contains no components with established occupational exposure limits.

8.2 Exposure Controls

Appropriate Engineering Controls
A laboratory fumehood or other appropriate form of local exhaust ventilation should be used to avoid exposure.

Personal Protective Equipment
All recommendations below are advisory in nature and a risk assessment should be performed by the employer/end user prior to use of this product. The type of protective equipment must be selected based on the amount and concentration of the dangerous material being used in the workplace.

Eye/Face Protection
Safety goggles or face shield. All equipment should have been tested and approved under appropriate standards, such as NIOSH (US), CSA (Canada), or EN 166 (EU).

Skin Protection
Gloves should be used when handling this material. Gloves are to be inspected prior to use. Contaminated gloves are to be removed using proper glove removal technique so that the outer surface of the glove does not contact bare skin. Dispose of contaminated gloves after use in compliance with good laboratory practices and local requirements.

Gloves used for incidental exposures (splash protection) should be designated as “chemical resistant” by EU standard EN 374 with the resistance codes corresponding to the anticipated use of the material. Unrated gloves are not recommended.
Suggested gloves: AnsellPro Sol-Vex nitrile gloves style 37-175, 15 mil thickness.
Penetration time has not been determined.

Gloves used for prolonged direct exposure (immersion) should be designated “chemical resistant” as per EN 734 with the resistance codes corresponding to the anticipated use of the material.
Suggested gloves: AnsellPro Viton/Butyl gloves style 38-612, 4/8 mil thickness.
Penetration time has not been determined.

These recommendations may not apply if the material is mixed with any other chemical, or dissolved into a solution. A risk assessment must be performed to ensure the gloves will still offer acceptable protection.

Body Protection
Fire resistant (Nomex) coveralls or chemical-resistant bodysuit (laminated Tychem SL or equivalent).

Respiratory Protection
Recommended respirators are NIOSH-approved N100 or CEN-approved FFP3 particulate respirators. These are to be only used as a backup to local exhaust ventilation or other engineering controls. If the respirator is the only means of protection, a full-face supplied air respirator must be used.

9. PHYSICAL AND CHEMICAL PROPERTIES

9.1 Information on Basic Physical and Chemical Properties

A) Appearance
No Data Available

B) Odour
odourless

C) Odour Threshold
No data available.

D) pH
No data available.

E) Melting Point/Freezing Point
No Data Available

F) Initial Boiling Point/Boiling Range
No data available.

G) Flash point
No data available.

H) Evaporation Rate
No data available.

I) Flammability (Solid/Gas)
No data available.

J) Upper/Lower Flammability/Explosive Limits
No data available.

K) Vapour Pressure
No data available.

L) Vapour Density
No data available.

M) Relative Density
1.590 g/cm3

N) Solubility
No Data Available

O) Partition Coefficient: n-octanol/water
No data available.

P) Auto-Ignition Temperature
No data available.

Q) Decomposition Temperature
No data available.

R) Viscosity
No data available.

S) Explosive Properties
No data available.

T) Oxidizing Properties
No data available.

9.2 Other Information
no data available

10. STABILITY AND REACTIVITY

10.1 Reactivity
No data available.

10.2 Chemical Stability
Stable under recommended storage conditions.

10.3 Possibility of Hazardous Reactions
No data available.

10.4 Conditions to Avoid
No data available.

10.5 Incompatible Materials

Strong oxidizing agents.

10.6 Hazardous Decomposition Products

Other decomposition products: No data available. In the event of fire: see section 5.

11. TOXICOLOGICAL INFORMATION

11.1 Information on Toxicological Effects

A) Acute Toxicity

Oral LD50: Mouse - 275 mg/kg

Rat - 1,100 mg/kg

Inhalation LC50: No data available.

Dermal LD50: No data available.

B) Skin Corrosion/Irritation

No data available

C) Serious Eye Damage/Irritation

No data available

D) Respiratory or Skin Sensitization

No data available

E) Germ Cell Mutagenicity

No data available

F) Carcinogenicity

Evidence of a carcinogenic effect.

This compound has been designated by the IARC as Group 2B: Possibly carcinogenic to humans.

G) Reproductive Toxicity/Teratogenicity

No data available

H) Single Target Organ Toxicity - Single Exposure

No data available

I) Single Target Organ Toxicity - Repeated Exposure

No data available

J) Aspiration Hazard

No data available

K) Potential Health Effects and Routes of Exposure

Inhalation

May be harmful if inhaled. May cause respiratory tract irritation.

Ingestion

Harmful if swallowed.

Skin

Harmful if absorbed through skin. May cause skin irritation.

Eyes

May cause eye irritation.

L) Signs and Symptoms of Exposure

The most important known symptoms and effects are described in the labeling (see section 2.2) and/or in section 11.

To the best of our knowledge, the chemical, physical, and toxicological properties of this material have not been thoroughly investigated.

M) Additional Information

RTECS: PC0365000

12. ECOLOGICAL INFORMATION

12.1 Toxicity

Toxicity to fish:

LC50 - Lepomis macrochirus - 0.05 mg/l - 96 h

12.2 Persistance and Degradability

No data available.

12.3 Bioaccumulative Potential

No data available.

12.4 Mobility in Soil

No data available.

12.5 Results of PBT and vPvB Assessment

No data available.

12.6 Other Adverse Effects

An environmental hazard cannot be excluded in the event of unprofessional handling or disposal.
Very toxic to aquatic life.

13. DISPOSAL CONSIDERATIONS

13.1 Waste Treatment Methods

A) Product

Product may be burned in an incinerator equipped with afterburner and scrubber. Excess and expired materials are to be offered to a licensed hazardous material disposal company. Ensure that all Federal and Local regulations regarding the disposal and destruction of this material are followed.

B) Contaminated Packaging

Dispose of as above.

C) Other Considerations

Product is not to be disposed of in sanitary sewers, storm sewers, or landfills.

14. TRANSPORT INFORMATION

14.1 UN Number

DOT (US): UN3077 IATA: UN3077 IMDG: UN3077 ADR/RID: UN3077

14.2 UN Proper Shipping Name

DOT (US)/IATA:
Environmentally hazardous substances, solid, n.o.s. (trans-Chlordane)
IMDG/ARD/RID:
ENVIRONMENTALLY HAZARDOUS SUBSTANCE, SOLID, N.O.S. (trans-Chlordane)

14.3 Transport Hazard Class(es)

DOT (US): 9 IATA: 9 IMDG: 9 ADR/RID: 9

14.4 Packing Group

DOT (US): III IATA: III IMDG: III ADR/RID: III

14.5 Environmental Hazards

DOT (US): None IATA: None IMDG: Marine pollutant ADR/RID: None

14.6 Special Precautions for User

None

15. REGULATORY INFORMATION

This safety data sheet complies with the requirements of WHMIS (Canada), OSHA 1910.1200 (US), and EU Regulation EC No. 1907/2006 (European Union).

15.1 Safety, Health and Environmental Regulations/Legislation Specific for the Substance or Mixture

A) Canada

DSL/NDSL Status: This product is not listed on the Canadian DSL/NDSL.

B) United States

TSCA Status: This product is not listed on the US EPA TSCA.

C) European Union

ECHA Status: This product is not registered with the EU ECHA.

15.2 Chemical Safety Assessment

No data available

16. OTHER INFORMATION

16.1 Revision History

Original Publication Date: 9/15/2015

16.2 List of Abbreviations

LD50	Median lethal dose of a substance required to kill 50% of a test population.
LC50	Medial lethal concentration of a substance required to kill 50% of a test population.
LDLo	Lowest known lethal dose
TDLo	Lowest known toxic dose
IARC	International Agency for Research on Cancer
NTP	National Toxicology Program
RTECS	Registry of Toxic Effects of Chemical Substances

16.3 Further Information

Copyright 2015. Toronto Research Chemicals Inc. Copies may be made for internal use only. The above information is

believed to be correct to the best of our knowledge, but is to be only used as a guide. To the best of our knowledge, the chemical, physical, and toxicological properties have not been thoroughly investigated. Please take all due care when handling this product.

SAFETY DATA SHEET

SDS ID NO.: 0127MAR019
Revision Date: 06/01/2016

1. IDENTIFICATION

Product Name: Marathon Petroleum Gasoline - All Grades

Synonym: Gasoline; Regular Unleaded Gasoline; Conventional Regular Unleaded Gasoline; Mid Grade Unleaded Gasoline; Conventional Mid Grade Unleaded Gasoline; Premium Unleaded Gasoline; Conventional Premium Unleaded Gasoline; Sub-Octane Gasoline; Regular RBOB; Super RBOB; Premium RBOB; RBOB; Reformulated Blend Stock For Oxygenated Blending; 84 Octane Gasoline; CBOB; Premium CBOB; Conventional Blend Stock for Oxygenate Blending; Recreational Gasoline; Recreational Gasoline; Recreational Unleaded Gasoline; 89 Recreational Gasoline; Brand 89 Recreational Gasoline; 7.0 Max RVP 89 Recreational Gasoline; BR 7.0 Max RVP 89 Recreational Gasoline; 90 Recreational Gasoline; 90 Marina Gasoline; Brand 91 Recreational Gasoline; 91 Recreational Gasoline; 91 Marina Gasoline; 90 Octane Midgrade Gasoline with No Ethanol; 0125MAR019; 0126MAR019; 0134MAR019; 0313MAR019; 0314MAR019

Chemical Family: Complex Hydrocarbon Substance

Recommended Use: Fuel.
Restrictions on Use: All others.

Manufacturer, Importer, or Responsible Party Name and Address:

MARATHON PETROLEUM COMPANY LP
539 South Main Street
Findlay, OH 45840

SDS information: 1-419-421-3070

Emergency Telephone: 1-877-627-5463

2. HAZARD IDENTIFICATION

Classification

OSHA Regulatory Status
This chemical is considered hazardous by the 2012 OSHA Hazard Communication Standard (29 CFR 1910.1200)

Flammable liquids	Category 1
Skin corrosion/irritation	Category 2
Germ cell mutagenicity	Category 1B
Carcinogenicity	Category 1B
Reproductive toxicity	Category 2
Specific target organ toxicity (single exposure)	Category 3
Aspiration toxicity	Category 1
Acute aquatic toxicity	Category 2
Chronic aquatic toxicity	Category 2

Hazards Not Otherwise Classified (HNOC)

Static accumulating flammable liquid

Label elements

EMERGENCY OVERVIEW

Danger

EXTREMELY FLAMMABLE LIQUID AND VAPOR
May accumulate electrostatic charge and ignite or explode
May be fatal if swallowed and enters airways
Causes skin irritation
May cause respiratory irritation
May cause drowsiness or dizziness
May cause genetic defects
May cause cancer
Suspected of damaging fertility or the unborn child
Toxic to aquatic life with long lasting effects



Appearance Clear yellow liquid **Physical State** Liquid **Odor** Hydrocarbon

Precautionary Statements - Prevention
Obtain special instructions before use
Do not handle until all safety precautions have been read and understood
Keep away from heat/sparks/open flames/hot surfaces. - No smoking
Keep container tightly closed
Ground/bond container and receiving equipment
Use explosion-proof electrical/ventilating/lighting/equipment
Use only non-sparking tools.
Take precautionary measures against static discharge
Avoid breathing mist/vapors/spray
Use only outdoors or in a well-ventilated area
Wear protective gloves/protective clothing/eye protection/face protection
Wash hands and any possibly exposed skin thoroughly after handling
Avoid release to the environment

Precautionary Statements - Response
IF exposed or concerned: Get medical attention
IF ON SKIN (or hair): Take off immediately all contaminated clothing. Rinse skin with water/shower
If skin irritation occurs: Get medical attention
Wash contaminated clothing before reuse
IF INHALED: Remove victim to fresh air and keep at rest in a position comfortable for breathing
Call a POISON CENTER or doctor if you feel unwell
IF SWALLOWED: Immediately call a POISON CENTER or doctor
Do NOT induce vomiting
In case of fire: Use water spray, fog or regular foam for extinction
Collect spillage

Precautionary Statements - Storage
Store in a well-ventilated place. Keep container tightly closed
Keep cool
Store locked up

Precautionary Statements - Disposal
Dispose of contents/container at an approved waste disposal plant

3. COMPOSITION/INFORMATION ON INGREDIENTS

Gasoline is a complex combination of hydrocarbons consisting of paraffins, cycloparaffins, aromatic and olefinic hydrocarbons having molecular chains ranging in length from four to ten carbons. May contain small amounts of dye and other additives (>0.02%) which are not considered hazardous at the concentrations used.

Composition Information:

Name	CAS Number	% Concentration
Gasoline	86290-81-5	100
Heptane (mixed isomers)	142-82-5	2.5-26
Pentane (mixed isomers)	78-78-4	6.5-19
Butane (mixed isomers)	106-97-8	0.5-14
Hexane Isomers (other than n-Hexane)	107-83-5	2-12
Toluene	108-88-3	3-9.5
Xylene (mixed isomers)	1330-20-7	3.5-9.5
n-Hexane	110-54-3	0.1-4.5
Cumene	98-82-8	0-4
1,2,4 Trimethylbenzene	95-63-6	1-4
Ethylbenzene	100-41-4	0.5-2.5
Benzene	71-43-2	0.1-1.5
Cyclohexane	110-82-7	0-1.5
Octane	111-65-9	0-1.5
1,2,3-trimethylbenzene	526-73-8	0-1
Naphthalene	91-20-3	0.1-0.5

All concentrations are percent by weight unless material is a gas. Gas concentrations are in percent by volume.

4. FIRST AID MEASURES

First Aid Measures

General Advice: In case of accident or if you feel unwell, seek medical advice immediately (show directions for use or safety data sheet if possible).

Inhalation: Remove to fresh air. If not breathing, institute rescue breathing. If breathing is difficult, ensure airway is clear, give oxygen and continue to monitor. If heart has stopped, immediately begin cardiopulmonary resuscitation (CPR). Keep affected person warm and at rest. If symptoms occur get medical attention.

Skin Contact: Immediately wash exposed skin with plenty of soap and water while removing contaminated clothing and shoes. May be absorbed through the skin in harmful amounts. Get medical attention if irritation persists. Any injection injury from high pressure equipment should be evaluated immediately by a physician as potentially serious (See NOTES TO PHYSICIAN).

Place contaminated clothing in closed container until cleaned or discarded. If clothing is to be laundered, inform the person performing the operation of contaminant's hazardous properties. Destroy contaminated, non-chemical resistant footwear.

Eye Contact: Flush immediately with large amounts of water for at least 15 minutes. Eyelids should be held away from the eyeball to ensure thorough rinsing. Gently remove contacts while flushing. Get medical attention if irritation persists.

Ingestion: Do not induce vomiting because of danger of aspirating liquid into lungs, causing serious damage and chemical pneumonitis. If spontaneous vomiting occurs, keep head below hips, or if patient is lying down, turn body and head to side to prevent aspiration and monitor for breathing difficulty. Never give anything by mouth to an unconscious person. Keep affected person warm and at rest. GET IMMEDIATE MEDICAL ATTENTION.

Most important signs and symptoms, both short-term and delayed with overexposure

Adverse Effects: Irritating to the skin and mucous membranes. Symptoms may include redness, itching, and inflammation. May cause nausea, vomiting, diarrhea, and signs of nervous system depression: headache, drowsiness, dizziness, loss of coordination, disorientation and fatigue. Aspiration hazard. May cause coughing, chest pains, shortness of breath, pulmonary edema and/or chemical pneumonitis. Repeated or prolonged skin contact may cause drying, reddening, itching and cracking.

Indication of any immediate medical attention and special treatment needed

Notes To Physician: INHALATION: This material (or a component) sensitizes the myocardium to the effects of sympathomimetic amines. Epinephrine and other sympathomimetic drugs may initiate cardiac arrhythmias in individuals exposed to this material. Administration of sympathomimetic drugs should be avoided.

SKIN: Leaks or accidents involving high-pressure equipment may inject a stream of material through the skin and initially produce an injury that may not appear serious. Only a small puncture wound may appear on the skin surface but, without proper treatment and depending on the nature, original pressure, volume, and location of the injected material, can compromise blood supply to an affected body part. Prompt surgical debridement of the wound may be necessary to prevent irreversible loss of function and/or the affected body part. High pressure injection injuries may be SERIOUS SURGICAL EMERGENCIES.

INGESTION: This material represents a significant aspiration and chemical pneumonitis hazard. Induction of emesis is not recommended.

5. FIRE-FIGHTING MEASURES

Suitable extinguishing media
For small fires, Class B fire extinguishing media such as CO2, dry chemical, foam (AFFF/ATC) or water spray can be used. For large fires, water spray, fog or foam (AFFF/ATC) can be used. Firefighting should be attempted only by those who are adequately trained and equipped with proper protective equipment.

Unsuitable extinguishing media
Do not use straight water streams to avoid spreading fire.

Specific hazards arising from the chemical
This product has been determined to be an extremely flammable liquid per the OSHA Hazard Communication Standard and should be handled accordingly. May accumulate electrostatic charge and ignite or explode. Vapors may travel along the ground or be moved by ventilation and ignited by many sources such as pilot lights, sparks, electric motors, static discharge, or other ignition sources at locations distant from material handling. Flashback can occur along vapor trail. For additional fire related information, see NFPA 30 or the Emergency Response Guidebook 128.

Hazardous combustion products
Smoke, carbon monoxide, and other products of incomplete combustion.

Explosion data
Sensitivity to Mechanical Impact No.
Sensitivity to Static Discharge Yes.

Special protective equipment and precautions for firefighters
Firefighters should wear full protective clothing and positive-pressure self-contained breathing apparatus (SCBA) with a full face-piece, as appropriate. Avoid using straight water streams. Water may be ineffective in extinguishing low flash point fires, but can be used to cool exposed surfaces. Avoid excessive water spray application. Water spray and foam (AFFF/ATC) must be applied carefully to avoid frothing and from as far a distance as possible. Keep run-off water out of sewers and water sources.

Additional firefighting tactics
FIRES INVOLVING TANKS OR CAR/TRAILER LOADS: Fight fire from maximum distance or use unmanned hose holders or monitor nozzles. Cool containers with flooding quantities of water until well after the fire is out. Do not direct water at source of leak or safety devices; icing may occur. Withdraw immediately in case of rising sound from venting safety devices or discoloration of tank. ALWAYS stay away from tanks engulfed in fire. For massive fire, use unmanned hose holders or monitor nozzles: if this is impossible, withdraw from area and let fire burn.

EVACUATION: Consider initial downwind evacuation for at least 1000 feet. If tank, rail car or tank truck is involved in a fire, ISOLATE for 5280 feet (1 mile) in all directions; also, consider initial evacuation of 5280 feet (1 mile) in all directions.

NFPA	Health 1	Flammability 3	Instability 0	Special Hazard -

6. ACCIDENTAL RELEASE MEASURES

Personal precautions:	Keep public away. Isolate and evacuate area. Shut off source if safe to do so. Eliminate all ignition sources.
Protective equipment:	Use personal protection measures as recommended in Section 8.
Emergency procedures:	Advise authorities and National Response Center (800-424-8802) if the product has entered a water course or sewer. Notify local health and pollution control agencies, if appropriate.
Environmental precautions:	Avoid release to the environment. Avoid subsoil penetration. Ethanol in gasoline phase seperates in contact with water. Monitor downstream for dissolved ethanol or other appropriate indicators.
Methods and materials for containment:	Contain liquid with sand or soil. Prevent spilled material from entering storm drains, sewers, and open waterways.
Methods and materials for cleaning up:	Use suitable absorbent materials such as vermiculite, sand, or clay to clean up residual liquids. Recover and return free product to proper containers. When recovering free liquids ensure all equipment is grounded and bonded. Use only non-sparking tools.

7. HANDLING AND STORAGE

Safe Handling Precautions:

NEVER SIPHON THIS PRODUCT BY MOUTH. Use appropriate grounding and bonding practices. Static accumulating flammable liquid. Bonding and grounding may be insufficient to eliminate the hazard from static electricity. Do not expose to heat, open flames, strong oxidizers or other sources of ignition. Vapors may travel along the ground or be moved by ventilation. Flashback may occur along vapor trails. No smoking. Use only non-sparking tools. Avoid contact with skin, eyes and clothing. Avoid breathing fumes, gas, or vapors. Use only with adequate ventilation. Avoid repeated and prolonged skin contact. Use personal protection measures as recommended in Section 8. Exercise good personal hygiene including removal of soiled clothing and prompt washing with soap and water. Do not cut, drill, grind or weld on empty containers since explosive residues may remain. Refer to applicable EPA, OSHA, NFPA and consistent state and local requirements.

Hydrocarbons are basically non-conductors of electricity and can become electrostatically charged during mixing, filtering, pumping at high flow rates or loading and transfer operations. If this charge reaches a sufficiently high level, sparks can form that may ignite the vapors of flammable liquids. Sudden release of hot organic chemical vapors or mists from process equipment operating under elevated temperature and pressure, or sudden ingress of air into vacuum equipment may result in ignition of vapors or mists without the presence of obvious ignition sources. Nozzle spouts must be kept in contact with the containers or tank during the entire filling operation.

Portable containers should never be filled while in or on a motor vehicle or marine craft. Containers should be placed on the ground. Static electric discharge can ignite fuel vapors when filling non-grounded containers or vehicles on trailers. The nozzle spout must be kept in contact with the container before and during the entire filling operation. Use only approved containers.

A buildup of static electricity can occur upon re-entry into a vehicle during fueling especially in cold or dry climate conditions. The charge is generated by the action of dissimilar fabrics (i.e., clothing and upholstery) rubbing across each other as a person enters/exits the vehicle. A flash fire can result from this discharge if sufficient flammable vapors are present. Therefore, do not get back in your vehicle while refueling.

Cellular phones and other electronic devices may have the potential to emit electrical charges (sparks). Sparks in potentially explosive atmospheres (including fueling areas such as gas stations) could cause an explosion if sufficient flammable vapors are present. Therefore, turn off cellular phones and other electronic devices when working in potentially explosive atmospheres or keep devices inside your vehicle during refueling.

High-pressure injection of any material through the skin is a serious medical emergency even though the small entrance wound at the injection site may not initially appear serious. These injection injuries can occur from high-pressure equipment such as paint spray or grease or guns, fuel injectors, or pinhole leaks in hoses or hydraulic lines and should all be considered serious. High pressure injection injuries may be SERIOUS SURGICAL EMERGENCIES (See First Aid Section 4).

Storage Conditions:

Store in properly closed containers that are appropriately labeled and in a cool, well-ventilated area. Do not store near an open flame, heat or other sources of ignition.

Incompatible Materials

Strong oxidizing agents.

8. EXPOSURE CONTROLS/PERSONAL PROTECTION

Name	ACGIH TLV	OSHA PELS:	OSHA - Vacated PELs	NIOSH IDLH
Gasoline 86290-81-5	300 ppm TWA 500 ppm STEL	-	300 ppm TWA 900 mg/m^3 TWA 500 ppm STEL 1500 mg/m^3 STEL	-

Heptane (mixed isomers) 142-82-5	400 ppm TWA 500 ppm STEL	TWA: 500 ppm TWA: 2000 mg/m³	400 ppm TWA 1600 mg/m³ TWA 500 ppm STEL 2000 mg/m³ STEL	750 ppm
Pentane (mixed isomers) 78-78-4	1000 ppm TWA	-	-	-
Butane (mixed isomers) 106-97-8	1000 ppm STEL	-	800 ppm TWA 1900 mg/m³ TWA	-
Hexane Isomers (other than n-Hexane) 107-83-5	500 ppm TWA 1000 ppm STEL	-	500 ppm TWA 1800 mg/m³ TWA 1000 ppm STEL 3600 mg/m³ STEL	-
Toluene 108-88-3	20 ppm TWA	TWA: 200 ppm Ceiling: 300 ppm	100 ppm TWA 375 mg/m³ TWA 150 ppm STEL 560 mg/m³ STEL	500 ppm
Xylene (mixed isomers) 1330-20-7	100 ppm TWA 150 ppm STEL	TWA: 100 ppm TWA: 435 mg/m³	100 ppm TWA 435 mg/m³ TWA 150 ppm STEL 655 mg/m³ STEL	900 ppm
n-Hexane 110-54-3	50 ppm TWA Skin - potential significant contribution to overall exposure by the cutaneous route	TWA: 500 ppm TWA: 1800 mg/m³	50 ppm TWA 180 mg/m³ TWA	1100 ppm
Cumene 98-82-8	50 ppm TWA	TWA: 50 ppm TWA: 245 mg/m³ Skin	50 ppm TWA 245 mg/m³ TWA Limit applies to skin	900 ppm
1,2,4 Trimethylbenzene 95-63-6	25 ppm TWA	-	25 ppm TWA 125 mg/m³ TWA	-
Ethylbenzene 100-41-4	20 ppm TWA	TWA: 100 ppm TWA: 435 mg/m³	100 ppm TWA 435 mg/m³ TWA 125 ppm STEL 545 mg/m³ STEL	800 ppm
Benzene 71-43-2	0.5 ppm TWA 2.5 ppm STEL Skin - potential significant contribution to overall exposure by the cutaneous route	TWA: 10 ppm (applies to industry segments exempt from the benzene standard) TWA: 1 ppm STEL: 5 ppm (see 29 CFR 1910.1028)	25 ppm Ceiling 1 ppm TWA 5 ppm STEL	500 ppm
Cyclohexane 110-82-7	100 ppm TWA	TWA: 300 ppm TWA: 1050 mg/m³	300 ppm TWA 1050 mg/m³ TWA	1300 ppm
Octane 111-65-9	300 ppm TWA	TWA: 500 ppm TWA: 2350 mg/m³	300 ppm TWA 1450 mg/m³ TWA 375 ppm STEL 1800 mg/m³ STEL	1000 ppm
1,2,3-trimethylbenzene 526-73-8	25 ppm TWA	-	25 ppm TWA 125 mg/m³ TWA	-
Naphthalene 91-20-3	10 ppm TWA Skin - potential significant contribution to overall exposure by the cutaneous route	TWA: 10 ppm TWA: 50 mg/m³	10 ppm TWA 50 mg/m³ TWA 15 ppm STEL 75 mg/m³ STEL	250 ppm

Notes: The manufacturer has voluntarily elected to provide exposure limits contained in OSHA's 1989 air contaminants standard in its SDSs, even though certain of those exposure limits were vacated in 1992.

Engineering measures: Local or general exhaust required in an enclosed area or when there is inadequate ventilation. Use mechanical ventilation equipment that is explosion-proof.

Personal protective equipment

Eye protection: Use goggles or face-shield if the potential for splashing exists.

Skin and body protection: Use nitrile rubber, Viton® or PVA gloves for repeated or prolonged skin exposure. Glove suitability is based on workplace conditions and usage. Contact the glove manufacturer for specific advice on glove selection and breakthrough times.

Respiratory protection: Use a NIOSH approved organic vapor chemical cartridge or supplied air respirators when there is the potential for airborne exposures to exceed permissible exposure limits or if excessive vapors are generated. Observe respirator assigned protection factors (APFs) criteria cited in federal OSHA 29 CFR 1910.134. Self-contained breathing apparatus should be used for fire fighting.

Hygiene measures: Handle in accordance with good industrial hygiene and safety practice. Avoid contact with skin, eyes and clothing.

9. PHYSICAL AND CHEMICAL PROPERTIES

Information on basic physical and chemical properties

Physical State	Liquid
Appearance	Clear yellow liquid
Color	Yellow
Odor	Hydrocarbon
Odor Threshold	No data available.

Property	**Values (Method)**
Melting Point / Freezing Point	No data available.
Initial Boiling Point / Boiling Range	24-210 °C / 75-410 °F (ASTM D86)
Flash Point	-43 °C / -45 °F
Evaporation Rate	No data available.
Flammability (solid, gas)	Not applicable.
Flammability Limit in Air (%):	
Upper Flammability Limit:	7.6
Lower Flammability Limit:	1.4
Explosion limits:	No data available.
Vapor Pressure	5.5-15 psi (ASTM D4814)
Vapor Density	3-4
Specific Gravity / Relative Density	0.70-0.76
Water Solubility	No data available.
Solubility in other solvents	No data available.
Partition Coefficient	2.13-4.5
Decomposition temperature	No data available.
pH:	Not applicable
Autoignition Temperature	280 °C / 536 °F
Kinematic Viscosity	No data available.
Dynamic Viscosity	No data available.
Explosive Properties	No data available.
VOC Content (%)	100%
Density	No data available.
Bulk Density	Not applicable.

10. STABILITY AND REACTIVITY

Reactivity The product is non-reactive under normal conditions.

Chemical stability The material is stable at 70°F, 760 mmHg pressure.

Possibility of hazardous reactions None under normal processing.

Hazardous polymerization Will not occur.

Conditions to avoid Excessive heat, sources of ignition, open flame.

Incompatible Materials Strong oxidizing agents.

Hazardous decomposition products None known under normal conditions of use.

11. TOXICOLOGICAL INFORMATION

Potential short-term adverse effects from overexposures

Inhalation May cause irritation of respiratory tract. May cause drowsiness or dizziness. Breathing high concentrations of this material in a confined space or by intentional abuse can cause irregular heartbeats which can cause death.

Eye contact Exposure to vapor or contact with liquid may cause mild eye irritation, including tearing, stinging, and redness.

Skin contact Causes skin irritation. Effects may become more serious with repeated or prolonged contact. May be absorbed through the skin in harmful amounts.

Ingestion May be fatal if swallowed or vomited and enters airways. May cause irritation of the mouth, throat and gastrointestinal tract.

Acute toxicological data

Name	Oral LD50	Dermal LD50	Inhalation LC50
Gasoline 86290-81-5	14000 mg/kg (Rat)	> 2000 mg/kg (Rabbit)	> 5.2 mg/L (Rat) 4 h
Heptane (mixed isomers) 142-82-5	-	3000 mg/kg (Rabbit)	103 g/m³ (Rat) 4 h
Pentane (mixed isomers) 78-78-4	-	-	450 mg/L (Mouse) 2 h
Butane (mixed isomers) 106-97-8	-	-	658 mg/L (Rat) 4 h
Hexane Isomers (other than n-Hexane) 107-83-5	> 5000 mg/kg (Rat)	-	-
Toluene 108-88-3	> 2000 mg/kg (Rat)	8390 mg/kg (Rabbit)	12.5 mg/L (Rat) 4 h
Xylene (mixed isomers) 1330-20-7	> 2000 mg/kg (Rat)	> 2000 mg/kg (Rabbit)	> 5.04 mg/L (Rat) 4 h
n-Hexane 110-54-3	15000 mg/kg (Rat)	3000 mg/kg (Rabbit)	48000 ppm (Rat) 4 h
Cumene 98-82-8	> 2000 mg/kg (Rat)	> 2000 mg/kg (Rabbit)	> 20 mg/L (Rat) 6 h
1,2,4 Trimethylbenzene 95-63-6	3280 mg/kg (Rat)	> 3160 mg/kg (Rabbit)	18,000 mg/m³ (Rat) 4 h
Ethylbenzene 100-41-4	> 2000 mg/kg (Rat)	> 2000 mg/kg (Rabbit)	17.2 mg/L (Rat) 4 h
Benzene 71-43-2	> 2000 mg/kg (Rat)	> 5000 mg/kg (Rabbit)	> 20 mg/l (Rat) 4 h
Cyclohexane 110-82-7	> 5000 mg/kg (Rat)	> 2000 mg/kg (Rabbit)	13.9 mg/L (Rat) 4 h
Octane 111-65-9	-	-	118 g/m³ (Rat) 4 h
1,2,3-trimethylbenzene 526-73-8	-	-	-
Naphthalene 91-20-3	490 mg/kg (Rat)	> 2000 mg/kg (Rabbit)	> 340 mg/m³ (Rat) 1 h

Delayed and immediate effects as well as chronic effects from short and long-term exposure

NAPHTHAS: In a large epidemiological study on over 15,000 employees at several petroleum refineries and amongst residents located near these refineries, no increased risk of kidney cancer was observed in association with gasoline exposures (a similar material). In a similar study, no increased risk of kidney cancer was observed among petroleum refinery workers, but there was a slight trend in the incidence of kidney cancers among service station employees, especially after a 30-year latency period. Altered mental state, drowsiness, peripheral motor neuropathy, irreversible brain damage (so-called Petrol Sniffer's Encephalopathy), delirium, seizures, and sudden death have been reported from repeated overexposure to some hydrocarbon solvents, naphthas, and gasoline.

ISOPARAFFINS: Studies in laboratory animals have shown that long-term exposure to similar materials (isoparaffins) can cause kidney damage and kidney cancer in male laboratory rats. However, in-depth research indicates that these findings are unique to the male rat, and that these effects are not relevant to humans.

C9 AROMATIC HYDROCARBONS: A developmental inhalation study was conducted in laboratory mice. Increased implantation losses, reduced fetal weights, delayed ossification and an increased incidence of cleft palate were observed at the highest exposure level (1,500 ppm). This exposure level was extremely toxic to pregnant female mice (44% mortality). Reduced fetal body weights were also observed at 500 ppm. A multi-generation reproduction inhalation study was conducted in laboratory rats. Reductions in pup weights, pup weight gain, litter size, and pup survival were observed at 1,500 ppm, an exposure level at which significant maternal toxicity was observed. Reduced pup weight gain was also observed at 500 ppm.

PENTANES: Studies of pentane isomers in laboratory animals indicate exposure to extremely high levels (roughly 10 vol.%) may induce cardiac arrhythmias (irregular heartbeats) which may be serious or fatal.

BUTANES: Studies in laboratory animals indicate exposure to extremely high levels of butanes (1-10 or higher vol.% in air) may cause cardiac arrhythmias (irregular heartbeats) which may be serious or fatal.

TOLUENE: Case studies of persons abusing toluene suggest isolated incidences of adverse effects on the fetus including birth defects. Abuse of toluene at high concentrations (e.g., glue sniffing and solvent abuse) has been associated with adverse effects on the liver, kidney and nervous system, and can cause CNS depression, cardiac arrhythmias, and death. Studies of workers indicate longterm exposure may be related to impaired color vision and hearing. Some studies of workers suggest longterm exposure may be related to neurobehavioral and cognitive changes. Some of these effects have been observed in laboratory animals following repeated exposure to high levels of toluene. Several studies of workers suggest longterm exposure may be related to small increases in spontaneous abortions and changes in some gonadotropic hormones. However, the weight of evidence does not indicate toluene is a reproductive hazard to humans. Studies in laboratory animals indicate some changes in reproductive organs following high levels of exposure, but no significant effects on mating performance or reproduction were observed. Case studies of persons abusing toluene suggest isolated incidences of adverse effects on the fetus including birth defects. Findings in laboratory animals have been largely negative. Positive findings include small increases in minor skeletal and visceral malformations and developmental delays following very high levels of maternal exposure. Studies of workers indicate long-term exposure may be related to effects on the liver, kidney and blood, but these appear to be limited to changes in serum enzymes and decreased leukocyte counts. Adverse effects on the liver, kidney, thymus and nervous system were observed in animal studies following very high levels of exposure. The relevance of these findings to humans is not clear at this time.

XYLENES, ALL ISOMERS: Overexposure to xylene may cause upper respiratory tract irritation, headache, cyanosis, blood serum changes, nervous system damage and narcosis. Effects may be increased by the use of alcoholic beverages. Evidence of liver and kidney impairment were reported in workers recovering from a gross overexposure. Effects from Prolonged or Repeated Exposure: Impaired neurological function was reported

in workers exposed to solvents including xylene. Studies in laboratory animals have shown evidence of impaired hearing following high levels of exposure. Studies in laboratory animals suggest some changes in reproductive organs following high levels of exposure but no significant effects on reproduction were observed. Studies in laboratory animals indicate skeletal and visceral malformations, developmental delays, and increased fetal resorptions following extremely high levels of maternal exposure with evidence of maternal toxicity. The relevance of these observations to humans is not clear at this time. Adverse effects on the liver, kidney, bone marrow (changes in blood cell parameters) were observed in laboratory animals following high levels of exposure. The relevance of these observations to humans is not clear at this time.

1,2,4-TRIMETHYLBENZENE: The following information pertains to a mixture of C9 aromatic hydrocarbons, over 40% of which was composed of 1,2,4-trimethylbenzene. A developmental inhalation study was conducted in laboratory mice. Increased implantation losses, reduced fetal weights, delayed ossification and an increased incidence of cleft palate were observed at the highest exposure level (1,500 ppm). This exposure level was extremely toxic to pregnant female mice (44% mortality). Reduced fetal body weights were also observed at 500 ppm. A multi-generation reproduction inhalation study was conducted in laboratory rats. Reductions in pup weights, pup weight gain, litter size, and pup survival were observed at 1,500 ppm, an exposure level at which significant maternal toxicity was observed. Reduced pup weight gain was also observed at 500 ppm. Embryotoxicity has been reported in studies of laboratory animals. Adverse effects included increased implantation losses, reduced fetal weights, delayed ossification and an increased incidence of cleft palate.<n><n>

N-HEXANE: Long-term or repeated exposure to n-hexane can cause peripheral nerve damage. Initial symptoms are numbness of the fingers and toes. Also, motor weakness can occur in the digits, but may also involve muscles of the arms, thighs and forearms. The onset of these symptoms may be delayed for several months to a year after the beginning of exposure. Testicular atrophy and partial to full loss of the germ cell line were observed in sub-chronic high-dose inhalation studies of laboratory rodents. These effects appeared irreversible. Rodent reproduction studies have shown evidence of reduced fetal weight but no frank malformations.

CUMENE: Overexposure to cumene may cause upper respiratory tract irritation and CNS depression. Studies in laboratory animals indicate evidence of respiratory tract hyperplasia, and adverse effects on the liver, kidney and adrenal glands following high level exposure. The relevance of these findings to humans is not clear at this time. Findings from lifetime laboratory rodent inhalation studies were as follows: In F344/N rats: an increased incidence of renal carcinomas and adenomas, respiratory epithelial adenomas, and interstitial cell adenomas of the testes. In B6C3F1 mice: an increased incidence of carcinomas and adenomas of the bronchi and lung, liver neoplasms, hemangiosarcomas of the spleen, and adenomas of the thyroid.

ETHYLBENZENE: Findings from a 2-year inhalation study in rodents conducted by NTP were as follows: Effects were observed only at the highest exposure level (750 ppm). At this level the incidence of renal tumors was elevated in male rats (tubular carcinomas) and female rats (tubular adenomas). The incidence of tumors was also elevated in male mice (alveolar and bronchiolar carcinomas) and female mice (hepatocellular carcinomas). IARC has classified ethyl benzene as "possibly carcinogenic to humans" (Group 2B). Studies in laboratory animals indicate some evidence of post-implantation deaths following high levels of maternal exposure. The relevance of these findings to humans is not clear at this time. Studies in laboratory animals indicate limited evidence of renal malformations, resorptions, and developmental delays following high levels of maternal exposure with evidence of maternal toxicity. The relevance of these findings to humans is not clear at this time. Studies in laboratory animals have demonstrated evidence of ototoxicity (hearing loss) following exposure levels as low as 300 ppm for 5 days. Studies in laboratory animals indicate some evidence of adverse effects on the liver, kidney, thyroid, and pituitary gland.

BENZENE: Studies of workers exposed to benzene show clear evidence that overexposure can cause cancer and other diseases of the blood forming organs including Acute

Myelogenous Leukemia (AML), and Aplastic Anemia (AA), an often fatal disease. Some studies suggest overexposure to benzene may also be associated with Myelodysplastic Syndrome (MDS). Findings from a case control study of workers exposed to benzene was reported during the 2009 Benzene Symposium in Munich included an increase in Acute Myeloid Leukemias and Non-Hodgkins Lymphoid Neoplasms (NHLN) of the subtype follicular lymphoma (FL) in some occupational categories. Some studies of workers exposed to benzene have shown an association with increased rates of chromosome aberrations in circulating lymphocytes. One study of women workers exposed to benzene suggested a weak association with irregular menstruation. However, other studies of workers exposed to benzene have not demonstrated clear evidence of an effect on fertility or reproductive outcome in humans. Benzene can cross the placenta and affect the developing fetus. Cases of AA have been reported in the offspring of persons severely overexposed to benzene. Studies in laboratory animals indicate that prolonged, repeated exposure to high levels of benzene vapor can cause bone marrow suppression and cancer in multiple organ systems. Studies in laboratory animals show evidence of adverse effects on male reproductive organs following high levels of exposure but no significant effects on reproduction have been observed. Embryotoxicity has been reported in studies of laboratory animals but effects were limited to reduced fetal weight and minor skeletal variations. Benzene has been classified as a proven human carcinogen by OSHA and a Group 1 (Carcinogenic to Humans) material by IARC. The current proposed IARC classification for benzene is summarized as follows: Sufficient evidence for Acute Myeloid Leukemia; limited evidence for Acute Lymphatic Leukemia, Chronic Lymphatic Leukemia, Non-Hodgkin Lymphoma, and Multiple Myeloma.

NAPHTHALENE: Severe jaundice, neurotoxicity (kernicterus) and fatalities have been reported in young children and infants as a result of hemolytic anemia from overexposure to naphthalene. Persons with glucose 6-phosphate dehydrogenase (G6PD) deficiency are more prone to the hemolytic effects of naphthalene. Adverse effects on the kidney have been reported in persons overexposed to naphthalene but these effects are believed to be a consequence of hemolytic anemia, and not a direct effect. Hemolytic anemia has been observed in laboratory animals exposed to naphthalene. Laboratory rodents exposed to naphthalene vapor for 2 years (lifetime studies) developed non-neoplastic and neoplastic tumors and inflammatory lesions of the nasal and respiratory tract. Cataracts and other adverse effects on the eye have been observed in laboratory animals exposed to high levels of naphthalene. Findings from a large number of bacterial and mammalian cell mutation assays have been negative. A few studies have shown chromosomal effects (elevated levels of Sister Chromatid Exchange or chromosomal aberrations) in vitro. Naphthalene has been classified as Possibly Carcinogenic to Humans (2B) by IARC, based on findings from studies in laboratory animals.

CARBON MONOXIDE: is a chemical asphyxiant with no warning properties (such as odor). At 400-500 ppm for 1 hour headache and dyspnea may occur. If activity is increased, symptoms of overexposure may include nausea, irritability, increased respiration, tinnitus, sweating, chest pain, confusion, impaired judgement, dizziness, weakness, drowsiness, ataxia, irregular heart beat, cyanosis and pallor. Levels in excess of 1000 ppm can result in collapse, loss of conciousness, respiratory failure and death. Extremely high concentrations (12,800 ppm) can cause immediate unconsciousness and death in 1-3 minutes. Repeated anoxia can lead to central nervous system damage and peripheral neuropathy, with loss of sensation in the fingers, amnesia, and mental deterioration and possible congestive heart failure. Damage may also occur to the fetus, lung, liver, kidney, spleen, cardiovascular system and other organs.

WHOLLY-VAPORIZED UNLEADED GASOLINE: Lifetime exposure to wholly vaporized unleaded gasoline produced an increased incidence of liver tumors in female mice exposed to the highest exposure concentration (2056 ppm) and α-2 urinary globulin-mediated kidney tumors in male rats. No exposure-related tumors were observed in male mice or female rats. The male-specific rat kidney tumors are not considered relevant to human health. Mice receiving lifetime repeated skin application of various petroleum naphthas exhibited an irritation-dependent increased incidence of skin tumors. Additional studies suggest that these tumors occur through a mechanism that may not be relevant to human health. Epidemiological data from over 18,000 petroleum marketing and distribution workers

showed no increased risk of leukemia, multiple myeloma, or kidney cancer resulting from gasoline exposure. Unleaded gasoline has been identified as possibly carcinogenic to humans (2B) by the International Agency for Research on Cancer (IARC).

COMBUSTION ENGINE EXHAUST: Chronic inhalation studies of gasoline engine exhaust in mice, rats and hamsters did not produce any carcinogenic effects. Condensates/extracts of gasoline engine exhaust produced an increase in tumors compared to controls when testing by skin painting, subcutaneous injection, intratracheal instillation or implantation into the lungs. Gasoline exhaust has been classified as possibly carcinogenic to humans (2B) by the International Agency for Research on Cancer (IARC).

Adverse effects related to the physical, chemical and toxicological characteristics

Signs and Symptoms Irritating to the skin and mucous membranes. Symptoms may include redness, itching, and inflammation. May cause nausea, vomiting, diarrhea, and signs of nervous system depression: headache, drowsiness, dizziness, loss of coordination, disorientation and fatigue. Aspiration hazard. May cause coughing, chest pains, shortness of breath, pulmonary edema and/or chemical pneumonitis. Repeated or prolonged skin contact may cause drying, reddening, itching and cracking.

Sensitization Not expected to be a skin or respiratory sensitizer.

Mutagenic effects May cause genetic defects.

Carcinogenicity May cause cancer.

Cancer designations are listed in the table below

Name	ACGIH (Class)	IARC (Class)	NTP	OSHA
Gasoline 86290-81-5	Confirmed animal carcinogen (A3)	Possible human carcinogen (2B)	Not Listed	Not Listed
Heptane (mixed isomers) 142-82-5	Not Listed	Not Listed	Not Listed	Not Listed
Pentane (mixed isomers) 78-78-4	Not Listed	Not Listed	Not Listed	Not Listed
Butane (mixed isomers) 106-97-8	Not Listed	Not Listed	Not Listed	Not Listed
Hexane Isomers (other than n-Hexane) 107-83-5	Not Listed	Not Listed	Not Listed	Not Listed
Toluene 108-88-3	Not Classifiable (A4)	Not Classifiable (3)	Not Listed	Not Listed
Xylene (mixed isomers) 1330-20-7	Not classifiable (A4)	Not classifiable (3)	Not Listed	Not Listed
n-Hexane 110-54-3	Not Listed	Not Listed	Not Listed	Not Listed
Cumene 98-82-8	Not listed	Possible human carcinogen (2B)	Reasonably anticipated to be a human carcinogen	Not listed
1,2,4 Trimethylbenzene 95-63-6	Not Listed	Not Listed	Not Listed	Not Listed
Ethylbenzene 100-41-4	Confirmed animal carcinogen (A3)	Possible human carcinogen (2B)	Not Listed	Not Listed
Benzene 71-43-2	Confirmed human carcinogen (A1)	Carcinogenic to humans (1)	Known to be human carcinogen	Known carcinogen
Cyclohexane 110-82-7	Not Listed	Not Listed	Not Listed	Not Listed
Octane 111-65-9	Not Listed	Not Listed	Not Listed	Not Listed
1,2,3-trimethylbenzene 526-73-8	Not Listed	Not Listed	Not Listed	Not Listed
Naphthalene 91-20-3	Confirmed animal carcinogen (A3)	Possible human carcinogen (2B)	Reasonably anticipated to be a human carcinogen	Not Listed

Reproductive toxicity Suspected of damaging fertility or the unborn child.

Specific Target Organ Toxicity (STOT) - single exposure Respiratory system. Central nervous system.

Specific Target Organ Toxicity (STOT) - repeated exposure Not classified.

Aspiration hazard May be fatal if swallowed or vomited and enters airways.

12. ECOLOGICAL INFORMATION

Ecotoxicity This product should be considered toxic to aquatic organisms, with the potential to cause long lasting adverse effects in the aquatic environment.

Name	Algae/aquatic plants	Fish	Toxicity to Microorganisms	Crustacea
Gasoline 86290-81-5	72-hr EC50 = 56 mg/l Algae	96-hr LC50 = 11 mg/l Rainbow trout (static)	-	48-hr LC50 = 7.6 mg/l Daphnia magna
Heptane (mixed isomers) 142-82-5	-	96-hr LC50 = 375 mg/L Tilapia	-	-
Pentane (mixed isomers) 78-78-4	-	96-hr LC50 = 3.1 mg/L Rainbow trout	-	48-hr EC50 = >1 - <10 mg/L Daphnia magna
Butane (mixed isomers) 106-97-8	-	-	-	-
Hexane Isomers (other than n-Hexane) 107-83-5	-	-	-	-
Toluene 108-88-3	72-hr EC50 = 12.5 mg/l Algae	96-hr LC50 <= 10 mg/l Rainbow trout	-	48-hr EC50 = 5.46-9.83 mg/l Daphnia magna 48-hr EC50 = 11.5 mg/l Daphnia magna (Static)
Xylene (mixed isomers) 1330-20-7	72-hr EC50 = 11 mg/l Algae	96-hr LC50 = 8 mg/l Rainbow trout	-	48-hr LC50 = 3.82 mg/l Daphnia magna
n-Hexane 110-54-3	-	96-hr LC50 = 2.5 mg/l Fathead minnow	-	-
Cumene 98-82-8	72-hr EC50 = 2.6 mg/l Algae	96-hr LC50 = 6.04-6.61 mg/l Fathead minnow (Flow-through) 96-hr LC50 = 2.7 mg/l Rainbow trout (semi-static)	-	48-hr EC50 = 7.9-14.1 mg/l Daphnia magna (static)
1,2,4 Trimethylbenzene 95-63-6	-	96-hr LC50 = 7.19-8.28 mg/l Fathead minnow (flow-through)	-	48-hr EC50 = 6.14 mg/L Daphnia magna
Ethylbenzene 100-41-4	72-hr EC50 = 1.7-7.6 mg/l Algae	96-hr LC50 = 4 mg/L Rainbow trout	-	48-hr EC50 = 1-4 mg/L Daphnia magna
Benzene 71-43-2	72-hr EC50 = 29 mg/l Algae	96-hr LC50 = 5.3 mg/l Rainbow trout (flow-through)	-	48-hr EC50 = 8.76-15.6 mg/l Daphnia magna (Static)
Cyclohexane 110-82-7	72-hr EC50 = 500 mg/l Algae	96-hr LC50 = 3.96-5.18 mg/l Fathead minnow	-	48-hr EC50 = 1.7-3.5 mg/L Bay shrimp
Octane 111-65-9	-	-	-	48-hr LC50 = 0.38 mg/l Daphnia magna
1,2,3-trimethylbenzene 526-73-8	-	96-hr LC50 = 7.72 mg/l Fathead Minnow (flow-through)	-	-
Naphthalene 91-20-3	-	96-hr LC50 = 0.91-2.82 mg/l Rainbow trout (static) 96-hr LC50 = 1.99 mg/l Fathead minnow (static)	-	48-hr LC50 = 1.6 mg/l Daphnia magna

Persistence and degradability Expected to be inherently biodegradable. The presence of ethanol in this product may impede the biodegradation of benzene, toluene, ethylbenzene and xylene in groundwater, resulting in elongated plumes of these constituents.

Bioaccumulation Has the potential to bioaccumulate.

Mobility in soil May partition into air, soil and water.

Other adverse effects No information available.

13. DISPOSAL CONSIDERATIONS

Description of Waste Residues
This material may be a flammable liquid waste.

Safe Handling of Wastes
Handle in accordance with applicable local, state, and federal regulations. Use personal protection measures as required. Use appropriate grounding and bonding practices. Use only non-sparking tools. Do not expose to heat, open flames, strong oxidizers or other sources of ignition. No smoking.

Disposal of Wastes / Methods of Disposal
The user is responsible for determining if any discarded material is a hazardous waste (40 CFR 262.11). Dispose of in accordance with federal, state and local regulations.

Methods of Contaminated Packaging Disposal
Empty containers should be completely drained and then discarded or recycled, if possible. Do not cut, drill, grind or weld on empty containers since explosive residues may be present. Dispose of in accordance with federal, state and local regulations.

14. TRANSPORT INFORMATION

DOT (49 CFR 172.101):

UN Proper Shipping Name:	Gasoline
UN/Identification No:	UN 1203
Transport Hazard Class(es):	3
Packing Group:	II

TDG (Canada):

UN Proper Shipping Name:	Gasoline
UN/Identification No:	UN 1203
Transport Hazard Class(es):	3
Packing Group:	II

15. REGULATORY INFORMATION

US Federal Regulatory Information:

US TSCA Chemical Inventory Section 8(b): This product and/or its components are listed on the TSCA Chemical Inventory.

EPA Superfund Amendment & Reauthorization Act (SARA):

SARA Section 302: This product does not contain any component(s) included on EPA's Extremely Hazardous Substance (EHS) List.

Name	CERCLA/SARA - Section 302 Extremely Hazardous Substances and TPQs
Gasoline	NA
Heptane (mixed isomers)	NA
Pentane (mixed isomers)	NA
Butane (mixed isomers)	NA
Hexane Isomers (other than n-Hexane)	NA
Toluene	NA
Xylene (mixed isomers)	NA

n-Hexane	NA
Cumene	NA
1,2,4 Trimethylbenzene	NA
Ethylbenzene	NA
Benzene	NA
Cyclohexane	NA
Octane	NA
1,2,3-trimethylbenzene	NA
Naphthalene	NA

SARA Section 304: This product may contain component(s) identified either as an EHS or a CERCLA Hazardous substance which in case of a spill or release may be subject to SARA reporting requirements:

Name	Hazardous Substances RQs
Gasoline	NA
Heptane (mixed isomers)	NA
Pentane (mixed isomers)	NA
Butane (mixed isomers)	NA
Hexane Isomers (other than n-Hexane)	NA
Toluene	1000 lb final RQ 454 kg final RQ
Xylene (mixed isomers)	100 lb final RQ 45.4 kg final RQ
n-Hexane	5000 lb final RQ 2270 kg final RQ
Cumene	5000 lb final RQ 2270 kg final RQ
1,2,4 Trimethylbenzene	NA
Ethylbenzene	1000 lb final RQ 454 kg final RQ
Benzene	10 lb final RQ 4.54 kg final RQ
Cyclohexane	1000 lb final RQ 454 kg final RQ
Octane	NA
1,2,3-trimethylbenzene	NA
Naphthalene	100 lb final RQ 45.4 kg final RQ

SARA: The following EPA hazard categories apply to this product:

Acute Health Hazard
Chronic Health Hazard
Fire Hazard

SARA Section 313: This product may contain component(s), which if in exceedance of the de minimus threshold, may be subject to the reporting requirements of SARA Title III Section 313 Toxic Release Reporting (Form R).

Name	CERCLA/SARA 313 Emission reporting:
Gasoline	None
Heptane (mixed isomers)	None
Pentane (mixed isomers)	None
Butane (mixed isomers)	None
Hexane Isomers (other than n-Hexane)	None
Toluene	1.0 % de minimis concentration
Xylene (mixed isomers)	1.0 % de minimis concentration
n-Hexane	1.0 % de minimis concentration
Cumene	1.0 % de minimis concentration

1,2,4 Trimethylbenzene	1.0 % de minimis concentration
Ethylbenzene	0.1 % de minimis concentration
Benzene	0.1 % de minimis concentration
Cyclohexane	1.0 % de minimis concentration
Octane	None
1,2,3-trimethylbenzene	None
Naphthalene	0.1 % de minimis concentration

State and Community Right-To-Know Regulations:
The following component(s) of this material are identified on the regulatory lists below:

Gasoline

Louisiana Right-To-Know:	Not Listed
California Proposition 65:	Not Listed
New Jersey Right-To-Know:	SN 0957
Pennsylvania Right-To-Know:	Present
Massachusetts Right-To Know:	Present
Florida Substance List:	Not Listed
Rhode Island Right-To-Know:	Not Listed
Michigan Critical Materials Register List:	Not Listed
Massachusetts Extraordinarily Hazardous Substances:	Not Listed
California - Regulated Carcinogens:	Not Listed
Pennsylvania RTK - Special Hazardous Substances:	Not Listed
New Jersey - Special Hazardous Substances:	Carcinogen; Flammable - third degree
New Jersey - Environmental Hazardous Substances List:	SN 0957 TPQ: 10000 lb (Under N.J.A.C. 7:1G, environmental hazardous substances in mixtures such as gasoline or new and used petroleum oil may be reported under these categories)
Illinois - Toxic Air Contaminants:	Present
New York - Reporting of Releases Part 597 - List of Hazardous Substances:	Not Listed

Heptane (mixed isomers)

Louisiana Right-To-Know:	Not Listed
California Proposition 65:	Not Listed
New Jersey Right-To-Know:	SN 1339
Pennsylvania Right-To-Know:	Present
Massachusetts Right-To Know:	Present
Florida Substance List:	Not Listed
Rhode Island Right-To-Know:	Toxic; Flammable
Michigan Critical Materials Register List:	Not Listed
Massachusetts Extraordinarily Hazardous Substances:	Not Listed
California - Regulated Carcinogens:	Not Listed
Pennsylvania RTK - Special Hazardous Substances:	Not Listed
New Jersey - Special Hazardous Substances:	Flammable - third degree
New Jersey - Environmental Hazardous Substances List:	Not Listed
Illinois - Toxic Air Contaminants:	Not Listed
New York - Reporting of Releases Part 597 - List of Hazardous Substances:	Not Listed

Pentane (mixed isomers)

Louisiana Right-To-Know:	Not Listed
California Proposition 65:	Not Listed
New Jersey Right-To-Know:	SN 1064
Pennsylvania Right-To-Know:	Present
Massachusetts Right-To Know:	Present
Florida Substance List:	Not Listed
Rhode Island Right-To-Know:	Not Listed
Michigan Critical Materials Register List:	Not Listed
Massachusetts Extraordinarily Hazardous Substances:	Not Listed

California - Regulated Carcinogens:	Not Listed
Pennsylvania RTK - Special Hazardous Substances:	Not Listed
New Jersey - Special Hazardous Substances:	Flammable - fourth degree
New Jersey - Environmental Hazardous Substances List:	SN 1064 TPQ: 500 lb
Illinois - Toxic Air Contaminants:	Not Listed
New York - Reporting of Releases Part 597 - List of Hazardous Substances:	Not Listed

Butane (mixed isomers)

Louisiana Right-To-Know:	Not Listed
California Proposition 65:	Not Listed
New Jersey Right-To-Know:	SN 0273
Pennsylvania Right-To-Know:	Present
Massachusetts Right-To Know:	Present
Florida Substance List:	Not Listed
Rhode Island Right-To-Know:	Toxic; Flammable
Michigan Critical Materials Register List:	Not Listed
Massachusetts Extraordinarily Hazardous Substances:	Not Listed
California - Regulated Carcinogens:	Not Listed
Pennsylvania RTK - Special Hazardous Substances:	Not Listed
New Jersey - Special Hazardous Substances:	Flammable - fourth degree
New Jersey - Environmental Hazardous Substances List:	SN 0273 TPQ: 500 lb
Illinois - Toxic Air Contaminants:	Not Listed
New York - Reporting of Releases Part 597 - List of Hazardous Substances:	Not Listed

Hexane Isomers (other than n-Hexane)

Louisiana Right-To-Know:	Not Listed
California Proposition 65:	Not Listed
New Jersey Right-To-Know:	SN 1285
Pennsylvania Right-To-Know:	Present
Massachusetts Right-To Know:	Present
Florida Substance List:	Not Listed
Rhode Island Right-To-Know:	Not Listed
Michigan Critical Materials Register List:	Not Listed
Massachusetts Extraordinarily Hazardous Substances:	Not Listed
California - Regulated Carcinogens:	Not Listed
Pennsylvania RTK - Special Hazardous Substances:	Not Listed
New Jersey - Special Hazardous Substances:	Flammable - third degree
New Jersey - Environmental Hazardous Substances List:	Not Listed
Illinois - Toxic Air Contaminants:	Not Listed
New York - Reporting of Releases Part 597 - List of Hazardous Substances:	Not Listed

Toluene

Louisiana Right-To-Know:	Not Listed
California Proposition 65:	Developmental toxicity, initial date 1/1/91 Female reproductive toxicity, initial date 8/7/09
New Jersey Right-To-Know:	SN 1866
Pennsylvania Right-To-Know:	Environmental hazard
Massachusetts Right-To Know:	Present
Florida Substance List:	Not Listed
Rhode Island Right-To-Know:	Toxic (skin); Flammable (skin)
Michigan Critical Materials Register List:	100 lb Annual usage threshold
Massachusetts Extraordinarily Hazardous Substances:	Not Listed
California - Regulated Carcinogens:	Not Listed
Pennsylvania RTK - Special Hazardous Substances:	Not Listed

New Jersey - Special Hazardous Substances:	Flammable - third degree; Teratogen
New Jersey - Environmental Hazardous Substances List:	SN 1866 TPQ: 500 lb
Illinois - Toxic Air Contaminants:	Present
New York - Reporting of Releases Part 597 - List of Hazardous Substances:	1000 lb RQ (air); 1 lb RQ (land/water)

Xylene (mixed isomers)

Louisiana Right-To-Know:	Not Listed
California Proposition 65:	Not Listed
New Jersey Right-To-Know:	SN 2014
Pennsylvania Right-To-Know:	Environmental hazard
Massachusetts Right-To Know:	Present
Florida Substance List:	Not Listed
Rhode Island Right-To-Know:	Toxic (skin); Flammable (skin)
Michigan Critical Materials Register List:	100 lb Annual usage threshold all isomers
Massachusetts Extraordinarily Hazardous Substances:	Not Listed
California - Regulated Carcinogens:	Not Listed
Pennsylvania RTK - Special Hazardous Substances:	Not Listed
New Jersey - Special Hazardous Substances:	Flammable - third degree
New Jersey - Environmental Hazardous Substances List:	SN 2014 TPQ: 500 lb
Illinois - Toxic Air Contaminants:	Present
New York - Reporting of Releases Part 597 - List of Hazardous Substances:	1000 lb RQ (air); 1 lb RQ (land/water)

n-Hexane

Louisiana Right-To-Know:	Not Listed
California Proposition 65:	Not Listed
New Jersey Right-To-Know:	SN 1340
Pennsylvania Right-To-Know:	Present
Massachusetts Right-To Know:	Present
Florida Substance List:	Not Listed
Rhode Island Right-To-Know:	Toxic; Flammable
Michigan Critical Materials Register List:	Not Listed
Massachusetts Extraordinarily Hazardous Substances:	Not Listed
California - Regulated Carcinogens:	Not Listed
Pennsylvania RTK - Special Hazardous Substances:	Not Listed
New Jersey - Special Hazardous Substances:	Flammable - third degree
New Jersey - Environmental Hazardous Substances List:	SN 1340 TPQ: 500 lb
Illinois - Toxic Air Contaminants:	Present
New York - Reporting of Releases Part 597 - List of Hazardous Substances:	1 lb RQ (air); 1 lb RQ (land/water)

Cumene

Louisiana Right-To-Know:	Not Listed
California Proposition 65:	Carcinogen, initial date 4/6/10
New Jersey Right-To-Know:	SN 0542
Pennsylvania Right-To-Know:	Environmental hazard
Massachusetts Right-To Know:	Present
Florida Substance List:	Not Listed
Rhode Island Right-To-Know:	Toxic (skin); Flammable (skin)
Michigan Critical Materials Register List:	Not Listed
Massachusetts Extraordinarily Hazardous Substances:	Not Listed
California - Regulated Carcinogens:	Not Listed
Pennsylvania RTK - Special Hazardous Substances:	Not Listed
New Jersey - Special Hazardous Substances:	Flammable - third degree
New Jersey - Environmental Hazardous Substances List:	SN 0542 TPQ: 500 lb
Illinois - Toxic Air Contaminants:	Present

New York - Reporting of Releases Part 597 - List of Hazardous Substances:	5000 lb RQ (air); 1 lb RQ (land/water)

1,2,4 Trimethylbenzene

Louisiana Right-To-Know:	Not Listed
California Proposition 65:	Not Listed
New Jersey Right-To-Know:	SN 1929
Pennsylvania Right-To-Know:	Present
Massachusetts Right-To Know:	Present
Florida Substance List:	Not Listed
Rhode Island Right-To-Know:	Toxic
Michigan Critical Materials Register List:	Not Listed
Massachusetts Extraordinarily Hazardous Substances:	Not Listed
California - Regulated Carcinogens:	Not Listed
Pennsylvania RTK - Special Hazardous Substances:	Not Listed
New Jersey - Special Hazardous Substances:	Not Listed
New Jersey - Environmental Hazardous Substances List:	Not Listed
Illinois - Toxic Air Contaminants:	Present
New York - Reporting of Releases Part 597 - List of Hazardous Substances:	Not Listed

Ethylbenzene

Louisiana Right-To-Know:	Not Listed
California Proposition 65:	Carcinogen, initial date 6/11/04
New Jersey Right-To-Know:	SN 0851
Pennsylvania Right-To-Know:	Environmental hazard
Massachusetts Right-To Know:	Present
Florida Substance List:	Not Listed
Rhode Island Right-To-Know:	Toxic; Flammable
Michigan Critical Materials Register List:	Not Listed
Massachusetts Extraordinarily Hazardous Substances:	Not Listed
California - Regulated Carcinogens:	Not Listed
Pennsylvania RTK - Special Hazardous Substances:	Not Listed
New Jersey - Special Hazardous Substances:	Carcinogen; flammable - Third degree
New Jersey - Environmental Hazardous Substances List:	SN 0851 TPQ: 500 lb
Illinois - Toxic Air Contaminants:	Present
New York - Reporting of Releases Part 597 - List of Hazardous Substances:	1000 lb RQ (air); 1 lb RQ (land/water)

Benzene

Louisiana Right-To-Know:	Not Listed
California Proposition 65:	Carcinogen, initial date 2/27/87 Developmental toxicity, initial date 12/26/97 Male reproductive toxicity, initial date 12/26/97
New Jersey Right-To-Know:	SN 0197
Pennsylvania Right-To-Know:	Environmental hazard; Special hazardous substance
Massachusetts Right-To Know:	Carcinogen; Extraordinarily hazardous
Florida Substance List:	Not Listed
Rhode Island Right-To-Know:	Toxic (skin); Flammable (skin); Carcinogen (skin)
Michigan Critical Materials Register List:	100 lb Annual usage threshold
Massachusetts Extraordinarily Hazardous Substances:	Carcinogen; Extraordinarily hazardous
California - Regulated Carcinogens:	Not Listed
Pennsylvania RTK - Special Hazardous Substances:	Present
New Jersey - Special Hazardous Substances:	Carcinogen; Flammable - third degree; Mutagen
New Jersey - Environmental Hazardous Substances List:	SN 0197 TPQ: 500 lb
Illinois - Toxic Air Contaminants:	Present
New York - Reporting of Releases Part 597 - List of Hazardous Substances:	10 lb RQ (air); 1 lb RQ (land/water)

Cyclohexane

Louisiana Right-To-Know:	Not Listed
California Proposition 65:	Not Listed
New Jersey Right-To-Know:	SN 0565
Pennsylvania Right-To-Know:	Environmental hazard
Massachusetts Right-To Know:	Present
Florida Substance List:	Not Listed
Rhode Island Right-To-Know:	Toxic; Flammable
Michigan Critical Materials Register List:	Not Listed
Massachusetts Extraordinarily Hazardous Substances:	Not Listed
California - Regulated Carcinogens:	Not Listed
Pennsylvania RTK - Special Hazardous Substances:	Not Listed
New Jersey - Special Hazardous Substances:	Flammable - third degree
New Jersey - Environmental Hazardous Substances List:	SN 0565 TPQ: 500 lb
Illinois - Toxic Air Contaminants:	Not Listed
New York - Reporting of Releases Part 597 - List of Hazardous Substances:	1000 lb RQ (air); 1 lb RQ (land/water)

Octane

Louisiana Right-To-Know:	Not Listed
California Proposition 65:	Not Listed
New Jersey Right-To-Know:	SN 1434
Pennsylvania Right-To-Know:	Present
Massachusetts Right-To Know:	Present
Florida Substance List:	Not Listed
Rhode Island Right-To-Know:	Toxic; Flammable
Michigan Critical Materials Register List:	Not Listed
Massachusetts Extraordinarily Hazardous Substances:	Not Listed
California - Regulated Carcinogens:	Not Listed
Pennsylvania RTK - Special Hazardous Substances:	Not Listed
New Jersey - Special Hazardous Substances:	Flammable - third degree
New Jersey - Environmental Hazardous Substances List:	Not Listed
Illinois - Toxic Air Contaminants:	Not Listed
New York - Reporting of Releases Part 597 - List of Hazardous Substances:	Not Listed

1,2,3-trimethylbenzene

Louisiana Right-To-Know:	Not Listed
California Proposition 65:	Not Listed
New Jersey Right-To-Know:	SN 1929
Pennsylvania Right-To-Know:	Present
Massachusetts Right-To Know:	Present
Florida Substance List:	Not Listed
Rhode Island Right-To-Know:	Toxic
Michigan Critical Materials Register List:	Not Listed
Massachusetts Extraordinarily Hazardous Substances:	Not Listed
California - Regulated Carcinogens:	Not Listed
Pennsylvania RTK - Special Hazardous Substances:	Not Listed
New Jersey - Special Hazardous Substances:	Not Listed
New Jersey - Environmental Hazardous Substances List:	Not Listed
Illinois - Toxic Air Contaminants:	Present
New York - Reporting of Releases Part 597 - List of Hazardous Substances:	Not Listed

Naphthalene

Louisiana Right-To-Know:	Not Listed
California Proposition 65:	Carcinogen, initial date 4/19/02
New Jersey Right-To-Know:	SN 1322 SN 3758

Pennsylvania Right-To-Know:	Environmental hazard Present (particulate)
Massachusetts Right-To Know:	Present
Florida Substance List:	Not Listed
Rhode Island Right-To-Know:	Toxic; Flammable
Michigan Critical Materials Register List:	Not Listed
Massachusetts Extraordinarily Hazardous Substances:	Not Listed
California - Regulated Carcinogens:	Not Listed
Pennsylvania RTK - Special Hazardous Substances:	Not Listed
New Jersey - Special Hazardous Substances:	Carcinogen
New Jersey - Environmental Hazardous Substances List:	SN 1322 TPQ: 500 lb (Reportable at the de minimis quantity of >0.1%)
Illinois - Toxic Air Contaminants:	Present
New York - Reporting of Releases Part 597 - List of Hazardous Substances:	100 lb RQ (air); 1 lb RQ (land/water)

Canada DSL/NDSL Inventory: This product and/or its components are listed either on the Domestic Substances List (DSL) or are exempt.

Canadian Regulatory Information: This product has been classified in accordance with the hazard criteria of the Controlled Products Regulations and the (M)SDS contains all the information required by the Controlled Products Regulations.

Name	Canada - WHMIS: Classifications of Substances:	Canada - WHMIS: Ingredient Disclosure:
Gasoline	B2,D2A,D2B	0.1%
Heptane (mixed isomers)	B2,D2B	1%
Pentane (mixed isomers)	B2	1%
Butane (mixed isomers)	A,B1	1%
Hexane Isomers (other than n-Hexane)	B2	1%
Toluene	B2,D2A,D2B	0.1%
Xylene (mixed isomers)	B2,D2A,D2B	m-, o-isomers 1.0%; p-isomer 0.1%
n-Hexane	B2,D2A,D2B	1%
Cumene	B2,D2A	0.1%
1,2,4 Trimethylbenzene	B3,D2B	1%
Ethylbenzene	B2,D2A,D2B	0.1%
Benzene	B2,D2A,D2B	0.1%
Cyclohexane	B2,D2B	1%
Octane	B2,D2B	1%
1,2,3-trimethylbenzene	B3	1%
Naphthalene	B4,D2A	0.1%



Note: Not applicable.

16. OTHER INFORMATION

Prepared By Toxicology and Product Safety

Revision Date: 06/01/2016

Revision Note:

Revised Sections

The following sections (§) have been updated:
1. IDENTIFICATION
2. HAZARD IDENTIFICATION
3. COMPOSITION/INFORMATION ON INGREDIENTS
4. FIRST AID MEASURES
6. ACCIDENTAL RELEASE MEASURES
7. HANDLING AND STORAGE
8. EXPOSURE CONTROLS/PERSONAL PROTECTION
9. PHYSICAL AND CHEMICAL PROPERTIES
11. TOXICOLOGICAL INFORMATION
12. ECOLOGICAL INFORMATION
15. REGULATORY INFORMATION

Disclaimer

The information provided in this Safety Data Sheet is correct to the best of our knowledge, information and belief at the date of its publication. The information is intended as guidance for safe handling, use, processing, storage, transportation, accidental release, clean-up and disposal and is not considered a warranty or quality specification. The information relates only to the specific material designated and may not be valid for such material used in combination with any other materials or in any process, unless specified in the text.

SAFETY DATA SHEET

Helium

Section 1. Identification

GHS product identifier : Helium

Chemical name : Helium

Other means of identification : helium (dot); Helium-4; He; o-Helium; UN 1046

Product use : Synthetic/Analytical chemistry.

Synonym : helium (dot); Helium-4; He; o-Helium; UN 1046

SDS # : 001025

Supplier's details : Airgas USA, LLC and its affiliates
259 North Radnor-Chester Road
Suite 100
Radnor, PA 19087-5283
1-610-687-5253

Emergency telephone number (with hours of operation) : 1-866-734-3438

Section 2. Hazards identification

OSHA/HCS status : This material is considered hazardous by the OSHA Hazard Communication Standard (29 CFR 1910.1200).

Classification of the substance or mixture : GASES UNDER PRESSURE - Compressed gas

GHS label elements

Hazard pictograms :



Signal word : Warning

Hazard statements : Contains gas under pressure; may explode if heated.
May displace oxygen and cause rapid suffocation.

Precautionary statements

General : Read and follow all Safety Data Sheets (SDS'S) before use. Read label before use. Keep out of reach of children. If medical advice is needed, have product container or label at hand. Close valve after each use and when empty. Use equipment rated for cylinder pressure. Do not open valve until connected to equipment prepared for use. Use a back flow preventative device in the piping. Use only equipment of compatible materials of construction.

Prevention : Use and store only outdoors or in a well ventilated place.

Response : Not applicable.

Storage : Protect from sunlight. Protect from sunlight when ambient temperature exceeds 52°C/125°F. Store in a well-ventilated place.

Disposal : Not applicable.

Hazards not otherwise classified : In addition to any other important health or physical hazards, this product may displace oxygen and cause rapid suffocation.

Powered by IHS

Section 3. Composition/information on ingredients

Substance/mixture : Substance

Chemical name : Helium

Other means of identification : helium (dot); Helium-4; He; o-Helium; UN 1046

CAS number/other identifiers

CAS number : 7440-59-7

Product code : 001025

Ingredient name	%	CAS number
Helium	100	7440-59-7

There are no additional ingredients present which, within the current knowledge of the supplier and in the concentrations applicable, are classified as hazardous to health or the environment and hence require reporting in this section.

Occupational exposure limits, if available, are listed in Section 8.

Section 4. First aid measures

Description of necessary first aid measures

Eye contact : Immediately flush eyes with plenty of water, occasionally lifting the upper and lower eyelids. Check for and remove any contact lenses. Continue to rinse for at least 10 minutes. Get medical attention if irritation occurs.

Inhalation : Remove victim to fresh air and keep at rest in a position comfortable for breathing. If not breathing, if breathing is irregular or if respiratory arrest occurs, provide artificial respiration or oxygen by trained personnel. It may be dangerous to the person providing aid to give mouth-to-mouth resuscitation. Get medical attention if adverse health effects persist or are severe. If unconscious, place in recovery position and get medical attention immediately. Maintain an open airway. Loosen tight clothing such as a collar, tie, belt or waistband.

Skin contact : Flush contaminated skin with plenty of water. Remove contaminated clothing and shoes. Get medical attention if symptoms occur. Wash clothing before reuse. Clean shoes thoroughly before reuse.

Ingestion : As this product is a gas, refer to the inhalation section.

Most important symptoms/effects, acute and delayed

Potential acute health effects

Eye contact : Contact with rapidly expanding gas may cause burns or frostbite.

Inhalation : No known significant effects or critical hazards.

Skin contact : Contact with rapidly expanding gas may cause burns or frostbite.

Frostbite : Try to warm up the frozen tissues and seek medical attention.

Ingestion : As this product is a gas, refer to the inhalation section.

Over-exposure signs/symptoms

Eye contact : No specific data.

Inhalation : No specific data.

Skin contact : No specific data.

Ingestion : No specific data.

Indication of immediate medical attention and special treatment needed, if necessary

Notes to physician : Treat symptomatically. Contact poison treatment specialist immediately if large quantities have been ingested or inhaled.

Powered by IHS

Section 4. First aid measures

Specific treatments : No specific treatment.

Protection of first-aiders : No action shall be taken involving any personal risk or without suitable training. It may be dangerous to the person providing aid to give mouth-to-mouth resuscitation.

See toxicological information (Section 11)

Section 5. Fire-fighting measures

Extinguishing media

Suitable extinguishing media : Use an extinguishing agent suitable for the surrounding fire.

Unsuitable extinguishing media : None known.

Specific hazards arising from the chemical : Contains gas under pressure. In a fire or if heated, a pressure increase will occur and the container may burst or explode.

Hazardous thermal decomposition products : No specific data.

Special protective actions for fire-fighters : Promptly isolate the scene by removing all persons from the vicinity of the incident if there is a fire. No action shall be taken involving any personal risk or without suitable training. Contact supplier immediately for specialist advice. Move containers from fire area if this can be done without risk. Use water spray to keep fire-exposed containers cool.

Special protective equipment for fire-fighters : Fire-fighters should wear appropriate protective equipment and self-contained breathing apparatus (SCBA) with a full face-piece operated in positive pressure mode.

Section 6. Accidental release measures

Personal precautions, protective equipment and emergency procedures

For non-emergency personnel : No action shall be taken involving any personal risk or without suitable training. Evacuate surrounding areas. Keep unnecessary and unprotected personnel from entering. Avoid breathing gas. Provide adequate ventilation. Wear appropriate respirator when ventilation is inadequate. Put on appropriate personal protective equipment.

For emergency responders : If specialised clothing is required to deal with the spillage, take note of any information in Section 8 on suitable and unsuitable materials. See also the information in "For non-emergency personnel".

Environmental precautions : Ensure emergency procedures to deal with accidental gas releases are in place to avoid contamination of the environment. Inform the relevant authorities if the product has caused environmental pollution (sewers, waterways, soil or air).

Methods and materials for containment and cleaning up

Small spill : Immediately contact emergency personnel. Stop leak if without risk.

Large spill : Immediately contact emergency personnel. Stop leak if without risk. Note: see Section 1 for emergency contact information and Section 13 for waste disposal.

Powered by IHS

Section 7. Handling and storage

Precautions for safe handling

Protective measures : Put on appropriate personal protective equipment (see Section 8). Contains gas under pressure. Avoid contact with eyes, skin and clothing. Avoid breathing gas. Empty containers retain product residue and can be hazardous. Do not puncture or incinerate container. Use equipment rated for cylinder pressure. Close valve after each use and when empty. Protect cylinders from physical damage; do not drag, roll, slide, or drop. Use a suitable hand truck for cylinder movement.

Advice on general occupational hygiene : Eating, drinking and smoking should be prohibited in areas where this material is handled, stored and processed. Workers should wash hands and face before eating, drinking and smoking. Remove contaminated clothing and protective equipment before entering eating areas. See also Section 8 for additional information on hygiene measures.

Conditions for safe storage, including any incompatibilities : Store in accordance with local regulations. Store in a segregated and approved area. Store away from direct sunlight in a dry, cool and well-ventilated area, away from incompatible materials (see Section 10). Keep container tightly closed and sealed until ready for use. Cylinders should be stored upright, with valve protection cap in place, and firmly secured to prevent falling or being knocked over. Cylinder temperatures should not exceed 52 °C (125 °F).

Section 8. Exposure controls/personal protection

Control parameters

Occupational exposure limits

Ingredient name	Exposure limits
Helium	Oxygen Depletion [Asphyxiant]

Appropriate engineering controls : Good general ventilation should be sufficient to control worker exposure to airborne contaminants.

Environmental exposure controls : Emissions from ventilation or work process equipment should be checked to ensure they comply with the requirements of environmental protection legislation. In some cases, fume scrubbers, filters or engineering modifications to the process equipment will be necessary to reduce emissions to acceptable levels.

Individual protection measures

Hygiene measures : Wash hands, forearms and face thoroughly after handling chemical products, before eating, smoking and using the lavatory and at the end of the working period. Appropriate techniques should be used to remove potentially contaminated clothing. Wash contaminated clothing before reusing. Ensure that eyewash stations and safety showers are close to the workstation location.

Eye/face protection : Safety eyewear complying with an approved standard should be used when a risk assessment indicates this is necessary to avoid exposure to liquid splashes, mists, gases or dusts. If contact is possible, the following protection should be worn, unless the assessment indicates a higher degree of protection: safety glasses with side-shields.

Skin protection

Powered by IHS

Section 8. Exposure controls/personal protection

Hand protection : Chemical-resistant, impervious gloves complying with an approved standard should be worn at all times when handling chemical products if a risk assessment indicates this is necessary. Considering the parameters specified by the glove manufacturer, check during use that the gloves are still retaining their protective properties. It should be noted that the time to breakthrough for any glove material may be different for different glove manufacturers. In the case of mixtures, consisting of several substances, the protection time of the gloves cannot be accurately estimated.

Body protection : Personal protective equipment for the body should be selected based on the task being performed and the risks involved and should be approved by a specialist before handling this product.

Other skin protection : Appropriate footwear and any additional skin protection measures should be selected based on the task being performed and the risks involved and should be approved by a specialist before handling this product.

Respiratory protection : Use a properly fitted, air-purifying or air-fed respirator complying with an approved standard if a risk assessment indicates this is necessary. Respirator selection must be based on known or anticipated exposure levels, the hazards of the product and the safe working limits of the selected respirator.

Section 9. Physical and chemical properties

Appearance

Physical state : Gas. [Compressed gas.]

Color : Colorless.

Molecular weight : 4 g/mole

Molecular formula : He

Boiling/condensation point : -268.9°C (-452°F)

Melting/freezing point : -272.2°C (-458°F)

Critical temperature : -267.9°C (-450.2°F)

Odor : Odorless.

Odor threshold : Not available.

pH : Not available.

Flash point : [Product does not sustain combustion.]

Burning time : Not applicable.

Burning rate : Not applicable.

Evaporation rate : Not available.

Flammability (solid, gas) : Not available.

Lower and upper explosive (flammable) limits : Not available.

Vapor pressure : Not available.

Vapor density : 0.14 (Air = 1) Liquid Density@BP: 7.8 lb/ft3 (125 kg/m3)

Specific Volume (ft ^{3}/lb) : 96.1538

Gas Density (lb/ft ^{3}) : 0.0104

Relative density : Not applicable.

Solubility : Not available.

Solubility in water : Not available.

Partition coefficient: n-octanol/water : 0.28

Auto-ignition temperature : Not available.

Decomposition temperature : Not available.

Powered by IHS

Section 9. Physical and chemical properties

SADT : Not available.

Viscosity : Not applicable.

Section 10. Stability and reactivity

Reactivity : No specific test data related to reactivity available for this product or its ingredients.

Chemical stability : The product is stable.

Possibility of hazardous reactions : Under normal conditions of storage and use, hazardous reactions will not occur.

Conditions to avoid : No specific data.

Hazardous decomposition products : Under normal conditions of storage and use, hazardous decomposition products should not be produced.

Hazardous polymerization : Under normal conditions of storage and use, hazardous polymerization will not occur.

Section 11. Toxicological information

Information on toxicological effects

Acute toxicity

Not available.

Irritation/Corrosion

Not available.

Sensitization

Not available.

Mutagenicity

Not available.

Carcinogenicity

Not available.

Reproductive toxicity

Not available.

Teratogenicity

Not available.

Specific target organ toxicity (single exposure)

Not available.

Specific target organ toxicity (repeated exposure)

Not available.

Aspiration hazard

Not available.

Powered by IHS

Section 11. Toxicological information

Information on the likely routes of exposure : Not available.

Potential acute health effects

Eye contact : Contact with rapidly expanding gas may cause burns or frostbite.

Inhalation : No known significant effects or critical hazards.

Skin contact : Contact with rapidly expanding gas may cause burns or frostbite.

Ingestion : As this product is a gas, refer to the inhalation section.

Symptoms related to the physical, chemical and toxicological characteristics

Eye contact : No specific data.

Inhalation : No specific data.

Skin contact : No specific data.

Ingestion : No specific data.

Delayed and immediate effects and also chronic effects from short and long term exposure

Short term exposure

Potential immediate effects : Not available.

Potential delayed effects : Not available.

Long term exposure

Potential immediate effects : Not available.

Potential delayed effects : Not available.

Potential chronic health effects

Not available.

General : No known significant effects or critical hazards.

Carcinogenicity : No known significant effects or critical hazards.

Mutagenicity : No known significant effects or critical hazards.

Teratogenicity : No known significant effects or critical hazards.

Developmental effects : No known significant effects or critical hazards.

Fertility effects : No known significant effects or critical hazards.

Numerical measures of toxicity

Acute toxicity estimates

Not available.

Section 12. Ecological information

Toxicity

Not available.

Persistence and degradability

Not available.

Powered by IHS

Section 12. Ecological information

Bioaccumulative potential

Product/ingredient name	$LogP_{ow}$	BCF	Potential
Helium	0.28	-	low

Mobility in soil

Soil/water partition coefficient (K_{OC}) : Not available.

Other adverse effects : No known significant effects or critical hazards.

Section 13. Disposal considerations

Disposal methods : The generation of waste should be avoided or minimized wherever possible. Disposal of this product, solutions and any by-products should at all times comply with the requirements of environmental protection and waste disposal legislation and any regional local authority requirements. Dispose of surplus and non-recyclable products via a licensed waste disposal contractor. Waste should not be disposed of untreated to the sewer unless fully compliant with the requirements of all authorities with jurisdiction. Empty Airgas-owned pressure vessels should be returned to Airgas. Waste packaging should be recycled. Incineration or landfill should only be considered when recycling is not feasible. This material and its container must be disposed of in a safe way. Empty containers or liners may retain some product residues. Do not puncture or incinerate container.

Section 14. Transport information

	DOT	TDG	Mexico	IMDG	IATA
UN number	UN1046	UN1046	UN1046	UN1046	UN1046
UN proper shipping name	HELIUM, COMPRESSED	HELIUM, COMPRESSED	HELIUM, COMPRESSED	HELIUM, COMPRESSED	HELIUM, COMPRESSED
Transport hazard class(es)	2.2 	2.2 	2.2 	2.2 	2.2 
Packing group	-	-	-	-	-
Environment	No.	No.	No.	No.	No.
Additional information	**Limited quantity** Yes. **Packaging instruction** **Passenger aircraft** Quantity limitation: 75 kg **Cargo aircraft** Quantity limitation: 150 kg	**Explosive Limit and Limited Quantity Index** 0.125 **Passenger Carrying Road or Rail Index** 75	-	-	**Passenger and Cargo Aircraft**Quantity limitation: 75 kg **Cargo Aircraft Only** Quantity limitation: 150 kg

"Refer to CFR 49 (or authority having jurisdiction) to determine the information required for shipment of the product."

Powered by IHS

Section 14. Transport information

Special precautions for user : **Transport within user's premises:** always transport in closed containers that are upright and secure. Ensure that persons transporting the product know what to do in the event of an accident or spillage.

Transport in bulk according to Annex II of MARPOL 73/78 and the IBC Code : Not available.

Section 15. Regulatory information

U.S. Federal regulations : **TSCA 8(a) CDR Exempt/Partial exemption**: Not determined

United States inventory (TSCA 8b): This material is listed or exempted.

Clean Air Act Section 112 (b) Hazardous Air Pollutants (HAPs) : Not listed

Clean Air Act Section 602 Class I Substances : Not listed

Clean Air Act Section 602 Class II Substances : Not listed

DEA List I Chemicals (Precursor Chemicals) : Not listed

DEA List II Chemicals (Essential Chemicals) : Not listed

SARA 302/304

Composition/information on ingredients

No products were found.

SARA 304 RQ : Not applicable.

SARA 311/312

Classification : Sudden release of pressure

Composition/information on ingredients

Name	%	Fire hazard	Sudden release of pressure	Reactive	Immediate (acute) health hazard	Delayed (chronic) health hazard
Helium	100	No.	Yes.	No.	No.	No.

State regulations

Massachusetts : This material is listed.

New York : This material is not listed.

New Jersey : This material is listed.

Pennsylvania : This material is listed.

Canada inventory : This material is listed or exempted.

International regulations

Powered by IHS

Section 15. Regulatory information

International lists : **Australia inventory (AICS)**: This material is listed or exempted.
China inventory (IECSC): This material is listed or exempted.
Japan inventory: Not determined.
Korea inventory: This material is listed or exempted.
Malaysia Inventory (EHS Register): Not determined.
New Zealand Inventory of Chemicals (NZIoC): This material is listed or exempted.
Philippines inventory (PICCS): This material is listed or exempted.
Taiwan inventory (CSNN): Not determined.

Chemical Weapons Convention List Schedule I Chemicals : Not listed

Chemical Weapons Convention List Schedule II Chemicals : Not listed

Chemical Weapons Convention List Schedule III Chemicals : Not listed

Canada

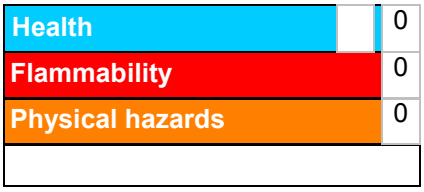
WHMIS (Canada) : Class A: Compressed gas.

CEPA Toxic substances: This material is not listed.
Canadian ARET: This material is not listed.
Canadian NPRI: This material is not listed.
Alberta Designated Substances: This material is not listed.
Ontario Designated Substances: This material is not listed.
Quebec Designated Substances: This material is not listed.

Section 16. Other information

Canada Label requirements : Class A: Compressed gas.

Hazardous Material Information System (U.S.A.)



Caution: HMIS® ratings are based on a 0-4 rating scale, with 0 representing minimal hazards or risks, and 4 representing significant hazards or risks Although HMIS® ratings are not required on SDSs under 29 CFR 1910. 1200, the preparer may choose to provide them. HMIS® ratings are to be used with a fully implemented HMIS® program. HMIS® is a registered mark of the National Paint & Coatings Association (NPCA). HMIS® materials may be purchased exclusively from J. J. Keller (800) 327-6868.

The customer is responsible for determining the PPE code for this material.

National Fire Protection Association (U.S.A.)



Reprinted with permission from NFPA 704-2001, Identification of the Hazards of Materials for Emergency Response Copyright ©1997, National Fire Protection Association, Quincy, MA 02269. This reprinted material is not the complete and official position of the National Fire Protection Association, on the referenced subject which is represented only by the standard in its entirety.

Powered by IHS

Section 16. Other information

Copyright ©2001, National Fire Protection Association, Quincy, MA 02269. This warning system is intended to be interpreted and applied only by properly trained individuals to identify fire, health and reactivity hazards of chemicals. The user is referred to certain limited number of chemicals with recommended classifications in NFPA 49 and NFPA 325, which would be used as a guideline only. Whether the chemicals are classified by NFPA or not, anyone using the 704 systems to classify chemicals does so at their own risk.

History

Date of printing : 10/15/2014.

Date of issue/Date of revision : 10/15/2014.

Date of previous issue : 10/2/2014.

Version : 0.02

Key to abbreviations : ATE = Acute Toxicity Estimate
BCF = Bioconcentration Factor
GHS = Globally Harmonized System of Classification and Labelling of Chemicals
IATA = International Air Transport Association
IBC = Intermediate Bulk Container
IMDG = International Maritime Dangerous Goods
LogPow = logarithm of the octanol/water partition coefficient
MARPOL 73/78 = International Convention for the Prevention of Pollution From Ships, 1973 as modified by the Protocol of 1978. ("Marpol" = marine pollution)
UN = United NationsACGIH – American Conference of Governmental Industrial Hygienists
AIHA – American Industrial Hygiene Association
CAS – Chemical Abstract Services
CEPA – Canadian Environmental Protection Act
CERCLA – Comprehensive Environmental Response, Compensation, and Liability Act (EPA)
CFR – United States Code of Federal Regulations
CPR – Controlled Products Regulations
DSL – Domestic Substances List
GWP – Global Warming Potential
IARC – International Agency for Research on Cancer
ICAO – International Civil Aviation Organisation
Inh – Inhalation
LC – Lethal concentration
LD – Lethal dosage
NDSL – Non-Domestic Substances List
NIOSH – National Institute for Occupational Safety and Health
TDG – Canadian Transportation of Dangerous Goods Act and Regulations
TLV – Threshold Limit Value
TSCA – Toxic Substances Control Act
WEEL – Workplace Environmental Exposure Level
WHMIS – Canadian Workplace Hazardous Material Information System

References : Not available.

Indicates information that has changed from previously issued version.

Notice to reader

To the best of our knowledge, the information contained herein is accurate. However, neither the above-named supplier, nor any of its subsidiaries, assumes any liability whatsoever for the accuracy or completeness of the information contained herein.
Final determination of suitability of any material is the sole responsibility of the user. All materials may present unknown hazards and should be used with caution. Although certain hazards are described herein, we cannot guarantee that these are the only hazards that exist.

Powered by IHS

SAFETY DATA SHEET

Version 5.6
Revision Date 04/24/2015
Print Date 02/09/2016

1. PRODUCT AND COMPANY IDENTIFICATION

1.1 Product identifiers

Product name : Heptachlor

Product Number : PS78
Brand : Supelco
Index-No. : 602-046-00-2

CAS-No. : 76-44-8

1.2 Relevant identified uses of the substance or mixture and uses advised against

Identified uses : Laboratory chemicals, Manufacture of substances

1.3 Details of the supplier of the safety data sheet

Company : Sigma-Aldrich
3050 Spruce Street
SAINT LOUIS MO 63103
USA

Telephone : +1 800-325-5832
Fax : +1 800-325-5052

1.4 Emergency telephone number

Emergency Phone # : (314) 776-6555

2. HAZARDS IDENTIFICATION

2.1 Classification of the substance or mixture

GHS Classification in accordance with 29 CFR 1910 (OSHA HCS)
Acute toxicity, Oral (Category 2), H300
Acute toxicity, Dermal (Category 2), H310
Carcinogenicity (Category 2), H351
Specific target organ toxicity - repeated exposure (Category 2), H373
Acute aquatic toxicity (Category 1), H400
Chronic aquatic toxicity (Category 1), H410

For the full text of the H-Statements mentioned in this Section, see Section 16.

2.2 GHS Label elements, including precautionary statements

Pictogram



Signal word Danger

Hazard statement(s)
H300 + H310 Fatal if swallowed or in contact with skin
H351 Suspected of causing cancer.
H373 May cause damage to organs through prolonged or repeated exposure.
H410 Very toxic to aquatic life with long lasting effects.

Precautionary statement(s)
P201 Obtain special instructions before use.
P202 Do not handle until all safety precautions have been read and understood.

P260	Do not breathe dust/ fume/ gas/ mist/ vapours/ spray.
P262	Do not get in eyes, on skin, or on clothing.
P264	Wash skin thoroughly after handling.
P270	Do not eat, drink or smoke when using this product.
P273	Avoid release to the environment.
P280	Wear protective gloves/ protective clothing.
P301 + P310	IF SWALLOWED: Immediately call a POISON CENTER or doctor/ physician.
P302 + P350	IF ON SKIN: Gently wash with plenty of soap and water.
P310	Immediately call a POISON CENTER or doctor/ physician.
P322	Specific measures (see supplemental first aid instructions on this label).
P330	Rinse mouth.
P361	Remove/Take off immediately all contaminated clothing.
P363	Wash contaminated clothing before reuse.
P391	Collect spillage.
P405	Store locked up.
P501	Dispose of contents/ container to an approved waste disposal plant.

2.3 Hazards not otherwise classified (HNOC) or not covered by GHS - none

3. COMPOSITION/INFORMATION ON INGREDIENTS

3.1 Substances

Synonyms	:	1,4,5,6,7,8,8-Heptachloro-3a,4,7,7a-tetrahydro-4,7-methanoindene
Formula	:	$C_{10}H_5Cl_7$
Molecular weight	:	373.32 g/mol
CAS-No.	:	76-44-8
EC-No.	:	200-962-3
Index-No.	:	602-046-00-2

Hazardous components

Component	Classification	Concentration
Heptachlor		
	Acute Tox. 2; Carc. 2; STOT RE 2; Aquatic Acute 1; Aquatic Chronic 1; H300 + H310, H351, H373, H410	<= 100 %

For the full text of the H-Statements mentioned in this Section, see Section 16.

4. FIRST AID MEASURES

4.1 Description of first aid measures

General advice
Consult a physician. Show this safety data sheet to the doctor in attendance.Move out of dangerous area.

If inhaled
If breathed in, move person into fresh air. If not breathing, give artificial respiration. Consult a physician.

In case of skin contact
Wash off with soap and plenty of water. Take victim immediately to hospital. Consult a physician.

In case of eye contact
Flush eyes with water as a precaution.

If swallowed
Never give anything by mouth to an unconscious person. Rinse mouth with water. Consult a physician.

4.2 Most important symptoms and effects, both acute and delayed
The most important known symptoms and effects are described in the labelling (see section 2.2) and/or in section 11

4.3 Indication of any immediate medical attention and special treatment needed
No data available

5. FIREFIGHTING MEASURES

5.1 Extinguishing media

Suitable extinguishing media
Use water spray, alcohol-resistant foam, dry chemical or carbon dioxide.

5.2 Special hazards arising from the substance or mixture
Carbon oxides, Hydrogen chloride gas

5.3 Advice for firefighters
Wear self-contained breathing apparatus for firefighting if necessary.

5.4 Further information
No data available

6. ACCIDENTAL RELEASE MEASURES

6.1 Personal precautions, protective equipment and emergency procedures
Wear respiratory protection. Avoid dust formation. Avoid breathing vapours, mist or gas. Ensure adequate ventilation. Evacuate personnel to safe areas. Avoid breathing dust.
For personal protection see section 8.

6.2 Environmental precautions
Prevent further leakage or spillage if safe to do so. Do not let product enter drains. Discharge into the environment must be avoided.

6.3 Methods and materials for containment and cleaning up
Pick up and arrange disposal without creating dust. Sweep up and shovel. Keep in suitable, closed containers for disposal.

6.4 Reference to other sections
For disposal see section 13.

7. HANDLING AND STORAGE

7.1 Precautions for safe handling
Avoid contact with skin and eyes. Avoid formation of dust and aerosols.Further processing of solid materials may result in the formation of combustible dusts. The potential for combustible dust formation should be taken into consideration before additional processing occurs.
Provide appropriate exhaust ventilation at places where dust is formed.
For precautions see section 2.2.

7.2 Conditions for safe storage, including any incompatibilities
Keep container tightly closed in a dry and well-ventilated place.

7.3 Specific end use(s)
Apart from the uses mentioned in section 1.2 no other specific uses are stipulated

8. EXPOSURE CONTROLS/PERSONAL PROTECTION

8.1 Control parameters

Components with workplace control parameters

Component	CAS-No.	Value	Control parameters	Basis
Heptachlor	76-44-8	TWA	0.050000 mg/m3	USA. ACGIH Threshold Limit Values (TLV)
	Remarks	Skin contact does contribute to exposure. Confirmed animal carcinogen with unknown relevance to humans		
		TWA	0.5 mg/m3	USA. Occupational Exposure Limits (OSHA) - Table Z-1 Limits for Air Contaminants
		Skin designation		

		TWA	0.500000 mg/m3	USA. Occupational Exposure Limits (OSHA) - Table Z-1 Limits for Air Contaminants
		Skin designation		
		TWA	0.500000 mg/m3	USA. NIOSH Recommended Exposure Limits
		Potential Occupational Carcinogen See Appendix A Potential for dermal absorption		
		TWA	0.05 mg/m3	USA. ACGIH Threshold Limit Values (TLV)
		Liver damage Confirmed animal carcinogen with unknown relevance to humans Danger of cutaneous absorption		

8.2 Exposure controls

Appropriate engineering controls
Avoid contact with skin, eyes and clothing. Wash hands before breaks and immediately after handling the product.

Personal protective equipment

Eye/face protection
Face shield and safety glasses Use equipment for eye protection tested and approved under appropriate government standards such as NIOSH (US) or EN 166(EU).

Skin protection
Handle with gloves. Gloves must be inspected prior to use. Use proper glove removal technique (without touching glove's outer surface) to avoid skin contact with this product. Dispose of contaminated gloves after use in accordance with applicable laws and good laboratory practices. Wash and dry hands.

Full contact
Material: Nitrile rubber
Minimum layer thickness: 0.11 mm
Break through time: 480 min
Material tested:Dermatril® (KCL 740 / Aldrich Z677272, Size M)

Splash contact
Material: Nitrile rubber
Minimum layer thickness: 0.11 mm
Break through time: 480 min
Material tested:Dermatril® (KCL 740 / Aldrich Z677272, Size M)

data source: KCL GmbH, D-36124 Eichenzell, phone +49 (0)6659 87300, e-mail sales@kcl.de, test method: EN374
If used in solution, or mixed with other substances, and under conditions which differ from EN 374, contact the supplier of the CE approved gloves. This recommendation is advisory only and must be evaluated by an industrial hygienist and safety officer familiar with the specific situation of anticipated use by our customers. It should not be construed as offering an approval for any specific use scenario.

Body Protection
Complete suit protecting against chemicals, The type of protective equipment must be selected according to the concentration and amount of the dangerous substance at the specific workplace.

Respiratory protection
Where risk assessment shows air-purifying respirators are appropriate use a full-face particle respirator type N100 (US) or type P3 (EN 143) respirator cartridges as a backup to engineering controls. If the respirator is the sole means of protection, use a full-face supplied air respirator. Use respirators and components tested and approved under appropriate government standards such as NIOSH (US) or CEN (EU).

Control of environmental exposure
Prevent further leakage or spillage if safe to do so. Do not let product enter drains. Discharge into the environment must be avoided.

9. PHYSICAL AND CHEMICAL PROPERTIES

9.1 Information on basic physical and chemical properties

a)	Appearance	Form: solid
b)	Odour	No data available
c)	Odour Threshold	No data available
d)	pH	No data available
e)	Melting point/freezing point	No data available
f)	Initial boiling point and boiling range	No data available
g)	Flash point	No data available
h)	Evaporation rate	No data available
i)	Flammability (solid, gas)	No data available
j)	Upper/lower flammability or explosive limits	No data available
k)	Vapour pressure	No data available
l)	Vapour density	No data available
m)	Relative density	No data available
n)	Water solubility	No data available
o)	Partition coefficient: n-octanol/water	No data available
p)	Auto-ignition temperature	No data available
q)	Decomposition temperature	No data available
r)	Viscosity	No data available
s)	Explosive properties	No data available
t)	Oxidizing properties	No data available

9.2 Other safety information

No data available

10. STABILITY AND REACTIVITY

10.1 Reactivity

No data available

10.2 Chemical stability

Stable under recommended storage conditions.

10.3 Possibility of hazardous reactions

No data available

10.4 Conditions to avoid

No data available

10.5 Incompatible materials

Strong oxidizing agents

10.6 Hazardous decomposition products

Other decomposition products - No data available
In the event of fire: see section 5

11. TOXICOLOGICAL INFORMATION

11.1 Information on toxicological effects

Acute toxicity
LD50 Oral - Rat - 40.0 mg/kg

Inhalation: No data available

LD50 Dermal - Rat - 119.0 mg/kg

No data available

Skin corrosion/irritation
No data available

Serious eye damage/eye irritation
No data available

Respiratory or skin sensitisation
No data available

Germ cell mutagenicity
No data available

Carcinogenicity

This product is or contains a component that has been reported to be possibly carcinogenic based on its IARC, ACGIH, NTP, or EPA classification.

Limited evidence of carcinogenicity in animal studies

IARC:	2B - Group 2B: Possibly carcinogenic to humans (Heptachlor)
NTP:	No component of this product present at levels greater than or equal to 0.1% is identified as a known or anticipated carcinogen by NTP.
OSHA:	No component of this product present at levels greater than or equal to 0.1% is identified as a carcinogen or potential carcinogen by OSHA.

Reproductive toxicity
No data available

No data available

Specific target organ toxicity - single exposure
No data available

Specific target organ toxicity - repeated exposure
No data available

Aspiration hazard
No data available

Additional Information
RTECS: PC0700000

To the best of our knowledge, the chemical, physical, and toxicological properties have not been thoroughly investigated.

12. ECOLOGICAL INFORMATION

12.1 Toxicity

Toxicity to fish	LC50 - Oncorhynchus mykiss (rainbow trout) - 0.007 mg/l - 96.0 h
Toxicity to daphnia and other aquatic	LC50 - Daphnia magna (Water flea) - 0.078 mg/l - 48 h

invertebrates

12.2 Persistence and degradability
No data available

12.3 Bioaccumulative potential
Bioaccumulation Pimephales promelas (fathead minnow) - 276 d
- 0.00043 mg/l

Bioconcentration factor (BCF): 23,814

12.4 Mobility in soil
No data available

12.5 Results of PBT and vPvB assessment
PBT/vPvB assessment not available as chemical safety assessment not required/not conducted

12.6 Other adverse effects
An environmental hazard cannot be excluded in the event of unprofessional handling or disposal.
Very toxic to aquatic life with long lasting effects.

No data available

13. DISPOSAL CONSIDERATIONS

13.1 Waste treatment methods

Product
Offer surplus and non-recyclable solutions to a licensed disposal company. Contact a licensed professional waste disposal service to dispose of this material. Dissolve or mix the material with a combustible solvent and burn in a chemical incinerator equipped with an afterburner and scrubber.

Contaminated packaging
Dispose of as unused product.

14. TRANSPORT INFORMATION

DOT (US)
UN number: 2811 Class: 6.1 Packing group: II
Proper shipping name: Toxic solids, organic, n.o.s. (Heptachlor)
Reportable Quantity (RQ): 1 lbs
Marine pollutant:yes
Poison Inhalation Hazard: No

IMDG
UN number: 2811 Class: 6.1 Packing group: II EMS-No: F-A, S-A
Proper shipping name: TOXIC SOLID, ORGANIC, N.O.S. (Heptachlor)
Marine pollutant:yes

IATA
UN number: 2811 Class: 6.1 Packing group: II
Proper shipping name: Toxic solid, organic, n.o.s. (Heptachlor)

15. REGULATORY INFORMATION

SARA 302 Components
No chemicals in this material are subject to the reporting requirements of SARA Title III, Section 302.

SARA 313 Components
This material does not contain any chemical components with known CAS numbers that exceed the threshold (De Minimis) reporting levels established by SARA Title III, Section 313.

SARA 311/312 Hazards
Acute Health Hazard, Chronic Health Hazard

Massachusetts Right To Know Components

	CAS-No.	Revision Date
Heptachlor	76-44-8	2007-03-01

Pennsylvania Right To Know Components

	CAS-No.	Revision Date
Heptachlor	76-44-8	2007-03-01

New Jersey Right To Know Components

	CAS-No.	Revision Date
Heptachlor	76-44-8	2007-03-01

California Prop. 65 Components

WARNING! This product contains a chemical known to the State of California to cause cancer. Heptachlor	CAS-No. 76-44-8	Revision Date 2007-09-28
WARNING: This product contains a chemical known to the State of California to cause birth defects or other reproductive harm. Heptachlor	CAS-No. 76-44-8	Revision Date 2007-09-28

16. OTHER INFORMATION

Full text of H-Statements referred to under sections 2 and 3.

Acute Tox.	Acute toxicity
Aquatic Acute	Acute aquatic toxicity
Aquatic Chronic	Chronic aquatic toxicity
Carc.	Carcinogenicity
H300	Fatal if swallowed.
H300 + H310	Fatal if swallowed or in contact with skin
H310	Fatal in contact with skin.
H351	Suspected of causing cancer.
H373	May cause damage to organs through prolonged or repeated exposure.

HMIS Rating

Health hazard:	4
Chronic Health Hazard:	*
Flammability:	0
Physical Hazard	0

NFPA Rating

Health hazard:	3
Fire Hazard:	0
Reactivity Hazard:	0

Further information

Copyright 2015 Sigma-Aldrich Co. LLC. License granted to make unlimited paper copies for internal use only.
The above information is believed to be correct but does not purport to be all inclusive and shall be used only as a guide. The information in this document is based on the present state of our knowledge and is applicable to the product with regard to appropriate safety precautions. It does not represent any guarantee of the properties of the product. Sigma-Aldrich Corporation and its Affiliates shall not be held liable for any damage resulting from handling or from contact with the above product. See www.sigma-aldrich.com and/or the reverse side of invoice or packing slip for additional terms and conditions of sale.

Preparation Information

Sigma-Aldrich Corporation
Product Safety – Americas Region
1-800-521-8956

Version: 5.6 Revision Date: 04/24/2015 Print Date: 02/09/2016

SAFETY DATA SHEET

Version 5.7
Revision Date 11/03/2015
Print Date 02/18/2016

1. PRODUCT AND COMPANY IDENTIFICATION

1.1 Product identifiers

Product name : Heptane

Product Number : 246654
Brand : Sigma-Aldrich
Index-No. : 601-008-00-2

CAS-No. : 142-82-5

1.2 Relevant identified uses of the substance or mixture and uses advised against

Identified uses : Laboratory chemicals, Synthesis of substances

1.3 Details of the supplier of the safety data sheet

Company : Sigma-Aldrich
3050 Spruce Street
SAINT LOUIS MO 63103
USA

Telephone : +1 800-325-5832
Fax : +1 800-325-5052

1.4 Emergency telephone number

Emergency Phone # : (314) 776-6555

2. HAZARDS IDENTIFICATION

2.1 Classification of the substance or mixture

GHS Classification in accordance with 29 CFR 1910 (OSHA HCS)
Flammable liquids (Category 2), H225
Skin irritation (Category 2), H315
Specific target organ toxicity - single exposure (Category 3), Central nervous system, H336
Aspiration hazard (Category 1), H304
Acute aquatic toxicity (Category 1), H400
Chronic aquatic toxicity (Category 1), H410

For the full text of the H-Statements mentioned in this Section, see Section 16.

2.2 GHS Label elements, including precautionary statements

Pictogram



Signal word Danger

Hazard statement(s)
H225 Highly flammable liquid and vapour.
H304 May be fatal if swallowed and enters airways.
H315 Causes skin irritation.
H336 May cause drowsiness or dizziness.
H410 Very toxic to aquatic life with long lasting effects.

Precautionary statement(s)
P210 Keep away from heat/sparks/open flames/hot surfaces. No smoking.

P233	Keep container tightly closed.
P240	Ground/bond container and receiving equipment.
P241	Use explosion-proof electrical/ ventilating/ lighting/ equipment.
P242	Use only non-sparking tools.
P243	Take precautionary measures against static discharge.
P261	Avoid breathing dust/ fume/ gas/ mist/ vapours/ spray.
P264	Wash skin thoroughly after handling.
P271	Use only outdoors or in a well-ventilated area.
P273	Avoid release to the environment.
P280	Wear protective gloves/ eye protection/ face protection.
P301 + P310	IF SWALLOWED: Immediately call a POISON CENTER or doctor/ physician.
P303 + P361 + P353	IF ON SKIN (or hair): Remove/ Take off immediately all contaminated clothing. Rinse skin with water/ shower.
P304 + P340 + P312	IF INHALED: Remove victim to fresh air and keep at rest in a position comfortable for breathing. Call a POISON CENTER or doctor/ physician if you feel unwell.
P331	Do NOT induce vomiting.
P332 + P313	If skin irritation occurs: Get medical advice/ attention.
P362	Take off contaminated clothing and wash before reuse.
P370 + P378	In case of fire: Use dry sand, dry chemical or alcohol-resistant foam for extinction.
P391	Collect spillage.
P403 + P233	Store in a well-ventilated place. Keep container tightly closed.
P403 + P235	Store in a well-ventilated place. Keep cool.
P405	Store locked up.
P501	Dispose of contents/ container to an approved waste disposal plant.

2.3 Hazards not otherwise classified (HNOC) or not covered by GHS - none

3. COMPOSITION/INFORMATION ON INGREDIENTS

3.1 Substances

Formula	:	C_7H_{16}
Molecular weight	:	100.20 g/mol
CAS-No.	:	142-82-5
EC-No.	:	205-563-8
Index-No.	:	601-008-00-2
Registration number	:	01-2119457603-38-XXXX

Hazardous components

Component	Classification	Concentration
Heptane		
	Flam. Liq. 2; Skin Irrit. 2; STOT SE 3; Asp. Tox. 1; Aquatic Acute 1; Aquatic Chronic 1; H225, H304, H315, H336, H410	<= 100 %

For the full text of the H-Statements mentioned in this Section, see Section 16.

4. FIRST AID MEASURES

4.1 Description of first aid measures

General advice
Consult a physician. Show this safety data sheet to the doctor in attendance.Move out of dangerous area.

If inhaled
If breathed in, move person into fresh air. If not breathing, give artificial respiration. Consult a physician.

In case of skin contact
Wash off with soap and plenty of water. Consult a physician.

In case of eye contact
Flush eyes with water as a precaution.

If swallowed
Do NOT induce vomiting. Never give anything by mouth to an unconscious person. Rinse mouth with water. Consult a physician.

4.2 Most important symptoms and effects, both acute and delayed
The most important known symptoms and effects are described in the labelling (see section 2.2) and/or in section 11

4.3 Indication of any immediate medical attention and special treatment needed
No data available

5. FIREFIGHTING MEASURES

5.1 Extinguishing media

Suitable extinguishing media
Use water spray, alcohol-resistant foam, dry chemical or carbon dioxide.

5.2 Special hazards arising from the substance or mixture
Carbon oxides
Flash back possible over considerable distance.

5.3 Advice for firefighters
Wear self-contained breathing apparatus for firefighting if necessary.

5.4 Further information
In case of fire: Evacuate area. Fight fire remotely due to the risk of explosion.Use water spray to cool unopened containers.

6. ACCIDENTAL RELEASE MEASURES

6.1 Personal precautions, protective equipment and emergency procedures
Use personal protective equipment. Avoid breathing vapours, mist or gas. Ensure adequate ventilation. Remove all sources of ignition. Evacuate personnel to safe areas. Beware of vapours accumulating to form explosive concentrations. Vapours can accumulate in low areas.
For personal protection see section 8.

6.2 Environmental precautions
Prevent further leakage or spillage if safe to do so. Do not let product enter drains. Discharge into the environment must be avoided.

6.3 Methods and materials for containment and cleaning up
Contain spillage, and then collect with an electrically protected vacuum cleaner or by wet-brushing and place in container for disposal according to local regulations (see section 13).

6.4 Reference to other sections
For disposal see section 13.

7. HANDLING AND STORAGE

7.1 Precautions for safe handling
Avoid contact with skin and eyes. Avoid inhalation of vapour or mist.
Use explosion-proof equipment.Keep away from sources of ignition - No smoking.Take measures to prevent the build up of electrostatic charge.
For precautions see section 2.2.

7.2 Conditions for safe storage, including any incompatibilities
Store under inert gas. Keep container tightly closed in a dry and well-ventilated place. Containers which are opened must be carefully resealed and kept upright to prevent leakage.
Storage class (TRGS 510): Flammable liquids

7.3 Specific end use(s)
Apart from the uses mentioned in section 1.2 no other specific uses are stipulated

8. EXPOSURE CONTROLS/PERSONAL PROTECTION

8.1 Control parameters

Components with workplace control parameters

Component	CAS-No.	Value	Control parameters	Basis
Heptane	142-82-5	TWA	85.000000 ppm 350.000000 mg/m3	USA. NIOSH Recommended Exposure Limits
		C	440.000000 ppm 1,800.000000 mg/m3	USA. NIOSH Recommended Exposure Limits
	Remarks	15 minute ceiling value		
		TWA	500.000000 ppm 2,000.000000 mg/m3	USA. Occupational Exposure Limits (OSHA) - Table Z-1 Limits for Air Contaminants
		The value in mg/m3 is approximate.		
		TWA	400.000000 ppm	USA. ACGIH Threshold Limit Values (TLV)
		Central Nervous System impairment Upper Respiratory Tract irritation		
		STEL	500.000000 ppm	USA. ACGIH Threshold Limit Values (TLV)
		Central Nervous System impairment Upper Respiratory Tract irritation		
		TWA	400.000000 ppm	USA. ACGIH Threshold Limit Values (TLV)
		Central Nervous System impairment Upper Respiratory Tract irritation		
		STEL	500.000000 ppm	USA. ACGIH Threshold Limit Values (TLV)
		Central Nervous System impairment Upper Respiratory Tract irritation		
		TWA	400 ppm	USA. ACGIH Threshold Limit Values (TLV)
		Central Nervous System impairment Upper Respiratory Tract irritation		
		STEL	500 ppm	USA. ACGIH Threshold Limit Values (TLV)
		Central Nervous System impairment Upper Respiratory Tract irritation		

8.2 Exposure controls

Appropriate engineering controls
Handle in accordance with good industrial hygiene and safety practice. Wash hands before breaks and at the end of workday.

Personal protective equipment

Eye/face protection
Face shield and safety glasses Use equipment for eye protection tested and approved under appropriate government standards such as NIOSH (US) or EN 166(EU).

Skin protection
Handle with gloves. Gloves must be inspected prior to use. Use proper glove removal technique (without touching glove's outer surface) to avoid skin contact with this product. Dispose of contaminated gloves after use in accordance with applicable laws and good laboratory practices. Wash and dry hands.

Full contact
Material: Nitrile rubber
Minimum layer thickness: 0.4 mm
Break through time: 480 min
Material tested:Camatril® (KCL 730 / Aldrich Z677442, Size M)

Splash contact
Material: Nitrile rubber
Minimum layer thickness: 0.2 mm
Break through time: 65 min
Material tested:Dermatril® P (KCL 743 / Aldrich Z677388, Size M)

data source: KCL GmbH, D-36124 Eichenzell, phone +49 (0)6659 87300, e-mail sales@kcl.de, test method: EN374
If used in solution, or mixed with other substances, and under conditions which differ from EN 374, contact the supplier of the CE approved gloves. This recommendation is advisory only and must be evaluated by an industrial hygienist and safety officer familiar with the specific situation of anticipated use by our customers. It should not be construed as offering an approval for any specific use scenario.

Body Protection
Complete suit protecting against chemicals, Flame retardant antistatic protective clothing., The type of protective equipment must be selected according to the concentration and amount of the dangerous substance at the specific workplace.

Respiratory protection
Where risk assessment shows air-purifying respirators are appropriate use a full-face respirator with multi-purpose combination (US) or type ABEK (EN 14387) respirator cartridges as a backup to engineering controls. If the respirator is the sole means of protection, use a full-face supplied air respirator. Use respirators and components tested and approved under appropriate government standards such as NIOSH (US) or CEN (EU).

Control of environmental exposure
Prevent further leakage or spillage if safe to do so. Do not let product enter drains. Discharge into the environment must be avoided.

9. PHYSICAL AND CHEMICAL PROPERTIES

9.1 Information on basic physical and chemical properties

a)	Appearance	Form: liquid
b)	Odour	No data available
c)	Odour Threshold	No data available
d)	pH	No data available
e)	Melting point/freezing point	Melting point/range: -91 °C (-132 °F)
f)	Initial boiling point and boiling range	98 °C (208 °F)
g)	Flash point	-3.99 °C (24.82 °F) - closed cup
h)	Evaporation rate	No data available
i)	Flammability (solid, gas)	No data available
j)	Upper/lower flammability or explosive limits	Upper explosion limit: 7 %(V) Lower explosion limit: 1.1 %(V)
k)	Vapour pressure	110.7 hPa (83.0 mmHg) at 37.7 °C (99.9 °F) 53.3 hPa (40.0 mmHg) at 20.0 °C (68.0 °F)
l)	Vapour density	No data available

m)	Relative density	0.684 g/mL at 25 °C (77 °F)
n)	Water solubility	insoluble
o)	Partition coefficient: n-octanol/water	log Pow: > 3.000
p)	Auto-ignition temperature	223.0 °C (433.4 °F)
q)	Decomposition temperature	No data available
r)	Viscosity	No data available
s)	Explosive properties	No data available
t)	Oxidizing properties	No data available

9.2 Other safety information
No data available

10. STABILITY AND REACTIVITY

10.1 Reactivity
No data available

10.2 Chemical stability
Stable under recommended storage conditions.

10.3 Possibility of hazardous reactions
Vapours may form explosive mixture with air.

10.4 Conditions to avoid
Heat, flames and sparks.

10.5 Incompatible materials
Strong oxidizing agents

10.6 Hazardous decomposition products
Other decomposition products - No data available
In the event of fire: see section 5

11. TOXICOLOGICAL INFORMATION

11.1 Information on toxicological effects

Acute toxicity
No data available

LC50 Inhalation - Rat - 4 h - 103,000 mg/m3

Inhalation: Irritating to respiratory system.

Dermal: No data available

No data available

Skin corrosion/irritation
No data available

Serious eye damage/eye irritation
Eyes - Rabbit
Result: No eye irritation
(OECD Test Guideline 405)

Respiratory or skin sensitisation
No data available

Germ cell mutagenicity
No data available

Carcinogenicity

This product is or contains a component that is not classifiable as to its carcinogenicity based on its IARC, ACGIH, NTP, or EPA classification.

IARC: No component of this product present at levels greater than or equal to 0.1% is identified as probable, possible or confirmed human carcinogen by IARC.

NTP: No component of this product present at levels greater than or equal to 0.1% is identified as a known or anticipated carcinogen by NTP.

OSHA: No component of this product present at levels greater than or equal to 0.1% is identified as a carcinogen or potential carcinogen by OSHA.

Reproductive toxicity
No data available

No data available

Specific target organ toxicity - single exposure
May cause drowsiness or dizziness.

Specific target organ toxicity - repeated exposure
No data available

Aspiration hazard
May be fatal if swallowed and enters airways.

Additional Information
RTECS: MI7700000

Prolonged or repeated exposure to skin causes defatting and dermatitis., Central nervous system depression, narcosis, Damage to the lungs.

Stomach - Irregularities - Based on Human Evidence
Stomach - Irregularities - Based on Human Evidence

12. ECOLOGICAL INFORMATION

12.1 Toxicity

Toxicity to fish	LC50 - Carassius auratus (goldfish) - 4 mg/l - 24.0 h
	LC50 - Tilapia mossambica - 375 mg/l - 96.0 h
Toxicity to daphnia and other aquatic invertebrates	EC50 - Daphnia magna (Water flea) - 1.50 mg/l - 48 h

12.2 Persistence and degradability

Ratio BOD/ThBOD	3.5 %

12.3 Bioaccumulative potential
Indication of bioaccumulation.

12.4 Mobility in soil
No data available

12.5 Results of PBT and vPvB assessment
PBT/vPvB assessment not available as chemical safety assessment not required/not conducted

12.6 Other adverse effects
An environmental hazard cannot be excluded in the event of unprofessional handling or disposal.
Very toxic to aquatic life with long lasting effects.

Do not empty into drains. Avoid release to the environment.

13. DISPOSAL CONSIDERATIONS

13.1 Waste treatment methods

Product
Burn in a chemical incinerator equipped with an afterburner and scrubber but exert extra care in igniting as this material is highly flammable. Offer surplus and non-recyclable solutions to a licensed disposal company. Contact a licensed professional waste disposal service to dispose of this material.

Contaminated packaging
Dispose of as unused product.

14. TRANSPORT INFORMATION

DOT (US)
UN number: 1206 Class: 3 Packing group: II
Proper shipping name: Heptanes
Reportable Quantity (RQ):
Marine pollutant:yes
Poison Inhalation Hazard: No

IMDG
UN number: 1206 Class: 3 Packing group: II EMS-No: F-E, S-D
Proper shipping name: HEPTANES
Marine pollutant:yes

IATA
UN number: 1206 Class: 3 Packing group: II
Proper shipping name: Heptanes

15. REGULATORY INFORMATION

SARA 302 Components
No chemicals in this material are subject to the reporting requirements of SARA Title III, Section 302.

SARA 313 Components
This material does not contain any chemical components with known CAS numbers that exceed the threshold (De Minimis) reporting levels established by SARA Title III, Section 313.

SARA 311/312 Hazards
Fire Hazard, Acute Health Hazard, Chronic Health Hazard

Massachusetts Right To Know Components

	CAS-No.	Revision Date
Heptane	142-82-5	1993-04-24

Pennsylvania Right To Know Components

	CAS-No.	Revision Date
Heptane	142-82-5	1993-04-24

New Jersey Right To Know Components

	CAS-No.	Revision Date
Heptane	142-82-5	1993-04-24

California Prop. 65 Components
This product does not contain any chemicals known to State of California to cause cancer, birth defects, or any other reproductive harm.

16. OTHER INFORMATION

Full text of H-Statements referred to under sections 2 and 3.

Aquatic Acute	Acute aquatic toxicity
Aquatic Chronic	Chronic aquatic toxicity

Asp. Tox.	Aspiration hazard
Flam. Liq.	Flammable liquids
H225	Highly flammable liquid and vapour.
H304	May be fatal if swallowed and enters airways.
H315	Causes skin irritation.
H336	May cause drowsiness or dizziness.
H400	Very toxic to aquatic life.
H410	Very toxic to aquatic life with long lasting effects.
Skin Irrit.	Skin irritation

HMIS Rating

Health hazard:	2
Chronic Health Hazard:	*
Flammability:	3
Physical Hazard	0

NFPA Rating

Health hazard:	2
Fire Hazard:	3
Reactivity Hazard:	0

Further information

Copyright 2015 Sigma-Aldrich Co. LLC. License granted to make unlimited paper copies for internal use only.
The above information is believed to be correct but does not purport to be all inclusive and shall be used only as a guide. The information in this document is based on the present state of our knowledge and is applicable to the product with regard to appropriate safety precautions. It does not represent any guarantee of the properties of the product. Sigma-Aldrich Corporation and its Affiliates shall not be held liable for any damage resulting from handling or from contact with the above product. See www.sigma-aldrich.com and/or the reverse side of invoice or packing slip for additional terms and conditions of sale.

Preparation Information

Sigma-Aldrich Corporation
Product Safety – Americas Region
1-800-521-8956

Version: 5.7 Revision Date: 11/03/2015 Print Date: 02/18/2016

SAFETY DATA SHEET

Version 3.8
Revision Date 04/24/2015
Print Date 04/01/2016

1. PRODUCT AND COMPANY IDENTIFICATION

1.1 Product identifiers

Product name : Hexachlorobenzene

Product Number : 171050
Brand : Aldrich
Index-No. : 602-065-00-6

CAS-No. : 118-74-1

1.2 Relevant identified uses of the substance or mixture and uses advised against

Identified uses : Laboratory chemicals, Manufacture of substances

1.3 Details of the supplier of the safety data sheet

Company : Sigma-Aldrich
3050 Spruce Street
SAINT LOUIS MO 63103
USA

Telephone : +1 800-325-5832
Fax : +1 800-325-5052

1.4 Emergency telephone number

Emergency Phone # : (314) 776-6555

2. HAZARDS IDENTIFICATION

2.1 Classification of the substance or mixture

GHS Classification in accordance with 29 CFR 1910 (OSHA HCS)
Carcinogenicity (Category 1B), H350
Specific target organ toxicity - repeated exposure, Oral (Category 1), H372
Acute aquatic toxicity (Category 1), H400
Chronic aquatic toxicity (Category 1), H410

For the full text of the H-Statements mentioned in this Section, see Section 16.

2.2 GHS Label elements, including precautionary statements

Pictogram



Signal word Danger

Hazard statement(s)
H350 May cause cancer.
H372 Causes damage to organs through prolonged or repeated exposure if swallowed.
H410 Very toxic to aquatic life with long lasting effects.

Precautionary statement(s)
P201 Obtain special instructions before use.
P202 Do not handle until all safety precautions have been read and understood.
P260 Do not breathe dust/ fume/ gas/ mist/ vapours/ spray.
P264 Wash skin thoroughly after handling.

P270	Do not eat, drink or smoke when using this product.
P273	Avoid release to the environment.
P281	Use personal protective equipment as required.
P308 + P313	IF exposed or concerned: Get medical advice/ attention.
P391	Collect spillage.
P405	Store locked up.
P501	Dispose of contents/ container to an approved waste disposal plant.

2.3 Hazards not otherwise classified (HNOC) or not covered by GHS - none

3. COMPOSITION/INFORMATION ON INGREDIENTS

3.1 Substances

Formula	:	C_6Cl_6
Molecular weight	:	284.78 g/mol
CAS-No.	:	118-74-1
EC-No.	:	204-273-9
Index-No.	:	602-065-00-6

Hazardous components

Component	Classification	Concentration
Hexachlorobenzene		
	Carc. 1B; STOT RE 1; Aquatic Acute 1; Aquatic Chronic 1; H350, H372, H410	<= 100 %

For the full text of the H-Statements mentioned in this Section, see Section 16.

4. FIRST AID MEASURES

4.1 Description of first aid measures

General advice
Consult a physician. Show this safety data sheet to the doctor in attendance.Move out of dangerous area.

If inhaled
If breathed in, move person into fresh air. If not breathing, give artificial respiration. Consult a physician.

In case of skin contact
Wash off with soap and plenty of water. Take victim immediately to hospital. Consult a physician.

In case of eye contact
Flush eyes with water as a precaution.

If swallowed
Never give anything by mouth to an unconscious person. Rinse mouth with water. Consult a physician.

4.2 Most important symptoms and effects, both acute and delayed
The most important known symptoms and effects are described in the labelling (see section 2.2) and/or in section 11

4.3 Indication of any immediate medical attention and special treatment needed
No data available

5. FIREFIGHTING MEASURES

5.1 Extinguishing media

Suitable extinguishing media
Use water spray, alcohol-resistant foam, dry chemical or carbon dioxide.

5.2 Special hazards arising from the substance or mixture
Carbon oxides, Hydrogen chloride gas

5.3 Advice for firefighters
Wear self-contained breathing apparatus for firefighting if necessary.

5.4 Further information
No data available

6. ACCIDENTAL RELEASE MEASURES

6.1 Personal precautions, protective equipment and emergency procedures

Use personal protective equipment. Avoid dust formation. Avoid breathing vapours, mist or gas. Ensure adequate ventilation. Evacuate personnel to safe areas. Avoid breathing dust.
For personal protection see section 8.

6.2 Environmental precautions

Prevent further leakage or spillage if safe to do so. Do not let product enter drains. Discharge into the environment must be avoided.

6.3 Methods and materials for containment and cleaning up

Pick up and arrange disposal without creating dust. Sweep up and shovel. Keep in suitable, closed containers for disposal.

6.4 Reference to other sections

For disposal see section 13.

7. HANDLING AND STORAGE

7.1 Precautions for safe handling

Avoid contact with skin and eyes. Avoid formation of dust and aerosols.Further processing of solid materials may result in the formation of combustible dusts. The potential for combustible dust formation should be taken into consideration before additional processing occurs.
Provide appropriate exhaust ventilation at places where dust is formed.
For precautions see section 2.2.

7.2 Conditions for safe storage, including any incompatibilities

Keep container tightly closed in a dry and well-ventilated place.

Keep in a dry place.
Storage class (TRGS 510): Non-combustible, acute toxic Cat.3 / toxic hazardous materials or hazardous materials causing chronic effects

7.3 Specific end use(s)

Apart from the uses mentioned in section 1.2 no other specific uses are stipulated

8. EXPOSURE CONTROLS/PERSONAL PROTECTION

8.1 Control parameters

Components with workplace control parameters

Component	CAS-No.	Value	Control parameters	Basis
Hexachlorobenzene	118-74-1	TWA	0.002000 mg/m3	USA. ACGIH Threshold Limit Values (TLV)
	Remarks	Central Nervous System impairment Porphyrin effects Skin damage Confirmed animal carcinogen with unknown relevance to humans Danger of cutaneous absorption		

8.2 Exposure controls

Appropriate engineering controls
Handle in accordance with good industrial hygiene and safety practice. Wash hands before breaks and at the end of workday.

Personal protective equipment

Eye/face protection
Face shield and safety glasses Use equipment for eye protection tested and approved under appropriate government standards such as NIOSH (US) or EN 166(EU).

Skin protection
Handle with gloves. Gloves must be inspected prior to use. Use proper glove removal technique (without touching glove's outer surface) to avoid skin contact with this product. Dispose of contaminated gloves after use in accordance with applicable laws and good laboratory practices. Wash and dry hands.

Full contact
Material: Nitrile rubber
Minimum layer thickness: 0.11 mm
Break through time: 480 min
Material tested:Dermatril® (KCL 740 / Aldrich Z677272, Size M)

Splash contact
Material: Nitrile rubber
Minimum layer thickness: 0.11 mm
Break through time: 480 min
Material tested:Dermatril® (KCL 740 / Aldrich Z677272, Size M)

data source: KCL GmbH, D-36124 Eichenzell, phone +49 (0)6659 87300, e-mail sales@kcl.de, test method: EN374
If used in solution, or mixed with other substances, and under conditions which differ from EN 374, contact the supplier of the CE approved gloves. This recommendation is advisory only and must be evaluated by an industrial hygienist and safety officer familiar with the specific situation of anticipated use by our customers. It should not be construed as offering an approval for any specific use scenario.

Body Protection
Complete suit protecting against chemicals, The type of protective equipment must be selected according to the concentration and amount of the dangerous substance at the specific workplace.

Respiratory protection
Where risk assessment shows air-purifying respirators are appropriate use a full-face particle respirator type N100 (US) or type P3 (EN 143) respirator cartridges as a backup to engineering controls. If the respirator is the sole means of protection, use a full-face supplied air respirator. Use respirators and components tested and approved under appropriate government standards such as NIOSH (US) or CEN (EU).

Control of environmental exposure
Prevent further leakage or spillage if safe to do so. Do not let product enter drains. Discharge into the environment must be avoided.

9. PHYSICAL AND CHEMICAL PROPERTIES

9.1 Information on basic physical and chemical properties

a)	Appearance	Form: powder Colour: white
b)	Odour	No data available
c)	Odour Threshold	No data available
d)	pH	No data available
e)	Melting point/freezing point	Melting point/range: 227 - 229 °C (441 - 444 °F) - lit.
f)	Initial boiling point and boiling range	323 - 326 °C (613 - 619 °F) - lit.
g)	Flash point	No data available
h)	Evaporation rate	No data available
i)	Flammability (solid, gas)	No data available
j)	Upper/lower flammability or explosive limits	No data available
k)	Vapour pressure	No data available
l)	Vapour density	No data available

m)	Relative density	No data available
n)	Water solubility	No data available
o)	Partition coefficient: n-octanol/water	No data available
p)	Auto-ignition temperature	No data available
q)	Decomposition temperature	No data available
r)	Viscosity	No data available
s)	Explosive properties	No data available
t)	Oxidizing properties	No data available

9.2 Other safety information
No data available

10. STABILITY AND REACTIVITY

10.1 Reactivity
No data available

10.2 Chemical stability
Stable under recommended storage conditions.

10.3 Possibility of hazardous reactions
No data available

10.4 Conditions to avoid
No data available

10.5 Incompatible materials
Strong oxidizing agents

10.6 Hazardous decomposition products
Other decomposition products - No data available
In the event of fire: see section 5

11. TOXICOLOGICAL INFORMATION

11.1 Information on toxicological effects

Acute toxicity
LD50 Oral - Rat - 10,000 mg/kg

LD50 Oral - Mouse - 4,000 mg/kg

LD50 Oral - Cat - 1,700 mg/kg

LD50 Oral - Rabbit - 2,600 mg/kg

LD50 Oral - Guinea pig - > 3,000 mg/kg

LD50 Oral - Quail - > 6,400 mg/kg

LD50 Oral - Mammal - > 5,000 mg/kg
Remarks: Behavioral:Somnolence (general depressed activity). Behavioral:Change in motor activity (specific assay).

LC50 Inhalation - Rat - 3,600 mg/m3

LC50 Inhalation - Mouse - 4,000 mg/m3

LC50 Inhalation - Cat - 1,600 mg/m3

LC50 Inhalation - Rabbit - 1,800 mg/m3

Dermal: No data available

No data available

Skin corrosion/irritation
No data available

Serious eye damage/eye irritation
No data available

Respiratory or skin sensitisation
Causes photosensitivity. Exposure to light can result in allergic reactions resulting in dermatologic lesions, which can vary from sunburnlike responses to edematous, vesiculated lesions, or bullae

Germ cell mutagenicity
No data available

Carcinogenicity

This product is or contains a component that has been reported to be probably carcinogenic based on its IARC, OSHA, ACGIH, NTP, or EPA classification.

Possible human carcinogen

IARC:	2B - Group 2B: Possibly carcinogenic to humans (Hexachlorobenzene)
NTP:	Reasonably anticipated to be a human carcinogen (Hexachlorobenzene)
OSHA:	No component of this product present at levels greater than or equal to 0.1% is identified as a carcinogen or potential carcinogen by OSHA.

Reproductive toxicity
No data available

No data available

Specific target organ toxicity - single exposure
No data available

Specific target organ toxicity - repeated exposure
Ingestion - Causes damage to organs through prolonged or repeated exposure.

Aspiration hazard
No data available

Additional Information
RTECS: Not available

Liver -

12. ECOLOGICAL INFORMATION

12.1 Toxicity

Toxicity to fish	LC50 - Lepomis macrochirus (Bluegill) - 7.6 mg/l - 96.0 h
	NOEC - Pimephales promelas (fathead minnow) - > 0.0048 mg/l - 96.0 h
Toxicity to daphnia and other aquatic invertebrates	Immobilization EC50 - Daphnia magna (Water flea) - > 0.005 mg/l - 48 h

12.2 Persistence and degradability
No data available

12.3 Bioaccumulative potential
Bioaccumulation: Pimephales promelas (fathead minnow) - 32 d - 0.0003 mg/l

Bioconcentration factor (BCF): 22,000

12.4 Mobility in soil
No data available

12.5 Results of PBT and vPvB assessment

PBT/vPvB assessment not available as chemical safety assessment not required/not conducted

12.6 Other adverse effects

An environmental hazard cannot be excluded in the event of unprofessional handling or disposal.
Very toxic to aquatic life with long lasting effects.

13. DISPOSAL CONSIDERATIONS

13.1 Waste treatment methods

Product

Offer surplus and non-recyclable solutions to a licensed disposal company. Contact a licensed professional waste disposal service to dispose of this material. Dissolve or mix the material with a combustible solvent and burn in a chemical incinerator equipped with an afterburner and scrubber.

Contaminated packaging

Dispose of as unused product.

14. TRANSPORT INFORMATION

DOT (US)

UN number: 2729 Class: 6.1 Packing group: III
Proper shipping name: Hexachlorobenzene
Reportable Quantity (RQ): 10 lbs

Poison Inhalation Hazard: No

IMDG

UN number: 2729 Class: 6.1 Packing group: III EMS-No: F-A, S-A
Proper shipping name: HEXACHLOROBENZENE
Marine pollutant:yes

IATA

UN number: 2729 Class: 6.1 Packing group: III
Proper shipping name: Hexachlorobenzene

15. REGULATORY INFORMATION

SARA 302 Components

No chemicals in this material are subject to the reporting requirements of SARA Title III, Section 302.

SARA 313 Components

This material does not contain any chemical components with known CAS numbers that exceed the threshold (De Minimis) reporting levels established by SARA Title III, Section 313.

SARA 311/312 Hazards

Chronic Health Hazard

Massachusetts Right To Know Components

	CAS-No.	Revision Date
Hexachlorobenzene	118-74-1	2007-07-01

Pennsylvania Right To Know Components

	CAS-No.	Revision Date
Hexachlorobenzene	118-74-1	2007-07-01

New Jersey Right To Know Components

	CAS-No.	Revision Date
Hexachlorobenzene	118-74-1	2007-07-01

California Prop. 65 Components

WARNING! This product contains a chemical known to the State of California to cause cancer. Hexachlorobenzene	CAS-No. 118-74-1	Revision Date 2007-09-28
WARNING: This product contains a chemical known to the	CAS-No.	Revision Date

State of California to cause birth defects or other reproductive harm. Hexachlorobenzene	118-74-1	2007-09-28

16. OTHER INFORMATION

Full text of H-Statements referred to under sections 2 and 3.

Aquatic Acute	Acute aquatic toxicity
Aquatic Chronic	Chronic aquatic toxicity
Carc.	Carcinogenicity
H350	May cause cancer.
H372	Causes damage to organs through prolonged or repeated exposure if swallowed.
H400	Very toxic to aquatic life.
H410	Very toxic to aquatic life with long lasting effects.

HMIS Rating

Health hazard:	3
Chronic Health Hazard:	*
Flammability:	0
Physical Hazard	0

NFPA Rating

Health hazard:	3
Fire Hazard:	0
Reactivity Hazard:	0

Further information

Copyright 2015 Sigma-Aldrich Co. LLC. License granted to make unlimited paper copies for internal use only.
The above information is believed to be correct but does not purport to be all inclusive and shall be used only as a guide. The information in this document is based on the present state of our knowledge and is applicable to the product with regard to appropriate safety precautions. It does not represent any guarantee of the properties of the product. Sigma-Aldrich Corporation and its Affiliates shall not be held liable for any damage resulting from handling or from contact with the above product. See www.sigma-aldrich.com and/or the reverse side of invoice or packing slip for additional terms and conditions of sale.

Preparation Information

Sigma-Aldrich Corporation
Product Safety – Americas Region
1-800-521-8956

Version: 3.8 Revision Date: 04/24/2015 Print Date: 04/01/2016

SAFETY DATA SHEET

Issuing Date no data available **Revision Date** 29-Oct-2015 **Revision Number** 1

1. IDENTIFICATION OF THE SUBSTANCE/PREPARATION AND OF THE COMPANY/UNDERTAKING

Product identifier

Product Number	**019**
Product Name	**Hexavalent Chromium - 1000 mg/L, 125 mL**
Synonyms	None

Recommended use of the chemical and restrictions on use

Recommended Use	Laboratory use only
Uses advised against	No information available

Details of the supplier of the safety data sheet

Supplier	ERA a Waters Company
Supplier Address	16341 Table Mountain Parkway, Golden, CO 80403 USA
Non-Emergency Telephone Number	+1-303-431-8454
Supplier Email	sdsinfo@waters.com

Emergency telephone number

Company Emergency Phone Number	In case of EMERGENCY call CHEMTREC Day or Night Within USA and Canada: 800-424-9300 International Call Collect: +1-703-527-3887

2. HAZARDS IDENTIFICATION

Classification

This chemical is considered hazardous by the 2012 OSHA Hazard Communication Standard (29 CFR 1910.1200).

Respiratory sensitization	Category 1
Skin sensitization	Category 1
Germ cell mutagenicity	Category 1B
Carcinogenicity	Category 1A
Reproductive Toxicity	Category 1B

GHS Label elements, including precautionary statements

Emergency Overview

Signal word **Danger**

Hazard Statements

May cause allergy or asthma symptoms or breathing difficulties if inhaled
May cause an allergic skin reaction
May cause genetic defects
May cause cancer
May damage fertility or the unborn child



Appearance Yellow **Physical state** Liquid->Liquid **Odor** Odorless

Precautionary Statements - Prevention
Obtain special instructions before use
Do not handle until all safety precautions have been read and understood
Use personal protective equipment as required
Avoid breathing dust/fume/gas/mist/vapors/spray
In case of inadequate ventilation wear respiratory protection
Contaminated work clothing should not be allowed out of the workplace
Wear protective gloves
Precautionary Statements - Response
IF exposed or concerned: Get medical advice/attention
Specific treatment (see supplemental first aid instructions on this label)
Skin
IF ON SKIN: Wash with plenty of soap and water
If skin irritation or rash occurs: Get medical advice/attention
Wash contaminated clothing before reuse
Inhalation
IF INHALED: If breathing is difficult, remove victim to fresh air and keep at rest in a position comfortable for breathing
If experiencing respiratory symptoms: Call a POISON CENTER or doctor/physician

Precautionary Statements - Storage
Store locked up
Precautionary Statements - Disposal
Dispose of contents/container to an approved waste disposal plant

Hazards not otherwise classified (HNOC)

Not applicable
Unknown Toxicity
0 % of the mixture consists of ingredient(s) of unknown toxicity
Other information

Harmful to aquatic life with long lasting effects
Repeated or prolonged skin contact may cause allergic reactions with susceptible persons
Interactions with Other Chemicals
No information available.

3. COMPOSITION/INFORMATION ON INGREDIENTS

Note: only the components contributing to the product's GHS hazard classification are listed in this section.

Synonyms None.

Chemical Name	CAS-No	Percent
Potassium Dichromate	7778-50-9	0.25

4. FIRST AID MEASURES

First aid measures

General Advice Show this safety data sheet to the doctor in attendance.
Eye contact Rinse thoroughly with plenty of water, also under the eyelids. If symptoms persist, call a physician.
Skin contact Wash with soap and water. May cause an allergic skin reaction. In the case of skin irritation or allergic reactions see a physician.
Inhalation MAY CAUSE ALLERGIC RESPIRATORY REACTION. If breathing has stopped, give artificial respiration. Get medical attention immediately. Remove to fresh air. Avoid direct contact with skin. Use barrier to give mouth-to-mouth resuscitation. Seek immediate medical attention/advice.
Ingestion May produce an allergic reaction. If an allergic reaction occurs, stop use and seek medical help right away. Do NOT induce vomiting. Rinse mouth immediately and drink plenty of

water. Never give anything by mouth to an unconscious person. Call a physician or poison control center immediately.

Self-protection of the first aider Ensure that medical personnel are aware of the material(s) involved, take precautions to protect themselves and prevent spread of contamination. Avoid contact with skin, eyes or clothing. Avoid direct contact with skin. Use barrier to give mouth-to-mouth resuscitation. Use personal protective equipment as required. Wear personal protective clothing (see section 8).

Most important symptoms and effects, both acute and delayed

Most Important Symptoms and Effects Itching. Rashes. Hives. May cause allergy or asthma symptoms or breathing difficulties if inhaled. Coughing and/ or wheezing.

Indication of any immediate medical attention and special treatment needed

Notes to Physician May cause sensitization in susceptible persons. Treat symptomatically.

5. FIRE-FIGHTING MEASURES

Suitable Extinguishing Media

Use extinguishing measures that are appropriate to local circumstances and the surrounding environment.

Unsuitable Extinguishing Media

CAUTION: Use of water spray when fighting fire may be inefficient.

Specific hazards arising from the chemical

Product is or contains a sensitizer. May cause sensitization by skin contact. May cause sensitization by inhalation and skin contact.

Uniform Fire Code Sensitizer: Liquid

Hazardous Combustion Products

Carbon oxides.

Explosion Data

Sensitivity to Mechanical Impact No.

Sensitivity to Static Discharge No.

Protective equipment and precautions for firefighters

As in any fire, wear self-contained breathing apparatus pressure-demand, MSHA/NIOSH (approved or equivalent) and full protective gear.

6. ACCIDENTAL RELEASE MEASURES

Personal precautions, protective equipment and emergency procedures

Personal precautions Avoid contact with skin, eyes or clothing. Use personal protective equipment as required. Ensure adequate ventilation. Evacuate personnel to safe areas. Keep people away from and upwind of spill/leak.

Other Information Refer to protective measures listed in Sections 7 and 8.

Environmental precautions

Environmental precautions Refer to protective measures listed in Sections 7 and 8. Prevent further leakage or spillage if safe to do so.

Methods and material for containment and cleaning up

Methods for containment Prevent further leakage or spillage if safe to do so.

Methods for cleaning up Pick up and transfer to properly labeled containers. Soak up with inert absorbent material.

7. HANDLING AND STORAGE

Precautions for safe handling

Handling Handle in accordance with good industrial hygiene and safety practice. Avoid contact with skin, eyes or clothing. Do not eat, drink or smoke when using this product. Take off contaminated clothing and wash before reuse. Ensure adequate ventilation. In case of insufficient ventilation, wear suitable respiratory equipment.

Conditions for safe storage, including any incompatibilities

Storage Keep containers tightly closed in a dry, cool and well-ventilated place. Store locked up. Keep out of the reach of children.

Incompatible Products None known based on information supplied.

8. EXPOSURE CONTROLS/PERSONAL PROTECTION

Control parameters

Exposure Guidelines

Chemical Name	ACGIH TLV	OSHA PEL	NIOSH IDLH
Potassium Dichromate 7778-50-9	TWA: 0.05 mg/m³ Cr	TWA: 5 µg/m³ Action Level: 2.5 µg/m³ Cr (vacated) Ceiling: 0.1 mg/m³ Ceiling: 0.1 mg/m³ CrO3 applies to any operations or sectors for which the Hexavalent Chromium standard [29 CFR 1910.1026] is stayed or is otherwise not in effect	IDLH: 15 mg/m³ Cr(VI) TWA: 0.0002 mg/m³ Cr

ACGIH TLV: American Conference of Governmental Industrial Hygienists - Threshold Limit Value OSHA PEL: Occupational Safety and Health Administration - Permissible Exposure Limits NIOSH IDLH Immediately Dangerous to Life or Health

Appropriate engineering controls

Engineering Measures Showers
Eyewash stations
Ventilation systems

Individual protection measures, such as personal protective equipment

Eye/face protection Wear safety glasses with side shields (or goggles).

Skin and body protection Wear protective gloves and protective clothing.

Respiratory protection No protective equipment is needed under normal use conditions. If exposure limits are exceeded or irritation is experienced, ventilation and evacuation may be required.

Hygiene Measures Handle in accordance with good industrial hygiene and safety practice. Avoid contact with skin, eyes or clothing. Wear suitable gloves and eye/face protection. Do not eat, drink or smoke when using this product. Take off contaminated clothing and wash before reuse. Wash hands before breaks and immediately after handling the product.

9. PHYSICAL AND CHEMICAL PROPERTIES

Physical and Chemical Properties

Physical state	Liquid->Liquid		
Appearance	Yellow	**Odor**	Odorless
Color	No information available	**Odor Threshold**	No information available

Property	Values	Remarks Method
pH	5	None known
Melting / freezing point	no data available	None known
Boiling point / boiling range	no data available	None known
Flash Point	no data available	None known
Evaporation Rate	no data available	None known
Flammability (solid, gas)	no data available	None known

Flammability Limit in Air		
Upper flammability limit	no data available	
Lower flammability limit	no data available	
Vapor pressure	no data available	None known
Vapor density	no data available	None known
Specific Gravity	1	None known
Water Solubility	Soluble in water	None known
Solubility in other solvents	no data available	None known
Partition coefficient: n-octanol/water	no data available	None known
Autoignition temperature	no data available	None known
Decomposition temperature	no data available	None known
Kinematic viscosity	no data available	None known
Dynamic viscosity	no data available	None known
Explosive properties	no data available	
Oxidizing properties	no data available	

Other Information

Softening Point	no data available
Particle Size	no data available
Particle Size Distribution	

10. STABILITY AND REACTIVITY

Reactivity

no data available.

Chemical stability
Stable under recommended storage conditions.
Possibility of Hazardous Reactions
None under normal processing.
Hazardous Polymerization
Hazardous polymerization does not occur.
Conditions to avoid
None known based on information supplied.
Incompatible materials
None known based on information supplied.
Hazardous Decomposition Products
Carbon oxides.

11. TOXICOLOGICAL INFORMATION

Information on likely routes of exposure

Product Information	.
Inhalation	May cause allergy or asthma symptoms or breathing difficulties if inhaled. Specific test data for the substance or mixture is not available. May cause sensitization in susceptible persons. (based on components).
Eye contact	Specific test data for the substance or mixture is not available.
Skin contact	Specific test data for the substance or mixture is not available. Repeated or prolonged skin contact may cause allergic reactions with susceptible persons. (based on components).
Ingestion	Specific test data for the substance or mixture is not available. May cause additional affects as listed under "Inhalation".

Component Information

Chemical Name	Oral LD50	Dermal LD50	Inhalation LC50
Potassium Dichromate 7778-50-9	= 25 mg/kg (Rat) = 48 mg/kg (Rat)	= 1150 mg/kg (Rabbit) = 14 mg/kg (Rabbit)	-

Information on toxicological effects

Symptoms Itching. Rashes. Hives. Symptoms of allergic reaction may include rash, itching, swelling, trouble breathing, tingling of the hands and feet, dizziness, lightheadedness, chest pain, muscle pain, or flushing. Coughing and/ or wheezing.

Delayed and immediate effects as well as chronic effects from short and long-term exposure

Sensitization May cause sensitization in susceptible persons. May cause sensitization by skin contact. May cause sensitization by inhalation.

Mutagenic Effects There is no data for this product. Contains a known or suspected mutagen.

Carcinogenicity The table below indicates whether each agency has listed any ingredient as a carcinogen.

Chemical Name	ACGIH	IARC	NTP	OSHA
Potassium Dichromate 7778-50-9	A1	Group 1	Known	X

ACGIH (American Conference of Governmental Industrial Hygienists)
A1 - Known Human Carcinogen
IARC (International Agency for Research on Cancer)
Group 1 - Carcinogenic to Humans
NTP (National Toxicology Program)
Known - Known Carcinogen
OSHA (Occupational Safety and Health Administration of the US Department of Labor)
X - Present

Reproductive toxicity Contains a known or suspected reproductive toxin.

STOT - single exposure No information available.

STOT - repeated exposure No information available.

Chronic toxicity No known effect based on information supplied. Prolonged exposure may cause chronic effects. Repeated contact may cause allergic reactions in very susceptible persons. Contains a known or suspected mutagen. Possible risk of irreversible effects. Contains a known or suspected carcinogen. Contains a known or suspected reproductive toxin.

Target Organ Effects Skin. Respiratory system. Eyes. May affect the genetic material in germ cells (sperm and eggs). Gastrointestinal tract (GI). Reproductive system.

Aspiration Hazard No information available.

Numerical measures of toxicity Product Information

The following values are calculated based on chapter 3.1 of the GHS document

ATEmix (oral)
40,000.00 mg/kg
ATEmix (inhalation-dust/mist)
20.04 mg/L

12. ECOLOGICAL INFORMATION

Ecotoxicity

Harmful to aquatic life with long lasting effects.

Chemical Name	Toxicity to Algae	Toxicity to Fish	Toxicity to Microorganisms	Daphnia Magna (Water Flea)
Potassium Dichromate 7778-50-9		96h LC50: > 139 mg/L (Cyprinus carpio) 96h LC50: 113.6 - 155.7 mg/L (Lepomis macrochirus) 96h LC50: = 320 mg/L (Lepomis macrochirus) 96h LC50: 65.6 - 137.6 mg/L (Lepomis macrochirus) 96h LC50: = 12.3 mg/L (Oncorhynchus mykiss) 96h LC50: 21.209 - 30.046 mg/L (Oryzias latipes) 96h LC50: 15.41 - 30.36 mg/L (Pimephales promelas) 96h LC50: 14 - 20.9 mg/L (Pimephales promelas) 96h LC50: 24.81 - 34.55 mg/L (Poecilia reticulata) 96h LC50: 23 - 41.2 mg/L (Poecilia reticulata) 96h LC50: = 26 mg/L (Morone saxatilis)		

Persistence and Degradability

No information available.

Bioaccumulation

No information available

Other adverse effects

No information available.

13. DISPOSAL CONSIDERATIONS

Waste treatment methods

Disposal methods This material, as supplied, is not a hazardous waste according to Federal regulations (40 CFR 261). This material could become a hazardous waste if it is mixed with or otherwise comes in contact with a hazardous waste, if chemical additions are made to this material, or if the material is processed or otherwise altered. Consult 40 CFR 261 to determine whether the altered material is a hazardous waste. Consult the appropriate state, regional, or local regulations for additional requirements.

Contaminated Packaging Dispose of contents/containers in accordance with local regulations.

This product contains one or more substances that are listed with the State of California as a hazardous waste.

Chemical Name	California Hazardous Waste
Potassium Dichromate 7778-50-9	Toxic Corrosive Ignitable

14. TRANSPORT INFORMATION

DOT Not regulated

Proper Shipping Name NON REGULATED

Hazard Class N/A

TDG Not regulated

MEX Not regulated

ICAO Not regulated

IATA Not regulated
Proper Shipping Name NON REGULATED
Special Provisions None

IMDG Not regulated
Special Provisions None
Marine Pollutant Not applicable

RID Not regulated
Special Provisions None

ADR Not regulated
Special Provisions None

ADN Not regulated

15. REGULATORY INFORMATION

International Inventories

TSCA	Complies
DSL	All components are listed either on the DSL or NDSL.
ENCS	Contact supplier for inventory compliance status
KECL	Contact supplier for inventory compliance status
PICCS	Contact supplier for inventory compliance status
AICS	Contact supplier for inventory compliance status

TSCA - United States Toxic Substances Control Act Section 8(b) Inventory
DSL/NDSL - Canadian Domestic Substances List/Non-Domestic Substances List
EINECS/ELINCS - European Inventory of Existing Chemical Substances/European List of Notified Chemical Substances
ENCS - Japan Existing and New Chemical Substances
IECSC - China Inventory of Existing Chemical Substances
KECL - Korean Existing and Evaluated Chemical Substances
PICCS - Philippines Inventory of Chemicals and Chemical Substances
AICS - Australian Inventory of Chemical Substances

US Federal Regulations

SARA 313

Section 313 of Title III of the Superfund Amendments and Reauthorization Act of 1986 (SARA). This product contains a chemical or chemicals which are subject to the reporting requirements of the Act and Title 40 of the Code of Federal Regulations, Part 372

Chemical Name	CAS-No	Percent	SARA 313 - Threshold Values %
Potassium Dichromate - 7778-50-9	7778-50-9	0.25	0.1

SARA 311/312 Hazard Categories

Acute Health Hazard	Yes
Chronic Health Hazard	Yes
Fire Hazard	No
Sudden release of pressure hazard	No
Reactive Hazard	No

CWA (Clean Water Act)

This product contains the following substances which are regulated pollutants pursuant to the Clean Water Act (40 CFR 122.21 and 40 CFR 122.42)

Chemical Name	CWA - Reportable Quantities	CWA - Toxic Pollutants	CWA - Priority Pollutants	CWA - Hazardous Substances
Potassium Dichromate 7778-50-9	10 lb	X		X

CERCLA

This material, as supplied, contains one or more substances regulated as a hazardous substance under the Comprehensive

Environmental Response Compensation and Liability Act (CERCLA) (40 CFR 302)

Chemical Name	Hazardous Substances RQs	Extremely Hazardous Substances RQs	RQ
Potassium Dichromate 7778-50-9	10 lb		RQ 10 lb final RQ RQ 4.54 kg final RQ

US State Regulations

California Proposition 65

This product contains the following Proposition 65 chemicals.

U.S. State Right-to-Know Regulations

.

International Regulations

Component	Carcinogen Status	Exposure Limits
Potassium Dichromate 7778-50-9 (0.25)	A1	Mexico: TWA 0.05 mg/m³ Mexico: TWA 0.5 mg/m³

A1 - Confirmed Human Carcinogen

Canada
WHMIS Hazard Class
Not determined

16. OTHER INFORMATION

NFPA	**Health Hazards** 2	**Flammability** 0	**Instability** 0	**Physical and Chemical Hazards** -
HMIS	**Health Hazards** 2 *	**Flammability** 0	**Physical Hazard** 0	**Personal Protection** X

Chronic Hazard Star Legend * = Chronic Health Hazard

Prepared By
Product Stewardship
23 British American Blvd.
Latham, NY 12110
1-800-572-6501

Revision Date 29-Oct-2015
Revision Note No information available

Disclaimer

The information provided in this Safety Data Sheet is correct to the best of our knowledge, information and belief at the date of its publication. The information given is designed only as a guidance for safe handling, use, processing, storage, transportation, disposal and release and is not to be considered a warranty or quality specification. The information relates only to the specific material designated and may not be valid for such material used in combination with any other materials or in any process, unless specified in the text

The supplier identified below generated this SDS using the UL SDS template. UL did not test, certify, or approve the substance described in this SDS, and all information in this SDS was provided by the supplier or was reproduced from publically available regulatory data sources. UL makes no representations or warranties regarding the completeness or accuracy of the information in this SDS and disclaims all liability in connection with the use of this information or the substance described in this SDS. The layout, appearance and format of this SDS is © 2014 UL LLC. All rights reserved

End of Safety Data Sheet

SAFETY DATA SHEET

Version 6.8
Revision Date 08/28/2024
Print Date 08/29/2024

SECTION 1: Identification of the substance/mixture and of the company/undertaking

1.1 Product identifiers

Product name : Indeno[1,2,3-*cd*]pyrene

Product Number : 48499
Brand : Supelco
CAS-No. : 193-39-5

1.2 Relevant identified uses of the substance or mixture and uses advised against

Identified uses : Laboratory chemicals, Synthesis of substances

1.3 Details of the supplier of the safety data sheet

Company : Sigma-Aldrich Inc.
3050 SPRUCE ST
ST. LOUIS MO 63103
UNITED STATES

Telephone : +1 314 771-5765
Fax : +1 800 325-5052

1.4 Emergency telephone

Emergency Phone # : 800-424-9300 CHEMTREC (USA) +1-703-527-3887 CHEMTREC (International) 24 Hours/day; 7 Days/week

SECTION 2: Hazards identification

2.1 Classification of the substance or mixture

GHS Classification in accordance with 29 CFR 1910 (OSHA HCS)

Carcinogenicity (Category 2), H351

For the full text of the H-Statements mentioned in this Section, see Section 16.

2.2 GHS Label elements, including precautionary statements

Pictogram



Signal Word Warning

Hazard Statements
H351 Suspected of causing cancer.

The life science business of Merck KGaA, Darmstadt, Germany
operates as MilliporeSigma in the US and Canada

Precautionary Statements

P201	Obtain special instructions before use.
P202	Do not handle until all safety precautions have been read and understood.
P280	Wear protective gloves/ protective clothing/ eye protection/ face protection.
P308 + P313	IF exposed or concerned: Get medical advice/ attention.
P405	Store locked up.
P501	Dispose of contents/ container to an approved waste disposal plant.

2.3 Hazards not otherwise classified (HNOC) or not covered by GHS - none

SECTION 3: Composition/information on ingredients

3.1 Substances

Formula	:	$C_{22}H_{12}$
Molecular weight	:	276.33 g/mol
CAS-No.	:	193-39-5
EC-No.	:	205-893-2

Component	Classification	Concentration
Indeno[1,2,3-cd]pyrene		
	Carc. 2; H351	<= 100 %

For the full text of the H-Statements mentioned in this Section, see Section 16.

SECTION 4: First aid measures

4.1 Description of first-aid measures

General advice
Show this material safety data sheet to the doctor in attendance.

If inhaled
After inhalation: fresh air. Call in physician.

In case of skin contact
In case of skin contact: Take off immediately all contaminated clothing. Rinse skin with water/ shower. Consult a physician.

In case of eye contact
After eye contact: rinse out with plenty of water. Call in ophthalmologist. Remove contact lenses.

If swallowed
After swallowing: immediately make victim drink water (two glasses at most). Consult a physician.

The life science business of Merck KGaA, Darmstadt, Germany
operates as MilliporeSigma in the US and Canada

4.2 Most important symptoms and effects, both acute and delayed
The most important known symptoms and effects are described in the labelling (see section 2.2) and/or in section 11

4.3 Indication of any immediate medical attention and special treatment needed
No data available

SECTION 5: Firefighting measures

5.1 Extinguishing media

Suitable extinguishing media
Water Foam Carbon dioxide (CO2) Dry powder

Unsuitable extinguishing media
For this substance/mixture no limitations of extinguishing agents are given.

5.2 Special hazards arising from the substance or mixture
Carbon oxides
Combustible.
Development of hazardous combustion gases or vapours possible in the event of fire.

5.3 Advice for firefighters
Stay in danger area only with self-contained breathing apparatus. Prevent skin contact by keeping a safe distance or by wearing suitable protective clothing.

5.4 Further information
Prevent fire extinguishing water from contaminating surface water or the ground water system.

SECTION 6: Accidental release measures

6.1 Personal precautions, protective equipment and emergency procedures
Advice for non-emergency personnel: Avoid inhalation of dusts. Avoid substance contact. Ensure adequate ventilation. Evacuate the danger area, observe emergency procedures, consult an expert.
For personal protection see section 8.

6.2 Environmental precautions
Do not let product enter drains.

6.3 Methods and materials for containment and cleaning up
Cover drains. Collect, bind, and pump off spills. Observe possible material restrictions (see sections 7 and 10). Take up dry. Dispose of properly. Clean up affected area. Avoid generation of dusts.

6.4 Reference to other sections
For disposal see section 13.

The life science business of Merck KGaA, Darmstadt, Germany
operates as MilliporeSigma in the US and Canada

SECTION 7: Handling and storage

7.1 Precautions for safe handling

Advice on safe handling
Work under hood. Do not inhale substance/mixture.

Hygiene measures
Immediately change contaminated clothing. Apply preventive skin protection. Wash hands and face after working with substance.
For precautions see section 2.2.

7.2 Conditions for safe storage, including any incompatibilities

Storage conditions
Tightly closed. Dry. Keep locked up or in an area accessible only to qualified or authorized persons.

Storage class
Storage class (TRGS 510): 11: Combustible Solids

7.3 Specific end use(s)
Apart from the uses mentioned in section 1.2 no other specific uses are stipulated

SECTION 8: Exposure controls/personal protection

8.1 Control parameters

Ingredients with workplace control parameters
Contains no substances with occupational exposure limit values.

8.2 Exposure controls

Appropriate engineering controls
Immediately change contaminated clothing. Apply preventive skin protection. Wash hands and face after working with substance.

Personal protective equipment

Eye/face protection
Use equipment for eye protection tested and approved under appropriate government standards such as NIOSH (US) or EN 166(EU). Safety glasses

Skin protection
Handle with impervious gloves.

This recommendation applies only to the product stated in the safety data sheet, supplied by us and for the designated use. When dissolving in or mixing with other substances and under conditions deviating from those stated in EN 16523-1 please contact the supplier of CE-approved gloves (e.g. KCL GmbH, D-36124 Eichenzell, Internet: www.kcl.de).

Full contact
Material: Nitrile rubber
Minimum layer thickness: 0.11 mm

The life science business of Merck KGaA, Darmstadt, Germany
operates as MilliporeSigma in the US and Canada

Break through time: 480 min
Material tested:KCL 741 Dermatril® L

Splash contact
Material: Nitrile rubber
Minimum layer thickness: 0.11 mm
Break through time: 480 min
Material tested:KCL 741 Dermatril® L

Body Protection
protective clothing

Respiratory protection
Recommended Filter type: Filter type P3
The entrepeneur has to ensure that maintenance, cleaning and testing of respiratory protective devices are carried out according to the instructions of the producer. These measures have to be properly documented.
required when dusts are generated.
Our recommendations on filtering respiratory protection are based on the following standards: DIN EN 143, DIN 14387 and other accompanying standards relating to the used respiratory protection system.

Control of environmental exposure
Do not let product enter drains.

SECTION 9: Physical and chemical properties

9.1 Information on basic physical and chemical properties

a)	Appearance	Form: solid
b)	Odor	No data available
c)	Odor Threshold	No data available
d)	pH	No data available
e)	Melting point/freezing point	163.6 °C (326.5 °F)
f)	Initial boiling point and boiling range	No data available
g)	Flash point	()Not applicable
h)	Evaporation rate	No data available
i)	Flammability (solid, gas)	No data available
j)	Upper/lower flammability or explosive limits	No data available
k)	Vapor pressure	No data available
l)	Vapor density	No data available
m)	Density	No data available

The life science business of Merck KGaA, Darmstadt, Germany
operates as MilliporeSigma in the US and Canada

	Relative density	No data available
n)	Water solubility	No data available
o)	Partition coefficient: n-octanol/water	No data available
p)	Autoignition temperature	No data available
q)	Decomposition temperature	No data available
r)	Viscosity	No data available
s)	Explosive properties	No data available
t)	Oxidizing properties	No data available

9.2 Other safety information
No data available

SECTION 10: Stability and reactivity

10.1 Reactivity
The following applies in general to flammable organic substances and mixtures: in correspondingly fine distribution, when whirled up a dust explosion potential may generally be assumed.

10.2 Chemical stability
The product is chemically stable under standard ambient conditions (room temperature) .

10.3 Possibility of hazardous reactions
No data available

10.4 Conditions to avoid
no information available

10.5 Incompatible materials
Strong oxidizing agents

10.6 Hazardous decomposition products
In the event of fire: see section 5

SECTION 11: Toxicological information

11.1 Information on toxicological effects

Acute toxicity
Oral: No data available
Inhalation: No data available
Dermal: No data available

Skin corrosion/irritation
Remarks: No data available

The life science business of Merck KGaA, Darmstadt, Germany
operates as MilliporeSigma in the US and Canada

Serious eye damage/eye irritation
Remarks: No data available

Respiratory or skin sensitization
No data available

Germ cell mutagenicity
No data available

Carcinogenicity
This product is or contains a component that has been reported to be possibly carcinogenic based on its IARC, ACGIH, NTP, or EPA classification.

IARC: 2B - Group 2B: Possibly carcinogenic to humans (Indeno[1,2,3-cd]pyrene)

NTP: RAHC - Reasonably anticipated to be a human carcinogen (Indeno[1,2,3-cd]pyrene)

OSHA: No component of this product present at levels greater than or equal to 0.1% is on OSHA's list of regulated carcinogens.

Reproductive toxicity
No data available

Specific target organ toxicity - single exposure
No data available

Specific target organ toxicity - repeated exposure
No data available

Aspiration hazard
No data available

11.2 Additional Information

To the best of our knowledge, the chemical, physical, and toxicological properties have not been thoroughly investigated.

SECTION 12: Ecological information

12.1 Toxicity
No data available

12.2 Persistence and degradability
No data available

12.3 Bioaccumulative potential
No data available

12.4 Mobility in soil
No data available

12.5 Results of PBT and vPvB assessment
PBT/vPvB assessment not available as chemical safety assessment not required/not conducted

12.6 Endocrine disrupting properties
No data available

The life science business of Merck KGaA, Darmstadt, Germany
operates as MilliporeSigma in the US and Canada

12.7 Other adverse effects

No data available

SECTION 13: Disposal considerations

13.1 Waste treatment methods

Product

Waste material must be disposed of in accordance with the national and local regulations. Leave chemicals in original containers. No mixing with other waste. Handle uncleaned containers like the product itself.

SECTION 14: Transport information

DOT (US)

Not dangerous goods

IMDG

Not dangerous goods

IATA

Not dangerous goods

Further information

Not classified as dangerous in the meaning of transport regulations.

SECTION 15: Regulatory information

CERCLA Reportable Quantity

Components	CAS-No.	Component RQ (lbs)	Calculated product RQ (lbs)
Indeno[1,2,3-cd]pyrene	193-39-5	100	100

SARA 304 Extremely Hazardous Substances Reportable Quantity

This material does not contain any components with a section 304 EHS RQ.

SARA 302 Extremely Hazardous Substances Threshold Planning Quantity

This material does not contain any components with a section 302 EHS TPQ.

SARA 311/312 Hazards : Chronic Health Hazard

The life science business of Merck KGaA, Darmstadt, Germany
operates as MilliporeSigma in the US and Canada

SARA 313 : The following components are subject to reporting levels established by SARA Title III, Section 313:

Indeno[1,2,3-cd]pyrene	193-39-5	>= 90 - <= 100 %

US State Regulations

Massachusetts Right To Know

Indeno[1,2,3-cd]pyrene	193-39-5

Pennsylvania Right To Know

Indeno[1,2,3-cd]pyrene	193-39-5

Maine Chemicals of High Concern

Product does not contain any listed chemicals

Vermont Chemicals of High Concern

Product does not contain any listed chemicals

Washington Chemicals of High Concern

Product does not contain any listed chemicals

California Prop. 65

WARNING: This product can expose you to chemicals including Indeno[1,2,3-cd]pyrene, which is/are known to the State of California to cause cancer. For more information go to www.P65Warnings.ca.gov.

The ingredients of this product are reported in the following inventories:

TSCA : All substances listed as active on the TSCA inventory

TSCA list

No substances are subject to a Significant New Use Rule.

No substances are subject to TSCA 12(b) export notification requirements.

SECTION 16: Other information

Further information

The information is believed to be correct but is not exhaustive and will be used solely as a guideline, which is based on current knowledge of the chemical substance or mixture and is applicable to appropriate safety precautions for the product. It does not represent any guarantee of the properties of the product. Sigma-Aldrich Corporation and its Affiliates shall not be held liable for any damage resulting from handling or from contact with the above product. See www.sigma-aldrich.com and/or the reverse side of invoice or packing slip for additional terms and conditions of sale.

Copyright 2020 Sigma-Aldrich Co. LLC. License granted to make unlimited paper copies for internal use only.

The branding on the header and/or footer of this document may temporarily not visually match the product purchased as we transition our branding. However, all of the

The life science business of Merck KGaA, Darmstadt, Germany
operates as MilliporeSigma in the US and Canada

The life science business of Merck KGaA, Darmstadt, Germany
operates as MilliporeSigma in the US and Canada

SAFETY DATA SHEET

according to Regulation (EC) No. 1907/2006

Version 6.8
Revision Date 30.05.2024
Print Date 16.09.2024
GENERIC EU MSDS - NO COUNTRY SPECIFIC DATA - NO OEL DATA

SECTION 1: Identification of the substance/mixture and of the company/undertaking

1.1 Product identifiers

Product name	:	Iron
Product Number	:	12310
Brand	:	Aldrich
REACH No.	:	01-2119462838-24-XXXX
CAS-No.	:	7439-89-6

1.2 Relevant identified uses of the substance or mixture and uses advised against

Identified uses	:	Laboratory chemicals, Manufacture of substances

1.3 Details of the supplier of the safety data sheet

Company	:	Sigma-Aldrich Inc. 3050 SPRUCE ST ST. LOUIS MO 63103 UNITED STATES
Telephone	:	+1 314 771-5765
Fax	:	+1 800 325-5052

1.4 Emergency telephone

Emergency Phone #	:	800-424-9300 CHEMTREC (USA) +1-703-527-3887 CHEMTREC (International) 24 Hours/day; 7 Days/week

SECTION 2: Hazards identification

2.1 Classification of the substance or mixture

Flammable solids, (Category 1)	H228: Flammable solid.
Self-heating substances and mixtures, (Category 1)	H251: Self-heating; may catch fire.

2.2 Label elements

Labelling according Regulation (EC) No 1272/2008

The life science business of Merck operates as MilliporeSigma in the US and Canada

Pictogram	
Signal Word	Danger
Hazard Statements	
H228	Flammable solid.
H251	Self-heating; may catch fire.
Precautionary Statements	
P210	Keep away from heat, hot surfaces, sparks, open flames and other ignition sources. No smoking.
P235	Keep cool.
P240	Ground and bond container and receiving equipment.
P241	Use explosion-proof electrical/ ventilating/ lighting/ equipment.
P280	Wear protective gloves/ protective clothing/ eye protection/ face protection.
P370 + P378	In case of fire: Use dry sand, dry chemical or alcohol-resistant foam to extinguish.
Supplemental Hazard Statements	none

Reduced Labeling (<= 125 ml)

Pictogram	
Signal Word	Danger
Hazard Statements	
H251	Self-heating; may catch fire.
Precautionary Statements	
P235	Keep cool.
P280	Wear protective gloves/ protective clothing/ eye protection/ face protection.
Supplemental Hazard Statements	none

2.3 Other hazards

This substance/mixture contains no components considered to be either persistent, bioaccumulative and toxic (PBT), or very persistent and very bioaccumulative (vPvB) at levels of 0.1% or higher.

Ecological information:
The substance/mixture does not contain components considered to have endocrine disrupting properties according to REACH Article 57(f) or Commission Delegated regulation (EU) 2017/2100 or Commission Regulation (EU) 2018/605 at levels of 0.1% or higher.
Toxicological information:
The substance/mixture does not contain components considered to have endocrine disrupting properties according to REACH Article 57(f) or Commission Delegated regulation (EU) 2017/2100 or Commission Regulation (EU) 2018/605 at levels of 0.1% or higher.

The life science business of Merck operates as MilliporeSigma in the US and Canada

SECTION 3: Composition/information on ingredients

3.1 Substances

Formula	:	Fe
Molecular weight	:	55,85 g/mol
CAS-No.	:	7439-89-6
EC-No.	:	231-096-4

No components need to be disclosed according to the applicable regulations.

SECTION 4: First aid measures

4.1 Description of first-aid measures

General advice
Show this material safety data sheet to the doctor in attendance.

If inhaled
After inhalation: fresh air.

In case of skin contact
In case of skin contact: Take off immediately all contaminated clothing. Rinse skin with water/ shower.

In case of eye contact
After eye contact: rinse out with plenty of water. Remove contact lenses.

If swallowed
After swallowing: make victim drink water (two glasses at most). Consult doctor if feeling unwell.

4.2 Most important symptoms and effects, both acute and delayed

The most important known symptoms and effects are described in the labelling (see section 2.2) and/or in section 11

4.3 Indication of any immediate medical attention and special treatment needed

No data available

SECTION 5: Firefighting measures

5.1 Extinguishing media

Suitable extinguishing media
Water Foam Carbon dioxide (CO2) Dry powder

Unsuitable extinguishing media
For this substance/mixture no limitations of extinguishing agents are given.

5.2 Special hazards arising from the substance or mixture

Iron oxides
Combustible.
Development of hazardous combustion gases or vapours possible in the event of fire.

5.3 Advice for firefighters

In the event of fire, wear self-contained breathing apparatus.

The life science business of Merck operates as MilliporeSigma in the US and Canada

5.4 Further information
Suppress (knock down) gases/vapors/mists with a water spray jet.

SECTION 6: Accidental release measures

6.1 Personal precautions, protective equipment and emergency procedures
Advice for non-emergency personnel: Avoid inhalation of dusts. Avoid substance contact. Ensure adequate ventilation. Keep away from heat and sources of ignition. Evacuate the danger area, observe emergency procedures, consult an expert.
For personal protection see section 8.

6.2 Environmental precautions
Do not let product enter drains. Risk of explosion.

6.3 Methods and materials for containment and cleaning up
Observe possible material restrictions (see sections 7 and 10). Take up dry. Dispose of properly. Clean up affected area. Avoid generation of dusts.

6.4 Reference to other sections
For disposal see section 13.

SECTION 7: Handling and storage

7.1 Precautions for safe handling

Advice on protection against fire and explosion
Keep away from open flames, hot surfaces and sources of ignition.Take precautionary measures against static discharge.

Hygiene measures
Change contaminated clothing. Wash hands after working with substance.
For precautions see section 2.2.

7.2 Conditions for safe storage, including any incompatibilities

Storage conditions
Tightly closed. Keep away from heat and sources of ignition.

Storage class
Storage class (TRGS 510): 4.2: Pyrophoric and self-heating hazardous materials

7.3 Specific end use(s)
Apart from the uses mentioned in section 1.2 no other specific uses are stipulated

The life science business of Merck operates as MilliporeSigma in the US and Canada

SECTION 8: Exposure controls/personal protection

8.1 Control parameters

Ingredients with workplace control parameters

8.2 Exposure controls

Personal protective equipment

Eye/face protection
Use equipment for eye protection tested and approved under appropriate government standards such as NIOSH (US) or EN 166(EU). Safety glasses

Body Protection
Flame retardant antistatic protective clothing.

Respiratory protection
required when dusts are generated.
Our recommendations on filtering respiratory protection are based on the following standards: DIN EN 143, DIN 14387 and other accompanying standards relating to the used respiratory protection system.
Recommended Filter type: Filter type P1

The entrepeneur has to ensure that maintenance, cleaning and testing of respiratory protective devices are carried out according to the instructions of the producer. These measures have to be properly documented.

Control of environmental exposure
Do not let product enter drains. Risk of explosion.

SECTION 9: Physical and chemical properties

9.1 Information on basic physical and chemical properties

a)	Physical state	powder
b)	Color	light gray
c)	Odor	odorless
d)	Melting point/freezing point	Melting point/range: 1.538 °C at 1.023 hPa
e)	Initial boiling point and boiling range	2.861 °C at 1.013 hPa
f)	Flammability (solid, gas)	The substance or mixture is a flammable solid with the category 1.
g)	Upper/lower flammability or explosive limits	No data available
h)	Flash point	Not applicable
i)	Autoignition temperature	The substance or mixture is classified as self heating with the category 1.

The life science business of Merck operates as MilliporeSigma in the US and Canada

j)	Decomposition temperature	No data available
k)	pH	Not applicable
l)	Viscosity	Viscosity, kinematic: No data available Viscosity, dynamic: No data available
m)	Water solubility	insoluble
n)	Partition coefficient: n-octanol/water	Not applicable for inorganic substances
o)	Vapor pressure	Not applicable
p)	Density	7,87 g/cm3 at 20 °C
	Relative density	7,87 at 20 °C
q)	Relative vapor density	
r)	Particle characteristics	No data available
s)	Explosive properties	Not classified as explosive.
t)	Oxidizing properties	The substance or mixture is not classified as oxidizing.

9.2 Other safety information

Dust explosion class St1

SECTION 10: Stability and reactivity

10.1 Reactivity

Self-heating; may catch fire.
The following applies in general to flammable organic substances and mixtures: in correspondingly fine distribution, when whirled up a dust explosion potential may generally be assumed.

10.2 Chemical stability

The product is chemically stable under standard ambient conditions (room temperature) .

10.3 Possibility of hazardous reactions

No data available

10.4 Conditions to avoid

no information available

10.5 Incompatible materials

Strong acids

10.6 Hazardous decomposition products

In the event of fire: see section 5

The life science business of Merck operates as MilliporeSigma in the US and Canada

SECTION 11: Toxicological information

11.1 Information on toxicological effects

Acute toxicity
LD50 Oral - Rat - 7.500 mg/kg
Remarks: (Lit.)
Inhalation: No data available
Dermal: No data available

Skin corrosion/irritation
Remarks: No skin irritation

Serious eye damage/eye irritation
Eyes - Rabbit
Result: No eye irritation
(OECD Test Guideline 405)
Remarks: (Lit.)

Respiratory or skin sensitization
Did not cause sensitization on laboratory animals.

Germ cell mutagenicity
Test system: S. typhimurium
Method: OECD Test Guideline 471
Result: Not mutagenic in Ames Test.
Remarks: (Lit.)

Carcinogenicity
No data available

Reproductive toxicity
Did not show teratogenic effects in animal experiments.
Animal testing did not show any effects on fertility.

Specific target organ toxicity - single exposure
The substance or mixture is not classified as specific target organ toxicant, single exposure.

Specific target organ toxicity - repeated exposure
The substance or mixture is not classified as specific target organ toxicant, repeated exposure.

Aspiration hazard
No data available

11.2 Additional Information

Endocrine disrupting properties

Product:

Assessment	The substance/mixture does not contain components considered to have endocrine disrupting properties according to REACH Article 57(f) or Commission Delegated regulation (EU) 2017/2100 or Commission Regulation (EU) 2018/605 at levels of 0.1% or higher.

To the best of our knowledge, the chemical, physical, and toxicological properties have not been thoroughly investigated.

The life science business of Merck operates as MilliporeSigma in the US and Canada

SECTION 12: Ecological information

12.1 Toxicity

Toxicity to fish	static test	- Morone saxatilis - 13,6 mg/l - 96 h

12.2 Persistence and degradability
Not applicable

12.3 Bioaccumulative potential
No data available

12.4 Mobility in soil
No data available

12.5 Results of PBT and vPvB assessment
This substance/mixture contains no components considered to be either persistent, bioaccumulative and toxic (PBT), or very persistent and very bioaccumulative (vPvB) at levels of 0.1% or higher.

12.6 Endocrine disrupting properties
Product:

Assessment : The substance/mixture does not contain components considered to have endocrine disrupting properties according to REACH Article 57(f) or Commission Delegated regulation (EU) 2017/2100 or Commission Regulation (EU) 2018/605 at levels of 0.1% or higher.

12.7 Other adverse effects
No data available

SECTION 13: Disposal considerations

13.1 Waste treatment methods
No data available

SECTION 14: Transport information

14.1 UN number
ADR/RID: 3178 IMDG: 3178 IATA: 3178

14.2 UN proper shipping name
ADR/RID: FLAMMABLE SOLID, INORGANIC, N.O.S. (Iron Powder,)
IMDG: FLAMMABLE SOLID, INORGANIC, N.O.S. (Iron Powder,)
IATA: Flammable solid, inorganic, n.o.s. (Iron Powder,)

The life science business of Merck operates as MilliporeSigma in the US and Canada

14.3 Transport hazard class(es)

ADR/RID: 4.1	IMDG: 4.1	IATA: 4.1

14.4 Packaging group

ADR/RID: III	IMDG: III	IATA: III

14.5 Environmental hazards

ADR/RID: no	IMDG Marine pollutant: no	IATA: no

14.6 Special precautions for user

Tunnel restriction code : (E)

Further information : No data available

SECTION 15: Regulatory information

15.1 Safety, health and environmental regulations/legislation specific for the substance or mixture

This material safety data sheet complies with the requirements of Regulation (EC) No. 1907/2006.

Other regulations

Take note of Dir 94/33/EC on the protection of young people at work.

15.2 Chemical Safety Assessment

For this product a chemical safety assessment was not carried out

The life science business of Merck operates as MilliporeSigma in the US and Canada

SECTION 16: Other information

Full text of other abbreviations

ADN - European Agreement concerning the International Carriage of Dangerous Goods by Inland Waterways; ADR - Agreement concerning the International Carriage of Dangerous Goods by Road; AIIC - Australian Inventory of Industrial Chemicals; ASTM - American Society for the Testing of Materials; bw - Body weight; CMR - Carcinogen, Mutagen or Reproductive Toxicant; DIN - Standard of the German Institute for Standardisation; DSL - Domestic Substances List (Canada); ECx - Concentration associated with x% response; ELx - Loading rate associated with x% response; EmS - Emergency Schedule; ENCS - Existing and New Chemical Substances (Japan); ErCx - Concentration associated with x% growth rate response; GHS - Globally Harmonized System; GLP - Good Laboratory Practice; IARC - International Agency for Research on Cancer; IATA - International Air Transport Association; IBC - International Code for the Construction and Equipment of Ships carrying Dangerous Chemicals in Bulk; IC50 - Half maximal inhibitory concentration; ICAO - International Civil Aviation Organization; IECSC - Inventory of Existing Chemical Substances in China; IMDG - International Maritime Dangerous Goods; IMO - International Maritime Organization; ISHL - Industrial Safety and Health Law (Japan); ISO - International Organisation for Standardization; KECI - Korea Existing Chemicals Inventory; LC50 - Lethal Concentration to 50 % of a test population; LD50 - Lethal Dose to 50% of a test population (Median Lethal Dose); MARPOL - International Convention for the Prevention of Pollution from Ships; n.o.s. - Not Otherwise Specified; NO(A)EC - No Observed (Adverse) Effect Concentration; NO(A)EL - No Observed (Adverse) Effect Level; NOELR - No Observable Effect Loading Rate; NZIoC - New Zealand Inventory of Chemicals; OECD - Organization for Economic Co-operation and Development; OPPTS - Office of Chemical Safety and Pollution Prevention; PBT - Persistent, Bioaccumulative and Toxic substance; PICCS - Philippines Inventory of Chemicals and Chemical Substances; (Q)SAR - (Quantitative) Structure Activity Relationship; REACH - Regulation (EC) No 1907/2006 of the European Parliament and of the Council concerning the Registration, Evaluation, Authorisation and Restriction of Chemicals; RID - Regulations concerning the International Carriage of Dangerous Goods by Rail; SADT - Self-Accelerating Decomposition Temperature; SDS - Safety Data Sheet; TCSI - Taiwan Chemical Substance Inventory; TECI - Thailand Existing Chemicals Inventory; TSCA - Toxic Substances Control Act (United States); UN - United Nations; UNRTDG - United Nations Recommendations on the Transport of Dangerous Goods; vPvB - Very Persistent and Very Bioaccumulative

Further information

The information is believed to be correct but is not exhaustive and will be used solely as a guideline, which is based on current knowledge of the chemical substance or mixture and is applicable to appropriate safety precautions for the product. It does not represent any guarantee of the properties of the product. Sigma-Aldrich Corporation and its Affiliates shall not be held liable for any damage resulting from handling or from contact with the above product. See www.sigma-aldrich.com and/or the reverse side of invoice or packing slip for additional terms and conditions of sale.

Copyright 2020 Sigma-Aldrich Co. LLC. License granted to make unlimited paper copies for internal use only.

The branding on the header and/or footer of this document may temporarily not visually match the product purchased as we transition our branding. However, all of the information in the document regarding the product remains unchanged and matches the product ordered. For further information please contact mlsbranding@sial.com.

The life science business of Merck operates as MilliporeSigma in the US and Canada

The life science business of Merck operates as MilliporeSigma in the US and Canada



SAFETY DATA SHEET

Version 5.8
Revision Date 03/06/2015
Print Date 02/18/2016

1. PRODUCT AND COMPANY IDENTIFICATION

1.1 Product identifiers

Product name : Isopropyl alcohol

Product Number : W292907
Brand : Aldrich
Index-No. : 603-117-00-0

CAS-No. : 67-63-0

1.2 Relevant identified uses of the substance or mixture and uses advised against

Identified uses : Laboratory chemicals, Manufacture of substances

1.3 Details of the supplier of the safety data sheet

Company : Sigma-Aldrich
3050 Spruce Street
SAINT LOUIS MO 63103
USA

Telephone : +1 800-325-5832
Fax : +1 800-325-5052

1.4 Emergency telephone number

Emergency Phone # : (314) 776-6555

2. HAZARDS IDENTIFICATION

2.1 Classification of the substance or mixture

GHS Classification in accordance with 29 CFR 1910 (OSHA HCS)
Flammable liquids (Category 2), H225
Eye irritation (Category 2A), H319
Specific target organ toxicity - single exposure (Category 3), Central nervous system, H336

For the full text of the H-Statements mentioned in this Section, see Section 16.

2.2 GHS Label elements, including precautionary statements

Pictogram



Signal word Danger

Hazard statement(s)
H225 Highly flammable liquid and vapour.
H319 Causes serious eye irritation.
H336 May cause drowsiness or dizziness.

Precautionary statement(s)
P210 Keep away from heat/sparks/open flames/hot surfaces. - No smoking.
P233 Keep container tightly closed.
P240 Ground/bond container and receiving equipment.
P241 Use explosion-proof electrical/ ventilating/ lighting/ equipment.
P242 Use only non-sparking tools.
P243 Take precautionary measures against static discharge.
P261 Avoid breathing dust/ fume/ gas/ mist/ vapours/ spray.

P264	Wash skin thoroughly after handling.
P271	Use only outdoors or in a well-ventilated area.
P280	Wear protective gloves/ protective clothing/ eye protection/ face protection.
P303 + P361 + P353	IF ON SKIN (or hair): Remove/ Take off immediately all contaminated clothing. Rinse skin with water/ shower.
P304 + P340	IF INHALED: Remove victim to fresh air and keep at rest in a position comfortable for breathing.
P305 + P351 + P338	IF IN EYES: Rinse cautiously with water for several minutes. Remove contact lenses, if present and easy to do. Continue rinsing.
P312	Call a POISON CENTER or doctor/ physician if you feel unwell.
P337 + P313	If eye irritation persists: Get medical advice/ attention.
P370 + P378	In case of fire: Use dry sand, dry chemical or alcohol-resistant foam for extinction.
P403 + P233	Store in a well-ventilated place. Keep container tightly closed.
P403 + P235	Store in a well-ventilated place. Keep cool.
P405	Store locked up.
P501	Dispose of contents/ container to an approved waste disposal plant.

2.3 Hazards not otherwise classified (HNOC) or not covered by GHS

May form explosive peroxides.

3. COMPOSITION/INFORMATION ON INGREDIENTS

3.1 Substances

Synonyms	:	2-Propanol sec-Propyl alcohol Isopropyl alcohol Isopropanol
Formula	:	C_3H_8O
Molecular weight	:	60.10 g/mol
CAS-No.	:	67-63-0
EC-No.	:	200-661-7
Index-No.	:	603-117-00-0

Hazardous components

Component	Classification	Concentration
2-Propanol		
	Flam. Liq. 2; Eye Irrit. 2A; STOT SE 3; H225, H319, H336	<= 100 %

For the full text of the H-Statements mentioned in this Section, see Section 16.

4. FIRST AID MEASURES

4.1 Description of first aid measures

General advice
Move out of dangerous area.Consult a physician. Show this safety data sheet to the doctor in attendance.

If inhaled
If breathed in, move person into fresh air. If not breathing, give artificial respiration. Consult a physician.

In case of skin contact
Wash off with soap and plenty of water. Consult a physician.

In case of eye contact
Rinse thoroughly with plenty of water for at least 15 minutes and consult a physician.

If swallowed
Do NOT induce vomiting. Never give anything by mouth to an unconscious person. Rinse mouth with water. Consult a physician.

4.2 Most important symptoms and effects, both acute and delayed
The most important known symptoms and effects are described in the labelling (see section 2.2) and/or in section 11

4.3 Indication of any immediate medical attention and special treatment needed
No data available

5. FIREFIGHTING MEASURES

5.1 Extinguishing media

Suitable extinguishing media
Use water spray, alcohol-resistant foam, dry chemical or carbon dioxide.

5.2 Special hazards arising from the substance or mixture
Carbon oxides

5.3 Advice for firefighters
Wear self-contained breathing apparatus for firefighting if necessary.

5.4 Further information
Use water spray to cool unopened containers.

6. ACCIDENTAL RELEASE MEASURES

6.1 Personal precautions, protective equipment and emergency procedures
Use personal protective equipment. Avoid breathing vapours, mist or gas. Ensure adequate ventilation. Remove all sources of ignition. Evacuate personnel to safe areas. Beware of vapours accumulating to form explosive concentrations. Vapours can accumulate in low areas.
For personal protection see section 8.

6.2 Environmental precautions
Prevent further leakage or spillage if safe to do so. Do not let product enter drains.

6.3 Methods and materials for containment and cleaning up
Contain spillage, and then collect with an electrically protected vacuum cleaner or by wet-brushing and place in container for disposal according to local regulations (see section 13).

6.4 Reference to other sections
For disposal see section 13.

7. HANDLING AND STORAGE

7.1 Precautions for safe handling
Avoid contact with skin and eyes. Avoid inhalation of vapour or mist.
Use explosion-proof equipment.Keep away from sources of ignition - No smoking.Take measures to prevent the build up of electrostatic charge.
For precautions see section 2.2.

7.2 Conditions for safe storage, including any incompatibilities
Keep container tightly closed in a dry and well-ventilated place. Containers which are opened must be carefully resealed and kept upright to prevent leakage.

Handle and store under inert gas. hygroscopic

7.3 Specific end use(s)
Apart from the uses mentioned in section 1.2 no other specific uses are stipulated

8. EXPOSURE CONTROLS/PERSONAL PROTECTION

8.1 Control parameters

Components with workplace control parameters

Component	CAS-No.	Value	Control parameters	Basis
2-Propanol	67-63-0	TWA	200.000000 ppm	USA. ACGIH Threshold Limit Values (TLV)
	Remarks	Central Nervous System impairment		

		Upper Respiratory Tract irritation Eye irritation Substances for which there is a Biological Exposure Index or Indices (see BEI® section) Not classifiable as a human carcinogen		
		TWA	200 ppm	USA. ACGIH Threshold Limit Values (TLV)
		Central Nervous System impairment Upper Respiratory Tract irritation Eye irritation Substances for which there is a Biological Exposure Index or Indices (see BEI® section) Not classifiable as a human carcinogen		
		STEL	400 ppm	USA. ACGIH Threshold Limit Values (TLV)
		Central Nervous System impairment Upper Respiratory Tract irritation Eye irritation Substances for which there is a Biological Exposure Index or Indices (see BEI® section) Not classifiable as a human carcinogen		
		STEL	400.000000 ppm	USA. ACGIH Threshold Limit Values (TLV)
		Central Nervous System impairment Upper Respiratory Tract irritation Eye irritation Substances for which there is a Biological Exposure Index or Indices (see BEI® section) Not classifiable as a human carcinogen		
		TWA	400.000000 ppm 980.000000 mg/m3	USA. Occupational Exposure Limits (OSHA) - Table Z-1 Limits for Air Contaminants
		The value in mg/m3 is approximate.		
		TWA	400.000000 ppm 980.000000 mg/m3	USA. NIOSH Recommended Exposure Limits
		ST	500.000000 ppm 1,225.000000 mg/m3	USA. NIOSH Recommended Exposure Limits

Biological occupational exposure limits

Component	CAS-No.	Parameters	Value	Biological specimen	Basis
2-Propanol	67-63-0	Acetone	40.0000 mg/l	Urine	ACGIH - Biological Exposure Indices (BEI)
	Remarks	End of shift at end of workweek			

8.2 Exposure controls

Appropriate engineering controls

Handle in accordance with good industrial hygiene and safety practice. Wash hands before breaks and at the end of workday.

Personal protective equipment

Eye/face protection
Face shield and safety glasses Use equipment for eye protection tested and approved under appropriate government standards such as NIOSH (US) or EN 166(EU).

Skin protection
Handle with gloves. Gloves must be inspected prior to use. Use proper glove removal technique (without touching glove's outer surface) to avoid skin contact with this product. Dispose of contaminated gloves after use in accordance with applicable laws and good laboratory practices. Wash and dry hands.

Full contact
Material: Nitrile rubber
Minimum layer thickness: 0.4 mm
Break through time: 480 min
Material tested:Camatril® (KCL 730 / Aldrich Z677442, Size M)

Splash contact
Material: Nitrile rubber
Minimum layer thickness: 0.2 mm
Break through time: 60 min
Material tested:Dermatril® P (KCL 743 / Aldrich Z677388, Size M)

data source: KCL GmbH, D-36124 Eichenzell, phone +49 (0)6659 87300, e-mail sales@kcl.de, test method: EN374
If used in solution, or mixed with other substances, and under conditions which differ from EN 374, contact the supplier of the CE approved gloves. This recommendation is advisory only and must be evaluated by an industrial hygienist and safety officer familiar with the specific situation of anticipated use by our customers. It should not be construed as offering an approval for any specific use scenario.

Body Protection
impervious clothing, Flame retardant antistatic protective clothing., The type of protective equipment must be selected according to the concentration and amount of the dangerous substance at the specific workplace.

Respiratory protection
Where risk assessment shows air-purifying respirators are appropriate use a full-face respirator with multi-purpose combination (US) or type ABEK (EN 14387) respirator cartridges as a backup to engineering controls. If the respirator is the sole means of protection, use a full-face supplied air respirator. Use respirators and components tested and approved under appropriate government standards such as NIOSH (US) or CEN (EU).

Control of environmental exposure
Prevent further leakage or spillage if safe to do so. Do not let product enter drains.

9. PHYSICAL AND CHEMICAL PROPERTIES

9.1 Information on basic physical and chemical properties

a)	Appearance	Form: liquid Colour: colourless
b)	Odour	alcohol-like
c)	Odour Threshold	No data available
d)	pH	No data available
e)	Melting point/freezing point	Melting point/range: -89.5 °C (-129.1 °F) - lit.
f)	Initial boiling point and boiling range	82 °C (180 °F) - lit.
g)	Flash point	12.0 °C (53.6 °F) - closed cup
h)	Evaporation rate	3.0
i)	Flammability (solid, gas)	No data available
j)	Upper/lower flammability or	Upper explosion limit: 12.7 %(V) Lower explosion limit: 2 %(V)

	explosive limits	
k)	Vapour pressure	43.2 hPa (32.4 mmHg) at 20.0 °C (68.0 °F) 58.7 hPa (44.0 mmHg) at 25.0 °C (77.0 °F)
l)	Vapour density	No data available
m)	Relative density	0.785 g/cm3 at 25 °C (77 °F)
n)	Water solubility	completely soluble
o)	Partition coefficient: n-octanol/water	log Pow: 0.05
p)	Auto-ignition temperature	425.0 °C (797.0 °F)
q)	Decomposition temperature	No data available
r)	Viscosity	No data available
s)	Explosive properties	No data available
t)	Oxidizing properties	No data available

9.2 Other safety information

Surface tension	20.8 mN/m at 25.0 °C (77.0 °F)

10. STABILITY AND REACTIVITY

10.1 Reactivity
No data available

10.2 Chemical stability
Test for peroxide formation before distillation or evaporation. Test for peroxide formation or discard after 1 year.
Stable under recommended storage conditions.

10.3 Possibility of hazardous reactions
Vapours may form explosive mixture with air.

10.4 Conditions to avoid
Heat, flames and sparks. Extremes of temperature and direct sunlight.

10.5 Incompatible materials
Oxidizing agents, Acid anhydrides, Aluminium, Halogenated compounds, Acids

10.6 Hazardous decomposition products
Other decomposition products - No data available
In the event of fire: see section 5

11. TOXICOLOGICAL INFORMATION

11.1 Information on toxicological effects

Acute toxicity
LD50 Oral - Rat - 5,045 mg/kg
Remarks: Behavioral:Altered sleep time (including change in righting reflex). Behavioral:Somnolence (general depressed activity).

LC50 Inhalation - Rat - 8 h - 16000 ppm

LD50 Dermal - Rabbit - 12,800 mg/kg

No data available

Skin corrosion/irritation
Skin - Rabbit
Result: Mild skin irritation

Serious eye damage/eye irritation
Eyes - Rabbit
Result: Eye irritation - 24 h

Respiratory or skin sensitisation
No data available

Germ cell mutagenicity
No data available

Carcinogenicity

This product is or contains a component that is not classifiable as to its carcinogenicity based on its IARC, ACGIH, NTP, or EPA classification.

IARC:	3 - Group 3: Not classifiable as to its carcinogenicity to humans (2-Propanol)
NTP:	No component of this product present at levels greater than or equal to 0.1% is identified as a known or anticipated carcinogen by NTP.
OSHA:	No component of this product present at levels greater than or equal to 0.1% is identified as a carcinogen or potential carcinogen by OSHA.

Reproductive toxicity
No data available

No data available

Specific target organ toxicity - single exposure
Inhalation, Oral - May cause drowsiness or dizziness.

Specific target organ toxicity - repeated exposure
No data available

Aspiration hazard
No data available

Additional Information
RTECS: NT8050000

Central nervous system depression, prolonged or repeated exposure can cause:, Nausea, Headache, Vomiting, narcosis, Drowsiness, Overexposure may cause mild, reversible liver effects., Aspiration may lead to:, Lung oedema, Pneumonia
To the best of our knowledge, the chemical, physical, and toxicological properties have not been thoroughly investigated.

Kidney - Irregularities - Based on Human Evidence
Kidney - Irregularities - Based on Human Evidence

12. ECOLOGICAL INFORMATION

12.1 Toxicity

Toxicity to fish	LC50 - Pimephales promelas (fathead minnow) - 9,640.00 mg/l - 96 h
Toxicity to daphnia and other aquatic invertebrates	EC50 - Daphnia magna (Water flea) - 5,102.00 mg/l - 24 h
	Immobilization EC50 - Daphnia magna (Water flea) - 6,851 mg/l - 24 h
Toxicity to algae	EC50 - Desmodesmus subspicatus (green algae) - > 2,000.00 mg/l - 72 h
	EC50 - Algae - > 1,000.00 mg/l - 24 h

12.2 Persistence and degradability
No data available

12.3 Bioaccumulative potential
No bioaccumulation is to be expected (log Pow <= 4).

12.4 Mobility in soil
No data available

12.5 Results of PBT and vPvB assessment
PBT/vPvB assessment not available as chemical safety assessment not required/not conducted

12.6 Other adverse effects

No data available

13. DISPOSAL CONSIDERATIONS

13.1 Waste treatment methods

Product
Burn in a chemical incinerator equipped with an afterburner and scrubber but exert extra care in igniting as this material is highly flammable. Offer surplus and non-recyclable solutions to a licensed disposal company. Contact a licensed professional waste disposal service to dispose of this material.

Contaminated packaging
Dispose of as unused product.

14. TRANSPORT INFORMATION

DOT (US)
UN number: 1219 Class: 3 Packing group: II
Proper shipping name: Isopropanol
Reportable Quantity (RQ):

Poison Inhalation Hazard: No

IMDG
UN number: 1219 Class: 3 Packing group: II EMS-No: F-E, S-D
Proper shipping name: ISOPROPANOL

IATA
UN number: 1219 Class: 3 Packing group: II
Proper shipping name: Isopropanol

15. REGULATORY INFORMATION

SARA 302 Components
No chemicals in this material are subject to the reporting requirements of SARA Title III, Section 302.

SARA 313 Components
The following components are subject to reporting levels established by SARA Title III, Section 313:

	CAS-No.	Revision Date
2-Propanol	67-63-0	1987-01-01

SARA 311/312 Hazards
Fire Hazard, Acute Health Hazard, Chronic Health Hazard

Massachusetts Right To Know Components

	CAS-No.	Revision Date
2-Propanol	67-63-0	1987-01-01

Pennsylvania Right To Know Components

	CAS-No.	Revision Date
2-Propanol	67-63-0	1987-01-01

New Jersey Right To Know Components

	CAS-No.	Revision Date
2-Propanol	67-63-0	1987-01-01

California Prop. 65 Components

This product does not contain any chemicals known to State of California to cause cancer, birth defects, or any other reproductive harm.

16. OTHER INFORMATION

Full text of H-Statements referred to under sections 2 and 3.

Eye Irrit.	Eye irritation
Flam. Liq.	Flammable liquids
H225	Highly flammable liquid and vapour.
H319	Causes serious eye irritation.
H336	May cause drowsiness or dizziness.
STOT SE	Specific target organ toxicity - single exposure

HMIS Rating

Health hazard:	2
Chronic Health Hazard:	*
Flammability:	3
Physical Hazard	0

NFPA Rating

Health hazard:	2
Fire Hazard:	3
Reactivity Hazard:	0

Further information

Copyright 2015 Sigma-Aldrich Co. LLC. License granted to make unlimited paper copies for internal use only.
The above information is believed to be correct but does not purport to be all inclusive and shall be used only as a guide. The information in this document is based on the present state of our knowledge and is applicable to the product with regard to appropriate safety precautions. It does not represent any guarantee of the properties of the product. Sigma-Aldrich Corporation and its Affiliates shall not be held liable for any damage resulting from handling or from contact with the above product. See www.sigma-aldrich.com and/or the reverse side of invoice or packing slip for additional terms and conditions of sale.

Preparation Information

Sigma-Aldrich Corporation
Product Safety – Americas Region
1-800-521-8956

Version: 5.8 Revision Date: 03/06/2015 Print Date: 02/18/2016

SAFETY DATA SHEET

Version 4.7
Revision Date 12/29/2015
Print Date 02/07/2016

1. PRODUCT AND COMPANY IDENTIFICATION

1.1 Product identifiers

Product name : Lead

Product Number : 391352
Brand : Aldrich

CAS-No. : 7439-92-1

1.2 Relevant identified uses of the substance or mixture and uses advised against

Identified uses : Laboratory chemicals, Synthesis of substances

1.3 Details of the supplier of the safety data sheet

Company : Sigma-Aldrich
3050 Spruce Street
SAINT LOUIS MO 63103
USA

Telephone : +1 800-325-5832
Fax : +1 800-325-5052

1.4 Emergency telephone number

Emergency Phone # : (314) 776-6555

2. HAZARDS IDENTIFICATION

2.1 Classification of the substance or mixture

GHS Classification in accordance with 29 CFR 1910 (OSHA HCS)
Acute toxicity, Oral (Category 4), H302
Carcinogenicity (Category 2), H351
Reproductive toxicity (Category 2), H361
Specific target organ toxicity - repeated exposure (Category 2), H373
Acute aquatic toxicity (Category 1), H400
Chronic aquatic toxicity (Category 1), H410

For the full text of the H-Statements mentioned in this Section, see Section 16.

2.2 GHS Label elements, including precautionary statements

Pictogram



Signal word Warning

Hazard statement(s)
H302 Harmful if swallowed.
H351 Suspected of causing cancer.
H361 Suspected of damaging fertility or the unborn child.
H373 May cause damage to organs through prolonged or repeated exposure.
H410 Very toxic to aquatic life with long lasting effects.

Precautionary statement(s)
P201 Obtain special instructions before use.
P202 Do not handle until all safety precautions have been read and

	understood.
P260	Do not breathe dust/ fume/ gas/ mist/ vapours/ spray.
P264	Wash skin thoroughly after handling.
P270	Do not eat, drink or smoke when using this product.
P273	Avoid release to the environment.
P280	Wear protective gloves/ protective clothing/ eye protection/ face protection.
P301 + P312 + P330	IF SWALLOWED: Call a POISON CENTER or doctor/ physician if you feel unwell. Rinse mouth.
P308 + P313	IF exposed or concerned: Get medical advice/ attention.
P391	Collect spillage.
P405	Store locked up.
P501	Dispose of contents/ container to an approved waste disposal plant.

2.3 Hazards not otherwise classified (HNOC) or not covered by GHS - none

3. COMPOSITION/INFORMATION ON INGREDIENTS

3.1 Substances

Formula	:	Pb
Molecular weight	:	207.20 g/mol
CAS-No.	:	7439-92-1
EC-No.	:	231-100-4

Hazardous components

Component	Classification	Concentration
Lead		
	Acute Tox. 4; Carc. 2; Repr. 2; STOT RE 2; Aquatic Acute 1; Aquatic Chronic 1; H302, H351, H361, H373, H410	<= 100 %

For the full text of the H-Statements mentioned in this Section, see Section 16.

4. FIRST AID MEASURES

4.1 Description of first aid measures

General advice
Consult a physician. Show this safety data sheet to the doctor in attendance.Move out of dangerous area.

If inhaled
If breathed in, move person into fresh air. If not breathing, give artificial respiration. Consult a physician.

In case of skin contact
Wash off with soap and plenty of water. Consult a physician.

In case of eye contact
Flush eyes with water as a precaution.

If swallowed
Never give anything by mouth to an unconscious person. Rinse mouth with water. Consult a physician.

4.2 Most important symptoms and effects, both acute and delayed
The most important known symptoms and effects are described in the labelling (see section 2.2) and/or in section 11

4.3 Indication of any immediate medical attention and special treatment needed
No data available

5. FIREFIGHTING MEASURES

5.1 Extinguishing media

Suitable extinguishing media
Use water spray, alcohol-resistant foam, dry chemical or carbon dioxide.

5.2 Special hazards arising from the substance or mixture
Lead oxides

5.3 Advice for firefighters
Wear self-contained breathing apparatus for firefighting if necessary.

5.4 Further information
No data available

6. ACCIDENTAL RELEASE MEASURES

6.1 Personal precautions, protective equipment and emergency procedures
Use personal protective equipment. Avoid dust formation. Avoid breathing vapours, mist or gas. Ensure adequate ventilation. Evacuate personnel to safe areas. Avoid breathing dust.
For personal protection see section 8.

6.2 Environmental precautions
Prevent further leakage or spillage if safe to do so. Do not let product enter drains. Discharge into the environment must be avoided.

6.3 Methods and materials for containment and cleaning up
Pick up and arrange disposal without creating dust. Sweep up and shovel. Keep in suitable, closed containers for disposal.

6.4 Reference to other sections
For disposal see section 13.

7. HANDLING AND STORAGE

7.1 Precautions for safe handling
Avoid contact with skin and eyes. Avoid formation of dust and aerosols.Further processing of solid materials may result in the formation of combustible dusts. The potential for combustible dust formation should be taken into consideration before additional processing occurs.
Provide appropriate exhaust ventilation at places where dust is formed.
For precautions see section 2.2.

7.2 Conditions for safe storage, including any incompatibilities
Keep container tightly closed in a dry and well-ventilated place.

Keep in a dry place.
Storage class (TRGS 510): Non-combustible, acute toxic Cat.3 / toxic hazardous materials or hazardous materials causing chronic effects

7.3 Specific end use(s)
Apart from the uses mentioned in section 1.2 no other specific uses are stipulated

8. EXPOSURE CONTROLS/PERSONAL PROTECTION

8.1 Control parameters

Components with workplace control parameters

Component	CAS-No.	Value	Control parameters	Basis
	Remarks	See 1910.1025		
Lead	7439-92-1	TWA	0.05 mg/m3	USA. ACGIH Threshold Limit Values (TLV)
		Confirmed animal carcinogen with unknown relevance to humans		
		TWA	0.05 mg/m3	USA. ACGIH Threshold Limit Values (TLV)
		Central Nervous System impairment Hematologic effects Peripheral Nervous System impairment Substances for which there is a Biological Exposure Index or Indices (see BEI® section) Confirmed animal carcinogen with unknown relevance to humans		

		TWA	0.05 mg/m3	USA. NIOSH Recommended Exposure Limits
		See Appendix C		

Biological occupational exposure limits

Component	CAS-No.	Parameters	Value	Biological specimen	Basis
Lead	7439-92-1	Lead	30µg/ 100 ml	In blood	ACGIH - Biological Exposure Indices (BEI)
	Remarks	Not critical			
		Lead	30µg/ 100 ml	In blood	ACGIH - Biological Exposure Indices (BEI)
		Not critical			

8.2 Exposure controls

Appropriate engineering controls
Handle in accordance with good industrial hygiene and safety practice. Wash hands before breaks and at the end of workday.

Personal protective equipment

Eye/face protection
Safety glasses with side-shields conforming to EN166 Use equipment for eye protection tested and approved under appropriate government standards such as NIOSH (US) or EN 166(EU).

Skin protection
Handle with gloves. Gloves must be inspected prior to use. Use proper glove removal technique (without touching glove's outer surface) to avoid skin contact with this product. Dispose of contaminated gloves after use in accordance with applicable laws and good laboratory practices. Wash and dry hands.

Full contact
Material: Nitrile rubber
Minimum layer thickness: 0.11 mm
Break through time: 480 min
Material tested:Dermatril® (KCL 740 / Aldrich Z677272, Size M)

Splash contact
Material: Nitrile rubber
Minimum layer thickness: 0.11 mm
Break through time: 480 min
Material tested:Dermatril® (KCL 740 / Aldrich Z677272, Size M)

data source: KCL GmbH, D-36124 Eichenzell, phone +49 (0)6659 87300, e-mail sales@kcl.de, test method: EN374
If used in solution, or mixed with other substances, and under conditions which differ from EN 374, contact the supplier of the CE approved gloves. This recommendation is advisory only and must be evaluated by an industrial hygienist and safety officer familiar with the specific situation of anticipated use by our customers. It should not be construed as offering an approval for any specific use scenario.

Body Protection
Complete suit protecting against chemicals, The type of protective equipment must be selected according to the concentration and amount of the dangerous substance at the specific workplace.

Respiratory protection
Where risk assessment shows air-purifying respirators are appropriate use a full-face particle respirator type N100 (US) or type P3 (EN 143) respirator cartridges as a backup to engineering controls. If the respirator is the sole means of protection, use a full-face supplied air respirator. Use respirators and components tested and approved under appropriate government standards such as NIOSH (US) or CEN (EU).

Control of environmental exposure
Prevent further leakage or spillage if safe to do so. Do not let product enter drains. Discharge into the environment must be avoided.

9. PHYSICAL AND CHEMICAL PROPERTIES

9.1 Information on basic physical and chemical properties

a)	Appearance	Form: powder
b)	Odour	No data available
c)	Odour Threshold	No data available
d)	pH	No data available
e)	Melting point/freezing point	Melting point/range: 327.4 °C (621.3 °F) - lit.
f)	Initial boiling point and boiling range	1,740 °C (3,164 °F) - lit.
g)	Flash point	Not applicable
h)	Evaporation rate	No data available
i)	Flammability (solid, gas)	No data available
j)	Upper/lower flammability or explosive limits	No data available
k)	Vapour pressure	No data available
l)	Vapour density	No data available
m)	Relative density	No data available
n)	Water solubility	No data available
o)	Partition coefficient: n-octanol/water	No data available
p)	Auto-ignition temperature	No data available
q)	Decomposition temperature	No data available
r)	Viscosity	No data available
s)	Explosive properties	No data available
t)	Oxidizing properties	No data available

9.2 Other safety information

No data available

10. STABILITY AND REACTIVITY

10.1 Reactivity

No data available

10.2 Chemical stability

Stable under recommended storage conditions.

10.3 Possibility of hazardous reactions

No data available

10.4 Conditions to avoid

No data available

10.5 Incompatible materials

Strong acids

10.6 Hazardous decomposition products

Other decomposition products - No data available
In the event of fire: see section 5

11. TOXICOLOGICAL INFORMATION

11.1 Information on toxicological effects

Acute toxicity
No data available

Inhalation: No data available

Dermal: No data available

No data available

Skin corrosion/irritation
No data available

Serious eye damage/eye irritation
No data available

Respiratory or skin sensitisation
No data available

Germ cell mutagenicity

Rat
Cytogenetic analysis

Carcinogenicity

Limited evidence of carcinogenicity in animal studies

IARC:	2B - Group 2B: Possibly carcinogenic to humans (Lead)
NTP:	Reasonably anticipated to be a human carcinogen (Lead)
	Reasonably anticipated to be a human carcinogenThe reference note has been added by TD based on the background information of the NTP. (Lead)
OSHA:	1910.1025 (Lead)
	OSHA specifically regulated carcinogen (Lead)

Reproductive toxicity
Suspected human reproductive toxicant

Reproductive toxicity - Rat - Inhalation
Effects on Newborn: Biochemical and metabolic.

Reproductive toxicity - Rat - Oral
Effects on Newborn: Behavioral.

Reproductive toxicity - Mouse - Oral
Effects on Fertility: Female fertility index (e.g., # females pregnant per # sperm positive females; # females pregnant per # females mated). Effects on Fertility: Pre-implantation mortality (e.g., reduction in number of implants per female; total number of implants per corpora lutea).

Developmental Toxicity - Rat - Inhalation
Effects on Embryo or Fetus: Fetotoxicity (except death, e.g., stunted fetus). Specific Developmental Abnormalities: Blood and lymphatic system (including spleen and marrow).

Developmental Toxicity - Rat - Oral
Specific Developmental Abnormalities: Blood and lymphatic system (including spleen and marrow). Effects on Newborn: Growth statistics (e.g., reduced weight gain).

Developmental Toxicity - Rat - Oral
Effects on Embryo or Fetus: Fetotoxicity (except death, e.g., stunted fetus). Effects on Embryo or Fetus: Fetal death.

Developmental Toxicity - Mouse - Oral
Effects on Embryo or Fetus: Fetotoxicity (except death, e.g., stunted fetus). Effects on Embryo or Fetus: Fetal death.

Specific target organ toxicity - single exposure
No data available

Specific target organ toxicity - repeated exposure
May cause damage to organs through prolonged or repeated exposure.

Aspiration hazard
No data available

Additional Information
RTECS: OF7525000

anemia

Stomach - Irregularities - Based on Human Evidence
Stomach - Irregularities - Based on Human Evidence

12. ECOLOGICAL INFORMATION

12.1 Toxicity

Toxicity to fish	mortality LOEC - Oncorhynchus mykiss (rainbow trout) - 1.19 mg/l - 96.0 h
	LC50 - Micropterus dolomieui - 2.2 mg/l - 96.0 h
	mortality NOEC - Salvelinus fontinalis - 1.7 mg/l - 10.0 d
Toxicity to daphnia and other aquatic invertebrates	mortality LOEC - Daphnia (water flea) - 0.17 mg/l - 24 h
	mortality NOEC - Daphnia (water flea) - 0.099 mg/l - 24 h
Toxicity to algae	mortality EC50 - Skeletonema costatum - 7.94 mg/l - 10 d

12.2 Persistence and degradability
No data available

12.3 Bioaccumulative potential
Bioaccumulation: Oncorhynchus kisutch - 2 Weeks - 150 µg/l

Bioconcentration factor (BCF): 12

12.4 Mobility in soil
No data available

12.5 Results of PBT and vPvB assessment
PBT/vPvB assessment not available as chemical safety assessment not required/not conducted

12.6 Other adverse effects
An environmental hazard cannot be excluded in the event of unprofessional handling or disposal.
Very toxic to aquatic life with long lasting effects.

13. DISPOSAL CONSIDERATIONS

13.1 Waste treatment methods

Product
Offer surplus and non-recyclable solutions to a licensed disposal company. Contact a licensed professional waste disposal service to dispose of this material. Dissolve or mix the material with a combustible solvent and burn in a chemical incinerator equipped with an afterburner and scrubber.

Contaminated packaging
Dispose of as unused product.

14. TRANSPORT INFORMATION

DOT (US)
UN number: 3077 Class: 9 Packing group: III
Proper shipping name: Environmentally hazardous substances, solid, n.o.s. (Lead)
Reportable Quantity (RQ): 10 lbs

Poison Inhalation Hazard: No

IMDG
UN number: 3077 Class: 9 Packing group: III EMS-No: F-A, S-F
Proper shipping name: ENVIRONMENTALLY HAZARDOUS SUBSTANCE, SOLID, N.O.S. (Lead)
Marine pollutant:yes
IATA
UN number: 3077 Class: 9 Packing group: III
Proper shipping name: Environmentally hazardous substance, solid, n.o.s. (Lead)

Further information
EHS-Mark required (ADR 2.2.9.1.10, IMDG code 2.10.3) for single packagings and combination packagings containing inner packagings with Dangerous Goods > 5L for liquids or > 5kg for solids.

15. REGULATORY INFORMATION

SARA 302 Components
No chemicals in this material are subject to the reporting requirements of SARA Title III, Section 302.

SARA 313 Components
The following components are subject to reporting levels established by SARA Title III, Section 313:

	CAS-No.	Revision Date
Lead	7439-92-1	1994-04-01

SARA 311/312 Hazards
Acute Health Hazard, Chronic Health Hazard

Massachusetts Right To Know Components

	CAS-No.	Revision Date
Lead	7439-92-1	1994-04-01

Pennsylvania Right To Know Components

	CAS-No.	Revision Date
Lead	7439-92-1	1994-04-01

New Jersey Right To Know Components

	CAS-No.	Revision Date
Lead	7439-92-1	1994-04-01

California Prop. 65 Components

WARNING! This product contains a chemical known to the State of California to cause cancer. Lead	CAS-No. 7439-92-1	Revision Date 1989-07-10
WARNING: This product contains a chemical known to the State of California to cause birth defects or other reproductive harm. Lead	CAS-No. 7439-92-1	Revision Date 1989-07-10

16. OTHER INFORMATION

Full text of H-Statements referred to under sections 2 and 3.

Acute Tox.	Acute toxicity
Aquatic Acute	Acute aquatic toxicity
Aquatic Chronic	Chronic aquatic toxicity
Carc.	Carcinogenicity
H302	Harmful if swallowed.
H351	Suspected of causing cancer.
H361	Suspected of damaging fertility or the unborn child.
H373	May cause damage to organs through prolonged or repeated exposure.

H400	Very toxic to aquatic life.
H410	Very toxic to aquatic life with long lasting effects.

HMIS Rating

Health hazard:	1
Chronic Health Hazard:	*
Flammability:	0
Physical Hazard	0

NFPA Rating

Health hazard:	1
Fire Hazard:	0
Reactivity Hazard:	0

Further information

Copyright 2015 Sigma-Aldrich Co. LLC. License granted to make unlimited paper copies for internal use only.
The above information is believed to be correct but does not purport to be all inclusive and shall be used only as a guide. The information in this document is based on the present state of our knowledge and is applicable to the product with regard to appropriate safety precautions. It does not represent any guarantee of the properties of the product. Sigma-Aldrich Corporation and its Affiliates shall not be held liable for any damage resulting from handling or from contact with the above product. See www.sigma-aldrich.com and/or the reverse side of invoice or packing slip for additional terms and conditions of sale.

Preparation Information

Sigma-Aldrich Corporation
Product Safety – Americas Region
1-800-521-8956

Version: 4.7 Revision Date: 12/29/2015 Print Date: 02/07/2016

SAFETY DATA SHEET

Version 5.7
Revision Date 05/27/2015
Print Date 02/23/2016

1. PRODUCT AND COMPANY IDENTIFICATION

1.1 Product identifiers

Product name : Lindane

Product Number : 233390
Brand : Aldrich
Index-No. : 602-043-00-6

CAS-No. : 58-89-9

1.2 Relevant identified uses of the substance or mixture and uses advised against

Identified uses : Laboratory chemicals, Manufacture of substances

1.3 Details of the supplier of the safety data sheet

Company : Sigma-Aldrich
3050 Spruce Street
SAINT LOUIS MO 63103
USA

Telephone : +1 800-325-5832
Fax : +1 800-325-5052

1.4 Emergency telephone number

Emergency Phone # : (314) 776-6555

2. HAZARDS IDENTIFICATION

2.1 Classification of the substance or mixture

GHS Classification in accordance with 29 CFR 1910 (OSHA HCS)
Acute toxicity, Oral (Category 3), H301
Acute toxicity, Inhalation (Category 4), H332
Acute toxicity, Dermal (Category 4), H312
Carcinogenicity (Category 2), H351
Effects on or via lactation, H362
Specific target organ toxicity - repeated exposure (Category 2), H373
Acute aquatic toxicity (Category 1), H400
Chronic aquatic toxicity (Category 1), H410

For the full text of the H-Statements mentioned in this Section, see Section 16.

2.2 GHS Label elements, including precautionary statements

Pictogram



Signal word Danger

Hazard statement(s)

H301	Toxic if swallowed.
H312 + H332	Harmful in contact with skin or if inhaled
H351	Suspected of causing cancer.
H362	May cause harm to breast-fed children.
H373	May cause damage to organs through prolonged or repeated exposure.
H410	Very toxic to aquatic life with long lasting effects.

Precautionary statement(s)

P201	Obtain special instructions before use.
P202	Do not handle until all safety precautions have been read and understood.
P260	Do not breathe dust/ fume/ gas/ mist/ vapours/ spray.
P263	Avoid contact during pregnancy/ while nursing.
P264	Wash skin thoroughly after handling.
P270	Do not eat, drink or smoke when using this product.
P271	Use only outdoors or in a well-ventilated area.
P273	Avoid release to the environment.
P280	Wear protective gloves/ protective clothing/ eye protection/ face protection.
P301 + P310 + P330	IF SWALLOWED: Immediately call a POISON CENTER or doctor/ physician. Rinse mouth.
P302 + P352 + P312	IF ON SKIN: Wash with plenty of soap and water. Call a POISON CENTER or doctor/ physician if you feel unwell.
P304 + P340 + P312	IF INHALED: Remove person to fresh air and keep comfortable for breathing. Call a POISON CENTER or doctor/ physician if you feel unwell.
P308 + P313	IF exposed or concerned: Get medical advice/ attention.
P363	Wash contaminated clothing before reuse.
P391	Collect spillage.
P405	Store locked up.
P501	Dispose of contents/ container to an approved waste disposal plant.

2.3 Hazards not otherwise classified (HNOC) or not covered by GHS - none

3. COMPOSITION/INFORMATION ON INGREDIENTS

3.1 Substances

Synonyms	:	1α,2α,3β,4α,5α,6β-Hexachlorocyclohexane γ-BHC
Formula	:	$C_6H_6Cl_6$
Molecular weight	:	290.83 g/mol
CAS-No.	:	58-89-9
EC-No.	:	200-401-2
Index-No.	:	602-043-00-6

Hazardous components

Component	Classification	Concentration
γ-1,2,3,4,5,6-Hexachlorocyclohexane		
	Acute Tox. 3; Acute Tox. 4; Carc. 2; Lact. ; STOT RE 2; Aquatic Acute 1; Aquatic Chronic 1; H301, H312 + H332, H351, H362, H373, H410	<= 100 %

For the full text of the H-Statements mentioned in this Section, see Section 16.

4. FIRST AID MEASURES

4.1 Description of first aid measures

General advice
Consult a physician. Show this safety data sheet to the doctor in attendance.Move out of dangerous area.

If inhaled
If breathed in, move person into fresh air. If not breathing, give artificial respiration. Consult a physician.

In case of skin contact
Wash off with soap and plenty of water. Take victim immediately to hospital. Consult a physician.

In case of eye contact
Flush eyes with water as a precaution.

If swallowed
Never give anything by mouth to an unconscious person. Rinse mouth with water. Consult a physician.

4.2 Most important symptoms and effects, both acute and delayed
The most important known symptoms and effects are described in the labelling (see section 2.2) and/or in section 11

4.3 Indication of any immediate medical attention and special treatment needed
No data available

5. FIREFIGHTING MEASURES

5.1 Extinguishing media

Suitable extinguishing media
Use water spray, alcohol-resistant foam, dry chemical or carbon dioxide.

5.2 Special hazards arising from the substance or mixture
Carbon oxides, Hydrogen chloride gas

5.3 Advice for firefighters
Wear self-contained breathing apparatus for firefighting if necessary.

5.4 Further information
No data available

6. ACCIDENTAL RELEASE MEASURES

6.1 Personal precautions, protective equipment and emergency procedures
Wear respiratory protection. Avoid dust formation. Avoid breathing vapours, mist or gas. Ensure adequate ventilation. Evacuate personnel to safe areas. Avoid breathing dust.
For personal protection see section 8.

6.2 Environmental precautions
Prevent further leakage or spillage if safe to do so. Do not let product enter drains. Discharge into the environment must be avoided.

6.3 Methods and materials for containment and cleaning up
Pick up and arrange disposal without creating dust. Sweep up and shovel. Keep in suitable, closed containers for disposal.

6.4 Reference to other sections
For disposal see section 13.

7. HANDLING AND STORAGE

7.1 Precautions for safe handling
Avoid contact with skin and eyes. Avoid formation of dust and aerosols.Further processing of solid materials may result in the formation of combustible dusts. The potential for combustible dust formation should be taken into consideration before additional processing occurs.
Provide appropriate exhaust ventilation at places where dust is formed.
For precautions see section 2.2.

7.2 Conditions for safe storage, including any incompatibilities
Keep container tightly closed in a dry and well-ventilated place.
Storage class (TRGS 510): Non-combustible, acute toxic Cat.3 / toxic hazardous materials or hazardous materials causing chronic effects

7.3 Specific end use(s)
Apart from the uses mentioned in section 1.2 no other specific uses are stipulated

8. EXPOSURE CONTROLS/PERSONAL PROTECTION

8.1 Control parameters

Components with workplace control parameters

Component	CAS-No.	Value	Control parameters	Basis
γ-1,2,3,4,5,6-Hexachlorocyclohexane	58-89-9	TWA	0.500000 mg/m3	USA. ACGIH Threshold Limit Values (TLV)
	Remarks	Central Nervous System impairment Liver damage Confirmed animal carcinogen with unknown relevance to humans Danger of cutaneous absorption		
		TWA	0.500000 mg/m3	USA. NIOSH Recommended Exposure Limits
		Potential for dermal absorption		
		TWA	0.500000 mg/m3	USA. Occupational Exposure Limits (OSHA) - Table Z-1 Limits for Air Contaminants
		Skin designation		

8.2 Exposure controls

Appropriate engineering controls
Avoid contact with skin, eyes and clothing. Wash hands before breaks and immediately after handling the product.

Personal protective equipment

Eye/face protection
Face shield and safety glasses Use equipment for eye protection tested and approved under appropriate government standards such as NIOSH (US) or EN 166(EU).

Skin protection
Handle with gloves. Gloves must be inspected prior to use. Use proper glove removal technique (without touching glove's outer surface) to avoid skin contact with this product. Dispose of contaminated gloves after use in accordance with applicable laws and good laboratory practices. Wash and dry hands.

Full contact
Material: Nitrile rubber
Minimum layer thickness: 0.11 mm
Break through time: 480 min
Material tested:Dermatril® (KCL 740 / Aldrich Z677272, Size M)

Splash contact
Material: Nitrile rubber
Minimum layer thickness: 0.11 mm
Break through time: 480 min
Material tested:Dermatril® (KCL 740 / Aldrich Z677272, Size M)

data source: KCL GmbH, D-36124 Eichenzell, phone +49 (0)6659 87300, e-mail sales@kcl.de, test method: EN374
If used in solution, or mixed with other substances, and under conditions which differ from EN 374, contact the supplier of the CE approved gloves. This recommendation is advisory only and must be evaluated by an industrial hygienist and safety officer familiar with the specific situation of anticipated use by our customers. It should not be construed as offering an approval for any specific use scenario.

Body Protection
Complete suit protecting against chemicals, The type of protective equipment must be selected according to the concentration and amount of the dangerous substance at the specific workplace.

Respiratory protection
Where risk assessment shows air-purifying respirators are appropriate use a full-face particle respirator type N100 (US) or type P3 (EN 143) respirator cartridges as a backup to engineering controls. If the respirator is the sole means of protection, use a full-face supplied air respirator. Use respirators and components tested and approved under appropriate government standards such as NIOSH (US) or CEN (EU).

Control of environmental exposure
Prevent further leakage or spillage if safe to do so. Do not let product enter drains. Discharge into the environment must be avoided.

9. PHYSICAL AND CHEMICAL PROPERTIES

9.1 Information on basic physical and chemical properties

a)	Appearance	Form: solid
b)	Odour	No data available
c)	Odour Threshold	No data available
d)	pH	No data available
e)	Melting point/freezing point	Melting point/range: 113 - 115 °C (235 - 239 °F) - lit.
f)	Initial boiling point and boiling range	No data available
g)	Flash point	No data available
h)	Evaporation rate	No data available
i)	Flammability (solid, gas)	No data available
j)	Upper/lower flammability or explosive limits	No data available
k)	Vapour pressure	No data available
l)	Vapour density	No data available
m)	Relative density	1.85 g/cm3
n)	Water solubility	8.35 g/l at 25 °C (77 °F)
o)	Partition coefficient: n-octanol/water	Pow: 3.5 at 22 °C (72 °F)
p)	Auto-ignition temperature	No data available
q)	Decomposition temperature	No data available
r)	Viscosity	No data available
s)	Explosive properties	No data available
t)	Oxidizing properties	No data available

9.2 Other safety information

No data available

10. STABILITY AND REACTIVITY

10.1 Reactivity

No data available

10.2 Chemical stability

Stable under recommended storage conditions.

10.3 Possibility of hazardous reactions

No data available

10.4 Conditions to avoid

No data available

10.5 Incompatible materials

Strong oxidizing agents

10.6 Hazardous decomposition products

Other decomposition products - No data available
In the event of fire: see section 5

11. TOXICOLOGICAL INFORMATION

11.1 Information on toxicological effects

Acute toxicity
LD50 Oral - Rat - 88.0 mg/kg

LC50 Inhalation - Rat - 4 h - 1,560 mg/m3

Dermal: No data available

No data available

Skin corrosion/irritation
Skin - Rabbit
Result: No skin irritation

Serious eye damage/eye irritation
Eyes - Rabbit
Result: No eye irritation

Respiratory or skin sensitisation
Will not occur

Germ cell mutagenicity
No data available

Carcinogenicity

IARC:	2B - Group 2B: Possibly carcinogenic to humans (γ-1,2,3,4,5,6-Hexachlorocyclohexane)
NTP:	Reasonably anticipated to be a human carcinogenThe reference note has been added by TD based on the background information of the NTP. (γ-1,2,3,4,5,6-Hexachlorocyclohexane)
OSHA:	No component of this product present at levels greater than or equal to 0.1% is identified as a carcinogen or potential carcinogen by OSHA.

Reproductive toxicity
Effects on or via lactation

No data available

Specific target organ toxicity - single exposure
No data available

Specific target organ toxicity - repeated exposure
No data available

Aspiration hazard
No data available

Additional Information
RTECS: GV4900000

Neurotoxic effects., Cyanosis, Headache, Nausea, Incoordination., Tremors, Vomiting, Dizziness, Seizures., Unconsciousness

Reproductive system. - Irregularities - Based on Human Evidence
Reproductive system. - Irregularities - Based on Human Evidence

12. ECOLOGICAL INFORMATION

12.1 Toxicity

Toxicity to fish	LC50 - Cyprinus carpio (Carp) - 0.2 mg/l - 96.0 h
	LC50 - Cyprinodon variegatus (sheepshead minnow) - 0.9 - 1.3 mg/l - 96.0 h
	LC50 - Oncorhynchus mykiss (rainbow trout) - 0.03 - 0.28 mg/l - 48.0 h
	NOEC - Oncorhynchus mykiss (rainbow trout) - 0.056 mg/l - 3.0 d
	LC50 - Oncorhynchus mykiss (rainbow trout) - 0.038 mg/l - 96.0 h

	LOEC - Oncorhynchus mykiss (rainbow trout) - 0.1 mg/l - 3.0 d
Toxicity to daphnia and other aquatic invertebrates	EC50 - Daphnia magna (Water flea) - 0.80 - 6.50 mg/l - 48 h
	LOEC - Daphnia (water flea) - 0.021 mg/l - 7 d
Toxicity to algae	EC50 - Algae - 4.00 mg/l - 72 h

12.2 Persistence and degradability
No data available

12.3 Bioaccumulative potential

Bioaccumulation	Pimephales promelas (fathead minnow) - 304 d - 0.0091 mg/l
	Bioconcentration factor (BCF): 674

12.4 Mobility in soil
No data available

12.5 Results of PBT and vPvB assessment
PBT/vPvB assessment not available as chemical safety assessment not required/not conducted

12.6 Other adverse effects
Very toxic to aquatic life with long lasting effects.
An environmental hazard cannot be excluded in the event of unprofessional handling or disposal.

13. DISPOSAL CONSIDERATIONS

13.1 Waste treatment methods

Product
Offer surplus and non-recyclable solutions to a licensed disposal company. Contact a licensed professional waste disposal service to dispose of this material. Dissolve or mix the material with a combustible solvent and burn in a chemical incinerator equipped with an afterburner and scrubber.

Contaminated packaging
Dispose of as unused product.

14. TRANSPORT INFORMATION

DOT (US)
UN number: 2811 Class: 6.1 Packing group: III
Proper shipping name: Toxic solids, organic, n.o.s. (γ-1,2,3,4,5,6-Hexachlorocyclohexane)
Reportable Quantity (RQ): 1 lbs
Marine pollutant:yes
Poison Inhalation Hazard: No

IMDG
UN number: 2811 Class: 6.1 Packing group: III EMS-No: F-A, S-A
Proper shipping name: TOXIC SOLID, ORGANIC, N.O.S. (γ-1,2,3,4,5,6-Hexachlorocyclohexane)
Marine pollutant:yes

IATA
UN number: 2811 Class: 6.1 Packing group: III
Proper shipping name: Toxic solid, organic, n.o.s. (γ-1,2,3,4,5,6-Hexachlorocyclohexane)

15. REGULATORY INFORMATION

SARA 302 Components
The following components are subject to reporting levels established by SARA Title III, Section 302:

	CAS-No.	Revision Date
γ-1,2,3,4,5,6-Hexachlorocyclohexane	58-89-9	2007-07-01

SARA 313 Components
The following components are subject to reporting levels established by SARA Title III, Section 313:

	CAS-No.	Revision Date
γ-1,2,3,4,5,6-Hexachlorocyclohexane	58-89-9	2007-07-01

SARA 311/312 Hazards
Acute Health Hazard, Chronic Health Hazard

Massachusetts Right To Know Components

	CAS-No.	Revision Date
γ-1,2,3,4,5,6-Hexachlorocyclohexane	58-89-9	2007-07-01

Pennsylvania Right To Know Components

	CAS-No.	Revision Date
γ-1,2,3,4,5,6-Hexachlorocyclohexane	58-89-9	2007-07-01

New Jersey Right To Know Components

	CAS-No.	Revision Date
γ-1,2,3,4,5,6-Hexachlorocyclohexane	58-89-9	2007-07-01

California Prop. 65 Components

WARNING! This product contains a chemical known to the State of California to cause cancer.	CAS-No.	Revision Date
γ-1,2,3,4,5,6-Hexachlorocyclohexane	58-89-9	2009-02-01

16. OTHER INFORMATION

Full text of H-Statements referred to under sections 2 and 3.

Acute Tox.	Acute toxicity
Aquatic Acute	Acute aquatic toxicity
Aquatic Chronic	Chronic aquatic toxicity
Carc.	Carcinogenicity
H301	Toxic if swallowed.
H312	Harmful in contact with skin.
H312 + H332	Harmful in contact with skin or if inhaled
H332	Harmful if inhaled.
H351	Suspected of causing cancer.
H362	May cause harm to breast-fed children.
H373	May cause damage to organs through prolonged or repeated exposure.

HMIS Rating

Health hazard:	2
Chronic Health Hazard:	*
Flammability:	0
Physical Hazard	0

NFPA Rating

Health hazard:	2
Fire Hazard:	0
Reactivity Hazard:	0

Further information

Copyright 2015 Sigma-Aldrich Co. LLC. License granted to make unlimited paper copies for internal use only.
The above information is believed to be correct but does not purport to be all inclusive and shall be used only as a guide. The information in this document is based on the present state of our knowledge and is applicable to the product with regard to appropriate safety precautions. It does not represent any guarantee of the properties of the product. Sigma-Aldrich Corporation and its Affiliates shall not be held liable for any damage resulting from handling or from contact with the above product. See www.sigma-aldrich.com and/or the reverse side of invoice or packing slip for additional terms and conditions of sale.

Preparation Information
Sigma-Aldrich Corporation
Product Safety – Americas Region
1-800-521-8956

Version: 5.7 Revision Date: 05/27/2015 Print Date: 02/23/2016

SAFETY DATA SHEET

Version 6.6
Revision Date 09/06/2024
Print Date 09/07/2024

SECTION 1: Identification of the substance/mixture and of the company/undertaking

1.1 Product identifiers

Product name : Magnesium

Product Number : 266302
Brand : Sigma-Aldrich
Index-No. : 012-002-00-9
CAS-No. : 7439-95-4

1.2 Relevant identified uses of the substance or mixture and uses advised against

Identified uses : Laboratory chemicals, Synthesis of substances

Uses advised against : The product is being supplied under the TSCA R&D Exemption (40 CFR Section 720.36). It is the recipient's responsibility to comply with the requirements of the R&D exemption. The product may not be used for a non-exempt commercial purpose under TSCA unless appropriate consent is granted in writing by MilliporeSigma.

1.3 Details of the supplier of the safety data sheet

Company : Sigma-Aldrich Inc.
3050 SPRUCE ST
ST. LOUIS MO 63103
UNITED STATES

Telephone : +1 314 771-5765
Fax : +1 800 325-5052

1.4 Emergency telephone

Emergency Phone # : 800-424-9300 CHEMTREC (USA) +1-703-527-3887 CHEMTREC (International) 24 Hours/day; 7 Days/week

SECTION 2: Hazards identification

2.1 Classification of the substance or mixture

GHS Classification in accordance with 29 CFR 1910 (OSHA HCS)

Flammable solids (Category 1), H228
Self-heating chemicals (Category 1), H251
Chemicals which, in contact with water, emit flammable gases (Category 2), H261

The life science business of Merck KGaA, Darmstadt, Germany
operates as MilliporeSigma in the US and Canada

For the full text of the H-Statements mentioned in this Section, see Section 16.

2.2 GHS Label elements, including precautionary statements

Pictogram



Signal Word	Danger

Hazard Statements

H228	Flammable solid.
H251	Self-heating; may catch fire.
H261	In contact with water releases flammable gas.

Precautionary Statements

P210	Keep away from heat/ sparks/ open flames/ hot surfaces. No smoking.
P223	Do not allow contact with water.
P231 + P232	Handle under inert gas. Protect from moisture.
P235 + P410	Keep cool. Protect from sunlight.
P240	Ground/bond container and receiving equipment.
P241	Use explosion-proof electrical/ ventilating/ lighting/ equipment.
P280	Wear protective gloves/ eye protection/ face protection.
P335 + P334	Brush off loose particles from skin. Immerse in cool water/ wrap in wet bandages.
P370 + P378	In case of fire: Use dry sand, dry chemical or alcohol-resistant foam to extinguish.
P402 + P404	Store in a dry place. Store in a closed container.
P403 + P235	Store in a well-ventilated place. Keep cool.
P407	Maintain air gap between stacks/ pallets.
P420	Store away from other materials.
P501	Dispose of contents/ container to an approved waste disposal plant.

2.3 Hazards not otherwise classified (HNOC) or not covered by GHS

Combustible dust

SECTION 3: Composition/information on ingredients

3.1 Substances

Formula	:	Mg
Molecular weight	:	24.31 g/mol
CAS-No.	:	7439-95-4
EC-No.	:	231-104-6
Index-No.	:	012-002-00-9

No components need to be disclosed according to the applicable regulations.

For the full text of the H-Statements mentioned in this Section, see Section 16.

The life science business of Merck KGaA, Darmstadt, Germany
operates as MilliporeSigma in the US and Canada

SECTION 4: First aid measures

4.1 Description of first-aid measures

General advice
Show this material safety data sheet to the doctor in attendance.

If inhaled
After inhalation: fresh air.

In case of skin contact
In case of skin contact: Take off immediately all contaminated clothing. Rinse skin with water/ shower.

In case of eye contact
After eye contact: rinse out with plenty of water. Remove contact lenses.

If swallowed
After swallowing: make victim drink water (two glasses at most). Consult doctor if feeling unwell.

4.2 Most important symptoms and effects, both acute and delayed

The most important known symptoms and effects are described in the labelling (see section 2.2) and/or in section 11

4.3 Indication of any immediate medical attention and special treatment needed

No data available

SECTION 5: Firefighting measures

5.1 Extinguishing media

Suitable extinguishing media
Special powder against metal fire Cover with dry sand or cement.

Unsuitable extinguishing media
Foam Water

5.2 Special hazards arising from the substance or mixture

Magnesium oxide
Not combustible.
May not get in touch with: Water
Ambient fire may liberate hazardous vapours.

5.3 Advice for firefighters

In the event of fire, wear self-contained breathing apparatus.

5.4 Further information

none

The life science business of Merck KGaA, Darmstadt, Germany
operates as MilliporeSigma in the US and Canada

SECTION 6: Accidental release measures

6.1 Personal precautions, protective equipment and emergency procedures

Advice for non-emergency personnel: Avoid inhalation of dusts. Avoid substance contact. Ensure adequate ventilation. Keep away from heat and sources of ignition. Evacuate the danger area, observe emergency procedures, consult an expert.
For personal protection see section 8.

6.2 Environmental precautions

Do not let product enter drains. Risk of explosion.

6.3 Methods and materials for containment and cleaning up

Observe possible material restrictions (see sections 7 and 10). Take up dry. Dispose of properly. Clean up affected area. Avoid generation of dusts.

6.4 Reference to other sections

For disposal see section 13.

SECTION 7: Handling and storage

7.1 Precautions for safe handling

Advice on safe handling
Keep workplace dry. Do not allow product to come into contact with water.

Advice on protection against fire and explosion
Keep away from open flames, hot surfaces and sources of ignition.Take precautionary measures against static discharge.

Hygiene measures
Change contaminated clothing. Wash hands after working with substance.
For precautions see section 2.2.

7.2 Conditions for safe storage, including any incompatibilities

Storage conditions
Tightly closed. Keep away from heat and sources of ignition.
Never allow product to get in contact with water during storage.

Storage class
Storage class (TRGS 510): 4.2: Pyrophoric and self-heating hazardous materials

7.3 Specific end use(s)

Apart from the uses mentioned in section 1.2 no other specific uses are stipulated

SECTION 8: Exposure controls/personal protection

8.1 Control parameters

Ingredients with workplace control parameters
Contains no substances with occupational exposure limit values.

The life science business of Merck KGaA, Darmstadt, Germany
operates as MilliporeSigma in the US and Canada

8.2 Exposure controls

Appropriate engineering controls
Change contaminated clothing. Wash hands after working with substance.

Personal protective equipment

Eye/face protection
Use equipment for eye protection tested and approved under appropriate government standards such as NIOSH (US) or EN 166(EU). Safety glasses

Skin protection
Handle with gloves. Gloves must be inspected prior to use. Use proper glove removal technique (without touching glove's outer surface) to avoid skin contact with this product. Dispose of contaminated gloves after use in accordance with applicable laws and good laboratory practices. Wash and dry hands.

Full contact
Material: Nitrile rubber
Minimum layer thickness: 0.11 mm
Break through time: 480 min
Material tested:Dermatril® (KCL 740 / Aldrich Z677272, Size M)

Splash contact
Material: Nitrile rubber
Minimum layer thickness: 0.11 mm
Break through time: 480 min
Material tested:Dermatril® (KCL 740 / Aldrich Z677272, Size M)

data source: KCL GmbH, D-36124 Eichenzell, phone +49 (0)6659 87300, e-mail sales@kcl.de, test method: EN374
If used in solution, or mixed with other substances, and under conditions which differ from EN 374, contact the supplier of the EC approved gloves. This recommendation is advisory only and must be evaluated by an industrial hygienist and safety officer familiar with the specific situation of anticipated use by our customers. It should not be construed as offering an approval for any specific use scenario.

Body Protection
Flame retardant antistatic protective clothing.

Respiratory protection
Recommended Filter type: Filter type P1
The entrepeneur has to ensure that maintenance, cleaning and testing of respiratory protective devices are carried out according to the instructions of the producer. These measures have to be properly documented.
required when dusts are generated.
Our recommendations on filtering respiratory protection are based on the following standards: DIN EN 143, DIN 14387 and other accompanying standards relating to the used respiratory protection system.

Control of environmental exposure
Do not let product enter drains. Risk of explosion.

The life science business of Merck KGaA, Darmstadt, Germany
operates as MilliporeSigma in the US and Canada

SECTION 9: Physical and chemical properties

9.1 Information on basic physical and chemical properties

a)	Appearance	Form: chips
b)	Odor	No data available
c)	Odor Threshold	No data available
d)	pH	No data available
e)	Melting point/freezing point	Melting point/ range: 648 °C (1198 °F) - lit.
f)	Initial boiling point and boiling range	1,090 °C 1,994 °F - lit.
g)	Flash point	()No data available
h)	Evaporation rate	No data available
i)	Flammability (solid, gas)	May form combustible dust concentrations in air.
j)	Upper/lower flammability or explosive limits	No data available
k)	Vapor pressure	1 hPa at 621 °C (1150 °F)
l)	Vapor density	No data available
m)	Density	1.74 g/mL at 25 °C (77 °F) - lit.
	Relative density	No data available
n)	Water solubility	No data available
o)	Partition coefficient: n-octanol/water	No data available
p)	Autoignition temperature	The substance or mixture is classified as self heating with the category 1.
q)	Decomposition temperature	No data available
r)	Viscosity	No data available
s)	Explosive properties	No data available
t)	Oxidizing properties	none

9.2 Other safety information

No data available

SECTION 10: Stability and reactivity

10.1 Reactivity

Self-heating; may catch fire.

The life science business of Merck KGaA, Darmstadt, Germany
operates as MilliporeSigma in the US and Canada

10.2 Chemical stability
The product is chemically stable under standard ambient conditions (room temperature) .

10.3 Possibility of hazardous reactions
Risk of ignition or formation of inflammable gases or vapours with:
Oxidizing agents
alkalines
Halogenated hydrocarbon
halogens
Alcohols
nitrates
acids
Water

10.4 Conditions to avoid
Exposure to moisture. Exposure to air.
Moisture.

10.5 Incompatible materials
No data available

10.6 Hazardous decomposition products
In the event of fire: see section 5

SECTION 11: Toxicological information

11.1 Information on toxicological effects

Acute toxicity
Oral: No data available
Inhalation: No data available
Dermal: No data available

Skin corrosion/irritation
Remarks: No data available

Serious eye damage/eye irritation
No data available

Respiratory or skin sensitization
No data available

Germ cell mutagenicity
No data available

Carcinogenicity

IARC: No ingredient of this product present at levels greater than or equal to 0.1% is identified as probable, possible or confirmed human carcinogen by IARC.

NTP: No ingredient of this product present at levels greater than or equal to 0.1% is identified as a known or anticipated carcinogen by NTP.

OSHA: No component of this product present at levels greater than or equal to 0.1% is on OSHA's list of regulated carcinogens.

The life science business of Merck KGaA, Darmstadt, Germany
operates as MilliporeSigma in the US and Canada

Reproductive toxicity
No data available

Specific target organ toxicity - single exposure
No data available

Specific target organ toxicity - repeated exposure
No data available

Aspiration hazard
No data available

11.2 Additional Information

burning sensation, Cough, wheezing, laryngitis, Shortness of breath, Headache, Nausea, Vomiting, chills, Fever, fatigue, muscle pain, joint pain, rash, Anorexia.
To the best of our knowledge, the chemical, physical, and toxicological properties have not been thoroughly investigated.

Liver - Irregularities - Based on Human Evidence

Liver - Irregularities - Based on Human Evidence

SECTION 12: Ecological information

12.1 Toxicity
No data available

12.2 Persistence and degradability
No data available

12.3 Bioaccumulative potential
No data available

12.4 Mobility in soil
No data available

12.5 Results of PBT and vPvB assessment
PBT/vPvB assessment not available as chemical safety assessment not required/not conducted

12.6 Endocrine disrupting properties
No data available

12.7 Other adverse effects
No data available

The life science business of Merck KGaA, Darmstadt, Germany
operates as MilliporeSigma in the US and Canada

SECTION 13: Disposal considerations

13.1 Waste treatment methods

Product
Waste material must be disposed of in accordance with the national and local regulations. Leave chemicals in original containers. No mixing with other waste. Handle uncleaned containers like the product itself.

SECTION 14: Transport information

DOT (US)
UN number: 1869 Class: 4.1 Packing group: III
Proper shipping name: Magnesium
Reportable Quantity (RQ):
Poison Inhalation Hazard: No

IMDG
UN number: 1869 Class: 4.1 Packing group: III EMS-No: F-G, S-G
Proper shipping name: MAGNESIUM

IATA
UN number: 1869 Class: 4.1 Packing group: III
Proper shipping name: Magnesium

SECTION 15: Regulatory information

CERCLA Reportable Quantity

This material does not contain any components with a CERCLA RQ.

SARA 304 Extremely Hazardous Substances Reportable Quantity

This material does not contain any components with a section 304 EHS RQ.

SARA 302 Extremely Hazardous Substances Threshold Planning Quantity

This material does not contain any components with a section 302 EHS TPQ.

SARA 311/312 Hazards	:	Fire Hazard Reactivity Hazard Chronic Health Hazard
SARA 313	:	This material does not contain any chemical components with known CAS numbers that exceed the threshold (De Minimis) reporting levels established by SARA Title III, Section 313.

US State Regulations

Massachusetts Right To Know

No components are subject to the Massachusetts Right to Know Act.

Maine Chemicals of High Concern

The life science business of Merck KGaA, Darmstadt, Germany
operates as MilliporeSigma in the US and Canada

Product does not contain any listed chemicals

Vermont Chemicals of High Concern

Product does not contain any listed chemicals

Washington Chemicals of High Concern

Product does not contain any listed chemicals

The ingredients of this product are reported in the following inventories:

TSCA : All substances listed as active on the TSCA inventory

TSCA list

No substances are subject to a Significant New Use Rule.

No substances are subject to TSCA 12(b) export notification requirements.

SECTION 16: Other information

Further information

The information is believed to be correct but is not exhaustive and will be used solely as a guideline, which is based on current knowledge of the chemical substance or mixture and is applicable to appropriate safety precautions for the product. It does not represent any guarantee of the properties of the product. Sigma-Aldrich Corporation and its Affiliates shall not be held liable for any damage resulting from handling or from contact with the above product. See www.sigma-aldrich.com and/or the reverse side of invoice or packing slip for additional terms and conditions of sale.

Copyright 2020 Sigma-Aldrich Co. LLC. License granted to make unlimited paper copies for internal use only.

The branding on the header and/or footer of this document may temporarily not visually match the product purchased as we transition our branding. However, all of the information in the document regarding the product remains unchanged and matches the product ordered. For further information please contact mlsbranding@sial.com.

Version: 6.6 Revision Date: 09/06/2024 Print Date: 09/07/2024

The life science business of Merck KGaA, Darmstadt, Germany
operates as MilliporeSigma in the US and Canada

SAFETY DATA SHEET

Version 4.6
Revision Date 03/02/2015
Print Date 02/07/2016

1. PRODUCT AND COMPANY IDENTIFICATION

1.1 Product identifiers

Product name : Manganese

Product Number : 463728
Brand : Aldrich

CAS-No. : 7439-96-5

1.2 Relevant identified uses of the substance or mixture and uses advised against

Identified uses : Laboratory chemicals, Manufacture of substances

1.3 Details of the supplier of the safety data sheet

Company : Sigma-Aldrich
3050 Spruce Street
SAINT LOUIS MO 63103
USA

Telephone : +1 800-325-5832
Fax : +1 800-325-5052

1.4 Emergency telephone number

Emergency Phone # : (314) 776-6555

2. HAZARDS IDENTIFICATION

2.1 Classification of the substance or mixture

GHS Classification in accordance with 29 CFR 1910 (OSHA HCS)
Substances and mixtures, which in contact with water, emit flammable gases (Category 1), H260
Acute aquatic toxicity (Category 3), H402
Chronic aquatic toxicity (Category 3), H412

For the full text of the H-Statements mentioned in this Section, see Section 16.

2.2 GHS Label elements, including precautionary statements

Pictogram



Signal word Danger

Hazard statement(s)
H260 In contact with water releases flammable gases which may ignite spontaneously.
H412 Harmful to aquatic life with long lasting effects.

Precautionary statement(s)
P223 Keep away from any possible contact with water, because of violent reaction and possible flash fire.
P231 + P232 Handle under inert gas. Protect from moisture.
P273 Avoid release to the environment.
P280 Wear protective gloves/ protective clothing/ eye protection/ face protection.
P335 + P334 Brush off loose particles from skin. Immerse in cool water/ wrap in wet bandages.

P370 + P378	In case of fire: Use dry sand, dry chemical or alcohol-resistant foam for extinction.
P402 + P404	Store in a dry place. Store in a closed container.
P501	Dispose of contents/ container to an approved waste disposal plant.

2.3 Hazards not otherwise classified (HNOC) or not covered by GHS - none

3. COMPOSITION/INFORMATION ON INGREDIENTS

3.1 Substances

Formula	:	Mn
Molecular weight	:	54.94 g/mol
CAS-No.	:	7439-96-5
EC-No.	:	231-105-1

Hazardous components

Component	Classification	Concentration
Manganese		
	Water-react. 1; Aquatic Acute 3; Aquatic Chronic 3; H260, H412	<= 100 %

For the full text of the H-Statements mentioned in this Section, see Section 16.

4. FIRST AID MEASURES

4.1 Description of first aid measures

General advice
Consult a physician. Show this safety data sheet to the doctor in attendance.Move out of dangerous area.

If inhaled
If breathed in, move person into fresh air. If not breathing, give artificial respiration. Consult a physician.

In case of skin contact
Wash off with soap and plenty of water. Consult a physician.

In case of eye contact
Rinse thoroughly with plenty of water for at least 15 minutes and consult a physician.

If swallowed
Never give anything by mouth to an unconscious person. Rinse mouth with water. Consult a physician.

4.2 Most important symptoms and effects, both acute and delayed
The most important known symptoms and effects are described in the labelling (see section 2.2) and/or in section 11

4.3 Indication of any immediate medical attention and special treatment needed
No data available

5. FIREFIGHTING MEASURES

5.1 Extinguishing media

Suitable extinguishing media
Dry powder Carbon dioxide (CO2)

Unsuitable extinguishing media
Water

5.2 Special hazards arising from the substance or mixture
Manganese/manganese oxides

5.3 Advice for firefighters
Wear self-contained breathing apparatus for firefighting if necessary.

5.4 Further information
No data available

6. ACCIDENTAL RELEASE MEASURES

6.1 Personal precautions, protective equipment and emergency procedures

Use personal protective equipment. Avoid dust formation. Avoid breathing vapours, mist or gas. Ensure adequate ventilation. Evacuate personnel to safe areas. Avoid breathing dust.
For personal protection see section 8.

6.2 Environmental precautions

Prevent further leakage or spillage if safe to do so. Do not let product enter drains. Discharge into the environment must be avoided.

6.3 Methods and materials for containment and cleaning up

Sweep up and shovel. Contain spillage, and then collect with an electrically protected vacuum cleaner or by wet-brushing and place in container for disposal according to local regulations (see section 13). Do not flush with water. Keep in suitable, closed containers for disposal.

6.4 Reference to other sections

For disposal see section 13.

7. HANDLING AND STORAGE

7.1 Precautions for safe handling

Avoid contact with skin and eyes. Avoid formation of dust and aerosols.
Provide appropriate exhaust ventilation at places where dust is formed.Keep away from sources of ignition - No smoking.
For precautions see section 2.2.

7.2 Conditions for safe storage, including any incompatibilities

Keep container tightly closed in a dry and well-ventilated place.
Never allow product to get in contact with water during storage.

Moisture sensitive. Keep in a dry place.

7.3 Specific end use(s)

Apart from the uses mentioned in section 1.2 no other specific uses are stipulated

8. EXPOSURE CONTROLS/PERSONAL PROTECTION

8.1 Control parameters

Components with workplace control parameters

Component	CAS-No.	Value	Control parameters	Basis
Manganese	7439-96-5	TWA	0.200000 mg/m3	USA. ACGIH Threshold Limit Values (TLV)
	Remarks	Central Nervous System impairment Adopted values or notations enclosed are those for which changes are proposed in the NIC See Notice of Intended Changes (NIC)		
		C	5 mg/m3	USA. Occupational Exposure Limits (OSHA) - Table Z-1 Limits for Air Contaminants
		Ceiling limit is to be determined from breathing-zone air samples.		
		C	5.000000 mg/m3	USA. Occupational Exposure Limits (OSHA) - Table Z-1 Limits for Air Contaminants
		Ceiling limit is to be determined from breathing-zone air samples.		

		TWA	1.000000 mg/m3	USA. NIOSH Recommended Exposure Limits
		ST	3.000000 mg/m3	USA. NIOSH Recommended Exposure Limits
		TWA	1.000000 mg/m3	USA. NIOSH Recommended Exposure Limits
		ST	3.000000 mg/m3	USA. NIOSH Recommended Exposure Limits
		C	5.000000 mg/m3	USA. Occupational Exposure Limits (OSHA) - Table Z-1 Limits for Air Contaminants
		Ceiling limit is to be determined from breathing-zone air samples.		
		TWA	1.000000 mg/m3	USA. NIOSH Recommended Exposure Limits
		ST	3.000000 mg/m3	USA. NIOSH Recommended Exposure Limits
		TWA	0.200000 mg/m3	USA. ACGIH Threshold Limit Values (TLV)
		Central Nervous System impairment Adopted values or notations enclosed are those for which changes are proposed in the NIC See Notice of Intended Changes (NIC) varies		
		TWA	0.100000 mg/m3	USA. ACGIH Threshold Limit Values (TLV)
		Central Nervous System impairment 2014 Adoption varies		
		TWA	0.020000 mg/m3	USA. ACGIH Threshold Limit Values (TLV)
		Central Nervous System impairment 2014 Adoption varies		
		TWA	0.1 mg/m3	USA. ACGIH Threshold Limit Values (TLV)
		Central Nervous System impairment varies		
		TWA	0.02 mg/m3	USA. ACGIH Threshold Limit Values (TLV)
		Central Nervous System impairment varies		

8.2 Exposure controls

Appropriate engineering controls
Handle in accordance with good industrial hygiene and safety practice. Wash hands before breaks and at the end of workday.

Personal protective equipment

Eye/face protection
Safety glasses with side-shields conforming to EN166 Use equipment for eye protection tested and approved under appropriate government standards such as NIOSH (US) or EN 166(EU).

Skin protection
Handle with gloves. Gloves must be inspected prior to use. Use proper glove removal technique (without touching glove's outer surface) to avoid skin contact with this product. Dispose of contaminated gloves after use in accordance with applicable laws and good laboratory practices. Wash and dry hands.

Body Protection
impervious clothing, Flame retardant protective clothing, The type of protective equipment must be selected according to the concentration and amount of the dangerous substance at the specific workplace.

Respiratory protection
Where risk assessment shows air-purifying respirators are appropriate use a full-face particle respirator type N100 (US) or type P3 (EN 143) respirator cartridges as a backup to engineering controls. If the respirator is the sole means of protection, use a full-face supplied air respirator. Use respirators and components tested and approved under appropriate government standards such as NIOSH (US) or CEN (EU).

Control of environmental exposure
Prevent further leakage or spillage if safe to do so. Do not let product enter drains. Discharge into the environment must be avoided.

9. PHYSICAL AND CHEMICAL PROPERTIES

9.1 Information on basic physical and chemical properties

a)	Appearance	Form: powder Colour: grey
b)	Odour	No data available
c)	Odour Threshold	No data available
d)	pH	No data available
e)	Melting point/freezing point	Melting point/range: 1,244 °C (2,271 °F) - lit.
f)	Initial boiling point and boiling range	1,962 °C (3,564 °F) - lit.
g)	Flash point	Not applicable
h)	Evaporation rate	No data available
i)	Flammability (solid, gas)	No data available
j)	Upper/lower flammability or explosive limits	No data available
k)	Vapour pressure	No data available
l)	Vapour density	No data available
m)	Relative density	7.3 g/mL at 25 °C (77 °F)
n)	Water solubility	No data available
o)	Partition coefficient: n-octanol/water	No data available
p)	Auto-ignition temperature	No data available
q)	Decomposition temperature	No data available
r)	Viscosity	No data available
s)	Explosive properties	No data available
t)	Oxidizing properties	No data available

9.2 Other safety information
No data available

10. STABILITY AND REACTIVITY

10.1 Reactivity
No data available

10.2 Chemical stability
Stable under recommended storage conditions.

10.3 Possibility of hazardous reactions
Reacts violently with water.

10.4 Conditions to avoid
Exposure to moisture

10.5 Incompatible materials
acids, Halogens, Bases, Phosphorus, Sulphur oxides, Peroxides

10.6 Hazardous decomposition products
Other decomposition products - No data available
In the event of fire: see section 5

11. TOXICOLOGICAL INFORMATION

11.1 Information on toxicological effects

Acute toxicity
LD50 Oral - Rat - 9,000 mg/kg

Inhalation: No data available

Dermal: No data available

No data available

Skin corrosion/irritation
Skin - Rabbit
Result: Mild skin irritation - 24 h

Serious eye damage/eye irritation
Eyes - Rabbit
Result: Mild eye irritation - 24 h

Respiratory or skin sensitisation
No data available

Germ cell mutagenicity
No data available

Carcinogenicity

Carcinogenicity - Rat - Intramuscular
Tumorigenic:Equivocal tumorigenic agent by RTECS criteria. Tumorigenic:Tumors at site or application.

IARC: No component of this product present at levels greater than or equal to 0.1% is identified as probable, possible or confirmed human carcinogen by IARC.

ACGIH: No component of this product present at levels greater than or equal to 0.1% is identified as a carcinogen or potential carcinogen by ACGIH.

NTP: No component of this product present at levels greater than or equal to 0.1% is identified as a known or anticipated carcinogen by NTP.

OSHA: No component of this product present at levels greater than or equal to 0.1% is identified as a carcinogen or potential carcinogen by OSHA.

Reproductive toxicity
No data available

May cause reproductive disorders.

Specific target organ toxicity - single exposure
No data available

Specific target organ toxicity - repeated exposure
No data available

Aspiration hazard
No data available

Additional Information
RTECS: OO9275000

Men exposed to manganese dusts showed a decrease in fertility. Chronic manganese poisoning primarily involves the central nervous system. Early symptoms include languor, sleepiness and weakness in the legs. A stolid mask-like appearance of the face, emotional disturbances such as uncontrollable laughter and a spastic gait with tendency to fall in walking are findings in more advanced cases. High incidence of pneumonia has been found in workers exposed to the dust or fume of some manganese compounds.

Stomach - Irregularities - Based on Human Evidence
Stomach - Irregularities - Based on Human Evidence

12. ECOLOGICAL INFORMATION

12.1 Toxicity

Toxicity to daphnia and other aquatic invertebrates	EC50 - Daphnia magna (Water flea) - 40 mg/l - 48 h

12.2 Persistence and degradability
No data available

12.3 Bioaccumulative potential
No data available

12.4 Mobility in soil
No data available

12.5 Results of PBT and vPvB assessment
PBT/vPvB assessment not available as chemical safety assessment not required/not conducted

12.6 Other adverse effects
An environmental hazard cannot be excluded in the event of unprofessional handling or disposal.
Harmful to aquatic life.

No data available

13. DISPOSAL CONSIDERATIONS

13.1 Waste treatment methods

Product
Burn in a chemical incinerator equipped with an afterburner and scrubber but exert extra care in igniting as this material is highly flammable. Offer surplus and non-recyclable solutions to a licensed disposal company. Contact a licensed professional waste disposal service to dispose of this material.

Contaminated packaging
Dispose of as unused product.

14. TRANSPORT INFORMATION

DOT (US)
UN number: 3208 Class: 4.3 Packing group: I
Proper shipping name: Metallic substance, water-reactive, n.o.s. (Manganese)

Poison Inhalation Hazard: No

IMDG
UN number: 3208 Class: 4.3 Packing group: I EMS-No: F-G, S-N
Proper shipping name: METALLIC SUBSTANCE, WATER-REACTIVE, N.O.S. (Manganese)

IATA
UN number: 3208 Class: 4.3 Packing group: I
Proper shipping name: Metallic substance, water-reactive, n.o.s. (Manganese)
IATA Passenger: Not permitted for transport

15. REGULATORY INFORMATION

SARA 302 Components
No chemicals in this material are subject to the reporting requirements of SARA Title III, Section 302.

SARA 313 Components

	CAS-No.	Revision Date
Manganese	7439-96-5	2007-07-01

SARA 311/312 Hazards
Reactivity Hazard, Chronic Health Hazard

Massachusetts Right To Know Components

	CAS-No.	Revision Date
Manganese	7439-96-5	2007-07-01

Pennsylvania Right To Know Components

	CAS-No.	Revision Date
Manganese	7439-96-5	2007-07-01

New Jersey Right To Know Components

	CAS-No.	Revision Date
Manganese	7439-96-5	2007-07-01

California Prop. 65 Components
This product does not contain any chemicals known to State of California to cause cancer, birth defects, or any other reproductive harm.

16. OTHER INFORMATION

Full text of H-Statements referred to under sections 2 and 3.

Aquatic Acute	Acute aquatic toxicity
Aquatic Chronic	Chronic aquatic toxicity
H260	In contact with water releases flammable gases which may ignite spontaneously.
H402	Harmful to aquatic life.
H412	Harmful to aquatic life with long lasting effects.

HMIS Rating

Health hazard:	0
Chronic Health Hazard:	*
Flammability:	3
Physical Hazard	2

NFPA Rating

Health hazard:	0
Fire Hazard:	0
Reactivity Hazard:	2
Special hazard.I:	W

Further information
Copyright 2015 Sigma-Aldrich Co. LLC. License granted to make unlimited paper copies for internal use only.
The above information is believed to be correct but does not purport to be all inclusive and shall be used only as a guide. The information in this document is based on the present state of our knowledge and is applicable to the product with regard to appropriate safety precautions. It does not represent any guarantee of the properties of the product. Sigma-Aldrich Corporation and its Affiliates shall not be held liable for any damage resulting from handling or from contact with the above product. See www.sigma-aldrich.com and/or the reverse side of invoice or packing slip for additional terms and conditions of sale.

Preparation Information
Sigma-Aldrich Corporation
Product Safety – Americas Region
1-800-521-8956

Version: 4.6 Revision Date: 03/02/2015 Print Date: 02/07/2016

SAFETY DATA SHEET

Version 6.12
Revision Date 07/27/2024
Print Date 07/28/2024

SECTION 1: Identification of the substance/mixture and of the company/undertaking

1.1 Product identifiers

Product name : *m*-Cresol

Product Number : W353000
Brand : Aldrich
Index-No. : 604-004-00-9
CAS-No. : 108-39-4

1.2 Relevant identified uses of the substance or mixture and uses advised against

Identified uses : Laboratory chemicals, Synthesis of substances

Uses advised against : The product is being supplied under the TSCA R&D Exemption (40 CFR Section 720.36). It is the recipient's responsibility to comply with the requirements of the R&D exemption. The product may not be used for a non-exempt commercial purpose under TSCA unless appropriate consent is granted in writing by MilliporeSigma.

1.3 Details of the supplier of the safety data sheet

Company : Sigma-Aldrich Inc.
3050 SPRUCE ST
ST. LOUIS MO 63103
UNITED STATES

Telephone : +1 314 771-5765
Fax : +1 800 325-5052

1.4 Emergency telephone

Emergency Phone # : 800-424-9300 CHEMTREC (USA) +1-703-527-3887 CHEMTREC (International) 24 Hours/day; 7 Days/week

SECTION 2: Hazards identification

2.1 Classification of the substance or mixture

GHS Classification in accordance with 29 CFR 1910 (OSHA HCS)

Flammable liquids (Category 4), H227
Acute toxicity, Oral (Category 3), H301
Acute toxicity, Dermal (Category 3), H311

The life science business of Merck KGaA, Darmstadt, Germany
operates as MilliporeSigma in the US and Canada

Skin corrosion (Category 1B), H314
Serious eye damage (Category 1), H318
Short-term (acute) aquatic hazard (Category 2), H401
Long-term (chronic) aquatic hazard (Category 3), H412

For the full text of the H-Statements mentioned in this Section, see Section 16.

2.2 GHS Label elements, including precautionary statements

Pictogram



Signal Word	Danger
Hazard Statements	
H227	Combustible liquid.
H301 + H311	Toxic if swallowed or in contact with skin.
H314	Causes severe skin burns and eye damage.
H401	Toxic to aquatic life.
H412	Harmful to aquatic life with long lasting effects.
Precautionary Statements	
P210	Keep away from heat/ sparks/ open flames/ hot surfaces. No smoking.
P264	Wash skin thoroughly after handling.
P270	Do not eat, drink or smoke when using this product.
P273	Avoid release to the environment.
P280	Wear protective gloves/ protective clothing/ eye protection/ face protection.
P301 + P310 + P330	IF SWALLOWED: Immediately call a POISON CENTER/ doctor. Rinse mouth.
P301 + P330 + P331	IF SWALLOWED: Rinse mouth. Do NOT induce vomiting.
P303 + P361 + P353	IF ON SKIN (or hair): Take off immediately all contaminated clothing. Rinse skin with water/ shower.
P304 + P340 + P310	IF INHALED: Remove person to fresh air and keep comfortable for breathing. Immediately call a POISON CENTER/ doctor.
P305 + P351 + P338 + P310	IF IN EYES: Rinse cautiously with water for several minutes. Remove contact lenses, if present and easy to do. Continue rinsing. Immediately call a POISON CENTER/ doctor.
P362	Take off contaminated clothing and wash before reuse.
P370 + P378	In case of fire: Use dry sand, dry chemical or alcohol-resistant foam to extinguish.
P403 + P235	Store in a well-ventilated place. Keep cool.
P405	Store locked up.
P501	Dispose of contents/ container to an approved waste disposal plant.

2.3 Hazards not otherwise classified (HNOC) or not covered by GHS - none

SECTION 3: Composition/information on ingredients

3.1 Substances

Synonyms : 3-Methylphenol

The life science business of Merck KGaA, Darmstadt, Germany
operates as MilliporeSigma in the US and Canada

Formula	:	C_7H_8O
Molecular weight	:	108.14 g/mol
CAS-No.	:	108-39-4
EC-No.	:	203-577-9
Index-No.	:	604-004-00-9

Component	Classification	Concentration
meta-Cresol		
	Flam. Liq. 4; Acute Tox. 3; Skin Corr. 1B; Eye Dam. 1; Aquatic Acute 2; Aquatic Chronic 3; H227, H301, H311, H314, H318, H401, H412	<= 100 %

For the full text of the H-Statements mentioned in this Section, see Section 16.

SECTION 4: First aid measures

4.1 Description of first-aid measures

General advice
First aiders need to protect themselves. Show this material safety data sheet to the doctor in attendance.

If inhaled
After inhalation: fresh air. Call in physician.

In case of skin contact
In case of skin contact: Take off immediately all contaminated clothing. Rinse skin with water/ shower. Call a physician immediately.

In case of eye contact
After eye contact: rinse out with plenty of water. Immediately call in ophthalmologist. Remove contact lenses.

If swallowed
If swallowed: give water to drink (two glasses at most). Seek medical advice immediately. In exceptional cases only, if medical care is not available within one hour, induce vomiting (only in persons who are wide awake and fully conscious), administer activated charcoal (20 - 40 g in a 10% slurry) and consult a doctor as quickly as possible. Do not attempt to neutralise.

4.2 Most important symptoms and effects, both acute and delayed
The most important known symptoms and effects are described in the labelling (see section 2.2) and/or in section 11

4.3 Indication of any immediate medical attention and special treatment needed
No data available

The life science business of Merck KGaA, Darmstadt, Germany
operates as MilliporeSigma in the US and Canada

SECTION 5: Firefighting measures

5.1 Extinguishing media

Suitable extinguishing media
Water Foam Carbon dioxide (CO2) Dry powder

Unsuitable extinguishing media
For this substance/mixture no limitations of extinguishing agents are given.

5.2 Special hazards arising from the substance or mixture

Carbon oxides
Combustible.
Vapors are heavier than air and may spread along floors.
Forms explosive mixtures with air on intense heating.
Development of hazardous combustion gases or vapours possible in the event of fire.

5.3 Advice for firefighters

Stay in danger area only with self-contained breathing apparatus. Prevent skin contact by keeping a safe distance or by wearing suitable protective clothing.

5.4 Further information

Remove container from danger zone and cool with water. Prevent fire extinguishing water from contaminating surface water or the ground water system.

SECTION 6: Accidental release measures

6.1 Personal precautions, protective equipment and emergency procedures

Advice for non-emergency personnel: Do not breathe vapors, aerosols. Avoid substance contact. Ensure adequate ventilation. Keep away from heat and sources of ignition.
Evacuate the danger area, observe emergency procedures, consult an expert.
For personal protection see section 8.

6.2 Environmental precautions

Do not let product enter drains.

6.3 Methods and materials for containment and cleaning up

Cover drains. Collect, bind, and pump off spills. Observe possible material restrictions (see sections 7 and 10). Take up carefully with liquid-absorbent material (e.g. Chemizorb®). Dispose of properly. Clean up affected area.

6.4 Reference to other sections

For disposal see section 13.

SECTION 7: Handling and storage

7.1 Precautions for safe handling

Advice on protection against fire and explosion
Keep away from open flames, hot surfaces and sources of ignition.Take precautionary measures against static discharge.

Hygiene measures

The life science business of Merck KGaA, Darmstadt, Germany
operates as MilliporeSigma in the US and Canada

Immediately change contaminated clothing. Apply preventive skin protection. Wash hands and face after working with substance.
For precautions see section 2.2.

7.2 Conditions for safe storage, including any incompatibilities

Storage conditions
Tightly closed. Keep in a well-ventilated place. Keep locked up or in an area accessible only to qualified or authorized persons.

Moisture sensitive.

Storage class
Storage class (TRGS 510): 6.1A: Combustible, acute toxic Cat. 1 and 2 / very toxic hazardous materials

7.3 Specific end use(s)
Apart from the uses mentioned in section 1.2 no other specific uses are stipulated

SECTION 8: Exposure controls/personal protection

8.1 Control parameters

Ingredients with workplace control parameters

Component	CAS-No.	Value	Control parameters	Basis
meta-Cresol	108-39-4	TWA	2.3 ppm 10 mg/m3	USA. NIOSH Recommended Exposure Limits
		TWA	5 ppm 22 mg/m3	USA. Occupational Exposure Limits (OSHA) - Table Z-1 Limits for Air Contaminants
	Remarks	Skin designation		
		TWA	20 mg/m3	USA. ACGIH Threshold Limit Values (TLV)
		Not classifiable as a human carcinogen Danger of cutaneous absorption		
		PEL	5 ppm 22 mg/m3	California permissible exposure limits for chemical contaminants (Title 8, Article 107)
		Skin		

8.2 Exposure controls

Appropriate engineering controls
Immediately change contaminated clothing. Apply preventive skin protection. Wash hands and face after working with substance.

The life science business of Merck KGaA, Darmstadt, Germany
operates as MilliporeSigma in the US and Canada

Personal protective equipment

Eye/face protection
Use equipment for eye protection tested and approved under appropriate government standards such as NIOSH (US) or EN 166(EU). Tightly fitting safety goggles

Skin protection
This recommendation applies only to the product stated in the safety data sheet, supplied by us and for the designated use. When dissolving in or mixing with other substances and under conditions deviating from those stated in EN 16523-1 please contact the supplier of CE-approved gloves (e.g. KCL GmbH, D-36124 Eichenzell, Internet: www.kcl.de).
Full contact
Material: Chloroprene
Minimum layer thickness: 0.65 mm
Break through time: 480 min
Material tested:KCL 720 Camapren®

This recommendation applies only to the product stated in the safety data sheet, supplied by us and for the designated use. When dissolving in or mixing with other substances and under conditions deviating from those stated in EN 16523-1 please contact the supplier of CE-approved gloves (e.g. KCL GmbH, D-36124 Eichenzell, Internet: www.kcl.de).
Splash contact
Material: Latex gloves
Minimum layer thickness: 0.6 mm
Break through time: 60 min
Material tested:Lapren® (KCL 706 / Aldrich Z677558, Size M)

Body Protection
protective clothing

Respiratory protection
Recommended Filter type: Filter A-(P3)
The entrepeneur has to ensure that maintenance, cleaning and testing of respiratory protective devices are carried out according to the instructions of the producer. These measures have to be properly documented.
required when vapours/aerosols are generated. Our recommendations on filtering respiratory protection are based on the following standards: DIN EN 143, DIN 14387 and other accompanying standards relating to the used respiratory protection system.

Control of environmental exposure
Do not let product enter drains.

SECTION 9: Physical and chemical properties

9.1 Information on basic physical and chemical properties

a)	Appearance	Form: liquid Color: colorless, light yellow
b)	Odor	phenol-like

The life science business of Merck KGaA, Darmstadt, Germany
operates as MilliporeSigma in the US and Canada

c)	Odor Threshold	No data available
d)	pH	No data available
e)	Melting point/freezing point	Melting point/ range: 8 - 10 °C (46 - 50 °F) - lit.
f)	Initial boiling point and boiling range	203 °C 397 °F - lit.
g)	Flash point	86 °C (187 °F) - closed cup
h)	Evaporation rate	No data available
i)	Flammability (solid, gas)	No data available
j)	Upper/lower flammability or explosive limits	Upper explosion limit: 1.35 %(V) Lower explosion limit: 1.06 %(V)
k)	Vapor pressure	< 1 hPa at 20 °C (68 °F)
l)	Vapor density	3.73 - (Air = 1.0)
m)	Density	1.034 g/cm3 at 25 °C (77 °F) - lit.
	Relative density	1.0320 °C
n)	Water solubility	22.7 g/l at 25 °C (77 °F)
o)	Partition coefficient: n-octanol/water	log Pow: 1.96 - Bioaccumulation is not expected.
p)	Autoignition temperature	559 °C (1038 °F) at 1,013 hPa
q)	Decomposition temperature	No data available
r)	Viscosity	No data available
s)	Explosive properties	Not classified as explosive.
t)	Oxidizing properties	none

9.2 Other safety information

Dissociation constant	10.09 at 25 °C (77 °F)
Relative vapor density	3.73 - (Air = 1.0)

SECTION 10: Stability and reactivity

10.1 Reactivity

Forms explosive mixtures with air on intense heating.
A range from approx. 15 Kelvin below the flash point is to be rated as critical.

10.2 Chemical stability

The product is chemically stable under standard ambient conditions (room temperature) .

The life science business of Merck KGaA, Darmstadt, Germany
operates as MilliporeSigma in the US and Canada

10.3 Possibility of hazardous reactions
Violent reactions possible with:
Strong oxidizing agents
Nitric acid
fuming sulfuric acid
chlorosulfonic acid
alkalines
Iron
Lead

10.4 Conditions to avoid
Strong heating.

10.5 Incompatible materials
No data available

10.6 Hazardous decomposition products
In the event of fire: see section 5

SECTION 11: Toxicological information

11.1 Information on toxicological effects

Acute toxicity
LD50 Oral - Rat - male - 242 mg/kg
(OECD Test Guideline 401)
Symptoms: If ingested, severe burns of the mouth and throat, as well as a danger of perforation of the esophagus and the stomach.
Symptoms: mucosal irritations, Cough, Shortness of breath, Possible damages:, damage of respiratory tract
Inhalation: Corrosive to respiratory system.
LD50 Dermal - Rabbit - 620 mg/kg
Remarks: Behavioral:Somnolence (general depressed activity).
Behavioral:Tetany.
(RTECS)

Skin corrosion/irritation
Skin - Rabbit
Result: Causes burns. - 24 h
Remarks: (ECHA)
Remarks: Classified according to Regulation (EU) 1272/2008, Annex VI (Table 3.1/3.2)

Serious eye damage/eye irritation
Remarks: Causes serious eye damage.

Respiratory or skin sensitization
No data available

Germ cell mutagenicity
Test Type: Ames test
Test system: Escherichia coli/Salmonella typhimurium
Metabolic activation: with and without metabolic activation
Method: OECD Test Guideline 471

The life science business of Merck KGaA, Darmstadt, Germany
operates as MilliporeSigma in the US and Canada

Result: negative
Test Type: Mutagenicity (mammal cell test): chromosome aberration.
Test system: Chinese hamster lung cells
Metabolic activation: with and without metabolic activation
Method: OECD Test Guideline 473
Result: positive
Test Type: In vitro mammalian cell gene mutation test
Test system: mouse lymphoma cells
Metabolic activation: with and without metabolic activation
Method: OECD Test Guideline 476
Result: negative

Test Type: Chromosome aberration test
Species: Mouse
Cell type: Bone marrow
Application Route: Oral
Method: OECD Test Guideline 475
Result: negative

Carcinogenicity

IARC: No ingredient of this product present at levels greater than or equal to 0.1% is identified as probable, possible or confirmed human carcinogen by IARC.

NTP: No ingredient of this product present at levels greater than or equal to 0.1% is identified as a known or anticipated carcinogen by NTP.

OSHA: No component of this product present at levels greater than or equal to 0.1% is on OSHA's list of regulated carcinogens.

Reproductive toxicity
No data available

Specific target organ toxicity - single exposure
No data available

Specific target organ toxicity - repeated exposure
No data available

Aspiration hazard
No data available

11.2 Additional Information

Repeated dose toxicity - Rat - male - Oral - 13 Weeks - NOAEL (No observed adverse effect level) - 50 mg/kg

RTECS: GO6125000
Material is extremely destructive to tissue of the mucous membranes and upper respiratory tract, eyes, and skin., Cough, Shortness of breath, Headache, Nausea
To the best of our knowledge, the chemical, physical, and toxicological properties have not been thoroughly investigated.

After absorption:

Systemic effects:

The life science business of Merck KGaA, Darmstadt, Germany
operates as MilliporeSigma in the US and Canada

Headache
Nausea
Vomiting
Dizziness
agitation, spasms
respiratory arrest
Unconsciousness

Damage to:

Central nervous system
Liver
Kidney

This substance should be handled with particular care.

Stomach - Irregularities - Based on Human Evidence

Stomach - Irregularities - Based on Human Evidence

SECTION 12: Ecological information

12.1 Toxicity

Toxicity to fish	static test LC50 - Salvelinus fontinalis - 7.6 mg/l - 96 h Remarks: (ECHA)
	static test LC50 - Oncorhynchus mykiss (rainbow trout) - 8.6 mg/l - 96 h Remarks: (ECHA)
	static test LC50 - Salmo trutta (brown trout) - 8.4 mg/l - 96 h Remarks: (ECHA)
Toxicity to daphnia and other aquatic invertebrates	flow-through test EC50 - Daphnia pulicaria - > 99.5 mg/l - 48 h (US-EPA)
Toxicity to fish(Chronic toxicity)	flow-through test NOEC - Pimephales promelas (fathead minnow) - 1.35 mg/l - 32 d (OECD Test Guideline 210) Remarks: The value is given in analogy to the following substances: p-cresol
Toxicity to daphnia and other aquatic invertebrates(Chronic toxicity)	semi-static test NOEC - Daphnia magna (Water flea) - 1 mg/l - 21 d Remarks: (ECHA) The value is given in analogy to the following substances: p-cresol

The life science business of Merck KGaA, Darmstadt, Germany
operates as MilliporeSigma in the US and Canada

12.2 Persistence and degradability

Biodegradability aerobic - Exposure time 10 d
Result: 96 % - Inherently biodegradable.
(OECD Test Guideline 302B)

12.3 Bioaccumulative potential

Bioaccumulation Leuciscus idus (Golden orfe) - 3 d
- 0.05 mg/l(meta-Cresol)

Bioconcentration factor (BCF): 17 - 20

12.4 Mobility in soil

No data available

12.5 Results of PBT and vPvB assessment

PBT/vPvB assessment not available as chemical safety assessment not required/not conducted

12.6 Endocrine disrupting properties

No data available

12.7 Other adverse effects

Biological effects:
Hazard for drinking water supplies.
Change in the flavour characteristics of fish protein.
Discharge into the environment must be avoided.

SECTION 13: Disposal considerations

13.1 Waste treatment methods

Product

Waste material must be disposed of in accordance with the national and local regulations. Leave chemicals in original containers. No mixing with other waste. Handle uncleaned containers like the product itself.

SECTION 14: Transport information

DOT (US)

UN number: 2076 Class: 6.1 (8) Packing group: II
Proper shipping name: Cresols, liquid
Reportable Quantity (RQ): 100 lbs
Reportable Quantity (RQ): 100 lbs
Poison Inhalation Hazard: No

IMDG

UN number: 2076 Class: 6.1 (8) Packing group: II EMS-No: F-A, S-B
Proper shipping name: CRESOLS, LIQUID

The life science business of Merck KGaA, Darmstadt, Germany
operates as MilliporeSigma in the US and Canada

IATA
UN number: 2076 Class: 6.1 (8) Packing group: II
Proper shipping name: Cresols, liquid

SECTION 15: Regulatory information

CERCLA Reportable Quantity

Components	CAS-No.	Component RQ (lbs)	Calculated product RQ (lbs)
meta-Cresol	108-39-4	100	100
meta-Cresol	108-39-4	100	100 (D024)

SARA 304 Extremely Hazardous Substances Reportable Quantity

This material does not contain any components with a section 304 EHS RQ.

SARA 302 Extremely Hazardous Substances Threshold Planning Quantity

This material does not contain any components with a section 302 EHS TPQ.

SARA 311/312 Hazards : Fire Hazard
Acute Health Hazard
Chronic Health Hazard

SARA 313 : The following components are subject to reporting levels established by SARA Title III, Section 313:

meta-Cresol 108-39-4 >= 90 - <= 100 %

Clean Air Act

This product neither contains, nor was manufactured with a Class I or Class II ODS as defined by the U.S. Clean Air Act Section 602 (40 CFR 82, Subpt. A, App.A + B).
The following chemical(s) are listed as HAP under the U.S. Clean Air Act, Section 112 (40 CFR 61):

meta-Cresol 108-39-4 >= 90 - <= 100 %

This product does not contain any chemicals listed under the U.S. Clean Air Act Section 112(r) for Accidental Release Prevention (40 CFR 68.130, Subpart F).
The following chemical(s) are listed under the U.S. Clean Air Act Section 111 SOCMI Intermediate or Final VOC's (40 CFR 60.489):

meta-Cresol 108-39-4 >= 90 - <= 100 %

Clean Water Act

The following Hazardous Substances are listed under the U.S. CleanWater Act, Section 311, Table 116.4A:

meta-Cresol 108-39-4 >= 90 - <= 100 %

This product does not contain any Hazardous Chemicals listed under the U.S. CleanWater Act, Section 311, Table 117.3.
This product does not contain any toxic pollutants listed under the U.S. Clean Water Act Section 307
This product does not contain any priority pollutants related to the U.S. Clean Water Act

The life science business of Merck KGaA, Darmstadt, Germany
operates as MilliporeSigma in the US and Canada

US State Regulations

Massachusetts Right To Know

meta-Cresol	108-39-4

Pennsylvania Right To Know

meta-Cresol	108-39-4

Maine Chemicals of High Concern

Product does not contain any listed chemicals

Vermont Chemicals of High Concern

Product does not contain any listed chemicals

Washington Chemicals of High Concern

Product does not contain any listed chemicals

The ingredients of this product are reported in the following inventories:

TSCA : All substances listed as active on the TSCA inventory

TSCA list

No substances are subject to a Significant New Use Rule.

No substances are subject to TSCA 12(b) export notification requirements.

SECTION 16: Other information

Further information

The information is believed to be correct but is not exhaustive and will be used solely as a guideline, which is based on current knowledge of the chemical substance or mixture and is applicable to appropriate safety precautions for the product. It does not represent any guarantee of the properties of the product. Sigma-Aldrich Corporation and its Affiliates shall not be held liable for any damage resulting from handling or from contact with the above product. See www.sigma-aldrich.com and/or the reverse side of invoice or packing slip for additional terms and conditions of sale.

Copyright 2020 Sigma-Aldrich Co. LLC. License granted to make unlimited paper copies for internal use only.

The branding on the header and/or footer of this document may temporarily not visually match the product purchased as we transition our branding. However, all of the information in the document regarding the product remains unchanged and matches the product ordered. For further information please contact mlsbranding@sial.com.

Version: 6.12 Revision Date: 07/27/2024 Print Date: 07/28/2024

The life science business of Merck KGaA, Darmstadt, Germany
operates as MilliporeSigma in the US and Canada

SAFETY DATA SHEET

Version 6.5
Revision Date 02/07/2023
Print Date 02/07/2023

SECTION 1: Identification of the substance/mixture and of the company/undertaking

1.1 Product identifiers

Product name : Mercury

Product Number : 215457
Brand : SIGALD
Index-No. : 080-001-00-0
CAS-No. : 7439-97-6

1.2 Relevant identified uses of the substance or mixture and uses advised against

Identified uses : Scientific research and development, Reagent for analysis

1.3 Details of the supplier of the safety data sheet

Company : Sigma-Aldrich Inc.
3050 SPRUCE ST
ST. LOUIS MO 63103
UNITED STATES

Telephone : +1 314 771-5765
Fax : +1 800 325-5052

1.4 Emergency telephone

Emergency Phone # : 800-424-9300 CHEMTREC (USA) +1-703-527-3887 CHEMTREC (International) 24 Hours/day; 7 Days/week

SECTION 2: Hazards identification

2.1 Classification of the substance or mixture

GHS Classification in accordance with 29 CFR 1910 (OSHA HCS)

Acute toxicity, Inhalation (Category 2), H330
Reproductive toxicity (Category 1B), H360
Specific target organ toxicity - repeated exposure (Category 1), H372
Short-term (acute) aquatic hazard (Category 1), H400
Long-term (chronic) aquatic hazard (Category 1), H410

For the full text of the H-Statements mentioned in this Section, see Section 16.

2.2 GHS Label elements, including precautionary statements

Pictogram



Signal Word Danger

The life science business of Merck KGaA, Darmstadt, Germany
operates as MilliporeSigma in the US and Canada

Hazard statement(s)

H330	Fatal if inhaled.
H360	May damage fertility or the unborn child.
H372	Causes damage to organs through prolonged or repeated exposure.
H410	Very toxic to aquatic life with long lasting effects.

Precautionary statement(s)

P201	Obtain special instructions before use.
P202	Do not handle until all safety precautions have been read and understood.
P260	Do not breathe dust/ fume/ gas/ mist/ vapors/ spray.
P264	Wash skin thoroughly after handling.
P270	Do not eat, drink or smoke when using this product.
P271	Use only outdoors or in a well-ventilated area.
P273	Avoid release to the environment.
P280	Wear protective gloves/ protective clothing/ eye protection/ face protection.
P284	Wear respiratory protection.
P304 + P340 + P310	IF INHALED: Remove person to fresh air and keep comfortable for breathing. Immediately call a POISON CENTER/ doctor.
P308 + P313	IF exposed or concerned: Get medical advice/ attention.
P391	Collect spillage.
P403 + P233	Store in a well-ventilated place. Keep container tightly closed.
P405	Store locked up.
P501	Dispose of contents/ container to an approved waste disposal plant.

2.3 Hazards not otherwise classified (HNOC) or not covered by GHS - none

SECTION 3: Composition/information on ingredients

3.1 Substances

Formula	:	Hg
Molecular weight	:	200.59 g/mol
CAS-No.	:	7439-97-6
EC-No.	:	231-106-7
Index-No.	:	080-001-00-0

Component	Classification	Concentration
mercury		
	Acute Tox. 2; Repr. 1B; STOT RE 1; Aquatic Acute 1; Aquatic Chronic 1; H330, H360, H372, H400, H410 M-Factor - Aquatic Acute: 1 - Aquatic Chronic: 100	<= 100 %

For the full text of the H-Statements mentioned in this Section, see Section 16.

The life science business of Merck KGaA, Darmstadt, Germany
operates as MilliporeSigma in the US and Canada

SECTION 4: First aid measures

4.1 Description of first-aid measures

General advice
First aiders need to protect themselves. Show this material safety data sheet to the doctor in attendance.

If inhaled
After inhalation: fresh air. Immediately call in physician. If breathing stops: immediately apply artificial respiration, if necessary also oxygen.

In case of skin contact
In case of skin contact: Take off immediately all contaminated clothing. Rinse skin with water/ shower. Consult a physician.

In case of eye contact
After eye contact: rinse out with plenty of water. Call in ophthalmologist. Remove contact lenses.

If swallowed
After swallowing: immediately make victim drink water (two glasses at most). Consult a physician.

4.2 Most important symptoms and effects, both acute and delayed
The most important known symptoms and effects are described in the labelling (see section 2.2) and/or in section 11

4.3 Indication of any immediate medical attention and special treatment needed
No data available

SECTION 5: Firefighting measures

5.1 Extinguishing media

Suitable extinguishing media
Use extinguishing measures that are appropriate to local circumstances and the surrounding environment.

Unsuitable extinguishing media
For this substance/mixture no limitations of extinguishing agents are given.

5.2 Special hazards arising from the substance or mixture
Mercury/mercury oxides.
Not combustible.
Ambient fire may liberate hazardous vapours.

5.3 Advice for firefighters
Stay in danger area only with self-contained breathing apparatus. Prevent skin contact by keeping a safe distance or by wearing suitable protective clothing.

5.4 Further information
Suppress (knock down) gases/vapors/mists with a water spray jet. Prevent fire extinguishing water from contaminating surface water or the ground water system.

The life science business of Merck KGaA, Darmstadt, Germany
operates as MilliporeSigma in the US and Canada

SECTION 6: Accidental release measures

6.1 Personal precautions, protective equipment and emergency procedures

Advice for non-emergency personnel: Do not breathe vapors, aerosols. Avoid substance contact. Ensure adequate ventilation. Evacuate the danger area, observe emergency procedures, consult an expert.
For personal protection see section 8.

6.2 Environmental precautions

Do not let product enter drains.

6.3 Methods and materials for containment and cleaning up

Soak up with inert absorbent material and dispose of as hazardous waste. Keep in suitable, closed containers for disposal. In some instances, a mercury spill kit may be used. Please consult with your site EHS representative to determine the most appropriate clean up method.Cover drains. Collect, bind, and pump off spills. Observe possible material restrictions (see sections 7 and 10). Take up carefully with liquid-absorbent material (e.g. Chemizorb®). Dispose of properly. Clean up affected area.

6.4 Reference to other sections

For disposal see section 13.

SECTION 7: Handling and storage

7.1 Precautions for safe handling

Advice on safe handling
Work under hood. Do not inhale substance/mixture. Avoid generation of vapours/aerosols.

Hygiene measures
Immediately change contaminated clothing. Apply preventive skin protection. Wash hands and face after working with substance.
For precautions see section 2.2.

7.2 Conditions for safe storage, including any incompatibilities

Storage conditions
Tightly closed. Keep in a well-ventilated place. Keep locked up or in an area accessible only to qualified or authorized persons.

Store under inert gas.

Storage class
Storage class (TRGS 510): 6.1B: Non-combustible, acute toxic Cat. 1 and 2 / very toxic hazardous materials

7.3 Specific end use(s)

Apart from the uses mentioned in section 1.2 no other specific uses are stipulated

SECTION 8: Exposure controls/personal protection

8.1 Control parameters

Ingredients with workplace control parameters

The life science business of Merck KGaA, Darmstadt, Germany
operates as MilliporeSigma in the US and Canada

Component	CAS-No.	Value	Control parameters	Basis
mercury	7439-97-6	C	0.1 mg/m3	USA. NIOSH Recommended Exposure Limits
	Remarks	Potential for dermal absorption		
		CEIL	1.0mg/10m3	USA. Occupational Exposure Limits (OSHA) - Table Z-2
		TWA	0.05 mg/m3	USA. Table Z-1-A Limits for Air Contaminants (1989 vacated values)
		Skin notation		
		TWA	0.025 mg/m3	USA. ACGIH Threshold Limit Values (TLV)
		Central Nervous System impairment Kidney damage Substances for which there is a Biological Exposure Index or Indices (see BEI® section) Not classifiable as a human carcinogen Danger of cutaneous absorption		
		TWA	0.05 mg/m3	USA. NIOSH Recommended Exposure Limits
		Potential for dermal absorption		

8.2 Exposure controls

Appropriate engineering controls
Immediately change contaminated clothing. Apply preventive skin protection. Wash hands and face after working with substance.

Personal protective equipment

Eye/face protection
Use equipment for eye protection tested and approved under appropriate government standards such as NIOSH (US) or EN 166(EU). Safety glasses

Skin protection
This recommendation applies only to the product stated in the safety data sheet, supplied by us and for the designated use. When dissolving in or mixing with other substances and under conditions deviating from those stated in EN374 please contact the supplier of CE-approved gloves (e.g. KCL GmbH, D-36124 Eichenzell, Internet: www.kcl.de).
Full contact
Material: Nitrile rubber
Minimum layer thickness: 0.11 mm
Break through time: 480 min
Material tested:KCL 741 Dermatril® L

This recommendation applies only to the product stated in the safety data sheet, supplied by us and for the designated use. When dissolving in or mixing with other substances and under conditions deviating from those stated in EN374 please contact the supplier of CE-approved gloves (e.g. KCL GmbH, D-36124 Eichenzell, Internet: www.kcl.de).
Splash contact
Material: Nitrile rubber
Minimum layer thickness: 0.11 mm
Break through time: 480 min
Material tested:KCL 741 Dermatril® L

The life science business of Merck KGaA, Darmstadt, Germany
operates as MilliporeSigma in the US and Canada

Body Protection
protective clothing

Respiratory protection
required when vapours/aerosols are generated.
Our recommendations on filtering respiratory protection are based on the following standards: DIN EN 143, DIN 14387 and other accompanying standards relating to the used respiratory protection system.

Control of environmental exposure
Do not let product enter drains.

SECTION 9: Physical and chemical properties

9.1 Information on basic physical and chemical properties

a)	Appearance	Form: liquid Color: silver, white
b)	Odor	odorless
c)	Odor Threshold	No data available
d)	pH	No data available
e)	Melting point/freezing point	Melting point/range: -38.87 °C (-37.97 °F) - lit.
f)	Initial boiling point and boiling range	356.6 °C 673.9 °F - lit.
g)	Flash point	()Not applicable
h)	Evaporation rate	No data available
i)	Flammability (solid, gas)	The product is not flammable.
j)	Upper/lower flammability or explosive limits	No data available
k)	Vapor pressure	< 0.01 hPa at 20 °C (68 °F) 1 hPa at 126 °C(259 °F)
l)	Vapor density	6.93 - (Air = 1.0)
m)	Density	13.55 g/cm3 at 25 °C (77 °F)
	Relative density	No data available
n)	Water solubility	0.00006 g/l at 25 °C (77 °F)
o)	Partition coefficient: n-octanol/water	Not applicable for inorganic substances
p)	Autoignition temperature	No data available
q)	Decomposition temperature	No data available
r)	Viscosity	No data available

The life science business of Merck KGaA, Darmstadt, Germany
operates as MilliporeSigma in the US and Canada

s) Explosive properties No data available

t) Oxidizing properties none

9.2 Other safety information

Relative vapor density	6.93 - (Air = 1.0)

SECTION 10: Stability and reactivity

10.1 Reactivity
No data available

10.2 Chemical stability
The product is chemically stable under standard ambient conditions (room temperature) .

10.3 Possibility of hazardous reactions
Risk of explosion with:
Acetylene
Alkali metals
Aluminum
Amines
Ammonia
chlorine dioxide
Potassium
sodium
oxalic acid
perchlorates
Risk of ignition or formation of inflammable gases or vapours with:
Chlorine
silanes
Oxygen
Generates dangerous gases or fumes in contact with:
Nitric acid
Exothermic reaction with:
Bromine
Metals
acetylidene
Oxygen

10.4 Conditions to avoid
no information available

10.5 Incompatible materials
Aluminum, Lead, Copper, silver, Zinc, zinc alloys, Tin

10.6 Hazardous decomposition products
In the event of fire: see section 5

The life science business of Merck KGaA, Darmstadt, Germany
operates as MilliporeSigma in the US and Canada

SECTION 11: Toxicological information

11.1 Information on toxicological effects

Acute toxicity
Oral: No data available
LC50 Inhalation - Rat - male - 2 h - < 27 mg/m3 - vapor

Dermal: No data available

Skin corrosion/irritation
No data available

Serious eye damage/eye irritation
No data available

Respiratory or skin sensitization
No data available

Germ cell mutagenicity
No data available

Carcinogenicity
This product is or contains a component that is not classifiable as to its carcinogenicity based on its IARC, ACGIH, NTP, or EPA classification.

IARC: No ingredient of this product present at levels greater than or equal to 0.1% is identified as probable, possible or confirmed human carcinogen by IARC.

NTP: No ingredient of this product present at levels greater than or equal to 0.1% is identified as a known or anticipated carcinogen by NTP.

OSHA: No component of this product present at levels greater than or equal to 0.1% is on OSHA's list of regulated carcinogens.

Reproductive toxicity
Presumed human reproductive toxicant

Specific target organ toxicity - single exposure
No data available

Specific target organ toxicity - repeated exposure
Causes damage to organs through prolonged or repeated exposure.

Aspiration hazard
No data available

11.2 Additional Information

RTECS: OV4550000
To the best of our knowledge, the chemical, physical, and toxicological properties have not been thoroughly investigated.

Stomach - Irregularities - Based on Human Evidence

Stomach - Irregularities - Based on Human Evidence

The life science business of Merck KGaA, Darmstadt, Germany
operates as MilliporeSigma in the US and Canada

SECTION 12: Ecological information

12.1 Toxicity

Toxicity to fish	mortality LC50 - Cyprinus carpio (Carp) - 0.160 mg/l - 96 h
Toxicity to fish(Chronic toxicity)	Remarks: No data available (mercury)

12.2 Persistence and degradability

The methods for determining biodegradability are not applicable to inorganic substances.

12.3 Bioaccumulative potential

Bioaccumulation	Carassius auratus (goldfish) - 1,789 d - 0.25 µg/l(mercury)
	Bioconcentration factor (BCF): 155,986

12.4 Mobility in soil

No data available

12.5 Results of PBT and vPvB assessment

PBT/vPvB assessment not available as chemical safety assessment not required/not conducted

12.6 Endocrine disrupting properties

No data available

12.7 Other adverse effects

No data available

SECTION 13: Disposal considerations

13.1 Waste treatment methods

Product

Waste material must be disposed of in accordance with the national and local regulations. Leave chemicals in original containers. No mixing with other waste. Handle uncleaned containers like the product itself. See www.retrologistik.com for processes regarding the return of chemicals and containers, or contact us there if you have further questions.

SECTION 14: Transport information

DOT (US)

UN number: 2809 Class: 8 (6.1) Packing group: III
Proper shipping name: Mercury
Reportable Quantity (RQ): 1 lbs
Reportable Quantity (RQ): 1 lbs
Poison Inhalation Hazard: No

IMDG

UN number: 2809 Class: 8 (6.1) Packing group: III EMS-No: F-A, S-B
Proper shipping name: MERCURY
Marine pollutant : yes

IATA

The life science business of Merck KGaA, Darmstadt, Germany
operates as MilliporeSigma in the US and Canada

UN number: 2809 Class: 8 (6.1) Packing group: III
Proper shipping name: Mercury

SECTION 15: Regulatory information

SARA 302 Components
This material does not contain any components with a section 302 EHS TPQ.

SARA 313 Components
The following components are subject to reporting levels established by SARA Title III, Section 313:

	CAS-No.	Revision Date
mercury	7439-97-6	2015-11-23

SARA 311/312 Hazards
Acute Health Hazard, Chronic Health Hazard

Reportable Quantity : D009 lbs

Massachusetts Right To Know Components
No components are subject to the Massachusetts Right to Know Act.

Pennsylvania Right To Know Components

	CAS-No.	Revision Date
mercury	7439-97-6	2015-11-23

California Prop. 65 Components

	CAS-No.	Revision Date
, which is/are known to the State of California to cause birth defects or other reproductive harm. For more information go to www.P65Warnings.ca.gov.mercury	7439-97-6	2013-12-20

SECTION 16: Other information

Further information
The above information is believed to be correct but does not purport to be all inclusive and shall be used only as a guide. The information in this document is based on the present state of our knowledge and is applicable to the product with regard to appropriate safety precautions. It does not represent any guarantee of the properties of the product. Sigma-Aldrich Corporation and its Affiliates shall not be held liable for any damage resulting from handling or from contact with the above product. See www.sigma-aldrich.com and/or the reverse side of invoice or packing slip for additional terms and conditions of sale.

Copyright 2020 Sigma-Aldrich Co. LLC. License granted to make unlimited paper copies for internal use only.
The branding on the header and/or footer of this document may temporarily not visually match the product purchased as we transition our branding. However, all of the information in the document regarding the product remains unchanged and matches the product ordered. For further information please contact mlsbranding@sial.com.

The life science business of Merck KGaA, Darmstadt, Germany
operates as MilliporeSigma in the US and Canada

The life science business of Merck KGaA, Darmstadt, Germany
operates as MilliporeSigma in the US and Canada

Methyl chloride (Refrigerant gas R 40)

Safety Data Sheet P-4622

This SDS conforms to U.S. Code of Federal Regulations 29 CFR 1910.1200, Hazard Communication.

Date of issue: 01/01/1980 Revision date: 10/17/2016 Supersedes: 10/14/2015

SECTION: 1. Product and company identification

1.1. Product identifier

Product form : Substance

Name : Methyl chloride (Refrigerant gas R 40)

CAS No : 74-87-3

Formula : CH3Cl

Other means of identification : methylchloride, halocarbon 40, monochoromethane

1.2. Relevant identified uses of the substance or mixture and uses advised against

Use of the substance/mixture : Industrial use. Use as directed.

1.3. Details of the supplier of the safety data sheet

Praxair, Inc.
10 Riverview Drive
Danbury, CT 06810-6268 - USA
T 1-800-772-9247 (1-800-PRAXAIR) - F 1-716-879-2146
www.praxair.com

1.4. Emergency telephone number

Emergency number : Onsite Emergency: 1-800-645-4633

CHEMTREC, 24hr/day 7days/week
— Within USA: 1-800-424-9300, Outside USA: 001-703-527-3887
(collect calls accepted, Contract 17729)

SECTION 2: Hazard identification

2.1. Classification of the substance or mixture

GHS-US classification

Flam. Gas 1	H220
Liquefied gas	H280
Acute Tox. 4 (Inhalation:gas)	H332
Carc. 2	H351
STOT RE 2	H373

2.2. Label elements

GHS-US labeling

Hazard pictograms (GHS-US) :



GHS02 GHS04 GHS07 GHS08

Signal word (GHS-US) : DANGER

Hazard statements (GHS-US) : H220 - **EXTREMELY FLAMMABLE GAS**
H280 - CONTAINS GAS UNDER PRESSURE; MAY EXPLODE IF HEATED
H332 - HARMFUL IF INHALED
H351 - SUSPECTED OF CAUSING CANCER
H373 - MAY CAUSE DAMAGE TO ORGANS (LUNG, KIDNEYS, LIVER, CENTRAL NERVOUS SYSTEM) THROUGH PROLONGED OR REPEATED EXPOSURE
CGA-HG04 - MAY FORM EXPLOSIVE MIXTURES WITH AIR
CGA-HG01 - MAY CAUSE FROSTBITE

Precautionary statements (GHS-US) : P201 - Obtain special instructions before use
P202 - Do not handle until all safety precautions have been read and understood
P210 - Keep away from Heat, Open flames, Sparks, Hot surfaces. - No smoking
P260 - Do not breathe gas

This document is only controlled while on the Praxair, Inc. website and a copy of this controlled version is available for download. Praxair cannot assure the integrity or accuracy of any version of this document after it has been downloaded or removed from our website.

P262 - Do not get in eyes, on skin, or on clothing
P271+P403 - Use and store only outdoors or in a well-ventilated place
P280+P284 - Wear protective gloves, protective clothing, eye protection, respiratory protection, and/or face protection
P377 - Leaking gas fire: Do not extinguish, unless leak can be stopped safely
P381 - Eliminate all ignition sources if safe to do so
P405 - Store locked up
P501 - Dispose of contents/container in accordance with container Supplier/owner instructions
CGA-PG05 - Use a back flow preventive device in the piping
CGA-PG12 - Do not open valve until connected to equipment prepared for use
CGA-PG06 - Close valve after each use and when empty
CGA-PG02 - Protect from sunlight when ambient temperature exceeds 52°C (125°F)

2.3. Other hazards

Other hazards not contributing to the classification : Contact with liquid may cause cold burns/frostbite.

2.4. Unknown acute toxicity (GHS US)

No data available

SECTION 3: Composition/Information on ingredients

3.1. Substance

Name	Product identifier	%
Methyl chloride (Refrigerant gas R 40) (Main constituent)	(CAS No) 74-87-3	100

3.2. Mixture

Not applicable

SECTION 4: First aid measures

4.1. Description of first aid measures

First-aid measures after inhalation : Remove to fresh air and keep at rest in a position comfortable for breathing. If not breathing, give artificial respiration. If breathing is difficult, trained personnel should give oxygen. Call a physician.

First-aid measures after skin contact : The liquid may cause frostbite. For exposure to liquid, immediately warm frostbite area with warm water not to exceed 105°F (41°C). Water temperature should be tolerable to normal skin. Maintain skin warming for at least 15 minutes or until normal coloring and sensation have returned to the affected area. In case of massive exposure, remove clothing while showering with warm water. Seek medical evaluation and treatment as soon as possible.

First-aid measures after eye contact : Immediately flush eyes thoroughly with water for at least 15 minutes. Hold the eyelids open and away from the eyeballs to ensure that all surfaces are flushed thoroughly. Contact an ophthalmologist immediately.

First-aid measures after ingestion : Ingestion is not considered a potential route of exposure.

4.2. Most important symptoms and effects, both acute and delayed

No additional information available

4.3. Indication of any immediate medical attention and special treatment needed

Obtain medical assistance.

SECTION 5: Firefighting measures

5.1. Extinguishing media

Suitable extinguishing media : Carbon dioxide, Dry chemical, Water spray or fog. Use extinguishing media appropriate for surrounding fire.

5.2. Special hazards arising from the substance or mixture

Fire hazard : **EXTREMELY FLAMMABLE GAS**. If venting or leaking gas catches fire, do not extinguish flames. Flammable vapors may spread from leak, creating an explosive reignition hazard. Vapors can be ignited by pilot lights, other flames, smoking, sparks, heaters, electrical equipment, static discharge, or other ignition sources at locations distant from product handling point. Explosive atmospheres may linger. Before entering an area, especially a confined area, check the atmosphere with an appropriate device.

This document is only controlled while on the Praxair, Inc. website and a copy of this controlled version is available for download. Praxair cannot assure the integrity or accuracy of any version of this document after it has been downloaded or removed from our website.

Explosion hazard	:	**EXTREMELY FLAMMABLE GAS**. Forms explosive mixtures with air and oxidizing agents.
Reactivity	:	No reactivity hazard other than the effects described in sub-sections below.

5.3. Advice for firefighters

Firefighting instructions	:	**DANGER! Toxic, flammable liquefied gas** Evacuate all personnel from the danger area. Use self-contained breathing apparatus (SCBA) and protective clothing. Immediately cool containers with water from maximum distance. Stop flow of gas if safe to do so, while continuing cooling water spray. Remove ignition sources if safe to do so. Remove containers from area of fire if safe to do so. On-site fire brigades must comply with OSHA 29 CFR 1910.156 and applicable standards under 29 CFR 1910 Subpart L—Fire Protection.
Special protective equipment for fire fighters	:	Standard protective clothing and equipment (Self Contained Breathing Apparatus) for fire fighters.
Other information	:	Containers are equipped with a pressure relief device. (Exceptions may exist where authorized by DOT.).

SECTION 6: Accidental release measures

6.1. Personal precautions, protective equipment and emergency procedures

General measures	:	**DANGER: Flammable, liquefied gas.** FORMS EXPLOSIVE MIXTURES WITH AIR. Immediately evacuate all personnel from danger area. Use self-contained breathing apparatus where needed. Remove all sources of ignition if safe to do so. Reduce vapors with fog or fine water spray, taking care not to spread liquid with water. Shut off flow if safe to do so. Ventilate area or move container to a well-ventilated area. Flammable vapors may spread from leak and could explode if reignited by sparks or flames. Explosive atmospheres may linger. Before entering area, especially confined areas, check atmosphere with an appropriate device.

6.1.1. For non-emergency personnel

No additional information available

6.1.2. For emergency responders

No additional information available

6.2. Environmental precautions

Prevent waste from contaminating the surrounding environment. Prevent soil and water pollution. Dispose of contents/container in accordance with local/regional/national/international regulations. Contact supplier for any special requirements.

6.3. Methods and material for containment and cleaning up

No additional information available

6.4. Reference to other sections

See also sections 8 and 13.

SECTION 7: Handling and storage

7.1. Precautions for safe handling

Precautions for safe handling	:	Keep away from heat, hot surfaces, sparks, open flames and other ignition sources. No smoking. Use only non-sparking tools. Use only explosion-proof equipment Wear leather safety gloves and safety shoes when handling cylinders. Protect cylinders from physical damage; do not drag, roll, slide or drop. While moving cylinder, always keep in place removable valve cover. Never attempt to lift a cylinder by its cap; the cap is intended solely to protect the valve. When moving cylinders, even for short distances, use a cart (trolley, hand truck, etc.) designed to transport cylinders. Never insert an object (e.g, wrench, screwdriver, pry bar) into cap openings; doing so may damage the valve and cause a leak. Use an adjustable strap wrench to remove over-tight or rusted caps. Slowly open the valve. If the valve is hard to open, discontinue use and contact your supplier. Close the container valve after each use; keep closed even when empty. Never apply flame or localized heat directly to any part of the container. High temperatures may damage the container and could cause the pressure relief device to fail prematurely, venting the container contents. For other precautions in using this product, see section 16.

This document is only controlled while on the Praxair, Inc. website and a copy of this controlled version is available for download. Praxair cannot assure the integrity or accuracy of any version of this document after it has been downloaded or removed from our website.

7.2. Conditions for safe storage, including any incompatibilities

Storage conditions : Store only where temperature will not exceed 125°F (52°C). Post “No Smoking/No Open Flames” signs in storage and use areas. There must be no sources of ignition. Separate packages and protect against potential fire and/or explosion damage following appropriate codes and requirements (e.g, NFPA 30, NFPA 55, NFPA 70, and/or NFPA 221 in the U.S.) or according to requirements determined by the Authority Having Jurisdiction (AHJ). Always secure containers upright to keep them from falling or being knocked over. Install valve protection cap, if provided, firmly in place by hand when the container is not in use. Store full and empty containers separately. Use a first-in, first-out inventory system to prevent storing full containers for long periods. For other precautions in using this product, see section 16

OTHER PRECAUTIONS FOR HANDLING, STORAGE, AND USE: When handling product under pressure, use piping and equipment adequately designed to withstand the pressures to be encountered. Never work on a pressurized system. Use a back flow preventive device in the piping. Gases can cause rapid suffocation because of oxygen deficiency; store and use with adequate ventilation. If a leak occurs, close the container valve and blow down the system in a safe and environmentally correct manner in compliance with all international, federal/national, state/provincial, and local laws; then repair the leak. Never place a container where it may become part of an electrical circuit.

7.3. Specific end use(s)

None.

SECTION 8: Exposure controls/personal protection

8.1. Control parameters

Methyl chloride (Refrigerant gas R 40) (74-87-3)		
ACGIH	ACGIH TLV-TWA (ppm)	50 ppm
ACGIH	ACGIH TLV-STEL (ppm)	100 ppm
USA OSHA	OSHA PEL (TWA) (ppm)	100 ppm
USA OSHA	OSHA PEL (Ceiling) (ppm)	200 ppm
USA IDLH	US IDLH (mg/m³)	≈ mg/m³
USA IDLH	US IDLH (ppm)	2000 ppm

8.2. Exposure controls

Appropriate engineering controls : Use an explosion-proof local exhaust system. Local exhaust and general ventilation must be adequate to meet exposure standards. MECHANICAL (GENERAL): **Inadequate - Use only in a closed system.** Use explosion proof equipment and lighting. A canopy-type, forced-draft fume hood is preferred.

Eye protection : Wear safety glasses when handling cylinders; vapor-proof goggles and a face shield during cylinder changeout or whenever contact with product is possible. Select eye protection in accordance with OSHA 29 CFR 1910.133.

Skin and body protection : Wear metatarsal shoes and work gloves for cylinder handling, and protective clothing where needed. Wear appropriate chemical gloves during cylinder changeout or wherever contact with product is possible. Select per OSHA 29 CFR 1910.132, 1910.136, and 1910.138.

Respiratory protection : When workplace conditions warrant respirator use, follow a respiratory protection program that meets OSHA 29 CFR 1910.134, ANSI Z88.2, or MSHA 30 CFR 72.710 (where applicable). Use an air-supplied or air-purifying cartridge if the action level is exceeded. Ensure that the respirator has the appropriate protection factor for the exposure level. If cartridge type respirators are used, the cartridge must be appropriate for the chemical exposure. For emergencies or instances with unknown exposure levels, use a self-contained breathing apparatus (SCBA).

Thermal hazard protection : Wear cold insulating gloves when transfilling or breaking transfer connections.

SECTION 9: Physical and chemical properties

9.1. Information on basic physical and chemical properties

Physical state : Gas

Appearance : Colorless gas.

Molecular mass : 50.5 g/mol

Color : Colorless.

This document is only controlled while on the Praxair, Inc. website and a copy of this controlled version is available for download. Praxair cannot assure the integrity or accuracy of any version of this document after it has been downloaded or removed from our website.

Odor	:	Sweetish. Ethereal.
Odor threshold	:	< 0.01 ppm
pH	:	Not applicable.
Relative evaporation rate (butyl acetate=1)	:	No data available
Relative evaporation rate (ether=1)	:	Not applicable.
Melting point	:	-97.7 °C (-143.86°F)
Freezing point	:	No data available
Boiling point	:	-24.2 °C (-11.6°F)
Flash point	:	Not applicable.
Critical temperature	:	143.1 °C (289.6°F)
Auto-ignition temperature	:	632 °C (1170°F)
Decomposition temperature	:	No data available
Flammability (solid, gas)	:	8.1 - 17.4 vol %
Vapor pressure	:	5.1 bar (73.4 psia)(@21.1°C/70°F)
Critical pressure	:	66.5 bar (966 psia)
Relative vapor density at 20 °C	:	No data available
Relative density	:	0.92 (at 20°C/68°F)
Density	:	0.921 g/cm³ (at 20 °C)
Relative gas density	:	1.743 (at 21.1°C/70°F, 1 atm)
Solubility	:	Water: 6310 mg/l
Log Pow	:	0.91
Log Kow	:	Not applicable.
Viscosity, kinematic	:	Not applicable.
Viscosity, dynamic	:	Not applicable.
Explosive properties	:	Not applicable.
Oxidizing properties	:	None.
Explosion limits	:	No data available

9.2. Other information

Gas group	:	Liquefied gas
Additional information	:	Gas/vapor heavier than air. May accumulate in confined spaces, particularly at or below ground level

SECTION 10: Stability and reactivity

10.1. Reactivity

No reactivity hazard other than the effects described in sub-sections below.

10.2. Chemical stability

Stable under normal conditions.

10.3. Possibility of hazardous reactions

May occur.

10.4. Conditions to avoid

Avoid temperature above 752°F (400°C).

10.5. Incompatible materials

May react with aluminium. Reaction with aluminum may form pyrophoric trimethyl aluminum or aluminum alkyls. Oxidizing agents. Magnesium. Zinc. Potassium. Sodium. Aluminum chloride. Ethylene. Moisture. Rubber.

10.6. Hazardous decomposition products

Carbon dioxide. Carbon monoxide. Chlorine. On heating/burning: release of toxic and corrosive gases/vapors hydrogen chloride : formation of small quantities of phosgene.

This document is only controlled while on the Praxair, Inc. website and a copy of this controlled version is available for download. Praxair cannot assure the integrity or accuracy of any version of this document after it has been downloaded or removed from our website.

SECTION 11: Toxicological information

11.1. Information on toxicological effects

Acute toxicity : Inhalation:gas: HARMFUL IF INHALED.

Methyl chloride (Refrigerant gas R 40) (\f)74-87-3	
LD50 oral rat	1800 mg/kg
LC50 inhalation rat (mg/l)	5300 mg/m³ (Exposure time: 4 h)
LC50 inhalation rat (ppm)	8300 ppm/1h
ATE US (oral)	1800.000 mg/kg body weight
ATE US (gases)	8300.000 ppm/1h

Skin corrosion/irritation : Not classified

pH: Not applicable.

Serious eye damage/irritation : Not classified

pH: Not applicable.

Respiratory or skin sensitization : Not classified

Germ cell mutagenicity : Not classified

Carcinogenicity : SUSPECTED OF CAUSING CANCER.

Methyl chloride (Refrigerant gas R 40) (74-87-3)	
IARC group	3 - Not classifiable

Reproductive toxicity : Not classified

Specific target organ toxicity (single exposure) : Not classified

Specific target organ toxicity (repeated exposure) : MAY CAUSE DAMAGE TO ORGANS (LUNG, KIDNEYS, LIVER, CENTRAL NERVOUS SYSTEM) THROUGH PROLONGED OR REPEATED EXPOSURE.

Aspiration hazard : Not classified

SECTION 12: Ecological information

12.1. Toxicity

Ecology - general : No known ecological damage caused by this product.

Methyl chloride (Refrigerant gas R 40) (74-87-3)	
LC50 fish 1	550 mg/l (Exposure time: 96 h - Species: Lepomis macrochirus [static])

12.2. Persistence and degradability

Methyl chloride (Refrigerant gas R 40) (74-87-3)	
Persistence and degradability	The substance is biodegradable. Unlikely to persist.

12.3. Bioaccumulative potential

Methyl chloride (Refrigerant gas R 40) (74-87-3)	
Log Pow	0.91
Log Kow	Not applicable.
Bioaccumulative potential	Not expected to bioaccumulate due to the low log Kow (log Kow < 4). Refer to section 9.

12.4. Mobility in soil

Methyl chloride (Refrigerant gas R 40) (74-87-3)	
Mobility in soil	No data available.
Ecology - soil	Because of its high volatility, the product is unlikely to cause ground or water pollution.

12.5. Other adverse effects

Other adverse effects : May cause pH changes in aqueous ecological systems.

Effect on ozone layer : None

Global warming potential [CO2=1] : 13

Effect on the global warming : Contains Fluorinated greenhouse gases covered by the Kyoto protocol

This document is only controlled while on the Praxair, Inc. website and a copy of this controlled version is available for download. Praxair cannot assure the integrity or accuracy of any version of this document after it has been downloaded or removed from our website.

SECTION 13: Disposal considerations

13.1. Waste treatment methods

Regional legislation (waste) : U.S. - RCRA (Resource Conservation & Recovery Act) - Basis for Listing - Appendix VII. U.S. - RCRA (Resource Conservation & Recovery Act) - Constituents for Detection Monitoring. U.S. - RCRA (Resource Conservation & Recovery Act) - Hazardous Constituents - Appendix VIII to 40 CFR 261. U.S. - RCRA (Resource Conservation & Recovery Act) - List for Hazardous Constituents. U.S. - RCRA (Resource Conservation & Recovery Act) - Part 268 Appendix III - Halogenated Organic Compounds (HOCs). U.S. - RCRA (Resource Conservation & Recovery Act) - Phase 4 LDR Rule - Universal Treatment Standards. U.S. - RCRA (Resource Conservation & Recovery Act) - TSD Facilities Ground Water Monitoring. U.S. - RCRA (Resource Conservation & Recovery Act) - U Series Wastes - Acutely Toxic Wastes & Other Hazardous Characteristics.

Waste disposal recommendations : Do not attempt to dispose of residual or unused quantities. Return container to supplier.

SECTION 14: Transport information

In accordance with DOT

Transport document description : UN1063 Methyl chloride, 2.1

UN-No.(DOT) : UN1063

Proper Shipping Name (DOT) : Methyl chloride

Class (DOT) : 2.1 - Class 2.1 - Flammable gas 49 CFR 173.115

Hazard labels (DOT) : 2.1 - Flammable gas



DOT Special Provisions (49 CFR 172.102) : N86 - UN pressure receptacles made of aluminum alloy are not authorized
T50 - When portable tank instruction T50 is referenced in Column (7) of the 172.101 Table, the applicable liquefied compressed gases are authorized to be transported in portable tanks in accordance with the requirements of 173.313 of this subchapter

Additional information

Emergency Response Guide (ERG) Number : 115

Other information : No supplementary information available.

Special transport precautions : Avoid transport on vehicles where the load space is not separated from the driver's compartment. Ensure vehicle driver is aware of the potential hazards of the load and knows what to do in the event of an accident or an emergency. Before transporting product containers: - Ensure there is adequate ventilation. - Ensure that containers are firmly secured. - Ensure cylinder valve is closed and not leaking. - Ensure valve outlet cap nut or plug (where provided) is correctly fitted. - Ensure valve protection device (where provided) is correctly fitted.

Transport by sea

UN-No. (IMDG) : 1063

Proper Shipping Name (IMDG) : METHYL CHLORIDE (REFRIGERANT GAS R 40)

Class (IMDG) : 2 - Gases

MFAG-No : 115

Air transport

UN-No. (IATA) : 1063

Proper Shipping Name (IATA) : Methyl chloride

Class (IATA) : 2

Civil Aeronautics Law : Gases under pressure/Gases flammable under pressure

This document is only controlled while on the Praxair, Inc. website and a copy of this controlled version is available for download. Praxair cannot assure the integrity or accuracy of any version of this document after it has been downloaded or removed from our website.

SECTION 15: Regulatory information

15.1. US Federal regulations

Methyl chloride (Refrigerant gas R 40) (74-87-3)	
Listed on the United States TSCA (Toxic Substances Control Act) inventory Subject to reporting requirements of United States SARA Section 313	
CERCLA RQ	100 lb
SARA Section 311/312 Hazard Classes	Immediate (acute) health hazard Delayed (chronic) health hazard Sudden release of pressure hazard Fire hazard
SARA Section 313 - Emission Reporting	1.0 %

15.2. International regulations

CANADA

Methyl chloride (Refrigerant gas R 40) (74-87-3)
Listed on the Canadian DSL (Domestic Substances List)

EU-Regulations

Methyl chloride (Refrigerant gas R 40) (74-87-3)
Listed on the EEC inventory EINECS (European Inventory of Existing Commercial Chemical Substances)

15.2.2. National regulations

Methyl chloride (Refrigerant gas R 40) (74-87-3)
Listed on the AICS (Australian Inventory of Chemical Substances) Listed on IECSC (Inventory of Existing Chemical Substances Produced or Imported in China) Listed on the Japanese ENCS (Existing & New Chemical Substances) inventory Listed on the Korean ECL (Existing Chemicals List) Listed on NZIoC (New Zealand Inventory of Chemicals) Listed on PICCS (Philippines Inventory of Chemicals and Chemical Substances) Japanese Poisonous and Deleterious Substances Control Law Japanese Pollutant Release and Transfer Register Law (PRTR Law) Listed on the Canadian IDL (Ingredient Disclosure List) Listed on INSQ (Mexican National Inventory of Chemical Substances)

15.3. US State regulations

Methyl chloride (Refrigerant gas R 40)(74-87-3)	
U.S. - California - Proposition 65 - Carcinogens List	No
U.S. - California - Proposition 65 - Developmental Toxicity	Yes
U.S. - California - Proposition 65 - Reproductive Toxicity - Female	No
U.S. - California - Proposition 65 - Reproductive Toxicity - Male	Yes
State or local regulations	U.S. - Massachusetts - Right To Know List U.S. - New Jersey - Right to Know Hazardous Substance List U.S. - Pennsylvania - RTK (Right to Know) - Environmental Hazard List U.S. - Pennsylvania - RTK (Right to Know) List

This document is only controlled while on the Praxair, Inc. website and a copy of this controlled version is available for download. Praxair cannot assure the integrity or accuracy of any version of this document after it has been downloaded or removed from our website.

SECTION 16: Other information

Other information : When you mix two or more chemicals, you can create additional, unexpected hazards. Obtain and evaluate the safety information for each component before you produce the mixture. Consult an industrial hygienist or other trained person when you evaluate the end product. Before using any plastics, confirm their compatibility with this product

Praxair asks users of this product to study this SDS and become aware of the product hazards and safety information. To promote safe use of this product, a user should (1) notify employees, agents, and contractors of the information in this SDS and of any other known product hazards and safety information, (2) furnish this information to each purchaser of the product, and (3) ask each purchaser to notify its employees and customers of the product hazards and safety information

The opinions expressed herein are those of qualified experts within Praxair, Inc. We believe that the information contained herein is current as of the date of this Safety Data Sheet. Since the use of this information and the conditions of use are not within the control of Praxair, Inc, it is the user's obligation to determine the conditions of safe use of the product

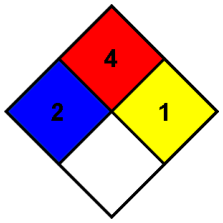
Praxair SDSs are furnished on sale or delivery by Praxair or the independent distributors and suppliers who package and sell our products. To obtain current SDSs for these products, contact your Praxair sales representative, local distributor, or supplier, or download from www.praxair.com. If you have questions regarding Praxair SDSs, would like the document number and date of the latest SDS, or would like the names of the Praxair suppliers in your area, phone or write the Praxair Call Center (Phone: 1-800-PRAXAIR/1-800-772-9247; Address: Praxair Call Center, Praxair, Inc, P.O. Box 44, Tonawanda, NY 14151-0044)

PRAXAIR and the Flowing Airstream design are trademarks or registered trademarks of Praxair Technology, Inc. in the United States and/or other countries.

NFPA health hazard : 2 - Intense or continued exposure could cause temporary incapacitation or possible residual injury unless prompt medical attention is given.

NFPA fire hazard : 4 - Will rapidly or completely vaporize at normal pressure and temperature, or is readily dispersed in air and will burn readily.

NFPA reactivity : 1 - Normally stable, but can become unstable at elevated temperatures and pressures or may react with water with some release of energy, but not violently.



HMIS III Rating

Health : 2 Moderate Hazard - Temporary or minor injury may occur

Flammability : 4 Severe Hazard

Physical : 2 Moderate Hazard

SDS US (GHS HazCom 2012) - Praxair

This information is based on our current knowledge and is intended to describe the product for the purposes of health, safety and environmental requirements only. It should not therefore be construed as guaranteeing any specific property of the product.

This document is only controlled while on the Praxair, Inc. website and a copy of this controlled version is available for download. Praxair cannot assure the integrity or accuracy of any version of this document after it has been downloaded or removed from our website.

MATHESON
ask. . .The Gas Professionals™

Safety Data Sheet

Material Name METHYL CHLOROFORM **SDS ID: MAT14370**

* * *Section 1 - IDENTIFICATION* * *

Product Identifier: METHYL CHLOROFORM

Trade Names/Synonyms

MTG MSDS 219; 1,1,1-TRICHLOROETHANE; ALPHA-TRICHLOROETHANE; AEROTHENE TT; METHYLTRICHLOROMETHANE; METHYLCHLOROFORM; TRICHLOROMETHYLMETHANE; TRICHLOROETHANE; ETHANE, 1,1,1-TRICHLOROETHANE; CHLORTEN; 1,1,1-TRICHLORETHANE; UN 2831; C2H3Cl3

Chemical Family

halogenated, aliphatic

Recommended Use

industrial

Restrictions on Use

None known.

Manufacturer Information

MATHESON TRI-GAS, INC.
150 Allen Road, Suite 302
Basking Ridge, NJ 07920

General Information: 1-800-416-2505
Emergency #: 1-800-424-9300 (CHEMTREC)
Outside the US: 703-527-3887 (Call collect)

* * *Section 2 - HAZARDS IDENTIFICATION* * *

Classification in accordance with 29 CFR 1910.1200

Acute Toxicity (Inhalation), Category 4
Skin Corrosion / Irritation, Category 2
Eye Damage / Irritation, Category 2A
Toxic to Reproduction, Category 2
Specific Target Organ Toxicity - Single Exposure, Category 1 (central nervous system and heart)
Specific Target Organ Toxicity - Single Exposure, Category 3 (respiratory system)
Specific Target Organ Toxicity - Repeated Exposure, Category 1 (central nervous system, heart, and liver)
Specific Target Organ Toxicity - Repeated Exposure, Category 2 (brain, lungs, and nervous system)
Hazardous to the Aquatic Environment - Acute Hazard, Category 2
Hazardous to the Aquatic Environment - Chronic Hazard, Category 2
Hazardous for the ozone layer, Category 1

GHS LABEL ELEMENTS

Symbol(s)



Signal Word

DANGER

Hazard Statement(s)

Harmful if inhaled
Causes skin irritation
Causes serious eye irritation
Suspected of damaging fertility or the unborn child
Causes damage to central nervous system and heart.
May cause respiratory tract irritation.
Causes damage to central nervous system, heart, and liver through prolonged or repeated exposure.
May cause damage to brain, lungs, nervous system through prolonged or repeated exposure.
Toxic to aquatic life with long lasting effects
Harms public health and the environment by destroying ozone in the upper atmosphere

Precautionary Statement(s)

Prevention

Obtain special instructions before use. Do not handle until all safety precautions have been read and understood. Use personal protective equipment as required. Do not breathe vapor or mist. Use only outdoors or in a well-ventilated area. Wear protective gloves and eye/face protection. Wash thoroughly after handling. Do not eat, drink or smoke when using this product. Avoid release to the environment.

Response

IF exposed: Call a POISON CENTER or doctor/physician. IF INHALED: Remove victim to fresh air and keep at rest in a position comfortable for breathing. Call a POISON CENTER or doctor/physician if you feel unwell. IF ON SKIN: Wash with plenty of soap and water. If skin irritation occurs: Get medical advice/attention. Take off contaminated clothing and wash before reuse. IF IN EYES: Rinse cautiously with water for several minutes. Remove contact lenses, if present and easy to do. Continue rinsing. If eye irritation persists: Get medical advice/attention. Collect spillage.

Storage

Store in a well-ventilated place. Keep container tightly closed. Store locked up.

Disposal

Dispose of in accordance with applicable regulations.
Refer to manufacturer/supplier for information on recovery/recycling.

* * *Section 3 - COMPOSITION / INFORMATION ON INGREDIENTS* * *

CAS	Component	Percent
71-55-6	METHYL CHLOROFORM	100

Component Related Regulatory Information

This product may be regulated, have exposure limits or other information identified as the following: Trichloroethane (25323-89-1).

* * *Section 4 - FIRST AID MEASURES* * *

Description of Necessary Measures

Inhalation

If adverse effects occur, remove to uncontaminated area. Give artificial respiration if not breathing. If breathing is difficult, oxygen should be administered by qualified personnel. Get immediate medical attention.

Skin

Wash skin with soap and water for at least 15 minutes while removing contaminated clothing and shoes. Get medical attention, if needed. Thoroughly clean and dry contaminated clothing and shoes before reuse.

Eyes

Flush eyes with plenty of water for at least 15 minutes. Remove contact lenses, if present and easy to do. Continue rinsing. Then get immediate medical attention.

Ingestion

If vomiting occurs, keep head lower than hips to help prevent aspiration. If person is unconscious, turn head to side. Get medical attention immediately.

Most Important Symptoms/Effects

Acute

respiratory tract irritation, skin irritation, eye irritation, central nervous system depression, central nervous system damage, heart damage

Delayed

central nervous system damage, heart damage, liver damage, reproductive effects, lung damage, brain damage, nervous system damage

Indication of Immediate Medical Attention and Special Treatment

For inhalation, consider oxygen.

* * *Section 5 - FIRE FIGHTING MEASURES* * *

Suitable Extinguishing Media

carbon dioxide, regular dry chemical, water spray

Large fires: Use dry chemical, carbon dioxide, alcohol-resistant foam or water spray.

Unsuitable Extinguishing Media

Do not scatter spilled material with high-pressure water streams.

Specific Hazards Arising from the Chemical

Slight fire hazard.

Hazardous Combustion Products

Combustion: hydrogen chloride, phosgene, oxides of carbon

Fire Fighting Measures

Move container from fire area if it can be done without risk. Fight fire from maximum distance or use unmanned hose holders or monitor nozzles. Cool containers with water spray until well after the fire is out. Withdraw immediately in case of rising sound from venting safety device or any discoloration of tanks due to fire. Stay away from the ends of tanks. For tank, rail car or tank truck, evacuation radius: 800 meters (1/2 mile).

Special Protective Equipment and Precautions for Firefighters

Wear full protective fire fighting gear including self contained breathing apparatus (SCBA) for protection against possible exposure.

* * *Section 6 - ACCIDENTAL RELEASE MEASURES* * *

Personal Precautions, Protective Equipment and Emergency Procedures

Wear personal protective clothing and equipment, see Section 8. Avoid release to the environment.

Methods and Materials for Containment and Cleaning Up

Avoid heat, flames, sparks and other sources of ignition. Eliminate all ignition sources if safe to do so. Stop leak if possible without personal risk. **Small spills:** Absorb with sand or other non-combustible material. Collect spilled material in appropriate container for disposal. **Large spills:** Dike for later disposal. Remove sources of ignition. Keep unnecessary people away, isolate hazard area and deny entry. Notify Local Emergency Planning Committee and State Emergency Response Commission for release greater than or equal to RQ (U.S. SARA Section 304). If release occurs in the U.S. and is reportable under CERCLA Section 103, notify the National Response Center at (800)424-8802 (USA) or (202)426-2675 (USA).

* * *Section 7 - HANDLING AND STORAGE* * *

Precautions for Safe Handling

Obtain special instructions before use. Do not handle until all safety precautions have been read and understood. Use personal protective equipment as required. Do not breathe vapor or mist. Use only outdoors or in a well-ventilated area. Wear protective gloves and eye/face protection. Wash thoroughly after handling. Do not eat, drink, or smoke when using this product. Avoid release to the environment.

Conditions for Safe Storage, including any Incompatibilities

Store and handle in accordance with all current regulations and standards. Store in a well-ventilated place. Keep container tightly closed. Store locked up. Store in a cool, dry place. Keep separated from incompatible substances.

Incompatibilities combustible materials, bases, metals, oxidizing materials

* * *Section 8 - EXPOSURE CONTROLS / PERSONAL PROTECTION* * *

Component Exposure Limits

METHYL CHLOROFORM (71-55-6)

ACGIH:	350 ppm TWA
	450 ppm STEL
Europe:	100 ppm TWA; 555 mg/m3 TWA
	200 ppm STEL; 1110 mg/m3 STEL
OSHA (Final):	350 ppm TWA; 1900 mg/m3 TWA
OSHA (Vacated):	350 ppm TWA; 1900 mg/m3 TWA
	450 ppm STEL; 2450 mg/m3 STEL
NIOSH:	350 ppm Ceiling (15 min); 1900 mg/m3 Ceiling (15 min)

Component Biological Limit Values

METHYL CHLOROFORM (71-55-6)

ACGIH: 40 ppm Medium: end-exhaled air Time: prior to last shift of workweek Parameter: Methyl chloroform; 10 mg/L Medium: urine Time: end of workweek Parameter: Trichloroacetic acid (nonspecific, semi-quantitative); 30 mg/L Medium: urine Time: end of shift at end of workweek Parameter: Total trichloroethanol (nonspecific, semi-quantitative); 1 mg/L Medium: blood Time: end of shift at end of workweek Parameter: Total trichloroethanol (nonspecific)

IDLH

700 ppm

Appropriate Engineering Controls

Provide local exhaust or process enclosure ventilation system. Ensure compliance with applicable exposure limits.

Individual Protection Measures, such as Personal Protective Equipment

Eyes/Face Protection

Wear splash resistant safety goggles with a faceshield. Provide an emergency eye wash fountain and quick drench shower in the immediate work area.

Skin Protection

Wear appropriate chemical resistant clothing.

Glove Recommendations

Wear appropriate chemical resistant gloves.

Respiratory Protection

The following respirators and maximum use concentrations are drawn from NIOSH and/or OSHA.

700 ppm

Any supplied-air respirator.

Any self-contained breathing apparatus with a full facepiece.
Emergency or planned entry into unknown concentrations or IDLH conditions -
Any self-contained breathing apparatus that has a full facepiece and is operated in a pressure-demand or other positive-pressure mode.
Any supplied-air respirator with a full facepiece that is operated in a pressure-demand or other positive-pressure mode in combination with an auxiliary self-contained breathing apparatus operated in pressure-demand or other positive-pressure mode.
Escape -
Any air-purifying full-facepiece respirator (gas mask) with a chin-style, front-mounted or back-mounted organic vapor canister.
Any appropriate escape-type, self-contained breathing apparatus.

* * *Section 9 - PHYSICAL AND CHEMICAL PROPERTIES* * *

Physical State:	Liquid	**Appearance:**	clear, colorless liquid
Color:	colorless	**Physical Form:**	volatile liquid
Odor:	sweet odor	**Odor Threshold:**	44 - 100 ppm
pH:	Not available	**Melting/Freezing Point:**	-32 °C
Boiling Point:	74 °C	**Flash Point:**	>93.3 °C
Decomposition:	Not available	**Evaporation Rate:**	5.0 (butyl acetate=1)
LEL:	7.5 %	**UEL:**	12.5 %
Vapor Pressure:	100 mmHg @ 20 °C	**Henry's Law Constant:**	0.072 atm-cu m/mole @ 25°C
Vapor Density (air = 1):	4.55	**Specific Gravity (water=1):**	1.3390
Water Solubility:	0.078 % @ 25 °C	**Log KOW:**	2.49
KOC:	17823.79 estimated from water solubility	**Auto Ignition:**	537 °C
Viscosity:	0.858 cP @20 °C	**Volatility:**	100%
Molecular Weight:	133.40	**Molecular Formula:**	C-H3-C-Cl3

Other Property Information

No additional information is available.

Solvent Solubility

Soluble: acetone, benzene, chloroform, methanol, ethanol, carbon disulfide, ether, carbon tetrachloride, heptane

* * *Section 10 - STABILITY AND REACTIVITY* * *

Reactivity

No reactivity hazard is expected.

Chemical Stability

Stable at normal temperatures and pressure.

Possibility of Hazardous Reactions

Will not polymerize.

Conditions to Avoid

Avoid heat, flames, sparks and other sources of ignition. Containers may rupture or explode if exposed to heat.

Incompatible Materials

combustible materials, bases, metals, oxidizing materials

Hazardous Decomposition

Combustion: hydrogen chloride, phosgene, oxides of carbon

* * *Section 11 - TOXICOLOGICAL INFORMATION* * *

Acute and Chronic Toxicity

Component Analysis - LD50/LC50

The components of this material have been reviewed in various sources and the following selected endpoints are published:

METHYL CHLOROFORM (71-55-6)

Dermal LD50 Rabbit >15800 mg/kg; Inhalation LC50 Rat 18000 ppm 4 h; Oral LD50 Rat >2000 mg/kg

RTECS Acute Toxicity (selected)

The components of this material have been reviewed, and RTECS publishes the following endpoints:

METHYL CHLOROFORM (71-55-6)

Inhalation: 24400 mg/m3 Inhalation Cat LC50; 29492 ppm/10 minute(s) Inhalation Mouse LC50; 3911 ppm/2 hour Inhalation Mouse LC50
20000 ppm/2 hour Inhalation Rat LC50; 14250 ppm/7 hour Inhalation Rat LC50; 17000 ppm/4 hour Inhalation Rat LC50

Acute Toxicity Level

METHYL CHLOROFORM (71-55-6)

Slightly Toxic: inhalation, dermal absorption, ingestion

Information on Likely Routes of Exposure

Inhalation

irritation, changes in blood pressure, nausea, vomiting, diarrhea, difficulty breathing, irregular heartbeat, headache, drowsiness, dizziness, mood swings, loss of coordination, blood disorders, heart disorders, kidney damage, liver damage, convulsions, unconsciousness, coma, heart damage, reproductive effects

Ingestion

irritation, nausea, vomiting, diarrhea, stomach pain, irregular heartbeat, headache, drowsiness, dizziness, disorientation, loss of coordination, kidney damage, liver damage, convulsions, unconsciousness, coma, reproductive effects

Skin Contact

irritation (possibly severe)

Eye Contact

irritation

Immediate Effects

respiratory tract irritation, skin irritation, eye irritation, central nervous system depression, central nervous system damage, heart damage

Delayed Effects

central nervous system damage, heart damage, liver damage, reproductive effects, brain damage, lung damage, nervous system damage

Medical Conditions Aggravated by Exposure

heart or cardiovascular disorders, kidney disorders, liver disorders, skin disorders and allergies

Irritation/Corrosivity Data

respiratory tract irritation, skin irritation, eye irritation

RTECS Irritation

The components of this material have been reviewed, and RTECS publishes the following endpoints:

METHYL CHLOROFORM (71-55-6)

450 ppm/8 hour Eyes Man; 100 mg Eyes Rabbit mild; 2 mg/24 hour Eyes Rabbit severe; 5 gm/12 day(s) intermittent Skin Rabbit mild; 20 mg/24 hour Skin Rabbit moderate

Local Effects

METHYL CHLOROFORM (71-55-6)

Irritant: inhalation, skin, eye

Target Organs

METHYL CHLOROFORM (71-55-6)

central nervous system

Respiratory Sensitization

No data available.

Dermal Sensitization

No data available.

Carcinogenicity

Component Carcinogenicity

METHYL CHLOROFORM (71-55-6)

ACGIH: A4 - Not Classifiable as a Human Carcinogen

IARC: Monograph 71 [1999]; Supplement 7 [1987]; Monograph 20 [1979] (Group 3 (not classifiable))

RTECS Mutagenic

The components of this material have been reviewed, and RTECS publishes data for one or more components.

Reproductive Effects Data

Available data characterizes this substance as a reproductive hazard.

RTECS Reproductive Effects

The components of this material have been reviewed, and RTECS publishes the following endpoints:

METHYL CHLOROFORM (71-55-6)

2100 ppm Inhalation Rat TCLo (6 hour, pregnant 1-20 day(s)); 7000 ppm Inhalation Rat TCLo (3 hour, pregnant 13-19 day(s)); 43 mg/kg Oral Rat TDLo (pregnant 1-22 day(s), 21 day(s))

RTECS Tumorigenic

The components of this material have been reviewed, and RTECS publishes data for one or more components.

Additional Data

Alcohol may enhance the toxic effects. Stimulants such as epinephrine may induce ventricular fibrillation.

Specific Target Organ Toxicity - Single Exposure

central nervous system, heart, respiratory system

Specific Target Organ Toxicity - Repeated Exposure

central nervous system, heart, liver, brain, lungs, nervous system

Aspiration Hazard

Not expected to be an aspiration hazard.

* * *Section 12 - ECOLOGICAL INFORMATION* * *

Ecotoxicity

Toxic to aquatic life with long lasting effects.

Component Analysis - Aquatic Toxicity

METHYL CHLOROFORM (71-55-6)

Fish: 96 Hr LC50 Pimephales promelas: 35.2 - 50.7 mg/L [flow-through]; 96 Hr LC50 Lepomis macrochirus: 57 - 90 mg/L [static] (juvenile); 96 Hr LC50 Cyprinus carpio: 56 mg/L [flow-through]; 96 Hr LC50 Poecilia reticulata: 52.9 mg/L [flow-through]; 96 Hr LC50 Poecilia reticulata: 69.7 mg/L [static]; 96 Hr LC50 Pimephales promelas: 91 - 126 mg/L [static]; 96 Hr LC50 Oncorhynchus mykiss: 46 - 59 mg/L [static]

Algae: 96 Hr EC50 Pseudokirchneriella subcapitata: >500 mg/L

Invertebrate: 48 Hr LC50 Daphnia magna: >530 mg/L; 48 Hr EC50 Daphnia magna: 2384 mg/L; 48 Hr EC50 Daphnia magna: 9.7 - 12.8 mg/L [Static]

Persistence and Degradability

This material may biodegrade in soil and water.

Bioaccumulative Potential

Bioconcentration potential in aquatic organisms is low based on BCF value of 0.7-4.9.

Mobility

Expected to have high mobility in soil.

* * *Section 13 - DISPOSAL CONSIDERATIONS* * *

Disposal Methods

Dispose in accordance with all applicable regulations.

Component Waste Numbers

METHYL CHLOROFORM (71-55-6)

RCRA: waste number U226

* * *Section 14 - TRANSPORT INFORMATION* * *

US DOT Information

Shipping Name: 1,1,1-Trichloroethane
UN/NA #: UN2831 **Hazard Class:** 6.1 **Packing Group:** III
Required Label(s): 6.1

IMDG Information

Shipping Name: 1,1,1-Trichloroethane
UN #: UN2831 **Hazard Class:** 6.1 **Packing Group:** III
Required Label(s): 6.1

* * *Section 15 - REGULATORY INFORMATION* * *

Component Analysis

U.S. Federal Regulations

This material contains one or more of the following chemicals required to be identified under SARA Section 302/304 (40 CFR 355 Appendix A), SARA Section 313 (40 CFR 372.65), CERCLA (40 CFR 302.4), TSCA 12(b), and/or require an OSHA process safety plan.

METHYL CHLOROFORM (71-55-6)

SARA 313: 1.0 % de minimis concentration

CERCLA: 1000 lb final RQ; 454 kg final RQ

SARA 311/312 Hazardous Categories

Acute Health: Yes **Chronic Health:** Yes **Fire:** No **Pressure:** No **Reactive:** No

U.S. State Regulations

The following components appear on one or more of the following state hazardous substances lists:

Component	CAS	CA	MA	MN	NJ	PA
METHYL CHLOROFORM	71-55-6	Yes	Yes	Yes	Yes	Yes

Not regulated under California Proposition 65

Component Analysis - Inventory

Component	CAS	US	CA	EU	AU	PH	JP	KR	CN	NZ
METHYL CHLOROFORM	71-55-6	Yes	DSL	EIN	Yes	Yes	Yes	Yes	Yes	Yes

* * *Section 16 - OTHER INFORMATION* * *

NFPA Ratings: Health: 2 **Fire:** 1 **Reactivity:** 0

Hazard Scale: 0 = Minimal 1 = Slight 2 = Moderate 3 = Serious 4 = Severe

Key / Legend

ACGIH - American Conference of Governmental Industrial Hygienists; ADR - European Road Transport; AU - Australia; BOD - Biochemical Oxygen Demand; C - Celsius; CA - Canada; CAS - Chemical Abstracts Service; CERCLA - Comprehensive Environmental Response, Compensation, and Liability Act; CN - China; CPR - Controlled Products Regulations; DFG - Deutsche Forschungsgemeinschaft; DOT - Department of Transportation; DSL - Domestic Substances List; EEC - European Economic Community; EINECS - European Inventory of Existing Commercial Chemical Substances; EPA - Environmental Protection Agency; EU - European Union; F - Fahrenheit; IARC - International Agency for Research on Cancer; IATA - International Air Transport Association; ICAO - International Civil Aviation Organization; IDL - Ingredient Disclosure List; IDLH - Immediately Dangerous to Life and Health; IMDG - International Maritime Dangerous Goods; JP - Japan; Kow - Octanol/water partition coefficient; KR - Korea; LEL - Lower Explosive Limit; LOLI - List Of LIsts™ - ChemADVISOR's Regulatory Database; MAK - Maximum Concentration Value in the Workplace; MEL - Maximum Exposure Limits; NFPA - National Fire Protection Agency; NIOSH - National Institute for Occupational Safety and Health; NJTSR - New Jersey Trade Secret Registry; NTP - National Toxicology Program; NZ - New Zealand; OSHA - Occupational Safety and Health Administration; PH - Philippines; RCRA - Resource Conservation and Recovery Act; RID - European Rail Transport; RTECS - Registry of Toxic Effects of Chemical Substances®; SARA - Superfund Amendments and Reauthorization Act; STEL - Short-term Exposure Limit; TDG - Transportation of Dangerous Goods; TSCA - Toxic Substances Control Act; TWA - Time Weighted Average; UEL - Upper Explosive Limit; US - United States

Other Information

Matheson Tri-Gas, Inc. makes no express or implied warranties, guarantees or representations regarding the product or the information herein, including but not limited to any implied warranty or merchantability or fitness for use. Matheson Tri-Gas, Inc. shall not be liable for any personal injury, property or other damages of any nature, whether compensatory, consequential, exemplary, or otherwise, resulting from any publication, use or reliance upon the information herein.

End of Sheet MAT14370

Methylcyclohexane

Version 1.5 Revision Date 2014-03-20

SECTION 1: Identification of the substance/mixture and of the company/undertaking

Product information

Trade name : Methylcyclohexane
Material : 1098852, 1021714, 1021712, 1028351, 1021711, 1024851, 1028352, 1024850, 1021713

EC-No.Registration number

Chemical Name	CAS-No. EC-No. Index No.	Legal Entity Registration number
Methylcyclohexane	108-87-2 203-624-3 601-018-00-7	01-2119556887-18-XXXX

Relevant Identified Uses Supported : Solvent in other applications
Use in polymer processing – professional, Solvent
Use in coatings – professional, Solvent
Lubricants - Professional, Solvent
Use as a cleaning agent – professional, Solvent
Solvent in other applications- Professional

Company : Chevron Phillips Chemical Company LP
Specialty Chemicals
10001 Six Pines Drive
The Woodlands, TX 77380

Local : Chevron Phillips Chemicals International N.V.
Brusselsesteenweg 355
B-3090 Overijse
Belgium

MSDS Requests: (800) 852-5530
Technical Information: (832) 813-4862
Responsible Party: Product Safety Group
Email:msds@cpchem.com

Emergency telephone:

Health:
866.442.9628 (North America)
1.832.813.4984 (International)
Transport:
North America: CHEMTREC 800.424.9300 or 703.527.3887

Asia: +800 CHEMCALL (+800 2436 2255)
EUROPE: BIG +32.14.584545 (phone) or +32.14583516 (telefax)
South America SOS-Cotec Inside Brazil: 0800.111.767 Outside Brazil: +55.19.3467.1600

Responsible Department	:	Product Safety and Toxicology Group
E-mail address	:	MSDS@CPChem.com
Website	:	www.CPChem.com

SECTION 2: Hazards identification

Classification of the substance or mixture
REGULATION (EC) No 1272/2008

Aspiration hazard, Category 1	H304: May be fatal if swallowed and enters airways.
Skin irritation, Category 2	H315: Causes skin irritation.
Flammable liquids, Category 2	H225: Highly flammable liquid and vapor.
Specific target organ systemic toxicity - single exposure, Category 3 , Central nervous system	H336: May cause drowsiness or dizziness.
Acute toxicity, Category 1	H400: Very toxic to aquatic life.
Chronic aquatic toxicity, Category 2	H411: Toxic to aquatic life with long lasting effects.

Classification (67/548/EEC, 1999/45/EC)

Highly flammable	R11: Highly flammable.
Harmful	R65: Harmful: may cause lung damage if swallowed.
Irritant	R38: Irritating to skin.
Dangerous for the environment	R51/53: Toxic to aquatic organisms, may cause long-term adverse effects in the aquatic environment. R67: Vapors may cause drowsiness and dizziness.

Label elements

Labeling (REGULATION (EC) No 1272/2008)

Hazard pictograms :



Signal Word : Danger

Hazard Statements	:	H225 Highly flammable liquid and vapor. H304 May be fatal if swallowed and enters airways. H315 Causes skin irritation. H336 May cause drowsiness or dizziness. H411 Toxic to aquatic life with long lasting effects.
Precautionary Statements	:	**Prevention:**

P210	Keep away from heat/sparks/open flames/hot surfaces. - No smoking.
P233	Keep container tightly closed.
P240	Ground/bond container and receiving equipment.
P243	Take precautionary measures against static discharge.
P273	Avoid release to the environment.
P280	Wear protective gloves/ protective clothing/ eye protection/ face protection.

SECTION 3: Composition/information on ingredients

Synonyms : Cyclohexylmethane
Hexahydrotoluene
MCH
Methylcyclohexane (Pure Grade)

Molecular formula : C7H14

Mixtures

Hazardous ingredients

Chemical Name	CAS-No. EC-No. Index No.	Classification (67/548/EEC)	Classification (REGULATION (EC) No 1272/2008)	Concentration [wt%]
Methylcyclohexane	108-87-2 203-624-3 601-018-00-7	F; R11 Xn; R65 Xi; R38 R67 N; R51-R53	Asp. Tox. 1; H304 Skin Irrit. 2; H315 Flam. Liq. 2; H225 STOT SE 3; H336 Aquatic Acute 1; H400 Aquatic Chronic 2; H411	99,8 - 100

For the full text of the R-phrases mentioned in this Section, see Section 16.
For the full text of the H-Statements mentioned in this Section, see Section 16.

SECTION 4: First aid measures

General advice : Move out of dangerous area. Show this material safety data sheet to the doctor in attendance. Material may produce a serious, potentially fatal pneumonia if swallowed or vomited.

If inhaled : Consult a physician after significant exposure. If unconscious place in recovery position and seek medical advice.

In case of skin contact : If on skin, rinse well with water. If on clothes, remove clothes.

In case of eye contact : Flush eyes with water as a precaution. Remove contact

		lenses. Protect unharmed eye. Keep eye wide open while rinsing. If eye irritation persists, consult a specialist.
If swallowed	:	Keep respiratory tract clear. Never give anything by mouth to an unconscious person. If symptoms persist, call a physician. Take victim immediately to hospital.

SECTION 5: Firefighting measures

Flash point	:	-5,5 °C (22,1 °F) Method: Tagliabue Open Cup
Autoignition temperature	:	285 °C (545 °F)
Suitable extinguishing media	:	Alcohol-resistant foam. Carbon dioxide (CO2). Dry chemical.
Unsuitable extinguishing media	:	High volume water jet.
Specific hazards during fire fighting	:	Do not allow run-off from fire fighting to enter drains or water courses.
Special protective equipment for fire-fighters	:	Wear self contained breathing apparatus for fire fighting if necessary.
Further information	:	Collect contaminated fire extinguishing water separately. This must not be discharged into drains. Fire residues and contaminated fire extinguishing water must be disposed of in accordance with local regulations. For safety reasons in case of fire, cans should be stored separately in closed containments. Use a water spray to cool fully closed containers.
Fire and explosion protection	:	Do not spray on an open flame or any other incandescent material. Take necessary action to avoid static electricity discharge (which might cause ignition of organic vapors). Use only explosion-proof equipment. Keep away from open flames, hot surfaces and sources of ignition.
Hazardous decomposition products	:	Hydrocarbons. Carbon oxides.

SECTION 6: Accidental release measures

Personal precautions	:	Use personal protective equipment. Ensure adequate ventilation. Remove all sources of ignition. Evacuate personnel to safe areas. Beware of vapors accumulating to form explosive concentrations. Vapors can accumulate in low areas.
Environmental precautions	:	Prevent product from entering drains. Prevent further leakage or spillage if safe to do so. If the product contaminates rivers and lakes or drains inform respective authorities.
Methods for cleaning up	:	Contain spillage, and then collect with non-combustible

absorbent material, (e.g. sand, earth, diatomaceous earth, vermiculite) and place in container for disposal according to local / national regulations (see section 13).

SECTION 7: Handling and storage

Handling

Advice on safe handling : Avoid formation of aerosol. Do not breathe vapors/dust. Avoid exposure - obtain special instructions before use. Avoid contact with skin and eyes. For personal protection see section 8. Smoking, eating and drinking should be prohibited in the application area. Take precautionary measures against static discharges. Provide sufficient air exchange and/or exhaust in work rooms. Open drum carefully as content may be under pressure. Dispose of rinse water in accordance with local and national regulations.

Advice on protection against fire and explosion : Do not spray on an open flame or any other incandescent material. Take necessary action to avoid static electricity discharge (which might cause ignition of organic vapors). Use only explosion-proof equipment. Keep away from open flames, hot surfaces and sources of ignition.

Storage

Requirements for storage areas and containers : No smoking. Keep container tightly closed in a dry and well-ventilated place. Containers which are opened must be carefully resealed and kept upright to prevent leakage. Observe label precautions. Electrical installations / working materials must comply with the technological safety standards.

SECTION 8: Exposure controls/personal protection

Ingredients with workplace control parameters

SK

Súčast	Podstata	Hodnota	Kontrolné parametre	Poznámka
METHYLCYCLOHEXANE	SK OEL	NPEL priemerný	200 ppm, 810 mg/m3	
	SK OEL	NPEL krátkodobý	400 ppm, 1.620 mg/m3	

SI

Komponente	Osnova	Vrednost	Parametri nadzora	Pripomba
METHYLCYCLOHEXANE	SI OEL	MV	500 ppm, 2.000 mg/m3	

PT

Componentes	Bases	Valor	Parâmetros de controlo	Nota
METHYLCYCLOHEXANE	PT OEL	VLE-MP	400 ppm,	

PL

Składniki	Podstawa	Wartość	Parametry dotyczące kontroli	Uwaga
METHYLCYCLOHEXANE	PL NDS	NDS	1.600 mg/m3	
	PL NDS	NDSch	3.000 mg/m3	

NO

Komponenter	Grunnlag	Verdi	Kontrollparametere	Nota
METHYLCYCLOHEXANE	AN 361	TWA	200 ppm, 800 mg/m3	

LT

Komponentai	Pagrindas, bazė	Vertė	Kontrolės parametrai	Pastaba
METHYLCYCLOHEXANE	LT OEL	IPRD	50 mg/m3	

IE

Ingredients	Basis	Value	Control parameters	Note
Methylcyclohexane	IE OEL	OELV - 8 hrs (TWA)	400 ppm, 1.600 mg/m3	

GR

Συστατικά	Βάση	Τιμή	Παράμετροι ελέγχου	Σημείωση
METHYLCYCLOHEXANE	GR OEL	TWA	500 ppm, 2.000 mg/m3	
	GR OEL	STEL	500 ppm, 2.000 mg/m3	

FR

Composants	Base	Valeur	Paramètres de contrôle	Note
METHYLCYCLOHEXANE	FR VLE	VME	400 ppm, 1.600 mg/m3	normal,

normal Valeurs limites indicatives

FI

Aineosat	Peruste	Arvo	Valvontaa koskevat muuttujat	Huomautus
METHYLCYCLOHEXANE	FI OEL	HTP-arvot 8h	400 ppm, 1.600 mg/m3	
	FI OEL	HTP-arvot 15 min	500 ppm, 2.000 mg/m3	

ES

Componentes	Base	Valor	Parámetros de control	Nota
METHYLCYCLOHEXANE	ES VLA	VLA-ED	400 ppm, 1.630 mg/m3	

EE

Komponendid, osad	Alused	Väärtus	Kontrolliparameetrid	Märkused
METHYLCYCLOHEXANE	EE OEL	Piirnorm	400 ppm, 1.600 mg/m3	

DK

Komponenter	Basis	Værdi	Kontrolparametre	Note
METHYLCYCLOHEXANE	DK OEL	GV	200 ppm, 805 mg/m3	

DE

Inhaltsstoffe	Grundlage	Wert	Zu überwachende Parameter	Bemerkung
METHYLCYCLOHEXANE	DE TRGS 900	AGW	200 ppm, 810 mg/m3	DFG,

DFG Senatskommission zur Prüfung gesundheitsschädlicher Arbeitsstoffe der DFG (MAK-Kommission)

CZ

Složky	Základ	Hodnota	Kontrolní parametry	Poznámka
METHYLCYCLOHEXANE	CZ OEL	PEL	1.500 mg/m3	I,
	CZ OEL	NPK-P	2.000 mg/m3	I,

I dráždí sliznice (oči, dýchací cesty) resp. kůži

CH

Inhaltsstoffe	Grundlage	Wert	Zu überwachende Parameter	Bemerkung
METHYLCYCLOHEXANE	CH SUVA	MAK-wert	400 ppm, 1.600 mg/m3	
	CH SUVA	STEL	800 ppm, 3.200 mg/m3	

BE

Bestanddelen	Basis	Waarde	Controleparameters	Opmerking
METHYLCYCLOHEXANE	BE OEL	TGG 8 hr	400 ppm, 1.633 mg/m3	

AT

Inhaltsstoffe	Grundlage	Wert	Zu überwachende Parameter	Bemerkung
METHYLCYCLOHEXANE	AT OEL	TMW	400 ppm, 1.600 mg/m3	
	AT OEL	KZW	1.600 ppm, 6.400 mg/m3	

DNEL : End Use: Workers
Routes of exposure: Inhalation
Potential health effects: Systemic effects
Value: 64,3 mg/m3

DNEL : End Use: Workers
Routes of exposure: Inhalation
Potential health effects: Acute effects
Value: 1354,6 mg/m3

DNEL	:	End Use: Workers Routes of exposure: Skin contact Potential health effects: Systemic effects Value: 1,7 mg/kg
PNEC	:	Fresh water Value: 0,00326 mg/l
PNEC	:	Marine water Value: 0,000326 mg/l
PNEC	:	Fresh water sediment Value: 0,088 mg/kg
PNEC	:	Marine sediment Value: 0,0088 mg/kg
PNEC	:	Soil Value: 0,127 mg/kg

Engineering measures

Adequate ventilation to control airborned concentrations below the exposure guidelines/limits. Consider the potential hazards of this material (see Section 2), applicable exposure limits, job activities, and other substances in the work place when designing engineering controls and selecting personal protective equipment. If engineering controls or work practices are not adequate to prevent exposure to harmful levels of this material, the personal protective equipment listed below is recommended. The user should read and understand all instructions and limitations supplied with the equipment since protection is usually provided for a limited time or under certain circumstances.

Personal protective equipment

Respiratory protection	:	Wear a supplied-air NIOSH approved respirator unless ventilation or other engineering controls are adequate to maintain minimal oxygen content of 19.5% by volume under normal atmospheric pressure. Wear a NIOSH approved respirator that provides protection when working with this material if exposure to harmful levels of airborne material may occur, such as:. Air-Purifying Respirator for Organic Vapors. Use a positive pressure, air-supplying respirator if there is potential for uncontrolled release, exposure levels are not known, or other circumstances where air-purifying respirators may not provide adequate protection.
Hand protection	:	The suitability for a specific workplace should be discussed with the producers of the protective gloves. Please observe the instructions regarding permeability and breakthrough time which are provided by the supplier of the gloves. Also take into consideration the specific local conditions under which the product is used, such as the danger of cuts, abrasion, and the contact time. Gloves should be discarded and replaced if there is any indication of degradation or chemical breakthrough.
Eye protection	:	Eye wash bottle with pure water. Tightly fitting safety goggles.
Skin and body protection	:	Choose body protection in relation to its type, to the concentration and amount of dangerous substances, and to the specific work-place. Wear as appropriate:. Flame retardant

protective clothing. Footwear protecting against chemicals.

Hygiene measures : When using do not eat or drink. When using do not smoke. Wash hands before breaks and at the end of workday.

For additional details, see the Exposure Scenario in the Annex portion

SECTION 9: Physical and chemical properties

Information on basic physical and chemical properties

Appearance

Form	:	Liquid
Physical state	:	Liquid
Color	:	Colorless
Odor	:	Mild

Safety data

Flash point	:	-5,5 °C (22,1 °F) Method: Tagliabue Open Cup
Lower explosion limit	:	1,2 %(V)
Upper explosion limit	:	6,7 %(V)
Oxidizing properties	:	no
Autoignition temperature	:	285 °C (545 °F)
Molecular formula	:	C7H14
Molecular weight	:	98,21 g/mol
pH	:	No data available
Freezing point	:	-127 °C (-197 °F)
Boiling point/boiling range	:	100,4 °C (212,7 °F)
Vapor pressure	:	1,60 PSI at 37,8 °C (100,0 °F)
Relative density	:	0,774, 15,6 °C(60,1 °F)
Density	:	771,7 g/l
Water solubility	:	Negligible
Viscosity, dynamic	:	0,732 cP
Relative vapor density	:	3 (Air = 1.0)
Evaporation rate	:	1
Percent volatile	:	> 99 %

SECTION 10: Stability and reactivity

Chemical stability : This material is considered stable under normal ambient and anticipated storage and handling conditions of temperature and pressure.

Possibility of hazardous reactions

Conditions to avoid : Heat, flames and sparks.

Materials to avoid : May react with oxygen and strong oxidizing agents, such as chlorates, nitrates, peroxides, etc.

Other data : No decomposition if stored and applied as directed.

SECTION 11: Toxicological information

Acute oral toxicity

Methylcyclohexane : LD50: 4.000 - 4.500 mg/kg
Species: rabbit

Acute inhalation toxicity

Methylcyclohexane : LC50: > 26,3 mg/l
Exposure time: 1 h
Species: mouse
Test atmosphere: vapor

Acute dermal toxicity

Methylcyclohexane : LD50: > 2.000 mg/kg
Species: rabbit
Method: OECD Test Guideline 402
Information given is based on data obtained from similar substances.

Skin irritation

Methylcyclohexane : Skin irritation

Eye irritation

Methylcyclohexane : No eye irritation

Sensitization

Methylcyclohexane : Did not cause sensitization on laboratory animals.

Repeated dose toxicity

Methylcyclohexane : Species: rat, male
Sex: male
Application Route: oral gavage

Dose: 62.5, 250, 1000 mg/kg
Exposure time: 28 d
Number of exposures: daily, 7d/wk
NOEL: 250 mg/kg
Lowest observable effect level: 1.000 mg/kg
Method: OECD Guideline 422

Species: rat, female
Sex: female
Application Route: oral gavage
Dose: 62.5, 250, 1000 mg/kg
Exposure time: 46 d
Number of exposures: daily, 7 d/wk
NOEL: 250 mg/kg
Lowest observable effect level: 1.000 mg/kg
Method: OECD Guideline 422

Reproductive toxicity

Methylcyclohexane : Species: rat
Sex: male
Application Route: oral gavage
Dose: 62.5, 250, 1000 mg/kg
Number of exposures: daily, 7 d/wk
Test period: 28
Method: OECD Guideline 422
NOAEL Parent: 1.000 mg/kg
NOAEL F1: 1.000 mg/kg

Species: rat
Sex: female
Application Route: oral gavage
Dose: 62.5, 250, 1000 mg/kg
Number of exposures: daily, 7 d/wk
Test period: 46
Method: OECD Guideline 422
NOAEL Parent: 1.000 mg/kg
NOAEL F1: 1.000 mg/kg

Species: rat
Sex: male and female
Application Route: inhalation (vapor)
Dose: 500, 2000, 7000 ppm
Number of exposures: daily, 7 d/wk
Test period: 28
Method: OECD Test Guideline 416
NOAEL Parent: 500 ppm
NOAEL F1: 500 ppm
NOAEL F2: 2000 ppm
Information given is based on data obtained from similar substances.

Developmental Toxicity

Methylcyclohexane : Species: rat
Application Route: Inhalation
Dose: 500, 2000, 7000 ppm
Number of exposures: 6 hr/d, 7 d/wk
Test period: GD 7 - 16

Method: OECD Guideline 414
NOAEL Teratogenicity: 7000 ppm
NOAEL Maternal: 500 ppm
Information given is based on data obtained from similar substances.

Species: rabbit
Application Route: Inhalation
Dose: 500, 2000, 7000 ppm
Number of exposures: 6 hr/d, 7 d/wk
Test period: GD 6 - 18
Method: OECD Guideline 414
NOAEL Teratogenicity: 7000 ppm
NOAEL Maternal: 500 ppm
Information given is based on data obtained from similar substances.

Methylcyclohexane
Aspiration toxicity : May be fatal if swallowed and enters airways.

CMR effects

Methylcyclohexane : Carcinogenicity: Not available
Mutagenicity: Tests on bacterial or mammalian cell cultures did not show mutagenic effects.
Teratogenicity: Animal testing did not show any effects on fetal development.
Reproductive toxicity: Animal testing did not show any effects on fertility.

Methylcyclohexane
Further information : Symptoms of overexposure may be headache, dizziness, tiredness, nausea and vomiting. Concentrations substantially above the TLV value may cause narcotic effects. Solvents may degrease the skin.

SECTION 12: Ecological information

Toxicity to fish

Methylcyclohexane : LC50: 2,07 mg/l
Exposure time: 96 h
Species: Fish
semi-static test

Toxicity to daphnia and other aquatic invertebrates

Methylcyclohexane : EC50: 0,326 mg/l
Exposure time: 48 h
Species: Daphnia magna (Water flea)
semi-static test

Toxicity to algae

Methylcyclohexane : ErC50: 0,336 mg/l
Exposure time: 72 h
Species: Pseudokirchneriella subcapitata (green algae)

static test

Toxicity to bacteria

Methylcyclohexane : IC50: 29 mg/l
Exposure time: 15 h
Growth inhibition

Biodegradability

Methylcyclohexane : aerobic
0 %
Testing period: 28 d
Method: OECD Test Guideline 301F

Acute aquatic toxicity

Methylcyclohexane : Very toxic to aquatic life.

Chronic aquatic toxicity

Methylcyclohexane : Toxic to aquatic life with long lasting effects.

Toxicity Data on Soil

Methylcyclohexane : No data available

Other organisms relevant to the environment

Methylcyclohexane : No data available

Impact on Sewage Treatment

Methylcyclohexane : No data available

Results of PBT assessment

Methylcyclohexane : Non-classified PBT substance, Non-classified vPvB substance

Additional ecological information : Toxic to aquatic life with long lasting effects.

SECTION 13: Disposal considerations

The information in this MSDS pertains only to the product as shipped.

Use material for its intended purpose or recycle if possible. This material, if it must be discarded, may meet the criteria of a hazardous waste as defined by US EPA under RCRA (40 CFR 261) or other State and local regulations. Measurement of certain physical properties and analysis for regulated components may be necessary to make a correct determination. If this material is classified as a hazardous waste, federal law requires disposal at a licensed hazardous waste disposal facility.

Product	:	The product should not be allowed to enter drains, water courses or the soil. Do not contaminate ponds, waterways or ditches with chemical or used container. Send to a licensed waste management company.
Contaminated packaging	:	Empty remaining contents. Dispose of as unused product. Do not re-use empty containers. Do not burn, or use a cutting torch on, the empty drum.

For additional details, see the Exposure Scenario in the Annex portion

SECTION 14: Transport information

The shipping descriptions shown here are for bulk shipments only, and may not apply to shipments in non-bulk packages (see regulatory definition).

Consult the appropriate domestic or international mode-specific and quantity-specific Dangerous Goods Regulations for additional shipping description requirements (e.g., technical name or names, etc.) Therefore, the information shown here, may not always agree with the bill of lading shipping description for the material. Flashpoints for the material may vary slightly between the MSDS and the bill of lading.

US DOT (UNITED STATES DEPARTMENT OF TRANSPORTATION)
UN2296, METHYLCYCLOHEXANE, 3, II

IMO / IMDG (INTERNATIONAL MARITIME DANGEROUS GOODS)
UN2296, METHYLCYCLOHEXANE, 3, II, (-5,5 °C), MARINE POLLUTANT, (METHYLCYCLOHEXANE)

IATA (INTERNATIONAL AIR TRANSPORT ASSOCIATION)
UN2296, METHYLCYCLOHEXANE, 3, II

ADR (AGREEMENT ON DANGEROUS GOODS BY ROAD (EUROPE))
UN2296, METHYLCYCLOHEXANE, 3, II, (D/E), ENVIRONMENTALLY HAZARDOUS, (METHYLCYCLOHEXANE)

RID (REGULATIONS CONCERNING THE INTERNATIONAL TRANSPORT OF DANGEROUS GOODS (EUROPE))
UN2296, METHYLCYCLOHEXANE, 3, II, ENVIRONMENTALLY HAZARDOUS, (METHYLCYCLOHEXANE)

ADN (EUROPEAN AGREEMENT CONCERNING THE INTERNATIONAL CARRIAGE OF DANGEROUS GOODS BY INLAND WATERWAYS)
UN2296, METHYLCYCLOHEXANE, 3, II, ENVIRONMENTALLY HAZARDOUS, (METHYLCYCLOHEXANE)

Transport in bulk according to Annex II of MARPOL 73/78 and the IBC Code

Other information	**:**	**Methylcyclohexane, S.T. 2, Cat. Y**

SECTION 15: Regulatory information

National legislation

Chemical Safety Assessment

Ingredients : methylcyclohexane 203-624-3

Major Accident Hazard Legislation : 96/82/EC Update: 2003
Dangerous for the environment
9b
Quantity 1: 200 t
Quantity 2: 500 t

: 96/82/EC Update: 2003
Highly flammable
7b
Quantity 1: 5.000 t
Quantity 2: 50.000 t

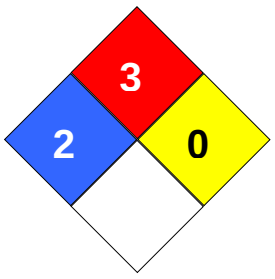
Water contaminating class (Germany) : WGK 2 water endangering

Notification status

Europe REACH	:	On the inventory, or in compliance with the inventory
United States of America TSCA	:	On the inventory, or in compliance with the inventory
Canada DSL	:	On the inventory, or in compliance with the inventory
Australia AICS	:	On the inventory, or in compliance with the inventory
New Zealand NZIoC	:	On the inventory, or in compliance with the inventory
Japan ENCS	:	On the inventory, or in compliance with the inventory
Korea KECI	:	On the inventory, or in compliance with the inventory
Philippines PICCS	:	On the inventory, or in compliance with the inventory
China IECSC	:	On the inventory, or in compliance with the inventory

SECTION 16: Other information

NFPA Classification : Health Hazard: 2
Fire Hazard: 3
Reactivity Hazard: 0



Further information

Legacy MSDS Number : 34310

Significant changes since the last version are highlighted in the margin. This version replaces all previous versions.

The information in this MSDS pertains only to the product as shipped.

The information provided in this Material Safety Data Sheet is correct to the best of our knowledge, information and belief at the date of its publication. The information given is designed only as a guidance for safe handling, use, processing, storage, transportation, disposal and release and is not to be considered a warranty or quality specification. The information relates only to the specific material designated and may not be valid for such material used in combination with any other materials or in any process, unless specified in the text.

Key or legend to abbreviations and acronyms used in the safety data sheet			
ACGIH	American Conference of Government Industrial Hygienists	LD50	Lethal Dose 50%
AICS	Australia, Inventory of Chemical Substances	LOAEL	Lowest Observed Adverse Effect Level
DSL	Canada, Domestic Substances List	NFPA	National Fire Protection Agency
NDSL	Canada, Non-Domestic Substances List	NIOSH	National Institute for Occupational Safety & Health
CNS	Central Nervous System	NTP	National Toxicology Program
CAS	Chemical Abstract Service	NZIoC	New Zealand Inventory of Chemicals
EC50	Effective Concentration	NOAEL	No Observable Adverse Effect Level
EC50	Effective Concentration 50%	NOEC	No Observed Effect Concentration
EGEST	EOSCA Generic Exposure Scenario Tool	OSHA	Occupational Safety & Health Administration
EOSCA	European Oilfield Specialty Chemicals Association	PEL	Permissible Exposure Limit
EINECS	European Inventory of Existing Chemical Substances	PICCS	Philippines Inventory of Commercial Chemical Substances
MAK	Germany Maximum Concentration Values	PRNT	Presumed Not Toxic
GHS	Globally Harmonized System	RCRA	Resource Conservation Recovery Act
>=	Greater Than or Equal To	STEL	Short-term Exposure Limit
IC50	Inhibition Concentration 50%	SARA	Superfund Amendments and Reauthorization Act.
IARC	International Agency for Research on Cancer	TLV	Threshold Limit Value
IECSC	Inventory of Existing Chemical Substances in China	TWA	Time Weighted Average
ENCS	Japan, Inventory of Existing and New Chemical Substances	TSCA	Toxic Substance Control Act
KECI	Korea, Existing Chemical Inventory	UVCB	Unknown or Variable Composition, Complex Reaction Products, and Biological Materials
<=	Less Than or Equal To	WHMIS	Workplace Hazardous Materials Information System
LC50	Lethal Concentration 50%		

Full text of R-phrases referred to under sections 2 and 3

R11	Highly flammable.
R38	Irritating to skin.
R51	Toxic to aquatic organisms.
R51/53	Toxic to aquatic organisms, may cause long-term adverse effects in the aquatic environment.
R53	May cause long-term adverse effects in the aquatic environment.
R65	Harmful: may cause lung damage if swallowed.
R67	Vapors may cause drowsiness and dizziness.

Full text of H-Statements referred to under sections 2 and 3.

H225	Highly flammable liquid and vapor.
H304	May be fatal if swallowed and enters airways.
H315	Causes skin irritation.
H336	May cause drowsiness or dizziness.
H400	Very toxic to aquatic life.
H411	Toxic to aquatic life with long lasting effects.

Annex

1. Short title of Exposure Scenario: **Solvent in other applications**

Main User Groups	:	**SU 3:** Industrial uses: Uses of substances as such or in preparations at industrial sites
Sector of use	:	**SU3:** Industrial Manufacturing (all)
Process category	:	**PROC1:** Use in closed process, no likelihood of exposure **PROC2:** Use in closed, continuous process with occasional controlled exposure **PROC3:** Use in closed batch process (synthesis or formulation) **PROC4:** Use in batch and other process (synthesis) where opportunity for exposure arises **PROC7:** Industrial spraying **PROC8a:** Transfer of substance or preparation (charging/discharging) from/to vessels/large containers at non-dedicated facilities **PROC8b:** Transfer of substance or preparation (charging/ discharging) from/ to vessels/ large containers at dedicated facilities **PROC10:** Roller application or brushing **PROC13:** Treatment of articles by dipping and pouring
Environmental release category	:	**ERC4:** Industrial use of processing aids in processes and products, not becoming part of articles

2.1 Contributing scenario controlling environmental exposure for:ERC4: Industrial use of processing aids in processes and products, not becoming part of articles

Concentration of the Substance in Mixture/Article	:	5-25%

Environment factors not influenced by risk management

Flow rate	:	90.000 m3/d

Other given operational conditions affecting environmental exposure

Emission or Release Factor: Air	:	0,3 %
Emission or Release Factor: Water	:	0,003 %
Emission or Release Factor: Soil	:	0,1 %
Local release rate: Air	:	0,66 kg/day
Local release rate: Water	:	0,0065 kg/day
Local release rate: Soil	:	40 kg/day

Technical conditions and measures / Organizational measures

Air	:	Treat air emission to provide a typical removal efficiency of (%): (Effectiveness: 70 %)
Water	:	Treat onsite wastewater (prior to receiving water discharge) to provide the required removal efficiency of ≥ (%): (Effectiveness: > 96,4 %)

Conditions and measures related to municipal sewage treatment plant

Type of Sewage Treatment Plant	:	Municipal sewage treatment plant, No

Flow rate of sewage treatment plant effluent	:	2.000 m3/d
Sludge Treatment	:	Agricultural soil, No

2.2 Contributing scenario controlling worker exposure for: PROC1: Use in closed process, no likelihood of exposure

Product characteristics

Concentration of the Substance in Mixture/Article	:	5-25%
Physical Form (at time of use)	:	Liquid substance

Frequency and duration of use

Exposure duration	:	> 4 h
Frequency of use	:	5 days/week

Human factors not influenced by risk management

Exposed skin area	:	One hand face only (240 cm2)

Other operational conditions affecting workers exposure

Outdoor / Indoor	:	Indoor

Technical conditions and measures

Local exhaust ventilation, No

Conditions and measures related to personal protection, hygiene and health evaluation

Personal Protection, None required
Respiratory Protection, None required

2.2 Contributing scenario controlling worker exposure for: PROC2: Use in closed, continuous process with occasional controlled exposure

Product characteristics

Concentration of the Substance in Mixture/Article	:	5-25%
Physical Form (at time of use)	:	Liquid substance

Frequency and duration of use

Exposure duration	:	> 4 h
Frequency of use	:	5 days/week

Human factors not influenced by risk management

Exposed skin area	:	Palms of both hands (480 cm2)

Other operational conditions affecting workers exposure

Outdoor / Indoor	:	Indoor

Technical conditions and measures

Local exhaust ventilation, No

Conditions and measures related to personal protection, hygiene and health evaluation

Protective gloves (Effectiveness: 90 %)

Respiratory Protection, None required

2.2 Contributing scenario controlling worker exposure for: PROC3: Use in closed batch process (synthesis or formulation)

Product characteristics

Concentration of the Substance in Mixture/Article	:	5-25%
Physical Form (at time of use)	:	Liquid substance

Frequency and duration of use

Exposure duration	:	> 4 h
Frequency of use	:	5 days/week

Human factors not influenced by risk management

Exposed skin area	:	One hand face only (240 cm2)

Other operational conditions affecting workers exposure

Outdoor / Indoor	:	Indoor

Technical conditions and measures

Local exhaust ventilation, No

Conditions and measures related to personal protection, hygiene and health evaluation

Protective gloves, APF 10 (Effectiveness: 90 %)
Respiratory Protection, None required

2.2 Contributing scenario controlling worker exposure for: PROC4: Use in batch and other process (synthesis) where opportunity for exposure arises

Product characteristics

Concentration of the Substance in Mixture/Article	:	5-25%
Physical Form (at time of use)	:	Liquid substance

Frequency and duration of use

Exposure duration	:	> 4 h
Frequency of use	:	5 days/week

Human factors not influenced by risk management

Exposed skin area	:	Palms of both hands (480 cm2)

Other operational conditions affecting workers exposure

Outdoor / Indoor	:	Indoor

Technical conditions and measures

Local exhaust ventilation- inhalation:, Yes (Effectiveness: 90 %)

Conditions and measures related to personal protection, hygiene and health evaluation

Protective gloves, APF 10 (Effectiveness: 90 %)
Respiratory Protection, None required

2.2 Contributing scenario controlling worker exposure for: PROC7: Industrial spraying

Product characteristics

Concentration of the Substance in Mixture/Article	:	5-25%
Physical Form (at time of use)	:	Liquid substance

Frequency and duration of use

Exposure duration	:	> 4 h
Frequency of use	:	5 days/week

Human factors not influenced by risk management

: 1500 cm2

Other operational conditions affecting workers exposure

Outdoor / Indoor	:	Indoor

Technical conditions and measures

Local exhaust ventilation-dermal:, Yes (Effectiveness: 95 %)

Conditions and measures related to personal protection, hygiene and health evaluation

Protective gloves, APF 10 (Effectiveness: 90 %)
Respiratory Protection, None required

2.2 Contributing scenario controlling worker exposure for: PROC8a: Transfer of substance or preparation (charging/discharging) from/to vessels/large containers at non-dedicated facilities

Product characteristics

Concentration of the Substance in Mixture/Article	:	5-25%
Physical Form (at time of use)	:	Liquid substance

Frequency and duration of use

Exposure duration	:	> 4 h
Frequency of use	:	5 days/week

Human factors not influenced by risk management

Exposed skin area	:	Two hands (960 cm2)

Other operational conditions affecting workers exposure

Outdoor / Indoor	:	Indoor

Technical conditions and measures

Local exhaust ventilation- inhalation:, Yes (Effectiveness: 90 %)

Conditions and measures related to personal protection, hygiene and health evaluation

Protective gloves, APF 10 (Effectiveness: 90 %)
Respiratory Protection, None required

2.2 Contributing scenario controlling worker exposure for: PROC8b: Transfer of

substance or preparation (charging/ discharging) from/ to vessels/ large containers at dedicated facilities

Product characteristics
Concentration of the Substance in Mixture/Article : 5-25%

Physical Form (at time of use) : Liquid substance

Frequency and duration of use
Exposure duration : > 4 h
Frequency of use : 5 days/week

Human factors not influenced by risk management
Exposed skin area : Two hands (960 cm2)

Other operational conditions affecting workers exposure
Outdoor / Indoor : Indoor

Technical conditions and measures
Local exhaust ventilation- inhalation:, Yes (Effectiveness: 95 %)

Conditions and measures related to personal protection, hygiene and health evaluation
Protective gloves, APF 10 (Effectiveness: 90 %)
Respiratory Protection, None required

2.2 Contributing scenario controlling worker exposure for: PROC10: Roller application or brushing

Product characteristics
Concentration of the Substance in Mixture/Article : 5-25%

Physical Form (at time of use) : Liquid substance

Frequency and duration of use
Exposure duration : 1 - 4 h
Frequency of use : 5 days/week

Human factors not influenced by risk management
Exposed skin area : Two hands (960 cm2)

Other operational conditions affecting workers exposure
Outdoor / Indoor : Indoor

Technical conditions and measures
Local exhaust ventilation- inhalation:, Yes (Effectiveness: 90 %)

Conditions and measures related to personal protection, hygiene and health evaluation
Protective gloves, APF 10 (Effectiveness: 90 %)
Respiratory Protection, None required

2.2 Contributing scenario controlling worker exposure for: PROC13: Treatment of articles by dipping and pouring

Product characteristics
Concentration of the Substance in Mixture/Article : 5-25%

Physical Form (at time of use) : Liquid substance

Frequency and duration of use
Exposure duration : > 4 h
Frequency of use : 5 days/week

Human factors not influenced by risk management
Exposed skin area : Palms of both hands (480 cm2)

Other operational conditions affecting workers exposure
Outdoor / Indoor : Indoor

Technical conditions and measures
Local exhaust ventilation- inhalation:, Yes (Effectiveness: 90 %)

Conditions and measures related to personal protection, hygiene and health evaluation
Protective gloves, APF 10 (Effectiveness: 90 %)
Respiratory Protection, None required

3. Exposure estimation and reference to its source

Environment

Contributing Scenario	Exposure Assessment Method	Specific conditions	Compartment	Value type	Level of Exposure	Risk characterization ratio
ERC4	Petrorisk		Freshwater		0,00018 mg/L	
			Freshwater sediment		0,0043 mg/kg dry weight (d.w.)	
			Marine water		0,000018 mg/L	
			Marine sediment		0,00043 mg/kg dry weight (d.w.)	
			Sewage treatment plant		0,0018 mg/L	
			Agricultural soil		0,0000012 mg/kg	

ERC4: Industrial use of processing aids in processes and products, not becoming part of articles

Workers/Consumers

Contributing Scenario	Exposure Assessment Method	Specific conditions	Value type	Level of Exposure	Risk characterization ratio
PROC1	EasyTRA		Worker – dermal, long-term – systemic	0,020571 mg/kg/d	
			Worker – inhalation, long-term – systemic	0,024547 mg/m3	
			Worker – long-term – systemic Combined routes	0,024078 mg/kg/d	
PROC2	EasyTRA		Worker – dermal, long-term – systemic	0,082286 mg/kg/d	

			Worker – inhalation, long-term – systemic	12,273 mg/m3	
			Worker – long-term – systemic Combined routes	1,836 mg/kg/d	
PROC3	EasyTRA		Worker – dermal, long-term – systemic	0,041143 mg/kg/d	
			Worker – inhalation, long-term – systemic	24,547 mg/m3	
			Worker – long-term – systemic Combined routes	3,548 mg/kg/d	
PROC4	EasyTRA		Worker – dermal, long-term – systemic	0,411429 mg/kg/d	
			Worker – inhalation, long-term – systemic	4,909 mg/m3	
			Worker – long-term – systemic Combined routes	1,113 mg/kg/d	
PROC7	EasyTRA		Worker – dermal, long-term – systemic	0,128571 mg/kg/d	
			Worker – inhalation, long-term – systemic	30,683 mg/m3	
			Worker – long-term – systemic Combined routes	4,512 mg/kg/d	
PROC8a	EasyTRA		Worker – dermal, long-term – systemic	0,822857 mg/kg/d	
			Worker – inhalation, long-term – systemic	12,273 mg/m3	
			Worker – long-term – systemic Combined routes	2,576 mg/kg/d	
PROC8b	EasyTRA		Worker – dermal, long-term – systemic	0,822857 mg/kg/d	
			Worker – inhalation, long-term – systemic	3,068 mg/m3	
			Worker – long-term – systemic Combined routes	1,261 mg/kg/d	
PROC10	EasyTRA		Worker – dermal, long-term – systemic	0,987429 mg/kg/d	
			Worker – inhalation, long-term – systemic	7,364 mg/m3	
			Worker – long-term – systemic Combined routes	2,039 mg/kg/d	
PROC13	EasyTRA		Worker – dermal, long-term – systemic	0,822857 mg/kg/d	
			Worker – inhalation, long-term – systemic	12,273 mg/m3	
			Worker – long-term – systemic Combined routes	2,576 mg/kg/d	

PROC1: Use in closed process, no likelihood of exposure

PROC2: Use in closed, continuous process with occasional controlled exposure

PROC3: Use in closed batch process (synthesis or formulation)

PROC4: Use in batch and other process (synthesis) where opportunity for exposure arises

PROC7: Industrial spraying

PROC8a: Transfer of substance or preparation (charging/discharging) from/to vessels/large containers at non-dedicated facilities

PROC8b: Transfer of substance or preparation (charging/ discharging) from/ to vessels/ large containers at dedicated facilities

PROC10: Roller application or brushing

PROC13: Treatment of articles by dipping and pouring

4. Guidance to Downstream User to evaluate whether he works inside the boundaries set by the Exposure Scenario

Predicted releases are not expected to lead to environmental concentrations which would exceed the PNEC when the Risk Management Measures/Operational Conditions outlined in Section 2 are implemented.

Where other Risk Management Measures/Operational Conditions are adopted, then users should ensure that risks are managed to at least equivalent levels.Estimated workplace exposures are not expected to exceed DNELs when the identified risk management measures are adopted. Where other Risk Management Measures/Operational Conditions are adopted, then users should ensure that risks are managed to at least equivalent levels.

1. Short title of Exposure Scenario: **Use in polymer processing – professional**

Main User Groups	:	**SU 22:** Professional uses: Public domain (administration, education, entertainment, services, craftsmen)
Sector of use	:	**SU 22, SU0:** Professional uses: Public domain (administration, education, entertainment, services, craftsmen), Other
Process category	:	**PROC1:** Use in closed process, no likelihood of exposure **PROC2:** Use in closed, continuous process with occasional controlled exposure **PROC6:** Calendering operations **PROC8a:** Transfer of substance or preparation (charging/discharging) from/to vessels/large containers at non-dedicated facilities **PROC8b:** Transfer of substance or preparation (charging/ discharging) from/ to vessels/ large containers at dedicated facilities **PROC14:** Production of mixtures or articles by tabletting, compression, extrusion, pelletization; Industrial setting; **PROC21:** Low energy manipulation of substances bound in materials and/ or articles
Environmental release category	:	**ERC8a, ERC8d:** Wide dispersive indoor use of processing aids in open systems, Wide dispersive outdoor use of processing aids in open systems
Further information	:	Processing of formulated polymers including material transfers, moulding and forming activities, material re-works and associated maintenance.

2.1 Contributing scenario controlling environmental exposure for:ERC8a, ERC8d: Wide dispersive indoor use of processing aids in open systems, Wide dispersive outdoor use of processing aids in open systems

Concentration of the Substance in Mixture/Article	:	5-25%

Environment factors not influenced by risk management

Flow rate	:	90.000 m3/d

Other given operational conditions affecting environmental exposure

Emission or Release Factor: Air	:	98 %
Emission or Release Factor: Water	:	1 %
Emission or Release Factor: Soil	:	1 %
Local release rate: Water	:	1,6 kg/day
Local release rate: Air	:	160 kg/day
Local release rate: Soil	:	0,0033 kg/day

Technical conditions and measures / Organizational measures

Air	:	Treat air emission to provide a typical removal efficiency of (%): (Effectiveness: 0 %)
Water	:	Treat onsite wastewater (prior to receiving water discharge) to provide the required removal efficiency of ≥ (%): (Effectiveness: > 96,4 %)

Conditions and measures related to municipal sewage treatment plant

Type of Sewage Treatment Plant	:	Municipal sewage treatment plant, No
Flow rate of sewage treatment plant effluent	:	2.000 m3/d
Sludge Treatment	:	Agricultural soil, Yes, applicable

2.2 Contributing scenario controlling worker exposure for: PROC1: Use in closed process, no likelihood of exposure

Product characteristics

Concentration of the Substance in Mixture/Article	:	5-25%
Physical Form (at time of use)	:	Liquid substance

Frequency and duration of use

Exposure duration	:	> 4 h
Frequency of use	:	5 days/week

Human factors not influenced by risk management

Exposed skin area	:	One hand face only (240 cm2)

Other operational conditions affecting workers exposure

Outdoor / Indoor	:	Indoor

Technical conditions and measures

Local exhaust ventilation, No

Conditions and measures related to personal protection, hygiene and health evaluation

Personal Protection, None required
Respiratory Protection, None required

2.2 Contributing scenario controlling worker exposure for: PROC2: Use in closed, continuous process with occasional controlled exposure

Product characteristics

Concentration of the Substance in Mixture/Article : 5-25%

Physical Form (at time of use) : Liquid substance

Frequency and duration of use
Exposure duration : > 4 h
Frequency of use : 5 days/week

Human factors not influenced by risk management
Exposed skin area : Palms of both hands (480 cm2)

Other operational conditions affecting workers exposure
Outdoor / Indoor : Indoor

Technical conditions and measures
Local exhaust ventilation, No

Conditions and measures related to personal protection, hygiene and health evaluation
Protective gloves, APF 10 (Effectiveness: 90 %)
Respiratory Protection, None required

2.2 Contributing scenario controlling worker exposure for: PROC6: Calendering operations

Product characteristics
Concentration of the Substance in Mixture/Article : 5-25%

Physical Form (at time of use) : Liquid substance

Frequency and duration of use
Exposure duration : 1 - 4 h
Frequency of use : 5 days/week

Human factors not influenced by risk management
Exposed skin area : Two hands (960 cm2)

Other operational conditions affecting workers exposure
Outdoor / Indoor : Indoor

Technical conditions and measures
Local exhaust ventilation, No

Conditions and measures related to personal protection, hygiene and health evaluation
Protective gloves, APF 10 (Effectiveness: 90 %)
Respiratory Protection, Yes (Effectiveness: 90 %)

2.2 Contributing scenario controlling worker exposure for: PROC8a: Transfer of substance or preparation (charging/discharging) from/to vessels/large containers at non-dedicated facilities

Product characteristics
Concentration of the Substance in : 5-25%

Mixture/Article

Physical Form (at time of use) : Liquid substance

Frequency and duration of use
Exposure duration : > 4 h
Frequency of use : 5 days/week

Human factors not influenced by risk management
Exposed skin area : Two hands (960 cm2)

Other operational conditions affecting workers exposure
Outdoor / Indoor : Indoor

Technical conditions and measures
Local exhaust ventilation, No

Conditions and measures related to personal protection, hygiene and health evaluation
Protective gloves, Yes, APF 10 (Effectiveness: 90 %)
Respiratory Protection, Yes (Effectiveness: 90 %)

2.2 Contributing scenario controlling worker exposure for: PROC8b: Transfer of substance or preparation (charging/ discharging) from/ to vessels/ large containers at dedicated facilities

Product characteristics
Concentration of the Substance in Mixture/Article : 5-25%

Physical Form (at time of use) : Liquid substance

Frequency and duration of use
Exposure duration : > 4 h
Frequency of use : 5 days/week

Human factors not influenced by risk management
Exposed skin area : Two hands (960 cm2)

Other operational conditions affecting workers exposure
Outdoor / Indoor : Indoor

Technical conditions and measures
Local exhaust ventilation, No

Conditions and measures related to personal protection, hygiene and health evaluation
Protective gloves, Yes, APF 10 (Effectiveness: 90 %)
Respiratory Protection, Yes (Effectiveness: 90 %)

2.2 Contributing scenario controlling worker exposure for: PROC14: Production of mixtures or articles by tabletting, compression, extrusion, pelletization; Industrial setting;

Product characteristics
Concentration of the Substance in : 5-25%

Mixture/Article

Physical Form (at time of use) : Liquid substance

Frequency and duration of use
Exposure duration : > 4 h
Frequency of use : 5 days/week

Human factors not influenced by risk management
Exposed skin area : Palms of both hands (480 cm2)

Other operational conditions affecting workers exposure
Outdoor / Indoor : Indoor

Technical conditions and measures
Local exhaust ventilation, No

Conditions and measures related to personal protection, hygiene and health evaluation
Protective gloves, Yes, APF 10 (Effectiveness: 90 %)
Respiratory Protection, Yes (Effectiveness: 90 %)

2.2 Contributing scenario controlling worker exposure for: PROC21: Low energy manipulation of substances bound in materials and/ or articles

Product characteristics
Concentration of the Substance in Mixture/Article : 5-25%

Physical Form (at time of use) : Liquid substance

Frequency and duration of use
Exposure duration : > 4 h
Frequency of use : 5 days/week

Human factors not influenced by risk management
Exposed skin area : Skin
: 1980 cm2

Other operational conditions affecting workers exposure
Outdoor / Indoor : Indoor

Technical conditions and measures
Local exhaust ventilation, No

Conditions and measures related to personal protection, hygiene and health evaluation
Protective gloves, Yes, APF 10 (Effectiveness: 90 %)
Respiratory Protection, Yes (Effectiveness: 90 %)

3. Exposure estimation and reference to its source

Environment

Contributing Scenario	Exposure Assessment	Specific conditions	Compartment	Value type	Level of Exposure	Risk characterization

	Method					ratio
ERC8a, ERC8d	Petrorisk		Freshwater		0,0000065 mg/L	
			Freshwater sediment		0,000035 mg/kg dry weight (d.w.)	
			Marine water		0,0000001 mg/L	
			Marine sediment		0,0000035 mg/kg dry weight (d.w.)	
			Sewage treatment plant		0,000015 mg/L	
			Agricultural soil		0,00001 mg/kg	

ERC8a: Wide dispersive indoor use of processing aids in open systems
ERC8d: Wide dispersive outdoor use of processing aids in open systems

Workers/Consumers

Contributing Scenario	Exposure Assessment Method	Specific conditions	Value type	Level of Exposure	Risk characterization ratio
PROC1	EasyTRA		Worker – dermal, long-term – systemic	0,020571 mg/kg/d	
			Worker – inhalation, long-term – systemic	0,024547 mg/m3	
			Worker – long-term – systemic Combined routes	0,024078 mg/kg/d	
PROC2	EasyTRA		Worker – dermal, long-term – systemic	0,082286 mg/kg/d	
			Worker – inhalation, long-term – systemic	49,093 mg/m3	
			Worker – long-term – systemic Combined routes	7,096 mg/kg/d	
PROC6	EasyTRA		Worker – dermal, long-term – systemic	0,987429 mg/kg/d	
			Worker – inhalation, long-term – systemic	14,728 mg/m3	
			Worker – long-term – systemic Combined routes	3,091 mg/kg/d	
PROC8a	EasyTRA		Worker – dermal, long-term – systemic	0,822857 mg/kg/d	
			Worker – inhalation, long-term – systemic	24,547 mg/m3	
			Worker – long-term – systemic Combined routes	4,33 mg/kg/d	
PROC8b	EasyTRA		Worker – dermal, long-term – systemic	0,822857 mg/kg/d	
			Worker – inhalation, long-term – systemic	12,273 mg/m3	
			Worker – long-term – systemic Combined routes	2,576 mg/kg/d	
PROC14	EasyTRA		Worker – dermal, long-term – systemic	0,205714 mg/kg/d	
			Worker – inhalation, long-term – systemic	24,547 mg/m3	
			Worker – long-term – systemic Combined routes	3,712 mg/kg/d	
PROC21	EasyTRA		Worker – dermal, long-term – systemic	0,169714 mg/kg/d	
			Worker – inhalation, long-term – systemic		

			Worker – long-term – systemic Combined routes	0,169714 mg/kg/d	

PROC1: Use in closed process, no likelihood of exposure

PROC2: Use in closed, continuous process with occasional controlled exposure

PROC6: Calendering operations

PROC8a: Transfer of substance or preparation (charging/discharging) from/to vessels/large containers at non-dedicated facilities

PROC8b: Transfer of substance or preparation (charging/ discharging) from/ to vessels/ large containers at dedicated facilities

PROC14: Production of mixtures or articles by tabletting, compression, extrusion, pelletization; Industrial setting;

PROC21: Low energy manipulation of substances bound in materials and/ or articles

4. Guidance to Downstream User to evaluate whether he works inside the boundaries set by the Exposure Scenario

Predicted releases are not expected to lead to environmental concentrations which would exceed the PNEC when the Risk Management Measures/Operational Conditions outlined in Section 2 are implemented.

Where other Risk Management Measures/Operational Conditions are adopted, then users should ensure that risks are managed to at least equivalent levels.Estimated workplace exposures are not expected to exceed DNELs when the identified risk management measures are adopted. Where other Risk Management Measures/Operational Conditions are adopted, then users should ensure that risks are managed to at least equivalent levels.

1. Short title of Exposure Scenario: **Use in coatings – professional**

Main User Groups	:	**SU 22:** Professional uses: Public domain (administration, education, entertainment, services, craftsmen)
Sector of use	:	**SU 22, SU0:** Professional uses: Public domain (administration, education, entertainment, services, craftsmen), Other
Process category	:	**PROC1:** Use in closed process, no likelihood of exposure **PROC2:** Use in closed, continuous process with occasional controlled exposure **PROC3:** Use in closed batch process (synthesis or formulation) **PROC4:** Use in batch and other process (synthesis) where opportunity for exposure arises **PROC5:** Mixing or blending in batch processes for formulation of mixtures and articles (multistage and/or significant contact) Industrial setting; **PROC8a:** Transfer of substance or preparation (charging/discharging) from/to vessels/large containers at non-dedicated facilities **PROC8b:** Transfer of substance or preparation (charging/ discharging) from/ to vessels/ large containers at dedicated facilities **PROC10:** Roller application or brushing **PROC11:** Non industrial spraying

		PROC13: Treatment of articles by dipping and pouring **PROC15:** Use as laboratory reagent **PROC19:** Hand-mixing with intimate contact and only PPE available
Environmental release category	:	**ERC8a, ERC8d:** Wide dispersive indoor use of processing aids in open systems, Wide dispersive outdoor use of processing aids in open systems
Further information	:	Covers the use in coatings (paints, inks, adhesives, etc) including exposures during use (including materials receipt, storage, preparation and transfer from bulk and semi-bulk, application by spray, roller, brush, spreader by hand or similar methods, and film formation), and equipment cleaning, maintenance and associated laboratory activities.

2.1 Contributing scenario controlling environmental exposure for:ERC8a, ERC8d: Wide dispersive indoor use of processing aids in open systems, Wide dispersive outdoor use of processing aids in open systems

Concentration of the Substance in Mixture/Article	:	5-25%

Environment factors not influenced by risk management

Flow rate	:	90.000 m3/d

Other given operational conditions affecting environmental exposure

Emission or Release Factor: Air	:	98 %
Emission or Release Factor: Water	:	1 %
Emission or Release Factor: Soil	:	1 %
Local release rate: Water	:	1,1 kg/day
Local release rate: Air	:	11 kg/day
Local release rate: Soil	:	0,000002 kg/day

Technical conditions and measures / Organizational measures

Air	:	Treat air emission to provide a typical removal efficiency of (%): (Effectiveness: 0 %)
Water	:	Treat onsite wastewater (prior to receiving water discharge) to provide the required removal efficiency of ≥ (%): (Effectiveness: > 96,4 %)

Conditions and measures related to municipal sewage treatment plant

Type of Sewage Treatment Plant	:	Municipal sewage treatment plant, No
Flow rate of sewage treatment plant effluent	:	2.000 m3/d
Sludge Treatment	:	Agricultural soil, Yes, applicable

2.2 Contributing scenario controlling worker exposure for: PROC1: Use in closed process, no likelihood of exposure

Product characteristics

Concentration of the Substance in Mixture/Article	:	5-25%

Physical Form (at time of use) : Liquid substance

Frequency and duration of use
Exposure duration : > 4 h
Frequency of use : 5 days/week

Human factors not influenced by risk management
Exposed skin area : One hand face only (240 cm2)

Other operational conditions affecting workers exposure
Outdoor / Indoor : Indoor

Technical conditions and measures
Local exhaust ventilation, No

Conditions and measures related to personal protection, hygiene and health evaluation
Personal Protection, None required
Respiratory Protection, None required

2.2 Contributing scenario controlling worker exposure for: PROC2: Use in closed, continuous process with occasional controlled exposure

Product characteristics
Concentration of the Substance in Mixture/Article : 5-25%

Physical Form (at time of use) : Liquid substance

Frequency and duration of use
Exposure duration : > 4 h
Frequency of use : 5 days/week

Human factors not influenced by risk management
Exposed skin area : Palms of both hands (480 cm2)

Other operational conditions affecting workers exposure
Outdoor / Indoor : Indoor

Technical conditions and measures
Local exhaust ventilation, No

Conditions and measures related to personal protection, hygiene and health evaluation
Protective gloves, APF 10 (Effectiveness: 90 %)
Respiratory Protection, None required

2.2 Contributing scenario controlling worker exposure for: PROC3: Use in closed batch process (synthesis or formulation)

Product characteristics
Concentration of the Substance in Mixture/Article : 5-25%

Physical Form (at time of use) : Liquid substance

Frequency and duration of use
Exposure duration : > 4 h
Frequency of use : 5 days/week

Human factors not influenced by risk management
Exposed skin area : One hand face only (240 cm2)

Other operational conditions affecting workers exposure
Outdoor / Indoor : Indoor

Technical conditions and measures
Local exhaust ventilation, No

Conditions and measures related to personal protection, hygiene and health evaluation
Protective gloves, APF 10 (Effectiveness: 90 %)
Respiratory Protection, None required

2.2 Contributing scenario controlling worker exposure for: PROC4, PROC5, PROC13: Use in batch and other process (synthesis) where opportunity for exposure arises, Mixing or blending in batch processes for formulation of mixtures and articles (multistage and/or significant contact) Industrial setting;, Treatment of articles by dipping and pouring

Product characteristics
Concentration of the Substance in Mixture/Article : 5-25%

Physical Form (at time of use) : Liquid substance

Frequency and duration of use
Exposure duration : > 4 h
Frequency of use : 5 days/week

Human factors not influenced by risk management
Exposed skin area : Palms of both hands (480 cm2)

Other operational conditions affecting workers exposure
Outdoor / Indoor : Indoor

Technical conditions and measures
Local exhaust ventilation, No

Conditions and measures related to personal protection, hygiene and health evaluation
Protective gloves, APF 10 (Effectiveness: 90 %)
Respiratory Protection, Yes (Effectiveness: 90 %)

2.2 Contributing scenario controlling worker exposure for: PROC8a, PROC8b: Transfer of substance or preparation (charging/discharging) from/to vessels/large containers at non-dedicated facilities, Transfer of substance or preparation (charging/ discharging) from/ to vessels/ large containers at dedicated facilities

Product characteristics
Concentration of the Substance in Mixture/Article : 5-25%

Physical Form (at time of use) : Liquid substance

Frequency and duration of use
Exposure duration : > 4 h
Frequency of use : 5 days/week

Human factors not influenced by risk management
Exposed skin area : Two hands (960 cm2)

Other operational conditions affecting workers exposure
Outdoor / Indoor : Indoor

Technical conditions and measures
Local exhaust ventilation, No

Conditions and measures related to personal protection, hygiene and health evaluation
Protective gloves, APF 10 (Effectiveness: 90 %)
Respiratory Protection, Yes (Effectiveness: 90 %)

2.2 Contributing scenario controlling worker exposure for: PROC10: Roller application or brushing

Product characteristics
Concentration of the Substance in Mixture/Article : 5-25%

Physical Form (at time of use) : Liquid substance

Frequency and duration of use
Exposure duration : 1 - 4 h
Frequency of use : 5 days/week

Human factors not influenced by risk management
Exposed skin area : Two hands (960 cm2)

Other operational conditions affecting workers exposure
Outdoor / Indoor : Indoor

Technical conditions and measures
Local exhaust ventilation, No

Conditions and measures related to personal protection, hygiene and health evaluation
Protective gloves, APF 10 (Effectiveness: 90 %)
Respiratory Protection, Yes (Effectiveness: 90 %)

2.2 Contributing scenario controlling worker exposure for: PROC11: Non industrial spraying

Product characteristics
Concentration of the Substance in Mixture/Article : 1-5%

Physical Form (at time of use) : Liquid substance

Frequency and duration of use
Exposure duration : 1 - 4 h
Frequency of use : 5 days/week

Human factors not influenced by risk management
Exposed skin area : Skin
: 1500 cm2

Other operational conditions affecting workers exposure
Outdoor / Indoor : Indoor

Technical conditions and measures
Local exhaust ventilation, No

Conditions and measures related to personal protection, hygiene and health evaluation
Protective gloves, APF 10 (Effectiveness: 90 %)
Respiratory Protection, Yes (Effectiveness: 95 %)

2.2 Contributing scenario controlling worker exposure for: PROC15: Use as laboratory reagent

Product characteristics
Concentration of the Substance in Mixture/Article : 5-25%

Physical Form (at time of use) : Liquid substance

Frequency and duration of use
Exposure duration : > 4 h
Frequency of use : 5 days/week

Human factors not influenced by risk management
Exposed skin area : One hand face only (240 cm2)

Other operational conditions affecting workers exposure
Outdoor / Indoor : Indoor

Technical conditions and measures
Local exhaust ventilation, No

Conditions and measures related to personal protection, hygiene and health evaluation
Protective gloves, APF 10 (Effectiveness: 90 %)
Respiratory Protection, Yes (Effectiveness: 90 %)

2.2 Contributing scenario controlling worker exposure for: PROC19: Hand-mixing with intimate contact and only PPE available

Product characteristics
Concentration of the Substance in Mixture/Article : 1-5%

Physical Form (at time of use) : Liquid substance

Frequency and duration of use
Exposure duration : 15 - 60 min
Frequency of use : 5 days/week

Human factors not influenced by risk management
Exposed skin area : Skin
: 1980 cm2

Other operational conditions affecting workers exposure
Outdoor / Indoor : Indoor

Technical conditions and measures
Local exhaust ventilation, No

Conditions and measures related to personal protection, hygiene and health evaluation
Protective gloves, APF 10 (Effectiveness: 90 %)
Respiratory Protection, Yes (Effectiveness: 90 %)

3. Exposure estimation and reference to its source

Environment

Contributing Scenario	Exposure Assessment Method	Specific conditions	Compartment	Value type	Level of Exposure	Risk characterization ratio
ERC8a, ERC8d	Petrorisk		Freshwater		0,000006 mg/L	
			Freshwater sediment		0,000055 mg/kg dry weight (d.w.)	
			Marine water		0,000099 µg/L	
			Marine sediment		0,0000024 mg/kg dry weight (d.w.)	
			Sewage treatment plant		0,0000099 mg/L	
			Agricultural soil		0,0000069 mg/kg	

ERC8a: Wide dispersive indoor use of processing aids in open systems
ERC8d: Wide dispersive outdoor use of processing aids in open systems

Workers/Consumers

Contributing Scenario	Exposure Assessment Method	Specific conditions	Value type	Level of Exposure	Risk characterization ratio
PROC1	EasyTRA		Worker – dermal, long-term – systemic	0,020571 mg/kg/d	
			Worker – inhalation, long-term – systemic	0,024547 mg/m3	
			Worker – long-term – systemic Combined routes	0,024078 mg/kg/d	
PROC2	EasyTRA		Worker – dermal, long-term – systemic	0,082286 mg/kg/d	
			Worker – inhalation, long-term – systemic	49,093 mg/m3	
			Worker – long-term – systemic Combined routes	7,096 mg/kg/d	
PROC3	EasyTRA		Worker – dermal, long-	0,041143 mg/kg/d	

			term – systemic		
			Worker – inhalation, long-term – systemic	61,366 mg/m3	
			Worker – long-term – systemic Combined routes	8,808 mg/kg/d	
PROC4	EasyTRA		Worker – dermal, long-term – systemic	0,411429 mg/kg/d	
			Worker – inhalation, long-term – systemic	12,273 mg/m3	
			Worker – long-term – systemic Combined routes	2,165 mg/kg/d	
PROC5	EasyTRA		Worker – dermal, long-term – systemic	0,822857 mg/kg/d	
			Worker – inhalation, long-term – systemic	14,728 mg/m3	
			Worker – long-term – systemic Combined routes	2,598 mg/kg	
PROC13	EasyTRA		Worker – dermal, long-term – systemic	0,822857 mg/kg/d	
			Worker – inhalation, long-term – systemic	24,547 mg/m3	
			Worker – long-term – systemic Combined routes	4,33 mg/kg	
PROC8a	EasyTRA		Worker – dermal, long-term – systemic	0,822857 mg/kg/d	
			Worker – inhalation, long-term – systemic	24,547 mg/m3	
			Worker – long-term – systemic Combined routes	4,33 mg/kg/d	
PROC8b	EasyTRA		Worker – dermal, long-term – systemic	0,822857 mg/kg/d	
			Worker – inhalation, long-term – systemic	12,273 mg/m3	
			Worker – long-term – systemic Combined routes	2,576 mg/kg/d	
PROC10	EasyTRA		Worker – dermal, long-term – systemic	0,987429 mg/kg/d	
			Worker – inhalation, long-term – systemic	14,728 mg/m3	
			Worker – long-term – systemic Combined routes	3,091 mg/kg/d	
PROC11	EasyTRA		Worker – dermal, long-term – systemic	1,286 mg/kg/d	
			Worker – inhalation, long-term – systemic	12,273 mg/m3	
			Worker – long-term – systemic Combined routes	3,039 mg/kg/d	
PROC15	EasyTRA		Worker – dermal, long-term – systemic	0,020571 mg/kg/d	
			Worker – inhalation, long-term – systemic	2,455 mg/m3	
			Worker – long-term – systemic Combined routes	0,371236 mg/kg/d	
PROC19	EasyTRA		Worker – dermal, long-term – systemic	0,565714 mg/kg/d	
			Worker – inhalation, long-term – systemic	1,636 mg/m3	
			Worker – long-term – systemic Combined routes	0,799491 mg/kg/d	

PROC1: Use in closed process, no likelihood of exposure

PROC2: Use in closed, continuous process with occasional controlled exposure

PROC3: Use in closed batch process (synthesis or formulation)

PROC4: Use in batch and other process (synthesis) where opportunity for exposure arises

PROC5: Mixing or blending in batch processes for formulation of mixtures and articles (multistage and/or significant contact) Industrial setting;

PROC13: Treatment of articles by dipping and pouring

PROC8a: Transfer of substance or preparation (charging/discharging) from/to vessels/large containers at non-dedicated facilities

PROC8b: Transfer of substance or preparation (charging/ discharging) from/ to vessels/ large containers at dedicated facilities

PROC10: Roller application or brushing

PROC11: Non industrial spraying

PROC15: Use as laboratory reagent

PROC19: Hand-mixing with intimate contact and only PPE available

4. Guidance to Downstream User to evaluate whether he works inside the boundaries set by the Exposure Scenario

Predicted releases are not expected to lead to environmental concentrations which would exceed the PNEC when the Risk Management Measures/Operational Conditions outlined in Section 2 are implemented.

Where other Risk Management Measures/Operational Conditions are adopted, then users should ensure that risks are managed to at least equivalent levels.Estimated workplace exposures are not expected to exceed DNELs when the identified risk management measures are adopted. Where other Risk Management Measures/Operational Conditions are adopted, then users should ensure that risks are managed to at least equivalent levels.

1. Short title of Exposure Scenario: **Lubricants - Professional**

Main User Groups	:	**SU 22:** Professional uses: Public domain (administration, education, entertainment, services, craftsmen)
Sector of use	:	**SU 22, SU0:** Professional uses: Public domain (administration, education, entertainment, services, craftsmen), Other
Process category	:	**PROC1:** Use in closed process, no likelihood of exposure **PROC2:** Use in closed, continuous process with occasional controlled exposure **PROC3:** Use in closed batch process (synthesis or formulation) **PROC4:** Use in batch and other process (synthesis) where opportunity for exposure arises **PROC8a:** Transfer of substance or preparation (charging/discharging) from/to vessels/large containers at non-dedicated facilities **PROC8b:** Transfer of substance or preparation (charging/ discharging) from/ to vessels/ large containers at dedicated facilities **PROC9:** Transfer of substance or preparation into small

containers (dedicated filling line, including weighing)
PROC10: Roller application or brushing
PROC11: Non industrial spraying
PROC13: Treatment of articles by dipping and pouring
PROC17: Lubrication at high energy conditions and in partly open process
PROC18: Greasing at high energy conditions
PROC20: Heat and pressure transfer fluids in dispersive, professional use but closed systems

Environmental release category	:	**ERC8a, ERC8d, ERC9a, ERC9b:** Wide dispersive indoor use of processing aids in open systems, Wide dispersive outdoor use of processing aids in open systems, Wide dispersive indoor use of substances in closed systems, Wide dispersive outdoor use of substances in closed systems
Further information	:	Covers the use of formulated lubricants in closed and open systems including transfer operations, operation of engines and similar articles, reworking on reject articles, equipment maintenance and disposal of waste oil.

2.1 Contributing scenario controlling environmental exposure for:ERC8a, ERC8d, ERC9a, ERC9b: Wide dispersive indoor use of processing aids in open systems, Wide dispersive outdoor use of processing aids in open systems, Wide dispersive indoor use of substances in closed systems, Wide dispersive outdoor use of substances in closed systems

Concentration of the Substance in Mixture/Article	:	5-25%

Environment factors not influenced by risk management

Flow rate	:	90.000 m3/d

Other given operational conditions affecting environmental exposure

Emission or Release Factor: Air	:	40 %
Emission or Release Factor: Water	:	5 %
Emission or Release Factor: Soil	:	5 %
Local release rate: Water	:	5,6 kg/day
Local release rate: Air	:	44 kg/day
Local release rate: Soil	:	0,011 kg/day

Technical conditions and measures / Organizational measures

Air	:	Treat air emission to provide a typical removal efficiency of (%): (Effectiveness: 0 %)
Water	:	Treat onsite wastewater (prior to receiving water discharge) to provide the required removal efficiency of ≥ (%): (Effectiveness: > 96,4 %)

Conditions and measures related to municipal sewage treatment plant

Type of Sewage Treatment Plant	:	Municipal sewage treatment plant, No
Flow rate of sewage treatment plant effluent	:	2.000 m3/d
Sludge Treatment	:	Agricultural soil, Yes, applicable

2.2 Contributing scenario controlling worker exposure for: PROC1: Use in closed

process, no likelihood of exposure

Product characteristics
Concentration of the Substance in Mixture/Article : 5-25%

Physical Form (at time of use) : Liquid substance

Frequency and duration of use
Exposure duration : > 4 h
Frequency of use : 5 days/week

Human factors not influenced by risk management
Exposed skin area : One hand face only (240 cm2)

Other operational conditions affecting workers exposure
Outdoor / Indoor : Indoor

Technical conditions and measures
Local exhaust ventilation, No

Conditions and measures related to personal protection, hygiene and health evaluation
None required
Respiratory Protection, None required

2.2 Contributing scenario controlling worker exposure for: PROC2: Use in closed, continuous process with occasional controlled exposure

Product characteristics
Concentration of the Substance in Mixture/Article : 5-25%

Physical Form (at time of use) : Liquid substance

Frequency and duration of use
Exposure duration : > 4 h
Frequency of use : 5 days/week

Human factors not influenced by risk management
Exposed skin area : Palms of both hands (480 cm2)

Other operational conditions affecting workers exposure
Outdoor / Indoor : Indoor

Technical conditions and measures
Local exhaust ventilation, No

Conditions and measures related to personal protection, hygiene and health evaluation
Protective gloves, APF 10 (Effectiveness: 90 %)
Respiratory Protection, None required

2.2 Contributing scenario controlling worker exposure for: PROC3: Use in closed batch process (synthesis or formulation)

Product characteristics
Concentration of the Substance in Mixture/Article : 5-25%

Physical Form (at time of use) : Liquid substance

Frequency and duration of use
Exposure duration : > 4 h
Frequency of use : 5 days/week

Human factors not influenced by risk management
Exposed skin area : One hand face only (240 cm2)

Other operational conditions affecting workers exposure
Outdoor / Indoor : Indoor

Technical conditions and measures
Local exhaust ventilation, No

Conditions and measures related to personal protection, hygiene and health evaluation
Protective gloves, APF 10 (Effectiveness: 90 %)
Respiratory Protection, None required

2.2 Contributing scenario controlling worker exposure for: PROC4, PROC9, PROC13, PROC20: Use in batch and other process (synthesis) where opportunity for exposure arises, Transfer of substance or preparation into small containers (dedicated filling line, including weighing), Treatment of articles by dipping and pouring, Heat and pressure transfer fluids in dispersive, professional use but closed systems

Product characteristics
Concentration of the Substance in Mixture/Article : 5-25%

Physical Form (at time of use) : Liquid substance

Frequency and duration of use
Exposure duration : > 4 h
Frequency of use : 5 days/week

Human factors not influenced by risk management
Exposed skin area : Palms of both hands (480 cm2)

Other operational conditions affecting workers exposure
Outdoor / Indoor : Indoor

Technical conditions and measures
Local exhaust ventilation, No

Conditions and measures related to personal protection, hygiene and health evaluation
Protective gloves, APF 10 (Effectiveness: 90 %)
Respiratory Protection, Yes (Effectiveness: 90 %)

2.2 Contributing scenario controlling worker exposure for: PROC8a, PROC8b: Transfer of substance or preparation (charging/discharging) from/to vessels/large containers at

non-dedicated facilities, Transfer of substance or preparation (charging/ discharging) from/ to vessels/ large containers at dedicated facilities

Product characteristics
Concentration of the Substance in Mixture/Article : 5-25%

Physical Form (at time of use) : Liquid substance

Frequency and duration of use
Exposure duration : > 4 h
Frequency of use : 5 days/week

Human factors not influenced by risk management
Exposed skin area : Two hands (960 cm2)

Other operational conditions affecting workers exposure
Outdoor / Indoor : Indoor

Technical conditions and measures
Local exhaust ventilation, No

Conditions and measures related to personal protection, hygiene and health evaluation
Protective gloves, APF 10 (Effectiveness: 90 %)
Respiratory Protection, Yes (Effectiveness: 90 %)

2.2 Contributing scenario controlling worker exposure for: PROC10, PROC18: Roller application or brushing, Greasing at high energy conditions

Product characteristics
Concentration of the Substance in Mixture/Article : 5-25%

Physical Form (at time of use) : Liquid substance

Frequency and duration of use
Exposure duration : 1 - 4 h
Frequency of use : 5 days/week

Human factors not influenced by risk management
Exposed skin area : Two hands (960 cm2)

Other operational conditions affecting workers exposure
Outdoor / Indoor : Indoor

Technical conditions and measures
Local exhaust ventilation, No

Conditions and measures related to personal protection, hygiene and health evaluation
Protective gloves, APF 10 (Effectiveness: 90 %)
Respiratory Protection, Yes (Effectiveness: 90 %)

2.2 Contributing scenario controlling worker exposure for: PROC11: Non industrial spraying

Product characteristics
Concentration of the Substance in Mixture/Article : 1 - 5%

Physical Form (at time of use) : Liquid substance

Frequency and duration of use
Exposure duration : 1 - 4 h
Frequency of use : 5 days/week

Human factors not influenced by risk management
Exposed skin area : Skin
: 1500 cm2

Other operational conditions affecting workers exposure
Outdoor / Indoor : Indoor

Technical conditions and measures
Local exhaust ventilation, No

Conditions and measures related to personal protection, hygiene and health evaluation
Protective gloves, APF 10 (Effectiveness: 90 %)
Respiratory Protection, Yes (Effectiveness: 95 %)

2.2 Contributing scenario controlling worker exposure for: PROC17: Lubrication at high energy conditions and in partly open process

Product characteristics
Concentration of the Substance in Mixture/Article : 5-25%

Physical Form (at time of use) : Liquid substance

Frequency and duration of use
Exposure duration : 1 - 4 h
Frequency of use : 5 days/week

Human factors not influenced by risk management
Exposed skin area : Two hands (960 cm2)

Other operational conditions affecting workers exposure
Outdoor / Indoor : Indoor

Technical conditions and measures
Local exhaust ventilation, No

Conditions and measures related to personal protection, hygiene and health evaluation
Protective gloves, APF 10 (Effectiveness: 90 %)
Respiratory Protection, Yes (Effectiveness: 95 %)

3. Exposure estimation and reference to its source

Environment

Contributing Scenario	Exposure Assessment Method	Specific conditions	Compartment	Value type	Level of Exposure	Risk characterization ratio
ERC8a, ERC8d, ERC9a, ERC9b	Petrorisk		Freshwater		0,0000049 mg/L	
			Freshwater sediment		0,00012 mg/kg dry weight (d.w.)	
			Marine water		0,00049 µg/L	
			Marine sediment		0,000012 mg/kg dry weight (d.w.)	
			Sewage treatment plant		0,000049 mg/L	
			Agricultural soil		0,000035 mg/kg	

ERC8a: Wide dispersive indoor use of processing aids in open systems
ERC8d: Wide dispersive outdoor use of processing aids in open systems
ERC9a: Wide dispersive indoor use of substances in closed systems
ERC9b: Wide dispersive outdoor use of substances in closed systems

Workers/Consumers

Contributing Scenario	Exposure Assessment Method	Specific conditions	Value type	Level of Exposure	Risk characterization ratio
PROC1	EasyTRA		Worker – dermal, long-term – systemic	0,020571 mg/kg/d	
			Worker – inhalation, long-term – systemic	0,024547 mg/m3	
			Worker – long-term – systemic Combined routes	0,024078 mg/kg/d	
PROC2	EasyTRA		Worker – dermal, long-term – systemic	0,082286 mg/kg/d	
			Worker – inhalation, long-term – systemic	49,093 mg/m3	
			Worker – long-term – systemic Combined routes	7,096 mg/kg/d	
PROC3	EasyTRA		Worker – dermal, long-term – systemic	0,041143 mg/kg/d	
			Worker – inhalation, long-term – systemic	61,366 mg/m3	
			Worker – long-term – systemic Combined routes	8,808 mg/kg/d	
PROC4	EasyTRA		Worker – dermal, long-term – systemic	0,411429 mg/kg/d	
			Worker – inhalation, long-term – systemic	12,273 mg/m3	
			Worker – long-term – systemic Combined routes	2,165 mg/kg/d	
PROC9	EasyTRA		Worker – dermal, long-term – systemic	0,411429 mg/kg/d	
			Worker – inhalation, long-term – systemic	24,547 mg/m3	
			Worker – long-term – systemic Combined routes	3,918 mg/kg/d	
PROC13	EasyTRA		Worker – dermal, long-term – systemic	0,822857 mg/kg/d	
			Worker – inhalation, long-term – systemic	24,547 mg/m3	
			Worker – long-term – systemic Combined routes	4,33 mg/kg/d	
PROC20	EasyTRA		Worker – dermal, long-	0,102857 mg/kg/d	

			term – systemic		
			Worker – inhalation, long-term – systemic	4,909 mg/m3	
			Worker – long-term – systemic Combined routes	0,804186 mg/kg/d	
PROC8a	EasyTRA		Worker – dermal, long-term – systemic	0,822857 mg/kg/d	
			Worker – inhalation, long-term – systemic	24,547 mg/m3	
			Worker – long-term – systemic Combined routes	4,33 mg/kg/d	
PROC8b	EasyTRA		Worker – dermal, long-term – systemic	0,822857 mg/kg/d	
			Worker – inhalation, long-term – systemic	12,273 mg/m3	
			Worker – long-term – systemic Combined routes	2,576 mg/kg/d	
PROC10	EasyTRA		Worker – dermal, long-term – systemic	0,987429 mg/kg/d	
			Worker – inhalation, long-term – systemic	14,728 mg/m3	
			Worker – long-term – systemic Combined routes	3,091 mg/kg/d	
PROC18	EasyTRA		Worker – dermal, long-term – systemic	0,493714 mg/kg/d	
			Worker – inhalation, long-term – systemic	29,456 mg/m3	
			Worker – long-term – systemic Combined routes	4,702 mg/kg/d	
PROC11	EasyTRA		Worker – dermal, long-term – systemic	1,286 mg/kg/d	
			Worker – inhalation, long-term – systemic	12,273 mg/m3	
			Worker – long-term – systemic Combined routes	3,039 mg/kg/d	
PROC17	EasyTRA		Worker – dermal, long-term – systemic	0,987429 mg/kg/d	
			Worker – inhalation, long-term – systemic	14,728 mg/m3	
			Worker – long-term – systemic Combined routes	3,091 mg/kg/d	

PROC1: Use in closed process, no likelihood of exposure

PROC2: Use in closed, continuous process with occasional controlled exposure

PROC3: Use in closed batch process (synthesis or formulation)

PROC4: Use in batch and other process (synthesis) where opportunity for exposure arises

PROC9: Transfer of substance or preparation into small containers (dedicated filling line, including weighing)

PROC13: Treatment of articles by dipping and pouring

PROC20: Heat and pressure transfer fluids in dispersive, professional use but closed systems

PROC8a: Transfer of substance or preparation (charging/discharging) from/to vessels/large containers at non-dedicated facilities

PROC8b: Transfer of substance or preparation (charging/ discharging) from/ to vessels/ large containers at dedicated facilities

PROC10: Roller application or brushing

PROC18: Greasing at high energy conditions

PROC11: Non industrial spraying

PROC17: Lubrication at high energy conditions and in partly open process

4. Guidance to Downstream User to evaluate whether he works inside the boundaries set by the Exposure Scenario

Predicted releases are not expected to lead to environmental concentrations which would exceed the PNEC when the Risk Management Measures/Operational Conditions outlined in Section 2 are implemented.

Where other Risk Management Measures/Operational Conditions are adopted, then users should ensure that risks are managed to at least equivalent levels.Estimated workplace exposures are not expected to exceed DNELs when the identified risk management measures are adopted. Where other Risk Management Measures/Operational Conditions are adopted, then users should ensure that risks are managed to at least equivalent levels.

1. Short title of Exposure Scenario: **Use as a cleaning agent – professional**

Main User Groups	:	**SU 22:** Professional uses: Public domain (administration, education, entertainment, services, craftsmen)
Sector of use	:	**SU 22, SU0:** Professional uses: Public domain (administration, education, entertainment, services, craftsmen), Other
Process category	:	**PROC1:** Use in closed process, no likelihood of exposure **PROC2:** Use in closed, continuous process with occasional controlled exposure **PROC3:** Use in closed batch process (synthesis or formulation) **PROC4:** Use in batch and other process (synthesis) where opportunity for exposure arises **PROC8a:** Transfer of substance or preparation (charging/discharging) from/to vessels/large containers at non-dedicated facilities **PROC8b:** Transfer of substance or preparation (charging/ discharging) from/ to vessels/ large containers at dedicated facilities **PROC10:** Roller application or brushing **PROC11:** Non industrial spraying **PROC13:** Treatment of articles by dipping and pouring
Environmental release category	:	**ERC8a, ERC8d:** Wide dispersive indoor use of processing aids in open systems, Wide dispersive outdoor use of processing aids in open systems
Further information	:	Covers the use as a component of cleaning products including pouring/unloading from drums or containers; and exposures during mixing/diluting in the preparatory phase and cleaning activities (including spraying, brushing, dipping, wiping automated and by hand).

2.1 Contributing scenario controlling environmental exposure for:ERC8a, ERC8d: Wide

dispersive indoor use of processing aids in open systems, Wide dispersive outdoor use of processing aids in open systems

Concentration of the Substance in Mixture/Article	:	5-25%

Environment factors not influenced by risk management

Flow rate	:	90.000 m3/d

Other given operational conditions affecting environmental exposure

Emission or Release Factor: Air	:	2 %
Emission or Release Factor: Water	:	0,0001 %
Emission or Release Factor: Soil	:	0 %
Local release rate: Water	:	1,1 kg/day
Local release rate: Air	:	22 kg/day
Local release rate: Soil	:	
Remarks	:	There is no direct exposure to soil.

Technical conditions and measures / Organizational measures

Air	:	Treat air emission to provide a typical removal efficiency of (%): (Effectiveness: 0 %)
Water	:	Treat onsite wastewater (prior to receiving water discharge) to provide the required removal efficiency of ≥ (%): (Effectiveness: > 96,4 %)

Conditions and measures related to municipal sewage treatment plant

Type of Sewage Treatment Plant	:	Municipal sewage treatment plant, No
Flow rate of sewage treatment plant effluent	:	2.000 m3/d
Sludge Treatment	:	Agricultural soil, Yes, applicable

2.2 Contributing scenario controlling worker exposure for: PROC1: Use in closed process, no likelihood of exposure

Product characteristics

Concentration of the Substance in Mixture/Article	:	5-25%
Physical Form (at time of use)	:	Liquid substance

Frequency and duration of use

Exposure duration	:	> 4 h
Frequency of use	:	5 days/week

Human factors not influenced by risk management

Exposed skin area	:	One hand face only (240 cm2)

Other operational conditions affecting workers exposure

Outdoor / Indoor	:	Indoor

Technical conditions and measures

Local exhaust ventilation, No

Conditions and measures related to personal protection, hygiene and health evaluation

None required
Respiratory Protection, None required

2.2 Contributing scenario controlling worker exposure for: PROC2: Use in closed, continuous process with occasional controlled exposure

Product characteristics

Concentration of the Substance in Mixture/Article	:	5-25%
Physical Form (at time of use)	:	Liquid substance

Frequency and duration of use

Exposure duration	:	> 4 h
Frequency of use	:	5 days/week

Human factors not influenced by risk management

Exposed skin area	:	Palms of both hands (480 cm2)

Other operational conditions affecting workers exposure

Outdoor / Indoor	:	Indoor

Technical conditions and measures
Local exhaust ventilation, No

Conditions and measures related to personal protection, hygiene and health evaluation
Protective gloves, APF 10 (Effectiveness: 90 %)
Respiratory Protection, None required

2.2 Contributing scenario controlling worker exposure for: PROC3: Use in closed batch process (synthesis or formulation)

Product characteristics

Concentration of the Substance in Mixture/Article	:	5-25%
Physical Form (at time of use)	:	Liquid substance

Frequency and duration of use

Exposure duration	:	> 4 h
Frequency of use	:	5 days/week

Human factors not influenced by risk management

Exposed skin area	:	One hand face only (240 cm2)

Other operational conditions affecting workers exposure

Outdoor / Indoor	:	Indoor

Technical conditions and measures
Local exhaust ventilation, No

Conditions and measures related to personal protection, hygiene and health evaluation
Protective gloves, APF 10 (Effectiveness: 90 %)
Respiratory Protection, None required

2.2 Contributing scenario controlling worker exposure for: PROC4, PROC13: Use in batch and other process (synthesis) where opportunity for exposure arises, Treatment of articles by dipping and pouring

Product characteristics
Concentration of the Substance in Mixture/Article : 5-25%

Physical Form (at time of use) : Liquid substance

Frequency and duration of use
Exposure duration : > 4 h
Frequency of use : 5 days/week

Human factors not influenced by risk management
Exposed skin area : Palms of both hands (480 cm2)

Other operational conditions affecting workers exposure
Outdoor / Indoor : Indoor

Technical conditions and measures
Local exhaust ventilation, No

Conditions and measures related to personal protection, hygiene and health evaluation
Protective gloves, APF 10 (Effectiveness: 90 %)
Respiratory Protection, Yes (Effectiveness: 90 %)

2.2 Contributing scenario controlling worker exposure for: PROC8a, PROC8b: Transfer of substance or preparation (charging/discharging) from/to vessels/large containers at non-dedicated facilities, Transfer of substance or preparation (charging/ discharging) from/ to vessels/ large containers at dedicated facilities

Product characteristics
Concentration of the Substance in Mixture/Article : 5-25%

Physical Form (at time of use) : Liquid substance

Frequency and duration of use
Exposure duration : > 4 h
Frequency of use : 5 days/week

Human factors not influenced by risk management
Exposed skin area : Two hands (960 cm2)

Other operational conditions affecting workers exposure
Outdoor / Indoor : Indoor

Technical conditions and measures
Local exhaust ventilation, No

Conditions and measures related to personal protection, hygiene and health evaluation
Protective gloves, APF 10 (Effectiveness: 90 %)

Respiratory Protection, Yes (Effectiveness: 90 %)

2.2 Contributing scenario controlling worker exposure for: PROC10: Roller application or brushing

Product characteristics

Concentration of the Substance in Mixture/Article	:	5-25%
Physical Form (at time of use)	:	Liquid substance

Frequency and duration of use

Exposure duration	:	1 - 4 h
Frequency of use	:	5 days/week

Human factors not influenced by risk management

Exposed skin area	:	Two hands (960 cm2)

Other operational conditions affecting workers exposure

Outdoor / Indoor	:	Indoor

Technical conditions and measures

Local exhaust ventilation, No

Conditions and measures related to personal protection, hygiene and health evaluation

Protective gloves, APF 10 (Effectiveness: 90 %)
Respiratory Protection, Yes (Effectiveness: 90 %)

2.2 Contributing scenario controlling worker exposure for: PROC11: Non industrial spraying

Product characteristics

Concentration of the Substance in Mixture/Article	:	1-5%
Physical Form (at time of use)	:	Liquid substance

Frequency and duration of use

Exposure duration	:	1 - 4 h
Frequency of use	:	5 days/week

Human factors not influenced by risk management

Exposed skin area	:	Skin
	:	1500 cm2

Other operational conditions affecting workers exposure

Outdoor / Indoor	:	Indoor

Technical conditions and measures

Local exhaust ventilation, No

Conditions and measures related to personal protection, hygiene and health evaluation

Protective gloves, APF 10 (Effectiveness: 90 %)
Respiratory Protection, Yes (Effectiveness: 95 %)

3. Exposure estimation and reference to its source

Environment

Contributing Scenario	Exposure Assessment Method	Specific conditions	Compartment	Value type	Level of Exposure	Risk characterization ratio
ERC8a, ERC8d	Petrorisk		Freshwater		0,000005 mg/L	
			Freshwater sediment		0,000032 mg/kg dry weight (d.w.)	
			Marine water		0,000014 µg/L	
			Marine sediment		0,000056 µg/kg dry weight (d.w.)	
			Sewage treatment plant		0,00099 ng/L	
			Agricultural soil		0,00046 mg/kg	

ERC8a: Wide dispersive indoor use of processing aids in open systems
ERC8d: Wide dispersive outdoor use of processing aids in open systems

Workers/Consumers

Contributing Scenario	Exposure Assessment Method	Specific conditions	Value type	Level of Exposure	Risk characterization ratio
PROC1	EasyTRA		Worker – dermal, long-term – systemic	0,020571 mg/kg/d	
			Worker – inhalation, long-term – systemic	0,024547 mg/m3	
			Worker – long-term – systemic Combined routes	0,024078 mg/kg/d	
PROC2	EasyTRA		Worker – dermal, long-term – systemic	0,082286 mg/kg/d	
			Worker – inhalation, long-term – systemic	49,093 mg/m3	
			Worker – long-term – systemic Combined routes	7,096 mg/kg/d	
PROC3	EasyTRA		Worker – dermal, long-term – systemic	0,041143 mg/kg/d	
			Worker – inhalation, long-term – systemic	61,366 mg/m3	
			Worker – long-term – systemic Combined routes	8,808 mg/kg/d	
PROC4	EasyTRA		Worker – dermal, long-term – systemic	0,411429 mg/kg/d	
			Worker – inhalation, long-term – systemic	12,273 mg/m3	
			Worker – long-term – systemic Combined routes	2,165 mg/kg/d	
PROC13	EasyTRA		Worker – dermal, long-term – systemic	0,822857 mg/kg/d	
			Worker – inhalation, long-term – systemic	24,547 mg/m3	
			Worker – long-term – systemic Combined routes	4,33 mg/kg/d	
PROC8a	EasyTRA		Worker – dermal, long-term – systemic	0,822857 mg/kg/d	

			Worker – inhalation, long-term – systemic	24,547 mg/m3	
			Worker – long-term – systemic Combined routes	4,33 mg/kg/d	
PROC8b	EasyTRA		Worker – dermal, long-term – systemic	0,822857 mg/kg/d	
			Worker – inhalation, long-term – systemic	12,273 mg/m3	
			Worker – long-term – systemic Combined routes	2,576 mg/kg/d	
PROC10	EasyTRA		Worker – dermal, long-term – systemic	0,987429 mg/kg/d	
			Worker – inhalation, long-term – systemic	14,728 mg/m3	
			Worker – long-term – systemic Combined routes	3,091 mg/kg/d	
PROC11	EasyTRA		Worker – dermal, long-term – systemic	1,286 mg/kg/d	
			Worker – inhalation, long-term – systemic	12,273 mg/m3	
			Worker – long-term – systemic Combined routes	3,039 mg/kg/d	

PROC1: Use in closed process, no likelihood of exposure

PROC2: Use in closed, continuous process with occasional controlled exposure

PROC3: Use in closed batch process (synthesis or formulation)

PROC4: Use in batch and other process (synthesis) where opportunity for exposure arises

PROC13: Treatment of articles by dipping and pouring

PROC8a: Transfer of substance or preparation (charging/discharging) from/to vessels/large containers at non-dedicated facilities

PROC8b: Transfer of substance or preparation (charging/ discharging) from/ to vessels/ large containers at dedicated facilities

PROC10: Roller application or brushing

PROC11: Non industrial spraying

4. Guidance to Downstream User to evaluate whether he works inside the boundaries set by the Exposure Scenario

Predicted releases are not expected to lead to environmental concentrations which would exceed the PNEC when the Risk Management Measures/Operational Conditions outlined in Section 2 are implemented.

Where other Risk Management Measures/Operational Conditions are adopted, then users should ensure that risks are managed to at least equivalent levels.Estimated workplace exposures are not expected to exceed DNELs when the identified risk management measures are adopted. Where other Risk Management Measures/Operational Conditions are adopted, then users should ensure that risks are managed to at least equivalent levels.

1. Short title of Exposure Scenario: **Solvent in other applications- Professional**

Main User Groups : **SU 22:** Professional uses: Public domain (administration,

		education, entertainment, services, craftsmen)
Sector of use	:	**SU 22, SU0:** Professional uses: Public domain (administration, education, entertainment, services, craftsmen), Other
Process category	:	**PROC1:** Use in closed process, no likelihood of exposure **PROC2:** Use in closed, continuous process with occasional controlled exposure **PROC3:** Use in closed batch process (synthesis or formulation) **PROC4:** Use in batch and other process (synthesis) where opportunity for exposure arises **PROC8a:** Transfer of substance or preparation (charging/discharging) from/to vessels/large containers at non-dedicated facilities **PROC8b:** Transfer of substance or preparation (charging/ discharging) from/ to vessels/ large containers at dedicated facilities **PROC10:** Roller application or brushing **PROC11:** Non industrial spraying **PROC13:** Treatment of articles by dipping and pouring
Environmental release category	:	**ERC8a, ERC8d:** Wide dispersive indoor use of processing aids in open systems, Wide dispersive outdoor use of processing aids in open systems

2.1 Contributing scenario controlling environmental exposure for:ERC8a, ERC8d: Wide dispersive indoor use of processing aids in open systems, Wide dispersive outdoor use of processing aids in open systems

Concentration of the Substance in Mixture/Article	:	5-25%

Environment factors not influenced by risk management

Flow rate	:	90.000 m3/d

Other given operational conditions affecting environmental exposure

Emission or Release Factor: Air	:	40 %
Emission or Release Factor: Water	:	5 %
Emission or Release Factor: Soil	:	0 %
Local release rate: Water	:	8,4 kg/day
Local release rate: Air	:	66 kg/day
Local release rate: Soil	:	
Remarks	:	There is no direct exposure to soil.

Technical conditions and measures / Organizational measures

Air	:	Treat air emission to provide a typical removal efficiency of (%): (Effectiveness: 0 %)
Water	:	Treat onsite wastewater (prior to receiving water discharge) to provide the required removal efficiency of ≥ (%): (Effectiveness: > 96,4 %)

Conditions and measures related to municipal sewage treatment plant

Type of Sewage Treatment Plant	:	Municipal sewage treatment plant, No
Flow rate of sewage treatment plant effluent	:	2.000 m3/d

Sludge Treatment : Agricultural soil, Yes, applicable

2.2 Contributing scenario controlling worker exposure for: PROC1: Use in closed process, no likelihood of exposure

Product characteristics
Concentration of the Substance in Mixture/Article : 5-25%

Physical Form (at time of use) : Liquid substance

Frequency and duration of use
Exposure duration : > 4 h
Frequency of use : 5 days/week

Human factors not influenced by risk management
Exposed skin area : One hand face only (240 cm2)

Other operational conditions affecting workers exposure
Outdoor / Indoor : Indoor

Technical conditions and measures
Local exhaust ventilation, No

Conditions and measures related to personal protection, hygiene and health evaluation
None required
Respiratory Protection, None required

2.2 Contributing scenario controlling worker exposure for: PROC2: Use in closed, continuous process with occasional controlled exposure

Product characteristics
Concentration of the Substance in Mixture/Article : 5-25%

Physical Form (at time of use) : Liquid substance

Frequency and duration of use
Exposure duration : > 4 h
Frequency of use : 5 days/week

Human factors not influenced by risk management
Exposed skin area : Palms of both hands (480 cm2)

Other operational conditions affecting workers exposure
Outdoor / Indoor : Indoor

Technical conditions and measures
Local exhaust ventilation, No

Conditions and measures related to personal protection, hygiene and health evaluation
Protective gloves, APF 10 (Effectiveness: 90 %)
Respiratory Protection, None required

2.2 Contributing scenario controlling worker exposure for: PROC3: Use in closed batch process (synthesis or formulation)

Product characteristics
Concentration of the Substance in Mixture/Article : 5-25%

Physical Form (at time of use) : Liquid substance

Frequency and duration of use
Exposure duration : > 4 h
Frequency of use : 5 days/week

Human factors not influenced by risk management
Exposed skin area : One hand face only (240 cm2)

Other operational conditions affecting workers exposure
Outdoor / Indoor : Indoor

Technical conditions and measures
Local exhaust ventilation, No

Conditions and measures related to personal protection, hygiene and health evaluation
Protective gloves, APF 10 (Effectiveness: 90 %)
Respiratory Protection, None required

2.2 Contributing scenario controlling worker exposure for: PROC4: Use in batch and other process (synthesis) where opportunity for exposure arises

Product characteristics
Concentration of the Substance in Mixture/Article : 5-25%

Physical Form (at time of use) : Liquid substance

Frequency and duration of use
Exposure duration : > 4 h
Frequency of use : 5 days/week

Human factors not influenced by risk management
Exposed skin area : Palms of both hands (480 cm2)

Other operational conditions affecting workers exposure
Outdoor / Indoor : Indoor

Technical conditions and measures
Local exhaust ventilation, No

Conditions and measures related to personal protection, hygiene and health evaluation
Protective gloves, APF 10 (Effectiveness: 90 %)
Respiratory Protection, Yes (Effectiveness: 90 %)

2.2 Contributing scenario controlling worker exposure for: PROC8a, PROC8b: Transfer

of substance or preparation (charging/discharging) from/to vessels/large containers at non-dedicated facilities, Transfer of substance or preparation (charging/ discharging) from/ to vessels/ large containers at dedicated facilities

Product characteristics
Concentration of the Substance in Mixture/Article : 5-25%

Physical Form (at time of use) : Liquid substance

Frequency and duration of use
Exposure duration : > 4 h
Frequency of use : 5 days/week

Human factors not influenced by risk management
Exposed skin area : Two hands (960 cm2)

Other operational conditions affecting workers exposure
Outdoor / Indoor : Indoor

Technical conditions and measures
Local exhaust ventilation, No

Conditions and measures related to personal protection, hygiene and health evaluation
Protective gloves, APF 10 (Effectiveness: 90 %)
Respiratory Protection, None required

2.2 Contributing scenario controlling worker exposure for: PROC10: Roller application or brushing

Product characteristics
Concentration of the Substance in Mixture/Article : 5-25%

Physical Form (at time of use) : Liquid substance

Frequency and duration of use
Exposure duration : 1 - 4 h
Frequency of use : 5 days/week

Human factors not influenced by risk management
Exposed skin area : Two hands (960 cm2)

Other operational conditions affecting workers exposure
Outdoor / Indoor : Indoor

Technical conditions and measures
Local exhaust ventilation, No

Conditions and measures related to personal protection, hygiene and health evaluation
Protective gloves, APF 10 (Effectiveness: 90 %)
Respiratory Protection, Yes (Effectiveness: 90 %)

2.2 Contributing scenario controlling worker exposure for: PROC11: Non industrial

spraying

Product characteristics
Concentration of the Substance in Mixture/Article : 1-5%

Physical Form (at time of use) : Liquid substance

Frequency and duration of use
Exposure duration : 1 - 4 h
Frequency of use : 5 days/week

Human factors not influenced by risk management
Exposed skin area : Skin
: 1500 cm2

Other operational conditions affecting workers exposure
Outdoor / Indoor : Indoor

Technical conditions and measures
Local exhaust ventilation, No

Conditions and measures related to personal protection, hygiene and health evaluation
Protective gloves, APF 10 (Effectiveness: 90 %)
Respiratory Protection, Yes (Effectiveness: 95 %)

2.2 Contributing scenario controlling worker exposure for: PROC13: Treatment of articles by dipping and pouring

Product characteristics
Concentration of the Substance in Mixture/Article : 5-25%

Physical Form (at time of use) : Liquid substance

Frequency and duration of use
Exposure duration : > 4 h
Frequency of use : 5 days/week

Human factors not influenced by risk management
Exposed skin area : Palms of both hands (480 cm2)

Other operational conditions affecting workers exposure
Outdoor / Indoor : Indoor

Technical conditions and measures
Local exhaust ventilation, No

Conditions and measures related to personal protection, hygiene and health evaluation
Protective gloves, APF 10 (Effectiveness: 90 %)
Respiratory Protection, Yes (Effectiveness: 90 %)

3. Exposure estimation and reference to its source

Environment

Contributing Scenario	Exposure Assessment Method	Specific conditions	Compartment	Value type	Level of Exposure	Risk characterization ratio
ERC8a, ERC8d	Petrorisk		Freshwater		0,0000074 mg/L	
			Freshwater sediment		0,00018 mg/kg dry weight (d.w.)	
			Marine water		0,00074 µg/L	
			Marine sediment		0,000018 mg/kg dry weight (d.w.)	
			Sewage treatment plant		0,000074 mg/L	
			Agricultural soil		0,000052 mg/kg	

ERC8a: Wide dispersive indoor use of processing aids in open systems
ERC8d: Wide dispersive outdoor use of processing aids in open systems

Workers/Consumers

Contributing Scenario	Exposure Assessment Method	Specific conditions	Value type	Level of Exposure	Risk characterization ratio
PROC1	EasyTRA		Worker – dermal, long-term – systemic	0,020571 mg/kg/d	
			Worker – inhalation, long-term – systemic	0,024547 mg/m3	
			Worker – long-term – systemic Combined routes	0,024078 mg/kg/d	
PROC2	EasyTRA		Worker – dermal, long-term – systemic	0,082286 mg/kg/d	
			Worker – inhalation, long-term – systemic	49,093 mg/m3	
			Worker – long-term – systemic Combined routes	7,096 mg/kg/d	
PROC3	EasyTRA		Worker – dermal, long-term – systemic	0,041143 mg/kg/d	
			Worker – inhalation, long-term – systemic	61,366 mg/m3	
			Worker – long-term – systemic Combined routes	8,808 mg/kg/d	
PROC4	EasyTRA		Worker – dermal, long-term – systemic	0,411429 mg/kg/d	
			Worker – inhalation, long-term – systemic	12,273 mg/m3	
			Worker – long-term – systemic Combined routes	2,165 mg/kg/d	
PROC8a	EasyTRA		Worker – dermal, long-term – systemic	0,822857 mg/kg/d	
			Worker – inhalation, long-term – systemic	24,547 mg/m3	
			Worker – long-term – systemic Combined routes	4,33 mg/kg/d	
PROC8b	EasyTRA		Worker – dermal, long-term – systemic	0,822857 mg/kg/d	
			Worker – inhalation, long-term – systemic	12,273 mg/m3	
			Worker – long-term – systemic Combined routes	2,576 mg/kg/d	
PROC10	EasyTRA		Worker – dermal, long-	0,987429 mg/kg/d	

			term – systemic		
			Worker – inhalation, long-term – systemic	14,728 mg/m3	
			Worker – long-term – systemic Combined routes	3,091 mg/kg/d	
PROC11	EasyTRA		Worker – dermal, long-term – systemic	1,286 mg/kg/d	
			Worker – inhalation, long-term – systemic	12,273 mg/m3	
			Worker – long-term – systemic Combined routes	3,039 mg/kg/d	
PROC13	EasyTRA		Worker – dermal, long-term – systemic	0,822857 mg/kg/d	
			Worker – inhalation, long-term – systemic	24,547 mg/m3	
			Worker – long-term – systemic Combined routes	4,33 mg/kg/d	

PROC1: Use in closed process, no likelihood of exposure

PROC2: Use in closed, continuous process with occasional controlled exposure

PROC3: Use in closed batch process (synthesis or formulation)

PROC4: Use in batch and other process (synthesis) where opportunity for exposure arises

PROC8a: Transfer of substance or preparation (charging/discharging) from/to vessels/large containers at non-dedicated facilities

PROC8b: Transfer of substance or preparation (charging/ discharging) from/ to vessels/ large containers at dedicated facilities

PROC10: Roller application or brushing

PROC11: Non industrial spraying

PROC13: Treatment of articles by dipping and pouring

4. Guidance to Downstream User to evaluate whether he works inside the boundaries set by the Exposure Scenario

Predicted releases are not expected to lead to environmental concentrations which would exceed the PNEC when the Risk Management Measures/Operational Conditions outlined in Section 2 are implemented.

Where other Risk Management Measures/Operational Conditions are adopted, then users should ensure that risks are managed to at least equivalent levels.Estimated workplace exposures are not expected to exceed DNELs when the identified risk management measures are adopted. Where other Risk Management Measures/Operational Conditions are adopted, then users should ensure that risks are managed to at least equivalent levels.

Fisher Scientific

Part of Thermo Fisher Scientific

SAFETY DATA SHEET

Creation Date 27-Jan-2010 **Revision Date** 02-Oct-2015 **Revision Number** 2

1. Identification

Product Name **Methylene chloride**

Cat No. : **D37-1; D37-4; D37-20; D37-200; D37-200LC; D37-500; D37FB-19; D37FB-50; D37FB-115; D37FB-200; D37POP-19; D37POPB-50; D37POPB-200; D37RB-19; D37RB-50; D37RB-115; D37RB-200; D37RS-19; D37RS-28; D37RS-50; D37RS-115; D37RS-200; D37SK-4; D37SK-4LC; D37SS-28; D37SS-50; D37SS-115; D37SS-200; D37SS-1350**

Synonyms Dichloromethane; DCM

Recommended Use Laboratory chemicals.

Uses advised against No Information available

Details of the supplier of the safety data sheet

Company
Fisher Scientific
One Reagent Lane
Fair Lawn, NJ 07410
Tel: (201) 796-7100

Emergency Telephone Number
CHEMTREC®, Inside the USA: 800-424-9300
CHEMTREC®, Outside the USA: 001-703-527-3887

2. Hazard(s) identification

Classification

This chemical is considered hazardous by the 2012 OSHA Hazard Communication Standard (29 CFR 1910.1200)

Skin Corrosion/irritation	Category 2
Serious Eye Damage/Eye Irritation	Category 2
Carcinogenicity	Category 1B
Specific target organ toxicity (single exposure)	Category 3
Target Organs - Central nervous system (CNS), Respiratory system.	
Specific target organ toxicity - (repeated exposure)	Category 2
Target Organs - Liver, Kidney, Blood.	

Label Elements

Signal Word
Danger

Hazard Statements
Causes skin irritation
Causes serious eye irritation

May cause respiratory irritation
May cause drowsiness or dizziness
May cause cancer
May cause damage to organs through prolonged or repeated exposure



Precautionary Statements
Prevention
Obtain special instructions before use
Do not handle until all safety precautions have been read and understood
Use personal protective equipment as required
Wash face, hands and any exposed skin thoroughly after handling
Wear eye/face protection
Do not breathe dust/fume/gas/mist/vapors/spray
Use only outdoors or in a well-ventilated area
Response
IF exposed or concerned: Get medical attention/advice
Inhalation
IF INHALED: Remove victim to fresh air and keep at rest in a position comfortable for breathing
Skin
IF ON SKIN: Wash with plenty of soap and water
If skin irritation occurs: Get medical advice/attention
Take off contaminated clothing and wash before reuse
Eyes
IF IN EYES: Rinse cautiously with water for several minutes. Remove contact lenses, if present and easy to do. Continue rinsing
If eye irritation persists: Get medical advice/attention
Storage
Store locked up
Store in a well-ventilated place. Keep container tightly closed
Disposal
Dispose of contents/container to an approved waste disposal plant
Hazards not otherwise classified (HNOC)

WARNING! This product contains a chemical known in the State of California to cause cancer, birth defects or other reproductive harm.

3. Composition / information on ingredients

Component	CAS-No	Weight %
Methylene chloride	75-09-2	>99.5
Methyl alcohol	67-56-1	0 - 0.4
Cyclohexene	110-83-8	0 - 0.01
2-Methyl-2-butene	513-35-9	0 - 0.01

4. First-aid measures

General Advice If symptoms persist, call a physician.

Eye Contact Rinse immediately with plenty of water, also under the eyelids, for at least 15 minutes. Obtain medical attention.

Skin Contact Wash off immediately with plenty of water for at least 15 minutes. Obtain medical attention.

Inhalation Move to fresh air. If breathing is difficult, give oxygen. Obtain medical attention.

Ingestion Do not induce vomiting. Call a physician or Poison Control Center immediately.

Most important symptoms/effects Breathing difficulties. . Inhalation of high vapor concentrations may cause symptoms like headache, dizziness, tiredness, nausea and vomiting

Notes to Physician Treat symptomatically

5. Fire-fighting measures

Suitable Extinguishing Media Use water spray, alcohol-resistant foam, dry chemical or carbon dioxide.

Unsuitable Extinguishing Media No information available

Flash Point No information available
Method - No information available

Autoignition Temperature 556 °C / 1032.8 °F

Explosion Limits
Upper 23 vol %
Lower 13 vol %
Sensitivity to Mechanical Impact No information available
Sensitivity to Static Discharge No information available

Specific Hazards Arising from the Chemical
Thermal decomposition can lead to release of irritating gases and vapors. Keep product and empty container away from heat and sources of ignition.

Hazardous Combustion Products
Carbon monoxide (CO) Carbon dioxide (CO_2) Hydrogen chloride gas Phosgene
Protective Equipment and Precautions for Firefighters
As in any fire, wear self-contained breathing apparatus pressure-demand, MSHA/NIOSH (approved or equivalent) and full protective gear.

NFPA

Health	Flammability	Instability	Physical hazards
2	1	0	N/A

6. Accidental release measures

Personal Precautions Use personal protective equipment. Ensure adequate ventilation. Avoid contact with skin, eyes and clothing. Keep people away from and upwind of spill/leak.

Environmental Precautions Should not be released into the environment. See Section 12 for additional ecological information.

Methods for Containment and Clean Up Soak up with inert absorbent material. Keep in suitable, closed containers for disposal.

7. Handling and storage

Handling Wear personal protective equipment. Do not get in eyes, on skin, or on clothing. Avoid ingestion and inhalation. Use only under a chemical fume hood.

Storage Keep containers tightly closed in a dry, cool and well-ventilated place.

8. Exposure controls / personal protection

Exposure Guidelines

Component	ACGIH TLV	OSHA PEL	NIOSH IDLH
Methylene chloride	TWA: 50 ppm	(Vacated) TWA: 500 ppm (Vacated) STEL: 2000 ppm (Vacated) Ceiling: 1000 ppm TWA: 25 ppm STEL: 125 ppm	IDLH: 2300 ppm
Methyl alcohol	TWA: 200 ppm STEL: 250 ppm Skin	(Vacated) TWA: 200 ppm (Vacated) TWA: 260 mg/m³ (Vacated) STEL: 250 ppm (Vacated) STEL: 325 mg/m³ Skin TWA: 200 ppm TWA: 260 mg/m³	IDLH: 6000 ppm TWA: 200 ppm TWA: 260 mg/m³ STEL: 250 ppm STEL: 325 mg/m³
Cyclohexene	TWA: 300 ppm	(Vacated) TWA: 300 ppm (Vacated) TWA: 1015 mg/m³ TWA: 300 ppm TWA: 1015 mg/m³	IDLH: 2000 ppm TWA: 300 ppm TWA: 1015 mg/m³

Component	Quebec	Mexico OEL (TWA)	Ontario TWAEV
Methylene chloride	TWA: 50 ppm TWA: 174 mg/m³	TWA: 100 ppm TWA: 330 mg/m³ STEL: 500 ppm STEL: 1740 mg/m³	TWA: 50 ppm
Methyl alcohol	TWA: 200 ppm TWA: 262 mg/m³ STEL: 250 ppm STEL: 328 mg/m³ Skin	TWA: 200 ppm TWA: 260 mg/m³ STEL: 250 ppm STEL: 310 mg/m³	TWA: 200 ppm STEL: 250 ppm Skin
Cyclohexene	TWA: 300 ppm TWA: 1010 mg/m³	TWA: 300 ppm TWA: 1015 mg/m³	TWA: 300 ppm

Legend

ACGIH - American Conference of Governmental Industrial Hygienists
OSHA - Occupational Safety and Health Administration
NIOSH IDLH: The National Institute for Occupational Safety and Health Immediately Dangerous to Life or Health

Engineering Measures Use only under a chemical fume hood. Ensure that eyewash stations and safety showers are close to the workstation location.

Personal Protective Equipment

Eye/face Protection Wear appropriate protective eyeglasses or chemical safety goggles as described by OSHA's eye and face protection regulations in 29 CFR 1910.133 or European Standard EN166.

Skin and body protection Wear appropriate protective gloves and clothing to prevent skin exposure.

Respiratory Protection Follow the OSHA respirator regulations found in 29 CFR 1910.134 or European Standard EN 149. Use a NIOSH/MSHA or European Standard EN 149 approved respirator if exposure limits are exceeded or if irritation or other symptoms are experienced.

Hygiene Measures Handle in accordance with good industrial hygiene and safety practice.

9. Physical and chemical properties

Physical State	Liquid
Appearance	Colorless
Odor	sweet
Odor Threshold	No information available
pH	Not applicable
Melting Point/Range	-97 °C / -142.6 °F
Boiling Point/Range	39 °C / 102.2 °F
Flash Point	No information available

Evaporation Rate	No information available
Flammability (solid,gas)	Not applicable
Flammability or explosive limits	
Upper	23 vol %
Lower	13 vol %
Vapor Pressure	20 mmHg @ 3502°C
Vapor Density	2.93 (Air = 1.0)
Specific Gravity	1.33
Solubility	No information available
Partition coefficient; n-octanol/water	No data available
Autoignition Temperature	556 °C / 1032.8 °F
Decomposition Temperature	No information available
Viscosity	No information available
Molecular Formula	C H2 Cl2
Molecular Weight	84.93

10. Stability and reactivity

Reactive Hazard None known, based on information available

Stability Stable under normal conditions.

Conditions to Avoid Incompatible products. Excess heat.

Incompatible Materials Strong oxidizing agents, Strong acids, Amines

Hazardous Decomposition Products Carbon monoxide (CO), Carbon dioxide (CO_2), Hydrogen chloride gas, Phosgene

Hazardous Polymerization Hazardous polymerization does not occur.

Hazardous Reactions None under normal processing.

11. Toxicological information

Acute Toxicity

Product Information

Component Information

Component	LD50 Oral	LD50 Dermal	LC50 Inhalation
Methylene chloride	> 2000 mg/kg (Rat)	> 2000 mg/kg (Rat)	53 mg/L (Rat) 6 h 76000 mg/m³ (Rat) 4 h
Methyl alcohol	LD50 = 6200 mg/kg (Rat)	LD50 = 15800 mg/kg (Rabbit)	64000 ppm (Rat) 4 h 83.2 mg/L (Rat) 4 h
Cyclohexene	LD50 = 2400 µL/kg (Rat)	>200 mg/kg (Rat)	>21.6 mg/L/4h (rat)
2-Methyl-2-butene	700-2600 mg/kg (Rat)	>2000 mg/kg (Rat)	LC50 > 61000 ppm (Rat) 4 h

Toxicologically Synergistic Products No information available

Delayed and immediate effects as well as chronic effects from short and long-term exposure

Irritation Irritating to eyes and skin

Sensitization No information available

Carcinogenicity The table below indicates whether each agency has listed any ingredient as a carcinogen.

Component	CAS-No	IARC	NTP	ACGIH	OSHA	Mexico
Methylene chloride	75-09-2	Group 2A	Reasonably Anticipated	A3	X	A3
Methyl alcohol	67-56-1	Not listed	Not listed	Not listed	Not listed	Not listed

Cyclohexene	110-83-8	Not listed	Not listed	Not listed	Not listed	Not listed
2-Methyl-2-butene	513-35-9	Not listed	Not listed	Not listed	Not listed	Not listed

IARC: (International Agency for Research on Cancer)

IARC: (International Agency for Research on Cancer)
Group 1 - Carcinogenic to Humans
Group 2A - Probably Carcinogenic to Humans
Group 2B - Possibly Carcinogenic to Humans

NTP: (National Toxicity Program)

NTP: (National Toxicity Program)
Known - Known Carcinogen
Reasonably Anticipated - Reasonably Anticipated to be a Human Carcinogen

ACGIH: (American Conference of Governmental Industrial Hygienists)

A1 - Known Human Carcinogen
A2 - Suspected Human Carcinogen
A3 - Animal Carcinogen
ACGIH: (American Conference of Governmental Industrial Hygienists)

Mexico - Occupational Exposure Limits - Carcinogens

Mexico - Occupational Exposure Limits - Carcinogens
A1 - Confirmed Human Carcinogen
A2 - Suspected Human Carcinogen
A3 - Confirmed Animal Carcinogen
A4 - Not Classifiable as a Human Carcinogen
A5 - Not Suspected as a Human Carcinogen

Mutagenic Effects Mutagenic effects have occured in microorganisms.

Reproductive Effects Experiments have shown reproductive toxicity effects on laboratory animals.

Developmental Effects Developmental effects have occurred in experimental animals.

Teratogenicity No information available.

STOT - single exposure Central nervous system (CNS) Respiratory system
STOT - repeated exposure Liver Kidney Blood

Aspiration hazard No information available

Symptoms / effects,both acute and delayed Inhalation of high vapor concentrations may cause symptoms like headache, dizziness, tiredness, nausea and vomiting
Endocrine Disruptor Information No information available

Other Adverse Effects Tumorigenic effects have been reported in experimental animals. See actual entry in RTECS for complete information.

12. Ecological information

Ecotoxicity

.

Component	Freshwater Algae	Freshwater Fish	Microtox	Water Flea
Methylene chloride	EC50:>660 mg/L/96h	Pimephales promelas: LC50:193 mg/L/96h	EC50: 1 mg/L/24 h EC50: 2.88 mg/L/15 min	EC50: 140 mg/L/48h
Methyl alcohol	Not listed	Pimephales promelas: LC50 > 10000 mg/L 96h	EC50 = 39000 mg/L 25 min EC50 = 40000 mg/L 15 min EC50 = 43000 mg/L 5 min	EC50 > 10000 mg/L 24h
Cyclohexene	Not listed	Poecillia reticulata: 7.1 mg/L/96h	Not listed	Daphnia: EC50: 5.3 mg/L/48h
2-Methyl-2-butene	Not listed	Not listed	Not listed	EC50: = 3 mg/L, 48h (Daphnia magna)

Persistence and Degradability Persistence is unlikely based on information available.
Bioaccumulation/ Accumulation No information available.

Mobility Will likely be mobile in the environment due to its volatility.

Component	log Pow
Methylene chloride	1.25
Methyl alcohol	-0.74

Cyclohexene	3.27

13. Disposal considerations

Waste Disposal Methods Chemical waste generators must determine whether a discarded chemical is classified as a hazardous waste. Chemical waste generators must also consult local, regional, and national hazardous waste regulations to ensure complete and accurate classification.

Component	RCRA - U Series Wastes	RCRA - P Series Wastes
Methylene chloride - 75-09-2	U080	-
Methyl alcohol - 67-56-1	U154	-

14. Transport information

DOT

UN-No UN1593
Proper Shipping Name DICHLOROMETHANE
Hazard Class 6.1
Packing Group III

TDG

UN-No UN1593
Proper Shipping Name DICHLOROMETHANE
Hazard Class 6.1
Packing Group III

IATA

UN-No UN1593
Proper Shipping Name Dichloromethane
Hazard Class 6.1
Packing Group III

IMDG/IMO

UN-No UN1593
Proper Shipping Name Dichloromethane
Hazard Class 6.1
Packing Group III

15. Regulatory information

All of the components in the product are on the following Inventory lists: X = listed

International Inventories

Component	TSCA	DSL	NDSL	EINECS	ELINCS	NLP	PICCS	ENCS	AICS	IECSC	KECL
Methylene chloride	X	X	-	200-838-9	-		X	X	X	X	X
Methyl alcohol	X	X	-	200-659-6	-		X	X	X	X	X
Cyclohexene	X	X	-	203-807-8	-		X	X	X	X	X
2-Methyl-2-butene	X	X	-	208-156-3	-		X	X	X	X	X

Legend:
X - Listed
E - Indicates a substance that is the subject of a Section 5(e) Consent order under TSCA.
F - Indicates a substance that is the subject of a Section 5(f) Rule under TSCA.
N - Indicates a polymeric substance containing no free-radical initiator in its inventory name but is considered to cover the designated polymer made with any free-radical initiator regardless of the amount used.
P - Indicates a commenced PMN substance
R - Indicates a substance that is the subject of a Section 6 risk management rule under TSCA.
S - Indicates a substance that is identified in a proposed or final Significant New Use Rule
T - Indicates a substance that is the subject of a Section 4 test rule under TSCA.
XU - Indicates a substance exempt from reporting under the Inventory Update Rule, i.e. Partial Updating of the TSCA Inventory Data Base Production and Site Reports (40 CFR 710(B).
Y1 - Indicates an exempt polymer that has a number-average molecular weight of 1,000 or greater.
Y2 - Indicates an exempt polymer that is a polyester and is made only from reactants included in a specified list of low concern reactants that comprises one of the eligibility criteria for the exemption rule.

U.S. Federal Regulations

TSCA 12(b)

SARA 313

Component	CAS-No	Weight %	SARA 313 - Threshold Values %
Methylene chloride	75-09-2	>99.5	0.1
Methyl alcohol	67-56-1	0 - 0.4	1.0

SARA 311/312 Hazard Categories

Acute Health Hazard	Yes
Chronic Health Hazard	Yes
Fire Hazard	No
Sudden Release of Pressure Hazard	No
Reactive Hazard	No

CWA (Clean Water Act)

Component	CWA - Hazardous Substances	CWA - Reportable Quantities	CWA - Toxic Pollutants	CWA - Priority Pollutants
Methylene chloride	-	-	X	X

Clean Air Act

Component	HAPS Data	Class 1 Ozone Depletors	Class 2 Ozone Depletors
Methylene chloride	X		-
Methyl alcohol	X		-

OSHA Occupational Safety and Health Administration

Component	Specifically Regulated Chemicals	Highly Hazardous Chemicals
Methylene chloride	125 ppm STEL 12.5 ppm Action Level 25 ppm TWA	-

CERCLA

This material, as supplied, contains one or more substances regulated as a hazardous substance under the Comprehensive Environmental Response Compensation and Liability Act (CERCLA) (40 CFR 302)

Component	Hazardous Substances RQs	CERCLA EHS RQs
Methylene chloride	1000 lb 1 lb	-
Methyl alcohol	5000 lb	-

California Proposition 65 This product contains the following proposition 65 chemicals

Component	CAS-No	California Prop. 65	Prop 65 NSRL	Category
Methylene chloride	75-09-2	Carcinogen	200 µg/day 50 µg/day	Carcinogen
Methyl alcohol	67-56-1	Developmental	-	Developmental

U.S. State Right-to-Know Regulations

Component	Massachusetts	New Jersey	Pennsylvania	Illinois	Rhode Island
Methylene chloride	X	X	X	X	X
Methyl alcohol	X	X	X	X	X
Cyclohexene	X	X	X	-	X
2-Methyl-2-butene	X	X	X	-	-

U.S. Department of Transportation

Reportable Quantity (RQ):	Y
DOT Marine Pollutant	N
DOT Severe Marine Pollutant	N

U.S. Department of Homeland Security
This product does not contain any DHS chemicals.

Other International Regulations

Mexico - Grade No information available

Canada
This product has been classified in accordance with the hazard criteria of the Controlled Products Regulations (CPR) and the MSDS contains all the information required by the CPR

WHMIS Hazard Class D1B Toxic materials
D2A Very toxic materials



16. Other information

Prepared By Regulatory Affairs
Thermo Fisher Scientific
Email: EMSDS.RA@thermofisher.com

Creation Date 27-Jan-2010
Revision Date 02-Oct-2015
Print Date 02-Oct-2015
Revision Summary This document has been updated to comply with the US OSHA HazCom 2012 Standard replacing the current legislation under 29 CFR 1910.1200 to align with the Globally Harmonized System of Classification and Labeling of Chemicals (GHS)

Disclaimer
The information provided on this Safety Data Sheet is correct to the best of our knowledge, information and belief at the date of its publication. The information given is designed only as a guide for safe handling, use, processing, storage, transportation, disposal and release and is not to be considered as a warranty or quality specification. The information relates only to the specific material designated and may not be valid for such material used in combination with any other material or in any process, unless specified in the text.

End of SDS

SAFETY DATA SHEET

Version 6.15
Revision Date 09/07/2024
Print Date 09/08/2024

SECTION 1: Identification of the substance/mixture and of the company/undertaking

1.1 Product identifiers

Product name : *tert*-Butyl methyl ether

Product Number : 306975
Brand : Sigma-Aldrich
Index-No. : 603-181-00-X
CAS-No. : 1634-04-4

1.2 Relevant identified uses of the substance or mixture and uses advised against

Identified uses : Laboratory chemicals, Synthesis of substances

Uses advised against : The product is being supplied under the TSCA R&D Exemption (40 CFR Section 720.36). It is the recipient's responsibility to comply with the requirements of the R&D exemption. The product may not be used for a non-exempt commercial purpose under TSCA unless appropriate consent is granted in writing by MilliporeSigma.

1.3 Details of the supplier of the safety data sheet

Company : Sigma-Aldrich Inc.
3050 SPRUCE ST
ST. LOUIS MO 63103
UNITED STATES

Telephone : +1 314 771-5765
Fax : +1 800 325-5052

1.4 Emergency telephone

Emergency Phone # : 800-424-9300 CHEMTREC (USA) +1-703-527-3887 CHEMTREC (International) 24 Hours/day; 7 Days/week

SECTION 2: Hazards identification

2.1 Classification of the substance or mixture

GHS Classification in accordance with 29 CFR 1910 (OSHA HCS)

Flammable liquids (Category 2), H225
Skin irritation (Category 2), H315

For the full text of the H-Statements mentioned in this Section, see Section 16.

The life science business of Merck KGaA, Darmstadt, Germany
operates as MilliporeSigma in the US and Canada

2.2 GHS Label elements, including precautionary statements

Pictogram



Signal Word Danger

Hazard Statements

H225	Highly flammable liquid and vapor.
H315	Causes skin irritation.

Precautionary Statements

P210	Keep away from heat/ sparks/ open flames/ hot surfaces. No smoking.
P233	Keep container tightly closed.
P240	Ground/bond container and receiving equipment.
P241	Use explosion-proof electrical/ ventilating/ lighting/ equipment.
P242	Use only non-sparking tools.
P243	Take precautionary measures against static discharge.
P264	Wash skin thoroughly after handling.
P280	Wear protective gloves/ eye protection/ face protection.
P303 + P361 + P353	IF ON SKIN (or hair): Take off immediately all contaminated clothing. Rinse skin with water/ shower.
P332 + P313	If skin irritation occurs: Get medical advice/ attention.
P362	Take off contaminated clothing and wash before reuse.
P370 + P378	In case of fire: Use dry sand, dry chemical or alcohol-resistant foam to extinguish.
P403 + P235	Store in a well-ventilated place. Keep cool.
P501	Dispose of contents/ container to an approved waste disposal plant.

2.3 Hazards not otherwise classified (HNOC) or not covered by GHS - none

SECTION 3: Composition/information on ingredients

3.1 Substances

Synonyms	:	MTBE Methyl tert-butyl ether
Formula	:	$C_5H_{12}O$
Molecular weight	:	88.15 g/mol
CAS-No.	:	1634-04-4
EC-No.	:	216-653-1
Index-No.	:	603-181-00-X

Component	Classification	Concentration
tert-butyl methyl ether		
	Flam. Liq. 2; Skin Irrit. 2; H225, H315	<= 100 %

For the full text of the H-Statements mentioned in this Section, see Section 16.

The life science business of Merck KGaA, Darmstadt, Germany
operates as MilliporeSigma in the US and Canada

SECTION 4: First aid measures

4.1 Description of first-aid measures

General advice
Show this material safety data sheet to the doctor in attendance.

If inhaled
After inhalation: fresh air.

In case of skin contact
In case of skin contact: Take off immediately all contaminated clothing. Rinse skin with water/ shower.

In case of eye contact
After eye contact: rinse out with plenty of water. Remove contact lenses.

If swallowed
After swallowing: caution if victim vomits. Risk of aspiration! Keep airways free. Pulmonary failure possible after aspiration of vomit. Call a physician immediately.

4.2 Most important symptoms and effects, both acute and delayed
The most important known symptoms and effects are described in the labelling (see section 2.2) and/or in section 11

4.3 Indication of any immediate medical attention and special treatment needed
No data available

SECTION 5: Firefighting measures

5.1 Extinguishing media

Suitable extinguishing media
Carbon dioxide (CO2) Foam Dry powder

Unsuitable extinguishing media
For this substance/mixture no limitations of extinguishing agents are given.

5.2 Special hazards arising from the substance or mixture
Carbon oxides
Combustible.
Pay attention to flashback.
Vapors are heavier than air and may spread along floors.
Development of hazardous combustion gases or vapours possible in the event of fire.
Forms explosive mixtures with air at ambient temperatures.

5.3 Advice for firefighters
Stay in danger area only with self-contained breathing apparatus. Prevent skin contact by keeping a safe distance or by wearing suitable protective clothing.

5.4 Further information
Remove container from danger zone and cool with water. Prevent fire extinguishing water from contaminating surface water or the ground water system.

The life science business of Merck KGaA, Darmstadt, Germany
operates as MilliporeSigma in the US and Canada

SECTION 6: Accidental release measures

6.1 Personal precautions, protective equipment and emergency procedures

Advice for non-emergency personnel: Do not breathe vapors, aerosols. Avoid substance contact. Ensure adequate ventilation. Keep away from heat and sources of ignition.
Evacuate the danger area, observe emergency procedures, consult an expert.
For personal protection see section 8.

6.2 Environmental precautions

Do not let product enter drains. Risk of explosion.

6.3 Methods and materials for containment and cleaning up

Cover drains. Collect, bind, and pump off spills. Observe possible material restrictions (see sections 7 and 10). Take up with liquid-absorbent material (e.g. Chemizorb®).
Dispose of properly. Clean up affected area.

6.4 Reference to other sections

For disposal see section 13.

SECTION 7: Handling and storage

7.1 Precautions for safe handling

Advice on protection against fire and explosion
Keep away from open flames, hot surfaces and sources of ignition.Take precautionary measures against static discharge.

Hygiene measures
Immediately change contaminated clothing. Apply preventive skin protection. Wash hands and face after working with substance.
For precautions see section 2.2.

7.2 Conditions for safe storage, including any incompatibilities

Storage conditions
Keep container tightly closed in a dry and well-ventilated place. Keep away from heat and sources of ignition.

Storage class
Storage class (TRGS 510): 3: Flammable liquids

7.3 Specific end use(s)

Apart from the uses mentioned in section 1.2 no other specific uses are stipulated

SECTION 8: Exposure controls/personal protection

8.1 Control parameters

Ingredients with workplace control parameters

The life science business of Merck KGaA, Darmstadt, Germany
operates as MilliporeSigma in the US and Canada

Component	CAS-No.	Value	Control parameters	Basis
tert-butyl methyl ether	1634-04-4	TWA	50 ppm	USA. ACGIH Threshold Limit Values (TLV)
	Remarks	Confirmed animal carcinogen with unknown relevance to humans		
		PEL	40 ppm 144 mg/m3	California permissible exposure limits for chemical contaminants (Title 8, Article 107)

8.2 Exposure controls

Appropriate engineering controls
Immediately change contaminated clothing. Apply preventive skin protection. Wash hands and face after working with substance.

Personal protective equipment

Eye/face protection
Use equipment for eye protection tested and approved under appropriate government standards such as NIOSH (US) or EN 166(EU). Safety glasses

Skin protection
This recommendation applies only to the product stated in the safety data sheet, supplied by us and for the designated use. When dissolving in or mixing with other substances and under conditions deviating from those stated in EN 16523-1 please contact the supplier of CE-approved gloves (e.g. KCL GmbH, D-36124 Eichenzell, Internet: www.kcl.de).
Splash contact
Material: Nitrile rubber
Minimum layer thickness: 0.4 mm
Break through time: 120 min
Material tested:Camatril® (KCL 730 / Aldrich Z677442, Size M)

Body Protection
Flame retardant antistatic protective clothing.

Respiratory protection
Recommended Filter type: Filter type AX
The entrepeneur has to ensure that maintenance, cleaning and testing of respiratory protective devices are carried out according to the instructions of the producer. These measures have to be properly documented.
required when vapours/aerosols are generated.
Our recommendations on filtering respiratory protection are based on the following standards: DIN EN 143, DIN 14387 and other accompanying standards relating to the used respiratory protection system.

Control of environmental exposure
Do not let product enter drains. Risk of explosion.

The life science business of Merck KGaA, Darmstadt, Germany
operates as MilliporeSigma in the US and Canada

SECTION 9: Physical and chemical properties

9.1 Information on basic physical and chemical properties

a)	Appearance	Form: liquid Color: colorless
b)	Odor	characteristic
c)	Odor Threshold	0.053 ppm
d)	pH	No data available
e)	Melting point/freezing point	Melting point: -108.6 °C (-163.5 °F) at 1,013 hPa
f)	Initial boiling point and boiling range	55 - 56 °C 131 - 133 °F - lit.
g)	Flash point	-28 °C (-18 °F) - closed cup
h)	Evaporation rate	No data available
i)	Flammability (solid, gas)	No data available
j)	Upper/lower flammability or explosive limits	Upper explosion limit: 8.5 %(V) Lower explosion limit: 1.6 %(V)
k)	Vapor pressure	330 hPa at 25 °C (77 °F) - OECD Test Guideline 104
l)	Vapor density	No data available
m)	Density	0.74 g/cm3 at 25 °C (77 °F) - lit.
	Relative density	0.7420 °C
n)	Water solubility	42 g/l at 20 °C (68 °F) - OECD Test Guideline 105
o)	Partition coefficient: n-octanol/water	log Pow: 1.06 at 20 °C (68 °F) - OECD Test Guideline 107 - Bioaccumulation is not expected.
p)	Autoignition temperature	460 °C (860 °F) at 1013.0 hPa - DIN 51794
q)	Decomposition temperature	Distillable in an undecomposed state at normal pressure.
r)	Viscosity	0.409 mm2/s at 40 °C (104 °F) - OECD Test Guideline 114 - 0.464 mm2/s at 20 °C (68 °F) - OECD Test Guideline 114 -
s)	Explosive properties	No data available
t)	Oxidizing properties	none

9.2 Other safety information

Surface tension	72.5 mN/m at 1.07g/l at 21.5 °C (70.7 °F) - Surface tension

The life science business of Merck KGaA, Darmstadt, Germany
operates as MilliporeSigma in the US and Canada

SECTION 10: Stability and reactivity

10.1 Reactivity
Vapors may form explosive mixture with air.

10.2 Chemical stability
The product is chemically stable under standard ambient conditions (room temperature) .

10.3 Possibility of hazardous reactions
Violent reactions possible with:
Oxidizing agents
Strong acids
halogens
Strong bases

10.4 Conditions to avoid
Heat, flames and sparks.
Warming.

10.5 Incompatible materials
rubber, various plastics

10.6 Hazardous decomposition products
In the event of fire: see section 5

SECTION 11: Toxicological information

11.1 Information on toxicological effects

Acute toxicity
LD50 Oral - Rat - male and female - > 2,000 mg/kg
(OECD Test Guideline 401)
Symptoms: Nausea, Vomiting, Pulmonary failure possible after aspiration of vomit., Aspiration may cause pulmonary edema and pneumonitis.
LC50 Inhalation - Rat - male and female - 4 h - 85 mg/l - vapor

(OECD Test Guideline 403)
Symptoms: Possible damages:, mucosal irritations
LD50 Dermal - Rat - male and female - > 2,000 mg/kg
(OECD Test Guideline 402)

Skin corrosion/irritation
Skin - Rabbit
Result: Skin irritation - 4 h
(OECD Test Guideline 404)
Remarks: Drying-out effect resulting in rough and chapped skin.

Serious eye damage/eye irritation
Eyes - Rabbit
Result: No eye irritation

The life science business of Merck KGaA, Darmstadt, Germany
operates as MilliporeSigma in the US and Canada

(OECD Test Guideline 405)

Respiratory or skin sensitization
Maximization Test - Guinea pig
Result: negative
(OECD Test Guideline 406)

Germ cell mutagenicity
Test Type: In vitro mammalian cell gene mutation test
Test system: Chinese hamster lung cells
Metabolic activation: with and without metabolic activation
Method: OECD Test Guideline 476
Result: negative
Test Type: Ames test
Test system: Salmonella typhimurium
Metabolic activation: with and without metabolic activation
Method: OECD Test Guideline 471
Result: negative
Test Type: Mutagenicity (mammal cell test): micronucleus.
Test system: mouse lymphoma cells
Metabolic activation: without metabolic activation
Method: OECD Test Guideline 473
Result: negative

Test Type: unscheduled DNA synthesis assay
Species: Mouse
Cell type: Liver cells
Application Route: inhalation (vapor)
Method: OECD Test Guideline 486
Result: negative

Test Type: Micronucleus test
Species: Mouse
Cell type: Bone marrow
Application Route: inhalation (vapor)
Method: US-EPA
Result: negative

Test Type: Mutagenicity (mammal cell test): chromosome aberration.
Species: Rat
Cell type: Bone marrow
Application Route: inhalation (vapor)
Method: US-EPA
Result: negative

Test Type: Transgenic rodent somatic cell gene mutation assay
Species: Rat
Cell type: Bone marrow
Application Route: inhalation (vapor)
Method: OECD Test Guideline 488
Result: negative

Carcinogenicity

The life science business of Merck KGaA, Darmstadt, Germany
operates as MilliporeSigma in the US and Canada

IARC: No ingredient of this product present at levels greater than or equal to 0.1% is identified as probable, possible or confirmed human carcinogen by IARC.

NTP: No ingredient of this product present at levels greater than or equal to 0.1% is identified as a known or anticipated carcinogen by NTP.

OSHA: No component of this product present at levels greater than or equal to 0.1% is on OSHA's list of regulated carcinogens.

Reproductive toxicity
No data available

Specific target organ toxicity - single exposure
No data available

Specific target organ toxicity - repeated exposure
No data available

Aspiration hazard
No data available

11.2 Additional Information

Repeated dose toxicity - Rat - male and female - Oral - 90 d - NOAEL (No observed adverse effect level) - 3,000 mg/kg
Remarks: Subchronic toxicity

RTECS: KN5250000
Nausea, Vomiting, Dizziness, Central nervous system depression, Aspiration or inhalation may cause chemical pneumonitis., MTBE (methyl-tert-butyl ether) is reported to metabolize to tert-butyl alcohol and formaldehyde by microsomal demethylation, MTBE (methyl-tert-butyl ether) should be considered a "potential human carcinogen" due to an increase in leydig interstitial cell tumors of testes in male rats and an increase in lymphomas, leukemias, and uterine sarcomas in female rats., In another unpublished study MTBE was shown to be carcinogenic due to "increased incidence of a rare type of kidney tumor" in male rats and an "increase in the incidence of hepatocellular adenomas" in female mice.
To the best of our knowledge, the chemical, physical, and toxicological properties have not been thoroughly investigated.

Systemic effects:

After absorption of large quantities:

somnolence
Dizziness
agitation, spasms
CNS disorders
narcosis
Unconsciousness

Other dangerous properties can not be excluded.

Handle in accordance with good industrial hygiene and safety practice.

The life science business of Merck KGaA, Darmstadt, Germany
operates as MilliporeSigma in the US and Canada

SECTION 12: Ecological information

12.1 Toxicity

Toxicity to fish	semi-static test LC50 - Menidia beryllina - 574 mg/l - 96 h (OECD Test Guideline 203)
Toxicity to daphnia and other aquatic invertebrates	flow-through test EC50 - Americamysis bahia (Mysid) - 187 mg/l - 96 h (US-EPA OPPTS 850.1035)
Toxicity to algae	static test IC50 - Pseudokirchneriella subcapitata (green algae) - 491 mg/l - 96 h
Toxicity to bacteria	static test EC10 - Pseudomonas putida - 710 mg/l - 18 h Remarks: (ECHA)
Toxicity to fish(Chronic toxicity)	flow-through test NOEC - Pimephales promelas (fathead minnow) - 299 mg/l - 31 d Remarks: (ECHA)
	flow-through test NOEC - Pimephales promelas (fathead minnow) - 450 mg/l - 31 d Remarks: (ECHA)
Toxicity to daphnia and other aquatic invertebrates(Chronic toxicity)	flow-through test NOEC - Daphnia magna (Water flea) - 51 mg/l - 21 d (OPPTS 850.1300)

12.2 Persistence and degradability

Biodegradability	aerobic - Exposure time 28 d Result: 0 % - Not readily biodegradable. (OECD Test Guideline 301D)

12.3 Bioaccumulative potential

Bioaccumulation	Cyprinus carpio (Carp) - 28 d at 25 °C(tert-butyl methyl ether) Bioconcentration factor (BCF): 1.5

12.4 Mobility in soil

No data available

12.5 Results of PBT and vPvB assessment

PBT/vPvB assessment not available as chemical safety assessment not required/not conducted

12.6 Endocrine disrupting properties

No data available

12.7 Other adverse effects

No data available

The life science business of Merck KGaA, Darmstadt, Germany
operates as MilliporeSigma in the US and Canada

SECTION 13: Disposal considerations

13.1 Waste treatment methods

Product
Waste material must be disposed of in accordance with the national and local regulations. Leave chemicals in original containers. No mixing with other waste. Handle uncleaned containers like the product itself.

SECTION 14: Transport information

DOT (US)
UN number: 2398 Class: 3 Packing group: II
Proper shipping name: Methyl tert-butyl ether
Reportable Quantity (RQ): 1000 lbs
Poison Inhalation Hazard: No

IMDG
UN number: 2398 Class: 3 Packing group: II EMS-No: F-E, S-D
Proper shipping name: METHYL tert-BUTYL ETHER

IATA
UN number: 2398 Class: 3 Packing group: II
Proper shipping name: Methyl tert-butyl ether

SECTION 15: Regulatory information

CERCLA Reportable Quantity

Components	CAS-No.	Component RQ (lbs)	Calculated product RQ (lbs)
tert-butyl methyl ether	1634-04-4	1000	1000

SARA 304 Extremely Hazardous Substances Reportable Quantity
This material does not contain any components with a section 304 EHS RQ.

SARA 302 Extremely Hazardous Substances Threshold Planning Quantity
This material does not contain any components with a section 302 EHS TPQ.

SARA 311/312 Hazards : Fire Hazard
Acute Health Hazard
Chronic Health Hazard

SARA 313 : The following components are subject to reporting levels established by SARA Title III, Section 313:

The life science business of Merck KGaA, Darmstadt, Germany
operates as MilliporeSigma in the US and Canada

tert-butyl methyl ether	1634-04-4	>= 90 - <= 100 %

US State Regulations

Massachusetts Right To Know

tert-butyl methyl ether 1634-04-4

Pennsylvania Right To Know

tert-butyl methyl ether 1634-04-4

Maine Chemicals of High Concern

tert-butyl methyl ether 1634-04-4

Vermont Chemicals of High Concern

Product does not contain any listed chemicals

Washington Chemicals of High Concern

Product does not contain any listed chemicals

The ingredients of this product are reported in the following inventories:

TSCA : All substances listed as active on the TSCA inventory

TSCA list

No substances are subject to a Significant New Use Rule.

No substances are subject to TSCA 12(b) export notification requirements.

SECTION 16: Other information

Further information

The information is believed to be correct but is not exhaustive and will be used solely as a guideline, which is based on current knowledge of the chemical substance or mixture and is applicable to appropriate safety precautions for the product. It does not represent any guarantee of the properties of the product. Sigma-Aldrich Corporation and its Affiliates shall not be held liable for any damage resulting from handling or from contact with the above product. See www.sigma-aldrich.com and/or the reverse side of invoice or packing slip for additional terms and conditions of sale.

Copyright 2020 Sigma-Aldrich Co. LLC. License granted to make unlimited paper copies for internal use only.

The branding on the header and/or footer of this document may temporarily not visually match the product purchased as we transition our branding. However, all of the information in the document regarding the product remains unchanged and matches the product ordered. For further information please contact mlsbranding@sial.com.

Version: 6.15 Revision Date: 09/07/2024 Print Date: 09/08/2024

The life science business of Merck KGaA, Darmstadt, Germany
operates as MilliporeSigma in the US and Canada

SAFETY DATA SHEET

Version 5.5
Revision Date 06/02/2016
Print Date 06/21/2016

1. PRODUCT AND COMPANY IDENTIFICATION

1.1 Product identifiers

Product name : *m*-Xylene

Product Number : 95670
Brand : Sigma-Aldrich
Index-No. : 601-022-00-9

CAS-No. : 108-38-3

1.2 Relevant identified uses of the substance or mixture and uses advised against

Identified uses : Laboratory chemicals, Synthesis of substances

1.3 Details of the supplier of the safety data sheet

Company : Sigma-Aldrich
3050 Spruce Street
SAINT LOUIS MO 63103
USA

Telephone : +1 800-325-5832
Fax : +1 800-325-5052

1.4 Emergency telephone number

Emergency Phone # : (314) 776-6555

2. HAZARDS IDENTIFICATION

2.1 Classification of the substance or mixture

GHS Classification in accordance with 29 CFR 1910 (OSHA HCS)
Flammable liquids (Category 3), H226
Acute toxicity, Dermal (Category 4), H312
Skin irritation (Category 2), H315
Eye irritation (Category 2A), H319
Specific target organ toxicity - single exposure (Category 3), Respiratory system, H335
Aspiration hazard (Category 1), H304
Acute aquatic toxicity (Category 3), H402
Chronic aquatic toxicity (Category 3), H412

For the full text of the H-Statements mentioned in this Section, see Section 16.

2.2 GHS Label elements, including precautionary statements

Pictogram



Signal word Danger

Hazard statement(s)
H226 Flammable liquid and vapour.
H304 May be fatal if swallowed and enters airways.
H312 Harmful in contact with skin.
H315 Causes skin irritation.
H319 Causes serious eye irritation.
H335 May cause respiratory irritation.

H412	Harmful to aquatic life with long lasting effects.

Precautionary statement(s)

P210	Keep away from heat/sparks/open flames/hot surfaces. No smoking.
P233	Keep container tightly closed.
P240	Ground/bond container and receiving equipment.
P241	Use explosion-proof electrical/ ventilating/ lighting/ equipment.
P242	Use only non-sparking tools.
P243	Take precautionary measures against static discharge.
P261	Avoid breathing dust/ fume/ gas/ mist/ vapours/ spray.
P264	Wash skin thoroughly after handling.
P271	Use only outdoors or in a well-ventilated area.
P273	Avoid release to the environment.
P280	Wear protective gloves/ eye protection/ face protection.
P301 + P310	IF SWALLOWED: Immediately call a POISON CENTER/doctor.
P303 + P361 + P353	IF ON SKIN (or hair): Remove/ Take off immediately all contaminated clothing. Rinse skin with water/ shower.
P304 + P340 + P312	IF INHALED: Remove victim to fresh air and keep at rest in a position comfortable for breathing. Call a POISON CENTER or doctor/ physician if you feel unwell.
P305 + P351 + P338	IF IN EYES: Rinse cautiously with water for several minutes. Remove contact lenses, if present and easy to do. Continue rinsing.
P331	Do NOT induce vomiting.
P332 + P313	If skin irritation occurs: Get medical advice/ attention.
P337 + P313	If eye irritation persists: Get medical advice/ attention.
P362	Take off contaminated clothing and wash before reuse.
P370 + P378	In case of fire: Use dry sand, dry chemical or alcohol-resistant foam for extinction.
P403 + P233	Store in a well-ventilated place. Keep container tightly closed.
P403 + P235	Store in a well-ventilated place. Keep cool.
P405	Store locked up.
P501	Dispose of contents/ container to an approved waste disposal plant.

2.3 Hazards not otherwise classified (HNOC) or not covered by GHS - none

3. COMPOSITION/INFORMATION ON INGREDIENTS

3.1 Substances

Synonyms	:	1,3-Dimethylbenzene
Formula	:	C_8H_{10}
Molecular weight	:	106.17 g/mol
CAS-No.	:	108-38-3
EC-No.	:	203-576-3
Index-No.	:	601-022-00-9

Hazardous components

Component	Classification	Concentration
m-Xylene		
	Flam. Liq. 3; Acute Tox. 4; Skin Irrit. 2; Eye Irrit. 2A; STOT SE 3; Asp. Tox. 1; Aquatic Acute 3; Aquatic Chronic 3; H226, H304, H312, H315, H319, H335, H412	<= 100 %

For the full text of the H-Statements mentioned in this Section, see Section 16.

4. FIRST AID MEASURES

4.1 Description of first aid measures

General advice
Consult a physician. Show this safety data sheet to the doctor in attendance.Move out of dangerous area.

If inhaled
If breathed in, move person into fresh air. If not breathing, give artificial respiration. Consult a physician.

In case of skin contact
Wash off with soap and plenty of water. Consult a physician.

In case of eye contact
Rinse thoroughly with plenty of water for at least 15 minutes and consult a physician.

If swallowed
Do NOT induce vomiting. Never give anything by mouth to an unconscious person. Rinse mouth with water. Consult a physician.

4.2 Most important symptoms and effects, both acute and delayed
The most important known symptoms and effects are described in the labelling (see section 2.2) and/or in section 11

4.3 Indication of any immediate medical attention and special treatment needed
No data available

5. FIREFIGHTING MEASURES

5.1 Extinguishing media

Suitable extinguishing media
Use water spray, alcohol-resistant foam, dry chemical or carbon dioxide.

5.2 Special hazards arising from the substance or mixture
No data available

5.3 Advice for firefighters
Wear self-contained breathing apparatus for firefighting if necessary.

5.4 Further information
Use water spray to cool unopened containers.

6. ACCIDENTAL RELEASE MEASURES

6.1 Personal precautions, protective equipment and emergency procedures
Use personal protective equipment. Avoid breathing vapours, mist or gas. Ensure adequate ventilation. Remove all sources of ignition. Evacuate personnel to safe areas. Beware of vapours accumulating to form explosive concentrations. Vapours can accumulate in low areas.
For personal protection see section 8.

6.2 Environmental precautions
Prevent further leakage or spillage if safe to do so. Do not let product enter drains. Discharge into the environment must be avoided.

6.3 Methods and materials for containment and cleaning up
Contain spillage, and then collect with an electrically protected vacuum cleaner or by wet-brushing and place in container for disposal according to local regulations (see section 13).

6.4 Reference to other sections
For disposal see section 13.

7. HANDLING AND STORAGE

7.1 Precautions for safe handling
Avoid contact with skin and eyes. Avoid inhalation of vapour or mist.
Keep away from sources of ignition - No smoking.Take measures to prevent the build up of electrostatic charge.
For precautions see section 2.2.

7.2 Conditions for safe storage, including any incompatibilities

Keep container tightly closed in a dry and well-ventilated place. Containers which are opened must be carefully resealed and kept upright to prevent leakage.
Storage class (TRGS 510): Flammable liquids

7.3 Specific end use(s)

Apart from the uses mentioned in section 1.2 no other specific uses are stipulated

8. EXPOSURE CONTROLS/PERSONAL PROTECTION

8.1 Control parameters

Components with workplace control parameters

Component	CAS-No.	Value	Control parameters	Basis
m-Xylene	108-38-3	TWA	100.000000 ppm	USA. ACGIH Threshold Limit Values (TLV)
	Remarks	Eye & Upper Respiratory Tract irritation Central Nervous System impairment Substances for which there is a Biological Exposure Index or Indices (see BEI® section) Not classifiable as a human carcinogen		
		STEL	150.000000 ppm	USA. ACGIH Threshold Limit Values (TLV)
		Eye & Upper Respiratory Tract irritation Central Nervous System impairment Substances for which there is a Biological Exposure Index or Indices (see BEI® section) Not classifiable as a human carcinogen		
		TWA	100.000000 ppm 435.000000 mg/m3	USA. NIOSH Recommended Exposure Limits
		ST	150.000000 ppm 655.000000 mg/m3	USA. NIOSH Recommended Exposure Limits
		TWA	100.000000 ppm 435.000000 mg/m3	USA. Occupational Exposure Limits (OSHA) - Table Z-1 Limits for Air Contaminants
		The value in mg/m3 is approximate.		
		TWA	100.000000 ppm	USA. ACGIH Threshold Limit Values (TLV)
		Central Nervous System impairment Upper Respiratory Tract irritation Eye irritation Substances for which there is a Biological Exposure Index or Indices (see BEI® section) Not classifiable as a human carcinogen		
		STEL	150.000000 ppm	USA. ACGIH Threshold Limit Values (TLV)
		Central Nervous System impairment Upper Respiratory Tract irritation Eye irritation Substances for which there is a Biological Exposure Index or Indices (see BEI® section)		

		Not classifiable as a human carcinogen		
		TWA	100 ppm	USA. ACGIH Threshold Limit Values (TLV)
		Central Nervous System impairment Upper Respiratory Tract irritation Eye irritation Substances for which there is a Biological Exposure Index or Indices (see BEI® section) Not classifiable as a human carcinogen		
		STEL	150 ppm	USA. ACGIH Threshold Limit Values (TLV)
		Central Nervous System impairment Upper Respiratory Tract irritation Eye irritation Substances for which there is a Biological Exposure Index or Indices (see BEI® section) Not classifiable as a human carcinogen		
		TWA	100 ppm 435 mg/m3	USA. Occupational Exposure Limits (OSHA) - Table Z-1 Limits for Air Contaminants
		The value in mg/m3 is approximate.		

Biological occupational exposure limits

Component	CAS-No.	Parameters	Value	Biological specimen	Basis
m-Xylene	108-38-3	Methylhippuric acids	1.5g/g creatinine	Urine	ACGIH - Biological Exposure Indices (BEI)
	Remarks	End of shift (As soon as possible after exposure ceases)			
		Methylhippuric acids	1,500.0000 mg/g	Urine	ACGIH - Biological Exposure Indices (BEI)
		End of shift (As soon as possible after exposure ceases)			

8.2 Exposure controls

Appropriate engineering controls
Handle in accordance with good industrial hygiene and safety practice. Wash hands before breaks and at the end of workday.

Personal protective equipment

Eye/face protection
Face shield and safety glasses Use equipment for eye protection tested and approved under appropriate government standards such as NIOSH (US) or EN 166(EU).

Skin protection
Handle with gloves. Gloves must be inspected prior to use. Use proper glove removal technique (without touching glove's outer surface) to avoid skin contact with this product. Dispose of contaminated gloves after use in accordance with applicable laws and good laboratory practices. Wash and dry hands.

Full contact
Material: Fluorinated rubber
Minimum layer thickness: 0.7 mm
Break through time: 480 min
Material tested:Vitoject® (KCL 890 / Aldrich Z677698, Size M)

Splash contact
Material: Nitrile rubber
Minimum layer thickness: 0.4 mm
Break through time: 30 min
Material tested:Camatril® (KCL 730 / Aldrich Z677442, Size M)

data source: KCL GmbH, D-36124 Eichenzell, phone +49 (0)6659 87300, e-mail sales@kcl.de, test method: EN374
If used in solution, or mixed with other substances, and under conditions which differ from EN 374, contact the supplier of the CE approved gloves. This recommendation is advisory only and must be evaluated by an industrial hygienist and safety officer familiar with the specific situation of anticipated use by our customers. It should not be construed as offering an approval for any specific use scenario.

Body Protection
Complete suit protecting against chemicals, Flame retardant antistatic protective clothing., The type of protective equipment must be selected according to the concentration and amount of the dangerous substance at the specific workplace.

Respiratory protection
Where risk assessment shows air-purifying respirators are appropriate use a full-face respirator with multi-purpose combination (US) or type ABEK (EN 14387) respirator cartridges as a backup to engineering controls. If the respirator is the sole means of protection, use a full-face supplied air respirator. Use respirators and components tested and approved under appropriate government standards such as NIOSH (US) or CEN (EU).

Control of environmental exposure
Prevent further leakage or spillage if safe to do so. Do not let product enter drains. Discharge into the environment must be avoided.

9. PHYSICAL AND CHEMICAL PROPERTIES

9.1 Information on basic physical and chemical properties

a)	Appearance	Form: liquid Colour: colourless
b)	Odour	No data available
c)	Odour Threshold	No data available
d)	pH	No data available
e)	Melting point/freezing point	Melting point/range: -48 °C (-54 °F) - lit.
f)	Initial boiling point and boiling range	138 - 139 °C (280 - 282 °F) - lit.
g)	Flash point	25.0 °C (77.0 °F) - closed cup
h)	Evaporation rate	No data available
i)	Flammability (solid, gas)	No data available
j)	Upper/lower flammability or explosive limits	Upper explosion limit: 7 %(V) Lower explosion limit: 1.1 %(V)
k)	Vapour pressure	8.0 hPa (6.0 mmHg) at 20.0 °C (68.0 °F) 21.3 hPa (16.0 mmHg) at 37.7 °C (99.9 °F)
l)	Vapour density	No data available
m)	Relative density	0.868 g/mL at 25 °C (77 °F)
n)	Water solubility	No data available
o)	Partition coefficient: n-octanol/water	log Pow: 3.2 at 20 °C (68 °F)
p)	Auto-ignition temperature	465.0 °C (869.0 °F) 528.0 °C (982.4 °F)
q)	Decomposition temperature	No data available
r)	Viscosity	No data available
s)	Explosive properties	No data available

t) Oxidizing properties No data available

9.2 Other safety information
No data available

10. STABILITY AND REACTIVITY

10.1 Reactivity
No data available

10.2 Chemical stability
Stable under recommended storage conditions.

10.3 Possibility of hazardous reactions
Vapours may form explosive mixture with air.

10.4 Conditions to avoid
Heat, flames and sparks.

10.5 Incompatible materials
Strong oxidizing agents

10.6 Hazardous decomposition products
Hazardous decomposition products formed under fire conditions. - Carbon oxides
Other decomposition products - No data available
In the event of fire: see section 5

11. TOXICOLOGICAL INFORMATION

11.1 Information on toxicological effects

Acute toxicity
LD50 Oral - Rat - male - 6,602 mg/kg
(OECD Test Guideline 401)

LC50 Inhalation - Rat - male - 4 h - 6700 ppm
(Directive 67/548/EEC, Annex V, B.2.)

LD50 Dermal - Rabbit - male - 12,126 mg/kg

No data available

Skin corrosion/irritation
Skin - Rabbit
Result: Skin irritation - 24 h

Serious eye damage/eye irritation
Eyes - Rabbit
Result: Severe eye irritation - 24 h

Respiratory or skin sensitisation
- Mouse
Result: Does not cause skin sensitisation.
(OECD Test Guideline 429)

Germ cell mutagenicity
No data available

Carcinogenicity

This product is or contains a component that is not classifiable as to its carcinogenicity based on its IARC, ACGIH, NTP, or EPA classification.

IARC: 3 - Group 3: Not classifiable as to its carcinogenicity to humans (m-Xylene)

IARC: No component of this product present at levels greater than or equal to 0.1% is identified as probable, possible or confirmed human carcinogen by IARC.

NTP: No component of this product present at levels greater than or equal to 0.1% is identified as a known or anticipated carcinogen by NTP.

No component of this product present at levels greater than or equal to 0.1% is identified as a known or anticipated carcinogen by NTP.

OSHA: No component of this product present at levels greater than or equal to 0.1% is identified as a carcinogen or potential carcinogen by OSHA.

No component of this product present at levels greater than or equal to 0.1% is identified as a carcinogen or potential carcinogen by OSHA.

Reproductive toxicity

Overexposure may cause reproductive disorder(s) based on tests with laboratory animals.

Specific target organ toxicity - single exposure
Inhalation - May cause respiratory irritation.

Specific target organ toxicity - repeated exposure
No data available

Aspiration hazard
May be fatal if swallowed and enters airways.

Additional Information
RTECS: ZE2275000

Liver injury may occur., Kidney injury may occur., Blood disorders, burning sensation, Cough, wheezing, laryngitis, Shortness of breath, Headache, Nausea, Vomiting, narcosis, Lung irritation, chest pain, pulmonary edema, Central nervous system depression, Dermatitis, Gastrointestinal disturbance

Kidney -

12. ECOLOGICAL INFORMATION

12.1 Toxicity

Toxicity to fish	mortality LC50 - Fish - 11.23 mg/l - 96 h (OECD Test Guideline 203)
Toxicity to daphnia and other aquatic invertebrates	Remarks: No data available
Toxicity to algae	Remarks: No data available

12.2 Persistence and degradability
No data available

12.3 Bioaccumulative potential
Due to the distribution coefficient n-octanol/water, accumulation in organisms is not expected.

12.4 Mobility in soil
No data available

12.5 Results of PBT and vPvB assessment
PBT/vPvB assessment not available as chemical safety assessment not required/not conducted

12.6 Other adverse effects
An environmental hazard cannot be excluded in the event of unprofessional handling or disposal.
Harmful to aquatic life with long lasting effects.

No data available

13. DISPOSAL CONSIDERATIONS

13.1 Waste treatment methods

Product
Burn in a chemical incinerator equipped with an afterburner and scrubber but exert extra care in igniting as this material is highly flammable. Offer surplus and non-recyclable solutions to a licensed disposal company. Contact a licensed professional waste disposal service to dispose of this material.

Contaminated packaging
Dispose of as unused product.

14. TRANSPORT INFORMATION

DOT (US)
UN number: 1307 Class: 3 Packing group: III
Proper shipping name: Xylenes
Reportable Quantity (RQ): 1000 lbs

Poison Inhalation Hazard: No

IMDG
UN number: 1307 Class: 3 Packing group: III EMS-No: F-E, S-D
Proper shipping name: XYLENES

IATA
UN number: 1307 Class: 3 Packing group: III
Proper shipping name: Xylenes

15. REGULATORY INFORMATION

SARA 302 Components
No chemicals in this material are subject to the reporting requirements of SARA Title III, Section 302.

SARA 313 Components
The following components are subject to reporting levels established by SARA Title III, Section 313:

	CAS-No.	Revision Date
m-Xylene	108-38-3	2007-07-01

SARA 311/312 Hazards
Fire Hazard, Acute Health Hazard

Massachusetts Right To Know Components

	CAS-No.	Revision Date
m-Xylene	108-38-3	2007-07-01

Pennsylvania Right To Know Components

	CAS-No.	Revision Date
m-Xylene	108-38-3	2007-07-01

New Jersey Right To Know Components

	CAS-No.	Revision Date
m-Xylene	108-38-3	2007-07-01

California Prop. 65 Components

This product does not contain any chemicals known to State of California to cause cancer, birth defects, or any other reproductive harm.
This product does not contain any chemicals known to State of California to cause cancer, birth defects, or any other reproductive harm.

16. OTHER INFORMATION

Full text of H-Statements referred to under sections 2 and 3.

Acute Tox.	Acute toxicity
Aquatic Acute	Acute aquatic toxicity
Aquatic Chronic	Chronic aquatic toxicity
Asp. Tox.	Aspiration hazard
Eye Irrit.	Eye irritation
Flam. Liq.	Flammable liquids
H226	Flammable liquid and vapour.

H304	May be fatal if swallowed and enters airways.
H312	Harmful in contact with skin.
H315	Causes skin irritation.
H319	Causes serious eye irritation.
H335	May cause respiratory irritation.

HMIS Rating

Health hazard:	2
Chronic Health Hazard:	*
Flammability:	3
Physical Hazard	0

NFPA Rating

Health hazard:	2
Fire Hazard:	3
Reactivity Hazard:	0

Further information

Copyright 2016 Sigma-Aldrich Co. LLC. License granted to make unlimited paper copies for internal use only.
The above information is believed to be correct but does not purport to be all inclusive and shall be used only as a guide. The information in this document is based on the present state of our knowledge and is applicable to the product with regard to appropriate safety precautions. It does not represent any guarantee of the properties of the product. Sigma-Aldrich Corporation and its Affiliates shall not be held liable for any damage resulting from handling or from contact with the above product. See www.sigma-aldrich.com and/or the reverse side of invoice or packing slip for additional terms and conditions of sale.

Preparation Information

Sigma-Aldrich Corporation
Product Safety – Americas Region
1-800-521-8956

Version: 5.5 Revision Date: 06/02/2016 Print Date: 06/21/2016

SAFETY DATA SHEET

Version 6.12
Revision Date 09/07/2024
Print Date 09/08/2024

SECTION 1: Identification of the substance/mixture and of the company/undertaking

1.1 Product identifiers

Product name : Naphthalene

Product Number : 147141
Brand : Aldrich
Index-No. : 601-052-00-2
CAS-No. : 91-20-3

1.2 Relevant identified uses of the substance or mixture and uses advised against

Identified uses : Laboratory chemicals, Synthesis of substances

Uses advised against : The product is being supplied under the TSCA R&D Exemption (40 CFR Section 720.36). It is the recipient's responsibility to comply with the requirements of the R&D exemption. The product may not be used for a non-exempt commercial purpose under TSCA unless appropriate consent is granted in writing by MilliporeSigma.

1.3 Details of the supplier of the safety data sheet

Company : Sigma-Aldrich Inc.
3050 SPRUCE ST
ST. LOUIS MO 63103
UNITED STATES

Telephone : +1 314 771-5765
Fax : +1 800 325-5052

1.4 Emergency telephone

Emergency Phone # : 800-424-9300 CHEMTREC (USA) +1-703-527-3887 CHEMTREC (International) 24 Hours/day; 7 Days/week

SECTION 2: Hazards identification

2.1 Classification of the substance or mixture

GHS Classification in accordance with 29 CFR 1910 (OSHA HCS)

Flammable solids (Category 2), H228
Carcinogenicity (Category 2), H351
Short-term (acute) aquatic hazard (Category 1), H400

The life science business of Merck KGaA, Darmstadt, Germany
operates as MilliporeSigma in the US and Canada

Long-term (chronic) aquatic hazard (Category 1), H410

For the full text of the H-Statements mentioned in this Section, see Section 16.

2.2 GHS Label elements, including precautionary statements

Pictogram



Signal Word Warning

Hazard Statements

H228	Flammable solid.
H351	Suspected of causing cancer.
H410	Very toxic to aquatic life with long lasting effects.

Precautionary Statements

P201	Obtain special instructions before use.
P202	Do not handle until all safety precautions have been read and understood.
P210	Keep away from heat/ sparks/ open flames/ hot surfaces. No smoking.
P240	Ground/bond container and receiving equipment.
P241	Use explosion-proof electrical/ ventilating/ lighting/ equipment.
P273	Avoid release to the environment.
P280	Wear protective gloves/ protective clothing/ eye protection/ face protection.
P308 + P313	IF exposed or concerned: Get medical advice/ attention.
P370 + P378	In case of fire: Use dry sand, dry chemical or alcohol-resistant foam to extinguish.
P391	Collect spillage.
P405	Store locked up.
P501	Dispose of contents/ container to an approved waste disposal plant.

2.3 Hazards not otherwise classified (HNOC) or not covered by GHS - none

SECTION 3: Composition/information on ingredients

3.1 Substances

Formula	:	C10H8
Molecular weight	:	128.17 g/mol
CAS-No.	:	91-20-3
EC-No.	:	202-049-5
Index-No.	:	601-052-00-2

Component	Classification	Concentration
Naphthalene		
	Flam. Sol. 2; Carc. 2; Aquatic Acute 1; Aquatic Chronic 1; H228, H351, H400, H410	<= 100 %

The life science business of Merck KGaA, Darmstadt, Germany
operates as MilliporeSigma in the US and Canada

For the full text of the H-Statements mentioned in this Section, see Section 16.

SECTION 4: First aid measures

4.1 Description of first-aid measures

General advice
Show this material safety data sheet to the doctor in attendance.

If inhaled
After inhalation: fresh air. Call in physician.

In case of skin contact
In case of skin contact: Take off immediately all contaminated clothing. Rinse skin with water/ shower. Consult a physician.

In case of eye contact
After eye contact: rinse out with plenty of water. Call in ophthalmologist. Remove contact lenses.

If swallowed
After swallowing: immediately make victim drink water (two glasses at most). Consult a physician.

4.2 Most important symptoms and effects, both acute and delayed
The most important known symptoms and effects are described in the labelling (see section 2.2) and/or in section 11

4.3 Indication of any immediate medical attention and special treatment needed
No data available

SECTION 5: Firefighting measures

5.1 Extinguishing media

Suitable extinguishing media
Water Foam Carbon dioxide (CO2) Dry powder

Unsuitable extinguishing media
For this substance/mixture no limitations of extinguishing agents are given.

5.2 Special hazards arising from the substance or mixture
Carbon oxides
Combustible.
Vapors are heavier than air and may spread along floors.
Forms explosive mixtures with air on intense heating.
Development of hazardous combustion gases or vapours possible in the event of fire.

5.3 Advice for firefighters
Stay in danger area only with self-contained breathing apparatus. Prevent skin contact by keeping a safe distance or by wearing suitable protective clothing.

5.4 Further information
Remove container from danger zone and cool with water. Prevent fire extinguishing water from contaminating surface water or the ground water system.

The life science business of Merck KGaA, Darmstadt, Germany
operates as MilliporeSigma in the US and Canada

SECTION 6: Accidental release measures

6.1 Personal precautions, protective equipment and emergency procedures

Advice for non-emergency personnel: Avoid inhalation of dusts. Avoid substance contact. Ensure adequate ventilation. Keep away from heat and sources of ignition. Evacuate the danger area, observe emergency procedures, consult an expert.
For personal protection see section 8.

6.2 Environmental precautions

Do not let product enter drains. Risk of explosion.

6.3 Methods and materials for containment and cleaning up

Cover drains. Collect, bind, and pump off spills. Observe possible material restrictions (see sections 7 and 10). Take up dry. Dispose of properly. Clean up affected area. Avoid generation of dusts.

6.4 Reference to other sections

For disposal see section 13.

SECTION 7: Handling and storage

7.1 Precautions for safe handling

Advice on safe handling
Work under hood. Do not inhale substance/mixture.

Advice on protection against fire and explosion
Keep away from open flames, hot surfaces and sources of ignition.Take precautionary measures against static discharge.

Hygiene measures
Immediately change contaminated clothing. Apply preventive skin protection. Wash hands and face after working with substance.
For precautions see section 2.2.

7.2 Conditions for safe storage, including any incompatibilities

Storage conditions
Tightly closed. Keep away from heat and sources of ignition.

Storage class
Storage class (TRGS 510): 4.1B: Flammable solid hazardous materials

7.3 Specific end use(s)

Apart from the uses mentioned in section 1.2 no other specific uses are stipulated

The life science business of Merck KGaA, Darmstadt, Germany
operates as MilliporeSigma in the US and Canada

SECTION 8: Exposure controls/personal protection

8.1 Control parameters

Ingredients with workplace control parameters

Component	CAS-No.	Value	Control parameters	Basis
Naphthalene	91-20-3	TWA	10 ppm	USA. ACGIH Threshold Limit Values (TLV)
	Remarks	Confirmed animal carcinogen with unknown relevance to humans Danger of cutaneous absorption		
		TWA	10 ppm 50 mg/m3	USA. NIOSH Recommended Exposure Limits
		ST	15 ppm 75 mg/m3	USA. NIOSH Recommended Exposure Limits
		TWA	10 ppm 50 mg/m3	USA. Occupational Exposure Limits (OSHA) - Table Z-1 Limits for Air Contaminants
		PEL	0.1 ppm 0.5 mg/m3	California permissible exposure limits for chemical contaminants (Title 8, Article 107)
		Skin		

Biological occupational exposure limits

Component	CAS-No.	Parameters	Value	Biological specimen	Basis
Naphthalene	91-20-3	1-Naphthol + 2-Naphthol			ACGIH - Biological Exposure Indices (BEI)
	Remarks	End of shift (As soon as possible after exposure ceases)			

8.2 Exposure controls

Appropriate engineering controls
Immediately change contaminated clothing. Apply preventive skin protection. Wash hands and face after working with substance.

Personal protective equipment

Eye/face protection
Use equipment for eye protection tested and approved under appropriate government standards such as NIOSH (US) or EN 166(EU). Safety glasses

Skin protection
This recommendation applies only to the product stated in the safety data sheet, supplied by us and for the designated use. When dissolving in or mixing with other substances and under conditions deviating from those stated in EN 16523-1 please contact the supplier of CE-approved gloves (e.g. KCL GmbH, D-36124 Eichenzell, Internet: www.kcl.de).
Full contact
Material: Nitrile rubber

The life science business of Merck KGaA, Darmstadt, Germany
operates as MilliporeSigma in the US and Canada

Minimum layer thickness: 0.11 mm
Break through time: 480 min
Material tested:KCL 741 Dermatril® L

This recommendation applies only to the product stated in the safety data sheet, supplied by us and for the designated use. When dissolving in or mixing with other substances and under conditions deviating from those stated in EN 16523-1 please contact the supplier of CE-approved gloves (e.g. KCL GmbH, D-36124 Eichenzell, Internet: www.kcl.de).
Splash contact
Material: Nitrile rubber
Minimum layer thickness: 0.11 mm
Break through time: 480 min
Material tested:KCL 741 Dermatril® L

Body Protection
Flame retardant antistatic protective clothing.

Respiratory protection
Recommended Filter type: Filter A-(P3)
The entrepeneur has to ensure that maintenance, cleaning and testing of respiratory protective devices are carried out according to the instructions of the producer. These measures have to be properly documented.
required when dusts are generated. Our recommendations on filtering respiratory protection are based on the following standards: DIN EN 143, DIN 14387 and other accompanying standards relating to the used respiratory protection system.

Control of environmental exposure
Do not let product enter drains. Risk of explosion.

SECTION 9: Physical and chemical properties

9.1 Information on basic physical and chemical properties

a)	Appearance	Form: flakes, granules Color: white
b)	Odor	aromatic
c)	Odor Threshold	No data available
d)	pH	No data available
e)	Melting point/freezing point	Melting point/ range: 80 - 82 °C (176 - 180 °F) - lit.
f)	Initial boiling point and boiling range	218 °C 424 °F - lit.
g)	Flash point	78.5 °C (173.3 °F) - closed cup - ISO 2719
h)	Evaporation rate	No data available
i)	Flammability (solid, gas)	The substance or mixture is a flammable solid with the category 2. - Flammability (solids)
j)	Upper/lower flammability or	Upper explosion limit: 5.9 %(V) Lower explosion limit: 0.9 %(V)

The life science business of Merck KGaA, Darmstadt, Germany
operates as MilliporeSigma in the US and Canada

	explosive limits	
k)	Vapor pressure	0.072 hPa at 20 °C (68 °F) - OECD Test Guideline 104
l)	Vapor density	No data available
m)	Density	1.08 g/cm3 at 24.7 °C (76.5 °F) - OECD Test Guideline 109
	Relative density	No data available
n)	Water solubility	0.0308 g/l at 25 °C (77 °F) - OECD Test Guideline 105 - slightly soluble
o)	Partition coefficient: n-octanol/water	log Pow: 3.4 at 25 °C (77 °F) - OECD Test Guideline 107 - Bioaccumulation is not expected.
p)	Autoignition temperature	526 - 587 °C (979 - 1089 °F) at 1,013 hPa - DIN 51794
q)	Decomposition temperature	No data available
r)	Viscosity	No data available
s)	Explosive properties	No data available
t)	Oxidizing properties	none

9.2 Other safety information

Surface tension	31.8 mN/m at 100.0 °C (212.0 °F)

SECTION 10: Stability and reactivity

10.1 Reactivity

Forms explosive mixtures with air on intense heating.
A range from approx. 15 Kelvin below the flash point is to be rated as critical.
The following applies in general to flammable organic substances and mixtures: in correspondingly fine distribution, when whirled up a dust explosion potential may generally be assumed.

10.2 Chemical stability

The product is chemically stable under standard ambient conditions (room temperature) .

10.3 Possibility of hazardous reactions

Violent reactions possible with:
Oxidizing agents
chromium(VI) oxide
benzoyl chloride
aluminium chloride
Risk of explosion with:
nitrogen oxides

10.4 Conditions to avoid

Heat, flames and sparks.
Strong heating.

The life science business of Merck KGaA, Darmstadt, Germany
operates as MilliporeSigma in the US and Canada

10.5 Incompatible materials
No data available

10.6 Hazardous decomposition products
In the event of fire: see section 5

SECTION 11: Toxicological information

11.1 Information on toxicological effects

Acute toxicity
Oral: No data available
LC50 Inhalation - Rat - male and female - 4 h - > 0.4 mg/l - vapor

(OECD Test Guideline 403)
LD50 Dermal - Rabbit - 20,000 mg/kg
Remarks: (RTECS)

Skin corrosion/irritation
Skin - Rabbit
Result: No skin irritation - 24 h
Remarks: (ECHA)

Serious eye damage/eye irritation
Eyes - Rabbit
Result: No eye irritation - 24 h
Remarks: (ECHA)

Respiratory or skin sensitization
Maximization Test - Guinea pig
Result: negative
(OECD Test Guideline 406)

Germ cell mutagenicity
Test Type: Mutagenicity (mammal cell test): chromosome aberration.
Test system: Chinese hamster ovary cells
Metabolic activation: Metabolic activation
Method: OECD Test Guideline 473
Result: positive
Test Type: Ames test
Test system: Salmonella typhimurium
Metabolic activation: with and without metabolic activation
Method: OECD Test Guideline 471
Result: negative

Test Type: unscheduled DNA synthesis assay
Species: Rat
Cell type: Liver cells
Application Route: Oral
Method: OECD Test Guideline 486
Result: negative

The life science business of Merck KGaA, Darmstadt, Germany
operates as MilliporeSigma in the US and Canada

Test Type: Micronucleus test
Species: Mouse
Cell type: Bone marrow
Application Route: Intraperitoneal
Method: US-EPA
Result: negative
Remarks: (ECHA)

Carcinogenicity
Suspected of causing cancer.

IARC: 2B - Group 2B: Possibly carcinogenic to humans (Naphthalene)

No ingredient of this product present at levels greater than or equal to 0.1% is identified as probable, possible or confirmed human carcinogen by IARC. (Naphthalene)

NTP: RAHC - Reasonably anticipated to be a human carcinogen (Naphthalene)

No ingredient of this product present at levels greater than or equal to 0.1% is identified as a known or anticipated carcinogen by NTP. (Naphthalene)

OSHA: No component of this product present at levels greater than or equal to 0.1% is on OSHA's list of regulated carcinogens.

Reproductive toxicity
No data available

Specific target organ toxicity - single exposure
No data available

Specific target organ toxicity - repeated exposure
No data available

Aspiration hazard
No data available

11.2 Additional Information

Repeated dose toxicity - Rat - male and female - Oral - 91 Days - NOAEL (No observed adverse effect level) - 200 mg/kg - LOAEL (Lowest observed adverse effect level) - 400 mg/kg

Repeated dose toxicity - Mouse - male and female - Oral - 90 Days - NOAEL (No observed adverse effect level) - 100 mg/kg

Repeated dose toxicity - Rat - male and female - Dermal - 90 Days - NOAEL (No observed adverse effect level) - 1,000 mg/kg

Repeated dose toxicity - Rat - male and female - inhalation (vapor) - 90 Days - NOAEL (No observed adverse effect level) - 300 mg/kg

RTECS: QJ0525000
Absorption into the body leads to the formation of methemoglobin which in sufficient concentration causes cyanosis. Onset may be delayed 2 to 4 hours or longer., Naphthalene is retinotoxic and systemic absorption of its vapors above 15ppm, may result in:, cataracts,

The life science business of Merck KGaA, Darmstadt, Germany
operates as MilliporeSigma in the US and Canada

optic neuritis, corneal injury, Eye irritation, Ingestion may provoke the following symptoms:, hemolytic anemia, hemoglobinuria, Nausea, Headache, Vomiting, Gastrointestinal disturbance, Convulsions, anemia, Kidney injury may occur., Seizures., Coma.
To the best of our knowledge, the chemical, physical, and toxicological properties have not been thoroughly investigated.

After absorption:

Headache
Stomach/intestinal disorders
Tremors
Convulsions
Changes in the blood count

Other dangerous properties can not be excluded.

This substance should be handled with particular care.

Heart -

SECTION 12: Ecological information

12.1 Toxicity

Toxicity to fish	flow-through test LC50 - Oncorhynchus mykiss (rainbow trout) - 1.6 mg/l - 96 h (OECD Test Guideline 203)
Toxicity to daphnia and other aquatic invertebrates	static test EC50 - Daphnia magna (Water flea) - 2.16 mg/l - 48 h (OECD Test Guideline 202)
Toxicity to algae	static test EC50 - Pseudokirchneriella subcapitata (green algae) - 2.96 mg/l - 4 h (US-EPA) Remarks: (ECHA)
Toxicity to fish(Chronic toxicity)	flow-through test LC50 - Oncorhynchus kisutch (coho salmon) - 2.1 mg/l - 96 h Remarks: (ECHA)
	flow-through test NOEC - Oncorhynchus kisutch (coho salmon) - 0.37 mg/l - 40 Days Remarks: (ECHA)
Toxicity to daphnia and other aquatic invertebrates(Chronic toxicity)	static test NOEC - Daphnia pulex (Water flea) - 0.59 mg/l - 125 d Remarks: (ECHA)

The life science business of Merck KGaA, Darmstadt, Germany
operates as MilliporeSigma in the US and Canada

12.2 Persistence and degradability

Biodegradability aerobic - Exposure time 28 d
Result: 2 % - Not readily biodegradable.
(OECD Test Guideline 302C)

12.3 Bioaccumulative potential

Bioaccumulation Cyprinus carpio (Carp) - 56 d
at 25 °C(Naphthalene)

Bioconcentration factor (BCF): 36.5 - 168
(OECD Test Guideline 305)

Remarks: Bioaccumulation is unlikely.

12.4 Mobility in soil

No data available

12.5 Results of PBT and vPvB assessment

PBT/vPvB assessment not available as chemical safety assessment not required/not conducted

12.6 Endocrine disrupting properties

No data available

12.7 Other adverse effects

No data available

SECTION 13: Disposal considerations

13.1 Waste treatment methods

Product

Waste material must be disposed of in accordance with the national and local regulations. Leave chemicals in original containers. No mixing with other waste. Handle uncleaned containers like the product itself.

SECTION 14: Transport information

DOT (US)

UN number: 1334 Class: 4.1 Packing group: III
Proper shipping name: Naphthalene, refined
Reportable Quantity (RQ): 100 lbs
Marine pollutant: yes Poison Inhalation Hazard: No

IMDG

UN number: 1334 Class: 4.1 Packing group: III EMS-No: F-A, S-G
Proper shipping name: NAPHTHALENE, REFINED

The life science business of Merck KGaA, Darmstadt, Germany
operates as MilliporeSigma in the US and Canada

Marine pollutant : yes

IATA
UN number: 1334 Class: 4.1 Packing group: III
Proper shipping name: Naphthalene, refined

SECTION 15: Regulatory information

CERCLA Reportable Quantity

Components	CAS-No.	Component RQ (lbs)	Calculated product RQ (lbs)
Naphthalene	91-20-3	100	100

SARA 304 Extremely Hazardous Substances Reportable Quantity

This material does not contain any components with a section 304 EHS RQ.

SARA 302 Extremely Hazardous Substances Threshold Planning Quantity

This material does not contain any components with a section 302 EHS TPQ.

SARA 311/312 Hazards : Fire Hazard
Acute Health Hazard
Chronic Health Hazard

SARA 313 : This material does not contain any chemical components with known CAS numbers that exceed the threshold (De Minimis) reporting levels established by SARA Title III, Section 313.

US State Regulations

Massachusetts Right To Know

Naphthalene 91-20-3

Maine Chemicals of High Concern

Product does not contain any listed chemicals

Vermont Chemicals of High Concern

Product does not contain any listed chemicals

Washington Chemicals of High Concern

Product does not contain any listed chemicals

The ingredients of this product are reported in the following inventories:

TSCA : All substances listed as active on the TSCA inventory

TSCA list

No substances are subject to a Significant New Use Rule.

No substances are subject to TSCA 12(b) export notification requirements.

The life science business of Merck KGaA, Darmstadt, Germany
operates as MilliporeSigma in the US and Canada

SECTION 16: Other information

Further information

The information is believed to be correct but is not exhaustive and will be used solely as a guideline, which is based on current knowledge of the chemical substance or mixture and is applicable to appropriate safety precautions for the product. It does not represent any guarantee of the properties of the product. Sigma-Aldrich Corporation and its Affiliates shall not be held liable for any damage resulting from handling or from contact with the above product. See www.sigma-aldrich.com and/or the reverse side of invoice or packing slip for additional terms and conditions of sale.

Copyright 2020 Sigma-Aldrich Co. LLC. License granted to make unlimited paper copies for internal use only.

The branding on the header and/or footer of this document may temporarily not visually match the product purchased as we transition our branding. However, all of the information in the document regarding the product remains unchanged and matches the product ordered. For further information please contact mlsbranding@sial.com.

Version: 6.12 Revision Date: 09/07/2024 Print Date: 09/08/2024

The life science business of Merck KGaA, Darmstadt, Germany
operates as MilliporeSigma in the US and Canada

SAFETY DATA SHEET

Revision Date 03-May-2012 **Revision Number** 2

SECTION 1. IDENTIFICATION OF THE SUBSTANCE/MIXTURE AND OF THE COMPANY/UNDERTAKING

Product Identifier

Product Description: **n-Butylbenzene**
Cat No. **107850000; 107850050; 107850500; 107852500**
Synonyms 1-Phenylbutane

Relevant identified uses of the substance or mixture and uses advised against

Recommended Use Laboratory chemicals
Uses advised against No Information available

Details of the supplier of the safety data sheet

Company
Acros Organics BVBA
Janssen Pharmaceuticalaan 3a
2440 Geel, Belgium
E-mail address begel.sdsdesk@thermofisher.com

Emergency Telephone Number

For information in the US, call: 001-800-ACROS-01
For information in Europe, call: +32 14 57 52 11

Emergency Number, Europe: +32 14 57 52 99
Emergency Number, US: 001-201-796-7100

CHEMTREC Phone Number, US: 001-800-424-9300
CHEMTREC Phone Number, Europe: 001-703-527-3887

SECTION 2. HAZARDS IDENTIFICATION

Classification of the substance or mixture

REGULATION (EC) No 1272/2008

Flammable liquids.	Category 3

Classification according to EU Directives 67/548/EEC or 1999/45/EC

For the full text of the R-phrases and H-Statements mentioned in this Section, see Section 16

R-phrase(s) none

Label Elements

SECTION 2. HAZARDS IDENTIFICATION



Signal Word **Warning**

Hazard Statements
H226 - Flammable liquid and vapor

Precautionary Statements - EU (§28, 1272/2008)
P210 - Keep away from heat/sparks/open flames/hot surfaces. - No smoking

Other Hazards

No information available.

SECTION 3. COMPOSITION/INFORMATION ON INGREDIENTS

Component	EC-No.	Weight %	CAS-No	67/548/EEC Classification	CLP Classification - Regulation (EC) No 1272/2008	REACH No.
Butyl benzene 104-51-8	EEC No. 203-209-7	> 99	104-51-8	-	Flam. Liq. 3 (H226)	-

For the full text of the R-phrases and H-Statements mentioned in this Section, see Section 16

SECTION 4. FIRST AID MEASURES

Description of first aid measures

Eye Contact Rinse immediately with plenty of water, also under the eyelids, for at least 15 minutes. Obtain medical attention.

Skin Contact Wash off immediately with soap and plenty of water while removing all contaminated clothes and shoes. Obtain medical attention.

Ingestion Do not induce vomiting. Clean mouth with water. Aspiration hazard. Get medical attention.

Inhalation Remove from exposure, lie down. Move to fresh air. If breathing is difficult, give oxygen. If not breathing, give artificial respiration. Obtain medical attention.

Notes to Physician Treat symptomatically

SECTION 5. FIRE-FIGHTING MEASURES

Extinguishing media

Suitable Extinguishing Media
Water spray. Carbon dioxide (CO_2). Dry chemical. Use water spray to cool unopened containers. chemical foam. Do not use a solid water stream as it may scatter and spread fire.

Extinguishing media which must not be used for safety reasons
No information available.

Special hazards arising from the substance or mixture

Combustible material. Flammable. Vapors may travel to source of ignition and flash back. Containers may explode when heated.

Advice for fire-fighters

As in any fire, wear self-contained breathing apparatus pressure-demand, MSHA/NIOSH (approved or equivalent) and full protective gear.

SECTION 6. ACCIDENTAL RELEASE MEASURES

Personal precautions, protective equipment and emergency procedures

Ensure adequate ventilation

Environmental precautions

Prevent further leakage or spillage if safe to do so

Methods and material for containment and cleaning up

Soak up with inert absorbent material (e.g. sand, silica gel, acid binder, universal binder, sawdust). Keep in suitable, closed containers for disposal.. Remove all sources of ignition. Use spark-proof tools and explosion-proof equipment.

SECTION 7. HANDLING AND STORAGE

Precautions for Safe Handling

Avoid contact with skin and eyes. Do not breathe dust. Do not breathe vapors or spray mist. Use explosion-proof equipment. Use only non-sparking tools.

Conditions for safe storage, including any incompatibilities

Keep in a dry, cool and well-ventilated place. Keep container tightly closed. Keep away from heat and sources of ignition.

Specific End Uses

SECTION 8. EXPOSURE CONTROLS/PERSONAL PROTECTION

Control parameters

Exposure limits	This product, as supplied, does not contain any hazardous materials with occupational exposure limits established by the region specific regulatory bodies.
Biological limit values	This product, as supplied, does not contain any hazardous materials with biological limits established by the region specific regulatory bodies.
Derived No Effect Level (DNEL)	No information available.
Predicted No Effect Concentration (PNEC)	No information available.

Exposure controls

Engineering Measures	Ensure adequate ventilation, especially in confined areas
Personal protective equipment	
Eye Protection	Goggles
Hand Protection	Protective gloves
Skin and body protection	Wear appropriate protective gloves and clothing to prevent skin exposure
Respiratory Protection	Follow the OSHA respirator regulations found in 29 CFR 1910.134 or European Standard EN 149. Use a NIOSH/MSHA or European Standard EN 149 approved respirator if exposure limits are exceeded or if irritation or other symptoms are experienced
Hygiene Measures	Handle in accordance with good industrial hygiene and safety practice
Environmental exposure controls	No information available.

SECTION 9. PHYSICAL AND CHEMICAL PROPERTIES

Physical State	Liquid
Appearance	Colorless
odor	odorless
pH	No information available.
Vapor Pressure	1.33 hPa @ 23 °C
Vapor Density	4.6
Boiling Point/Range	183°C / 361.4°F@ 760 mmHg
Melting Point/Range	-88°C / -126.4°F
Flash Point	59°C / 138.2°F
Autoignition Temperature	412°C / 773.6°F
Explosion Limits	
Lower	0.8
Upper	5.8
Water Solubility	Insoluble
Specific Gravity	0.860
Molecular Formula	C10 H14
Molecular Weight	134.22

SECTION 10. STABILITY AND REACTIVITY

Reactivity

Chemical Stability

Stable under normal conditions.

Possibility of Hazardous Reactions

Hazardous Polymerization	Hazardous polymerization does not occur.
Hazardous Reactions .	No information available.

Conditions to Avoid

Keep away from open flames, hot surfaces and sources of ignition, Incompatible products.

Incompatible Materials

Strong oxidizing agents, oxygen.

Hazardous Decomposition Products

Carbon monoxide (CO). Carbon dioxide (CO_2).

SECTION 11. TOXICOLOGICAL INFORMATION

Information on Toxicological Effects

Acute Toxicity

Product Information	No acute toxicity information is available for this product

Component Information

Chronic Toxicity

Carcinogenicity	There are no known carcinogenic chemicals in this product
Sensitization	No information available.
Mutagenic Effects	No information available
Reproductive Effects	No information available.
Developmental Effects	No information available.
Target Organs	No information available.
Other Adverse Effects	The toxicological properties have not been fully investigated. See actual entry in RTECS for complete information

Endocrine Disruptor Information

SECTION 11. TOXICOLOGICAL INFORMATION

Component	EU - Endocrine Disrupters Candidate List	EU - Endocrine Disruptors - Evaluated Substances	Japan - Endocrine Disruptor Information
Butyl benzene	Group III Chemical		

SECTION 12. ECOLOGICAL INFORMATION

Toxicity

Ecotoxicity effects Contains no substances known to be hazardous to the environment or that are not degradable in waste water treatment plants

Persistence and degradability

No information available

Bioaccumulative potential

No information available.

Component	log Pow
Butyl benzene	4.2

Mobility in soil

Results of PBT and vPvB assessment

Other adverse effects

No information available

SECTION 13. DISPOSAL CONSIDERATIONS

Waste treatment methods

Waste from Residues / Unused Products Dispose of in accordance with local regulations

Contaminated Packaging Empty containers should be taken to local recyclers for disposal

SECTION 14. TRANSPORT INFORMATION

IMDG/IMO

SECTION 14. TRANSPORT INFORMATION

UN-No	2709
Hazard Class	3
Packing Group	III
Proper Shipping Name	BUTYLBENZENES

ADR

UN-No	2709
Hazard Class	3
Packing Group	III
Proper Shipping Name	BUTYLBENZENES

IATA

UN-No	2709
Hazard Class	3
Packing Group	III
Proper Shipping Name	BUTYLBENZENES

SECTION 15. REGULATORY INFORMATION

Safety, health and environmental regulations/legislation specific for the substance or mixture

International Inventories

Component	EINECS	ELINCS	NLP	TSCA	DSL	NDSL	PICCS	ENCS	CHINA	AICS	KECL
Butyl benzene	203-209-7	-		X	X	-	X	X	X	X	-

Legend

TSCA - United States Toxic Substances Control Act Section 8(b) Inventory
EINECS/ELINCS - European Inventory of Existing Commercial Chemical Substances/EU List of Notified Chemical Substances
DSL/NDSL - Canadian Domestic Substances List/Non-Domestic Substances List
PICCS - Philippines Inventory of Chemicals and Chemical Substances
ENCS - Japan Existing and New Chemical Substances
CHINA - China Inventory of Existing Chemical Substances
AICS - Inventory of Chemical Substances
KECL - Existing and Evaluated Chemical Substances

Chemical Safety Assessment

SECTION 16. OTHER INFORMATION

Full text of R-phrases referred to under sections 2 and 3
No information available.

Revision Date 03-May-2012
Revision Summary

Reason for revision Not applicable
This safety data sheet complies with the requirements of Regulation (EC) No. 1907/2006
Disclaimer
The information provided on this Safety Data Sheet is correct to the best of our knowledge, information and belief at the date of its publication. The information given is designed only as a guide for safe handling, use, processing, storage, transportation, disposal and release and is not to be considered as a warranty or quality specification. The information relates only to the specific material designated and may not be valid for such material used in combination with any other material or in any process, unless specified in the text.

End of Safety Data Sheet

Safety data sheet

according to 1907/2006/EC, Article 31

Printing date 24.08.2020 *Version number 1* *Revision: 24.08.2020*

SECTION 1: Identification of the substance/mixture and of the company/undertaking

· **1.1 Product identifier**

· **Product name:** **N-Ethyl-N-(2-hydroxyethyl)perfluorooctanesulfonamide**

· **Part number:** DRE-C13342360
· **CAS Number:**
1691-99-2
· **EC number:**
216-887-4
· **1.2 Relevant identified uses of the substance or mixture and uses advised against**
No further relevant information available.
· **Application of the substance / the mixture** Reference material for laboratory use only

· **1.3 Details of the supplier of the safety data sheet**
· **Manufacturer/Supplier:**
LGC Limited
Queens Road
Teddington
Middlesex TW11 0LY
UNITED KINGDOM

Tel :+44 (0) 20 8943 7000
Fax :+44 (0) 20 8943 2767
eMail : gb@lgcstandards.com
Web : www.lgcstandards.com

· **Further information obtainable from:**
Product safety department
eMail : sds-request@lgcgroup.com
· **1.4 Emergency telephone number:**
For Hazardous Materials or Dangerous Goods Incident
Spill, Leak, Fire Exposure, or Accident
Call CHEMTREC:
USA & Canada 1-800-424-9300
Rest of the world +1 703-741-5970

SECTION 2: Hazards identification

· **2.1 Classification of the substance or mixture**
· **Classification according to Regulation (EC) No 1272/2008**



GHS06 skull and crossbones

Acute Tox. 3	H301	Toxic if swallowed.



GHS08 health hazard

Carc. 2	H351	Suspected of causing cancer.
Repr. 1B	H360D-H362	May damage the unborn child. May cause harm to breast-fed children.
STOT RE 1	H372	Causes damage to organs through prolonged or repeated exposure.

(Contd. on page 2)

Safety data sheet

according to 1907/2006/EC, Article 31

Printing date 24.08.2020 *Version number 1* *Revision: 24.08.2020*

***Product name:* N-Ethyl-N-(2-hydroxyethyl)perfluorooctanesulfonamide**

(Contd. from page 1)



GHS09 environment

Aquatic Chronic 2 H411 *Toxic to aquatic life with long lasting effects.*



GHS07

Acute Tox. 4 H332 *Harmful if inhaled.*

· ***2.2 Label elements***

· ***Labelling according to Regulation (EC) No 1272/2008***

The substance is classified and labelled according to the CLP regulation.

· ***Hazard pictograms***



GHS06 GHS08 GHS09

· ***Signal word*** *Danger*

· ***Hazard statements***

H301 *Toxic if swallowed.*
H332 *Harmful if inhaled.*
H351 *Suspected of causing cancer.*
H360D-H362 *May damage the unborn child. May cause harm to breast-fed children.*
H372 *Causes damage to organs through prolonged or repeated exposure.*
H411 *Toxic to aquatic life with long lasting effects.*

· ***Precautionary statements***

P260 *Do not breathe dusts or mists.*
P263 *Avoid contact during pregnancy and while nursing.*
P280 *Wear protective gloves/protective clothing/eye protection/face protection.*
P301+P310 *IF SWALLOWED: Immediately call a POISON CENTER/ doctor.*
P405 *Store locked up.*
P501 *Dispose of contents/container in accordance with local/regional/national/international regulations.*

· ***Additional information:***

Restricted to professional users.

· ***2.3 Other hazards***

· ***Results of PBT and vPvB assessment***

· ***PBT:*** *Not applicable.*

· ***vPvB:*** *Not applicable.*

(Contd. on page 3)

Safety data sheet

according to 1907/2006/EC, Article 31

Printing date 24.08.2020 *Version number 1* *Revision: 24.08.2020*

Product name: **N-Ethyl-N-(2-hydroxyethyl)perfluorooctanesulfonamide**

(Contd. from page 2)

SECTION 3: Composition/information on ingredients

· **3.1 Chemical characterisation: Substances**
· **CAS No. Description**
1691-99-2 N-Ethyl perfluorooctane sulfonamide ethanol
· **Identification number(s)** None
· **EC number:** 216-887-4
· **RTECS:** RG9701350
· **Additional information:** For the wording of the listed hazard phrases refer to section 16.

SECTION 4: First aid measures

· **4.1 Description of first aid measures**
· **General information:**
Immediately remove any clothing soiled by the product.
Symptoms of poisoning may occur even after several hours; therefore medical observation for at least 48 hours after the accident is recommended.
In case of irregular breathing or respiratory arrest provide artificial respiration.
· **After inhalation:**
Supply fresh air. If required, provide artificial respiration. Keep patient warm. Consult doctor if symptoms persist.
In case of unconsciousness place patient in recovery position for transport.
Seek medical treatment.
· **After skin contact:** Immediately wash with water and soap and rinse thoroughly.
· **After eye contact:** Rinse opened eye for several minutes under running water. Then consult a doctor.
· **After swallowing:**
Rinse mouth. Do not induce vomiting.
Call for a doctor immediately.
· **4.2 Most important symptoms and effects, both acute and delayed** No further relevant information available.
· **4.3 Indication of any immediate medical attention and special treatment needed**
No further relevant information available.

SECTION 5: Firefighting measures

· **5.1 Extinguishing media**
· **Suitable extinguishing agents:** Use fire extinguishing methods suitable for surrounding conditions.
· **5.2 Special hazards arising from the substance or mixture**
Formation of toxic gases is possible during heating or in case of fire.
· **5.3 Advice for firefighters**
· **Protective equipment:**
Mouth respiratory protective device.
Wear self-contained respiratory protective device.

(Contd. on page 4)

Safety data sheet
according to 1907/2006/EC, Article 31

Printing date 24.08.2020 *Version number 1* *Revision: 24.08.2020*

Product name: **N-Ethyl-N-(2-hydroxyethyl)perfluorooctanesulfonamide**

(Contd. from page 3)

SECTION 6: Accidental release measures

· **6.1 Personal precautions, protective equipment and emergency procedures** Avoid formation of dust.
· **6.2 Environmental precautions:**
Inform respective authorities in case of seepage into water course or sewage system.
Do not allow to enter sewers/ surface or ground water.
· **6.3 Methods and material for containment and cleaning up:**
Dispose of contaminated material as waste according to item 13.
Ensure adequate ventilation.
· **6.4 Reference to other sections**
See Section 7 for information on safe handling.
See Section 8 for information on personal protection equipment.
See Section 13 for disposal information.

SECTION 7: Handling and storage

· **7.1 Precautions for safe handling**
Ensure good ventilation/extraction at the workplace.
Remove dust thoroughly.
Store in cool, dry place in tightly closed receptacles.
· **Information about fire - and explosion protection:** No special measures required.

· **7.2 Conditions for safe storage, including any incompatibilities**
· **Storage:**
· **Requirements to be met by storerooms and receptacles:**
Please refer to the manufacturer's certificate for specific storage and transport temperature conditions.
Store only in the original receptacle unless other advice is given on the CoA.
Keep container in a well-ventilated place. Keep away from sources of ignition and heat.
· **Information about storage in one common storage facility:** Store away from foodstuffs.
· **Further information about storage conditions:** Keep container tightly sealed.
· **7.3 Specific end use(s)** No further relevant information available.

SECTION 8: Exposure controls/personal protection

· **Additional information about design of technical facilities:** No further data; see item 7.

· **8.1 Control parameters**
· **Ingredients with limit values that require monitoring at the workplace:** Not required.
· **Additional information:** Lists used were valid at the time of SDS preparation.

· **8.2 Exposure controls**
· **Personal protective equipment:**
· **General protective and hygienic measures:**
Keep away from foodstuffs, beverages and feed.
Immediately remove all soiled and contaminated clothing
Wash hands before breaks and at the end of work.
Store protective clothing separately.

(Contd. on page 5)

Safety data sheet
according to 1907/2006/EC, Article 31

Printing date 24.08.2020 *Version number 1* *Revision: 24.08.2020*

Product name: **N-Ethyl-N-(2-hydroxyethyl)perfluorooctanesulfonamide**

(Contd. from page 4)

· ***Respiratory protection:***
In case of brief exposure or low pollution use respiratory filter device. In case of intensive or longer exposure use self-contained respiratory protective device.
· ***Protection of hands:***
The glove material has to be impermeable and resistant to the product/ the substance/ the preparation.
Selection of the glove material on consideration of the penetration times, rates of diffusion and the degradation
The protective gloves to be used must comply with the specifications of EC Directive 89/686/EEC and the related standard EN374



Protective gloves

· ***Material of gloves*** *Fluorocarbon rubber (Viton)*
· ***Penetration time of glove material***
The exact break through time has to be found out by the manufacturer of the protective gloves and has to be observed.
· ***Eye protection:***



Tightly sealed goggles

SECTION 9: Physical and chemical properties

· ***9.1 Information on basic physical and chemical properties***	
· ***General Information***	
· ***Appearance:***	
Form:	*Solid*
Colour:	*White*
· ***Odour:***	*Odourless*
· ***Odour threshold:***	*Not determined.*
· ***pH-value:***	*Not applicable.*
· ***Change in condition***	
Melting point/freezing point:	*55-60 °C*
Initial boiling point and boiling range:	*Not determined.*
· ***Flash point:***	*Not applicable.*
· ***Flammability (solid, gas):***	*Not determined.*
· ***Ignition temperature:***	*Not determined*
· ***Decomposition temperature:***	*Not determined.*
· ***Auto-ignition temperature:***	*Not determined.*

(Contd. on page 6)

Safety data sheet
according to 1907/2006/EC, Article 31

Printing date 24.08.2020 *Version number 1* *Revision: 24.08.2020*

Product name: **N-Ethyl-N-(2-hydroxyethyl)perfluorooctanesulfonamide**

(Contd. from page 5)

· ***Explosive properties:***	*Not determined.*
· ***Explosion limits:***	
Lower:	*Not determined.*
Upper:	*Not determined.*
· ***Vapour pressure:***	*Not applicable.*
· ***Density:***	*Not determined.*
· ***Relative density***	*Not determined.*
· ***Vapour density***	*Not applicable.*
· ***Evaporation rate***	*Not applicable.*
· ***Solubility in / Miscibility with***	*Chloroform (Slightly), DMSO, Ethyl Acetate (Slightly), Methanol (Slightly)*
· ***water:***	*Not determined.*
· ***Partition coefficient: n-octanol/water:***	*Not determined.*
· ***Viscosity:***	
Dynamic:	*Not applicable.*
Kinematic:	*Not applicable.*
· ***9.2 Other information***	*No further relevant information available.*

SECTION 10: Stability and reactivity

· ***10.1 Reactivity***
Stable under normal conditions.
No further relevant information available.
· ***10.2 Chemical stability*** *Stable under normal conditions.*
· ***Thermal decomposition / conditions to be avoided:***
Formation of toxic gases is possible during heating or in case of fire.
· ***10.3 Possibility of hazardous reactions*** *No dangerous reactions known.*
· ***10.4 Conditions to avoid*** *Heat.*
· ***10.5 Incompatible materials:*** *Strong oxidizing agents.*
· ***10.6 Hazardous decomposition products:***
Formation of toxic gases is possible during heating or in case of fire.

SECTION 11: Toxicological information

· ***11.1 Information on toxicological effects***
· ***Acute toxicity***
Toxic if swallowed.
Harmful if inhaled.
· ***Primary irritant effect:***
· ***Skin corrosion/irritation*** *Based on available data, the classification criteria are not met.*
· ***Serious eye damage/irritation*** *Based on available data, the classification criteria are not met.*
· ***Respiratory or skin sensitisation*** *Based on available data, the classification criteria are not met.*

(Contd. on page 7)

Safety data sheet
according to 1907/2006/EC, Article 31

Printing date 24.08.2020 *Version number 1* *Revision: 24.08.2020*

Product name: **N-Ethyl-N-(2-hydroxyethyl)perfluorooctanesulfonamide**

(Contd. from page 6)

· ***CMR effects (carcinogenity, mutagenicity and toxicity for reproduction)***
Carc. 2, Repr. 1B
· ***Germ cell mutagenicity*** *Based on available data, the classification criteria are not met.*
· ***Carcinogenicity***
Suspected of causing cancer.
· ***Reproductive toxicity***
May damage the unborn child. May cause harm to breast-fed children.
· ***STOT-single exposure*** *Based on available data, the classification criteria are not met.*
· ***STOT-repeated exposure***
Causes damage to organs through prolonged or repeated exposure.
· ***Aspiration hazard*** *Based on available data, the classification criteria are not met.*

SECTION 12: Ecological information

· ***12.1 Toxicity***
· ***Aquatic toxicity:*** *No further relevant information available.*
· ***12.2 Persistence and degradability*** *No further relevant information available.*
· ***12.3 Bioaccumulative potential*** *No further relevant information available.*
· ***12.4 Mobility in soil*** *No further relevant information available.*
· ***Ecotoxicological effects:***
· ***Remark:*** *Toxic for fish*
· ***Additional ecological information:***
· ***General notes:***
Water hazard class 3 (German Regulation) (Self-assessment): extremely hazardous for water
Do not allow product to reach ground water, water course or sewage system, even in small quantities.
Danger to drinking water if even extremely small quantities leak into the ground.
Also poisonous for fish and plankton in water bodies.
Toxic for aquatic organisms
· ***12.5 Results of PBT and vPvB assessment***
· ***PBT:*** *Not applicable.*
· ***vPvB:*** *Not applicable.*
· ***12.6 Other adverse effects*** *No further relevant information available.*

SECTION 13: Disposal considerations

· ***13.1 Waste treatment methods***
· ***Recommendation***
Must not be disposed of together with household garbage. Do not allow product to reach sewage system.
· ***European waste catalogue***
Waste disposal key numbers from EWC have to be assigned depending on origin and processing.

· ***Uncleaned packaging:***
· ***Recommendation:*** *Dispose of in accordance with national regulations.*

(Contd. on page 8)

Safety data sheet

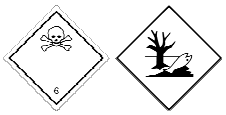
according to 1907/2006/EC, Article 31

Printing date 24.08.2020 *Version number 1* *Revision: 24.08.2020*

Product name: **N-Ethyl-N-(2-hydroxyethyl)perfluorooctanesulfonamide**

(Contd. from page 7)

SECTION 14: Transport information

· ***14.1 UN-Number***	
· ***ADR, IMDG, IATA***	*UN2811*
· ***ADR***	*2811 TOXIC SOLID, ORGANIC, N.O.S. (N-Ethyl perfluorooctane sulfonamide ethanol), ENVIRONMENTALLY HAZARDOUS*
· ***IMDG***	*TOXIC SOLID, ORGANIC, N.O.S. (N-Ethyl perfluorooctane sulfonamide ethanol), MARINE POLLUTANT*
· ***IATA***	*TOXIC SOLID, ORGANIC, N.O.S. (N-Ethyl perfluorooctane sulfonamide ethanol)*
· ***14.3 Transport hazard class(es)***	
· ***ADR, IMDG***	
· ***Class***	*6.1 Toxic substances.*
· ***Label***	*6.1*
· ***IATA***	
· ***Class***	*6.1 Toxic substances.*
· ***Label***	*6.1*
· ***14.4 Packing group***	
· ***ADR, IMDG, IATA***	*III*
· ***14.5 Environmental hazards:***	*Environmentally hazardous substance, solid; Marine Pollutant*
· ***Marine pollutant:***	*Symbol (fish and tree)*
· ***Special marking (ADR):***	*Symbol (fish and tree)*
· ***14.6 Special precautions for user***	*Warning: Toxic substances.*
· ***Danger code (Kemler):***	*60*
· ***EMS Number:***	*F-A,S-A*
· ***Stowage Category***	*A*
· ***14.7 Transport in bulk according to Annex II of Marpol and the IBC Code***	*Not applicable.*

(Contd. on page 9)

Safety data sheet
according to 1907/2006/EC, Article 31

Printing date 24.08.2020 *Version number 1* *Revision: 24.08.2020*

Product name: **N-Ethyl-N-(2-hydroxyethyl)perfluorooctanesulfonamide**

(Contd. from page 8)

· ***Transport/Additional information:***

· ***ADR***	
· ***Limited quantities (LQ)***	*5 kg*
· ***Excepted quantities (EQ)***	*Code: E1* *Maximum net quantity per inner packaging: 30 g* *Maximum net quantity per outer packaging: 1000 g*
· ***Transport category***	*2*
· ***Tunnel restriction code***	*E*
· ***UN "Model Regulation":***	*UN 2811 TOXIC SOLID, ORGANIC, N.O.S. (N-ETHYL PERFLUOROOCTANE SULFONAMIDE ETHANOL), 6.1, III, ENVIRONMENTALLY HAZARDOUS*

SECTION 15: Regulatory information

· ***15.1 Safety, health and environmental regulations/legislation specific for the substance or mixture***

· ***Directive 2012/18/EU***
· ***Named dangerous substances - ANNEX I*** *Substance is not listed.*
· ***Seveso category*** *E2 Hazardous to the Aquatic Environment*
· ***Qualifying quantity (tonnes) for the application of lower-tier requirements*** *200 t*
· ***Qualifying quantity (tonnes) for the application of upper-tier requirements*** *500 t*
· ***Regulation (EU) No 649/2012***
Annex I Part 1
Annex I Part 3
· ***15.2 Chemical safety assessment:*** *A Chemical Safety Assessment has not been carried out.*

SECTION 16: Other information

The information in this safety data sheet (SDS) has been prepared with due care and is true and accurate to the best of our knowledge. The user must determine the suitability of the information for its particular purpose, ensure compliance with existing laws and regulations, and be aware that other or additional safety or performance considerations may arise when using, handling and/ or storing the material. The information in this SDS does not purport to be all inclusive or a guarantee as to the properties of the material supplied, and should be used only as a guide. LGC makes no warranties or representations as to the accuracy and completeness of the information contained herein, shall not be held responsible for the suitability of this information for the user's intended purposes or the consequences of such use, and shall not be liable for any damage or loss, howsoever arising, direct or otherwise.

· ***Abbreviations and acronyms:***
ADR: Accord européen sur le transport des marchandises dangereuses par Route (European Agreement concerning the International Carriage of Dangerous Goods by Road)
IMDG: International Maritime Code for Dangerous Goods
IATA: International Air Transport Association
GHS: Globally Harmonised System of Classification and Labelling of Chemicals
EINECS: European Inventory of Existing Commercial Chemical Substances
CAS: Chemical Abstracts Service (division of the American Chemical Society)
PBT: Persistent, Bioaccumulative and Toxic

(Contd. on page 10)

Safety data sheet

according to 1907/2006/EC, Article 31

Printing date 24.08.2020 *Version number 1* *Revision: 24.08.2020*

Product name: **N-Ethyl-N-(2-hydroxyethyl)perfluorooctanesulfonamide**

(Contd. from page 9)

vPvB: very Persistent and very Bioaccumulative
Acute Tox. 3: Acute toxicity – Category 3
Acute Tox. 4: Acute toxicity – Category 4
Carc. 2: Carcinogenicity – Category 2
Repr. 1B: Reproductive toxicity – Category 1B
STOT RE 1: Specific target organ toxicity (repeated exposure) – Category 1
Aquatic Chronic 2: Hazardous to the aquatic environment - long-term aquatic hazard – Category 2

· ***Sources***
Tables 3.1 and 3.2 from Annex 6 of EC 1272/2008, EC 1907/2006, EH40/2005 as amended 2011, Registry of Toxic Effects of Chemical Substances (RTECS), The Dictionary of Substances and their Effects, 1st Edition, IUCLID.

· ***Data compared to the previous version altered.*** *All sections have been updated.*

SAFETY DATA SHEET

Creation Date 26-Oct-2009 **Revision Date** 02-Apr-2014 **Revision Number** 1

1. Identification

Product Name **n-Hexane**

Cat No. : **AC326920000; AC326920010; AC326920025; AC326921000; AC326922500**

Synonyms Hex

Recommended Use Laboratory chemicals

Uses advised against No Information available

Details of the supplier of the safety data sheet

Company
Fisher Scientific
One Reagent Lane
Fair Lawn, NJ 07410
Tel: (201) 796-7100

Entity / Business Name
Acros Organics
One Reagent Lane
Fair Lawn, NJ 07410

Emergency Telephone Number
For information **US** call: 001-800-ACROS-01 /
Europe call: +32 14 57 52 11
Emergency Number **US:**001-201-796-7100 /
Europe: +32 14 57 52 99
CHEMTREC Tel. No.**US:**001-800-424-9300 /
Europe:001-703-527-3887

2. Hazard(s) identification

Classification

This chemical is considered hazardous by the 2012 OSHA Hazard Communication Standard (29 CFR 1910.1200)

Flammable liquids	Category 2
Skin Corrosion/irritation	Category 2
Serious Eye Damage/Eye Irritation	Category 2
Reproductive Toxicity	Category 2
Specific target organ toxicity (single exposure)	Category 3
Target Organs - Respiratory system, Central nervous system (CNS).	
Specific target organ toxicity - (repeated exposure)	Category 1
Target Organs - Liver, Heart, Blood.	
Aspiration Toxicity	Category 1

Label Elements

Signal Word
Danger

Hazard Statements
Highly flammable liquid and vapor

May be fatal if swallowed and enters airways
Causes skin irritation
Causes serious eye irritation
May cause respiratory irritation
May cause drowsiness or dizziness
Suspected of damaging fertility
Causes damage to organs through prolonged or repeated exposure



Precautionary Statements
Prevention
Obtain special instructions before use
Do not handle until all safety precautions have been read and understood
Use personal protective equipment as required
Wash face, hands and any exposed skin thoroughly after handling
Wear eye/face protection
Do not breathe dust/fume/gas/mist/vapors/spray
Do not eat, drink or smoke when using this product
Use only outdoors or in a well-ventilated area
Keep away from heat/sparks/open flames/hot surfaces. - No smoking
Keep container tightly closed
Ground/bond container and receiving equipment
Use explosion-proof electrical/ventilating/lighting/equipment
Use only non-sparking tools
Take precautionary measures against static discharge
Keep cool
Response
IF exposed or concerned: Get medical attention/advice
Inhalation
IF INHALED: Remove victim to fresh air and keep at rest in a position comfortable for breathing
Skin
If skin irritation occurs: Get medical advice/attention
IF ON SKIN (or hair): Take off immediately all contaminated clothing. Rinse skin with water/shower
Wash contaminated clothing before reuse
Eyes
IF IN EYES: Rinse cautiously with water for several minutes. Remove contact lenses, if present and easy to do. Continue rinsing
If eye irritation persists: Get medical advice/attention.
Ingestion
IF SWALLOWED: Immediately call a POISON CENTER or doctor/physician
Do NOT induce vomiting
Fire
In case of fire: Use CO2, dry chemical, or foam for extinction
Storage
Store locked up
Store in a well-ventilated place. Keep container tightly closed
Disposal
Dispose of contents/container to an approved waste disposal plant

Hazards not otherwise classified (HNOC)
Toxic to aquatic life with long lasting effects

3. Composition / information on ingredients

Haz/Non-haz

Component	CAS-No	Weight %
Hexane	110-54-3	>95

4. First-aid measures

Eye Contact Rinse immediately with plenty of water, also under the eyelids, for at least 15 minutes. Obtain medical attention.

Skin Contact Wash off immediately with plenty of water for at least 15 minutes. Obtain medical attention.

Inhalation Move to fresh air. If breathing is difficult, give oxygen. Do not use mouth-to-mouth resuscitation if victim ingested or inhaled the substance; induce artificial respiration with a respiratory medical device. Obtain medical attention. Aspiration into lungs can produce severe lung damage.

Ingestion Do not induce vomiting. Call a physician or Poison Control Center immediately. If vomiting occurs, lean victim forward to reduce the risk of aspiration.

Most important symptoms/effects Breathing difficulties. . Symptoms of overexposure may be headache, dizziness, tiredness, nausea and vomiting. Inhalation of high vapor concentrations may cause symptoms like headache, dizziness, tiredness, nausea and vomiting.

Notes to Physician Treat symptomatically.

5. Fire-fighting measures

Suitable Extinguishing Media CO_2, dry chemical, dry sand, alcohol-resistant foam. Cool closed containers exposed to fire with water spray.

Unsuitable Extinguishing Media Water may be ineffective, This material is lighter than water and insoluble in water. The fire could easily be spread by the use of water in an area where the water cannot be contained.

Flash Point -22°C / -7.6°F

Method - No information available

Autoignition Temperature 223°C / 433.4°F

Explosion Limits

Upper 7.5 vol %

Lower 1.1 vol %

Sensitivity to Mechanical Impact No information available

Sensitivity to Static Discharge No information available

Specific Hazards Arising from the Chemical

Flammable. Risk of ignition. Vapors may form explosive mixtures with air. Vapors may travel to source of ignition and flash back. Containers may explode when heated.

Hazardous Combustion Products Carbon monoxide (CO), Carbon dioxide (CO_2).

Protective Equipment and Precautions for Firefighters

As in any fire, wear self-contained breathing apparatus pressure-demand, MSHA/NIOSH (approved or equivalent) and full protective gear. Thermal decomposition can lead to release of irritating gases and vapors.

NFPA

Health	Flammability	Instability	Physical hazards
2	3	0	N/A

6. Accidental release measures

Personal Precautions Use personal protective equipment. Ensure adequate ventilation. Evacuate personnel to safe areas. Remove all sources of ignition. Take precautionary measures against static discharges.

Environmental Precautions Do not flush into surface water or sanitary sewer system. Avoid release to the environment. Collect spillage.

Methods for Containment and Clean Up Soak up with inert absorbent material. Keep in suitable, closed containers for disposal. Remove all sources of ignition. Use spark-proof tools and explosion-proof equipment. Take precautionary measures against static discharges.

7. Handling and storage

Handling Wear personal protective equipment. Do not get in eyes, on skin, or on clothing. Do not breathe vapors or spray mist. Keep away from open flames, hot surfaces and sources of ignition. Use only non-sparking tools. Use explosion-proof equipment. Take precautionary measures against static discharges. To avoid ignition of vapors by static electricity discharge, all metal parts of the equipment must be grounded.

Storage Keep containers tightly closed in a dry, cool and well-ventilated place. Keep away from heat and sources of ignition. Flammables area.

8. Exposure controls / personal protection

Exposure Guidelines

Component	ACGIH TLV	OSHA PEL	NIOSH IDLH
Hexane	TWA: 50 ppm Skin	(Vacated) TWA: 50 ppm (Vacated) TWA: 180 mg/m^3 TWA: 500 ppm TWA: 1800 mg/m^3	IDLH: 1100 ppm TWA: 50 ppm TWA: 180 mg/m^3

Component	Quebec	Mexico OEL (TWA)	Ontario TWAEV
Hexane	TWA: 50 ppm TWA: 176 mg/m^3 Skin	TWA: 50 ppm TWA: 176 mg/m^3	TWA: 50 ppm Skin

Legend
ACGIH *- American Conference of Governmental Hygienists*
OSHA *- Occupational Safety and Health Administration*
NIOSH IDLH: *The National Institute for Occupational Safety and Health Immediately Dangerous to Life or Health*

Engineering Measures Ensure adequate ventilation, especially in confined areas. Ensure that eyewash stations and safety showers are close to the workstation location. Use explosion-proof electrical/ventilating/lighting/equipment.

Personal Protective Equipment

Eye/face Protection Wear appropriate protective eyeglasses or chemical safety goggles as described by OSHA's eye and face protection regulations in 29 CFR 1910.133 or European Standard EN166.

Skin and body protection Wear appropriate protective gloves and clothing to prevent skin exposure.

Respiratory Protection Follow the OSHA respirator regulations found in 29 CFR 1910.134 or European Standard EN 149. Use a NIOSH/MSHA or European Standard EN 149 approved respirator if exposure limits are exceeded or if irritation or other symptoms are experienced

Hygiene Measures Handle in accordance with good industrial hygiene and safety practice

9. Physical and chemical properties

Physical State	Liquid
Appearance	Colorless
Odor	Petroleum distillates
Odor Threshold	No information available.
pH	No information available.
Melting Point/Range	-95°C / -139°F
Boiling Point/Range	69°C / 156.2°F@ 760 mmHg
Flash Point	-22°C / -7.6°F
Evaporation Rate	No information available.
Flammability (solid,gas)	Not applicable
Flammability or explosive limits	
Upper	7.5 vol %
Lower	1.1 vol %
Vapor Pressure	160 mbar @ 20 °C
Vapor Density	2.97
Relative Density	0.659
Solubility	Insoluble in water
Partition coefficient; n-octanol/water	No data available
Autoignition Temperature	223°C / 433.4°F
Decomposition temperature	No information available.
Viscosity	0.31 mPa s at 20 °C
Molecular Formula	C6 H14
Molecular Weight	86.18

10. Stability and reactivity

Reactive Hazard None known, based on information available.

Stability Stable under normal conditions.

Conditions to Avoid Incompatible products. Heat, flames and sparks. Exposure to light. Keep away from open flames, hot surfaces and sources of ignition.

Incompatible Materials Strong oxidizing agents, Halogens

Hazardous Decomposition Products Carbon monoxide (CO), Carbon dioxide (CO_2)

Hazardous Polymerization Hazardous polymerization does not occur

Hazardous Reactions None under normal processing

11. Toxicological information

Acute Toxicity

Product Information

Component Information

Component	LD50 Oral	LD50 Dermal	LC50 Inhalation
Hexane	25 g/kg (Rat)	3000 mg/kg (Rabbit)	48000 ppm (Rat) 4 h

Toxicologically Synergistic Products No information available.

Delayed and immediate effects as well as chronic effects from short and long-term exposure

Irritation Irritating to eyes and skin

Sensitization No information available.

Carcinogenicity The table below indicates whether each agency has listed any ingredient as a carcinogen

Component	CAS-No	IARC	NTP	ACGIH	OSHA	Mexico
Hexane	110-54-3	Not listed	Not listed	Not listed	Not listed	Not listed

Mutagenic Effects Mutagenic effects have occurred in experimental animals.

Reproductive Effects Experiments have shown reproductive toxicity effects on laboratory animals.

Developmental Effects Developmental effects have occurred in experimental animals.

Teratogenicity Teratogenic effects have occurred in experimental animals..

STOT - single exposure Respiratory system, Central nervous system (CNS).

STOT - repeated exposure Liver, Heart, Blood.

Aspiration hazard No information available.

Symptoms / effects, both acute and delayed Symptoms of overexposure may be headache, dizziness, tiredness, nausea and vomiting. Inhalation of high vapor concentrations may cause symptoms like headache, dizziness, tiredness, nausea and vomiting.

Endocrine Disruptor Information No information available

Other Adverse Effects Tumorigenic effects have been reported in experimental animals.. See actual entry in RTECS for complete information.

12. Ecological information

Ecotoxicity

Toxic to aquatic organisms, may cause long-term adverse effects in the aquatic environment. The product contains following substances which are hazardous for the environment.

Component	Freshwater Algae	Freshwater Fish	Microtox	Water Flea
Hexane	Not listed	2.1 - 2.98 mg/L LC50 96 h	Not listed	EC50: 3.87 mg/L/48h

Persistence and Degradability Persistence is unlikely, based on information available.

Bioaccumulation/ Accumulation No information available

Mobility Will likely be mobile in the environment due to its volatility.

Component	log Pow
Hexane	4.11

13. Disposal considerations

Waste Disposal Methods Chemical waste generators must determine whether a discarded chemical is classified as a hazardous waste. Chemical waste generators must also consult local, regional, and national hazardous waste regulations to ensure complete and accurate classification.

14. Transport information

DOT

UN-No	UN1208
Proper Shipping Name	Hexanes
Hazard Class	3
Packing Group	II

TDG

UN-No	UN1208
Proper Shipping Name	HEXANES
Hazard Class	3
Packing Group	II

IATA

UN-No	UN1208
Proper Shipping Name	Hexanes
Hazard Class	3
Packing Group	II

IMDG/IMO

UN-No	UN1208
Proper Shipping Name	Hexanes
Hazard Class	3
Packing Group	II

15. Regulatory information

International Inventories

Component	TSCA	DSL	NDSL	EINECS	ELINCS	NLP	PICCS	ENCS	AICS	IECSC	KECL
Hexane	X	X	-	203-777-6	-		X	X	X	X	X

Legend:
X - Listed
E - Indicates a substance that is the subject of a Section 5(e) Consent order under TSCA.
F - Indicates a substance that is the subject of a Section 5(f) Rule under TSCA.
N - Indicates a polymeric substance containing no free-radical initiator in its inventory name but is considered to cover the designated polymer made with any free-radical initiator regardless of the amount used.
P - Indicates a commenced PMN substance
R - Indicates a substance that is the subject of a Section 6 risk management rule under TSCA.
S - Indicates a substance that is identified in a proposed or final Significant New Use Rule
T - Indicates a substance that is the subject of a Section 4 test rule under TSCA.
XU - Indicates a substance exempt from reporting under the Inventory Update Rule, i.e. Partial Updating of the TSCA Inventory Data Base Production and Site Reports (40 CFR 710(B).
Y1 - Indicates an exempt polymer that has a number-average molecular weight of 1,000 or greater.
Y2 - Indicates an exempt polymer that is a polyester and is made only from reactants included in a specified list of low concern reactants that comprises one of the eligibility criteria for the exemption rule.

U.S. Federal Regulations

TSCA 12(b) Not applicable

SARA 313

Component	CAS-No	Weight %	SARA 313 - Threshold Values %
Hexane	110-54-3	>95	1.0

SARA 311/312 Hazardous Categorization

Acute Health Hazard	Yes
Chronic Health Hazard	Yes
Fire Hazard	Yes
Sudden Release of Pressure Hazard	No
Reactive Hazard	No

Clean Water Act Not applicable

Clean Air Act

Component	HAPS Data	Class 1 Ozone Depletors	Class 2 Ozone Depletors
Hexane	X		-

OSHA Occupational Safety and Health Administration
Not applicable

CERCLA
This material, as supplied, contains one or more substances regulated as a hazardous substance under the Comprehensive Environmental Response Compensation and Liability Act (CERCLA) (40 CFR 302)

Component	Hazardous Substances RQs	CERCLA EHS RQs
Hexane	5000 lb	-

California Proposition 65 This product does not contain any Proposition 65 chemicals.

State Right-to-Know

Component	Massachusetts	New Jersey	Pennsylvania	Illinois	Rhode Island
Hexane	X	X	X	X	X

U.S. Department of Transportation

Reportable Quantity (RQ):	Y
DOT Marine Pollutant	N
DOT Severe Marine Pollutant	N

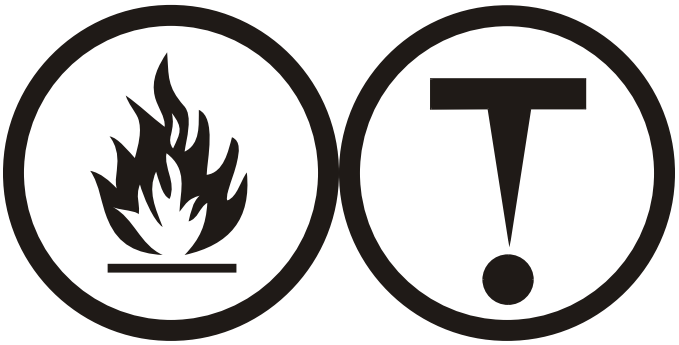
U.S. Department of Homeland Security
This product does not contain any DHS chemicals.

Other International Regulations

Mexico - Grade Serious risk, Grade 3

Canada
This product has been classified in accordance with the hazard criteria of the Controlled Products Regulations (CPR) and the MSDS contains all the information required by the CPR.

WHMIS Hazard Class B2 Flammable liquid
D2A Very toxic materials



16. Other information

Prepared By	Regulatory Affairs Thermo Fisher Scientific Email: EMSDS.RA@thermofisher.com
Creation Date	26-Oct-2009
Revision Date	02-Apr-2014
Print Date	02-Apr-2014
Revision Summary	This document has been updated to comply with the US OSHA HazCom 2012 Standard replacing the current legislation under 29 CFR 1910.1200 to align with the Globally Harmonized System of Classification and Labeling of Chemicals (GHS).

Disclaimer

The information provided on this Safety Data Sheet is correct to the best of our knowledge, information and belief at the date of its publication. The information given is designed only as a guide for safe handling, use, processing, storage, transportation, disposal and release and is not to be considered as a warranty or quality specification. The information relates only to the specific material designated and may not be valid for such material used in combination with any other material or in any process, unless specified in the text.

End of SDS

SAFETY DATA SHEET

Creation Date 04-Oct-2010 **Revision Date** 10-Feb-2015 **Revision Number** 1

1. Identification

Product Name **Nickel, powder**

Cat No. : **AC193610000; AC193610250; AC193611000; AC193615000**

Synonyms Raney alloy

Recommended Use Laboratory chemicals.

Uses advised against No Information available

Details of the supplier of the safety data sheet

Company
Fisher Scientific
One Reagent Lane
Fair Lawn, NJ 07410
Tel: (201) 796-7100

Entity / Business Name
Acros Organics
One Reagent Lane
Fair Lawn, NJ 07410

Emergency Telephone Number
For information **US** call: 001-800-ACROS-01 / **Europe** call: +32 14 57 52 11
Emergency Number **US:**001-201-796-7100 / **Europe:** +32 14 57 52 99
CHEMTREC Tel. No.**US:**001-800-424-9300 / **Europe:**001-703-527-3887

2. Hazard(s) identification

Classification
This chemical is considered hazardous by the 2012 OSHA Hazard Communication Standard (29 CFR 1910.1200)

Skin Sensitization	Category 1
Carcinogenicity	Category 2
Specific target organ toxicity - (repeated exposure)	Category 1
Target Organs - Kidney, Blood.	

Label Elements

Signal Word
Danger

Hazard Statements
May cause an allergic skin reaction
Causes damage to organs through prolonged or repeated exposure
Suspected of causing cancer



Precautionary Statements

Prevention
Obtain special instructions before use
Do not handle until all safety precautions have been read and understood
Wear protective gloves/protective clothing/eye protection/face protection
Do not breathe dust/fume/gas/mist/vapors/spray
Wash face, hands and any exposed skin thoroughly after handling
Do not eat, drink or smoke when using this product
Contaminated work clothing should not be allowed out of the workplace
Response
IF exposed or concerned: Get medical attention/advice
Skin
IF ON SKIN: Wash with plenty of soap and water
If skin irritation or rash occurs: Get medical advice/attention
Wash contaminated clothing before reuse
Storage
Store locked up
Disposal
Dispose of contents/container to an approved waste disposal plant
Hazards not otherwise classified (HNOC)
Harmful to aquatic life with long lasting effects

3. Composition / information on ingredients

Component	CAS-No	Weight %
Nickel powder	7440-02-0	>95

4. First-aid measures

Eye Contact Rinse immediately with plenty of water, also under the eyelids, for at least 15 minutes. Immediate medical attention is required.

Skin Contact Wash off immediately with plenty of water for at least 15 minutes. Immediate medical attention is required.

Inhalation Move to fresh air. If breathing is difficult, give oxygen. Do not use mouth-to-mouth resuscitation if victim ingested or inhaled the substance; induce artificial respiration with a respiratory medical device. Immediate medical attention is required.

Ingestion Do not induce vomiting. Call a physician or Poison Control Center immediately.

Most important symptoms/effects May cause allergic skin reaction. Symptoms of allergic reaction may include rash, itching, swelling, trouble breathing, tingling of the hands and feet, dizziness, lightheadedness, chest pain, muscle pain or flushing

Notes to Physician Treat symptomatically

5. Fire-fighting measures

Suitable Extinguishing Media Use water spray, alcohol-resistant foam, dry chemical or carbon dioxide.

Unsuitable Extinguishing Media No information available

Flash Point No information available
Method - No information available

Autoignition Temperature 400 °C / 752 °F
Explosion Limits
Upper No data available
Lower No data available

Sensitivity to Mechanical Impact No information available
Sensitivity to Static Discharge No information available

Specific Hazards Arising from the Chemical
Combustible material.

Hazardous Combustion Products
Nickel oxides.
Protective Equipment and Precautions for Firefighters
As in any fire, wear self-contained breathing apparatus pressure-demand, MSHA/NIOSH (approved or equivalent) and full protective gear. Thermal decomposition can lead to release of irritating gases and vapors.

NFPA

Health	Flammability	Instability	Physical hazards
3	1	0	N/A

6. Accidental release measures

Personal Precautions Ensure adequate ventilation. Use personal protective equipment. Keep people away from and upwind of spill/leak. Evacuate personnel to safe areas. Avoid dust formation.

Environmental Precautions Should not be released into the environment. See Section 12 for additional ecological information. Avoid release to the environment. Collect spillage.

Methods for Containment and Clean Up Sweep up or vacuum up spillage and collect in suitable container for disposal. Avoid dust formation.

7. Handling and storage

Handling Use only under a chemical fume hood. Wear personal protective equipment. Do not get in eyes, on skin, or on clothing. Avoid dust formation. Do not breathe vapors/dust. Do not ingest.

Storage Keep containers tightly closed in a dry, cool and well-ventilated place.

8. Exposure controls / personal protection

Exposure Guidelines

Component	ACGIH TLV	OSHA PEL	NIOSH IDLH
Nickel powder	TWA: 1.5 mg/m³	(Vacated) TWA: 1 mg/m³ TWA: 1 mg/m³	IDLH: 10 mg/m³ TWA: 0.015 mg/m³

Component	Quebec	Mexico OEL (TWA)	Ontario TWAEV
Nickel powder	TWA: 1 mg/m³	TWA: 1 mg/m³	TWA: 1 mg/m³

Legend

ACGIH - American Conference of Governmental Industrial Hygienists
OSHA - Occupational Safety and Health Administration
NIOSH IDLH: The National Institute for Occupational Safety and Health Immediately Dangerous to Life or Health

Engineering Measures Use only under a chemical fume hood. Ensure that eyewash stations and safety showers are close to the workstation location.

Personal Protective Equipment

Eye/face Protection Wear appropriate protective eyeglasses or chemical safety goggles as described by OSHA's eye and face protection regulations in 29 CFR 1910.133 or European Standard EN166.

Skin and body protection Wear appropriate protective gloves and clothing to prevent skin exposure.

Respiratory Protection Follow the OSHA respirator regulations found in 29 CFR 1910.134 or European Standard EN 149. Use a NIOSH/MSHA or European Standard EN 149 approved respirator if exposure limits are exceeded or if irritation or other symptoms are experienced.

Hygiene Measures Handle in accordance with good industrial hygiene and safety practice.

9. Physical and chemical properties

Physical State	Solid
Appearance	Brown
Odor	Odorless
Odor Threshold	No information available
pH	No information available
Melting Point/Range	1455 °C / 2651 °F
Boiling Point/Range	2730 °C / 4946 °F
Flash Point	No information available
Evaporation Rate	No information available
Flammability (solid,gas)	No information available
Flammability or explosive limits	
Upper	No data available
Lower	No data available
Vapor Pressure	1 mmHg @ 1810 °C
Vapor Density	No information available
Relative Density	No information available
Solubility	No information available
Partition coefficient; n-octanol/water	No data available
Autoignition Temperature	400 °C / 752 °F
Decomposition Temperature	No information available
Viscosity	No information available
Molecular Formula	Ni
Molecular Weight	58.7

10. Stability and reactivity

Reactive Hazard None known, based on information available

Stability Stable under normal conditions.

Conditions to Avoid Incompatible products. Excess heat. Avoid dust formation.

Incompatible Materials Strong oxidizing agents

Hazardous Decomposition Products Nickel oxides

Hazardous Polymerization Hazardous polymerization does not occur.

Hazardous Reactions None under normal processing.

11. Toxicological information

Acute Toxicity

Component Information

Component	LD50 Oral	LD50 Dermal	LC50 Inhalation
Nickel powder	9000 mg/kg (Rat)	Not listed	Not listed

Toxicologically Synergistic Products No information available

Delayed and immediate effects as well as chronic effects from short and long-term exposure

Irritation No information available

Sensitization May cause sensitization by skin contact Nickel and nickel compounds may cause a form of dermatitis known as nickel itch. May cause an allergic skin reaction

Carcinogenicity The table below indicates whether each agency has listed any ingredient as a carcinogen.

Component	CAS-No	IARC	NTP	ACGIH	OSHA	Mexico
Nickel powder	7440-02-0	Group 2B	Reasonably Anticipated	Not listed	X	Not listed

IARC: (International Agency for Research on Cancer) *Group 2B - Possibly Carcinogenic to Humans*

Mutagenic Effects No information available

Reproductive Effects No information available.

Developmental Effects No information available.

Teratogenicity No information available.

STOT - single exposure None known
STOT - repeated exposure Kidney Blood

Aspiration hazard No information available

Symptoms / effects,both acute and delayed Symptoms of allergic reaction may include rash, itching, swelling, trouble breathing, tingling of the hands and feet, dizziness, lightheadedness, chest pain, muscle pain or flushing
Endocrine Disruptor Information No information available

Other Adverse Effects See actual entry in RTECS for complete information.

12. Ecological information

Ecotoxicity
Do not flush into surface water or sanitary sewer system. Do not allow material to contaminate ground water system. Do not empty into drains. Harmful to aquatic organisms, may cause long-term adverse effects in the aquatic environment.

Component	Freshwater Algae	Freshwater Fish	Microtox	Water Flea
Nickel powder	0.18 mg/L EC50 = 72 h 0.174 - 0.311 mg/L EC50 96 h	10.4 mg/L LC50 96 h 1.3 mg/L LC50 96 h 100 mg/L LC50 96 h	Not listed	1 mg/L EC50 = 48 h 100 mg/L EC50 > 48 h

Persistence and Degradability No information available
Bioaccumulation/ Accumulation No information available.

Mobility No information available.

13. Disposal considerations

Waste Disposal Methods Chemical waste generators must determine whether a discarded chemical is classified as a hazardous waste. Chemical waste generators must also consult local, regional, and national hazardous waste regulations to ensure complete and accurate classification.

14. Transport information

DOT
- **UN-No** UN3089
- **Proper Shipping Name** METAL POWDERS, FLAMMABLE, N.O.S.
- **Hazard Class** 4.1
- **Packing Group** II

TDG
- **UN-No** UN3089
- **Proper Shipping Name** METAL POWDERS, FLAMMABLE, N.O.S.
- **Hazard Class** 4.1
- **Packing Group** II

IATA

UN-No	3089
Proper Shipping Name	METAL POWDERS, FLAMMABLE, N.O.S.
Hazard Class	4.1
Packing Group	II

IMDG/IMO

UN-No	3089
Proper Shipping Name	METAL POWDERS, FLAMMABLE, N.O.S.
Hazard Class	4.1
Packing Group	II

15. Regulatory information

International Inventories

Component	TSCA	DSL	NDSL	EINECS	ELINCS	NLP	PICCS	ENCS	AICS	IECSC	KECL
Nickel powder	X	X	-	231-111-4	-		X	-	X	X	X

Legend:
X - Listed
E - Indicates a substance that is the subject of a Section 5(e) Consent order under TSCA.
F - Indicates a substance that is the subject of a Section 5(f) Rule under TSCA.
N - Indicates a polymeric substance containing no free-radical initiator in its inventory name but is considered to cover the designated polymer made with any free-radical initiator regardless of the amount used.
P - Indicates a commenced PMN substance
R - Indicates a substance that is the subject of a Section 6 risk management rule under TSCA.
S - Indicates a substance that is identified in a proposed or final Significant New Use Rule
T - Indicates a substance that is the subject of a Section 4 test rule under TSCA.
XU - Indicates a substance exempt from reporting under the Inventory Update Rule, i.e. Partial Updating of the TSCA Inventory Data Base Production and Site Reports (40 CFR 710(B).
Y1 - Indicates an exempt polymer that has a number-average molecular weight of 1,000 or greater.
Y2 - Indicates an exempt polymer that is a polyester and is made only from reactants included in a specified list of low concern reactants that comprises one of the eligibility criteria for the exemption rule.

U.S. Federal Regulations

TSCA 12(b) Not applicable

SARA 313

Component	CAS-No	Weight %	SARA 313 - Threshold Values %
Nickel powder	7440-02-0	>95	0.1

SARA 311/312 Hazardous Categorization

Acute Health Hazard	Yes
Chronic Health Hazard	Yes
Fire Hazard	No
Sudden Release of Pressure Hazard	No
Reactive Hazard	No

Clean Water Act

Component	CWA - Hazardous Substances	CWA - Reportable Quantities	CWA - Toxic Pollutants	CWA - Priority Pollutants
Nickel powder	-	-	X	X

Clean Air Act

Component	HAPS Data	Class 1 Ozone Depletors	Class 2 Ozone Depletors
Nickel powder	X		-

OSHA Occupational Safety and Health Administration
Not applicable

CERCLA
This material, as supplied, contains one or more substances regulated as a hazardous substance under the Comprehensive

Environmental Response Compensation and Liability Act (CERCLA) (40 CFR 302)

Component	Hazardous Substances RQs	CERCLA EHS RQs
Nickel powder	100 lb	-

California Proposition 65 This product contains the following Proposition 65 chemicals:

Component	CAS-No	California Prop. 65	Prop 65 NSRL	Category
Nickel powder	7440-02-0	Carcinogen	-	Carcinogen

State Right-to-Know

Component	Massachusetts	New Jersey	Pennsylvania	Illinois	Rhode Island
Nickel powder	X	X	X	X	X

U.S. Department of Transportation

Reportable Quantity (RQ): N
DOT Marine Pollutant N
DOT Severe Marine Pollutant N

U.S. Department of Homeland Security
This product does not contain any DHS chemicals.

Other International Regulations

Mexico - Grade No information available

Canada
This product has been classified in accordance with the hazard criteria of the Controlled Products Regulations (CPR) and the MSDS contains all the information required by the CPR

WHMIS Hazard Class D2A Very toxic materials



16. Other information

Prepared By Regulatory Affairs
Thermo Fisher Scientific
Email: EMSDS.RA@thermofisher.com

Creation Date 04-Oct-2010
Revision Date 10-Feb-2015
Print Date 10-Feb-2015
Revision Summary This document has been updated to comply with the US OSHA HazCom 2012 Standard replacing the current legislation under 29 CFR 1910.1200 to align with the Globally Harmonized System of Classification and Labeling of Chemicals (GHS)

Disclaimer
The information provided on this Safety Data Sheet is correct to the best of our knowledge, information and belief at the date of its publication. The information given is designed only as a guide for safe handling, use, processing, storage, transportation, disposal and release and is not to be considered as a warranty or quality specification. The information relates only to the specific material designated and may not be valid for such material used in combination with any other material or in any process, unless specified in the text.

End of SDS

SAFETY DATA SHEET

Version 4.6
Revision Date 05/23/2016
Print Date 11/14/2016

1. PRODUCT AND COMPANY IDENTIFICATION

1.1 Product identifiers

Product name : *N*-Nitrosodi-*n*-propylamine

Product Number : 48554
Brand : Supelco
Index-No. : 612-098-00-8

CAS-No. : 621-64-7

1.2 Relevant identified uses of the substance or mixture and uses advised against

Identified uses : Laboratory chemicals, Synthesis of substances

1.3 Details of the supplier of the safety data sheet

Company : Sigma-Aldrich
3050 Spruce Street
SAINT LOUIS MO 63103
USA

Telephone : +1 800-325-5832
Fax : +1 800-325-5052

1.4 Emergency telephone number

Emergency Phone # : +1-703-527-3887 (CHEMTREC)

2. HAZARDS IDENTIFICATION

2.1 Classification of the substance or mixture

GHS Classification in accordance with 29 CFR 1910 (OSHA HCS)
Acute toxicity, Oral (Category 4), H302
Carcinogenicity (Category 1B), H350
Acute aquatic toxicity (Category 2), H401
Chronic aquatic toxicity (Category 2), H411

For the full text of the H-Statements mentioned in this Section, see Section 16.

2.2 GHS Label elements, including precautionary statements

Pictogram



Signal word Danger

Hazard statement(s)
H302 Harmful if swallowed.
H350 May cause cancer.
H411 Toxic to aquatic life with long lasting effects.

Precautionary statement(s)
P201 Obtain special instructions before use.
P202 Do not handle until all safety precautions have been read and understood.
P264 Wash skin thoroughly after handling.
P270 Do not eat, drink or smoke when using this product.

P273	Avoid release to the environment.
P280	Wear protective gloves/ protective clothing/ eye protection/ face protection.
P301 + P312 + P330	IF SWALLOWED: Call a POISON CENTER/doctor if you feel unwell. Rinse mouth.
P308 + P313	IF exposed or concerned: Get medical advice/ attention.
P391	Collect spillage.
P405	Store locked up.
P501	Dispose of contents/ container to an approved waste disposal plant.

2.3 Hazards not otherwise classified (HNOC) or not covered by GHS - none

3. COMPOSITION/INFORMATION ON INGREDIENTS

3.1 Substances

Formula	:	C6H14N2O
Molecular weight	:	130.22 g/mol
CAS-No.	:	621-64-7
EC-No.	:	210-698-0
Index-No.	:	612-098-00-8

Hazardous components

Component	Classification	Concentration
N-Nitroso dipropylamine		
	Acute Tox. 4; Carc. 1B; Aquatic Acute 2; Aquatic Chronic 2; H302, H350, H411	<= 100 %

For the full text of the H-Statements mentioned in this Section, see Section 16.

4. FIRST AID MEASURES

4.1 Description of first aid measures

General advice
Consult a physician. Show this safety data sheet to the doctor in attendance.Move out of dangerous area.

If inhaled
If breathed in, move person into fresh air. If not breathing, give artificial respiration. Consult a physician.

In case of skin contact
Wash off with soap and plenty of water. Consult a physician.

In case of eye contact
Flush eyes with water as a precaution.

If swallowed
Never give anything by mouth to an unconscious person. Rinse mouth with water. Consult a physician.

4.2 Most important symptoms and effects, both acute and delayed
The most important known symptoms and effects are described in the labelling (see section 2.2) and/or in section 11

4.3 Indication of any immediate medical attention and special treatment needed
No data available

5. FIREFIGHTING MEASURES

5.1 Extinguishing media

Suitable extinguishing media
Use water spray, alcohol-resistant foam, dry chemical or carbon dioxide.

5.2 Special hazards arising from the substance or mixture
No data available

5.3 Advice for firefighters
Wear self-contained breathing apparatus for firefighting if necessary.

5.4 Further information
No data available

6. ACCIDENTAL RELEASE MEASURES

6.1 Personal precautions, protective equipment and emergency procedures
Use personal protective equipment. Avoid breathing vapours, mist or gas. Ensure adequate ventilation. Evacuate personnel to safe areas.
For personal protection see section 8.

6.2 Environmental precautions
Prevent further leakage or spillage if safe to do so. Do not let product enter drains. Discharge into the environment must be avoided.

6.3 Methods and materials for containment and cleaning up
Soak up with inert absorbent material and dispose of as hazardous waste. Keep in suitable, closed containers for disposal.

6.4 Reference to other sections
For disposal see section 13.

7. HANDLING AND STORAGE

7.1 Precautions for safe handling
Avoid contact with skin and eyes. Avoid inhalation of vapour or mist.
For precautions see section 2.2.

7.2 Conditions for safe storage, including any incompatibilities
Keep container tightly closed in a dry and well-ventilated place. Containers which are opened must be carefully resealed and kept upright to prevent leakage.
Storage class (TRGS 510): Non-combustible, acute toxic Cat.3 / toxic hazardous materials or hazardous materials causing chronic effects

7.3 Specific end use(s)
Apart from the uses mentioned in section 1.2 no other specific uses are stipulated

8. EXPOSURE CONTROLS/PERSONAL PROTECTION

8.1 Control parameters

Components with workplace control parameters
Contains no substances with occupational exposure limit values.

8.2 Exposure controls

Appropriate engineering controls
Handle in accordance with good industrial hygiene and safety practice. Wash hands before breaks and at the end of workday.

Personal protective equipment

Eye/face protection
Face shield and safety glasses Use equipment for eye protection tested and approved under appropriate government standards such as NIOSH (US) or EN 166(EU).

Skin protection
Handle with gloves. Gloves must be inspected prior to use. Use proper glove removal technique (without touching glove's outer surface) to avoid skin contact with this product. Dispose of contaminated gloves after use in accordance with applicable laws and good laboratory practices. Wash and dry hands.

Body Protection
Complete suit protecting against chemicals, The type of protective equipment must be selected according to the concentration and amount of the dangerous substance at the specific workplace.

Respiratory protection
Where risk assessment shows air-purifying respirators are appropriate use a full-face respirator with multi-purpose combination (US) or type ABEK (EN 14387) respirator cartridges as a backup to engineering controls.

If the respirator is the sole means of protection, use a full-face supplied air respirator. Use respirators and components tested and approved under appropriate government standards such as NIOSH (US) or CEN (EU).

Control of environmental exposure
Prevent further leakage or spillage if safe to do so. Do not let product enter drains. Discharge into the environment must be avoided.

9. PHYSICAL AND CHEMICAL PROPERTIES

9.1 Information on basic physical and chemical properties

a)	Appearance	Form: liquid
b)	Odour	No data available
c)	Odour Threshold	No data available
d)	pH	No data available
e)	Melting point/freezing point	No data available
f)	Initial boiling point and boiling range	No data available
g)	Flash point	No data available
h)	Evaporation rate	No data available
i)	Flammability (solid, gas)	No data available
j)	Upper/lower flammability or explosive limits	No data available
k)	Vapour pressure	No data available
l)	Vapour density	No data available
m)	Relative density	0.92 g/cm3
n)	Water solubility	No data available
o)	Partition coefficient: n-octanol/water	log Pow: 1.36
p)	Auto-ignition temperature	No data available
q)	Decomposition temperature	No data available
r)	Viscosity	No data available
s)	Explosive properties	No data available
t)	Oxidizing properties	No data available

9.2 Other safety information
No data available

10. STABILITY AND REACTIVITY

10.1 Reactivity
No data available

10.2 Chemical stability
Stable under recommended storage conditions.

10.3 Possibility of hazardous reactions
No data available

10.4 Conditions to avoid
No data available

10.5 Incompatible materials
copper salts, mercury salts, Strong mineral acids, Strong oxidizing agents

10.6 Hazardous decomposition products
Hazardous decomposition products formed under fire conditions. - Carbon oxides, Nitrogen oxides (NOx)
Other decomposition products - No data available
In the event of fire: see section 5

11. TOXICOLOGICAL INFORMATION

11.1 Information on toxicological effects

Acute toxicity
LD50 Oral - Rat - 480.0 mg/kg

Inhalation: No data available

Dermal: No data available

No data available

Skin corrosion/irritation
No data available

Serious eye damage/eye irritation
No data available

Respiratory or skin sensitisation
No data available

Germ cell mutagenicity
No data available

Carcinogenicity

Possible human carcinogen

IARC:	2B - Group 2B: Possibly carcinogenic to humans (N-Nitroso dipropylamine)
ACGIH:	No component of this product present at levels greater than or equal to 0.1% is identified as a carcinogen or potential carcinogen by ACGIH.
NTP:	Reasonably anticipated to be a human carcinogen (N-Nitroso dipropylamine)
OSHA:	No component of this product present at levels greater than or equal to 0.1% is identified as a carcinogen or potential carcinogen by OSHA.

Reproductive toxicity
No data available

No data available

Specific target organ toxicity - single exposure
No data available

Specific target organ toxicity - repeated exposure
No data available

Aspiration hazard
No data available

Additional Information
RTECS: JL9700000

To the best of our knowledge, the chemical, physical, and toxicological properties have not been thoroughly investigated.

Lungs -

12. ECOLOGICAL INFORMATION

12.1 Toxicity
No data available

12.2 Persistence and degradability
No data available

12.3 Bioaccumulative potential
No data available

12.4 Mobility in soil
No data available

12.5 Results of PBT and vPvB assessment
PBT/vPvB assessment not available as chemical safety assessment not required/not conducted

12.6 Other adverse effects
An environmental hazard cannot be excluded in the event of unprofessional handling or disposal.
Toxic to aquatic life with long lasting effects.

13. DISPOSAL CONSIDERATIONS

13.1 Waste treatment methods

Product
Offer surplus and non-recyclable solutions to a licensed disposal company. Contact a licensed professional waste disposal service to dispose of this material. Dissolve or mix the material with a combustible solvent and burn in a chemical incinerator equipped with an afterburner and scrubber.

Contaminated packaging
Dispose of as unused product.

14. TRANSPORT INFORMATION

DOT (US)
UN number: 3082 Class: 9 Packing group: III
Proper shipping name: Environmentally hazardous substance, liquid, n.o.s. (N-Nitroso dipropylamine)
Reportable Quantity (RQ): 10 lbs

Poison Inhalation Hazard: No

IMDG
UN number: 3082 Class: 9 Packing group: III EMS-No: F-A, S-F
Proper shipping name: ENVIRONMENTALLY HAZARDOUS SUBSTANCE, LIQUID, N.O.S. (N-Nitroso dipropylamine)

IATA
UN number: 3082 Class: 9 Packing group: III
Proper shipping name: Environmentally hazardous substance, liquid, n.o.s. (N-Nitroso dipropylamine)

Further information
EHS-Mark required (ADR 2.2.9.1.10, IMDG code 2.10.3) for single packagings and combination packagings containing inner packagings with Dangerous Goods > 5L for liquids or > 5kg for solids.

15. REGULATORY INFORMATION

SARA 302 Components
No chemicals in this material are subject to the reporting requirements of SARA Title III, Section 302.

SARA 313 Components
The following components are subject to reporting levels established by SARA Title III, Section 313:

	CAS-No.	Revision Date
N-Nitroso dipropylamine	621-64-7	2007-07-01

SARA 311/312 Hazards

Acute Health Hazard, Chronic Health Hazard

California Prop. 65 Components

WARNING! This product contains a chemical known to the State of California to cause cancer. N-Nitroso dipropylamine	CAS-No. 621-64-7	Revision Date 2007-09-28

16. OTHER INFORMATION

Full text of H-Statements referred to under sections 2 and 3.

Acute Tox.	Acute toxicity
Aquatic Acute	Acute aquatic toxicity
Aquatic Chronic	Chronic aquatic toxicity
Carc.	Carcinogenicity
H302	Harmful if swallowed.
H350	May cause cancer.
H401	Toxic to aquatic life.
H411	Toxic to aquatic life with long lasting effects.

HMIS Rating

Health hazard:	2
Chronic Health Hazard:	*
Flammability:	0
Physical Hazard	0

NFPA Rating

Health hazard:	2
Fire Hazard:	0
Reactivity Hazard:	0

Further information

Copyright 2016 Sigma-Aldrich Co. LLC. License granted to make unlimited paper copies for internal use only.
The above information is believed to be correct but does not purport to be all inclusive and shall be used only as a guide. The information in this document is based on the present state of our knowledge and is applicable to the product with regard to appropriate safety precautions. It does not represent any guarantee of the properties of the product. Sigma-Aldrich Corporation and its Affiliates shall not be held liable for any damage resulting from handling or from contact with the above product. See www.sigma-aldrich.com and/or the reverse side of invoice or packing slip for additional terms and conditions of sale.

Preparation Information

Sigma-Aldrich Corporation
Product Safety – Americas Region
1-800-521-8956

Version: 4.6 Revision Date: 05/23/2016 Print Date: 11/14/2016

Safety Data Sheet
acc. to OSHA HCS

Printing date 03/28/2019 Version Number 3 Reviewed on 03/23/2019

*

1 Identification

· **Product identifier**

· **Trade name: n-Propylbenzene Standard (1X1 mL)**

· **Part number:** EPA-1045-1
· **Application of the substance / the mixture** Reagents and Standards for Analytical Chemical Laboratory Use

· **Details of the supplier of the safety data sheet**
· **Manufacturer/Supplier:**
Agilent Technologies, Inc.
5301 Stevens Creek Blvd.
Santa Clara, CA 95051 USA

· **Information department:**
Telephone: 800-227-9770
e-mail: pdl-msds_author@agilent.com
· **Emergency telephone number:** CHEMTREC®: 1-800-424-9300

2 Hazard(s) identification

· **Classification of the substance or mixture**


GHS02 Flame

Flam. Liq. 2 H225 Highly flammable liquid and vapor.


GHS06 Skull and crossbones

Acute Tox. 3 H331 Toxic if inhaled.


GHS08 Health hazard

Carc. 2 H351 Suspected of causing cancer.
STOT SE 1 H370 Causes damage to organs.

· **Label elements**
· **GHS label elements** The product is classified and labeled according to the Globally Harmonized System (GHS).
· **Hazard pictograms**


GHS02 GHS06 GHS08

· **Signal word** Danger

· **Hazard-determining components of labeling:**
methanol
· **Hazard statements**
Highly flammable liquid and vapor.
Toxic if inhaled.
Suspected of causing cancer.

(Contd. on page 2)

Safety Data Sheet
acc. to OSHA HCS

Trade name: n-Propylbenzene Standard (1X1 mL)

(Contd. of page 1)

Causes damage to organs.

· **Precautionary statements**
Obtain special instructions before use.
Do not handle until all safety precautions have been read and understood.
Keep away from heat/sparks/open flames/hot surfaces. - No smoking.
Ground/bond container and receiving equipment.
Use explosion-proof electrical/ventilating/lighting/equipment.
Use only non-sparking tools.
Take precautionary measures against static discharge.
Do not breathe dust/fume/gas/mist/vapors/spray.
Wash thoroughly after handling.
Do not eat, drink or smoke when using this product.
Use only outdoors or in a well-ventilated area.
Wear protective gloves/protective clothing/eye protection/face protection.
If on skin (or hair): Take off immediately all contaminated clothing. Rinse skin with water/shower.
IF INHALED: Remove person to fresh air and keep comfortable for breathing.
IF exposed or concerned: Get medical advice/attention.
Specific treatment (see on this label).
In case of fire: Use for extinction: CO2, powder or water spray.
Store in a well-ventilated place. Keep container tightly closed.
Store in a well-ventilated place. Keep cool.
Store locked up.
Dispose of contents/container in accordance with local/regional/national/international regulations.

· **Classification system:**
· **NFPA ratings (scale 0 - 4)**



Health = 1
Fire = 3
Reactivity = 0

· **HMIS-ratings (scale 0 - 4)**



Health = *1
Fire = 3
Reactivity = 0

· **Other hazards**
· **Results of PBT and vPvB assessment**
· **PBT:** Not applicable.
· **vPvB:** Not applicable.

3 Composition/information on ingredients

· **Chemical characterization: Mixtures**
· **Description:** Mixture of the substances listed below with nonhazardous additions.

· **Dangerous components:**		
67-56-1	methanol	99.368%
103-65-1	propylbenzene	0.632%

(Contd. on page 3)

Safety Data Sheet
acc. to OSHA HCS

(Contd. of page 2)

4 First-aid measures

· **Description of first aid measures**
· **General information:**
Immediately remove any clothing soiled by the product.
Remove breathing apparatus only after contaminated clothing have been completely removed.
In case of irregular breathing or respiratory arrest provide artificial respiration.
· **After inhalation:**
Supply fresh air or oxygen; call for doctor.
In case of unconsciousness place patient stably in side position for transportation.
· **After skin contact:** Immediately wash with water and soap and rinse thoroughly.
· **After eye contact:** Rinse opened eye for several minutes under running water. Then consult a doctor.
· **After swallowing:** If symptoms persist consult doctor.
· **Information for doctor:**
· **Most important symptoms and effects, both acute and delayed** No further relevant information available.
· **Indication of any immediate medical attention and special treatment needed**
No further relevant information available.

5 Fire-fighting measures

· **Extinguishing media**
· **Suitable extinguishing agents:**
CO2, extinguishing powder or water spray. Fight larger fires with water spray or alcohol resistant foam.
· **For safety reasons unsuitable extinguishing agents:** Water with full jet
· **Special hazards arising from the substance or mixture**
During heating or in case of fire poisonous gases are produced.
· **Advice for firefighters**
· **Protective equipment:** Mouth respiratory protective device.

6 Accidental release measures

· **Personal precautions, protective equipment and emergency procedures**
Mount respiratory protective device.
Wear protective equipment. Keep unprotected persons away.
· **Environmental precautions:** Do not allow to enter sewers/ surface or ground water.
· **Methods and material for containment and cleaning up:**
Absorb with liquid-binding material (sand, diatomite, acid binders, universal binders, sawdust).
Dispose contaminated material as waste according to item 13.
Ensure adequate ventilation.
· **Reference to other sections**
See Section 7 for information on safe handling.
See Section 8 for information on personal protection equipment.
See Section 13 for disposal information.
· **Protective Action Criteria for Chemicals**

· **PAC-1:**		
67-56-1	methanol	530 ppm
103-65-1	propylbenzene	3.7 ppm

(Contd. on page 4)

(Contd. of page 3)

· **PAC-2:**		
67-56-1	methanol	2,100 ppm
103-65-1	propylbenzene	41 ppm

· **PAC-3:**		
67-56-1	methanol	7200* ppm
103-65-1	propylbenzene	240 ppm

7 Handling and storage

· **Handling:**
· **Precautions for safe handling**
Ensure good ventilation/exhaustion at the workplace.
Open and handle receptacle with care.
Prevent formation of aerosols.
· **Information about protection against explosions and fires:**
Keep ignition sources away - Do not smoke.
Protect against electrostatic charges.
Keep respiratory protective device available.

· **Conditions for safe storage, including any incompatibilities**
· **Storage:**
· **Requirements to be met by storerooms and receptacles:** Store in a cool location.
· **Information about storage in one common storage facility:** Not required.
· **Further information about storage conditions:**
Keep receptacle tightly sealed.
Store in cool, dry conditions in well sealed receptacles.
· **Specific end use(s)** No further relevant information available.

8 Exposure controls/personal protection

· **Additional information about design of technical systems:** No further data; see item 7.

· **Control parameters**

· **Components with limit values that require monitoring at the workplace:**	
67-56-1 methanol	
PEL	Long-term value: 260 mg/m³, 200 ppm
REL	Short-term value: 325 mg/m³, 250 ppm Long-term value: 260 mg/m³, 200 ppm Skin
TLV	Short-term value: 328 mg/m³, 250 ppm Long-term value: 262 mg/m³, 200 ppm Skin; BEI

· **Ingredients with biological limit values:**	
67-56-1 methanol	
BEI	15 mg/L Medium: urine Time: end of shift Parameter: Methanol (background, nonspecific)

(Contd. on page 5)

Safety Data Sheet
acc. to OSHA HCS

(Contd. of page 4)

· **Additional information:** The lists that were valid during the creation were used as basis.

· **Exposure controls**
· **Personal protective equipment:**
· **General protective and hygienic measures:**
Keep away from foodstuffs, beverages and feed.
Immediately remove all soiled and contaminated clothing.
Wash hands before breaks and at the end of work.
Store protective clothing separately.
· **Breathing equipment:**
When used as intended with Agilent instruments, the use of the product under normal laboratory conditions and with standard practices does not result in significant airborne exposures and therefore respiratory protection is not needed.
Under an emergency condition where a respirator is deemed necessary, use a NIOSH or equivalent approved device/equipment with appropriate organic or acid gas cartridge.
· **Protection of hands:**
Although not recommended for constant contact with the chemicals or for clean-up, nitrile gloves 11-13 mil thickness are recommended for normal use. The breakthrough time is 1 hr. For cleaning a spill where there is direct contact of the chemical, butyl rubber gloves are recommended 12-15 mil thickness with breakthrough times exceeding 4 hrs. Supplier recommendations should be followed.
· **Material of gloves**
For normal use: nitrile rubber, 11-13 mil thickness
For direct contact with the chemical: butyl rubber, 12-15 mil thickness
· **Penetration time of glove material**
For normal use: nitrile rubber: 1 hour
For direct contact with the chemical: butyl rubber: >4 hours
· **Eye protection:**



Tightly sealed goggles

9 Physical and chemical properties

· **Information on basic physical and chemical properties**	
· **General Information**	
· **Appearance:**	
Form:	Fluid
Color:	Colorless
· **Odor:**	Alcohol-like
· **Odor threshold:**	Not determined.
· **pH-value:**	Not determined.
· **Change in condition**	
Melting point/Melting range:	-98 °C (-144.4 °F)
Boiling point/Boiling range:	64.7 °C (148.5 °F)
· **Flash point:**	9 °C (48.2 °F)
· **Flammability (solid, gaseous):**	Not applicable.

(Contd. on page 6)

(Contd. of page 5)

· **Ignition temperature:**	455 °C (851 °F)
· **Decomposition temperature:**	Not determined.
· **Auto igniting:**	Product is not selfigniting.
· **Danger of explosion:**	Product is not explosive. However, formation of explosive air/vapor mixtures are possible.
· **Explosion limits:**	
Lower:	5.5 Vol %
Upper:	44 Vol %
· **Vapor pressure at 20 °C (68 °F):**	100 hPa (75 mm Hg)
· **Density at 20 °C (68 °F):**	0.80063 g/cm³ (6.68126 lbs/gal)
· **Relative density**	Not determined.
· **Vapor density**	Not determined.
· **Evaporation rate**	Not determined.
· **Solubility in / Miscibility with**	
Water:	Not miscible or difficult to mix.
· **Partition coefficient (n-octanol/water):**	Not determined.
· **Viscosity:**	
Dynamic:	Not determined.
Kinematic:	Not determined.
· **Solvent content:**	
Organic solvents:	100.0 %
VOC content:	100.00 % 800.6 g/l / 6.68 lb/gal
Solids content:	0.0 %
· **Other information**	No further relevant information available.

10 Stability and reactivity

· **Reactivity** No further relevant information available.
· **Chemical stability**
· **Thermal decomposition / conditions to be avoided:** No decomposition if used according to specifications.
· **Possibility of hazardous reactions** No dangerous reactions known.
· **Conditions to avoid** No further relevant information available.
· **Incompatible materials:** No further relevant information available.
· **Hazardous decomposition products:** No dangerous decomposition products known.

11 Toxicological information

· **Information on toxicological effects**
· **Acute toxicity:**

· **LD/LC50 values that are relevant for classification:**		
ATE (Acute Toxicity Estimate)		
Inhalative	LC50/4 h	3.02 mg/L

(Contd. on page 7)

(Contd. of page 6)

67-56-1 methanol		
Oral	LD50	5,628 mg/kg (rat)
Dermal	LD50	15,800 mg/kg (rabbit)
103-65-1 propylbenzene		
Oral	LD50	6,040 mg/kg (rat)

· **Primary irritant effect:**
· **on the skin:** No irritant effect.
· **on the eye:** No irritating effect.
· **Sensitization:** No sensitizing effects known.
· **Additional toxicological information:**
The product shows the following dangers according to internally approved calculation methods for preparations:
Toxic

· **Carcinogenic categories**

· **IARC (International Agency for Research on Cancer)**
None of the ingredients is listed.

· **NTP (National Toxicology Program)**
None of the ingredients is listed.

· **OSHA-Ca (Occupational Safety & Health Administration)**
None of the ingredients is listed.

12 Ecological information

· **Toxicity**
· **Aquatic toxicity:** No further relevant information available.
· **Persistence and degradability** No further relevant information available.
· **Behavior in environmental systems:**
· **Bioaccumulative potential** No further relevant information available.
· **Mobility in soil** No further relevant information available.
· **Additional ecological information:**
· **General notes:**
Water hazard class 1 (Self-assessment): slightly hazardous for water
Do not allow undiluted product or large quantities of it to reach ground water, water course or sewage system.
· **Results of PBT and vPvB assessment**
· **PBT:** Not applicable.
· **vPvB:** Not applicable.
· **Other adverse effects** No further relevant information available.

13 Disposal considerations

· **Waste treatment methods**
· **Recommendation:**
Must not be disposed of together with household garbage. Do not allow product to reach sewage system.

(Contd. on page 8)

Safety Data Sheet
acc. to OSHA HCS

Trade name: n-Propylbenzene Standard (1X1 mL)

(Contd. of page 7)

· **Uncleaned packagings:**
· **Recommendation:** Disposal must be made according to official regulations.

*
14 Transport information

· **Not Regulated, De minimus Quantities**	-
· **UN-Number**	
· **DOT, IMDG, IATA**	UN1230
· **UN proper shipping name**	
· **DOT**	Methanol solution
· **IMDG, IATA**	METHANOL solution
· **Transport hazard class(es)**	
· **DOT**	
· **Class**	3 Flammable liquids
· **Label**	3, 6.1
· **IMDG**	
· **Class**	3 Flammable liquids
· **Label**	3/6.1
· **IATA**	
· **Class**	3 Flammable liquids
· **Label**	3 (6.1)
· **Packing group**	
· **DOT, IMDG, IATA**	II
· **Environmental hazards:**	Not applicable.
· **Special precautions for user**	Warning: Flammable liquids
· **Danger code (Kemler):**	336
· **EMS Number:**	F-E,S-D
· **Stowage Category**	B
· **Stowage Code**	SW2 Clear of living quarters.
· **Transport in bulk according to Annex II of MARPOL73/78 and the IBC Code**	Not applicable.

(Contd. on page 9)

Safety Data Sheet
acc. to OSHA HCS

(Contd. of page 8)

· **Transport/Additional information:**

· **DOT**

· **Quantity limitations**	On passenger aircraft/rail: 1 L On cargo aircraft only: 60 L

· **IMDG**

· **Limited quantities (LQ)**	1L
· **Excepted quantities (EQ)**	Code: E2 Maximum net quantity per inner packaging: 30 ml Maximum net quantity per outer packaging: 500 ml
· **UN "Model Regulation":**	UN 1230 METHANOL SOLUTION, 3 (6.1), II

15 Regulatory information

· **Safety, health and environmental regulations/legislation specific for the substance or mixture**

· **Sara**

· **Section 355 (extremely hazardous substances):**

None of the ingredients is listed.

· **Section 313 (Specific toxic chemical listings):**

67-56-1	methanol

· **TSCA (Toxic Substances Control Act):**

All ingredients are listed.

· **Proposition 65**

· **Chemicals known to cause cancer:**

None of the ingredients is listed.

· **Chemicals known to cause reproductive toxicity for females:**

None of the ingredients is listed.

· **Chemicals known to cause reproductive toxicity for males:**

None of the ingredients is listed.

· **Chemicals known to cause developmental toxicity:**

67-56-1	methanol

· **Carcinogenic categories**

· **EPA (Environmental Protection Agency)**

None of the ingredients is listed.

· **TLV (Threshold Limit Value established by ACGIH)**

None of the ingredients is listed.

· **NIOSH-Ca (National Institute for Occupational Safety and Health)**

None of the ingredients is listed.

· **Chemical safety assessment:** A Chemical Safety Assessment has not been carried out.

(Contd. on page 10)

Safety Data Sheet
acc. to OSHA HCS

(Contd. of page 9)

16 Other information

The information contained in this document is based on Agilent's state of knowledge at the time of preparation. No warranty as to its accurateness, completeness or suitability for a particular purpose is expressed or implied.

· **Department issuing SDS:** Document Control / Regulatory
· **Contact:** regulatory@ultrasci.com
· **Date of preparation / last revision** 03/28/2019 / 2
· **Abbreviations and acronyms:**
ADR: Accord européen sur le transport des marchandises dangereuses par Route (European Agreement concerning the International Carriage of Dangerous Goods by Road)
IMDG: International Maritime Code for Dangerous Goods
DOT: US Department of Transportation
IATA: International Air Transport Association
ACGIH: American Conference of Governmental Industrial Hygienists
EINECS: European Inventory of Existing Commercial Chemical Substances
ELINCS: European List of Notified Chemical Substances
CAS: Chemical Abstracts Service (division of the American Chemical Society)
NFPA: National Fire Protection Association (USA)
HMIS: Hazardous Materials Identification System (USA)
VOC: Volatile Organic Compounds (USA, EU)
LC50: Lethal concentration, 50 percent
LD50: Lethal dose, 50 percent
PBT: Persistent, Bioaccumulative and Toxic
vPvB: very Persistent and very Bioaccumulative
NIOSH: National Institute for Occupational Safety
OSHA: Occupational Safety & Health
TLV: Threshold Limit Value
PEL: Permissible Exposure Limit
REL: Recommended Exposure Limit
BEI: Biological Exposure Limit
Flam. Liq. 2: Flammable liquids – Category 2
Acute Tox. 3: Acute toxicity – Category 3
Carc. 2: Carcinogenicity – Category 2
STOT SE 1: Specific target organ toxicity (single exposure) – Category 1
· *** Data compared to the previous version altered.**

SAFETY DATA SHEET

Version 4.7
Revision Date 05/27/2015
Print Date 04/01/2016

1. PRODUCT AND COMPANY IDENTIFICATION

1.1 Product identifiers

Product name : *o*-Cresol

Product Number : C85700
Brand : Sigma-Aldrich
Index-No. : 604-004-00-9

CAS-No. : 95-48-7

1.2 Relevant identified uses of the substance or mixture and uses advised against

Identified uses : Laboratory chemicals, Manufacture of substances

1.3 Details of the supplier of the safety data sheet

Company : Sigma-Aldrich
3050 Spruce Street
SAINT LOUIS MO 63103
USA

Telephone : +1 800-325-5832
Fax : +1 800-325-5052

1.4 Emergency telephone number

Emergency Phone # : (314) 776-6555

2. HAZARDS IDENTIFICATION

2.1 Classification of the substance or mixture

GHS Classification in accordance with 29 CFR 1910 (OSHA HCS)
Acute toxicity, Oral (Category 3), H301
Acute toxicity, Dermal (Category 3), H311
Skin corrosion (Category 1B), H314
Serious eye damage (Category 1), H318
Acute aquatic toxicity (Category 2), H401
Chronic aquatic toxicity (Category 2), H411

For the full text of the H-Statements mentioned in this Section, see Section 16.

2.2 GHS Label elements, including precautionary statements

Pictogram



Signal word Danger

Hazard statement(s)
H301 + H311 Toxic if swallowed or in contact with skin
H314 Causes severe skin burns and eye damage.
H318 Causes serious eye damage.
H411 Toxic to aquatic life with long lasting effects.

Precautionary statement(s)
P260 Do not breathe dust or mist.
P264 Wash skin thoroughly after handling.
P270 Do not eat, drink or smoke when using this product.

P273	Avoid release to the environment.
P280	Wear protective gloves/ protective clothing/ eye protection/ face protection.
P301 + P310 + P330	IF SWALLOWED: Immediately call a POISON CENTER or doctor/ physician. Rinse mouth.
P301 + P330 + P331	IF SWALLOWED: Rinse mouth. Do NOT induce vomiting.
P303 + P361 + P353	IF ON SKIN (or hair): Take off immediately all contaminated clothing. Rinse skin with water/shower.
P304 + P340 + P310	IF INHALED: Remove person to fresh air and keep comfortable for breathing. Immediately call a POISON CENTER or doctor/ physician.
P305 + P351 + P338 + P310	IF IN EYES: Rinse cautiously with water for several minutes. Remove contact lenses, if present and easy to do. Continue rinsing. Immediately call a POISON CENTER or doctor/ physician.
P362	Take off contaminated clothing and wash before reuse.
P391	Collect spillage.
P405	Store locked up.
P501	Dispose of contents/ container to an approved waste disposal plant.

2.3 Hazards not otherwise classified (HNOC) or not covered by GHS - none

3. COMPOSITION/INFORMATION ON INGREDIENTS

3.1 Substances

Synonyms	:	2-Methylphenol
Formula	:	C_7H_8O
Molecular weight	:	108.14 g/mol
CAS-No.	:	95-48-7
EC-No.	:	202-423-8
Index-No.	:	604-004-00-9

Hazardous components

Component	Classification	Concentration
o-Cresol		
	Acute Tox. 3; Skin Corr. 1B; Eye Dam. 1; Aquatic Acute 2; Aquatic Chronic 2; H301 + H311, H314, H318, H411	<= 100 %

For the full text of the H-Statements mentioned in this Section, see Section 16.

4. FIRST AID MEASURES

4.1 Description of first aid measures

General advice
Consult a physician. Show this safety data sheet to the doctor in attendance.Move out of dangerous area.

If inhaled
If breathed in, move person into fresh air. If not breathing, give artificial respiration. Consult a physician.

In case of skin contact
Take off contaminated clothing and shoes immediately. Wash off with soap and plenty of water. Take victim immediately to hospital. Consult a physician.

In case of eye contact
Rinse thoroughly with plenty of water for at least 15 minutes and consult a physician.Continue rinsing eyes during transport to hospital.

If swallowed
Do NOT induce vomiting. Never give anything by mouth to an unconscious person. Rinse mouth with water. Consult a physician.

4.2 Most important symptoms and effects, both acute and delayed

The most important known symptoms and effects are described in the labelling (see section 2.2) and/or in section 11

4.3 Indication of any immediate medical attention and special treatment needed
No data available

5. FIREFIGHTING MEASURES

5.1 Extinguishing media

Suitable extinguishing media
Use water spray, alcohol-resistant foam, dry chemical or carbon dioxide.

5.2 Special hazards arising from the substance or mixture
Carbon oxides

5.3 Advice for firefighters
Wear self-contained breathing apparatus for firefighting if necessary.

5.4 Further information
No data available

6. ACCIDENTAL RELEASE MEASURES

6.1 Personal precautions, protective equipment and emergency procedures
Wear respiratory protection. Avoid dust formation. Avoid breathing vapours, mist or gas. Ensure adequate ventilation. Evacuate personnel to safe areas. Avoid breathing dust.
For personal protection see section 8.

6.2 Environmental precautions
Prevent further leakage or spillage if safe to do so. Do not let product enter drains. Discharge into the environment must be avoided.

6.3 Methods and materials for containment and cleaning up
Pick up and arrange disposal without creating dust. Sweep up and shovel. Keep in suitable, closed containers for disposal.

6.4 Reference to other sections
For disposal see section 13.

7. HANDLING AND STORAGE

7.1 Precautions for safe handling
Avoid contact with skin and eyes. Avoid formation of dust and aerosols.Further processing of solid materials may result in the formation of combustible dusts. The potential for combustible dust formation should be taken into consideration before additional processing occurs.
Provide appropriate exhaust ventilation at places where dust is formed.
For precautions see section 2.2.

7.2 Conditions for safe storage, including any incompatibilities
Keep container tightly closed in a dry and well-ventilated place.

Air and light sensitive. Keep in a dry place.
Storage class (TRGS 510): Non-combustible, acute toxic Cat. 1 and 2 / very toxic hazardous materials

7.3 Specific end use(s)
Apart from the uses mentioned in section 1.2 no other specific uses are stipulated

8. EXPOSURE CONTROLS/PERSONAL PROTECTION

8.1 Control parameters

Components with workplace control parameters

Component	CAS-No.	Value	Control parameters	Basis
o-Cresol	95-48-7	TWA	5.000000 ppm 22.000000 mg/m3	USA. Occupational Exposure Limits (OSHA) - Table Z-1 Limits for Air Contaminants
	Remarks	Skin contact does contribute to exposure.		

		TWA	5.000000 ppm	USA. ACGIH Threshold Limit Values (TLV)
		Eye, skin, & Upper Respiratory Tract irritation Adopted values or notations enclosed are those for which changes are proposed in the NIC 2010 Revision or addition to the notice of intended changes See Notice of Intended Changes (NIC) Danger of cutaneous absorption		
		TWA	2.300000 ppm 10.000000 mg/m3	USA. NIOSH Recommended Exposure Limits
		TWA	20.000000 mg/m3	USA. ACGIH Threshold Limit Values (TLV)
		Upper Respiratory Tract irritation Not classifiable as a human carcinogen Danger of cutaneous absorption		

8.2 Exposure controls

Appropriate engineering controls
Avoid contact with skin, eyes and clothing. Wash hands before breaks and immediately after handling the product.

Personal protective equipment

Eye/face protection
Face shield and safety glasses Use equipment for eye protection tested and approved under appropriate government standards such as NIOSH (US) or EN 166(EU).

Skin protection
Handle with gloves. Gloves must be inspected prior to use. Use proper glove removal technique (without touching glove's outer surface) to avoid skin contact with this product. Dispose of contaminated gloves after use in accordance with applicable laws and good laboratory practices. Wash and dry hands.

Full contact
Material: Nitrile rubber
Minimum layer thickness: 0.4 mm
Break through time: 480 min
Material tested:Camatril® (KCL 730 / Aldrich Z677442, Size M)

Splash contact
Material: Nitrile rubber
Minimum layer thickness: 0.2 mm
Break through time: 30 min
Material tested:Dermatril® P (KCL 743 / Aldrich Z677388, Size M)

data source: KCL GmbH, D-36124 Eichenzell, phone +49 (0)6659 87300, e-mail sales@kcl.de, test method: EN374
If used in solution, or mixed with other substances, and under conditions which differ from EN 374, contact the supplier of the CE approved gloves. This recommendation is advisory only and must be evaluated by an industrial hygienist and safety officer familiar with the specific situation of anticipated use by our customers. It should not be construed as offering an approval for any specific use scenario.

Body Protection
Complete suit protecting against chemicals, The type of protective equipment must be selected according to the concentration and amount of the dangerous substance at the specific workplace.

Respiratory protection
Where risk assessment shows air-purifying respirators are appropriate use a full-face particle respirator type N100 (US) or type P3 (EN 143) respirator cartridges as a backup to engineering controls. If the respirator is the sole means of protection, use a full-face supplied air respirator. Use respirators and components tested and approved under appropriate government standards such as NIOSH (US) or CEN (EU).

Control of environmental exposure
Prevent further leakage or spillage if safe to do so. Do not let product enter drains. Discharge into the environment must be avoided.

9. PHYSICAL AND CHEMICAL PROPERTIES

9.1 Information on basic physical and chemical properties

a)	Appearance	Form: powder Colour: white
b)	Odour	No data available
c)	Odour Threshold	No data available
d)	pH	4.5 at 25.00000 g/l
e)	Melting point/freezing point	Melting point/range: 29 - 31 °C (84 - 88 °F) - lit.
f)	Initial boiling point and boiling range	191 °C (376 °F) - lit.
g)	Flash point	81.0 °C (177.8 °F) - closed cup
h)	Evaporation rate	No data available
i)	Flammability (solid, gas)	No data available
j)	Upper/lower flammability or explosive limits	Upper explosion limit: 58 %(V) Lower explosion limit: 1.3 %(V)
k)	Vapour pressure	3.1 hPa (2.3 mmHg) at 60.0 °C (140.0 °F) 1.3 hPa (1.0 mmHg) at 38.2 °C (100.8 °F) 0.4 hPa (0.3 mmHg) at 20.0 °C (68.0 °F)
l)	Vapour density	No data available
m)	Relative density	1.05 g/cm3 at 20.00 °C (68.00 °F)
n)	Water solubility	25 g/l at 20 °C (68 °F)
o)	Partition coefficient: n-octanol/water	No data available
p)	Auto-ignition temperature	599.0 °C (1,110.2 °F)
q)	Decomposition temperature	No data available
r)	Viscosity	No data available
s)	Explosive properties	No data available
t)	Oxidizing properties	No data available

9.2 Other safety information

No data available

10. STABILITY AND REACTIVITY

10.1 Reactivity

No data available

10.2 Chemical stability

Stable under recommended storage conditions.

10.3 Possibility of hazardous reactions

No data available

10.4 Conditions to avoid

No data available

10.5 Incompatible materials

Oxidizing agents

10.6 Hazardous decomposition products

Other decomposition products - No data available
In the event of fire: see section 5

11. TOXICOLOGICAL INFORMATION

11.1 Information on toxicological effects

Acute toxicity
LD50 Oral - Rat - 121.0 mg/kg
Remarks: Behavioral:Convulsions or effect on seizure threshold. Lungs, Thorax, or Respiration:Dyspnea. Gastrointestinal:Ulceration or bleeding from stomach.

LC50 Inhalation - Rat - 1 h - > 1,220 mg/m3
Remarks: Sense Organs and Special Senses (Nose, Eye, Ear, and Taste):Eye:Lacrimation. Behavioral:Somnolence (general depressed activity).

LD50 Dermal - Rabbit - 890.0 mg/kg

No data available

Skin corrosion/irritation
Skin - Rabbit
Result: Severe skin irritation - 24 h
(Draize Test)

Serious eye damage/eye irritation
Eyes - Rabbit
Result: Severe eye irritation
(Draize Test)

Respiratory or skin sensitisation
No data available

Germ cell mutagenicity
No data available

Carcinogenicity

IARC: No component of this product present at levels greater than or equal to 0.1% is identified as probable, possible or confirmed human carcinogen by IARC.

NTP: No component of this product present at levels greater than or equal to 0.1% is identified as a known or anticipated carcinogen by NTP.

OSHA: No component of this product present at levels greater than or equal to 0.1% is identified as a carcinogen or potential carcinogen by OSHA.

Reproductive toxicity
No data available

No data available

Specific target organ toxicity - single exposure
No data available

Specific target organ toxicity - repeated exposure
No data available

Aspiration hazard
No data available

Additional Information
RTECS: GO6300000

Material is extremely destructive to tissue of the mucous membranes and upper respiratory tract, eyes, and skin., spasm, inflammation and edema of the larynx, spasm, inflammation and edema of the bronchi, pneumonitis, pulmonary edema, burning sensation, Cough, wheezing, laryngitis, Shortness of breath, Headache, Nausea, Vomiting, Central nervous system depression, Diarrhoea, Gastrointestinal disturbance

Stomach - Irregularities - Based on Human Evidence

Stomach - Irregularities - Based on Human Evidence

12. ECOLOGICAL INFORMATION

12.1 Toxicity

Toxicity to fish	LC50 - Leuciscus idus (Golden orfe) - 10.00 mg/l - 96 h
Toxicity to daphnia and other aquatic invertebrates	Immobilization EC50 - Daphnia magna (Water flea) - 15.8 mg/l - 48 h
Toxicity to algae	EC50 - SELENASTRUM - 100.00 mg/l - 72 h

12.2 Persistence and degradability
No data available

12.3 Bioaccumulative potential
No data available

12.4 Mobility in soil
No data available

12.5 Results of PBT and vPvB assessment
PBT/vPvB assessment not available as chemical safety assessment not required/not conducted

12.6 Other adverse effects
An environmental hazard cannot be excluded in the event of unprofessional handling or disposal.
Toxic to aquatic life with long lasting effects.

No data available

13. DISPOSAL CONSIDERATIONS

13.1 Waste treatment methods

Product
Offer surplus and non-recyclable solutions to a licensed disposal company. Contact a licensed professional waste disposal service to dispose of this material. Dissolve or mix the material with a combustible solvent and burn in a chemical incinerator equipped with an afterburner and scrubber.

Contaminated packaging
Dispose of as unused product.

14. TRANSPORT INFORMATION

DOT (US)
UN number: 3455 Class: 6.1 (8) Packing group: II
Proper shipping name: Cresols, solid
Reportable Quantity (RQ): 100 lbs

Poison Inhalation Hazard: No

IMDG
UN number: 3455 Class: 6.1 (8) Packing group: II EMS-No: F-A, S-B
Proper shipping name: CRESOLS, SOLID

IATA
UN number: 3455 Class: 6.1 (8) Packing group: II
Proper shipping name: Cresols, solid

15. REGULATORY INFORMATION

SARA 302 Components
The following components are subject to reporting levels established by SARA Title III, Section 302:

	CAS-No.	Revision Date
o-Cresol	95-48-7	2007-07-01

SARA 313 Components
The following components are subject to reporting levels established by SARA Title III, Section 313:

	CAS-No.	Revision Date
o-Cresol	95-48-7	2007-07-01

Massachusetts Right To Know Components

	CAS-No.	Revision Date
o-Cresol	95-48-7	2007-07-01

Pennsylvania Right To Know Components

	CAS-No.	Revision Date
o-Cresol	95-48-7	2007-07-01

New Jersey Right To Know Components

	CAS-No.	Revision Date
o-Cresol	95-48-7	2007-07-01

California Prop. 65 Components
This product does not contain any chemicals known to State of California to cause cancer, birth defects, or any other reproductive harm.

16. OTHER INFORMATION

Full text of H-Statements referred to under sections 2 and 3.

Acute Tox.	Acute toxicity
Aquatic Acute	Acute aquatic toxicity
Aquatic Chronic	Chronic aquatic toxicity
Eye Dam.	Serious eye damage
H301	Toxic if swallowed.
H301 + H311	Toxic if swallowed or in contact with skin
H311	Toxic in contact with skin.
H314	Causes severe skin burns and eye damage.
H318	Causes serious eye damage.

HMIS Rating

Health hazard:	3
Chronic Health Hazard:	*
Flammability:	0
Physical Hazard	0

NFPA Rating

Health hazard:	3
Fire Hazard:	2
Reactivity Hazard:	0

Further information
Copyright 2015 Sigma-Aldrich Co. LLC. License granted to make unlimited paper copies for internal use only.
The above information is believed to be correct but does not purport to be all inclusive and shall be used only as a guide. The information in this document is based on the present state of our knowledge and is applicable to the product with regard to appropriate safety precautions. It does not represent any guarantee of the properties of the product. Sigma-Aldrich Corporation and its Affiliates shall not be held liable for any damage resulting from handling or from contact with the above product. See www.sigma-aldrich.com and/or the reverse side of invoice or packing slip for additional terms and conditions of sale.

Preparation Information
Sigma-Aldrich Corporation
Product Safety – Americas Region
1-800-521-8956

Version: 4.7 Revision Date: 05/27/2015 Print Date: 04/01/2016

SAFETY DATA SHEET

Version 5.5
Revision Date 06/02/2016
Print Date 06/21/2016

1. PRODUCT AND COMPANY IDENTIFICATION

1.1 Product identifiers

Product name : *o*-Xylene

Product Number : 95660
Brand : Sigma-Aldrich
Index-No. : 601-022-00-9

CAS-No. : 95-47-6

1.2 Relevant identified uses of the substance or mixture and uses advised against

Identified uses : Laboratory chemicals, Synthesis of substances

1.3 Details of the supplier of the safety data sheet

Company : Sigma-Aldrich
3050 Spruce Street
SAINT LOUIS MO 63103
USA

Telephone : +1 800-325-5832
Fax : +1 800-325-5052

1.4 Emergency telephone number

Emergency Phone # : (314) 776-6555

2. HAZARDS IDENTIFICATION

2.1 Classification of the substance or mixture

GHS Classification in accordance with 29 CFR 1910 (OSHA HCS)
Flammable liquids (Category 3), H226
Acute toxicity, Inhalation (Category 4), H332
Acute toxicity, Dermal (Category 4), H312
Skin irritation (Category 2), H315
Eye irritation (Category 2A), H319
Specific target organ toxicity - single exposure (Category 3), Respiratory system, H335
Aspiration hazard (Category 1), H304
Acute aquatic toxicity (Category 3), H402
Chronic aquatic toxicity (Category 3), H412

For the full text of the H-Statements mentioned in this Section, see Section 16.

2.2 GHS Label elements, including precautionary statements

Pictogram



Signal word Danger

Hazard statement(s)

H226	Flammable liquid and vapour.
H304	May be fatal if swallowed and enters airways.
H312 + H332	Harmful in contact with skin or if inhaled
H315	Causes skin irritation.
H319	Causes serious eye irritation.

H335	May cause respiratory irritation.
H412	Harmful to aquatic life with long lasting effects.

Precautionary statement(s)

P210	Keep away from heat/sparks/open flames/hot surfaces. No smoking.
P233	Keep container tightly closed.
P240	Ground/bond container and receiving equipment.
P241	Use explosion-proof electrical/ ventilating/ lighting/ equipment.
P242	Use only non-sparking tools.
P243	Take precautionary measures against static discharge.
P261	Avoid breathing dust/ fume/ gas/ mist/ vapours/ spray.
P264	Wash skin thoroughly after handling.
P271	Use only outdoors or in a well-ventilated area.
P273	Avoid release to the environment.
P280	Wear protective gloves/ protective clothing/ eye protection/ face protection.
P301 + P310	IF SWALLOWED: Immediately call a POISON CENTER/doctor.
P303 + P361 + P353	IF ON SKIN (or hair): Take off immediately all contaminated clothing. Rinse skin with water/shower.
P304 + P340 + P312	IF INHALED: Remove person to fresh air and keep comfortable for breathing. Call a POISON CENTER/doctor if you feel unwell.
P305 + P351 + P338	IF IN EYES: Rinse cautiously with water for several minutes. Remove contact lenses, if present and easy to do. Continue rinsing.
P331	Do NOT induce vomiting.
P332 + P313	If skin irritation occurs: Get medical advice/ attention.
P337 + P313	If eye irritation persists: Get medical advice/ attention.
P362	Take off contaminated clothing and wash before reuse.
P370 + P378	In case of fire: Use dry sand, dry chemical or alcohol-resistant foam to extinguish.
P403 + P233	Store in a well-ventilated place. Keep container tightly closed.
P403 + P235	Store in a well-ventilated place. Keep cool.
P405	Store locked up.
P501	Dispose of contents/ container to an approved waste disposal plant.

2.3 Hazards not otherwise classified (HNOC) or not covered by GHS - none

3. COMPOSITION/INFORMATION ON INGREDIENTS

3.1 Substances

Synonyms	:	1,2-Dimethylbenzene
Formula	:	C_8H_{10}
Molecular weight	:	106.17 g/mol
CAS-No.	:	95-47-6
EC-No.	:	202-422-2
Index-No.	:	601-022-00-9

Hazardous components

Component	Classification	Concentration
o-Xylene		
	Flam. Liq. 3; Acute Tox. 4; Skin Irrit. 2; Eye Irrit. 2A; STOT SE 3; Asp. Tox. 1; Aquatic Acute 3; Aquatic Chronic 3; H226, H304, H312 + H332, H315, H319, H335, H412	<= 100 %

For the full text of the H-Statements mentioned in this Section, see Section 16.

4. FIRST AID MEASURES

4.1 Description of first aid measures

General advice
Consult a physician. Show this safety data sheet to the doctor in attendance.Move out of dangerous area.

If inhaled
If breathed in, move person into fresh air. If not breathing, give artificial respiration. Consult a physician.

In case of skin contact
Wash off with soap and plenty of water. Consult a physician.

In case of eye contact
Rinse thoroughly with plenty of water for at least 15 minutes and consult a physician.

If swallowed
Do NOT induce vomiting. Never give anything by mouth to an unconscious person. Rinse mouth with water. Consult a physician.

4.2 Most important symptoms and effects, both acute and delayed
The most important known symptoms and effects are described in the labelling (see section 2.2) and/or in section 11

4.3 Indication of any immediate medical attention and special treatment needed
No data available

5. FIREFIGHTING MEASURES

5.1 Extinguishing media

Suitable extinguishing media
Use water spray, alcohol-resistant foam, dry chemical or carbon dioxide.

5.2 Special hazards arising from the substance or mixture
No data available

5.3 Advice for firefighters
Wear self-contained breathing apparatus for firefighting if necessary.

5.4 Further information
Use water spray to cool unopened containers.

6. ACCIDENTAL RELEASE MEASURES

6.1 Personal precautions, protective equipment and emergency procedures
Use personal protective equipment. Avoid breathing vapours, mist or gas. Ensure adequate ventilation. Remove all sources of ignition. Evacuate personnel to safe areas. Beware of vapours accumulating to form explosive concentrations. Vapours can accumulate in low areas.
For personal protection see section 8.

6.2 Environmental precautions
Prevent further leakage or spillage if safe to do so. Do not let product enter drains. Discharge into the environment must be avoided.

6.3 Methods and materials for containment and cleaning up
Contain spillage, and then collect with an electrically protected vacuum cleaner or by wet-brushing and place in container for disposal according to local regulations (see section 13).

6.4 Reference to other sections
For disposal see section 13.

7. HANDLING AND STORAGE

7.1 Precautions for safe handling
Avoid contact with skin and eyes. Avoid inhalation of vapour or mist.
Keep away from sources of ignition - No smoking.Take measures to prevent the build up of electrostatic charge.
For precautions see section 2.2.

7.2 Conditions for safe storage, including any incompatibilities

Keep container tightly closed in a dry and well-ventilated place. Containers which are opened must be carefully resealed and kept upright to prevent leakage.
Storage class (TRGS 510): Flammable liquids

7.3 Specific end use(s)

Apart from the uses mentioned in section 1.2 no other specific uses are stipulated

8. EXPOSURE CONTROLS/PERSONAL PROTECTION

8.1 Control parameters

Components with workplace control parameters

Component	CAS-No.	Value	Control parameters	Basis
o-Xylene	95-47-6	TWA	100.000000 ppm	USA. ACGIH Threshold Limit Values (TLV)
	Remarks	Eye & Upper Respiratory Tract irritation Central Nervous System impairment Substances for which there is a Biological Exposure Index or Indices (see BEI® section) Not classifiable as a human carcinogen		
		STEL	150.000000 ppm	USA. ACGIH Threshold Limit Values (TLV)
		Eye & Upper Respiratory Tract irritation Central Nervous System impairment Substances for which there is a Biological Exposure Index or Indices (see BEI® section) Not classifiable as a human carcinogen		
		TWA	100.000000 ppm 435.000000 mg/m3	USA. Occupational Exposure Limits (OSHA) - Table Z-1 Limits for Air Contaminants
		TWA	100.000000 ppm 435.000000 mg/m3	USA. NIOSH Recommended Exposure Limits
		ST	150.000000 ppm 655.000000 mg/m3	USA. NIOSH Recommended Exposure Limits
		TWA	100.000000 ppm 435.000000 mg/m3	USA. Occupational Exposure Limits (OSHA) - Table Z-1 Limits for Air Contaminants
		The value in mg/m3 is approximate.		
		TWA	100.000000 ppm	USA. ACGIH Threshold Limit Values (TLV)
		Central Nervous System impairment Upper Respiratory Tract irritation Eye irritation Substances for which there is a Biological Exposure Index or Indices (see BEI® section) Not classifiable as a human carcinogen		
		STEL	150.000000 ppm	USA. ACGIH Threshold Limit Values (TLV)
		Central Nervous System impairment		

		Upper Respiratory Tract irritation Eye irritation Substances for which there is a Biological Exposure Index or Indices (see BEI® section) Not classifiable as a human carcinogen		
		TWA	100 ppm	USA. ACGIH Threshold Limit Values (TLV)
		Central Nervous System impairment Upper Respiratory Tract irritation Eye irritation Substances for which there is a Biological Exposure Index or Indices (see BEI® section) Not classifiable as a human carcinogen		
		STEL	150 ppm	USA. ACGIH Threshold Limit Values (TLV)
		Central Nervous System impairment Upper Respiratory Tract irritation Eye irritation Substances for which there is a Biological Exposure Index or Indices (see BEI® section) Not classifiable as a human carcinogen		
		TWA	100 ppm 435 mg/m3	USA. Occupational Exposure Limits (OSHA) - Table Z-1 Limits for Air Contaminants
		The value in mg/m3 is approximate.		

Biological occupational exposure limits

Component	CAS-No.	Parameters	Value	Biological specimen	Basis
o-Xylene	95-47-6	Methylhippuric acids	1,500.0000 mg/g	Urine	ACGIH - Biological Exposure Indices (BEI)
	Remarks	End of shift (As soon as possible after exposure ceases)			
		Methylhippuric acids	1.5g/g creatinine	Urine	ACGIH - Biological Exposure Indices (BEI)
		End of shift (As soon as possible after exposure ceases)			

8.2 Exposure controls

Appropriate engineering controls
Handle in accordance with good industrial hygiene and safety practice. Wash hands before breaks and at the end of workday.

Personal protective equipment

Eye/face protection
Face shield and safety glasses Use equipment for eye protection tested and approved under appropriate government standards such as NIOSH (US) or EN 166(EU).

Skin protection
Handle with gloves. Gloves must be inspected prior to use. Use proper glove removal technique (without touching glove's outer surface) to avoid skin contact with this product. Dispose of contaminated gloves after use in accordance with applicable laws and good laboratory practices. Wash and dry hands.

Full contact
Material: Fluorinated rubber
Minimum layer thickness: 0.7 mm
Break through time: 480 min
Material tested:Vitoject® (KCL 890 / Aldrich Z677698, Size M)

Splash contact
Material: Nitrile rubber

Minimum layer thickness: 0.4 mm
Break through time: 30 min
Material tested:Camatril® (KCL 730 / Aldrich Z677442, Size M)

data source: KCL GmbH, D-36124 Eichenzell, phone +49 (0)6659 87300, e-mail sales@kcl.de, test method: EN374
If used in solution, or mixed with other substances, and under conditions which differ from EN 374, contact the supplier of the CE approved gloves. This recommendation is advisory only and must be evaluated by an industrial hygienist and safety officer familiar with the specific situation of anticipated use by our customers. It should not be construed as offering an approval for any specific use scenario.

Body Protection
Complete suit protecting against chemicals, Flame retardant antistatic protective clothing., The type of protective equipment must be selected according to the concentration and amount of the dangerous substance at the specific workplace.

Respiratory protection
Where risk assessment shows air-purifying respirators are appropriate use a full-face respirator with multi-purpose combination (US) or type ABEK (EN 14387) respirator cartridges as a backup to engineering controls. If the respirator is the sole means of protection, use a full-face supplied air respirator. Use respirators and components tested and approved under appropriate government standards such as NIOSH (US) or CEN (EU).

Control of environmental exposure
Prevent further leakage or spillage if safe to do so. Do not let product enter drains. Discharge into the environment must be avoided.

9. PHYSICAL AND CHEMICAL PROPERTIES

9.1 Information on basic physical and chemical properties

a)	Appearance	Form: liquid Colour: colourless
b)	Odour	No data available
c)	Odour Threshold	No data available
d)	pH	No data available
e)	Melting point/freezing point	Melting point/range: -26 - -23 °C (-15 - -9 °F) - lit.
f)	Initial boiling point and boiling range	143 - 145 °C (289 - 293 °F) - lit.
g)	Flash point	31.0 °C (87.8 °F) - closed cup
h)	Evaporation rate	No data available
i)	Flammability (solid, gas)	No data available
j)	Upper/lower flammability or explosive limits	Upper explosion limit: 6.7 %(V) Lower explosion limit: 0.9 %(V)
k)	Vapour pressure	21.3 hPa (16.0 mmHg) at 37.7 °C (99.9 °F)
l)	Vapour density	No data available
m)	Relative density	0.879 g/mL at 20 °C (68 °F)
n)	Water solubility	0.1705 g/l at 25 °C (77 °F) - partly soluble
o)	Partition coefficient: n-octanol/water	log Pow: 3.12 at 20 °C (68 °F)
p)	Auto-ignition temperature	464.0 °C (867.2 °F)
q)	Decomposition temperature	No data available
r)	Viscosity	No data available

s) Explosive properties No data available

t) Oxidizing properties No data available

9.2 Other safety information

Surface tension 29.8 mN/m at 25.0 °C (77.0 °F)

10. STABILITY AND REACTIVITY

10.1 Reactivity
No data available

10.2 Chemical stability
Stable under recommended storage conditions.

10.3 Possibility of hazardous reactions
Vapours may form explosive mixture with air.

10.4 Conditions to avoid
Heat, flames and sparks.

10.5 Incompatible materials
Oxidizing agents

10.6 Hazardous decomposition products
Hazardous decomposition products formed under fire conditions. - Carbon oxides
Other decomposition products - No data available
In the event of fire: see section 5

11. TOXICOLOGICAL INFORMATION

11.1 Information on toxicological effects

Acute toxicity
No data available

LC50 Inhalation - Rat - male - 6 h - 18,800 mg/m3

Dermal: No data available

LD50 Intraperitoneal - Mouse - 1,364 mg/kg

Skin corrosion/irritation
Skin - Rabbit
Result: Irritating to skin. - 24 h

Serious eye damage/eye irritation
No data available

Respiratory or skin sensitisation
- Mouse
Result: Does not cause skin sensitisation.
(OECD Test Guideline 429)

Germ cell mutagenicity
Ames test
Salmonella typhimurium
Result: negative

Carcinogenicity

This product is or contains a component that is not classifiable as to its carcinogenicity based on its IARC, ACGIH, NTP, or EPA classification.

IARC: 3 - Group 3: Not classifiable as to its carcinogenicity to humans (o-Xylene)

IARC: No component of this product present at levels greater than or equal to 0.1% is identified as probable, possible or confirmed human carcinogen by IARC.

NTP: No component of this product present at levels greater than or equal to 0.1% is identified as a known or anticipated carcinogen by NTP.

No component of this product present at levels greater than or equal to 0.1% is identified as a known or anticipated carcinogen by NTP.

OSHA: No component of this product present at levels greater than or equal to 0.1% is identified as a carcinogen or potential carcinogen by OSHA.

No component of this product present at levels greater than or equal to 0.1% is identified as a carcinogen or potential carcinogen by OSHA.

Reproductive toxicity
No data available

No data available

Specific target organ toxicity - single exposure
No data available

Specific target organ toxicity - repeated exposure
No data available

Aspiration hazard
May be fatal if swallowed and enters airways.

Additional Information
RTECS: ZE2450000

narcosis, Lung irritation, chest pain, pulmonary edema, Central nervous system depression, Dermatitis, Gastrointestinal disturbance, Liver injury may occur., Kidney injury may occur., Blood disorders

Nerves. -

12. ECOLOGICAL INFORMATION

12.1 Toxicity

Toxicity to fish	LC50 - Lepomis macrochirus (Bluegill) - 16.10 mg/l - 96 h

12.2 Persistence and degradability

Biodegradability	aerobic - Exposure time 28 d Result: 69.67 % - Not readily biodegradable. (OECD Test Guideline 301F) Remarks: The 10 day time window criterion is not fulfilled.

12.3 Bioaccumulative potential
No data available

12.4 Mobility in soil
No data available

12.5 Results of PBT and vPvB assessment
PBT/vPvB assessment not available as chemical safety assessment not required/not conducted

12.6 Other adverse effects
An environmental hazard cannot be excluded in the event of unprofessional handling or disposal.
Harmful to aquatic life with long lasting effects.

13. DISPOSAL CONSIDERATIONS

13.1 Waste treatment methods

Product
Contact a licensed professional waste disposal service to dispose of this material. Burn in a chemical incinerator equipped with an afterburner and scrubber but exert extra care in igniting as this material is highly flammable. Offer surplus and non-recyclable solutions to a licensed disposal company.

Contaminated packaging
Dispose of as unused product.

14. TRANSPORT INFORMATION

DOT (US)
UN number: 1307 Class: 3 Packing group: III
Proper shipping name: Xylenes
Reportable Quantity (RQ): 100 lbs

Poison Inhalation Hazard: No

IMDG
UN number: 1307 Class: 3 Packing group: III EMS-No: F-E, S-D
Proper shipping name: XYLENES

IATA
UN number: 1307 Class: 3 Packing group: III
Proper shipping name: Xylenes

15. REGULATORY INFORMATION

SARA 302 Components
No chemicals in this material are subject to the reporting requirements of SARA Title III, Section 302.

SARA 313 Components
The following components are subject to reporting levels established by SARA Title III, Section 313:

	CAS-No.	Revision Date
o-Xylene	95-47-6	2007-07-01

SARA 311/312 Hazards
Fire Hazard, Acute Health Hazard

Massachusetts Right To Know Components

	CAS-No.	Revision Date
o-Xylene	95-47-6	2007-07-01

Pennsylvania Right To Know Components

	CAS-No.	Revision Date
o-Xylene	95-47-6	2007-07-01

New Jersey Right To Know Components

	CAS-No.	Revision Date
o-Xylene	95-47-6	2007-07-01

California Prop. 65 Components

This product does not contain any chemicals known to State of California to cause cancer, birth defects, or any other reproductive harm.
This product does not contain any chemicals known to State of California to cause cancer, birth defects, or any other reproductive harm.

16. OTHER INFORMATION

Full text of H-Statements referred to under sections 2 and 3.

Acute Tox.	Acute toxicity
Aquatic Acute	Acute aquatic toxicity
Aquatic Chronic	Chronic aquatic toxicity
Asp. Tox.	Aspiration hazard
Eye Irrit.	Eye irritation
Flam. Liq.	Flammable liquids
H226	Flammable liquid and vapour.
H304	May be fatal if swallowed and enters airways.
H312	Harmful in contact with skin.

H312 + H332	Harmful in contact with skin or if inhaled
H315	Causes skin irritation.
H319	Causes serious eye irritation.

HMIS Rating

Health hazard:	2
Chronic Health Hazard:	
Flammability:	3
Physical Hazard	0

NFPA Rating

Health hazard:	2
Fire Hazard:	3
Reactivity Hazard:	0

Further information

Copyright 2016 Sigma-Aldrich Co. LLC. License granted to make unlimited paper copies for internal use only.
The above information is believed to be correct but does not purport to be all inclusive and shall be used only as a guide. The information in this document is based on the present state of our knowledge and is applicable to the product with regard to appropriate safety precautions. It does not represent any guarantee of the properties of the product. Sigma-Aldrich Corporation and its Affiliates shall not be held liable for any damage resulting from handling or from contact with the above product. See www.sigma-aldrich.com and/or the reverse side of invoice or packing slip for additional terms and conditions of sale.

Preparation Information

Sigma-Aldrich Corporation
Product Safety – Americas Region
1-800-521-8956

Version: 5.5 Revision Date: 06/02/2016 Print Date: 06/21/2016

SAFETY DATA SHEET

Version 4.10
Revision Date 11/12/2015
Print Date 02/07/2016

1. PRODUCT AND COMPANY IDENTIFICATION

1.1 Product identifiers

Product name : *p*-Cresol

Product Number : W233706
Brand : Aldrich
Index-No. : 604-004-00-9

CAS-No. : 106-44-5

1.2 Relevant identified uses of the substance or mixture and uses advised against

Identified uses : Laboratory chemicals, Synthesis of substances

1.3 Details of the supplier of the safety data sheet

Company : Sigma-Aldrich
3050 Spruce Street
SAINT LOUIS MO 63103
USA

Telephone : +1 800-325-5832
Fax : +1 800-325-5052

1.4 Emergency telephone number

Emergency Phone # : (314) 776-6555

2. HAZARDS IDENTIFICATION

2.1 Classification of the substance or mixture

GHS Classification in accordance with 29 CFR 1910 (OSHA HCS)
Acute toxicity, Oral (Category 3), H301
Acute toxicity, Dermal (Category 3), H311
Skin corrosion (Category 1B), H314
Serious eye damage (Category 1), H318
Acute aquatic toxicity (Category 2), H401
Chronic aquatic toxicity (Category 2), H411

For the full text of the H-Statements mentioned in this Section, see Section 16.

2.2 GHS Label elements, including precautionary statements

Pictogram



Signal word Danger

Hazard statement(s)
H301 + H311 Toxic if swallowed or in contact with skin
H314 Causes severe skin burns and eye damage.
H411 Toxic to aquatic life with long lasting effects.

Precautionary statement(s)
P260 Do not breathe dust or mist.
P264 Wash skin thoroughly after handling.
P270 Do not eat, drink or smoke when using this product.

P273	Avoid release to the environment.
P280	Wear protective gloves/ protective clothing/ eye protection/ face protection.
P301 + P310	IF SWALLOWED: Immediately call a POISON CENTER or doctor/ physician.
P301 + P330 + P331	IF SWALLOWED: Rinse mouth. Do NOT induce vomiting.
P303 + P361 + P353	IF ON SKIN (or hair): Remove/ Take off immediately all contaminated clothing. Rinse skin with water/ shower.
P304 + P340	IF INHALED: Remove victim to fresh air and keep at rest in a position comfortable for breathing.
P305 + P351 + P338	IF IN EYES: Rinse cautiously with water for several minutes. Remove contact lenses, if present and easy to do. Continue rinsing.
P310	Immediately call a POISON CENTER or doctor/ physician.
P322	Specific measures (see supplemental first aid instructions on this label).
P361	Remove/Take off immediately all contaminated clothing.
P363	Wash contaminated clothing before reuse.
P391	Collect spillage.
P405	Store locked up.
P501	Dispose of contents/ container to an approved waste disposal plant.

2.3 Hazards not otherwise classified (HNOC) or not covered by GHS - none

3. COMPOSITION/INFORMATION ON INGREDIENTS

3.1 Substances

Synonyms : 4-Methylphenol

Formula : C_7H_8O

Molecular weight : 108.14 g/mol

CAS-No. : 106-44-5

EC-No. : 203-398-6

Index-No. : 604-004-00-9

Hazardous components

Component	Classification	Concentration
p-Cresol		
	Acute Tox. 3; Skin Corr. 1B; Eye Dam. 1; Aquatic Acute 2; Aquatic Chronic 2; H301 + H311, H314, H411	<= 100 %

For the full text of the H-Statements mentioned in this Section, see Section 16.

4. FIRST AID MEASURES

4.1 Description of first aid measures

General advice
Consult a physician. Show this safety data sheet to the doctor in attendance.Move out of dangerous area.

If inhaled
If breathed in, move person into fresh air. If not breathing, give artificial respiration. Consult a physician.

In case of skin contact
Wash off with soap and plenty of water. Take victim immediately to hospital. Consult a physician.

In case of eye contact
Flush eyes with water as a precaution.

If swallowed
Never give anything by mouth to an unconscious person. Rinse mouth with water. Consult a physician.

4.2 Most important symptoms and effects, both acute and delayed
The most important known symptoms and effects are described in the labelling (see section 2.2) and/or in section 11

4.3 Indication of any immediate medical attention and special treatment needed
No data available

5. FIREFIGHTING MEASURES

5.1 Extinguishing media

Suitable extinguishing media
Use water spray, alcohol-resistant foam, dry chemical or carbon dioxide.

5.2 Special hazards arising from the substance or mixture
Carbon oxides

5.3 Advice for firefighters
Wear self-contained breathing apparatus for firefighting if necessary.

5.4 Further information
No data available

6. ACCIDENTAL RELEASE MEASURES

6.1 Personal precautions, protective equipment and emergency procedures
Wear respiratory protection. Avoid dust formation. Avoid breathing vapours, mist or gas. Ensure adequate ventilation. Evacuate personnel to safe areas. Avoid breathing dust.
For personal protection see section 8.

6.2 Environmental precautions
Prevent further leakage or spillage if safe to do so. Do not let product enter drains. Discharge into the environment must be avoided.

6.3 Methods and materials for containment and cleaning up
Pick up and arrange disposal without creating dust. Sweep up and shovel. Keep in suitable, closed containers for disposal.

6.4 Reference to other sections
For disposal see section 13.

7. HANDLING AND STORAGE

7.1 Precautions for safe handling
Avoid contact with skin and eyes. Avoid formation of dust and aerosols.
Provide appropriate exhaust ventilation at places where dust is formed.
For precautions see section 2.2.

7.2 Conditions for safe storage, including any incompatibilities
Keep container tightly closed in a dry and well-ventilated place.

hygroscopic Air and light sensitive. Handle and store under inert gas.

7.3 Specific end use(s)
Apart from the uses mentioned in section 1.2 no other specific uses are stipulated

8. EXPOSURE CONTROLS/PERSONAL PROTECTION

8.1 Control parameters

Components with workplace control parameters

Component	CAS-No.	Value	Control parameters	Basis
p-Cresol	106-44-5	TWA	2.3 ppm 10 mg/m3	USA. NIOSH Recommended Exposure Limits
		TWA	5 ppm 22 mg/m3	USA. Occupational Exposure Limits (OSHA) - Table Z-1 Limits for Air Contaminants
	Remarks	Skin designation The value in mg/m3 is approximate.		

		TWA	20 mg/m3	USA. ACGIH Threshold Limit Values (TLV)
		Upper Respiratory Tract irritation Not classifiable as a human carcinogen Danger of cutaneous absorption		

8.2 Exposure controls

Appropriate engineering controls
Avoid contact with skin, eyes and clothing. Wash hands before breaks and immediately after handling the product.

Personal protective equipment

Eye/face protection
Face shield and safety glasses Use equipment for eye protection tested and approved under appropriate government standards such as NIOSH (US) or EN 166(EU).

Skin protection
Handle with gloves. Gloves must be inspected prior to use. Use proper glove removal technique (without touching glove's outer surface) to avoid skin contact with this product. Dispose of contaminated gloves after use in accordance with applicable laws and good laboratory practices. Wash and dry hands.

Full contact
Material: Nitrile rubber
Minimum layer thickness: 0.4 mm
Break through time: 480 min
Material tested:Camatril® (KCL 730 / Aldrich Z677442, Size M)

Splash contact
Material: Nitrile rubber
Minimum layer thickness: 0.2 mm
Break through time: 30 min
Material tested:Dermatril® P (KCL 743 / Aldrich Z677388, Size M)

data source: KCL GmbH, D-36124 Eichenzell, phone +49 (0)6659 87300, e-mail sales@kcl.de, test method: EN374
If used in solution, or mixed with other substances, and under conditions which differ from EN 374, contact the supplier of the CE approved gloves. This recommendation is advisory only and must be evaluated by an industrial hygienist and safety officer familiar with the specific situation of anticipated use by our customers. It should not be construed as offering an approval for any specific use scenario.

Body Protection
Complete suit protecting against chemicals, The type of protective equipment must be selected according to the concentration and amount of the dangerous substance at the specific workplace.

Respiratory protection
Where risk assessment shows air-purifying respirators are appropriate use a full-face particle respirator type N100 (US) or type P3 (EN 143) respirator cartridges as a backup to engineering controls. If the respirator is the sole means of protection, use a full-face supplied air respirator. Use respirators and components tested and approved under appropriate government standards such as NIOSH (US) or CEN (EU).

Control of environmental exposure
Prevent further leakage or spillage if safe to do so. Do not let product enter drains. Discharge into the environment must be avoided.

9. PHYSICAL AND CHEMICAL PROPERTIES

9.1 Information on basic physical and chemical properties

a)	Appearance	Form: crystalline Colour: colourless
b)	Odour	No data available
c)	Odour Threshold	No data available
d)	pH	No data available
e)	Melting point/freezing	Melting point/range: 31 - 37 °C (88 - 99 °F)

	point	Melting point/range: 32 - 34 °C (90 - 93 °F) - lit.
f)	Initial boiling point and boiling range	202 °C (396 °F) - lit.
g)	Flash point	85.0 °C (185.0 °F) - closed cup
h)	Evaporation rate	No data available
i)	Flammability (solid, gas)	No data available
j)	Upper/lower flammability or explosive limits	Lower explosion limit: 1.1 %(V)
k)	Vapour pressure	1.3 hPa (1.0 mmHg) at 20.0 °C (68.0 °F)
l)	Vapour density	No data available
m)	Relative density	1.034 g/cm3 at 25 °C (77 °F)
n)	Water solubility	No data available
o)	Partition coefficient: n-octanol/water	log Pow: 1.94
p)	Auto-ignition temperature	559.0 °C (1,038.2 °F)
q)	Decomposition temperature	No data available
r)	Viscosity	No data available
s)	Explosive properties	No data available
t)	Oxidizing properties	No data available

9.2 Other safety information
No data available

10. STABILITY AND REACTIVITY

10.1 Reactivity
No data available

10.2 Chemical stability
Stable under recommended storage conditions.

10.3 Possibility of hazardous reactions
No data available

10.4 Conditions to avoid
No data available

10.5 Incompatible materials
Oxidizing agents, Bases

10.6 Hazardous decomposition products
Other decomposition products - No data available
In the event of fire: see section 5

11. TOXICOLOGICAL INFORMATION

11.1 Information on toxicological effects

Acute toxicity
LD50 Oral - Rat - 207.0 mg/kg
Remarks: Sense Organs and Special Senses (Nose, Eye, Ear, and Taste):Olfaction:Other changes. Behavioral:Convulsions or effect on seizure threshold. Gastrointestinal:Ulceration or bleeding from stomach.

LC50 Inhalation - Rat - 1 h - > 710 mg/m3

LD50 Dermal - Rabbit - 301.0 mg/kg
Remarks: Behavioral:Tremor. Gastrointestinal:Changes in structure or function of salivary glands. Kidney, Ureter, Bladder:Other changes.

No data available

Skin corrosion/irritation
Skin - Rabbit
Result: Severe skin irritation - 24 h

Serious eye damage/eye irritation
Eyes - Rabbit
Result: Severe eye irritation

Respiratory or skin sensitisation
No data available

Germ cell mutagenicity
No data available

Carcinogenicity

IARC: No component of this product present at levels greater than or equal to 0.1% is identified as probable, possible or confirmed human carcinogen by IARC.

NTP: No component of this product present at levels greater than or equal to 0.1% is identified as a known or anticipated carcinogen by NTP.

OSHA: No component of this product present at levels greater than or equal to 0.1% is identified as a carcinogen or potential carcinogen by OSHA.

Reproductive toxicity
No data available

No data available

Specific target organ toxicity - single exposure
No data available

Specific target organ toxicity - repeated exposure
No data available

Aspiration hazard
No data available

Additional Information
RTECS: GO6475000

Material is extremely destructive to tissue of the mucous membranes and upper respiratory tract, eyes, and skin., spasm, inflammation and edema of the larynx, spasm, inflammation and edema of the bronchi, pneumonitis, pulmonary edema, laryngitis, Dizziness, Cardiovascular effects., Muscle cramps/spasms., Symptoms of exposure may include burning sensation, coughing, wheezing, laryngitis, shortness of breath, headache, nausea, and vomiting.

Kidney -

12. ECOLOGICAL INFORMATION

12.1 Toxicity

Toxicity to fish	LC50 - other fish - 16.00 - 24.00 mg/l - 24 h
	LC50 - Oncorhynchus mykiss (rainbow trout) - 7.9 mg/l - 96 h
Toxicity to daphnia and other aquatic invertebrates	LC50 - Daphnia magna (Water flea) - 1.4 mg/l - 48 h

12.2 Persistence and degradability
No data available

12.3 Bioaccumulative potential
Does not bioaccumulate.

12.4 Mobility in soil
No data available

12.5 Results of PBT and vPvB assessment
PBT/vPvB assessment not available as chemical safety assessment not required/not conducted

12.6 Other adverse effects
An environmental hazard cannot be excluded in the event of unprofessional handling or disposal.
Toxic to aquatic life.

No data available

13. DISPOSAL CONSIDERATIONS

13.1 Waste treatment methods

Product
Offer surplus and non-recyclable solutions to a licensed disposal company. Contact a licensed professional waste disposal service to dispose of this material. Dissolve or mix the material with a combustible solvent and burn in a chemical incinerator equipped with an afterburner and scrubber.

Contaminated packaging
Dispose of as unused product.

14. TRANSPORT INFORMATION

DOT (US)
UN number: 3455 Class: 6.1 (8) Packing group: II
Proper shipping name: Cresols, solid
Reportable Quantity (RQ): 100 lbs

Poison Inhalation Hazard: No

IMDG
UN number: 3455 Class: 6.1 (8) Packing group: II EMS-No: F-A, S-B
Proper shipping name: CRESOLS, SOLID

IATA
UN number: 3455 Class: 6.1 (8) Packing group: II
Proper shipping name: Cresols, solid

15. REGULATORY INFORMATION

SARA 302 Components
No chemicals in this material are subject to the reporting requirements of SARA Title III, Section 302.

SARA 313 Components
The following components are subject to reporting levels established by SARA Title III, Section 313:

	CAS-No.	Revision Date
p-Cresol	106-44-5	2007-07-01

SARA 311/312 Hazards
Acute Health Hazard

Massachusetts Right To Know Components

	CAS-No.	Revision Date
p-Cresol	106-44-5	2007-07-01

Pennsylvania Right To Know Components

	CAS-No.	Revision Date
p-Cresol	106-44-5	2007-07-01

New Jersey Right To Know Components

	CAS-No.	Revision Date
p-Cresol	106-44-5	2007-07-01

California Prop. 65 Components

This product does not contain any chemicals known to State of California to cause cancer, birth defects, or any other reproductive harm.

16. OTHER INFORMATION

Full text of H-Statements referred to under sections 2 and 3.

Acute Tox.	Acute toxicity
Aquatic Acute	Acute aquatic toxicity
Aquatic Chronic	Chronic aquatic toxicity
Eye Dam.	Serious eye damage
H301	Toxic if swallowed.
H301 + H311	Toxic if swallowed or in contact with skin
H311	Toxic in contact with skin.
H314	Causes severe skin burns and eye damage.

HMIS Rating

Health hazard:	3
Chronic Health Hazard:	
Flammability:	0
Physical Hazard	0

NFPA Rating

Health hazard:	3
Fire Hazard:	2
Reactivity Hazard:	0

Further information

Copyright 2015 Sigma-Aldrich Co. LLC. License granted to make unlimited paper copies for internal use only.
The above information is believed to be correct but does not purport to be all inclusive and shall be used only as a guide. The information in this document is based on the present state of our knowledge and is applicable to the product with regard to appropriate safety precautions. It does not represent any guarantee of the properties of the product. Sigma-Aldrich Corporation and its Affiliates shall not be held liable for any damage resulting from handling or from contact with the above product. See www.sigma-aldrich.com and/or the reverse side of invoice or packing slip for additional terms and conditions of sale.

Preparation Information

Sigma-Aldrich Corporation
Product Safety – Americas Region
1-800-521-8956

Version: 4.10 Revision Date: 11/12/2015 Print Date: 02/07/2016

SAFETY DATA SHEET

Version 4.2
Revision Date 07/09/2014
Print Date 04/20/2016

1. PRODUCT AND COMPANY IDENTIFICATION

1.1 Product identifiers

Product name : 1,4-Diethylbenzene

Product Number : D91004
Brand : Aldrich

CAS-No. : 105-05-5

1.2 Relevant identified uses of the substance or mixture and uses advised against

Identified uses : Laboratory chemicals, Manufacture of substances

1.3 Details of the supplier of the safety data sheet

Company : Sigma-Aldrich
3050 Spruce Street
SAINT LOUIS MO 63103
USA

Telephone : +1 800-325-5832
Fax : +1 800-325-5052

1.4 Emergency telephone number

Emergency Phone # : (314) 776-6555

2. HAZARDS IDENTIFICATION

2.1 Classification of the substance or mixture

GHS Classification in accordance with 29 CFR 1910 (OSHA HCS)
Flammable liquids (Category 3), H226
Skin irritation (Category 2), H315
Eye irritation (Category 2A), H319
Specific target organ toxicity - single exposure (Category 3), Respiratory system, H335

For the full text of the H-Statements mentioned in this Section, see Section 16.

2.2 GHS Label elements, including precautionary statements

Pictogram



Signal word Warning

Hazard statement(s)
H226 Flammable liquid and vapour.
H315 Causes skin irritation.
H319 Causes serious eye irritation.
H335 May cause respiratory irritation.

Precautionary statement(s)
P210 Keep away from heat/sparks/open flames/hot surfaces. - No smoking.
P233 Keep container tightly closed.
P240 Ground/bond container and receiving equipment.
P241 Use explosion-proof electrical/ ventilating/ lighting/ equipment.
P242 Use only non-sparking tools.
P243 Take precautionary measures against static discharge.

P261	Avoid breathing dust/ fume/ gas/ mist/ vapours/ spray.
P264	Wash skin thoroughly after handling.
P271	Use only outdoors or in a well-ventilated area.
P280	Wear protective gloves/ protective clothing/ eye protection/ face protection.
P303 + P361 + P353	IF ON SKIN (or hair): Remove/ Take off immediately all contaminated clothing. Rinse skin with water/ shower.
P304 + P340	IF INHALED: Remove victim to fresh air and keep at rest in a position comfortable for breathing.
P305 + P351 + P338	IF IN EYES: Rinse cautiously with water for several minutes. Remove contact lenses, if present and easy to do. Continue rinsing.
P312	Call a POISON CENTER or doctor/ physician if you feel unwell.
P321	Specific treatment (see supplemental first aid instructions on this label).
P332 + P313	If skin irritation occurs: Get medical advice/ attention.
P337 + P313	If eye irritation persists: Get medical advice/ attention.
P362	Take off contaminated clothing and wash before reuse.
P370 + P378	In case of fire: Use dry sand, dry chemical or alcohol-resistant foam for extinction.
P403 + P233	Store in a well-ventilated place. Keep container tightly closed.
P403 + P235	Store in a well-ventilated place. Keep cool.
P405	Store locked up.
P501	Dispose of contents/ container to an approved waste disposal plant.

2.3 Hazards not otherwise classified (HNOC) or not covered by GHS - none

3. COMPOSITION/INFORMATION ON INGREDIENTS

3.1 Substances

Formula	:	$C_{10}H_{14}$
Molecular Weight	:	134.22 g/mol
CAS-No.	:	105-05-5
EC-No.	:	203-265-2

Hazardous components

Component	Classification	Concentration
1,4-Diethylbenzene		
	Flam. Liq. 3; Skin Irrit. 2; Eye Irrit. 2A; STOT SE 3; H226, H315, H319, H335	-

For the full text of the H-Statements mentioned in this Section, see Section 16.

4. FIRST AID MEASURES

4.1 Description of first aid measures

General advice
Consult a physician. Show this safety data sheet to the doctor in attendance.Move out of dangerous area.

If inhaled
If breathed in, move person into fresh air. If not breathing, give artificial respiration. Consult a physician.

In case of skin contact
Wash off with soap and plenty of water. Consult a physician.

In case of eye contact
Rinse thoroughly with plenty of water for at least 15 minutes and consult a physician.

If swallowed
Do NOT induce vomiting. Never give anything by mouth to an unconscious person. Rinse mouth with water. Consult a physician.

4.2 Most important symptoms and effects, both acute and delayed
The most important known symptoms and effects are described in the labelling (see section 2.2) and/or in section 11

4.3 Indication of any immediate medical attention and special treatment needed
no data available

5. FIREFIGHTING MEASURES

5.1 Extinguishing media

Suitable extinguishing media
For small (incipient) fires, use media such as "alcohol" foam, dry chemical, or carbon dioxide. For large fires, apply water from as far as possible. Use very large quantities (flooding) of water applied as a mist or spray; solid streams of water may be ineffective. Cool all affected containers with flooding quantities of water.

5.2 Special hazards arising from the substance or mixture
Carbon oxides

5.3 Advice for firefighters
Wear self contained breathing apparatus for fire fighting if necessary.

5.4 Further information
Use water spray to cool unopened containers.

6. ACCIDENTAL RELEASE MEASURES

6.1 Personal precautions, protective equipment and emergency procedures
Use personal protective equipment. Avoid breathing vapours, mist or gas. Ensure adequate ventilation. Remove all sources of ignition. Evacuate personnel to safe areas. Beware of vapours accumulating to form explosive concentrations. Vapours can accumulate in low areas.
For personal protection see section 8.

6.2 Environmental precautions
Prevent further leakage or spillage if safe to do so. Do not let product enter drains.

6.3 Methods and materials for containment and cleaning up
Contain spillage, and then collect with an electrically protected vacuum cleaner or by wet-brushing and place in container for disposal according to local regulations (see section 13).

6.4 Reference to other sections
For disposal see section 13.

7. HANDLING AND STORAGE

7.1 Precautions for safe handling
Avoid contact with skin and eyes. Avoid inhalation of vapour or mist.
Keep away from sources of ignition - No smoking.Take measures to prevent the build up of electrostatic charge.
For precautions see section 2.2.

7.2 Conditions for safe storage, including any incompatibilities
Store in cool place. Keep container tightly closed in a dry and well-ventilated place. Containers which are opened must be carefully resealed and kept upright to prevent leakage.

7.3 Specific end use(s)
Apart from the uses mentioned in section 1.2 no other specific uses are stipulated

8. EXPOSURE CONTROLS/PERSONAL PROTECTION

8.1 Control parameters

Components with workplace control parameters
Contains no substances with occupational exposure limit values.

8.2 Exposure controls

Appropriate engineering controls
Handle in accordance with good industrial hygiene and safety practice. Wash hands before breaks and at the end of workday.

Personal protective equipment

Eye/face protection
Face shield and safety glasses Use equipment for eye protection tested and approved under appropriate government standards such as NIOSH (US) or EN 166(EU).

Skin protection
Handle with gloves. Gloves must be inspected prior to use. Use proper glove removal technique (without touching glove's outer surface) to avoid skin contact with this product. Dispose of contaminated gloves after use in accordance with applicable laws and good laboratory practices. Wash and dry hands.

Full contact
Material: Fluorinated rubber
Minimum layer thickness: 0.7 mm
Break through time: 480 min
Material tested:Vitoject® (KCL 890 / Aldrich Z677698, Size M)

Splash contact
Material: Nitrile rubber
Minimum layer thickness: 0.4 mm
Break through time: 30 min
Material tested:Camatril® (KCL 730 / Aldrich Z677442, Size M)

data source: KCL GmbH, D-36124 Eichenzell, phone +49 (0)6659 87300, e-mail sales@kcl.de, test method: EN374
If used in solution, or mixed with other substances, and under conditions which differ from EN 374, contact the supplier of the CE approved gloves. This recommendation is advisory only and must be evaluated by an industrial hygienist and safety officer familiar with the specific situation of anticipated use by our customers. It should not be construed as offering an approval for any specific use scenario.

Body Protection
impervious clothing, Flame retardant antistatic protective clothing, The type of protective equipment must be selected according to the concentration and amount of the dangerous substance at the specific workplace.

Respiratory protection
Where risk assessment shows air-purifying respirators are appropriate use a full-face respirator with multi-purpose combination (US) or type ABEK (EN 14387) respirator cartridges as a backup to engineering controls. If the respirator is the sole means of protection, use a full-face supplied air respirator. Use respirators and components tested and approved under appropriate government standards such as NIOSH (US) or CEN (EU).

Control of environmental exposure
Prevent further leakage or spillage if safe to do so. Do not let product enter drains.

9. PHYSICAL AND CHEMICAL PROPERTIES

9.1 Information on basic physical and chemical properties

a)	Appearance	Form: clear, liquid Colour: colourless
b)	Odour	no data available
c)	Odour Threshold	no data available
d)	pH	no data available
e)	Melting point/freezing point	Melting point/range: -43 °C (-45 °F) - lit.
f)	Initial boiling point and boiling range	184 °C (363 °F) - lit.
g)	Flash point	55 °C (131 °F) - closed cup
h)	Evapouration rate	no data available
i)	Flammability (solid, gas)	no data available
j)	Upper/lower flammability or	no data available

	explosive limits	
k)	Vapour pressure	no data available
l)	Vapour density	4.63 - (Air = 1.0)
m)	Relative density	0.862 g/cm3 at 25 °C (77 °F)
n)	Water solubility	no data available
o)	Partition coefficient: n-octanol/water	no data available
p)	Auto-ignition temperature	no data available
q)	Decomposition temperature	no data available
r)	Viscosity	no data available
s)	Explosive properties	no data available
t)	Oxidizing properties	no data available

9.2 Other safety information

Relative vapour density 4.63 - (Air = 1.0)

10. STABILITY AND REACTIVITY

10.1 Reactivity
no data available

10.2 Chemical stability
Stable under recommended storage conditions.

10.3 Possibility of hazardous reactions
no data available

10.4 Conditions to avoid
Heat, flames and sparks.

10.5 Incompatible materials
Strong oxidizing agents

10.6 Hazardous decomposition products
Other decomposition products - no data available
In the event of fire: see section 5

11. TOXICOLOGICAL INFORMATION

11.1 Information on toxicological effects

Acute toxicity
no data available

Dermal: no data available

no data available

Skin corrosion/irritation
no data available

Serious eye damage/eye irritation
no data available

Respiratory or skin sensitisation
no data available

Germ cell mutagenicity
no data available

Carcinogenicity

IARC: No component of this product present at levels greater than or equal to 0.1% is identified as probable, possible or confirmed human carcinogen by IARC.

ACGIH: No component of this product present at levels greater than or equal to 0.1% is identified as a carcinogen or potential carcinogen by ACGIH.

NTP: No component of this product present at levels greater than or equal to 0.1% is identified as a known or anticipated carcinogen by NTP.

OSHA: No component of this product present at levels greater than or equal to 0.1% is identified as a carcinogen or potential carcinogen by OSHA.

Reproductive toxicity
no data available

no data available

Specific target organ toxicity - single exposure
Inhalation - May cause respiratory irritation.

Specific target organ toxicity - repeated exposure
no data available

Aspiration hazard
no data available

Additional Information
RTECS: Not available

To the best of our knowledge, the chemical, physical, and toxicological properties have not been thoroughly investigated.

Stomach - Irregularities - Based on Human Evidence
Stomach - Irregularities - Based on Human Evidence

12. ECOLOGICAL INFORMATION

12.1 Toxicity
no data available

12.2 Persistence and degradability
no data available

12.3 Bioaccumulative potential
no data available

12.4 Mobility in soil
no data available

12.5 Results of PBT and vPvB assessment
PBT/vPvB assessment not available as chemical safety assessment not required/not conducted

12.6 Other adverse effects

no data available

13. DISPOSAL CONSIDERATIONS

13.1 Waste treatment methods

Product
Burn in a chemical incinerator equipped with an afterburner and scrubber but exert extra care in igniting as this material is highly flammable. Offer surplus and non-recyclable solutions to a licensed disposal company. Contact a licensed professional waste disposal service to dispose of this material.

Contaminated packaging
Dispose of as unused product.

14. TRANSPORT INFORMATION

DOT (US)

UN number: 2049 Class: 3 Packing group: III
Proper shipping name: Diethylbenzene
Marine pollutant: No
Poison Inhalation Hazard: No

IMDG
UN number: 2049 Class: 3 Packing group: III EMS-No: F-E, S-D
Proper shipping name: DIETHYLBENZENE
Marine pollutant: No

IATA
UN number: 2049 Class: 3 Packing group: III
Proper shipping name: Diethylbenzene

15. REGULATORY INFORMATION

SARA 302 Components
SARA 302: No chemicals in this material are subject to the reporting requirements of SARA Title III, Section 302.

SARA 313 Components
SARA 313: This material does not contain any chemical components with known CAS numbers that exceed the threshold (De Minimis) reporting levels established by SARA Title III, Section 313.

SARA 311/312 Hazards
Fire Hazard, Acute Health Hazard, Chronic Health Hazard

Massachusetts Right To Know Components

	CAS-No.	Revision Date
1,4-Diethylbenzene	105-05-5	1993-04-24

Pennsylvania Right To Know Components

	CAS-No.	Revision Date
1,4-Diethylbenzene	105-05-5	1993-04-24

New Jersey Right To Know Components

	CAS-No.	Revision Date
1,4-Diethylbenzene	105-05-5	1993-04-24

California Prop. 65 Components
This product does not contain any chemicals known to State of California to cause cancer, birth defects, or any other reproductive harm.

16. OTHER INFORMATION

Full text of H-Statements referred to under sections 2 and 3.

Eye Irrit.	Eye irritation
Flam. Liq.	Flammable liquids
H226	Flammable liquid and vapour.
H315	Causes skin irritation.
H319	Causes serious eye irritation.
H335	May cause respiratory irritation.
Skin Irrit.	Skin irritation
STOT SE	Specific target organ toxicity - single exposure

HMIS Rating

Health hazard:	2
Chronic Health Hazard:	*
Flammability:	2
Physical Hazard	0

NFPA Rating

Health hazard:	2
Fire Hazard:	2

Reactivity Hazard: 0

Further information

Copyright 2014 Sigma-Aldrich Co. LLC. License granted to make unlimited paper copies for internal use only.
The above information is believed to be correct but does not purport to be all inclusive and shall be used only as a guide. The information in this document is based on the present state of our knowledge and is applicable to the product with regard to appropriate safety precautions. It does not represent any guarantee of the properties of the product. Sigma-Aldrich Corporation and its Affiliates shall not be held liable for any damage resulting from handling or from contact with the above product. See www.sigma-aldrich.com and/or the reverse side of invoice or packing slip for additional terms and conditions of sale.

Preparation Information

Sigma-Aldrich Corporation
Product Safety – Americas Region
1-800-521-8956

Version: 4.2 Revision Date: 07/09/2014 Print Date: 04/20/2016

SAFETY DATA SHEET

Version 4.9
Revision Date 12/29/2015
Print Date 02/22/2016

1. PRODUCT AND COMPANY IDENTIFICATION

1.1 Product identifiers

Product name : Pentachlorophenol

Product Number : P2604
Brand : Aldrich
Index-No. : 604-002-00-8

CAS-No. : 87-86-5

1.2 Relevant identified uses of the substance or mixture and uses advised against

Identified uses : Laboratory chemicals, Synthesis of substances

1.3 Details of the supplier of the safety data sheet

Company : Sigma-Aldrich
3050 Spruce Street
SAINT LOUIS MO 63103
USA

Telephone : +1 800-325-5832
Fax : +1 800-325-5052

1.4 Emergency telephone number

Emergency Phone # : (314) 776-6555

2. HAZARDS IDENTIFICATION

2.1 Classification of the substance or mixture

GHS Classification in accordance with 29 CFR 1910 (OSHA HCS)
Acute toxicity, Oral (Category 3), H301
Acute toxicity, Inhalation (Category 2), H330
Acute toxicity, Dermal (Category 3), H311
Skin irritation (Category 2), H315
Eye irritation (Category 2A), H319
Carcinogenicity (Category 2), H351
Specific target organ toxicity - single exposure (Category 3), Respiratory system, H335
Acute aquatic toxicity (Category 1), H400
Chronic aquatic toxicity (Category 2), H411

For the full text of the H-Statements mentioned in this Section, see Section 16.

2.2 GHS Label elements, including precautionary statements

Pictogram



Signal word Danger

Hazard statement(s)
H301 + H311 Toxic if swallowed or in contact with skin
H315 Causes skin irritation.
H319 Causes serious eye irritation.
H330 Fatal if inhaled.
H335 May cause respiratory irritation.

H351	Suspected of causing cancer.
H400	Very toxic to aquatic life.
H411	Toxic to aquatic life with long lasting effects.

Precautionary statement(s)

P201	Obtain special instructions before use.
P202	Do not handle until all safety precautions have been read and understood.
P260	Do not breathe dust/ fume/ gas/ mist/ vapours/ spray.
P264	Wash skin thoroughly after handling.
P270	Do not eat, drink or smoke when using this product.
P271	Use only outdoors or in a well-ventilated area.
P273	Avoid release to the environment.
P280	Wear protective gloves/ protective clothing/ eye protection/ face protection.
P284	Wear respiratory protection.
P301 + P310 + P330	IF SWALLOWED: Immediately call a POISON CENTER or doctor/ physician. Rinse mouth.
P302 + P352 + P312	IF ON SKIN: Wash with plenty of soap and water. Call a POISON CENTER or doctor/ physician if you feel unwell.
P304 + P340 + P310	IF INHALED: Remove person to fresh air and keep comfortable for breathing. Immediately call a POISON CENTER or doctor/ physician.
P305 + P351 + P338	IF IN EYES: Rinse cautiously with water for several minutes. Remove contact lenses, if present and easy to do. Continue rinsing.
P308 + P313	IF exposed or concerned: Get medical advice/ attention.
P332 + P313	If skin irritation occurs: Get medical advice/ attention.
P337 + P313	If eye irritation persists: Get medical advice/ attention.
P362	Take off contaminated clothing and wash before reuse.
P391	Collect spillage.
P403 + P233	Store in a well-ventilated place. Keep container tightly closed.
P405	Store locked up.
P501	Dispose of contents/ container to an approved waste disposal plant.

2.3 Hazards not otherwise classified (HNOC) or not covered by GHS - none

3. COMPOSITION/INFORMATION ON INGREDIENTS

3.1 Substances

Formula	:	C_6HCl_5O
Molecular weight	:	266.34 g/mol
CAS-No.	:	87-86-5
EC-No.	:	201-778-6
Index-No.	:	604-002-00-8

Hazardous components

Component	Classification	Concentration
Pentachlorophenol		
	Acute Tox. 3; Acute Tox. 2; Acute Tox. 3; Skin Irrit. 2; Eye Irrit. 2A; Carc. 2; STOT SE 3; Aquatic Acute 1; Aquatic Chronic 2; H301 + H311, H315, H319, H330, H335, H351, H400, H411	<= 100 %

For the full text of the H-Statements mentioned in this Section, see Section 16.

4. FIRST AID MEASURES

4.1 Description of first aid measures

General advice
Consult a physician. Show this safety data sheet to the doctor in attendance.Move out of dangerous area.

If inhaled
If breathed in, move person into fresh air. If not breathing, give artificial respiration. Consult a physician.

In case of skin contact
Wash off with soap and plenty of water. Take victim immediately to hospital. Consult a physician.

In case of eye contact
Rinse thoroughly with plenty of water for at least 15 minutes and consult a physician.

If swallowed
Never give anything by mouth to an unconscious person. Rinse mouth with water. Consult a physician.

4.2 Most important symptoms and effects, both acute and delayed
The most important known symptoms and effects are described in the labelling (see section 2.2) and/or in section 11

4.3 Indication of any immediate medical attention and special treatment needed
No data available

5. FIREFIGHTING MEASURES

5.1 Extinguishing media

Suitable extinguishing media
Use water spray, alcohol-resistant foam, dry chemical or carbon dioxide.

5.2 Special hazards arising from the substance or mixture
Carbon oxides, Hydrogen chloride gas

5.3 Advice for firefighters
Wear self-contained breathing apparatus for firefighting if necessary.

5.4 Further information
No data available

6. ACCIDENTAL RELEASE MEASURES

6.1 Personal precautions, protective equipment and emergency procedures
Wear respiratory protection. Avoid dust formation. Avoid breathing vapours, mist or gas. Ensure adequate ventilation. Evacuate personnel to safe areas. Avoid breathing dust.
For personal protection see section 8.

6.2 Environmental precautions
Prevent further leakage or spillage if safe to do so. Do not let product enter drains. Discharge into the environment must be avoided.

6.3 Methods and materials for containment and cleaning up
Pick up and arrange disposal without creating dust. Sweep up and shovel. Keep in suitable, closed containers for disposal.

6.4 Reference to other sections
For disposal see section 13.

7. HANDLING AND STORAGE

7.1 Precautions for safe handling
Avoid contact with skin and eyes. Avoid formation of dust and aerosols.
Provide appropriate exhaust ventilation at places where dust is formed.
For precautions see section 2.2.

7.2 Conditions for safe storage, including any incompatibilities
Keep container tightly closed in a dry and well-ventilated place.

7.3 Specific end use(s)
Apart from the uses mentioned in section 1.2 no other specific uses are stipulated

8. EXPOSURE CONTROLS/PERSONAL PROTECTION

8.1 Control parameters

Components with workplace control parameters

Component	CAS-No.	Value	Control parameters	Basis
Pentachlorophenol	87-86-5	TWA	0.500000 mg/m3	USA. ACGIH Threshold Limit Values (TLV)
	Remarks	Central Nervous System impairment Upper Respiratory Tract irritation Eye irritation Cardiac impairment Adopted values or notations enclosed are those for which changes are proposed in the NIC See Notice of Intended Changes (NIC) Substances for which there is a Biological Exposure Index or Indices (see BEI® section) Confirmed animal carcinogen with unknown relevance to humans Danger of cutaneous absorption		
		TWA	0.500000 mg/m3	USA. NIOSH Recommended Exposure Limits
		Potential for dermal absorption		
		TWA	0.500000 mg/m3	USA. Occupational Exposure Limits (OSHA) - Table Z-1 Limits for Air Contaminants
		Skin designation		
		TWA	0.5 mg/m3	USA. ACGIH Threshold Limit Values (TLV)
		Central Nervous System impairment Upper Respiratory Tract irritation Eye irritation Cardiac impairment 2015 Adoption Substances for which there is a Biological Exposure Index or Indices (see BEI® section) Confirmed animal carcinogen with unknown relevance to humans Danger of cutaneous absorption		
		STEL	1 mg/m3	USA. ACGIH Threshold Limit Values (TLV)
		Central Nervous System impairment Upper Respiratory Tract irritation Eye irritation Cardiac impairment 2015 Adoption Substances for which there is a Biological Exposure Index or Indices (see BEI® section) Confirmed animal carcinogen with unknown relevance to humans Danger of cutaneous absorption		

Biological occupational exposure limits

Component	CAS-No.	Parameters	Value	Biological specimen	Basis
Pentachlorophenol	87-86-5	pentachlorophenol	2.0000 mg/g	Urine	ACGIH - Biological Exposure Indices (BEI)
	Remarks	Prior to last shift of workweek			
		Free PCP	5.0000 mg/l	In plasma	ACGIH - Biological Exposure Indices (BEI)
		End of shift (As soon as possible after exposure ceases)			
		pentachlorophenol		Urine	ACGIH - Biological Exposure Indices (BEI)

		Prior to last shift of workweek

8.2 Exposure controls

Appropriate engineering controls
Avoid contact with skin, eyes and clothing. Wash hands before breaks and immediately after handling the product.

Personal protective equipment

Eye/face protection
Face shield and safety glasses Use equipment for eye protection tested and approved under appropriate government standards such as NIOSH (US) or EN 166(EU).

Skin protection
Handle with gloves. Gloves must be inspected prior to use. Use proper glove removal technique (without touching glove's outer surface) to avoid skin contact with this product. Dispose of contaminated gloves after use in accordance with applicable laws and good laboratory practices. Wash and dry hands.

Splash contact
Material: Fluorinated rubber
Minimum layer thickness: 0.7 mm
Break through time: 120 min
Material tested:Vitoject® (KCL 890 / Aldrich Z677698, Size M)

data source: KCL GmbH, D-36124 Eichenzell, phone +49 (0)6659 87300, e-mail sales@kcl.de, test method: EN374
If used in solution, or mixed with other substances, and under conditions which differ from EN 374, contact the supplier of the CE approved gloves. This recommendation is advisory only and must be evaluated by an industrial hygienist and safety officer familiar with the specific situation of anticipated use by our customers. It should not be construed as offering an approval for any specific use scenario.

Body Protection
Complete suit protecting against chemicals, The type of protective equipment must be selected according to the concentration and amount of the dangerous substance at the specific workplace.

Respiratory protection
Where risk assessment shows air-purifying respirators are appropriate use a full-face particle respirator type N100 (US) or type P3 (EN 143) respirator cartridges as a backup to engineering controls. If the respirator is the sole means of protection, use a full-face supplied air respirator. Use respirators and components tested and approved under appropriate government standards such as NIOSH (US) or CEN (EU).

Control of environmental exposure
Prevent further leakage or spillage if safe to do so. Do not let product enter drains. Discharge into the environment must be avoided.

9. PHYSICAL AND CHEMICAL PROPERTIES

9.1 Information on basic physical and chemical properties

a)	Appearance	Form: crystalline Colour: light red
b)	Odour	No data available
c)	Odour Threshold	No data available
d)	pH	No data available
e)	Melting point/freezing point	Melting point/range: 165 - 180 °C (329 - 356 °F)
f)	Initial boiling point and boiling range	310 °C (590 °F)
g)	Flash point	No data available
h)	Evaporation rate	No data available
i)	Flammability (solid, gas)	No data available
j)	Upper/lower	No data available

	flammability or explosive limits	
k)	Vapour pressure	53.3 hPa (40.0 mmHg) at 211.2 °C (412.2 °F)
l)	Vapour density	No data available
m)	Relative density	1.978 g/mL at 25 °C (77 °F)
n)	Water solubility	No data available
o)	Partition coefficient: n-octanol/water	log Pow: 5.12
p)	Auto-ignition temperature	No data available
q)	Decomposition temperature	No data available
r)	Viscosity	No data available
s)	Explosive properties	No data available
t)	Oxidizing properties	No data available

9.2 Other safety information
No data available

10. STABILITY AND REACTIVITY

10.1 Reactivity
No data available

10.2 Chemical stability
Stable under recommended storage conditions.

10.3 Possibility of hazardous reactions
No data available

10.4 Conditions to avoid
No data available

10.5 Incompatible materials
Strong oxidizing agents, Strong bases

10.6 Hazardous decomposition products
Other decomposition products - No data available
In the event of fire: see section 5

11. TOXICOLOGICAL INFORMATION

11.1 Information on toxicological effects

Acute toxicity
LD50 Oral - Rat - 27 mg/kg
Remarks: Vascular:BP elevation not charactertized in autonomic section. Endocrine:Hyperglycemia. Nutritional and Gross Metabolic:Changes in:Body temperature increase.

LC50 Inhalation - Rat - 355 mg/m3
Remarks: Behavioral:Excitement. Behavioral:Muscle contraction or spasticity. Lungs, Thorax, or Respiration:Dyspnea.

LD50 Dermal - Rat - 96.0 mg/kg
Remarks: Behavioral:Excitement. Behavioral:Muscle contraction or spasticity. Lungs, Thorax, or Respiration:Dyspnea.

No data available

Skin corrosion/irritation
Skin - Rabbit
Result: Open irritation test - 24.00 h

Serious eye damage/eye irritation
Eyes - Rabbit
Result: Mild eye irritation - 24.00 h

Respiratory or skin sensitisation
No data available

Germ cell mutagenicity
No data available

Carcinogenicity

The evidence for carcinogenicity of pentachlorophenol (PCP) is based on assays that utilized less than pure PCP. Contaminants of PCP include: tri- or tetra- chlorophenol, hexachlorobenzene, polychlorinated dibenzo-p-dioxins, or polychlorinated dibenzofurans. Indications are that positive evidence for carcinogenicity is from the contaminant(s) and not the PCP. This product is or contains a component that has been reported to be possibly carcinogenic based on its IARC, ACGIH, NTP, or EPA classification.

Limited evidence of carcinogenicity in animal studies

IARC:	2B - Group 2B: Possibly carcinogenic to humans (Pentachlorophenol)
NTP:	Reasonably anticipated to be a human carcinogen (Pentachlorophenol)
OSHA:	No component of this product present at levels greater than or equal to 0.1% is identified as a carcinogen or potential carcinogen by OSHA.

Reproductive toxicity
No data available

Overexposure may cause reproductive disorder(s) based on tests with laboratory animals.

Specific target organ toxicity - single exposure
May cause respiratory irritation.

Specific target organ toxicity - repeated exposure
No data available

Aspiration hazard
No data available

Additional Information
RTECS: Not available

Convulsions

Kidney -

12. ECOLOGICAL INFORMATION

12.1 Toxicity

Toxicity to fish	LC50 - Cyprinodon variegatus (sheepshead minnow) - 0.16 - 0.5 mg/l - 96.0 h
	LC50 - Carassius auratus (goldfish) - 0.16 - 0.38 mg/l - 96.0 h
	LC50 - Oncorhynchus mykiss (rainbow trout) - 0.075 mg/l - 96.0 h
	NOEC - other fish - 0.01 mg/l - 24.0 h
	LOEC - other fish - 0.1 mg/l - 24.0 h
Toxicity to daphnia and other aquatic invertebrates	EC50 - Daphnia magna (Water flea) - 0.30 - 1.30 mg/l - 48 h
Toxicity to algae	EC50 - No information available. - 0.36 mg/l - 10 d
	EC50 - Chlorella vulgaris (Fresh water algae) - 10.30 mg/l - 96 h
	Growth inhibition EC50 - Scenedesmus quadricauda (Green algae) - 0.08 mg/l - 96 h

12.2 Persistence and degradability

Biodegradability Result: 99 % - Biodegradable

12.3 Bioaccumulative potential

Bioaccumulation Oncorhynchus mykiss (rainbow trout) - 144 h
- 0.0912 mg/l

Bioconcentration factor (BCF): 482

12.4 Mobility in soil

No data available

12.5 Results of PBT and vPvB assessment

PBT/vPvB assessment not available as chemical safety assessment not required/not conducted

12.6 Other adverse effects

An environmental hazard cannot be excluded in the event of unprofessional handling or disposal.
Very toxic to aquatic life with long lasting effects.

13. DISPOSAL CONSIDERATIONS

13.1 Waste treatment methods

Product

Offer surplus and non-recyclable solutions to a licensed disposal company. Contact a licensed professional waste disposal service to dispose of this material. Dissolve or mix the material with a combustible solvent and burn in a chemical incinerator equipped with an afterburner and scrubber.

Contaminated packaging

Dispose of as unused product.

14. TRANSPORT INFORMATION

DOT (US)

UN number: 3155 Class: 6.1 Packing group: II
Proper shipping name: Pentachlorophenol
Reportable Quantity (RQ): 10 lbs

Poison Inhalation Hazard: No

IMDG

UN number: 3155 Class: 6.1 Packing group: II EMS-No: F-A, S-A
Proper shipping name: PENTACHLOROPHENOL
Marine pollutant: yes

IATA

UN number: 3155 Class: 6.1 Packing group: II
Proper shipping name: Pentachlorophenol

15. REGULATORY INFORMATION

SARA 302 Components

No chemicals in this material are subject to the reporting requirements of SARA Title III, Section 302.

SARA 313 Components

This material does not contain any chemical components with known CAS numbers that exceed the threshold (De Minimis) reporting levels established by SARA Title III, Section 313.

SARA 311/312 Hazards

Acute Health Hazard, Chronic Health Hazard

Massachusetts Right To Know Components

	CAS-No.	Revision Date
Pentachlorophenol	87-86-5	2007-07-01

Pennsylvania Right To Know Components

	CAS-No.	Revision Date
Pentachlorophenol	87-86-5	2007-07-01

New Jersey Right To Know Components

	CAS-No.	Revision Date
Pentachlorophenol	87-86-5	2007-07-01

California Prop. 65 Components

WARNING! This product contains a chemical known to the State of California to cause cancer.	CAS-No.	Revision Date
Pentachlorophenol	87-86-5	2007-09-28

16. OTHER INFORMATION

Full text of H-Statements referred to under sections 2 and 3.

Acute Tox.	Acute toxicity
Aquatic Acute	Acute aquatic toxicity
Aquatic Chronic	Chronic aquatic toxicity
Carc.	Carcinogenicity
Eye Irrit.	Eye irritation
H301	Toxic if swallowed.
H301 + H311	Toxic if swallowed or in contact with skin
H311	Toxic in contact with skin.
H315	Causes skin irritation.
H319	Causes serious eye irritation.
H330	Fatal if inhaled.
H335	May cause respiratory irritation.
H351	Suspected of causing cancer.
H400	Very toxic to aquatic life.

HMIS Rating

Health hazard:	3
Chronic Health Hazard:	*
Flammability:	0
Physical Hazard	1

NFPA Rating

Health hazard:	4
Fire Hazard:	0
Reactivity Hazard:	0

Further information

Copyright 2015 Sigma-Aldrich Co. LLC. License granted to make unlimited paper copies for internal use only.
The above information is believed to be correct but does not purport to be all inclusive and shall be used only as a guide. The information in this document is based on the present state of our knowledge and is applicable to the product with regard to appropriate safety precautions. It does not represent any guarantee of the properties of the product. Sigma-Aldrich Corporation and its Affiliates shall not be held liable for any damage resulting from handling or from contact with the above product. See www.sigma-aldrich.com and/or the reverse side of invoice or packing slip for additional terms and conditions of sale.

Preparation Information

Sigma-Aldrich Corporation
Product Safety – Americas Region
1-800-521-8956

Version: 4.9 Revision Date: 12/29/2015 Print Date: 02/22/2016

SAFETY DATA SHEET

Version 4.5
Revision Date 07/08/2014
Print Date 10/12/2016

1. PRODUCT AND COMPANY IDENTIFICATION

1.1 Product identifiers

Product name : 4-Ethyltoluene

Product Number : E49800
Brand : Aldrich

CAS-No. : 622-96-8

1.2 Relevant identified uses of the substance or mixture and uses advised against

Identified uses : Laboratory chemicals, Manufacture of substances

1.3 Details of the supplier of the safety data sheet

Company : Sigma-Aldrich
3050 Spruce Street
SAINT LOUIS MO 63103
USA

Telephone : +1 800-325-5832
Fax : +1 800-325-5052

1.4 Emergency telephone number

Emergency Phone # : +1-703-527-3887 (CHEMTREC)

2. HAZARDS IDENTIFICATION

2.1 Classification of the substance or mixture

GHS Classification in accordance with 29 CFR 1910 (OSHA HCS)
Flammable liquids (Category 3), H226
Aspiration hazard (Category 1), H304

For the full text of the H-Statements mentioned in this Section, see Section 16.

2.2 GHS Label elements, including precautionary statements

Pictogram



Signal word Danger

Hazard statement(s)
H226 Flammable liquid and vapour.
H304 May be fatal if swallowed and enters airways.

Precautionary statement(s)
P210 Keep away from heat/sparks/open flames/hot surfaces. - No smoking.
P233 Keep container tightly closed.
P240 Ground/bond container and receiving equipment.
P241 Use explosion-proof electrical/ ventilating/ lighting/ equipment.
P242 Use only non-sparking tools.
P243 Take precautionary measures against static discharge.
P280 Wear protective gloves/ protective clothing/ eye protection/ face protection.
P301 + P310 IF SWALLOWED: Immediately call a POISON CENTER or doctor/ physician.

P303 + P361 + P353	IF ON SKIN (or hair): Remove/ Take off immediately all contaminated clothing. Rinse skin with water/ shower.
P331	Do NOT induce vomiting.
P370 + P378	In case of fire: Use dry sand, dry chemical or alcohol-resistant foam for extinction.
P403 + P235	Store in a well-ventilated place. Keep cool.
P405	Store locked up.
P501	Dispose of contents/ container to an approved waste disposal plant.

2.3 Hazards not otherwise classified (HNOC) or not covered by GHS - none

3. COMPOSITION/INFORMATION ON INGREDIENTS

3.1 Substances

Formula : C_9H_{12}
Molecular Weight : 120.19 g/mol
CAS-No. : 622-96-8
EC-No. : 210-761-2

Hazardous components

Component	Classification	Concentration
4-Ethyltoluene		
	Flam. Liq. 3; Asp. Tox. 1; H226, H304	-

For the full text of the H-Statements mentioned in this Section, see Section 16.

4. FIRST AID MEASURES

4.1 Description of first aid measures

General advice
Consult a physician. Show this safety data sheet to the doctor in attendance.Move out of dangerous area.

If inhaled
If breathed in, move person into fresh air. If not breathing, give artificial respiration. Consult a physician.

In case of skin contact
Wash off with soap and plenty of water. Consult a physician.

In case of eye contact
Flush eyes with water as a precaution.

If swallowed
Do NOT induce vomiting. Never give anything by mouth to an unconscious person. Rinse mouth with water. Consult a physician.

4.2 Most important symptoms and effects, both acute and delayed
The most important known symptoms and effects are described in the labelling (see section 2.2) and/or in section 11

4.3 Indication of any immediate medical attention and special treatment needed
no data available

5. FIREFIGHTING MEASURES

5.1 Extinguishing media

Suitable extinguishing media
For small (incipient) fires, use media such as "alcohol" foam, dry chemical, or carbon dioxide. For large fires, apply water from as far as possible. Use very large quantities (flooding) of water applied as a mist or spray; solid streams of water may be ineffective. Cool all affected containers with flooding quantities of water.

5.2 Special hazards arising from the substance or mixture
Carbon oxides

5.3 Advice for firefighters
Wear self contained breathing apparatus for fire fighting if necessary.

5.4 Further information
Use water spray to cool unopened containers.

6. ACCIDENTAL RELEASE MEASURES

6.1 Personal precautions, protective equipment and emergency procedures
Use personal protective equipment. Avoid breathing vapours, mist or gas. Ensure adequate ventilation. Remove all sources of ignition. Evacuate personnel to safe areas. Beware of vapours accumulating to form explosive concentrations. Vapours can accumulate in low areas.
For personal protection see section 8.

6.2 Environmental precautions
Prevent further leakage or spillage if safe to do so. Do not let product enter drains.

6.3 Methods and materials for containment and cleaning up
Contain spillage, and then collect with an electrically protected vacuum cleaner or by wet-brushing and place in container for disposal according to local regulations (see section 13).

6.4 Reference to other sections
For disposal see section 13.

7. HANDLING AND STORAGE

7.1 Precautions for safe handling
Avoid contact with skin and eyes. Avoid inhalation of vapour or mist.
Keep away from sources of ignition - No smoking.Take measures to prevent the build up of electrostatic charge.
For precautions see section 2.2.

7.2 Conditions for safe storage, including any incompatibilities
Store in cool place. Keep container tightly closed in a dry and well-ventilated place. Containers which are opened must be carefully resealed and kept upright to prevent leakage.

7.3 Specific end use(s)
Apart from the uses mentioned in section 1.2 no other specific uses are stipulated

8. EXPOSURE CONTROLS/PERSONAL PROTECTION

8.1 Control parameters

Components with workplace control parameters
Contains no substances with occupational exposure limit values.

8.2 Exposure controls

Appropriate engineering controls
Handle in accordance with good industrial hygiene and safety practice. Wash hands before breaks and at the end of workday.

Personal protective equipment

Eye/face protection
Face shield and safety glasses Use equipment for eye protection tested and approved under appropriate government standards such as NIOSH (US) or EN 166(EU).

Skin protection
Handle with gloves. Gloves must be inspected prior to use. Use proper glove removal technique (without touching glove's outer surface) to avoid skin contact with this product. Dispose of contaminated gloves after use in accordance with applicable laws and good laboratory practices. Wash and dry hands.

Full contact
Material: Fluorinated rubber
Minimum layer thickness: 0.7 mm
Break through time: 480 min
Material tested:Vitoject® (KCL 890 / Aldrich Z677698, Size M)

Splash contact
Material: Fluorinated rubber
Minimum layer thickness: 0.7 mm

Break through time: 480 min
Material tested:Vitoject® (KCL 890 / Aldrich Z677698, Size M)

data source: KCL GmbH, D-36124 Eichenzell, phone +49 (0)6659 87300, e-mail sales@kcl.de, test method: EN374
If used in solution, or mixed with other substances, and under conditions which differ from EN 374, contact the supplier of the CE approved gloves. This recommendation is advisory only and must be evaluated by an industrial hygienist and safety officer familiar with the specific situation of anticipated use by our customers. It should not be construed as offering an approval for any specific use scenario.

Body Protection
Complete suit protecting against chemicals, Flame retardant antistatic protective clothing, The type of protective equipment must be selected according to the concentration and amount of the dangerous substance at the specific workplace.

Respiratory protection
Where risk assessment shows air-purifying respirators are appropriate use a full-face respirator with multi-purpose combination (US) or type ABEK (EN 14387) respirator cartridges as a backup to engineering controls. If the respirator is the sole means of protection, use a full-face supplied air respirator. Use respirators and components tested and approved under appropriate government standards such as NIOSH (US) or CEN (EU).

Control of environmental exposure
Prevent further leakage or spillage if safe to do so. Do not let product enter drains.

9. PHYSICAL AND CHEMICAL PROPERTIES

9.1 Information on basic physical and chemical properties

a)	Appearance	Form: clear, liquid Colour: light yellow
b)	Odour	no data available
c)	Odour Threshold	no data available
d)	pH	no data available
e)	Melting point/freezing point	no data available
f)	Initial boiling point and boiling range	162 °C (324 °F) - lit.
g)	Flash point	43 °C (109 °F) - closed cup
h)	Evapouration rate	no data available
i)	Flammability (solid, gas)	no data available
j)	Upper/lower flammability or explosive limits	no data available
k)	Vapour pressure	no data available
l)	Vapour density	no data available
m)	Relative density	0.861 g/cm3 at 25 °C (77 °F)
n)	Water solubility	no data available
o)	Partition coefficient: n-octanol/water	no data available
p)	Auto-ignition temperature	no data available
q)	Decomposition temperature	no data available
r)	Viscosity	no data available
s)	Explosive properties	no data available

t) Oxidizing properties no data available

9.2 Other safety information
no data available

10. STABILITY AND REACTIVITY

10.1 Reactivity
no data available

10.2 Chemical stability
Stable under recommended storage conditions.

10.3 Possibility of hazardous reactions
no data available

10.4 Conditions to avoid
Heat, flames and sparks.

10.5 Incompatible materials
Oxidizing agents

10.6 Hazardous decomposition products
Other decomposition products - no data available
In the event of fire: see section 5

11. TOXICOLOGICAL INFORMATION

11.1 Information on toxicological effects

Acute toxicity
LD50 Oral - rat - 4,850 mg/kg
Remarks: Behavioral:Convulsions or effect on seizure threshold. Behavioral:Ataxia.

Inhalation: no data available

Dermal: no data available

no data available

Skin corrosion/irritation
no data available

Serious eye damage/eye irritation
no data available

Respiratory or skin sensitisation
no data available

Germ cell mutagenicity

mouse
Sister chromatid exchange

Carcinogenicity

IARC: No component of this product present at levels greater than or equal to 0.1% is identified as probable, possible or confirmed human carcinogen by IARC.

ACGIH: No component of this product present at levels greater than or equal to 0.1% is identified as a carcinogen or potential carcinogen by ACGIH.

NTP: No component of this product present at levels greater than or equal to 0.1% is identified as a known or anticipated carcinogen by NTP.

OSHA: No component of this product present at levels greater than or equal to 0.1% is identified as a carcinogen or potential carcinogen by OSHA.

Reproductive toxicity
no data available

Reproductive toxicity - rat - Oral
Maternal Effects: Other effects. Effects on Fertility: Post-implantation mortality (e.g., dead and/or resorbed implants per total number of implants).

no data available

Specific target organ toxicity - single exposure
no data available

Specific target organ toxicity - repeated exposure
no data available

Aspiration hazard
The substance or mixture is known to cause human aspiration toxicity hazards or has to be regarded as if it causes a human aspiration toxicity hazard.

Additional Information
RTECS: XT2550000

To the best of our knowledge, the chemical, physical, and toxicological properties have not been thoroughly investigated.

12. ECOLOGICAL INFORMATION

12.1 Toxicity
no data available

12.2 Persistence and degradability
no data available

12.3 Bioaccumulative potential
no data available

12.4 Mobility in soil
no data available

12.5 Results of PBT and vPvB assessment
PBT/vPvB assessment not available as chemical safety assessment not required/not conducted

12.6 Other adverse effects

no data available

13. DISPOSAL CONSIDERATIONS

13.1 Waste treatment methods

Product
Burn in a chemical incinerator equipped with an afterburner and scrubber but exert extra care in igniting as this material is highly flammable. Offer surplus and non-recyclable solutions to a licensed disposal company.

Contaminated packaging
Dispose of as unused product.

14. TRANSPORT INFORMATION

DOT (US)
UN number: 3295 Class: 3 Packing group: III
Proper shipping name: Hydrocarbons, liquid, n.o.s.
Marine pollutant: No
Poison Inhalation Hazard: No

IMDG
UN number: 3295 Class: 3 Packing group: III EMS-No: F-E, S-D
Proper shipping name: HYDROCARBONS, LIQUID, N.O.S.
Marine pollutant: No

IATA

UN number: 3295 Class: 3 Packing group: III
Proper shipping name: Hydrocarbons, liquid, n.o.s.

15. REGULATORY INFORMATION

SARA 302 Components
SARA 302: No chemicals in this material are subject to the reporting requirements of SARA Title III, Section 302.

SARA 313 Components
SARA 313: This material does not contain any chemical components with known CAS numbers that exceed the threshold (De Minimis) reporting levels established by SARA Title III, Section 313.

SARA 311/312 Hazards
Fire Hazard

Massachusetts Right To Know Components
No components are subject to the Massachusetts Right to Know Act.

Pennsylvania Right To Know Components

	CAS-No.	Revision Date
4-Ethyltoluene	622-96-8	

New Jersey Right To Know Components

	CAS-No.	Revision Date
4-Ethyltoluene	622-96-8	

California Prop. 65 Components
This product does not contain any chemicals known to State of California to cause cancer, birth defects, or any other reproductive harm.

16. OTHER INFORMATION

Full text of H-Statements referred to under sections 2 and 3.

Asp. Tox.	Aspiration hazard
Flam. Liq.	Flammable liquids
H226	Flammable liquid and vapour.
H304	May be fatal if swallowed and enters airways.

HMIS Rating

Health hazard:	1
Chronic Health Hazard:	
Flammability:	2
Physical Hazard	0

NFPA Rating

Health hazard:	0
Fire Hazard:	2
Reactivity Hazard:	0

Further information
Copyright 2014 Sigma-Aldrich Co. LLC. License granted to make unlimited paper copies for internal use only.
The above information is believed to be correct but does not purport to be all inclusive and shall be used only as a guide. The information in this document is based on the present state of our knowledge and is applicable to the product with regard to appropriate safety precautions. It does not represent any guarantee of the properties of the product. Sigma-Aldrich Corporation and its Affiliates shall not be held liable for any damage resulting from handling or from contact with the above product. See www.sigma-aldrich.com and/or the reverse side of invoice or packing slip for additional terms and conditions of sale.

Preparation Information
Sigma-Aldrich Corporation
Product Safety – Americas Region
1-800-521-8956

SAFETY DATA SHEET

Version 6.4
Revision Date 04/18/2021
Print Date 06/19/2021

SECTION 1: Identification of the substance/mixture and of the company/undertaking

1.1 Product identifiers

Product name : Perfluorooctanoic acid

Product Number : 171468
Brand : Aldrich
CAS-No. : 335-67-1

1.2 Relevant identified uses of the substance or mixture and uses advised against

Identified uses : Laboratory chemicals, Synthesis of substances

1.3 Details of the supplier of the safety data sheet

Company : Sigma-Aldrich Inc.
3050 SPRUCE ST
ST. LOUIS MO 63103
UNITED STATES

Telephone : +1 314 771-5765
Fax : +1 800 325-5052

1.4 Emergency telephone

Emergency Phone # : 800-424-9300 CHEMTREC (USA) +1-703-527-3887 CHEMTREC (International) 24 Hours/day; 7 Days/week

SECTION 2: Hazards identification

2.1 Classification of the substance or mixture

GHS Classification in accordance with 29 CFR 1910 (OSHA HCS)

Acute toxicity, Oral (Category 4), H302
Skin corrosion (Category 1B), H314
Serious eye damage (Category 1), H318
Carcinogenicity (Category 2), H351
Reproductive toxicity (Category 1B), H360
Effects on or via lactation, H362
Specific target organ toxicity - repeated exposure (Category 1), Liver, H372

For the full text of the H-Statements mentioned in this Section, see Section 16.

2.2 GHS Label elements, including precautionary statements

Pictogram



The life science business of Merck KGaA, Darmstadt, Germany
operates as MilliporeSigma in the US and Canada

Signal word	Danger
Hazard statement(s)	
H302	Harmful if swallowed.
H314	Causes severe skin burns and eye damage.
H351	Suspected of causing cancer.
H360	May damage fertility or the unborn child.
H362	May cause harm to breast-fed children.
H372	Causes damage to organs (Liver) through prolonged or repeated exposure.
Precautionary statement(s)	
P201	Obtain special instructions before use.
P202	Do not handle until all safety precautions have been read and understood.
P260	Do not breathe dust/ fume/ gas/ mist/ vapors/ spray.
P263	Avoid contact during pregnancy/ while nursing.
P264	Wash skin thoroughly after handling.
P270	Do not eat, drink or smoke when using this product.
P280	Wear protective gloves/ protective clothing/ eye protection/ face protection.
P301 + P312 + P330	IF SWALLOWED: Call a POISON CENTER/ doctor if you feel unwell. Rinse mouth.
P301 + P330 + P331	IF SWALLOWED: Rinse mouth. Do NOT induce vomiting.
P303 + P361 + P353	IF ON SKIN (or hair): Take off immediately all contaminated clothing. Rinse skin with water/ shower.
P304 + P340 + P310	IF INHALED: Remove person to fresh air and keep comfortable for breathing. Immediately call a POISON CENTER/ doctor.
P305 + P351 + P338 + P310	IF IN EYES: Rinse cautiously with water for several minutes. Remove contact lenses, if present and easy to do. Continue rinsing. Immediately call a POISON CENTER/ doctor.
P308 + P313	IF exposed or concerned: Get medical advice/ attention.
P363	Wash contaminated clothing before reuse.
P405	Store locked up.
P501	Dispose of contents/ container to an approved waste disposal plant.

2.3 Hazards not otherwise classified (HNOC) or not covered by GHS - none

SECTION 3: Composition/information on ingredients

3.1 Substances

Synonyms	:	Pentadecafluorooctanoic acid Perfluorocaprylic acid Perfluorooctanoic acid
Formula	:	$C_8HF_{15}O_2$
Molecular weight	:	414.07 g/mol
CAS-No.	:	335-67-1
EC-No.	:	206-397-9

Component	Classification	Concentration
pentadecafluorooctanoic acid		
	Acute Tox. 4; Skin Corr.	<= 100 %

The life science business of Merck KGaA, Darmstadt, Germany
operates as MilliporeSigma in the US and Canada

	1B; Eye Dam. 1; Carc. 2; Repr. 1B; Lact. ; STOT RE 1; H302, H314, H318, H351, H360, H362, H372	

For the full text of the H-Statements mentioned in this Section, see Section 16.

SECTION 4: First aid measures

4.1 Description of first-aid measures

General advice
First aiders need to protect themselves. Show this material safety data sheet to the doctor in attendance.

If inhaled
After inhalation: fresh air. Call in physician.

In case of skin contact
In case of skin contact: Take off immediately all contaminated clothing. Rinse skin with water/ shower. Call a physician immediately.

In case of eye contact
After eye contact: rinse out with plenty of water. Immediately call in ophthalmologist. Remove contact lenses.

If swallowed
After swallowing: make victim drink water (two glasses at most), avoid vomiting (risk of perforation). Call a physician immediately. Do not attempt to neutralise.

4.2 Most important symptoms and effects, both acute and delayed

The most important known symptoms and effects are described in the labelling (see section 2.2) and/or in section 11

4.3 Indication of any immediate medical attention and special treatment needed

No data available

SECTION 5: Firefighting measures

5.1 Extinguishing media

Suitable extinguishing media
Water Foam Carbon dioxide (CO2) Dry powder

Unsuitable extinguishing media
For this substance/mixture no limitations of extinguishing agents are given.

5.2 Special hazards arising from the substance or mixture

Carbon oxides
Hydrogen fluoride
Combustible.
Development of hazardous combustion gases or vapours possible in the event of fire.

5.3 Advice for firefighters

Stay in danger area only with self-contained breathing apparatus. Prevent skin contact by keeping a safe distance or by wearing suitable protective clothing.

The life science business of Merck KGaA, Darmstadt, Germany
operates as MilliporeSigma in the US and Canada

5.4 Further information

Suppress (knock down) gases/vapors/mists with a water spray jet. Prevent fire extinguishing water from contaminating surface water or the ground water system.

SECTION 6: Accidental release measures

6.1 Personal precautions, protective equipment and emergency procedures

Advice for non-emergency personnel: Avoid generation and inhalation of dusts in all circumstances. Avoid substance contact. Ensure adequate ventilation. Evacuate the danger area, observe emergency procedures, consult an expert.
For personal protection see section 8.

6.2 Environmental precautions

Do not let product enter drains.

6.3 Methods and materials for containment and cleaning up

Cover drains. Collect, bind, and pump off spills. Observe possible material restrictions (see sections 7 and 10). Take up carefully. Dispose of properly. Clean up affected area. Avoid generation of dusts.

6.4 Reference to other sections

For disposal see section 13.

SECTION 7: Handling and storage

7.1 Precautions for safe handling

Advice on safe handling
Work under hood. Do not inhale substance/mixture.

Hygiene measures
Immediately change contaminated clothing. Apply preventive skin protection. Wash hands and face after working with substance.
For precautions see section 2.2.

7.2 Conditions for safe storage, including any incompatibilities

Storage conditions
Tightly closed. Dry. Keep in a well-ventilated place. Keep locked up or in an area accessible only to qualified or authorized persons.
Storage class (TRGS 510): 6.1C: Combustible, acute toxic Cat.3 / toxic compounds or compounds which causing chronic effects

7.3 Specific end use(s)

Apart from the uses mentioned in section 1.2 no other specific uses are stipulated

SECTION 8: Exposure controls/personal protection

8.1 Control parameters

Ingredients with workplace control parameters
Contains no substances with occupational exposure limit values.

The life science business of Merck KGaA, Darmstadt, Germany
operates as MilliporeSigma in the US and Canada

8.2 Exposure controls

Appropriate engineering controls
Immediately change contaminated clothing. Apply preventive skin protection. Wash hands and face after working with substance.

Personal protective equipment

Eye/face protection
Use equipment for eye protection tested and approved under appropriate government standards such as NIOSH (US) or EN 166(EU). Tightly fitting safety goggles

Skin protection
Handle with gloves. Gloves must be inspected prior to use. Use proper glove removal technique (without touching glove's outer surface) to avoid skin contact with this product. Dispose of contaminated gloves after use in accordance with applicable laws and good laboratory practices. Wash and dry hands.

Full contact
Material: Nitrile rubber
Minimum layer thickness: 0.11 mm
Break through time: > 480 min
Material tested:Dermatril® (KCL 740 / Aldrich Z677272, Size M)

Splash contact
Material: Nitrile rubber
Minimum layer thickness: 0.11 mm
Break through time: > 480 min
Material tested:Dermatril® (KCL 740 / Aldrich Z677272, Size M)

data source: KCL GmbH, D-36124 Eichenzell, phone +49 (0)6659 87300, e-mail sales@kcl.de, test method: EN374
If used in solution, or mixed with other substances, and under conditions which differ from EN 374, contact the supplier of the EC approved gloves. This recommendation is advisory only and must be evaluated by an industrial hygienist and safety officer familiar with the specific situation of anticipated use by our customers. It should not be construed as offering an approval for any specific use scenario.

Body Protection
Acid-resistant protective clothing

Respiratory protection
required when dusts are generated.
Our recommendations on filtering respiratory protection are based on the following standards: DIN EN 143, DIN 14387 and other accompanying standards relating to the used respiratory protection system.

Control of environmental exposure
Do not let product enter drains.

SECTION 9: Physical and chemical properties

9.1 Information on basic physical and chemical properties

a)	Appearance	Form: flakes Color: colorless

The life science business of Merck KGaA, Darmstadt, Germany
operates as MilliporeSigma in the US and Canada

b)	Odor	stinging
c)	Odor Threshold	No data available
d)	pH	2.6 at 1 g/l at 20 °C (68 °F)
e)	Melting point/freezing point	Melting point/range: 55 - 56 °C (131 - 133 °F) - lit.
f)	Initial boiling point and boiling range	189 °C 372 °F at 981 hPa - lit.
g)	Flash point	No data available
h)	Evaporation rate	No data available
i)	Flammability (solid, gas)	No data available
j)	Upper/lower flammability or explosive limits	No data available
k)	Vapor pressure	0.69 hPa at 25 °C (77 °F)
l)	Vapor density	No data available
m)	Relative density	No data available
n)	Water solubility	3.4 g/l at 20 °C (68 °F)
o)	Partition coefficient: n-octanol/water	log Pow: 6.30 - Potential bioaccumulation, (Lit.)
p)	Autoignition temperature	No data available
q)	Decomposition temperature	> 300 °C (> 572 °F) -
r)	Viscosity	No data available
s)	Explosive properties	No data available
t)	Oxidizing properties	No data available

9.2 Other safety information
No data available

SECTION 10: Stability and reactivity

10.1 Reactivity
The following applies in general to flammable organic substances and mixtures: in correspondingly fine distribution, when whirled up a dust explosion potential may generally be assumed.

10.2 Chemical stability
The product is chemically stable under standard ambient conditions (room temperature) .

10.3 Possibility of hazardous reactions
Violent reactions possible with:
Strong oxidizing agents
Strong acids
Bases

The life science business of Merck KGaA, Darmstadt, Germany
operates as MilliporeSigma in the US and Canada

10.4 Conditions to avoid
no information available

10.5 Incompatible materials
No data available

10.6 Hazardous decomposition products
In the event of fire: see section 5

SECTION 11: Toxicological information

11.1 Information on toxicological effects

Acute toxicity
Acute toxicity estimate Oral - 500.1 mg/kg
(Expert judgment)

Acute toxicity estimate Inhalation - 4 h - 11.1 mg/l
(Expert judgment)

Skin corrosion/irritation
No data available

Serious eye damage/eye irritation
Causes serious eye damage.

Respiratory or skin sensitization

Germ cell mutagenicity
No data available

No data available
No data available

Carcinogenicity
Suspected of causing cancer.

IARC: 2B - Group 2B: Possibly carcinogenic to humans (pentadecafluorooctanoic acid)

NTP: No ingredient of this product present at levels greater than or equal to 0.1% is identified as a known or anticipated carcinogen by NTP.

OSHA: No component of this product present at levels greater than or equal to 0.1% is on OSHA's list of regulated carcinogens.

Reproductive toxicity
May damage the unborn child.
Studies indicating a hazard to babies during the lactation period

Specific target organ toxicity - single exposure

The life science business of Merck KGaA, Darmstadt, Germany
operates as MilliporeSigma in the US and Canada

Specific target organ toxicity - repeated exposure
Causes damage to organs through prolonged or repeated exposure. - Liver

Aspiration hazard

11.2 Additional Information

RTECS: RH0781000

Cough, Shortness of breath, Headache, Nausea, Vomiting
To the best of our knowledge, the chemical, physical, and toxicological properties have not been thoroughly investigated.

After absorption:

gastric pain
Nausea
Vomiting
Drowsiness
somnolence

Handle in accordance with good industrial hygiene and safety practice.

Stomach - Irregularities - Based on Human Evidence

Stomach - Irregularities - Based on Human Evidence

SECTION 12: Ecological information

12.1 Toxicity

No data available

Toxicity to daphnia and other aquatic invertebrates	Remarks: No data available (pentadecafluorooctanoic acid)
Toxicity to algae	Remarks: No data available (pentadecafluorooctanoic acid)

12.2 Persistence and degradability

No data available

12.3 Bioaccumulative potential

No data available

12.4 Mobility in soil

12.5 Results of PBT and vPvB assessment

PBT/vPvB assessment not available as chemical safety assessment not required/not conducted

12.6 Other adverse effects

Discharge into the environment must be avoided.

The life science business of Merck KGaA, Darmstadt, Germany
operates as MilliporeSigma in the US and Canada

SECTION 13: Disposal considerations

13.1 Waste treatment methods

Product
Waste material must be disposed of in accordance with the national and local regulations. Leave chemicals in original containers. No mixing with other waste. Handle uncleaned containers like the product itself. See www.retrologistik.com for processes regarding the return of chemicals and containers, or contact us there if you have further questions.

SECTION 14: Transport information

DOT (US)
UN number: 3261 Class: 8 Packing group: III
Proper shipping name: Corrosive solid, acidic, organic, n.o.s. (pentadecafluorooctanoic acid)
Reportable Quantity (RQ):
Poison Inhalation Hazard: No

IMDG
UN number: 3261 Class: 8 Packing group: III EMS-No: F-A, S-B
Proper shipping name: CORROSIVE SOLID, ACIDIC, ORGANIC, N.O.S. (pentadecafluorooctanoic acid)

IATA
UN number: 3261 Class: 8 Packing group: III
Proper shipping name: Corrosive solid, acidic, organic, n.o.s. (pentadecafluorooctanoic acid)

SECTION 15: Regulatory information

SARA 302 Components
This material does not contain any components with a section 302 EHS TPQ.

SARA 313 Components
This material does not contain any chemical components with known CAS numbers that exceed the threshold (De Minimis) reporting levels established by SARA Title III, Section 313.

SARA 311/312 Hazards
Acute Health Hazard, Chronic Health Hazard

Massachusetts Right To Know Components
No components are subject to the Massachusetts Right to Know Act.

No components are subject to the Massachusetts Right to Know Act.

Pennsylvania Right To Know Components

	CAS-No.	Revision Date
pentadecafluorooctanoic acid	335-67-1	2018-02-01

New Jersey Right To Know Components

The life science business of Merck KGaA, Darmstadt, Germany
operates as MilliporeSigma in the US and Canada

SECTION 16: Other information

Further information

The above information is believed to be correct but does not purport to be all inclusive and shall be used only as a guide. The information in this document is based on the present state of our knowledge and is applicable to the product with regard to appropriate safety precautions. It does not represent any guarantee of the properties of the product. Sigma-Aldrich Corporation and its Affiliates shall not be held liable for any damage resulting from handling or from contact with the above product. See www.sigma-aldrich.com and/or the reverse side of invoice or packing slip for additional terms and conditions of sale.

Copyright 2020 Sigma-Aldrich Co. LLC. License granted to make unlimited paper copies for internal use only.

The branding on the header and/or footer of this document may temporarily not visually match the product purchased as we transition our branding. However, all of the information in the document regarding the product remains unchanged and matches the product ordered. For further information please contact mlsbranding@sial.com.

Version: 6.4 Revision Date: 04/18/2021 Print Date: 06/19/2021

The life science business of Merck KGaA, Darmstadt, Germany
operates as MilliporeSigma in the US and Canada

SAFETY DATA SHEET

Version 4.2
Revision Date 09/08/2015
Print Date 10/19/2018

1. PRODUCT AND COMPANY IDENTIFICATION

1.1 Product identifiers

Product name : Nonafluorobutane-1-sulfonic acid

Product Number : 562629
Brand : Aldrich

CAS-No. : 375-73-5

1.2 Relevant identified uses of the substance or mixture and uses advised against

Identified uses : Laboratory chemicals, Synthesis of substances

1.3 Details of the supplier of the safety data sheet

Company : Sigma-Aldrich
3050 Spruce Street
SAINT LOUIS MO 63103
USA

Telephone : +1 800-325-5832
Fax : +1 800-325-5052

1.4 Emergency telephone number

Emergency Phone # : +1-703-527-3887 (CHEMTREC)

2. HAZARDS IDENTIFICATION

2.1 Classification of the substance or mixture

GHS Classification in accordance with 29 CFR 1910 (OSHA HCS)
Acute toxicity, Oral (Category 4), H302
Skin corrosion (Category 1B), H314
Serious eye damage (Category 1), H318

For the full text of the H-Statements mentioned in this Section, see Section 16.

2.2 GHS Label elements, including precautionary statements

Pictogram



Signal word Danger

Hazard statement(s)
H302 Harmful if swallowed.
H314 Causes severe skin burns and eye damage.

Precautionary statement(s)
P264 Wash skin thoroughly after handling.
P270 Do not eat, drink or smoke when using this product.
P280 Wear protective gloves/ protective clothing/ eye protection/ face protection.
P301 + P312 IF SWALLOWED: Call a POISON CENTER or doctor/ physician if you feel unwell.
P301 + P330 + P331 IF SWALLOWED: Rinse mouth. Do NOT induce vomiting.
P303 + P361 + P353 IF ON SKIN (or hair): Remove/ Take off immediately all contaminated

	clothing. Rinse skin with water/ shower.
P304 + P340	IF INHALED: Remove victim to fresh air and keep at rest in a position comfortable for breathing.
P305 + P351 + P338	IF IN EYES: Rinse cautiously with water for several minutes. Remove contact lenses, if present and easy to do. Continue rinsing.
P310	Immediately call a POISON CENTER or doctor/ physician.
P321	Specific treatment (see supplemental first aid instructions on this label).
P363	Wash contaminated clothing before reuse.
P405	Store locked up.
P501	Dispose of contents/ container to an approved waste disposal plant.

2.3 Hazards not otherwise classified (HNOC) or not covered by GHS
Reacts violently with water.

3. COMPOSITION/INFORMATION ON INGREDIENTS

3.1 Substances

Formula	:	$C_4HF_9O_3S$
Molecular weight	:	300.10 g/mol
CAS-No.	:	375-73-5
EC-No.	:	206-793-1

Hazardous components

Component	Classification	Concentration
1,1,2,2,3,3,4,4,4-Nonafluorobutane-1-sulphonic acid		
	Acute Tox. 4; Skin Corr. 1B; Eye Dam. 1; H302, H314	<= 100 %

For the full text of the H-Statements mentioned in this Section, see Section 16.

4. FIRST AID MEASURES

4.1 Description of first aid measures

General advice
Consult a physician. Show this safety data sheet to the doctor in attendance.Move out of dangerous area.

If inhaled
If breathed in, move person into fresh air. If not breathing, give artificial respiration. Consult a physician.

In case of skin contact
Take off contaminated clothing and shoes immediately. Wash off with soap and plenty of water. Consult a physician.

In case of eye contact
Rinse thoroughly with plenty of water for at least 15 minutes and consult a physician.Continue rinsing eyes during transport to hospital.

If swallowed
Do NOT induce vomiting. Never give anything by mouth to an unconscious person. Rinse mouth with water. Consult a physician.

4.2 Most important symptoms and effects, both acute and delayed
The most important known symptoms and effects are described in the labelling (see section 2.2) and/or in section 11

4.3 Indication of any immediate medical attention and special treatment needed
No data available

5. FIREFIGHTING MEASURES

5.1 Extinguishing media

Suitable extinguishing media
Dry powder

5.2 Special hazards arising from the substance or mixture
Carbon oxides, Sulphur oxides, Hydrogen fluoride

5.3 Advice for firefighters
Wear self-contained breathing apparatus for firefighting if necessary.

5.4 Further information
No data available

6. ACCIDENTAL RELEASE MEASURES

6.1 Personal precautions, protective equipment and emergency procedures
Use personal protective equipment. Avoid breathing vapours, mist or gas. Ensure adequate ventilation. Evacuate personnel to safe areas.
For personal protection see section 8.

6.2 Environmental precautions
Do not let product enter drains.

6.3 Methods and materials for containment and cleaning up
Soak up with inert absorbent material and dispose of as hazardous waste. Do not flush with water. Keep in suitable, closed containers for disposal.

6.4 Reference to other sections
For disposal see section 13.

7. HANDLING AND STORAGE

7.1 Precautions for safe handling
Avoid contact with skin and eyes. Avoid inhalation of vapour or mist.
For precautions see section 2.2.

7.2 Conditions for safe storage, including any incompatibilities
Keep container tightly closed in a dry and well-ventilated place. Containers which are opened must be carefully resealed and kept upright to prevent leakage.
Never allow product to get in contact with water during storage.

Recommended storage temperature 2 - 8 °C

Handle and store under inert gas.

7.3 Specific end use(s)
Apart from the uses mentioned in section 1.2 no other specific uses are stipulated

8. EXPOSURE CONTROLS/PERSONAL PROTECTION

8.1 Control parameters

Components with workplace control parameters
Contains no substances with occupational exposure limit values.

8.2 Exposure controls

Appropriate engineering controls
Handle in accordance with good industrial hygiene and safety practice. Wash hands before breaks and at the end of workday.

Personal protective equipment

Eye/face protection
Tightly fitting safety goggles. Faceshield (8-inch minimum). Use equipment for eye protection tested and approved under appropriate government standards such as NIOSH (US) or EN 166(EU).

Skin protection
Handle with gloves. Gloves must be inspected prior to use. Use proper glove removal technique (without touching glove's outer surface) to avoid skin contact with this product. Dispose of contaminated gloves after use in accordance with applicable laws and good laboratory practices. Wash and dry hands.

Body Protection
Complete suit protecting against chemicals, Flame retardant protective clothing, The type of protective equipment must be selected according to the concentration and amount of the dangerous substance at the specific workplace.

Respiratory protection
Where risk assessment shows air-purifying respirators are appropriate use a full-face respirator with multi-purpose combination (US) or type ABEK (EN 14387) respirator cartridges as a backup to engineering controls. If the respirator is the sole means of protection, use a full-face supplied air respirator. Use respirators and components tested and approved under appropriate government standards such as NIOSH (US) or CEN (EU).

Control of environmental exposure
Do not let product enter drains.

9. PHYSICAL AND CHEMICAL PROPERTIES

9.1 Information on basic physical and chemical properties

a)	Appearance	Form: liquid Colour: colourless
b)	Odour	No data available
c)	Odour Threshold	No data available
d)	pH	No data available
e)	Melting point/freezing point	No data available
f)	Initial boiling point and boiling range	112 - 114 °C (234 - 237 °F) at 19 hPa (14 mmHg) - lit.
g)	Flash point	No data available
h)	Evaporation rate	No data available
i)	Flammability (solid, gas)	No data available
j)	Upper/lower flammability or explosive limits	No data available
k)	Vapour pressure	No data available
l)	Vapour density	No data available
m)	Relative density	1.811 g/cm3 at 25 °C (77 °F)
n)	Water solubility	No data available
o)	Partition coefficient: n-octanol/water	No data available
p)	Auto-ignition temperature	No data available
q)	Decomposition temperature	No data available
r)	Viscosity	No data available
s)	Explosive properties	No data available
t)	Oxidizing properties	No data available

9.2 Other safety information
No data available

10. STABILITY AND REACTIVITY

10.1 Reactivity
No data available

10.2 Chemical stability
Stable under recommended storage conditions.

10.3 Possibility of hazardous reactions
Reacts violently with water.

10.4 Conditions to avoid
Do not allow water to enter container because of violent reaction.
Exposure to moisture

10.5 Incompatible materials
Strong oxidizing agentsStrong oxidizing agents

10.6 Hazardous decomposition products
Other decomposition products - No data available
In the event of fire: see section 5

11. TOXICOLOGICAL INFORMATION

11.1 Information on toxicological effects

Acute toxicity
LD50 Oral - Rat - 430 mg/kg
Remarks: Behavioral:Somnolence (general depressed activity). Skin and Appendages: Other: Hair. Nutritional and Gross Metabolic:Weight loss or decreased weight gain.

Inhalation: No data available

Dermal: No data available

No data available

Skin corrosion/irritation
No data available

Serious eye damage/eye irritation
No data available

Respiratory or skin sensitisation
No data available

Germ cell mutagenicity
No data available

Carcinogenicity

IARC: No component of this product present at levels greater than or equal to 0.1% is identified as probable, possible or confirmed human carcinogen by IARC.

ACGIH: No component of this product present at levels greater than or equal to 0.1% is identified as a carcinogen or potential carcinogen by ACGIH.

NTP: No component of this product present at levels greater than or equal to 0.1% is identified as a known or anticipated carcinogen by NTP.

OSHA: No component of this product present at levels greater than or equal to 0.1% is identified as a carcinogen or potential carcinogen by OSHA.

Reproductive toxicity
No data available

No data available

Specific target organ toxicity - single exposure
No data available

Specific target organ toxicity - repeated exposure
No data available

Aspiration hazard
No data available

Additional Information
RTECS: EK5930000

Material is extremely destructive to tissue of the mucous membranes and upper respiratory tract, eyes, and skin., spasm, inflammation and edema of the larynx, spasm, inflammation and edema of the bronchi, pneumonitis, pulmonary edema, burning sensation, Cough, wheezing, laryngitis, Shortness of breath, Headache, Nausea

12. ECOLOGICAL INFORMATION

12.1 Toxicity
No data available

12.2 Persistence and degradability
No data available

12.3 Bioaccumulative potential
No data available

12.4 Mobility in soil
No data available

12.5 Results of PBT and vPvB assessment
PBT/vPvB assessment not available as chemical safety assessment not required/not conducted

12.6 Other adverse effects

No data available

13. DISPOSAL CONSIDERATIONS

13.1 Waste treatment methods

Product
Offer surplus and non-recyclable solutions to a licensed disposal company. Contact a licensed professional waste disposal service to dispose of this material. Dissolve or mix the material with a combustible solvent and burn in a chemical incinerator equipped with an afterburner and scrubber.

Contaminated packaging
Dispose of as unused product.

14. TRANSPORT INFORMATION

DOT (US)
UN number: 3265 Class: 8 Packing group: II
Proper shipping name: Corrosive liquid, acidic, organic, n.o.s. (1,1,2,2,3,3,4,4,4-Nonafluorobutane-1-sulphonic acid)

Poison Inhalation Hazard: No

IMDG
UN number: 3265 Class: 8 Packing group: II EMS-No: F-A, S-B
Proper shipping name: CORROSIVE LIQUID, ACIDIC, ORGANIC, N.O.S. (1,1,2,2,3,3,4,4,4-Nonafluorobutane-1-sulphonic acid)

IATA
UN number: 3265 Class: 8 Packing group: II
Proper shipping name: Corrosive liquid, acidic, organic, n.o.s. (1,1,2,2,3,3,4,4,4-Nonafluorobutane-1-sulphonic acid)

15. REGULATORY INFORMATION

SARA 302 Components
No chemicals in this material are subject to the reporting requirements of SARA Title III, Section 302.

SARA 313 Components
This material does not contain any chemical components with known CAS numbers that exceed the threshold (De Minimis) reporting levels established by SARA Title III, Section 313.

SARA 311/312 Hazards
Acute Health Hazard

Massachusetts Right To Know Components
No components are subject to the Massachusetts Right to Know Act.

Pennsylvania Right To Know Components

CAS-No. Revision Date

1,1,2,2,3,3,4,4,4-Nonafluorobutane-1-sulphonic acid	375-73-5

New Jersey Right To Know Components

	CAS-No.	Revision Date
1,1,2,2,3,3,4,4,4-Nonafluorobutane-1-sulphonic acid	375-73-5	

California Prop. 65 Components

This product does not contain any chemicals known to State of California to cause cancer, birth defects, or any other reproductive harm.

16. OTHER INFORMATION

Full text of H-Statements referred to under sections 2 and 3.

Acute Tox.	Acute toxicity
Eye Dam.	Serious eye damage
H302	Harmful if swallowed.
H314	Causes severe skin burns and eye damage.
H318	Causes serious eye damage.
Skin Corr.	Skin corrosion

HMIS Rating

Health hazard:	3
Chronic Health Hazard:	
Flammability:	0
Physical Hazard	0

NFPA Rating

Health hazard:	3
Fire Hazard:	0
Reactivity Hazard:	0

Further information

Copyright 2015 Sigma-Aldrich Co. LLC. License granted to make unlimited paper copies for internal use only.
The above information is believed to be correct but does not purport to be all inclusive and shall be used only as a guide. The information in this document is based on the present state of our knowledge and is applicable to the product with regard to appropriate safety precautions. It does not represent any guarantee of the properties of the product. Sigma-Aldrich Corporation and its Affiliates shall not be held liable for any damage resulting from handling or from contact with the above product. See www.sigma-aldrich.com and/or the reverse side of invoice or packing slip for additional terms and conditions of sale.

Preparation Information

Sigma-Aldrich Corporation
Product Safety – Americas Region
1-800-521-8956

Version: 4.2 Revision Date: 09/08/2015 Print Date: 10/19/2018

SAFETY DATA SHEET

Version 4.4
Revision Date 06/18/2015
Print Date 05/01/2016

1. PRODUCT AND COMPANY IDENTIFICATION

1.1 Product identifiers

Product name : Perfluorodecanoic acid

Product Number : 177741
Brand : Aldrich

CAS-No. : 335-76-2

1.2 Relevant identified uses of the substance or mixture and uses advised against

Identified uses : Laboratory chemicals, Manufacture of substances

1.3 Details of the supplier of the safety data sheet

Company : Sigma-Aldrich
3050 Spruce Street
SAINT LOUIS MO 63103
USA

Telephone : +1 800-325-5832
Fax : +1 800-325-5052

1.4 Emergency telephone number

Emergency Phone # : (314) 776-6555

2. HAZARDS IDENTIFICATION

2.1 Classification of the substance or mixture

GHS Classification in accordance with 29 CFR 1910 (OSHA HCS)
Acute toxicity, Oral (Category 3), H301
Skin irritation (Category 2), H315
Eye irritation (Category 2A), H319
Specific target organ toxicity - single exposure (Category 3), Respiratory system, H335

For the full text of the H-Statements mentioned in this Section, see Section 16.

2.2 GHS Label elements, including precautionary statements

Pictogram



Signal word Danger

Hazard statement(s)
H301 Toxic if swallowed.
H315 Causes skin irritation.
H319 Causes serious eye irritation.
H335 May cause respiratory irritation.

Precautionary statement(s)
P261 Avoid breathing dust/ fume/ gas/ mist/ vapours/ spray.
P264 Wash skin thoroughly after handling.
P270 Do not eat, drink or smoke when using this product.
P271 Use only outdoors or in a well-ventilated area.
P280 Wear eye protection/ face protection.
P280 Wear protective gloves.

P301 + P310 + P330	IF SWALLOWED: Immediately call a POISON CENTER or doctor/ physician. Rinse mouth.
P302 + P352	IF ON SKIN: Wash with plenty of soap and water.
P304 + P340 + P312	IF INHALED: Remove victim to fresh air and keep at rest in a position comfortable for breathing. Call a POISON CENTER or doctor/ physician if you feel unwell.
P305 + P351 + P338	IF IN EYES: Rinse cautiously with water for several minutes. Remove contact lenses, if present and easy to do. Continue rinsing.
P332 + P313	If skin irritation occurs: Get medical advice/ attention.
P337 + P313	If eye irritation persists: Get medical advice/ attention.
P362	Take off contaminated clothing and wash before reuse.
P403 + P233	Store in a well-ventilated place. Keep container tightly closed.
P405	Store locked up.
P501	Dispose of contents/ container to an approved waste disposal plant.

2.3 Hazards not otherwise classified (HNOC) or not covered by GHS - none

3. COMPOSITION/INFORMATION ON INGREDIENTS

3.1 Substances

Synonyms : Nonadecafluorodecanoic acid
Nonadecafluorocapric acid
Perfluorodecanoic acid
Perfluorocapric acid

Formula : $C_{10}HF_{19}O_2$
Molecular weight : 514.08 g/mol
CAS-No. : 335-76-2
EC-No. : 206-400-3

Hazardous components

Component	Classification	Concentration
Nonadecafluorodecanoic acid		
	Acute Tox. 3; Skin Irrit. 2; Eye Irrit. 2A; STOT SE 3; H301, H315, H319, H335	<= 100 %

For the full text of the H-Statements mentioned in this Section, see Section 16.

4. FIRST AID MEASURES

4.1 Description of first aid measures

General advice
Consult a physician. Show this safety data sheet to the doctor in attendance.Move out of dangerous area.

If inhaled
If breathed in, move person into fresh air. If not breathing, give artificial respiration. Consult a physician.

In case of skin contact
Wash off with soap and plenty of water. Take victim immediately to hospital. Consult a physician.

In case of eye contact
Rinse thoroughly with plenty of water for at least 15 minutes and consult a physician.

If swallowed
Never give anything by mouth to an unconscious person. Rinse mouth with water. Consult a physician.

4.2 Most important symptoms and effects, both acute and delayed
The most important known symptoms and effects are described in the labelling (see section 2.2) and/or in section 11

4.3 Indication of any immediate medical attention and special treatment needed
No data available

5. FIREFIGHTING MEASURES

5.1 Extinguishing media

Suitable extinguishing media
Use water spray, alcohol-resistant foam, dry chemical or carbon dioxide.

5.2 Special hazards arising from the substance or mixture
Carbon oxides, Hydrogen fluoride

5.3 Advice for firefighters
Wear self-contained breathing apparatus for firefighting if necessary.

5.4 Further information
No data available

6. ACCIDENTAL RELEASE MEASURES

6.1 Personal precautions, protective equipment and emergency procedures
Wear respiratory protection. Avoid dust formation. Avoid breathing vapours, mist or gas. Ensure adequate ventilation. Evacuate personnel to safe areas. Avoid breathing dust.
For personal protection see section 8.

6.2 Environmental precautions
Prevent further leakage or spillage if safe to do so. Do not let product enter drains.

6.3 Methods and materials for containment and cleaning up
Pick up and arrange disposal without creating dust. Sweep up and shovel. Keep in suitable, closed containers for disposal.

6.4 Reference to other sections
For disposal see section 13.

7. HANDLING AND STORAGE

7.1 Precautions for safe handling
Avoid contact with skin and eyes. Avoid formation of dust and aerosols.Further processing of solid materials may result in the formation of combustible dusts. The potential for combustible dust formation should be taken into consideration before additional processing occurs.
Provide appropriate exhaust ventilation at places where dust is formed.
For precautions see section 2.2.

7.2 Conditions for safe storage, including any incompatibilities
Keep container tightly closed in a dry and well-ventilated place.

Keep in a dry place.
Storage class (TRGS 510): Non-combustible, acute toxic Cat.3 / toxic hazardous materials or hazardous materials causing chronic effects

7.3 Specific end use(s)
Apart from the uses mentioned in section 1.2 no other specific uses are stipulated

8. EXPOSURE CONTROLS/PERSONAL PROTECTION

8.1 Control parameters

Components with workplace control parameters
Contains no substances with occupational exposure limit values.

8.2 Exposure controls

Appropriate engineering controls
Avoid contact with skin, eyes and clothing. Wash hands before breaks and immediately after handling the product.

Personal protective equipment

Eye/face protection
Face shield and safety glasses Use equipment for eye protection tested and approved under appropriate government standards such as NIOSH (US) or EN 166(EU).

Skin protection
Handle with gloves. Gloves must be inspected prior to use. Use proper glove removal technique (without touching glove's outer surface) to avoid skin contact with this product. Dispose of contaminated gloves after use in accordance with applicable laws and good laboratory practices. Wash and dry hands.

Full contact
Material: Nitrile rubber
Minimum layer thickness: 0.11 mm
Break through time: 480 min
Material tested:Dermatril® (KCL 740 / Aldrich Z677272, Size M)

Splash contact
Material: Nitrile rubber
Minimum layer thickness: 0.11 mm
Break through time: 480 min
Material tested:Dermatril® (KCL 740 / Aldrich Z677272, Size M)

data source: KCL GmbH, D-36124 Eichenzell, phone +49 (0)6659 87300, e-mail sales@kcl.de, test method: EN374
If used in solution, or mixed with other substances, and under conditions which differ from EN 374, contact the supplier of the CE approved gloves. This recommendation is advisory only and must be evaluated by an industrial hygienist and safety officer familiar with the specific situation of anticipated use by our customers. It should not be construed as offering an approval for any specific use scenario.

Body Protection
Complete suit protecting against chemicals, The type of protective equipment must be selected according to the concentration and amount of the dangerous substance at the specific workplace.

Respiratory protection
Where risk assessment shows air-purifying respirators are appropriate use a full-face particle respirator type N99 (US) or type P2 (EN 143) respirator cartridges as a backup to engineering controls. If the respirator is the sole means of protection, use a full-face supplied air respirator. Use respirators and components tested and approved under appropriate government standards such as NIOSH (US) or CEN (EU).

Control of environmental exposure
Prevent further leakage or spillage if safe to do so. Do not let product enter drains.

9. PHYSICAL AND CHEMICAL PROPERTIES

9.1 Information on basic physical and chemical properties

a)	Appearance	Form: powder Colour: white
b)	Odour	No data available
c)	Odour Threshold	No data available
d)	pH	No data available
e)	Melting point/freezing point	Melting point/range: 77 - 81 °C (171 - 178 °F) - lit.
f)	Initial boiling point and boiling range	218 °C (424 °F) at 987 hPa (740 mmHg) - lit.
g)	Flash point	No data available
h)	Evaporation rate	No data available
i)	Flammability (solid, gas)	No data available
j)	Upper/lower flammability or explosive limits	No data available
k)	Vapour pressure	No data available
l)	Vapour density	No data available
m)	Relative density	No data available

n)	Water solubility	No data available
o)	Partition coefficient: n-octanol/water	No data available
p)	Auto-ignition temperature	No data available
q)	Decomposition temperature	No data available
r)	Viscosity	No data available
s)	Explosive properties	No data available
t)	Oxidizing properties	No data available

9.2 Other safety information
No data available

10. STABILITY AND REACTIVITY

10.1 Reactivity
No data available

10.2 Chemical stability
Stable under recommended storage conditions.

10.3 Possibility of hazardous reactions
No data available

10.4 Conditions to avoid
No data available

10.5 Incompatible materials
Bases, Oxidizing agents, Reducing agents

10.6 Hazardous decomposition products
Other decomposition products - No data available
In the event of fire: see section 5

11. TOXICOLOGICAL INFORMATION

11.1 Information on toxicological effects

Acute toxicity
LD50 Oral - Rat - 57 mg/kg
Remarks: Behavioral:Food intake (animal).

Dermal: No data available

No data available

Skin corrosion/irritation
No data available

Serious eye damage/eye irritation
No data available

Respiratory or skin sensitisation
No data available

Germ cell mutagenicity

Rat
DNA damage

Carcinogenicity

IARC: No component of this product present at levels greater than or equal to 0.1% is identified as probable, possible or confirmed human carcinogen by IARC.

ACGIH: No component of this product present at levels greater than or equal to 0.1% is identified as a carcinogen or potential carcinogen by ACGIH.

NTP: No component of this product present at levels greater than or equal to 0.1% is identified as a known or anticipated carcinogen by NTP.

OSHA: No component of this product present at levels greater than or equal to 0.1% is identified as a carcinogen or potential carcinogen by OSHA.

Reproductive toxicity
No data available

Reproductive toxicity - Rat - Oral
Effects on Fertility: Post-implantation mortality (e.g., dead and/or resorbed implants per total number of implants). Effects on Fertility: Litter size (e.g.; # fetuses per litter; measured before birth). Effects on Embryo or Fetus: Fetotoxicity (except death, e.g., stunted fetus).

Reproductive toxicity - Rat - Intraperitoneal
Paternal Effects: Testes, epididymis, sperm duct.

Reproductive toxicity - Mouse - Oral
Effects on Fertility: Post-implantation mortality (e.g., dead and/or resorbed implants per total number of implants).
Effects on Embryo or Fetus: Fetal death.

No data available

Specific target organ toxicity - single exposure
Inhalation - May cause respiratory irritation.

Specific target organ toxicity - repeated exposure
No data available

Aspiration hazard
No data available

Additional Information
RTECS: HD9900000

To the best of our knowledge, the chemical, physical, and toxicological properties have not been thoroughly investigated.

12. ECOLOGICAL INFORMATION

12.1 Toxicity
No data available

12.2 Persistence and degradability
No data available

12.3 Bioaccumulative potential
No data available

12.4 Mobility in soil
No data available

12.5 Results of PBT and vPvB assessment
PBT/vPvB assessment not available as chemical safety assessment not required/not conducted

12.6 Other adverse effects

No data available

13. DISPOSAL CONSIDERATIONS

13.1 Waste treatment methods

Product
Offer surplus and non-recyclable solutions to a licensed disposal company. Contact a licensed professional waste disposal service to dispose of this material. Dissolve or mix the material with a combustible solvent and burn in a chemical incinerator equipped with an afterburner and scrubber.

Contaminated packaging
Dispose of as unused product.

14. TRANSPORT INFORMATION

DOT (US)
UN number: 2811 Class: 6.1 Packing group: III
Proper shipping name: Toxic solids, organic, n.o.s. (Nonadecafluorodecanoic acid)
Reportable Quantity (RQ):

Poison Inhalation Hazard: No

IMDG
UN number: 2811 Class: 6.1 Packing group: III EMS-No: F-A, S-A
Proper shipping name: TOXIC SOLID, ORGANIC, N.O.S. (Nonadecafluorodecanoic acid)

IATA
UN number: 2811 Class: 6.1 Packing group: III
Proper shipping name: Toxic solid, organic, n.o.s. (Nonadecafluorodecanoic acid)

15. REGULATORY INFORMATION

SARA 302 Components
No chemicals in this material are subject to the reporting requirements of SARA Title III, Section 302.

SARA 313 Components
This material does not contain any chemical components with known CAS numbers that exceed the threshold (De Minimis) reporting levels established by SARA Title III, Section 313.

SARA 311/312 Hazards
Acute Health Hazard

Massachusetts Right To Know Components
No components are subject to the Massachusetts Right to Know Act.

Pennsylvania Right To Know Components

	CAS-No.	Revision Date
Nonadecafluorodecanoic acid	335-76-2	

New Jersey Right To Know Components

	CAS-No.	Revision Date
Nonadecafluorodecanoic acid	335-76-2	

California Prop. 65 Components
This product does not contain any chemicals known to State of California to cause cancer, birth defects, or any other reproductive harm.

16. OTHER INFORMATION

Full text of H-Statements referred to under sections 2 and 3.

Acute Tox.	Acute toxicity
Eye Irrit.	Eye irritation
H301	Toxic if swallowed.
H315	Causes skin irritation.
H319	Causes serious eye irritation.
H335	May cause respiratory irritation.
Skin Irrit.	Skin irritation

HMIS Rating
Health hazard: 2
Chronic Health Hazard:
Flammability: 0

Physical Hazard	0

NFPA Rating

Health hazard:	2
Fire Hazard:	0
Reactivity Hazard:	0

Further information

Copyright 2015 Sigma-Aldrich Co. LLC. License granted to make unlimited paper copies for internal use only.
The above information is believed to be correct but does not purport to be all inclusive and shall be used only as a guide. The information in this document is based on the present state of our knowledge and is applicable to the product with regard to appropriate safety precautions. It does not represent any guarantee of the properties of the product. Sigma-Aldrich Corporation and its Affiliates shall not be held liable for any damage resulting from handling or from contact with the above product. See www.sigma-aldrich.com and/or the reverse side of invoice or packing slip for additional terms and conditions of sale.

Preparation Information

Sigma-Aldrich Corporation
Product Safety – Americas Region
1-800-521-8956

Version: 4.4 Revision Date: 06/18/2015 Print Date: 05/01/2016

SAFETY DATA SHEET

Version 6.1
Revision Date 01/15/2020
Print Date 06/19/2021

SECTION 1: Identification of the substance/mixture and of the company/undertaking

1.1 Product identifiers

Product name : Perfluoroheptanoic acid

Product Number : 342041
Brand : Aldrich
CAS-No. : 375-85-9

1.2 Relevant identified uses of the substance or mixture and uses advised against

Identified uses : Laboratory chemicals, Synthesis of substances

1.3 Details of the supplier of the safety data sheet

Company : Sigma-Aldrich Inc.
3050 SPRUCE ST
ST. LOUIS MO 63103
UNITED STATES

Telephone : +1 314 771-5765
Fax : +1 800 325-5052

1.4 Emergency telephone number

Emergency Phone # : 800-424-9300 CHEMTREC (USA) +1-703-527-3887 CHEMTREC (International) 24 Hours/day; 7 Days/week

SECTION 2: Hazards identification

2.1 Classification of the substance or mixture

GHS Classification in accordance with 29 CFR 1910 (OSHA HCS)

Acute toxicity, Oral (Category 4), H302
Skin corrosion (Category 1B), H314
Serious eye damage (Category 1), H318

For the full text of the H-Statements mentioned in this Section, see Section 16.

2.2 GHS Label elements, including precautionary statements

Pictogram



Signal word Danger

Hazard statement(s)
H302 Harmful if swallowed.

The life science business of Merck KGaA, Darmstadt, Germany
operates as MilliporeSigma in the US and Canada

H314	Causes severe skin burns and eye damage.

Precautionary statement(s)

P260	Do not breathe dust or mist.
P264	Wash skin thoroughly after handling.
P270	Do not eat, drink or smoke when using this product.
P280	Wear protective gloves/ protective clothing/ eye protection/ face protection.
P301 + P312	IF SWALLOWED: Call a POISON CENTER/doctor if you feel unwell.
P301 + P330 + P331	IF SWALLOWED: Rinse mouth. Do NOT induce vomiting.
P303 + P361 + P353	IF ON SKIN (or hair): Remove/ Take off immediately all contaminated clothing. Rinse skin with water/ shower.
P304 + P340	IF INHALED: Remove victim to fresh air and keep at rest in a position comfortable for breathing.
P305 + P351 + P338	IF IN EYES: Rinse cautiously with water for several minutes. Remove contact lenses, if present and easy to do. Continue rinsing.
P310	Immediately call a POISON CENTER/doctor.
P321	Specific treatment (see supplemental first aid instructions on this label).
P363	Wash contaminated clothing before reuse.
P405	Store locked up.
P501	Dispose of contents/ container to an approved waste disposal plant.

2.3 Hazards not otherwise classified (HNOC) or not covered by GHS - none

SECTION 3: Composition/information on ingredients

3.1 Substances

Formula	:	$C_7HF_{13}O_2$
Molecular weight	:	364.06 g/mol
CAS-No.	:	375-85-9
EC-No.	:	206-798-9

Component	Classification	Concentration
Perfluoroheptanoic acid		
	Acute Tox. 4; Skin Corr. 1B; Eye Dam. 1; H302, H314, H318	<= 100 %

For the full text of the H-Statements mentioned in this Section, see Section 16.

SECTION 4: First aid measures

4.1 Description of first aid measures

General advice

Consult a physician. Show this safety data sheet to the doctor in attendance.Move out of dangerous area.

The life science business of Merck KGaA, Darmstadt, Germany
operates as MilliporeSigma in the US and Canada

If inhaled
If breathed in, move person into fresh air. If not breathing, give artificial respiration. Consult a physician.

In case of skin contact
Take off contaminated clothing and shoes immediately. Wash off with soap and plenty of water. Consult a physician.

In case of eye contact
Rinse thoroughly with plenty of water for at least 15 minutes and consult a physician.Continue rinsing eyes during transport to hospital.

If swallowed
Do NOT induce vomiting. Never give anything by mouth to an unconscious person. Rinse mouth with water. Consult a physician.

4.2 Most important symptoms and effects, both acute and delayed
The most important known symptoms and effects are described in the labelling (see section 2.2) and/or in section 11

4.3 Indication of any immediate medical attention and special treatment needed
No data available

SECTION 5: Firefighting measures

5.1 Extinguishing media

Suitable extinguishing media
Use water spray, alcohol-resistant foam, dry chemical or carbon dioxide.

5.2 Special hazards arising from the substance or mixture
Carbon oxides, Hydrogen fluoride
Carbon oxides, Hydrogen fluoride

5.3 Advice for firefighters
Wear self-contained breathing apparatus for firefighting if necessary.

5.4 Further information
No data available

SECTION 6: Accidental release measures

6.1 Personal precautions, protective equipment and emergency procedures
Use personal protective equipment. Avoid dust formation. Avoid breathing vapours, mist or gas. Ensure adequate ventilation. Evacuate personnel to safe areas. Avoid breathing dust.
For personal protection see section 8.

6.2 Environmental precautions
Do not let product enter drains.

6.3 Methods and materials for containment and cleaning up
Pick up and arrange disposal without creating dust. Sweep up and shovel. Keep in suitable, closed containers for disposal.

6.4 Reference to other sections
For disposal see section 13.

The life science business of Merck KGaA, Darmstadt, Germany
operates as MilliporeSigma in the US and Canada

SECTION 7: Handling and storage

7.1 Precautions for safe handling

Avoid contact with skin and eyes. Avoid formation of dust and aerosols.
Provide appropriate exhaust ventilation at places where dust is formed.Normal measures for preventive fire protection.
For precautions see section 2.2.

7.2 Conditions for safe storage, including any incompatibilities

Keep container tightly closed in a dry and well-ventilated place.
Storage class (TRGS 510): 8B: Non-combustible, corrosive hazardous materials

7.3 Specific end use(s)

Apart from the uses mentioned in section 1.2 no other specific uses are stipulated

SECTION 8: Exposure controls/personal protection

8.1 Control parameters

Components with workplace control parameters
Contains no substances with occupational exposure limit values.

8.2 Exposure controls

Appropriate engineering controls
Handle in accordance with good industrial hygiene and safety practice. Wash hands before breaks and at the end of workday.

Personal protective equipment

Eye/face protection
Face shield and safety glasses Use equipment for eye protection tested and approved under appropriate government standards such as NIOSH (US) or EN 166(EU).

Skin protection
Handle with gloves. Gloves must be inspected prior to use. Use proper glove removal technique (without touching glove's outer surface) to avoid skin contact with this product. Dispose of contaminated gloves after use in accordance with applicable laws and good laboratory practices. Wash and dry hands.

Body Protection
Complete suit protecting against chemicals, The type of protective equipment must be selected according to the concentration and amount of the dangerous substance at the specific workplace.

Respiratory protection
Where risk assessment shows air-purifying respirators are appropriate use a full-face particle respirator type N100 (US) or type P3 (EN 143) respirator cartridges as a backup to engineering controls. If the respirator is the sole means of protection, use a full-face supplied air respirator. Use respirators and components tested and approved under appropriate government standards such as NIOSH (US) or CEN (EU).

Control of environmental exposure
Do not let product enter drains.

The life science business of Merck KGaA, Darmstadt, Germany
operates as MilliporeSigma in the US and Canada

SECTION 9: Physical and chemical properties

9.1 Information on basic physical and chemical properties

a)	Appearance	Form: crystalline Colour: beige
b)	Odour	No data available
c)	Odour Threshold	No data available
d)	pH	No data available
e)	Melting point/freezing point	Melting point/freezing point: 30 °C (86 °F)
f)	Initial boiling point and boiling range	175 °C 347 °F at 989 hPa
g)	Flash point	> 113.00 °C (> 235.40 °F) - closed cup
h)	Evaporation rate	No data available
i)	Flammability (solid, gas)	No data available
j)	Upper/lower flammability or explosive limits	No data available
k)	Vapour pressure	No data available
l)	Vapour density	No data available
m)	Relative density	1.792 g/mL at 25 °C (77 °F)
n)	Water solubility	No data available
o)	Partition coefficient: n-octanol/water	No data available
p)	Auto-ignition temperature	No data available
q)	Decomposition temperature	No data available
r)	Viscosity	No data available
s)	Explosive properties	No data available
t)	Oxidizing properties	No data available

9.2 Other safety information

No data available

SECTION 10: Stability and reactivity

10.1 Reactivity

No data available

10.2 Chemical stability

Stable under recommended storage conditions.

The life science business of Merck KGaA, Darmstadt, Germany
operates as MilliporeSigma in the US and Canada

10.3 Possibility of hazardous reactions
No data available

10.4 Conditions to avoid
No data available

10.5 Incompatible materials
Strong oxidizing agents

10.6 Hazardous decomposition products
Hazardous decomposition products formed under fire conditions. - Carbon oxides, Hydrogen fluoride
Hazardous decomposition products formed under fire conditions. - Carbon oxides, Hydrogen fluoride
Other decomposition products - No data available
In the event of fire: see section 5

SECTION 11: Toxicological information

11.1 Information on toxicological effects

Acute toxicity
No data available
Inhalation: No data available
Dermal: No data available
No data available

Skin corrosion/irritation
No data available

Serious eye damage/eye irritation
No data available

Respiratory or skin sensitisation
No data available

Germ cell mutagenicity
No data available

Carcinogenicity

IARC:	No component of this product present at levels greater than or equal to 0.1% is identified as probable, possible or confirmed human carcinogen by IARC.
ACGIH:	No component of this product present at levels greater than or equal to 0.1% is identified as a carcinogen or potential carcinogen by ACGIH.
NTP:	No component of this product present at levels greater than or equal to 0.1% is identified as a known or anticipated carcinogen by NTP.
OSHA:	No component of this product present at levels greater than or equal to 0.1% is on OSHA's list of regulated carcinogens.

Reproductive toxicity
No data available
No data available

Specific target organ toxicity - single exposure
No data available

The life science business of Merck KGaA, Darmstadt, Germany
operates as MilliporeSigma in the US and Canada

Specific target organ toxicity - repeated exposure
No data available

Aspiration hazard
No data available

Additional Information
RTECS: Not available

SECTION 12: Ecological information

12.1 Toxicity
No data available

12.2 Persistence and degradability
No data available

12.3 Bioaccumulative potential
No data available

12.4 Mobility in soil
No data available

12.5 Results of PBT and vPvB assessment
PBT/vPvB assessment not available as chemical safety assessment not required/not conducted

12.6 Other adverse effects
No data available

SECTION 13: Disposal considerations

13.1 Waste treatment methods

Product
Offer surplus and non-recyclable solutions to a licensed disposal company. Contact a licensed professional waste disposal service to dispose of this material. Dissolve or mix the material with a combustible solvent and burn in a chemical incinerator equipped with an afterburner and scrubber.

Contaminated packaging
Dispose of as unused product.

SECTION 14: Transport information

DOT (US)
UN number: 3261 Class: 8 Packing group: II
Proper shipping name: Corrosive solid, acidic, organic, n.o.s. (Perfluoroheptanoic acid)
Poison Inhalation Hazard: No

IMDG
UN number: 3261 Class: 8 Packing group: II EMS-No: F-A, S-B

The life science business of Merck KGaA, Darmstadt, Germany
operates as MilliporeSigma in the US and Canada

Proper shipping name: CORROSIVE SOLID, ACIDIC, ORGANIC, N.O.S. (Perfluoroheptanoic acid)

IATA
UN number: 3261 Class: 8 Packing group: II
Proper shipping name: Corrosive solid, acidic, organic, n.o.s. (Perfluoroheptanoic acid)

SECTION 15: Regulatory information

SARA 302 Components
No chemicals in this material are subject to the reporting requirements of SARA Title III, Section 302.

SARA 313 Components
This material does not contain any chemical components with known CAS numbers that exceed the threshold (De Minimis) reporting levels established by SARA Title III, Section 313.

SARA 311/312 Hazards
Acute Health Hazard

Massachusetts Right To Know Components
No components are subject to the Massachusetts Right to Know Act.

Pennsylvania Right To Know Components

Perfluoroheptanoic acid	CAS-No. 375-85-9	Revision Date

New Jersey Right To Know Components

Perfluoroheptanoic acid	CAS-No. 375-85-9	Revision Date

California Prop. 65 Components
This product does not contain any chemicals known to State of California to cause cancer, birth defects, or any other reproductive harm.

SECTION 16: Other information

Further information
Copyright 2020 Sigma-Aldrich Co. LLC. License granted to make unlimited paper copies for internal use only.
The above information is believed to be correct but does not purport to be all inclusive and shall be used only as a guide. The information in this document is based on the present state of our knowledge and is applicable to the product with regard to appropriate safety precautions. It does not represent any guarantee of the properties of the product. Sigma-Aldrich Corporation and its Affiliates shall not be held liable for any damage resulting from handling or from contact with the above product. See www.sigma-aldrich.com and/or the reverse side of invoice or packing slip for additional terms and conditions of sale.

The branding on the header and/or footer of this document may temporarily not visually match the product purchased as we transition our branding. However, all of the

The life science business of Merck KGaA, Darmstadt, Germany
operates as MilliporeSigma in the US and Canada

information in the document regarding the product remains unchanged and matches the product ordered. For further information please contact mlsbranding@sial.com.

Version: 6.1 Revision Date: 01/15/2020 Print Date: 06/19/2021

The life science business of Merck KGaA, Darmstadt, Germany
operates as MilliporeSigma in the US and Canada

SAFETY DATA SHEET

Version 6.7
Revision Date 09/28/2020
Print Date 06/19/2021

SECTION 1: Identification of the substance/mixture and of the company/undertaking

1.1 Product identifiers

Product name : Perfluorohexanoic acid

Product Number : 43809
Brand : Sigma-Aldrich
CAS-No. : 307-24-4

1.2 Relevant identified uses of the substance or mixture and uses advised against

Identified uses : Laboratory chemicals, Synthesis of substances

1.3 Details of the supplier of the safety data sheet

Company : Sigma-Aldrich Inc.
3050 SPRUCE ST
ST. LOUIS MO 63103
UNITED STATES

Telephone : +1 314 771-5765
Fax : +1 800 325-5052

1.4 Emergency telephone

Emergency Phone # : 800-424-9300 CHEMTREC (USA) +1-703-527-3887 CHEMTREC (International) 24 Hours/day; 7 Days/week

SECTION 2: Hazards identification

2.1 Classification of the substance or mixture

GHS Classification in accordance with 29 CFR 1910 (OSHA HCS)

Skin corrosion (Category 1B), H314
Serious eye damage (Category 1), H318

For the full text of the H-Statements mentioned in this Section, see Section 16.

2.2 GHS Label elements, including precautionary statements

Pictogram



Signal word Danger

Hazard statement(s)
H314 Causes severe skin burns and eye damage.

The life science business of Merck KGaA, Darmstadt, Germany
operates as MilliporeSigma in the US and Canada

Precautionary statement(s)

P264	Wash skin thoroughly after handling.
P280	Wear protective gloves/ protective clothing/ eye protection/ face protection.
P301 + P330 + P331	IF SWALLOWED: Rinse mouth. Do NOT induce vomiting.
P303 + P361 + P353	IF ON SKIN (or hair): Take off immediately all contaminated clothing. Rinse skin with water/ shower.
P304 + P340 + P310	IF INHALED: Remove person to fresh air and keep comfortable for breathing. Immediately call a POISON CENTER/ doctor.
P305 + P351 + P338 + P310	IF IN EYES: Rinse cautiously with water for several minutes. Remove contact lenses, if present and easy to do. Continue rinsing. Immediately call a POISON CENTER/ doctor.
P363	Wash contaminated clothing before reuse.
P405	Store locked up.
P501	Dispose of contents/ container to an approved waste disposal plant.

2.3 Hazards not otherwise classified (HNOC) or not covered by GHS - none

SECTION 3: Composition/information on ingredients

3.1 Substances

Formula	:	C6HF11O2
Molecular weight	:	314.06 g/mol
CAS-No.	:	307-24-4
EC-No.	:	206-196-6

Component	Classification	Concentration
Undecafluorohexanoic acid		
	Skin Corr. 1B; Eye Dam. 1; H314, H318	<= 100 %

For the full text of the H-Statements mentioned in this Section, see Section 16.

SECTION 4: First aid measures

4.1 Description of first-aid measures

General advice
First aider needs to protect himself. Show this material safety data sheet to the doctor in attendance.

If inhaled
After inhalation: fresh air. Call in physician.

In case of skin contact
In case of skin contact: Take off immediately all contaminated clothing. Rinse skin with water/ shower. Call a physician immediately.

In case of eye contact
After eye contact: rinse out with plenty of water. Immediately call in ophthalmologist. Remove contact lenses.

The life science business of Merck KGaA, Darmstadt, Germany
operates as MilliporeSigma in the US and Canada

If swallowed
After swallowing: make victim drink water (two glasses at most), avoid vomiting (risk of perforation). Call a physician immediately. Do not attempt to neutralise.

4.2 Most important symptoms and effects, both acute and delayed
The most important known symptoms and effects are described in the labelling (see section 2.2) and/or in section 11

4.3 Indication of any immediate medical attention and special treatment needed
No data available

SECTION 5: Firefighting measures

5.1 Extinguishing media

Suitable extinguishing media
Use extinguishing measures that are appropriate to local circumstances and the surrounding environment.

Unsuitable extinguishing media
For this substance/mixture no limitations of extinguishing agents are given.

5.2 Special hazards arising from the substance or mixture
Carbon oxides, Hydrogen fluoride
Not combustible.
Ambient fire may liberate hazardous vapours.

5.3 Advice for firefighters
Stay in danger area only with self-contained breathing apparatus. Prevent skin contact by keeping a safe distance or by wearing suitable protective clothing.

5.4 Further information
Suppress (knock down) gases/vapors/mists with a water spray jet. Prevent fire extinguishing water from contaminating surface water or the ground water system.

SECTION 6: Accidental release measures

6.1 Personal precautions, protective equipment and emergency procedures
Advice for non-emergency personnel: Do not breathe vapors, aerosols. Avoid substance contact. Ensure adequate ventilation. Evacuate the danger area, observe emergency procedures, consult an expert.
For personal protection see section 8.

6.2 Environmental precautions
Do not let product enter drains.

6.3 Methods and materials for containment and cleaning up
Cover drains. Collect, bind, and pump off spills. Observe possible material restrictions (see sections 7 and 10). Take up with liquid-absorbent material (e.g. Chemizorb®). Dispose of properly. Clean up affected area.

6.4 Reference to other sections
For disposal see section 13.

The life science business of Merck KGaA, Darmstadt, Germany
operates as MilliporeSigma in the US and Canada

SECTION 7: Handling and storage

7.1 Precautions for safe handling
For precautions see section 2.2.

7.2 Conditions for safe storage, including any incompatibilities
Tightly closed.

Recommended storage temperature 2 - 8 °C

Store under argon.
Storage class (TRGS 510): 8A: Combustible, corrosive hazardous materials

7.3 Specific end use(s)
Apart from the uses mentioned in section 1.2 no other specific uses are stipulated

SECTION 8: Exposure controls/personal protection

8.1 Control parameters

Ingredients with workplace control parameters
Contains no substances with occupational exposure limit values.

8.2 Exposure controls

Appropriate engineering controls
Immediately change contaminated clothing. Apply preventive skin protection. Wash hands and face after working with substance.

Personal protective equipment

Eye/face protection
Use equipment for eye protection tested and approved under appropriate government standards such as NIOSH (US) or EN 166(EU). Tightly fitting safety goggles

Skin protection
required

Body Protection
protective clothing

Respiratory protection
required when vapours/aerosols are generated.
Our recommendations on filtering respiratory protection are based on the following standards: DIN EN 143, DIN 14387 and other accompanying standards relating to the used respiratory protection system.

Control of environmental exposure
Do not let product enter drains.

SECTION 9: Physical and chemical properties

9.1 Information on basic physical and chemical properties

a)	Appearance	Form: liquid
b)	Odor	No data available
c)	Odor Threshold	No data available

The life science business of Merck KGaA, Darmstadt, Germany
operates as MilliporeSigma in the US and Canada

d)	pH	No data available
e)	Melting point/freezing point	Melting point/range: 12 - 14 °C (54 - 57 °F)
f)	Initial boiling point and boiling range	157 °C 315 °F at 989.2 hPa
g)	Flash point	()No data available
h)	Evaporation rate	No data available
i)	Flammability (solid, gas)	No data available
j)	Upper/lower flammability or explosive limits	No data available
k)	Vapor pressure	No data available
l)	Vapor density	No data available
m)	Relative density	1.757 g/cm3 at 20 °C (68 °F)
n)	Water solubility	insoluble
o)	Partition coefficient: n-octanol/water	No data available
p)	Autoignition temperature	No data available
q)	Decomposition temperature	No data available
r)	Viscosity	No data available
s)	Explosive properties	No data available
t)	Oxidizing properties	No data available

9.2 Other safety information
No data available

SECTION 10: Stability and reactivity

10.1 Reactivity
No data available

10.2 Chemical stability
The product is chemically stable under standard ambient conditions (room temperature) .

10.3 Possibility of hazardous reactions
No data available

10.4 Conditions to avoid
no information available

10.5 Incompatible materials
Strong oxidizing agents

10.6 Hazardous decomposition products
Hazardous decomposition products formed under fire conditions. - Carbon oxides, Hydrogen fluoride

The life science business of Merck KGaA, Darmstadt, Germany
operates as MilliporeSigma in the US and Canada

Other decomposition products - No data available
In the event of fire: see section 5

SECTION 11: Toxicological information

11.1 Information on toxicological effects

Acute toxicity
No data available
Inhalation: No data available
Dermal: No data available
No data available

Skin corrosion/irritation
No data available

Serious eye damage/eye irritation
No data available

Respiratory or skin sensitization
No data available

Germ cell mutagenicity
No data available

Carcinogenicity

IARC:	No ingredient of this product present at levels greater than or equal to 0.1% is identified as probable, possible or confirmed human carcinogen by IARC.
NTP:	No ingredient of this product present at levels greater than or equal to 0.1% is identified as a known or anticipated carcinogen by NTP.
OSHA:	No component of this product present at levels greater than or equal to 0.1% is on OSHA's list of regulated carcinogens.

Reproductive toxicity
No data available

Specific target organ toxicity - single exposure
No data available

Specific target organ toxicity - repeated exposure
No data available

Aspiration hazard
No data available

Additional Information
RTECS: Not available

To the best of our knowledge, the chemical, physical, and toxicological properties have not been thoroughly investigated.

The life science business of Merck KGaA, Darmstadt, Germany
operates as MilliporeSigma in the US and Canada

SECTION 12: Ecological information

12.1 Toxicity
No data available

12.2 Persistence and degradability
No data available

12.3 Bioaccumulative potential
No data available

12.4 Mobility in soil
No data available

12.5 Results of PBT and vPvB assessment
PBT/vPvB assessment not available as chemical safety assessment not required/not conducted

12.6 Other adverse effects
No data available

SECTION 13: Disposal considerations

13.1 Waste treatment methods

Product
Waste material must be disposed of in accordance with the national and loc No mixing with other waste. Handle uncleaned containers like the product See www.retrologistik.com for processes regarding the return of chemicals and containers, or contact us there if you have further questions.

SECTION 14: Transport information

DOT (US)
UN number: 3265 Class: 8 Packing group: II
Proper shipping name: Corrosive liquid, acidic, organic, n.o.s. (Undecafluorohexanoic acid)
Reportable Quantity (RQ):
Poison Inhalation Hazard: No

IMDG
UN number: 3265 Class: 8 Packing group: II EMS-No: F-A, S-B
Proper shipping name: CORROSIVE LIQUID, ACIDIC, ORGANIC, N.O.S. (Undecafluorohexanoic acid)

IATA
UN number: 3265 Class: 8 Packing group: II
Proper shipping name: Corrosive liquid, acidic, organic, n.o.s. (Undecafluorohexanoic acid)

SECTION 15: Regulatory information

SARA 302 Components
This material does not contain any components with a section 302 EHS TPQ.

The life science business of Merck KGaA, Darmstadt, Germany
operates as MilliporeSigma in the US and Canada

SARA 313 Components
This material does not contain any chemical components with known CAS numbers that exceed the threshold (De Minimis) reporting levels established by SARA Title III, Section 313.

Massachusetts Right To Know Components
No components are subject to the Massachusetts Right to Know Act.

SECTION 16: Other information

Further information
The above information is believed to be correct but does not purport to be all inclusive and shall be used only as a guide. The information in this document is based on the present state of our knowledge and is applicable to the product with regard to appropriate safety precautions. It does not represent any guarantee of the properties of the product. Sigma-Aldrich Corporation and its Affiliates shall not be held liable for any damage resulting from handling or from contact with the above product. See www.sigma-aldrich.com and/or the reverse side of invoice or packing slip for additional terms and conditions of sale.

Copyright 2020 Sigma-Aldrich Co. LLC. License granted to make unlimited paper copies for internal use only.
The branding on the header and/or footer of this document may temporarily not visually match the product purchased as we transition our branding. However, all of the information in the document regarding the product remains unchanged and matches the product ordered. For further information please contact mlsbranding@sial.com.

Version: 6.7 Revision Date: 09/28/2020 Print Date: 06/19/2021

The life science business of Merck KGaA, Darmstadt, Germany
operates as MilliporeSigma in the US and Canada

AccuStandard, Inc.
125 Market St., New Haven, CT 06513 USA
Tel: 203-786-5290 Fax: 203-786-5287

SAFETY DATA SHEET

SECTION 1 - CHEMICAL PRODUCT AND COMPANY IDENTIFICATION

1.1 - Product Identifiers

Catalog Name: S-78941

Description: Perfluorohexane sulfonic acid in Methanol

1.2 - Relevant Identified Uses of the Substance or Mixture

Laboratory Chemical Reference Material

1.3 - Supplier Details

Company: AccuStandard, Inc.
125 Market St.
New Haven, CT 06513 USA

Telephone Number: 203-786-5290

Fax: 203-786-5287

Email: edocs@accustandard.com

1.4 - Emergency Telephone Number

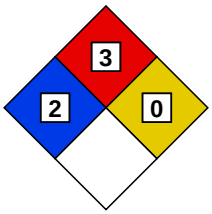
Emergency Phone #: AccuStandard, Inc.
1-203-502-7070 (USA)
+001-203-502-7070 (International)

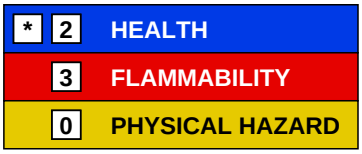
24 hours / 7 days a week

SECTION 2 - HAZARDS IDENTIFICATION

2.1 - GHS Label Elements







Signal Word: Danger

Hazard Codes:

H225 - Highly Flammable (Flammable liquids, category 2)

H301 - Toxic if swallowed. (Acute toxicity, oral, category 3)

H311 - Toxic if absorbed through skin. (Acute toxicity, dermal, category 3)

H315 - Irritating to skin. (Skin corrosion/irritation, category 2)

H320 - Irritating to eyes. (Eye damage/irritation, category 2B)

H332 - Harmful if inhaled. (Acute toxicity, inhalation, category 4)

H336 - Overexposure may cause dizziness, nausea, muscle weakness, narcosis and respiratory failure.

H360 - California Proposition 65 Warning: This product contains a component (or components) that may cause birth defects or other reproductive harm in a quantity greater than or equal to 0.1%.

H370 - Causes damage to organs. (Specific target organ toxicity, single exposure, category 1)

Precautionary Codes:

SECTION 2 - HAZARDS IDENTIFICATION *- continued*

2.1 - GHS Label Elements *- continued*

P202 - This product should only by used by persons trained in the safe handling of hazardous chemicals.

P233 - Store in a tightly closed container. (P404)

P262 - Do not get in eyes, on skin or clothing.

P264 - Wash thoroughly after handling. Do not take internally. Eye wash and safety equipment should be readily available.

P280 - Protective gloves must be worn to prevent skin contact.

P284 - Respiratory Protection: If workplace exposure limit(s) of product or any component is exceeded (see TLV/PEL), or a risk assessment shows air-purifying respirators are appropriate, use of a NIOSH/MSHA approved air supplied respirator is advised. Use a full-face respirator with multi-purpose combination (US) or type ABEK (EN14387) respirator cartridges in absence of proper environmental control. Always use respirators and components tested and approved under appropriate government standards such as NIOSH (US) or CEN (EU). Engineering and/or administrative controls should be implemented to reduce exposure.

P331 - Ingestion: Do NOT induce vomiting. Call a physician or poison control center immediately. Never give anything by mouth to an unconscious person.

P338 - Eye contact: Immediately flush with plenty of water. After initial flushing, remove and contact lenses and continue flushing for at least 15 minutes. Assure adequate flushing by separating the eyelids with fingers.

P360 - Skin contact: Immediately wash skin with soap and plenty of water. Remove contaminated clothing. Get medical attention if symptoms occur. Wash clothing before reuse.

2.2 - Other Hazards

2.2.1 - Symptom of Exposure Health/Environment

Highly Flammable (Flammable liquids, category 2)

Causes damage to organs. (Specific target organ toxicity, single exposure, category 1)

After ingestion or inhalation, initial symptoms may be only that of mild intoxication, but may become severe after 12 or 18 hours.

POISON: May be fatal or cause blindness if swallowed.

Overexposure may cause dizziness, nausea, muscle weakness, narcosis and respiratory failure.

2.2.2 - Potential Health Effects

Irritating to eyes. (Eye damage/irritation, category 2B)

Irritating to skin. (Skin corrosion/irritation, category 2)

Toxic if absorbed through skin. (Acute toxicity, dermal, category 3)

Irritating to mucous membrane and upper respiratory system.

Harmful if inhaled. (Acute toxicity, inhalation, category 4)

Toxic if swallowed. (Acute toxicity, oral, category 3)

2.2.3 - Routes of Entry

Inhalation, ingestion or skin contact.

2.2.4 - Carcinogenicity

California Proposition 65 Warning: This product contains a component (or components) that may cause birth defects or other reproductive harm in a quantity greater than or equal to 0.1%.

SECTION 3 - COMPOSITION / ANALYTES DATA

Description: Perfluorohexane sulfonic acid in Methanol

SECTION 3 - COMPOSITION / ANALYTES DATA *- continued*

Analyte	CAS #	% Concentration	ACGIH -TLV (mg/m^3)			OSHA -PEL (mg/m^3)		
			TWA	STEL	Skin	TWA	STEL	Skin
Perfluorohexane sulfonic acid	355-46-4	0.010						
Methanol	67-56-1	99.990				260		

SECTION 4 - FIRST AID MEASURES

4.1 - First Aid Procedures - General

Get medical assistance for all cases of overexposure.

4.2 - Eye Contact

Eye contact: Immediately flush with plenty of water. After initial flushing, remove and contact lenses and continue flushing for at least 15 minutes. Assure adequate flushing by separating the eyelids with fingers. (P338)

4.3 - Skin Contact

Skin contact: Immediately wash skin with soap and plenty of water. Remove contaminated clothing. Get medical attention if symptoms occur. Wash clothing before reuse. (P360)

4.4 - Inhalation

Inhalation: Remove to fresh air. If not breathing, give artificial respiration or give oxygen by trained personnel. Seek immediate medical attention.

4.5 - Ingestion

Ingestion: Do NOT induce vomiting. Call a physician or poison control center immediately. Never give anything by mouth to an unconscious person. (P331)

SECTION 5 - FIRE FIGHTING MEASURES

5.1 - Flammable Properties

Dangerous fire and explosive hazard.

Containers can build up pressure if exposed to heat.

Vapors can travel to a source of ignition and flash back.

During a fire, irritating and highly toxic gases may be generated by thermal decomposition or combustion.

5.2 - Extinguishing Media

Use alcohol foam, carbon dioxide, dry chemical, or water spray when fighting fires involving this material.

5.3 - Protection of Firefighters

As in any fire, wear self-contained breathing apparatus pressure demand, MSHA/NIOSH (approved or equivalent) and full protective gear.

SECTION 6 - ACCIDENTAL RELEASE MEASURES

6.1 - Spill Response

Wear suitable protective equipment listed under Exposure Controls / Personal Protection. Eliminate any ignition sources until the area is determined to be free from explosion or fire hazards. Contain the release and eliminate its source, if this can be done without risk. Dispose as hazardous waste. Comply with Federal, State and local regulations.

SECTION 7 - HANDLING AND STORAGE

Store in a tightly closed container. (P404)

Keep refrigerated.

Avoid breathing vapors or mists.

Use with adequate ventilation.

Do not get in eyes, on skin or clothing. (P262)

Avoid prolonged or repeated exposure.

This product should only by used by persons trained in the safe handling of hazardous chemicals. (P202)

SECTION 8 - EXPOSURE CONTROLS

8.1 - Engineering Controls/PPE

Wash thoroughly after handling. Do not take internally. Eye wash and safety equipment should be readily available. (P264)

8.2 - General Hygene Considerations

Respiratory Protection: If workplace exposure limit(s) of product or any component is exceeded (see TLV/PEL), or a risk assessment shows air-purifying respirators are appropriate, use of a NIOSH/MSHA approved air supplied respirator is advised. Use a full-face respirator with multi-purpose combination (US) or type ABEK (EN14387) respirator cartridges in absence of proper environmental control. Always use respirators and components tested and approved under appropriate government standards such as NIOSH (US) or CEN (EU). Engineering and/or administrative controls should be implemented to reduce exposure.

Material should be handled or transferred in an approved fume hood or with adequate ventilation.

Protective gloves must be worn to prevent skin contact. (P280)

(Chloroprene, natural rubber, nitrile, or equivalent)

Use eye protection tested and approved under the appropriate government standards such as NIOSH (US) or EN 166 (EU).

All recommendations are advisory only and must be evaluated by an industrial hygienist and/or safety officer familiar with the specific situation of anticipated use, such as concentration and amount of the substance in the workplace. Any recommendation should not be construed as offering an approval for any specific use of the product.

SECTION 9 - PHYSICAL AND CHEMICAL PROPERTIES

Appearance: Clear liquid

Odor: N/A

Odor Threshold: N/A

pH: N/A

Melting Point: -93.9 °C

Boiling Point: 65 °C

Flash Point: 52 °F (11 °C) (tcc)

Evaporation Rate (Butyl Acetate=1): 5.9

Flammability Class: N/A

Lower Flammability Level: 6.7

Upper Flammability Level: 36.5

Vapor Pressure: 97 mmHg (20 °C)

Vapor Density (Air = 1): 1.1 g/L

Specific Gravity: 0.791 g/cm3

SECTION 9 - PHYSICAL AND CHEMICAL PROPERTIES *- continued*

Solubility in Water: Very soluble

Partition Coefficient: log Pow: -0.77

Autoignition Temperature: 385 °C

Decomposition Temperature: N/A

Viscosity: N/A

VOC Content: N/A

Percent Volatile: 99.9+

SECTION 10 - STABILITY AND REACTIVITY

Stability: Stable

Materials to Avoid: Acids
Oxidizers

Hazardous Decomposition: Oxides of carbon; Formaldehyde

Hazardous Polymerization: Will not occur

Condition to Avoid: Heat; Contact with ignition sources

SECTION 11 - TOXICOLOGICAL INFORMATION

Human Health Toxicity

See section 2 for specific toxicological information for the ingredients of this product.

LD50 (Oral): Human - 143 mg/kg; Rat - 1500 mg/kg

LD50 (Dermal) : Rabbit - >2000 mg/kg

LC50 (Inhalation): Rat - >20 mg/L

WARNING: This product contains chemicals known to the state of California to cause birth defects or other reproductive harm.

No other information related to the toxicological properties of this product is available at this time.

SECTION 12 - ECOLOGICAL INFORMATION

Environmental Toxicity

By complying with sections 6 and 7 there should be no release to the environment.

LC50 (Fish): >1000 mg/L 96H

EC50 (Aquatic Invertebrate): >1000 mg/L 48H

BCF: 1.0

Hydrolyzes readily on contact with water. Readily biodegradable.

No other information related to the ecological properties of this product is available at this time.

SECTION 13 - DISPOSAL CONSIDERATIONS

Recycle or incinerate at any EPA approved facility or dispose in compliance with Federal, State and local regulations. Empty containers must be triple-rinsed prior to disposal.

SECTION 14 - TRANSPORT INFORMATION

Transportation Information (DOT/IATA)

SECTION 14 - TRANSPORT INFORMATION *- continued*

UN Number: UN1230

Class: 3

Packing Group: II

Proper Shipping Name: Methanol

Poison by Inhalation: No

Marine Pollutant: No

SECTION 15 - REGULATORY INFORMATION

WARNING: This product contains chemicals known to the state of California to cause birth defects or other reproductive harm.

This product is subject to SARA section 313 reporting requirements.

All components are listed on the TSCA Inventory.

For laboratory, research and development use only. Not for manufacturing or commercial purposes.

In addition to federal and state regulations, local regulations may apply. Check with your local regulatory authorities.

SECTION 16 - OTHER INFORMATION

This document has been designed to meet the requirements of OSHA, ANSI, GHS and CHIPs regulations. Chemicals are classified using the Globally Harmonized System for Classification and Labeling of Chemicals.

The statements contained herein are offered for informational purposes only and are based on technical data that we believe to be accurate. The manufacturer will not assume any liability for the accuracy and completeness of this information. Final determination of the suitability of the material is the responsibility of the user. Although certain hazards are described herein, the user should not presume that these are the only hazards that exist. Since conditions and manner of use are outside of the manufacturers control, we make

NO WARRANTY OF MERCHANTABILITY, EXPRESSED OR IMPLIED, AND ASSUME NO LIABILITY RESULTING FROM ITS USE.

Legend : N/A = Not Available ND = Not Determined NR = Not Regulated

Alteration of any information contained herein without written permission from the manufacturer is strictly prohibited.

HMIS/NFPA HAZARD INDEX

0 - Minimal
1 - Slight
2 - Moderate
3 - Serious
4 - Severe

* - Additional Hazard

GHS HAZARD INDEX

Category 1 - Most Severe
Category 5 - Least Severe

**** End of Document ****

SAFETY DATA SHEET

Santa Cruz Biotechnology, Inc.
Revision date 11-Dec-2015
Version 1

1. IDENTIFICATION OF THE SUBSTANCE/PREPARATION AND OF THE COMPANY/UNDERTAKING

Product identifier

Product Name	Perfluorononanoic acid
Product Code	SC-250678

Recommended use of the chemical and restrictions on use

For research use only. Not intended for diagnostic or therapeutic use.

Details of the supplier of the safety data sheet

Santa Cruz Biotechnology, Inc.
10410 Finnell Street
Dallas, TX 75220
831.457.3800
800.457.3801
scbt@scbt.com

Emergency telephone number

Chemtrec
1.800.424.9300 (Within USA)
+1.703.527.3887 (Outside USA)

2. HAZARDS IDENTIFICATION

This chemical is considered hazardous by the 2012 OSHA Hazard Communication Standard (29 CFR 1910.1200).

Classification

Skin corrosion/irritation	Category 1 Sub-category C
Serious eye damage/eye irritation	Category 1

Label elements

Signal word	Danger
Hazard statements	Causes severe skin burns and eye damage
Symbols/Pictograms	
Precautionary Statements - Prevention	Do not breathe dust/fume/gas/mist/vapors/spray Wash face, hands and any exposed skin thoroughly after handling Wear protective gloves/protective clothing/eye protection/face protection
Precautionary Statements - Response	Immediately call a POISON CENTER or doctor/physician IF IN EYES: Rinse cautiously with water for several minutes. Remove contact lenses, if present and easy to do. Continue rinsing Immediately call a POISON CENTER or doctor/physician IF ON SKIN (or hair): Remove/Take off immediately all contaminated clothing. Rinse skin with water/shower Wash contaminated clothing before reuse IF INHALED: Remove victim to fresh air and keep at rest in a position comfortable for breathing Immediately call a POISON CENTER or doctor/physician IF SWALLOWED: Rinse mouth. DO NOT induce vomiting
Precautionary Statements - Storage	Store locked up
Precautionary Statements - Disposal	Dispose of contents/container to an approved waste disposal plant

Hazards not otherwise classified (HNOC)

Hazards not otherwise classified (HNOC)	Not applicable

Other Information

Unknown acute toxicity	100% of the mixture consists of ingredient(s) of unknown toxicity.

NFPA			HMIS		
	Health hazards	-		Health hazards	3
	Flammability	-		Flammability	1
	Stability	-		Physical hazards	1
	Physical and chemical properties	-		Personal protection	-

3. COMPOSITION/INFORMATION ON INGREDIENTS

CAS No	375-95-1
Molecular Weight	464.08
Formula	$C_9HF_{17}O_2$

Chemical Name	CAS No	Weight %	Oral LD50	Dermal LD50	Inhalation LC50
Perfluorononanoic acid	375-95-1	>98	-	-	-

4. FIRST AID MEASURES

First Aid Measures

General advice	Consult a physician if necessary. Remove to fresh air.
Eye contact	Wash with plenty of water.
Skin Contact	Wash skin with soap and water.
Inhalation	Remove to fresh air If breathing is difficult, give oxygen If not breathing, give artificial respiration
Ingestion	Never give anything by mouth to an unconscious person. Clean mouth with water.

Most important symptoms and effects, both acute and delayed

Symptoms	No information available.

Indication of any immediate medical attention and special treatment needed

Note to physicians	Treat symptomatically.

5. FIRE-FIGHTING MEASURES

Suitable Extinguishing Media

Suitable Extinguishing Media	Use extinguishing measures that are appropriate to local circumstances and the surrounding environment.
Unsuitable Extinguishing Media	None.

Specific hazards arising from the chemical

Specific hazards arising from the chemical	Thermal decomposition can lead to release of toxic/corrosive gases and vapors.
Hazardous combustion products	Hydrogen fluoride. Carbon oxides. Phosgene.

Explosion data

Sensitivity to Mechanical Impact	No information available.
Sensitivity to Static Discharge	No information available.

Protective equipment and precautions for firefighters

Protective equipment and precautions for firefighters	As in any fire, wear self-contained breathing apparatus pressure-demand, MSHA/NIOSH (approved or equivalent) and full protective gear.

6. ACCIDENTAL RELEASE MEASURES

Personal precautions, protective equipment and emergency procedures

Personal precautions	Ensure adequate ventilation, especially in confined areas.

Environmental precautions

Environmental precautions	See Section 12 for additional Ecological Information.

Methods and material for containment and cleaning up

Methods for containment	Prevent further leakage or spillage if safe to do so.
Methods for cleaning up	Use personal protective equipment as required. Cover powder spill with plastic sheet or tarp to minimize spreading and keep powder dry. Take up mechanically, placing in appropriate containers for disposal. Avoid creating dust. Clean contaminated surface thoroughly.

7. HANDLING AND STORAGE

Precautions for safe handling

Advice on safe handling	Thermal decomposition can lead to release of toxic/corrosive gases and vapors.

Conditions for safe storage, including any incompatibilities

Storage Conditions	Keep containers tightly closed in a dry, cool and well-ventilated place. Store at room temperature.
Incompatible materials	None known based on information supplied.

8. EXPOSURE CONTROLS/PERSONAL PROTECTION

Control parameters

Exposure Guidelines	This product, as supplied, does not contain any hazardous materials with occupational exposure limits established by the region specific regulatory bodies.

Appropriate engineering controls

Engineering Controls	Showers Eyewash stations Ventilation systems

Individual protection measures, such as personal protective equipment

Eye/face protection	Wear safety glasses with side shields (or goggles).
Skin and Body Protection	Wear protective gloves and protective clothing.
Respiratory protection	If exposure limits are exceeded or irritation is experienced, NIOSH/MSHA approved respiratory protection should be worn. Positive-pressure supplied air respirators may be required for high airborne contaminant concentrations. Respiratory protection must be provided in accordance with current local regulations.
General Hygiene Considerations	Handle in accordance with good industrial hygiene and safety practice.

9. PHYSICAL AND CHEMICAL PROPERTIES

Physical State	Solid
Appearance	crystalline powder
Odor	No information available

Property	**Values**
pH	No information available
Melting point/freezing point	63 °C
Boiling point	218 °C
Flash point	No information available
Density	No information available
Evaporation rate	No information available
Upper flammability limits	No information available
Lower flammability limit	No information available
Vapor pressure	No information available
Vapor density	No information available
Specific gravity	No information available
Water solubility	No information available
Solubility in other solvents	No information available
Partition coefficient	No information available
Autoignition temperature	No information available
Decomposition temperature	No information available
Kinematic viscosity	No information available
Explosive properties	No information available
Oxidizing properties	No information available

10. STABILITY AND REACTIVITY

Reactivity	Not applicable
Chemical stability	Stable under recommended storage conditions.
Possibility of Hazardous Reactions	None under normal processing.
Hazardous polymerization	No information available.
Conditions to avoid	Extremes of temperature and direct sunlight.
Incompatible materials	Strong oxidizing agents.
Hazardous Decomposition Products	Hydrogen fluoride. Carbon oxides. Phosgene.

11. TOXICOLOGICAL INFORMATION

Information on likely routes of exposure

Inhalation	No data available.
Eye contact	No data available.
Skin Contact	No data available.
Ingestion	No data available.

Information on toxicological effects

Symptoms	No information available.

Delayed and immediate effects as well as chronic effects from short and long-term exposure

Chronic Toxicity	No information available.

Numerical measures of toxicity - Product Information

Unknown acute toxicity	100% of the mixture consists of ingredient(s) of unknown toxicity

12. ECOLOGICAL INFORMATION

Ecotoxicity	May cause long lasting harmful effects to aquatic life

100% of the mixture consists of components(s) of unknown hazards to the aquatic environment.

Persistence and degradability	No information available.
Bioaccumulation	No information available.
Mobility	No information available.

13. DISPOSAL CONSIDERATIONS

Disposal of wastes	Disposal should be in accordance with applicable regional, national and local laws and regulations.
Contaminated packaging	Do not reuse container.

14. TRANSPORT INFORMATION

DOT	Not regulated
IMDG	Not regulated
IATA	Not regulated

15. REGULATORY INFORMATION

International Inventories

All of the components in the product are on the following Inventory lists
TSCA (United States): Canada (DSL/NDSL) Europe (EINECS/ELINCS/NLP) ENCS (Japan):

Chemical Name	TSCA	DSL	NDSL	EINECS	ELINCS	ENCS	IECSC	KECL	PICCS	AICS
Perfluorononanoic acid	X	-	X	X	-	X	-	-	-	-

X - Listed
TSCA - United States Toxic Substances Control Act Section 8(b) Inventory
DSL/NDSL - Canadian Domestic Substances List/Non-Domestic Substances List
EINECS/ELINCS - European Inventory of Existing Chemical Substances/European List of Notified Chemical Substances
ENCS - Japan Existing and New Chemical Substances
IECSC - China Inventory of Existing Chemical Substances
KECL - Korean Existing and Evaluated Chemical Substances
PICCS - Philippines Inventory of Chemicals and Chemical Substances

US Federal Regulations

SARA 313
Section 313 of Title III of the Superfund Amendments and Reauthorization Act of 1986 (SARA). This product does not contain any chemicals which are subject to the reporting requirements of the Act and Title 40 of the Code of Federal Regulations, Part 372.

SARA 311/312 Hazard Categories

Acute health hazard	No
Chronic Health Hazard	No
Fire hazard	No
Sudden release of pressure hazard	No
Reactive hazard	No

CWA (Clean Water Act)
This product does not contain any substances regulated as pollutants pursuant to the Clean Water Act (40 CFR 122.21 and 40 CFR 122.42).

US State Regulations

California Proposition 65
This product does not contain any Proposition 65 chemicals.

U.S. State Right-to-Know Regulations
This product does not contain any substances regulated by state right-to-know regulations

16. OTHER INFORMATION

Revision note	No information available

Disclaimer
The information provided in this Material Safety Data Sheet is correct to the best of our knowledge, information and belief at the date of its publication. The information given is designed only as a guidance for safe handling, use, processing, storage, transportation, disposal and release and is not to be considered a warranty or quality specification. The information relates only to the specific material designated and may not be valid for such material used in combination with any other materials or in any process, unless specified in the text.

End of Safety Data Sheet

SAFETY DATA SHEET

Version 6.4
Revision Date 04/18/2021
Print Date 06/19/2021

SECTION 1: Identification of the substance/mixture and of the company/undertaking

1.1 Product identifiers

Product name : Perfluorooctanoic acid

Product Number : 171468
Brand : Aldrich
CAS-No. : 335-67-1

1.2 Relevant identified uses of the substance or mixture and uses advised against

Identified uses : Laboratory chemicals, Synthesis of substances

1.3 Details of the supplier of the safety data sheet

Company : Sigma-Aldrich Inc.
3050 SPRUCE ST
ST. LOUIS MO 63103
UNITED STATES

Telephone : +1 314 771-5765
Fax : +1 800 325-5052

1.4 Emergency telephone

Emergency Phone # : 800-424-9300 CHEMTREC (USA) +1-703-527-3887 CHEMTREC (International) 24 Hours/day; 7 Days/week

SECTION 2: Hazards identification

2.1 Classification of the substance or mixture

GHS Classification in accordance with 29 CFR 1910 (OSHA HCS)

Acute toxicity, Oral (Category 4), H302
Skin corrosion (Category 1B), H314
Serious eye damage (Category 1), H318
Carcinogenicity (Category 2), H351
Reproductive toxicity (Category 1B), H360
Effects on or via lactation, H362
Specific target organ toxicity - repeated exposure (Category 1), Liver, H372

For the full text of the H-Statements mentioned in this Section, see Section 16.

2.2 GHS Label elements, including precautionary statements

Pictogram



The life science business of Merck KGaA, Darmstadt, Germany
operates as MilliporeSigma in the US and Canada

Signal word	Danger
Hazard statement(s)	
H302	Harmful if swallowed.
H314	Causes severe skin burns and eye damage.
H351	Suspected of causing cancer.
H360	May damage fertility or the unborn child.
H362	May cause harm to breast-fed children.
H372	Causes damage to organs (Liver) through prolonged or repeated exposure.
Precautionary statement(s)	
P201	Obtain special instructions before use.
P202	Do not handle until all safety precautions have been read and understood.
P260	Do not breathe dust/ fume/ gas/ mist/ vapors/ spray.
P263	Avoid contact during pregnancy/ while nursing.
P264	Wash skin thoroughly after handling.
P270	Do not eat, drink or smoke when using this product.
P280	Wear protective gloves/ protective clothing/ eye protection/ face protection.
P301 + P312 + P330	IF SWALLOWED: Call a POISON CENTER/ doctor if you feel unwell. Rinse mouth.
P301 + P330 + P331	IF SWALLOWED: Rinse mouth. Do NOT induce vomiting.
P303 + P361 + P353	IF ON SKIN (or hair): Take off immediately all contaminated clothing. Rinse skin with water/ shower.
P304 + P340 + P310	IF INHALED: Remove person to fresh air and keep comfortable for breathing. Immediately call a POISON CENTER/ doctor.
P305 + P351 + P338 + P310	IF IN EYES: Rinse cautiously with water for several minutes. Remove contact lenses, if present and easy to do. Continue rinsing. Immediately call a POISON CENTER/ doctor.
P308 + P313	IF exposed or concerned: Get medical advice/ attention.
P363	Wash contaminated clothing before reuse.
P405	Store locked up.
P501	Dispose of contents/ container to an approved waste disposal plant.

2.3 Hazards not otherwise classified (HNOC) or not covered by GHS - none

SECTION 3: Composition/information on ingredients

3.1 Substances

Synonyms	:	Pentadecafluorooctanoic acid Perfluorocaprylic acid Perfluorooctanoic acid
Formula	:	$C_8HF_{15}O_2$
Molecular weight	:	414.07 g/mol
CAS-No.	:	335-67-1
EC-No.	:	206-397-9

Component	Classification	Concentration
pentadecafluorooctanoic acid		
	Acute Tox. 4; Skin Corr.	<= 100 %

The life science business of Merck KGaA, Darmstadt, Germany
operates as MilliporeSigma in the US and Canada

	1B; Eye Dam. 1; Carc. 2; Repr. 1B; Lact. ; STOT RE 1; H302, H314, H318, H351, H360, H362, H372	

For the full text of the H-Statements mentioned in this Section, see Section 16.

SECTION 4: First aid measures

4.1 Description of first-aid measures

General advice
First aiders need to protect themselves. Show this material safety data sheet to the doctor in attendance.

If inhaled
After inhalation: fresh air. Call in physician.

In case of skin contact
In case of skin contact: Take off immediately all contaminated clothing. Rinse skin with water/ shower. Call a physician immediately.

In case of eye contact
After eye contact: rinse out with plenty of water. Immediately call in ophthalmologist. Remove contact lenses.

If swallowed
After swallowing: make victim drink water (two glasses at most), avoid vomiting (risk of perforation). Call a physician immediately. Do not attempt to neutralise.

4.2 Most important symptoms and effects, both acute and delayed

The most important known symptoms and effects are described in the labelling (see section 2.2) and/or in section 11

4.3 Indication of any immediate medical attention and special treatment needed

No data available

SECTION 5: Firefighting measures

5.1 Extinguishing media

Suitable extinguishing media
Water Foam Carbon dioxide (CO2) Dry powder

Unsuitable extinguishing media
For this substance/mixture no limitations of extinguishing agents are given.

5.2 Special hazards arising from the substance or mixture

Carbon oxides
Hydrogen fluoride
Combustible.
Development of hazardous combustion gases or vapours possible in the event of fire.

5.3 Advice for firefighters

Stay in danger area only with self-contained breathing apparatus. Prevent skin contact by keeping a safe distance or by wearing suitable protective clothing.

The life science business of Merck KGaA, Darmstadt, Germany
operates as MilliporeSigma in the US and Canada

5.4 Further information

Suppress (knock down) gases/vapors/mists with a water spray jet. Prevent fire extinguishing water from contaminating surface water or the ground water system.

SECTION 6: Accidental release measures

6.1 Personal precautions, protective equipment and emergency procedures

Advice for non-emergency personnel: Avoid generation and inhalation of dusts in all circumstances. Avoid substance contact. Ensure adequate ventilation. Evacuate the danger area, observe emergency procedures, consult an expert.
For personal protection see section 8.

6.2 Environmental precautions

Do not let product enter drains.

6.3 Methods and materials for containment and cleaning up

Cover drains. Collect, bind, and pump off spills. Observe possible material restrictions (see sections 7 and 10). Take up carefully. Dispose of properly. Clean up affected area. Avoid generation of dusts.

6.4 Reference to other sections

For disposal see section 13.

SECTION 7: Handling and storage

7.1 Precautions for safe handling

Advice on safe handling
Work under hood. Do not inhale substance/mixture.

Hygiene measures
Immediately change contaminated clothing. Apply preventive skin protection. Wash hands and face after working with substance.
For precautions see section 2.2.

7.2 Conditions for safe storage, including any incompatibilities

Storage conditions
Tightly closed. Dry. Keep in a well-ventilated place. Keep locked up or in an area accessible only to qualified or authorized persons.
Storage class (TRGS 510): 6.1C: Combustible, acute toxic Cat.3 / toxic compounds or compounds which causing chronic effects

7.3 Specific end use(s)

Apart from the uses mentioned in section 1.2 no other specific uses are stipulated

SECTION 8: Exposure controls/personal protection

8.1 Control parameters

Ingredients with workplace control parameters
Contains no substances with occupational exposure limit values.

The life science business of Merck KGaA, Darmstadt, Germany
operates as MilliporeSigma in the US and Canada

8.2 Exposure controls

Appropriate engineering controls
Immediately change contaminated clothing. Apply preventive skin protection. Wash hands and face after working with substance.

Personal protective equipment

Eye/face protection
Use equipment for eye protection tested and approved under appropriate government standards such as NIOSH (US) or EN 166(EU). Tightly fitting safety goggles

Skin protection
Handle with gloves. Gloves must be inspected prior to use. Use proper glove removal technique (without touching glove's outer surface) to avoid skin contact with this product. Dispose of contaminated gloves after use in accordance with applicable laws and good laboratory practices. Wash and dry hands.

Full contact
Material: Nitrile rubber
Minimum layer thickness: 0.11 mm
Break through time: > 480 min
Material tested:Dermatril® (KCL 740 / Aldrich Z677272, Size M)

Splash contact
Material: Nitrile rubber
Minimum layer thickness: 0.11 mm
Break through time: > 480 min
Material tested:Dermatril® (KCL 740 / Aldrich Z677272, Size M)

data source: KCL GmbH, D-36124 Eichenzell, phone +49 (0)6659 87300, e-mail sales@kcl.de, test method: EN374
If used in solution, or mixed with other substances, and under conditions which differ from EN 374, contact the supplier of the EC approved gloves. This recommendation is advisory only and must be evaluated by an industrial hygienist and safety officer familiar with the specific situation of anticipated use by our customers. It should not be construed as offering an approval for any specific use scenario.

Body Protection
Acid-resistant protective clothing

Respiratory protection
required when dusts are generated.
Our recommendations on filtering respiratory protection are based on the following standards: DIN EN 143, DIN 14387 and other accompanying standards relating to the used respiratory protection system.

Control of environmental exposure
Do not let product enter drains.

SECTION 9: Physical and chemical properties

9.1 Information on basic physical and chemical properties

a)	Appearance	Form: flakes Color: colorless

The life science business of Merck KGaA, Darmstadt, Germany
operates as MilliporeSigma in the US and Canada

b)	Odor	stinging
c)	Odor Threshold	No data available
d)	pH	2.6 at 1 g/l at 20 °C (68 °F)
e)	Melting point/freezing point	Melting point/range: 55 - 56 °C (131 - 133 °F) - lit.
f)	Initial boiling point and boiling range	189 °C 372 °F at 981 hPa - lit.
g)	Flash point	No data available
h)	Evaporation rate	No data available
i)	Flammability (solid, gas)	No data available
j)	Upper/lower flammability or explosive limits	No data available
k)	Vapor pressure	0.69 hPa at 25 °C (77 °F)
l)	Vapor density	No data available
m)	Relative density	No data available
n)	Water solubility	3.4 g/l at 20 °C (68 °F)
o)	Partition coefficient: n-octanol/water	log Pow: 6.30 - Potential bioaccumulation, (Lit.)
p)	Autoignition temperature	No data available
q)	Decomposition temperature	> 300 °C (> 572 °F) -
r)	Viscosity	No data available
s)	Explosive properties	No data available
t)	Oxidizing properties	No data available

9.2 Other safety information
No data available

SECTION 10: Stability and reactivity

10.1 Reactivity
The following applies in general to flammable organic substances and mixtures: in correspondingly fine distribution, when whirled up a dust explosion potential may generally be assumed.

10.2 Chemical stability
The product is chemically stable under standard ambient conditions (room temperature) .

10.3 Possibility of hazardous reactions
Violent reactions possible with:
Strong oxidizing agents
Strong acids
Bases

The life science business of Merck KGaA, Darmstadt, Germany
operates as MilliporeSigma in the US and Canada

10.4 Conditions to avoid
no information available

10.5 Incompatible materials
No data available

10.6 Hazardous decomposition products
In the event of fire: see section 5

SECTION 11: Toxicological information

11.1 Information on toxicological effects

Acute toxicity
Acute toxicity estimate Oral - 500.1 mg/kg
(Expert judgment)

Acute toxicity estimate Inhalation - 4 h - 11.1 mg/l
(Expert judgment)

Skin corrosion/irritation
No data available

Serious eye damage/eye irritation
Causes serious eye damage.

Respiratory or skin sensitization

Germ cell mutagenicity
No data available

No data available
No data available

Carcinogenicity
Suspected of causing cancer.

IARC: 2B - Group 2B: Possibly carcinogenic to humans (pentadecafluorooctanoic acid)

NTP: No ingredient of this product present at levels greater than or equal to 0.1% is identified as a known or anticipated carcinogen by NTP.

OSHA: No component of this product present at levels greater than or equal to 0.1% is on OSHA's list of regulated carcinogens.

Reproductive toxicity
May damage the unborn child.
Studies indicating a hazard to babies during the lactation period

Specific target organ toxicity - single exposure

The life science business of Merck KGaA, Darmstadt, Germany
operates as MilliporeSigma in the US and Canada

Specific target organ toxicity - repeated exposure
Causes damage to organs through prolonged or repeated exposure. - Liver

Aspiration hazard

11.2 Additional Information

RTECS: RH0781000

Cough, Shortness of breath, Headache, Nausea, Vomiting
To the best of our knowledge, the chemical, physical, and toxicological properties have not been thoroughly investigated.

After absorption:

gastric pain
Nausea
Vomiting
Drowsiness
somnolence

Handle in accordance with good industrial hygiene and safety practice.

Stomach - Irregularities - Based on Human Evidence

Stomach - Irregularities - Based on Human Evidence

SECTION 12: Ecological information

12.1 Toxicity

No data available

Toxicity to daphnia and other aquatic invertebrates	Remarks: No data available (pentadecafluorooctanoic acid)
Toxicity to algae	Remarks: No data available (pentadecafluorooctanoic acid)

12.2 Persistence and degradability

No data available

12.3 Bioaccumulative potential

No data available

12.4 Mobility in soil

12.5 Results of PBT and vPvB assessment

PBT/vPvB assessment not available as chemical safety assessment not required/not conducted

12.6 Other adverse effects

Discharge into the environment must be avoided.

The life science business of Merck KGaA, Darmstadt, Germany
operates as MilliporeSigma in the US and Canada

SECTION 13: Disposal considerations

13.1 Waste treatment methods

Product
Waste material must be disposed of in accordance with the national and local regulations. Leave chemicals in original containers. No mixing with other waste. Handle uncleaned containers like the product itself. See www.retrologistik.com for processes regarding the return of chemicals and containers, or contact us there if you have further questions.

SECTION 14: Transport information

DOT (US)
UN number: 3261 Class: 8 Packing group: III
Proper shipping name: Corrosive solid, acidic, organic, n.o.s. (pentadecafluorooctanoic acid)
Reportable Quantity (RQ):
Poison Inhalation Hazard: No

IMDG
UN number: 3261 Class: 8 Packing group: III EMS-No: F-A, S-B
Proper shipping name: CORROSIVE SOLID, ACIDIC, ORGANIC, N.O.S. (pentadecafluorooctanoic acid)

IATA
UN number: 3261 Class: 8 Packing group: III
Proper shipping name: Corrosive solid, acidic, organic, n.o.s. (pentadecafluorooctanoic acid)

SECTION 15: Regulatory information

SARA 302 Components
This material does not contain any components with a section 302 EHS TPQ.

SARA 313 Components
This material does not contain any chemical components with known CAS numbers that exceed the threshold (De Minimis) reporting levels established by SARA Title III, Section 313.

SARA 311/312 Hazards
Acute Health Hazard, Chronic Health Hazard

Massachusetts Right To Know Components
No components are subject to the Massachusetts Right to Know Act.

No components are subject to the Massachusetts Right to Know Act.

Pennsylvania Right To Know Components

	CAS-No.	Revision Date
pentadecafluorooctanoic acid	335-67-1	2018-02-01

New Jersey Right To Know Components

The life science business of Merck KGaA, Darmstadt, Germany
operates as MilliporeSigma in the US and Canada

SECTION 16: Other information

Further information

The above information is believed to be correct but does not purport to be all inclusive and shall be used only as a guide. The information in this document is based on the present state of our knowledge and is applicable to the product with regard to appropriate safety precautions. It does not represent any guarantee of the properties of the product. Sigma-Aldrich Corporation and its Affiliates shall not be held liable for any damage resulting from handling or from contact with the above product. See www.sigma-aldrich.com and/or the reverse side of invoice or packing slip for additional terms and conditions of sale.

Copyright 2020 Sigma-Aldrich Co. LLC. License granted to make unlimited paper copies for internal use only.

The branding on the header and/or footer of this document may temporarily not visually match the product purchased as we transition our branding. However, all of the information in the document regarding the product remains unchanged and matches the product ordered. For further information please contact mlsbranding@sial.com.

Version: 6.4 Revision Date: 04/18/2021 Print Date: 06/19/2021

The life science business of Merck KGaA, Darmstadt, Germany
operates as MilliporeSigma in the US and Canada

TCI AMERICA

Material Safety Data Sheet

HAZARD WARNINGS	RISK PHRASES	PROTECTIVE CLOTHING
	**Corrosive to eyes and skin on contact.** **Toxic compound, do not ingest or inhale. Avoid all contact with this material.** **Environmental hazard.** **This material is toxic to aquatic organisms and may cause long term adverse effects to the aquatic environment.** **POSSIBLE MUTAGEN. MINIMIZE EXPOSURE.**	

Section I. Chemical Product and Company Identification

Chemical Name: **Heptadecafluorooctanesulfonic Acid**

Catalog Number	H0781
Synonym	Perfluorooctanesulfonic Acid
Chemical Formula	$C_8HF_{17}O_3S$
CAS Number	1763-23-1

Supplier: TCI America
9211 N. Harborgate St.
Portland OR
1-800-423-8616

In case of Emergency Call: **Chemtrec®**
(800) 424-9300 (U.S.)
(703) 527-3887 (International)

Section II. Composition and Information on Ingredients

Chemical Name	CAS Number	Percent (%)	TLV/PEL	Toxicology Data
Heptadecafluorooctanesulfonic Acid	1763-23-1	Min. 98.0 (T)	This compound is classified as a possible mutagen. There is no acceptable exposure limit for a mutagen.	Rat LD_{50} (oral) 154 mg/kg

Section III. Hazards Identification

Acute Health Effects

Corrosive to skin, eyes, and respiratory system. Liquid or spray mist may produce tissue damage, particularly in mucous membranes of the eyes, mouth and respiratory tract. Skin contact may produce burns. Eye contact can result in corneal damage or blindness. Inhalation of the spray mist may produce severe irritation of respiratory tract, characterized by coughing, choking, or shortness of breath. Corrosive materials may cause serious injury if ingested.
Toxic if ingested or inhaled. Avoid prolonged contact with this material. Overexposure may result in serious illness or death. Follow safe industrial hygiene practices and always wear proper protective equipment when handling this compound.

Chronic Health Effects

CARCINOGENIC EFFECTS : Not available.
MUTAGENIC EFFECTS : Not available.
TERATOGENIC EFFECTS : Not available.
DEVELOPMENTAL TOXICITY: Reproductive effects.
Rat TDLo Oral 50 mg/kg, female 19-20 days of pregnancy
TOXIC EFFECTS:
Effects on Newborn - Viability index
Effects on Newborn - Other neonatal measures or effects
Effects on Newborn - Growth statistics
Rat TDLo Oral 100 mg/kg, female 19-20 days of pregnancy
TOXIC EFFECTS:
Effects on Newborn - Stillbirth
Rat TDLo Unreported 50 mg/kg, female 19-20 days of pregnancy
TOXIC EFFECTS:
Specific Developmental Abnormalities - Respiratory system
Effects on Newborn - Live birth index
Repeated exposure of the eyes to a low level of dust can produce eye irritation. Repeated skin exposure can produce local skin destruction, or dermatitis. Repeated inhalation of dust can produce varying degree of respiratory irritation or lung damage. Repeated exposure to an highly toxic material may produce general deterioration of health by an accumulation in one or many human organs.

Section IV. First Aid Measures

Eye Contact

Check for and remove any contact lenses. In case of contact, immediately flush eyes with plenty of water for at least 15 minutes. Get medical attention.

Skin Contact

In case of contact, immediately flush skin with plenty of water for at least 15 minutes while removing contaminated clothing and shoes. Wash clothing before reuse. Thoroughly clean shoes before reuse. Get medical attention immediately.

Inhalation

If the victim is not breathing, perform mouth-to-mouth resuscitation. Loosen tight clothing such as a collar, tie, belt or waistband. If breathing is difficult, oxygen can be administered. Seek medical attention if respiration problems do not improve.

Ingestion

DO NOT INDUCE VOMITING. Loosen tight clothing such as a collar, tie, belt or waistband. If the victim is not breathing, perform mouth-to-mouth resuscitation. Examine the lips and mouth to ascertain whether the tissues are damaged, a possible indication that the toxic material was ingested; the absence of such signs, however, is not conclusive.

Continued on Next Page **Emergency phone number (800) 424-9300**

Section V. Fire and Explosion Data

Flammability	May be combustible at high temperature.	Auto-Ignition	Not available.
Flash Points	Not available.	Flammable Limits	Not available.
Combustion Products	These products are toxic carbon oxides (CO, CO_2), halogenated compounds, sulfur oxides (SO_x). WARNING: Highly toxic HF gas is produced during combustion.		
Fire Hazards	Not available.		
Explosion Hazards	Risks of explosion of the product in presence of mechanical impact: Not available. Risks of explosion of the product in presence of static discharge: Not available.		
Fire Fighting Media and Instructions	SMALL FIRE: Use DRY chemical powder. LARGE FIRE: Use water spray, fog or foam. DO NOT use water jet. Consult with local fire authorities before attempting large scale fire-fighting operations.		

Section VI. Accidental Release Measures

Spill Cleanup Instructions	Corrosive material. Toxic material. Environmentally hazardous material. Possibly mutagenic material. Stop leak if without risk. DO NOT get water inside container. DO NOT touch spilled material. Use water spray to reduce vapors. Prevent entry into sewers, basements or confined areas; dike if needed. Eliminate all sources of ignition. Consult federal, state, and/or local authorities for assistance on disposal.

Section VII. Handling and Storage

Handling and Storage Information	CORROSIVE. TOXIC. ENVIRONMENTAL HAZARD. POSSIBLE MUTAGEN. Keep locked up. Keep container dry. Keep away from heat. Mechanical exhaust required. When not in use, tightly seal the container and store in a dry, cool place. Avoid excessive heat and light. DO NOT ingest. Do not breathe dust. Never add water to this product. Wear suitable protective clothing. If ingested, seek medical advice immediately and show the container or the label. Treat symptomatically and supportively. Always store away from incompatible compounds such as oxidizing agents, alkalis (bases).

Section VIII. Exposure Controls/Personal Protection

Engineering Controls	Use process enclosures, local exhaust ventilation, or other engineering controls to keep airborne levels below recommended exposure limits. If user operations generate dust, fume or mist, use ventilation to keep exposure to airborne contaminants below the exposure limit.
Personal Protection	Face shield. Lab coat. Dust respirator. Boots. Gloves. A MSHA/NIOSH approved respirator must be used to avoid inhalation of the product. Suggested protective clothing might not be sufficient; consult a specialist BEFORE handling this product. 
Exposure Limits	This compound is classified as a possible mutagen. There is no acceptable exposure limit for a mutagen.

Section IX. Physical and Chemical Properties

Physical state @ 20°C	Solid. (White crystal ~ powder.)	Solubility	Soluble in water.
Specific Gravity	Not available.		
Molecular Weight	500.13	Partition Coefficient	Not available.
Boiling Point	260°C (500°F)	Vapor Pressure	0.3 Pa (@ 25°C)
Melting Point	90°C (194°F)	Vapor Density	Not available.
Refractive Index	Not available.	Volatility	Not available.
Critical Temperature	Not available.	Odor	Not available.
Viscosity	Not available.	Taste	Not available.

Section X. Stability and Reactivity Data

Stability	This material is stable if stored under proper conditions. (See Section VII for instructions)
Conditions of Instability	Avoid excessive heat and light.
Incompatibilities	Reactive with oxidizing agents, alkalis (bases).

Continued on Next Page

Printed 1/6/2010.

Section XI. Toxicological Information

RTECS Number	RG9701600
Routes of Exposure	Eye Contact. Ingestion. Inhalation. Skin contact.
Toxicity Data	Rat LD_{50} (oral) 154 mg/kg
Chronic Toxic Effects	**CARCINOGENIC EFFECTS** : Not available. **MUTAGENIC EFFECTS** : Not available. **TERATOGENIC EFFECTS** : Not available. **DEVELOPMENTAL TOXICITY**: Reproductive effects. Rat TDLo Oral 50 mg/kg, female 19-20 days of pregnancy TOXIC EFFECTS: Effects on Newborn - Viability index Effects on Newborn - Other neonatal measures or effects Effects on Newborn - Growth statistics Rat TDLo Oral 100 mg/kg, female 19-20 days of pregnancy TOXIC EFFECTS: Effects on Newborn - Stillbirth Rat TDLo Unreported 50 mg/kg, female 19-20 days of pregnancy TOXIC EFFECTS: Specific Developmental Abnormalities - Respiratory system Effects on Newborn - Live birth index Repeated exposure of the eyes to a low level of dust can produce eye irritation. Repeated skin exposure can produce local skin destruction, or dermatitis. Repeated inhalation of dust can produce varying degree of respiratory irritation or lung damage. Repeated exposure to an highly toxic material may produce general deterioration of health by an accumulation in one or many human organs.
Acute Toxic Effects	Corrosive to skin, eyes, and respiratory system. Liquid or spray mist may produce tissue damage, particularly in mucous membranes of the eyes, mouth and respiratory tract. Skin contact may produce burns. Eye contact can result in corneal damage or blindness. Inhalation of the spray mist may produce severe irritation of respiratory tract, characterized by coughing, choking, or shortness of breath. Corrosive materials may cause serious injury if ingested. Toxic if ingested or inhaled. Avoid prolonged contact with this material. Overexposure may result in serious illness or death. Follow safe industrial hygiene practices and always wear proper protective equipment when handling this compound.

Section XII. Ecological Information

Ecotoxicity	Not available.
Environmental Fate	Perfluorooctane sulfonic acid's production and use as a precursor for fluorinated surfactants has resulted in its release to the environment through various waste streams. If released to air, an estimated vapor pressure of 2.0X10-3 mm Hg at 25 deg C indicates perfluorooctane sulfonic acid will exist solely as a vapor in the ambient atmosphere. Vapor-phase perfluorooctane sulfonic acid will be degraded in the atmosphere by reaction with photochemically-produced hydroxyl radicals; the half-life for this reaction in air is estimated to be 110 days. If released to soil, perfluorooctane sulfonic acid is expected to have no mobility based upon an estimated Koc of 100,000. Perfluorooctane sulfonic acid is essentially nonvolatile. Perfluoro compound recalcitrance can be attributed to the stability conferred by fluorine substitutes and the absence of structures susceptible to electrophilic or nucleophilic attack. Perfluorooctane sulfonic acid reached 0% of its theoretical BOD in four weeks using an activated sludge inoculum in the manometric respirometry test. If released into water, perfluorooctane sulfonic acid is expected to adsorb to suspended solids and sediment based upon the estimated Koc. Volatilization from water surfaces is not expected to be an important fate process as the compound is essentially nonvolatile; an estimated volatilization half-life for a model pond is 3 years if adsorption is considered. An estimated BCF of 56 suggests the potential for bioconcentration in aquatic organisms is moderate. Monitoring studies however would suggest that this compound is highly bioaccumulative. As a class, fluorinated organic compounds are resistant to hydrolysis. Occupational exposure to perfluorooctane sulfonic acid may occur through inhalation and dermal contact with this compound at workplaces where perfluorooctane sulfonic acid is produced or used. Monitoring data indicate that the general population may be exposed to perfluorooctane sulfonic acid via ingestion of contaminated fish and drinking water, and dermal contact with this compound and other products containing perfluorooctane sulfonic acid.

Section XIII. Disposal Considerations

Waste Disposal	Recycle to process, if possible. Consult your local regional authorities. You may be able to dissolve or mix material with a combustible solvent and burn in a chemical incinerator equipped with an afterburner and scrubber system. Observe all federal, state and local regulations when disposing of the substance.

Section XIV. Transport Information

DOT Classification	DOT CLASS 8: Corrosive material DOT CLASS 6.1: Toxic material
PIN Number	UN2923
Proper Shipping Name	Corrosive solid, toxic, n.o.s.
Packing Group (PG)	II
DOT Pictograms	

Continued on Next Page Emergency phone number (800) 424-9300

Section XV. Other Regulatory Information and Pictograms

TSCA Chemical Inventory (EPA)	This compound is **ON** the EPA Toxic Substances Control Act (TSCA) inventory list.
WHMIS Classification (Canada)	CLASS D-1B: Material causing immediate and serious toxic effects (TOXIC). CLASS E: Corrosive solid. On NDSL.
EINECS Number (EEC)	217-179-8
EEC Risk Statements	R23/24/25- Toxic by inhalation, in contact with skin and if swallowed. R34- Causes burns. R46- May cause heritable genetic damage. R47- May cause birth defects. R51- Toxic to aquatic organisms. R53- May cause long-term adverse effects in the aquatic environment.
Japanese Regulatory Data	ENCS No. 2-1595

Section XVI. Other Information

Version 1.0
Validated on 1/6/2010.
Printed 1/6/2010.

Notice to Reader

TCI laboratory chemicals are for research purposes only and are NOT intended for use as drugs, food additives, households, or pesticides. The information herein is believed to be correct, but does not claim to be all inclusive and should be used only as a guide. Neither the above named supplier nor any of its subsidiaries assumes any liability whatsoever for the accuracy or completeness of the information contained herein. Final determination of suitability of any material is the sole responsibility of the user. All chemical reagents must be handled with the recognition that their chemical, physiological, toxicological, and hazardous properties have not been fully investigated or determined. All chemical reagents should be handled only by individuals who are familiar with their potential hazards and who have been fully trained in proper safety, laboratory, and chemical handling procedures. Although certain hazards are described herein, we can not guarantee that these are the only hazards which exist. Our MSDS sheets are based only on data available at the time of shipping and are subject to change without notice as new information is obtained. Avoid long storage periods since the product is subject to degradation with age and may become more dangerous or hazardous. It is the responsibility of the user to request updated MSDS sheets for products that are stored for extended periods. Disposal of unused product must be undertaken by qualified personnel who are knowledgeable in all applicable regulations and follow all pertinent safety precautions including the use of appropriate protective equipment (e.g. protective goggles, protective clothing, breathing equipment, facial mask, fume hood). For proper handling and disposal, always comply with federal, state, and local regulations.

SAFETY DATA SHEET

Version 6.2
Revision Date 04/30/2021
Print Date 06/19/2021

SECTION 1: Identification of the substance/mixture and of the company/undertaking

1.1 Product identifiers

Product name : Perfluoropentanoic acid

Product Number : 396575
Brand : Aldrich
CAS-No. : 2706-90-3

1.2 Relevant identified uses of the substance or mixture and uses advised against

Identified uses : Laboratory chemicals, Synthesis of substances

1.3 Details of the supplier of the safety data sheet

Company : Sigma-Aldrich Inc.
3050 SPRUCE ST
ST. LOUIS MO 63103
UNITED STATES

Telephone : +1 314 771-5765
Fax : +1 800 325-5052

1.4 Emergency telephone

Emergency Phone # : 800-424-9300 CHEMTREC (USA) +1-703-527-3887 CHEMTREC (International) 24 Hours/day; 7 Days/week

SECTION 2: Hazards identification

2.1 Classification of the substance or mixture

GHS Classification in accordance with 29 CFR 1910 (OSHA HCS)

Serious eye damage (Category 1), H318
Reproductive toxicity (Category 2), H361

For the full text of the H-Statements mentioned in this Section, see Section 16.

2.2 GHS Label elements, including precautionary statements

Pictogram



Signal word Danger

Hazard statement(s)
H318 Causes serious eye damage.
H361 Suspected of damaging fertility or the unborn child.

The life science business of Merck KGaA, Darmstadt, Germany
operates as MilliporeSigma in the US and Canada

Precautionary statement(s)	
P201	Obtain special instructions before use.
P202	Do not handle until all safety precautions have been read and understood.
P280	Wear protective gloves/ protective clothing/ eye protection/ face protection.
P305 + P351 + P338 + P310	IF IN EYES: Rinse cautiously with water for several minutes. Remove contact lenses, if present and easy to do. Continue rinsing. Immediately call a POISON CENTER/ doctor.
P308 + P313	IF exposed or concerned: Get medical advice/ attention.
P405	Store locked up.
P501	Dispose of contents/ container to an approved waste disposal plant.

2.3 Hazards not otherwise classified (HNOC) or not covered by GHS - none

SECTION 3: Composition/information on ingredients

3.1 Substances

Synonyms : Nonafluorovaleric acid
Perfluoropentanoic acid
Nonafluoropentanoic acid

Formula : $C_5HF_9O_2$
Molecular weight : 264.05 g/mol
CAS-No. : 2706-90-3
EC-No. : 220-300-7

Component	Classification	Concentration
Perfluorovaleric acid		
	Eye Dam. 1; Repr. 2; H318, H361	<= 100 %

For the full text of the H-Statements mentioned in this Section, see Section 16.

SECTION 4: First aid measures

4.1 Description of first-aid measures

General advice
Show this material safety data sheet to the doctor in attendance.

If inhaled
After inhalation: fresh air. Call in physician.

In case of skin contact
In case of skin contact: Take off immediately all contaminated clothing. Rinse skin with water/ shower. Consult a physician.

In case of eye contact
After eye contact: rinse out with plenty of water. Immediately call in ophthalmologist. Remove contact lenses.

The life science business of Merck KGaA, Darmstadt, Germany
operates as MilliporeSigma in the US and Canada

If swallowed
After swallowing: immediately make victim drink water (two glasses at most). Consult a physician.

4.2 Most important symptoms and effects, both acute and delayed
The most important known symptoms and effects are described in the labelling (see section 2.2) and/or in section 11

4.3 Indication of any immediate medical attention and special treatment needed
No data available

SECTION 5: Firefighting measures

5.1 Extinguishing media

Suitable extinguishing media
Water Foam Carbon dioxide (CO2) Dry powder

Unsuitable extinguishing media
For this substance/mixture no limitations of extinguishing agents are given.

5.2 Special hazards arising from the substance or mixture
Carbon oxides
Hydrogen fluoride
Combustible.
Development of hazardous combustion gases or vapours possible in the event of fire.

5.3 Advice for firefighters
Stay in danger area only with self-contained breathing apparatus. Prevent skin contact by keeping a safe distance or by wearing suitable protective clothing.

5.4 Further information
Suppress (knock down) gases/vapors/mists with a water spray jet. Prevent fire extinguishing water from contaminating surface water or the ground water system.

SECTION 6: Accidental release measures

6.1 Personal precautions, protective equipment and emergency procedures
Advice for non-emergency personnel: Do not breathe vapors, aerosols. Avoid substance contact. Ensure adequate ventilation. Evacuate the danger area, observe emergency procedures, consult an expert.
For personal protection see section 8.

6.2 Environmental precautions
Do not let product enter drains.

6.3 Methods and materials for containment and cleaning up
Cover drains. Collect, bind, and pump off spills. Observe possible material restrictions (see sections 7 and 10). Take up carefully with liquid-absorbent material (e.g. Chemizorb®). Dispose of properly. Clean up affected area.

6.4 Reference to other sections
For disposal see section 13.

The life science business of Merck KGaA, Darmstadt, Germany
operates as MilliporeSigma in the US and Canada

SECTION 7: Handling and storage

7.1 Precautions for safe handling

For precautions see section 2.2.

7.2 Conditions for safe storage, including any incompatibilities

Storage conditions
Tightly closed. Keep locked up or in an area accessible only to qualified or authorized persons.
Storage class (TRGS 510): 8A: Combustible, corrosive hazardous materials

7.3 Specific end use(s)

Apart from the uses mentioned in section 1.2 no other specific uses are stipulated

SECTION 8: Exposure controls/personal protection

8.1 Control parameters

Ingredients with workplace control parameters
Contains no substances with occupational exposure limit values.

8.2 Exposure controls

Appropriate engineering controls
Change contaminated clothing. Preventive skin protection recommended. Wash hands after working with substance.

Personal protective equipment

Eye/face protection
Use equipment for eye protection tested and approved under appropriate government standards such as NIOSH (US) or EN 166(EU). Tightly fitting safety goggles

Skin protection
required

Body Protection
protective clothing

Respiratory protection
required when vapours/aerosols are generated.
Our recommendations on filtering respiratory protection are based on the following standards: DIN EN 143, DIN 14387 and other accompanying standards relating to the used respiratory protection system.

Control of environmental exposure
Do not let product enter drains.

SECTION 9: Physical and chemical properties

9.1 Information on basic physical and chemical properties

a)	Appearance	Form: clear, liquid Color: light brown
b)	Odor	No data available

The life science business of Merck KGaA, Darmstadt, Germany
operates as MilliporeSigma in the US and Canada

c)	Odor Threshold	No data available
d)	pH	No data available
e)	Melting point/freezing point	No data available
f)	Initial boiling point and boiling range	140 °C 284 °F - lit.
g)	Flash point	()No data available
h)	Evaporation rate	No data available
i)	Flammability (solid, gas)	No data available
j)	Upper/lower flammability or explosive limits	No data available
k)	Vapor pressure	No data available
l)	Vapor density	No data available
m)	Relative density	No data available
n)	Water solubility	No data available
o)	Partition coefficient: n-octanol/water	No data available
p)	Autoignition temperature	No data available
q)	Decomposition temperature	No data available
r)	Viscosity	No data available
s)	Explosive properties	No data available
t)	Oxidizing properties	No data available

9.2 Other safety information
No data available

SECTION 10: Stability and reactivity

10.1 Reactivity
No data available

10.2 Chemical stability
The product is chemically stable under standard ambient conditions (room temperature) .

10.3 Possibility of hazardous reactions
No data available

10.4 Conditions to avoid
no information available

10.5 Incompatible materials
Strong oxidizing agents

The life science business of Merck KGaA, Darmstadt, Germany
operates as MilliporeSigma in the US and Canada

10.6 Hazardous decomposition products

In the event of fire: see section 5

SECTION 11: Toxicological information

11.1 Information on toxicological effects

Acute toxicity
Acute toxicity estimate Oral - 2,501 mg/kg
(Expert judgment)

Inhalation: No data available

Dermal: No data available
No data available

Skin corrosion/irritation
No data available

Serious eye damage/eye irritation
No data available

Respiratory or skin sensitization
No data available

Germ cell mutagenicity
No data available

Carcinogenicity

IARC: No ingredient of this product present at levels greater than or equal to 0.1% is identified as probable, possible or confirmed human carcinogen by IARC.

NTP: No ingredient of this product present at levels greater than or equal to 0.1% is identified as a known or anticipated carcinogen by NTP.

OSHA: No component of this product present at levels greater than or equal to 0.1% is on OSHA's list of regulated carcinogens.

Reproductive toxicity
Suspected of damaging the unborn child.
No data available

Specific target organ toxicity - single exposure
No data available

Specific target organ toxicity - repeated exposure
No data available

Aspiration hazard
No data available

11.2 Additional Information

Not available

The life science business of Merck KGaA, Darmstadt, Germany
operates as MilliporeSigma in the US and Canada

Material is extremely destructive to tissue of the mucous membranes and upper respiratory tract, eyes, and skin., Cough, Shortness of breath, Headache, Nausea

SECTION 12: Ecological information

12.1 Toxicity
No data available

12.2 Persistence and degradability
No data available

12.3 Bioaccumulative potential
No data available

12.4 Mobility in soil
No data available

12.5 Results of PBT and vPvB assessment
PBT/vPvB assessment not available as chemical safety assessment not required/not conducted

12.6 Other adverse effects
No data available

SECTION 13: Disposal considerations

13.1 Waste treatment methods

Product
Waste material must be disposed of in accordance with the national and local regulations. Leave chemicals in original containers. No mixing with other waste. Handle uncleaned containers like the product itself. See www.retrologistik.com for processes regarding the return of chemicals and containers, or contact us there if you have further questions.

SECTION 14: Transport information

DOT (US)
Not dangerous goods

IMDG
Not dangerous goods

IATA
Not dangerous goods

Further information
Not classified as dangerous in the meaning of transport regulations.

The life science business of Merck KGaA, Darmstadt, Germany
operates as MilliporeSigma in the US and Canada

SECTION 15: Regulatory information

SARA 302 Components
This material does not contain any components with a section 302 EHS TPQ.

SARA 313 Components
This material does not contain any chemical components with known CAS numbers that exceed the threshold (De Minimis) reporting levels established by SARA Title III, Section 313.

SARA 311/312 Hazards
No SARA Hazards

Massachusetts Right To Know Components
No components are subject to the Massachusetts Right to Know Act.

SECTION 16: Other information

Further information
The above information is believed to be correct but does not purport to be all inclusive and shall be used only as a guide. The information in this document is based on the present state of our knowledge and is applicable to the product with regard to appropriate safety precautions. It does not represent any guarantee of the properties of the product. Sigma-Aldrich Corporation and its Affiliates shall not be held liable for any damage resulting from handling or from contact with the above product. See www.sigma-aldrich.com and/or the reverse side of invoice or packing slip for additional terms and conditions of sale.

Copyright 2020 Sigma-Aldrich Co. LLC. License granted to make unlimited paper copies for internal use only.
The branding on the header and/or footer of this document may temporarily not visually match the product purchased as we transition our branding. However, all of the information in the document regarding the product remains unchanged and matches the product ordered. For further information please contact mlsbranding@sial.com.

Version: 6.2 Revision Date: 04/30/2021 Print Date: 06/19/2021

The life science business of Merck KGaA, Darmstadt, Germany
operates as MilliporeSigma in the US and Canada

SAFETY DATA SHEET

Version 6.2
Revision Date 07/16/2021
Print Date 07/25/2021

SECTION 1: Identification of the substance/mixture and of the company/undertaking

1.1 Product identifiers

Product name : Perfluoroundecanoic acid

Product Number : 446777
Brand : Aldrich
CAS-No. : 2058-94-8

1.2 Relevant identified uses of the substance or mixture and uses advised against

Identified uses : Laboratory chemicals, Synthesis of substances

1.3 Details of the supplier of the safety data sheet

Company : Sigma-Aldrich Inc.
3050 SPRUCE ST
ST. LOUIS MO 63103
UNITED STATES

Telephone : +1 314 771-5765
Fax : +1 800 325-5052

1.4 Emergency telephone

Emergency Phone # : 800-424-9300 CHEMTREC (USA) +1-703-527-3887 CHEMTREC (International) 24 Hours/day; 7 Days/week

SECTION 2: Hazards identification

2.1 Classification of the substance or mixture

GHS Classification in accordance with 29 CFR 1910 (OSHA HCS)

Acute toxicity, Oral (Category 4), H302
Acute toxicity, Inhalation (Category 4), H332
Carcinogenicity (Category 2), H351
Reproductive toxicity (Category 1B), H360
Effects on or via lactation, H362
Specific target organ toxicity - repeated exposure (Category 1), Liver, H372

For the full text of the H-Statements mentioned in this Section, see Section 16.

2.2 GHS Label elements, including precautionary statements

Pictogram



Signal word Danger

The life science business of Merck KGaA, Darmstadt, Germany
operates as MilliporeSigma in the US and Canada

Hazard statement(s)

H302 + H332	Harmful if swallowed or if inhaled.
H351	Suspected of causing cancer.
H360	May damage fertility or the unborn child.
H362	May cause harm to breast-fed children.
H372	Causes damage to organs (Liver) through prolonged or repeated exposure.

Precautionary statement(s)

P201	Obtain special instructions before use.
P202	Do not handle until all safety precautions have been read and understood.
P260	Do not breathe dust/ fume/ gas/ mist/ vapors/ spray.
P263	Avoid contact during pregnancy/ while nursing.
P264	Wash skin thoroughly after handling.
P270	Do not eat, drink or smoke when using this product.
P271	Use only outdoors or in a well-ventilated area.
P280	Wear protective gloves/ protective clothing/ eye protection/ face protection.
P301 + P312 + P330	IF SWALLOWED: Call a POISON CENTER/ doctor if you feel unwell. Rinse mouth.
P304 + P340 + P312	IF INHALED: Remove person to fresh air and keep comfortable for breathing. Call a POISON CENTER/ doctor if you feel unwell.
P308 + P313	IF exposed or concerned: Get medical advice/ attention.
P405	Store locked up.
P501	Dispose of contents/ container to an approved waste disposal plant.

2.3 Hazards not otherwise classified (HNOC) or not covered by GHS - none

SECTION 3: Composition/information on ingredients

3.1 Substances

Formula	:	$C_{11}HF_{21}O_2$
Molecular weight	:	564.09 g/mol
CAS-No.	:	2058-94-8
EC-No.	:	218-165-4

Component	Classification	Concentration
Henicosafluoroundecanoic acid		
	Acute Tox. 4; Carc. 2; Repr. 1B; Lact. ; STOT RE 1; H302, H332, H351, H360, H362, H372	<= 100 %

For the full text of the H-Statements mentioned in this Section, see Section 16.

The life science business of Merck KGaA, Darmstadt, Germany
operates as MilliporeSigma in the US and Canada

SECTION 4: First aid measures

4.1 Description of first-aid measures

General advice
Show this material safety data sheet to the doctor in attendance.

If inhaled
After inhalation: fresh air. Immediately call in physician. If breathing stops: immediately apply artificial respiration, if necessary also oxygen.

In case of skin contact
In case of skin contact: Take off immediately all contaminated clothing. Rinse skin with water/ shower. Consult a physician.

In case of eye contact
After eye contact: rinse out with plenty of water. Call in ophthalmologist. Remove contact lenses.

If swallowed
After swallowing: immediately make victim drink water (two glasses at most). Consult a physician.

4.2 Most important symptoms and effects, both acute and delayed
The most important known symptoms and effects are described in the labelling (see section 2.2) and/or in section 11

4.3 Indication of any immediate medical attention and special treatment needed
No data available

SECTION 5: Firefighting measures

5.1 Extinguishing media

Suitable extinguishing media
Water Foam Carbon dioxide (CO2) Dry powder

Unsuitable extinguishing media
For this substance/mixture no limitations of extinguishing agents are given.

5.2 Special hazards arising from the substance or mixture
Nature of decomposition products not known.
Combustible.
Vapors are heavier than air and may spread along floors.
Forms explosive mixtures with air on intense heating.
Development of hazardous combustion gases or vapours possible in the event of fire.

5.3 Advice for firefighters
Stay in danger area only with self-contained breathing apparatus. Prevent skin contact by keeping a safe distance or by wearing suitable protective clothing.

5.4 Further information
Suppress (knock down) gases/vapors/mists with a water spray jet. Prevent fire extinguishing water from contaminating surface water or the ground water system.

The life science business of Merck KGaA, Darmstadt, Germany
operates as MilliporeSigma in the US and Canada

SECTION 6: Accidental release measures

6.1 Personal precautions, protective equipment and emergency procedures

Advice for non-emergency personnel: Avoid generation and inhalation of dusts in all circumstances. Avoid substance contact. Ensure adequate ventilation. Evacuate the danger area, observe emergency procedures, consult an expert.
For personal protection see section 8.

6.2 Environmental precautions

Do not let product enter drains.

6.3 Methods and materials for containment and cleaning up

Cover drains. Collect, bind, and pump off spills. Observe possible material restrictions (see sections 7 and 10). Take up carefully. Dispose of properly. Clean up affected area. Avoid generation of dusts.

6.4 Reference to other sections

For disposal see section 13.

SECTION 7: Handling and storage

7.1 Precautions for safe handling

Advice on safe handling
Work under hood. Do not inhale substance/mixture.

Hygiene measures
Immediately change contaminated clothing. Apply preventive skin protection. Wash hands and face after working with substance.
For precautions see section 2.2.

7.2 Conditions for safe storage, including any incompatibilities

Storage conditions
Tightly closed. Dry. Keep in a well-ventilated place. Keep locked up or in an area accessible only to qualified or authorized persons.
Storage class (TRGS 510): 6.1C: Combustible, acute toxic Cat.3 / toxic compounds or compounds which causing chronic effects

7.3 Specific end use(s)

Apart from the uses mentioned in section 1.2 no other specific uses are stipulated

SECTION 8: Exposure controls/personal protection

8.1 Control parameters

Ingredients with workplace control parameters
Contains no substances with occupational exposure limit values.

8.2 Exposure controls

Appropriate engineering controls
Immediately change contaminated clothing. Apply preventive skin protection. Wash hands and face after working with substance.

The life science business of Merck KGaA, Darmstadt, Germany
operates as MilliporeSigma in the US and Canada

Personal protective equipment

Eye/face protection
Use equipment for eye protection tested and approved under appropriate government standards such as NIOSH (US) or EN 166(EU). Safety glasses

Skin protection
Handle with impervious gloves.

This recommendation applies only to the product stated in the safety data sheet, supplied by us and for the designated use. When dissolving in or mixing with other substances and under conditions deviating from those stated in EN374 please contact the supplier of CE-approved gloves (e.g. KCL GmbH, D-36124 Eichenzell, Internet: www.kcl.de).

Full contact
Material: Nitrile rubber
Minimum layer thickness: 0.11 mm
Break through time: 480 min
Material tested:KCL 741 Dermatril® L

Splash contact
Material: Nitrile rubber
Minimum layer thickness: 0.11 mm
Break through time: 480 min
Material tested:KCL 741 Dermatril® L

Body Protection
protective clothing

Respiratory protection
required when dusts are generated.
Our recommendations on filtering respiratory protection are based on the following standards: DIN EN 143, DIN 14387 and other accompanying standards relating to the used respiratory protection system.

Control of environmental exposure
Do not let product enter drains.

SECTION 9: Physical and chemical properties

9.1 Information on basic physical and chemical properties

a)	Appearance	Form: solid
b)	Odor	No data available
c)	Odor Threshold	No data available
d)	pH	No data available
e)	Melting point/freezing point	Melting point/range: 96 - 101 °C (205 - 214 °F) - lit.
f)	Initial boiling point and boiling range	160 °C 320 °F at 80 hPa - lit.
g)	Flash point	113 °C (235 °F) - closed cup
h)	Evaporation rate	No data available
i)	Flammability (solid,	No data available

The life science business of Merck KGaA, Darmstadt, Germany
operates as MilliporeSigma in the US and Canada

	gas)	
j)	Upper/lower flammability or explosive limits	No data available
k)	Vapor pressure	No data available
l)	Vapor density	No data available
m)	Density	No data available
	Relative density	No data available
n)	Water solubility	No data available
o)	Partition coefficient: n-octanol/water	No data available
p)	Autoignition temperature	No data available
q)	Decomposition temperature	No data available
r)	Viscosity	No data available
s)	Explosive properties	No data available
t)	Oxidizing properties	No data available

9.2 Other safety information
No data available

SECTION 10: Stability and reactivity

10.1 Reactivity
Forms explosive mixtures with air on intense heating.
A range from approx. 15 Kelvin below the flash point is to be rated as critical.
The following applies in general to flammable organic substances and mixtures: in correspondingly fine distribution, when whirled up a dust explosion potential may generally be assumed.

10.2 Chemical stability
The product is chemically stable under standard ambient conditions (room temperature) .

10.3 Possibility of hazardous reactions
No data available

10.4 Conditions to avoid
Strong heating.

10.5 Incompatible materials
Oxidizing agents

10.6 Hazardous decomposition products
In the event of fire: see section 5

The life science business of Merck KGaA, Darmstadt, Germany
operates as MilliporeSigma in the US and Canada

SECTION 11: Toxicological information

11.1 Information on toxicological effects

Acute toxicity
Acute toxicity estimate Oral - 500.1 mg/kg
(Expert judgment)
Acute toxicity estimate Inhalation - 4 h - 11.1 mg/l
(Expert judgment)
Dermal: No data available

Skin corrosion/irritation
No data available

Serious eye damage/eye irritation
Causes serious eye damage.

Respiratory or skin sensitization
No data available

Germ cell mutagenicity
No data available
No data available
No data available

Carcinogenicity
Suspected of causing cancer.

IARC: No ingredient of this product present at levels greater than or equal to 0.1% is identified as probable, possible or confirmed human carcinogen by IARC.

NTP: No ingredient of this product present at levels greater than or equal to 0.1% is identified as a known or anticipated carcinogen by NTP.

OSHA: No component of this product present at levels greater than or equal to 0.1% is on OSHA's list of regulated carcinogens.

Reproductive toxicity
May damage the unborn child.
Studies indicating a hazard to babies during the lactation period

Specific target organ toxicity - single exposure
No data available

Specific target organ toxicity - repeated exposure
Causes damage to organs through prolonged or repeated exposure. - Liver

Aspiration hazard
No data available

11.2 Additional Information

burning sensation, Cough, wheezing, laryngitis, Shortness of breath, spasm, inflammation and edema of the larynx, spasm, inflammation and edema of the bronchi, pneumonitis, pulmonary edema, Material is extremely destructive to tissue of the mucous membranes and upper respiratory tract, eyes, and skin., To the best of our knowledge, the chemical, physical, and toxicological properties have not been thoroughly investigated.

After absorption:

gastric pain
Nausea

The life science business of Merck KGaA, Darmstadt, Germany
operates as MilliporeSigma in the US and Canada

Vomiting
Drowsiness
somnolence

Handle in accordance with good industrial hygiene and safety practice.

SECTION 12: Ecological information

12.1 Toxicity

No data available

Toxicity to daphnia and other aquatic invertebrates	Remarks: No data available (Henicosafluoroundecanoic acid)
Toxicity to algae	Remarks: No data available (Henicosafluoroundecanoic acid)

12.2 Persistence and degradability

No data available

12.3 Bioaccumulative potential

No data available

12.4 Mobility in soil

No data available

12.5 Results of PBT and vPvB assessment

PBT/vPvB assessment not available as chemical safety assessment not required/not conducted

12.6 Other adverse effects

Discharge into the environment must be avoided.

SECTION 13: Disposal considerations

13.1 Waste treatment methods

Product

Waste material must be disposed of in accordance with the national and local regulations. Leave chemicals in original containers. No mixing with other waste. Handle uncleaned containers like the product itself. See www.retrologistik.com for processes regarding the return of chemicals and containers, or contact us there if you have further questions.

SECTION 14: Transport information

DOT (US)

Not dangerous goods

IMDG

Not dangerous goods

IATA

The life science business of Merck KGaA, Darmstadt, Germany
operates as MilliporeSigma in the US and Canada

Not dangerous goods

Further information
Not classified as dangerous in the meaning of transport regulations.

SECTION 15: Regulatory information

SARA 302 Components
This material does not contain any components with a section 302 EHS TPQ.

SARA 313 Components
This material does not contain any chemical components with known CAS numbers that exceed the threshold (De Minimis) reporting levels established by SARA Title III, Section 313.

SARA 311/312 Hazards
Acute Health Hazard

Massachusetts Right To Know Components
No components are subject to the Massachusetts Right to Know Act.

No components are subject to the Massachusetts Right to Know Act.

Pennsylvania Right To Know Components

Henicosafluoroundecanoic acid	CAS-No. 2058-94-8	Revision Date

New Jersey Right To Know Components

Henicosafluoroundecanoic acid	CAS-No. 2058-94-8	Revision Date

SECTION 16: Other information

Further information
The above information is believed to be correct but does not purport to be all inclusive and shall be used only as a guide. The information in this document is based on the present state of our knowledge and is applicable to the product with regard to appropriate safety precautions. It does not represent any guarantee of the properties of the product. Sigma-Aldrich Corporation and its Affiliates shall not be held liable for any damage resulting from handling or from contact with the above product. See www.sigma-aldrich.com and/or the reverse side of invoice or packing slip for additional terms and conditions of sale.

Copyright 2020 Sigma-Aldrich Co. LLC. License granted to make unlimited paper copies for internal use only.
The branding on the header and/or footer of this document may temporarily not visually match the product purchased as we transition our branding. However, all of the information in the document regarding the product remains unchanged and matches the product ordered. For further information please contact mlsbranding@sial.com.

The life science business of Merck KGaA, Darmstadt, Germany
operates as MilliporeSigma in the US and Canada

The life science business of Merck KGaA, Darmstadt, Germany
operates as MilliporeSigma in the US and Canada

SAFETY DATA SHEET

Creation Date 01-May-2012 **Revision Date** 11-Aug-2014 **Revision Number** 1

1. Identification

Product Name **Phenanthrene**

Cat No. : **AC130090000; AC130090050; AC130090500; AC130095000**

Synonyms No information available

Recommended Use Laboratory chemicals.

Uses advised against No Information available

Details of the supplier of the safety data sheet

Company
Fisher Scientific
One Reagent Lane
Fair Lawn, NJ 07410
Tel: (201) 796-7100

Entity / Business Name
Acros Organics
One Reagent Lane
Fair Lawn, NJ 07410

Emergency Telephone Number
For information **US** call: 001-800-ACROS-01 / **Europe** call: +32 14 57 52 11
Emergency Number **US:**001-201-796-7100 / **Europe:** +32 14 57 52 99
CHEMTREC Tel. No.**US:**001-800-424-9300 / **Europe:**001-703-527-3887

2. Hazard(s) identification

Classification
This chemical is considered hazardous by the 2012 OSHA Hazard Communication Standard (29 CFR 1910.1200)

Acute oral toxicity	Category 4

Label Elements

Signal Word
Warning

Hazard Statements
Harmful if swallowed



Precautionary Statements
Prevention
Wash face, hands and any exposed skin thoroughly after handling
Do not eat, drink or smoke when using this product
Ingestion
IF SWALLOWED: Call a POISON CENTER or doctor/physician if you feel unwell
Rinse mouth

Disposal
Dispose of contents/container to an approved waste disposal plant
Hazards not otherwise classified (HNOC)
Very toxic to aquatic life with long lasting effects

3. Composition / information on ingredients

Component	CAS-No	Weight %
Phenanthrene	85-01-8	>95

4. First-aid measures

General Advice If symptoms persist, call a physician.

Eye Contact Rinse immediately with plenty of water, also under the eyelids, for at least 15 minutes. Obtain medical attention.

Skin Contact Obtain medical attention. Wash off immediately with plenty of water for at least 15 minutes.

Inhalation Move to fresh air. If breathing is difficult, give oxygen. Obtain medical attention.

Ingestion Clean mouth with water and drink afterwards plenty of water. Get medical attention if symptoms occur.

Most important symptoms/effects None reasonably foreseeable.
Notes to Physician Treat symptomatically

5. Fire-fighting measures

Suitable Extinguishing Media Use water spray, alcohol-resistant foam, dry chemical or carbon dioxide.

Unsuitable Extinguishing Media No information available

Flash Point No information available
Method - No information available

Autoignition Temperature Not applicable
Explosion Limits
Upper No data available
Lower No data available
Sensitivity to Mechanical Impact No information available
Sensitivity to Static Discharge No information available

Specific Hazards Arising from the Chemical
Do not allow run-off from fire fighting to enter drains or water courses.

Hazardous Combustion Products
Carbon monoxide (CO) Carbon dioxide (CO_2)
Protective Equipment and Precautions for Firefighters
As in any fire, wear self-contained breathing apparatus pressure-demand, MSHA/NIOSH (approved or equivalent) and full protective gear.

NFPA

Health	Flammability	Instability	Physical hazards
1	1	0	N/A

6. Accidental release measures

Personal Precautions Ensure adequate ventilation. Use personal protective equipment. Avoid dust formation.

Environmental Precautions Do not flush into surface water or sanitary sewer system. Do not allow material to contaminate ground water system. Prevent product from entering drains. Local authorities should be advised if significant spillages cannot be contained. See Section 12 for additional ecological information. Avoid release to the environment. Collect spillage.

Methods for Containment and Clean Up Sweep up or vacuum up spillage and collect in suitable container for disposal. Keep in suitable, closed containers for disposal.

7. Handling and storage

Handling Wear personal protective equipment. Ensure adequate ventilation. Do not get in eyes, on skin, or on clothing. Avoid ingestion and inhalation. Avoid dust formation.

Storage Keep containers tightly closed in a dry, cool and well-ventilated place.

8. Exposure controls / personal protection

Exposure Guidelines This product does not contain any hazardous materials with occupational exposure limits established by the region specific regulatory bodies.

Engineering Measures Ensure adequate ventilation, especially in confined areas.

Personal Protective Equipment

- **Eye/face Protection** Wear appropriate protective eyeglasses or chemical safety goggles as described by OSHA's eye and face protection regulations in 29 CFR 1910.133 or European Standard EN166.
- **Skin and body protection** Long sleeved clothing.
- **Respiratory Protection** Follow the OSHA respirator regulations found in 29 CFR 1910.134 or European Standard EN 149. Use a NIOSH/MSHA or European Standard EN 149 approved respirator if exposure limits are exceeded or if irritation or other symptoms are experienced.
- **Hygiene Measures** Handle in accordance with good industrial hygiene and safety practice.

9. Physical and chemical properties

Physical State	Solid
Appearance	Beige
Odor	Odorless
Odor Threshold	No information available
pH	No information available
Melting Point/Range	95 - 101 °C / 203 - 213.8 °F
Boiling Point/Range	336 °C / 636.8 °F
Flash Point	No information available
Evaporation Rate	Not applicable
Flammability (solid,gas)	No information available
Flammability or explosive limits	
Upper	No data available
Lower	No data available
Vapor Pressure	1 mmHg @ 116 °C
Vapor Density	Not applicable
Relative Density	1.063
Solubility	Insoluble in water
Partition coefficient; n-octanol/water	No data available
Autoignition Temperature	Not applicable
Decomposition temperature	No information available
Viscosity	Not applicable
Molecular Formula	C14 H10
Molecular Weight	178.23

10. Stability and reactivity

Reactive Hazard None known, based on information available

Stability Stable under normal conditions.

Conditions to Avoid Incompatible products. Excess heat. Avoid dust formation.

Incompatible Materials Strong oxidizing agents

Hazardous Decomposition Products Carbon monoxide (CO), Carbon dioxide (CO_2)

Hazardous Polymerization Hazardous polymerization does not occur.

Hazardous Reactions None under normal processing.

11. Toxicological information

Acute Toxicity

Product Information

Component Information

Component	LD50 Oral	LD50 Dermal	LC50 Inhalation
Phenanthrene	1.8 g/kg (Rat)	Not listed	Not listed

Toxicologically Synergistic Products No information available

Delayed and immediate effects as well as chronic effects from short and long-term exposure

Irritation No information available

Sensitization No information available

Carcinogenicity The table below indicates whether each agency has listed any ingredient as a carcinogen.

Component	CAS-No	IARC	NTP	ACGIH	OSHA	Mexico
Phenanthrene	85-01-8	Not listed	Not listed	Not listed	Not listed	Not listed

Mutagenic Effects No information available

Reproductive Effects No information available.

Developmental Effects No information available.

Teratogenicity No information available.

STOT - single exposure None known

STOT - repeated exposure None known

Aspiration hazard No information available

Symptoms / effects,both acute and delayed No information available

Endocrine Disruptor Information No information available

Other Adverse Effects The toxicological properties have not been fully investigated. See actual entry in RTECS for complete information.

12. Ecological information

Ecotoxicity

Very toxic to aquatic organisms, may cause long-term adverse effects in the aquatic environment. The product contains following substances which are hazardous for the environment.

Component	Freshwater Algae	Freshwater Fish	Microtox	Water Flea

Phenanthrene	Not listed	LC50 = 3.2 mg/L 96h	Not listed	LC50 = 0.35 mg/L 48h

Persistence and Degradability Insoluble in water May persist

Bioaccumulation/ Accumulation No information available.

Mobility . Is not likely mobile in the environment due its low water solubility.

Component	log Pow
Phenanthrene	4.46

13. Disposal considerations

Waste Disposal Methods Chemical waste generators must determine whether a discarded chemical is classified as a hazardous waste. Chemical waste generators must also consult local, regional, and national hazardous waste regulations to ensure complete and accurate classification.

14. Transport information

DOT

UN-No UN3077
Proper Shipping Name ENVIRONMENTALLY HAZARDOUS SUBSTANCE,SOLID, N.O.S.
Hazard Class 9
Packing Group III

TDG

UN-No UN3077
Proper Shipping Name ENVIRONMENTALLY HAZARDOUS SUBSTANCE,SOLID, N.O.S.
Hazard Class 9
Packing Group III

IATA

UN-No UN3077
Proper Shipping Name ENVIRONMENTALLY HAZARDOUS SUBSTANCE, SOLID, N.O.S.*
Hazard Class 9
Packing Group III

IMDG/IMO

UN-No UN3077
Proper Shipping Name ENVIRONMENTALLY HAZARDOUS SUBSTANCE, SOLID, N.O.S.
Hazard Class 9
Packing Group III

15. Regulatory information

All of the components in the product are on the following Inventory lists: X = listed

International Inventories

Component	TSCA	DSL	NDSL	EINECS	ELINCS	NLP	PICCS	ENCS	AICS	IECSC	KECL
Phenanthrene	X	X	-	201-581-5	-		X	X	X	X	X

Legend:
X - Listed
E - Indicates a substance that is the subject of a Section 5(e) Consent order under TSCA.
F - Indicates a substance that is the subject of a Section 5(f) Rule under TSCA.
N - Indicates a polymeric substance containing no free-radical initiator in its inventory name but is considered to cover the designated polymer made with any free-radical initiator regardless of the amount used.
P - Indicates a commenced PMN substance
R - Indicates a substance that is the subject of a Section 6 risk management rule under TSCA.
S - Indicates a substance that is identified in a proposed or final Significant New Use Rule
T - Indicates a substance that is the subject of a Section 4 test rule under TSCA.
XU - Indicates a substance exempt from reporting under the Inventory Update Rule, i.e. Partial Updating of the TSCA Inventory Data Base Production and Site Reports (40 CFR 710(B).
Y1 - Indicates an exempt polymer that has a number-average molecular weight of 1,000 or greater.
Y2 - Indicates an exempt polymer that is a polyester and is made only from reactants included in a specified list of low concern reactants that comprises one of the eligibility criteria for the exemption rule.

U.S. Federal Regulations

TSCA 12(b) Not applicable

SARA 313

Component	CAS-No	Weight %	SARA 313 - Threshold Values %
Phenanthrene	85-01-8	>95	1.0

SARA 311/312 Hazardous Categorization

Acute Health Hazard	Yes
Chronic Health Hazard	No
Fire Hazard	No
Sudden Release of Pressure Hazard	No
Reactive Hazard	No

Clean Water Act

Component	CWA - Hazardous Substances	CWA - Reportable Quantities	CWA - Toxic Pollutants	CWA - Priority Pollutants
Phenanthrene	-	-	X	X

Clean Air Act Not applicable

OSHA Occupational Safety and Health Administration
Not applicable

CERCLA
This material, as supplied, contains one or more substances regulated as a hazardous substance under the Comprehensive Environmental Response Compensation and Liability Act (CERCLA) (40 CFR 302)

Component	Hazardous Substances RQs	CERCLA EHS RQs
Phenanthrene	5000 lb	-

California Proposition 65 This product does not contain any Proposition 65 chemicals

State Right-to-Know

Component	Massachusetts	New Jersey	Pennsylvania	Illinois	Rhode Island
Phenanthrene	X	X	X	-	-

U.S. Department of Transportation

Reportable Quantity (RQ):	N
DOT Marine Pollutant	N
DOT Severe Marine Pollutant	N

U.S. Department of Homeland Security
This product does not contain any DHS chemicals.

Other International Regulations

Mexico - Grade No information available

Canada
This product has been classified in accordance with the hazard criteria of the Controlled Products Regulations (CPR) and the MSDS contains all the information required by the CPR

WHMIS Hazard Class Non-controlled

16. Other information

Prepared By Regulatory Affairs

Thermo Fisher Scientific
Email: EMSDS.RA@thermofisher.com

Creation Date	01-May-2012
Revision Date	11-Aug-2014
Print Date	11-Aug-2014
Revision Summary	This document has been updated to comply with the US OSHA HazCom 2012 Standard replacing the current legislation under 29 CFR 1910.1200 to align with the Globally Harmonized System of Classification and Labeling of Chemicals (GHS)

Disclaimer

The information provided on this Safety Data Sheet is correct to the best of our knowledge, information and belief at the date of its publication. The information given is designed only as a guide for safe handling, use, processing, storage, transportation, disposal and release and is not to be considered as a warranty or quality specification. The information relates only to the specific material designated and may not be valid for such material used in combination with any other material or in any process, unless specified in the text.

End of SDS

SAFETY DATA SHEET

Version 6.10
Revision Date 09/06/2024
Print Date 09/06/2024

SECTION 1: Identification of the substance/mixture and of the company/undertaking

1.1 Product identifiers

Product name : Phenol

Product Number : P5566
Brand : Sigma-Aldrich
Index-No. : 604-001-00-2
CAS-No. : 108-95-2

1.2 Relevant identified uses of the substance or mixture and uses advised against

Identified uses : Laboratory chemicals, Synthesis of substances

Uses advised against : The product is being supplied under the TSCA R&D Exemption (40 CFR Section 720.36). It is the recipient's responsibility to comply with the requirements of the R&D exemption. The product may not be used for a non-exempt commercial purpose under TSCA unless appropriate consent is granted in writing by MilliporeSigma.

1.3 Details of the supplier of the safety data sheet

Company : Sigma-Aldrich Inc.
3050 SPRUCE ST
ST. LOUIS MO 63103
UNITED STATES

Telephone : +1 314 771-5765
Fax : +1 800 325-5052

1.4 Emergency telephone

Emergency Phone # : 800-424-9300 CHEMTREC (USA) +1-703-527-3887 CHEMTREC (International) 24 Hours/day; 7 Days/week

SECTION 2: Hazards identification

2.1 Classification of the substance or mixture

GHS Classification in accordance with 29 CFR 1910 (OSHA HCS)

Acute toxicity, Oral (Category 3), H301
Acute toxicity, Inhalation (Category 3), H331
Acute toxicity, Dermal (Category 3), H311

The life science business of Merck KGaA, Darmstadt, Germany
operates as MilliporeSigma in the US and Canada

Skin corrosion (Category 1B), H314
Serious eye damage (Category 1), H318
Germ cell mutagenicity (Category 2), H341
Specific target organ toxicity - repeated exposure (Category 2), Nervous system, Kidney, Liver, Skin, H373
Short-term (acute) aquatic hazard (Category 2), H401
Long-term (chronic) aquatic hazard (Category 2), H411

For the full text of the H-Statements mentioned in this Section, see Section 16.

2.2 GHS Label elements, including precautionary statements

Pictogram



Signal Word: Danger

Hazard Statements

H301 + H311 + H331	Toxic if swallowed, in contact with skin or if inhaled.
H314	Causes severe skin burns and eye damage.
H341	Suspected of causing genetic defects.
H373	May cause damage to organs (Nervous system, Kidney, Liver, Skin) through prolonged or repeated exposure.
H411	Toxic to aquatic life with long lasting effects.

Precautionary Statements

P201	Obtain special instructions before use.
P202	Do not handle until all safety precautions have been read and understood.
P260	Do not breathe dust/ fume/ gas/ mist/ vapors/ spray.
P264	Wash skin thoroughly after handling.
P270	Do not eat, drink or smoke when using this product.
P271	Use only outdoors or in a well-ventilated area.
P273	Avoid release to the environment.
P280	Wear protective gloves/ protective clothing/ eye protection/ face protection.
P301 + P310 + P330	IF SWALLOWED: Immediately call a POISON CENTER/ doctor. Rinse mouth.
P301 + P330 + P331	IF SWALLOWED: Rinse mouth. Do NOT induce vomiting.
P303 + P361 + P353	IF ON SKIN (or hair): Take off immediately all contaminated clothing. Rinse skin with water/ shower.
P304 + P340 + P310	IF INHALED: Remove person to fresh air and keep comfortable for breathing. Immediately call a POISON CENTER/ doctor.
P305 + P351 + P338 + P310	IF IN EYES: Rinse cautiously with water for several minutes. Remove contact lenses, if present and easy to do. Continue rinsing. Immediately call a POISON CENTER/ doctor.
P308 + P313	IF exposed or concerned: Get medical advice/ attention.
P362	Take off contaminated clothing and wash before reuse.
P391	Collect spillage.
P403 + P233	Store in a well-ventilated place. Keep container tightly closed.
P405	Store locked up.
P501	Dispose of contents/ container to an approved waste disposal plant.

The life science business of Merck KGaA, Darmstadt, Germany
operates as MilliporeSigma in the US and Canada

2.3 Hazards not otherwise classified (HNOC) or not covered by GHS

Vesicant., Rapidly absorbed through skin.

SECTION 3: Composition/information on ingredients

3.1 Substances

Synonyms : Hydroxybenzene

Formula : C_6H_6O
Molecular weight : 94.11 g/mol
CAS-No. : 108-95-2
EC-No. : 203-632-7
Index-No. : 604-001-00-2

Component	Classification	Concentration
Phenol		
	Acute Tox. 3; Skin Corr. 1B; Eye Dam. 1; Muta. 2; STOT RE 2; Aquatic Acute 2; Aquatic Chronic 2; H301, H331, H311, H314, H318, H341, H373, H401, H411 Concentration limits: >= 3 %: Skin Corr. 1B, H314; 1 - < 3 %: Skin Irrit. 2, H315; 1 - < 3 %: Eye Irrit. 2, H319;	<= 100 %

For the full text of the H-Statements mentioned in this Section, see Section 16.

SECTION 4: First aid measures

4.1 Description of first-aid measures

General advice
First aiders need to protect themselves. Show this material safety data sheet to the doctor in attendance.

If inhaled
After inhalation: fresh air. Immediately call in physician. If breathing stops: immediately apply artificial respiration, if necessary also oxygen.

In case of skin contact
After contact with skin: rinse out with polyethylene glycol 400 or a mixture of polyethylene glycol 300/ethanol 2:1 and wash with plenty of water. If neither is available wash with plenty of water. Immediately take off contaminated clothing. Call a physician immediately.

The life science business of Merck KGaA, Darmstadt, Germany
operates as MilliporeSigma in the US and Canada

In case of eye contact
After eye contact: rinse out with plenty of water. Immediately call in ophthalmologist. Remove contact lenses.

If swallowed
If swallowed: give water to drink (two glasses at most). Seek medical advice immediately. In exceptional cases only, if medical care is not available within one hour, induce vomiting (only in persons who are wide awake and fully conscious), administer activated charcoal (20 - 40 g in a 10% slurry) and consult a doctor as quickly as possible. Do not attempt to neutralise.

4.2 Most important symptoms and effects, both acute and delayed
The most important known symptoms and effects are described in the labelling (see section 2.2) and/or in section 11

4.3 Indication of any immediate medical attention and special treatment needed
No data available

SECTION 5: Firefighting measures

5.1 Extinguishing media

Suitable extinguishing media
Water Foam Carbon dioxide (CO2) Dry powder

Unsuitable extinguishing media
For this substance/mixture no limitations of extinguishing agents are given.

5.2 Special hazards arising from the substance or mixture
Carbon oxides
Combustible.
Vapors are heavier than air and may spread along floors.
Forms explosive mixtures with air on intense heating.
Development of hazardous combustion gases or vapours possible in the event of fire.

5.3 Advice for firefighters
Stay in danger area only with self-contained breathing apparatus. Prevent skin contact by keeping a safe distance or by wearing suitable protective clothing.

5.4 Further information
Remove container from danger zone and cool with water. Prevent fire extinguishing water from contaminating surface water or the ground water system.

SECTION 6: Accidental release measures

6.1 Personal precautions, protective equipment and emergency procedures
Advice for non-emergency personnel: Avoid generation and inhalation of dusts in all circumstances. Avoid substance contact. Ensure adequate ventilation. Keep away from heat and sources of ignition. Evacuate the danger area, observe emergency procedures, consult an expert.
For personal protection see section 8.

The life science business of Merck KGaA, Darmstadt, Germany
operates as MilliporeSigma in the US and Canada

6.2 Environmental precautions
Do not let product enter drains.

6.3 Methods and materials for containment and cleaning up
Cover drains. Collect, bind, and pump off spills. Observe possible material restrictions (see sections 7 and 10). Take up carefully. Dispose of properly. Clean up affected area. Avoid generation of dusts.

6.4 Reference to other sections
For disposal see section 13.

SECTION 7: Handling and storage

7.1 Precautions for safe handling

Advice on safe handling
Work under hood. Do not inhale substance/mixture.

Advice on protection against fire and explosion
Keep away from open flames, hot surfaces and sources of ignition.Take precautionary measures against static discharge.

Hygiene measures
Immediately change contaminated clothing. Apply preventive skin protection. Wash hands and face after working with substance.
For precautions see section 2.2.

7.2 Conditions for safe storage, including any incompatibilities

Storage conditions
Tightly closed. Dry. Keep in a well-ventilated place. Keep locked up or in an area accessible only to qualified or authorized persons.
Storage stability Recommended storage temperature
2 - 8 °C
Handle and store under inert gas. Light sensitive.

Storage class
Storage class (TRGS 510): 6.1A: Combustible, acute toxic Cat. 1 and 2 / very toxic hazardous materials

7.3 Specific end use(s)
Apart from the uses mentioned in section 1.2 no other specific uses are stipulated

SECTION 8: Exposure controls/personal protection

8.1 Control parameters

Ingredients with workplace control parameters

Component	CAS-No.	Value	Control parameters	Basis
Phenol	108-95-2	TWA	5 ppm	USA. ACGIH Threshold Limit Values (TLV)
	Remarks	Not classifiable as a human carcinogen		

The life science business of Merck KGaA, Darmstadt, Germany
operates as MilliporeSigma in the US and Canada

		Danger of cutaneous absorption		
		TWA	5 ppm 19 mg/m3	USA. NIOSH Recommended Exposure Limits
		Potential for dermal absorption		
		C	15.6 ppm 60 mg/m3	USA. NIOSH Recommended Exposure Limits
		Potential for dermal absorption		
		TWA	5 ppm 19 mg/m3	USA. Occupational Exposure Limits (OSHA) - Table Z-1 Limits for Air Contaminants
		Skin designation		
		PEL	5 ppm 19 mg/m3	California permissible exposure limits for chemical contaminants (Title 8, Article 107)
		Skin		

Biological occupational exposure limits

Component	CAS-No.	Parameters	Value	Biological specimen	Basis
Phenol	108-95-2	Phenol	250mg/g creatinine	Urine	ACGIH - Biological Exposure Indices (BEI)
	Remarks	End of shift (As soon as possible after exposure ceases)			

8.2 Exposure controls

Appropriate engineering controls
Immediately change contaminated clothing. Apply preventive skin protection. Wash hands and face after working with substance.

Personal protective equipment

Eye/face protection
Use equipment for eye protection tested and approved under appropriate government standards such as NIOSH (US) or EN 166(EU). Tightly fitting safety goggles

Skin protection
This recommendation applies only to the product stated in the safety data sheet, supplied by us and for the designated use. When dissolving in or mixing with other substances and under conditions deviating from those stated in EN 16523-1 please contact the supplier of CE-approved gloves (e.g. KCL GmbH, D-36124 Eichenzell, Internet: www.kcl.de).
Full contact
Material: Viton®
Minimum layer thickness: 0.7 mm
Break through time: 480 min
Material tested:Vitoject® (KCL 890 / Aldrich Z677698, Size M)

This recommendation applies only to the product stated in the safety data sheet, supplied by us and for the designated use. When dissolving in or mixing with other substances and under conditions deviating from those stated in EN 16523-1 please

The life science business of Merck KGaA, Darmstadt, Germany
operates as MilliporeSigma in the US and Canada

contact the supplier of CE-approved gloves (e.g. KCL GmbH, D-36124 Eichenzell, Internet: www.kcl.de).
Splash contact
Material: Viton®
Minimum layer thickness: 0.7 mm
Break through time: 480 min
Material tested:Vitoject® (KCL 890 / Aldrich Z677698, Size M)

Body Protection
Flame retardant antistatic protective clothing.

Respiratory protection
Recommended Filter type: Filter A-(P3)
The entrepeneur has to ensure that maintenance, cleaning and testing of respiratory protective devices are carried out according to the instructions of the producer. These measures have to be properly documented.
required when dusts/vapours/aerosols are generated. Our recommendations on filtering respiratory protection are based on the following standards: DIN EN 143, DIN 14387 and other accompanying standards relating to the used respiratory protection system.

Control of environmental exposure
Do not let product enter drains.

SECTION 9: Physical and chemical properties

9.1 Information on basic physical and chemical properties

a)	Appearance	Form: solid
b)	Odor	stinging
c)	Odor Threshold	0.005 ppm
d)	pH	6.0
e)	Melting point/freezing point	Melting point/ range: 38 - 43 °C (100 - 109 °F)
f)	Initial boiling point and boiling range	181.8 °C 359.2 °F at 1,013 hPa
g)	Flash point	79.0 °C (174.2 °F) - closed cup
h)	Evaporation rate	No data available
i)	Flammability (solid, gas)	No data available
j)	Upper/lower flammability or explosive limits	Upper explosion limit: 9.5 %(V) Lower explosion limit: 1.3 %(V)
k)	Vapor pressure	0.53 hPa at 20.0 °C (68.0 °F)
l)	Vapor density	3.2 at 20 °C(68 °F) - (Air = 1.0)
m)	Density	1.13 g/cm3 at 25 °C (77 °F) - DIN 51757
	Relative density	No data available

The life science business of Merck KGaA, Darmstadt, Germany
operates as MilliporeSigma in the US and Canada

n)	Water solubility	87 g/l at 25 °C (77 °F)
o)	Partition coefficient: n-octanol/water	log Pow: 1.47 at 30 °C (86 °F) - (ECHA), Bioaccumulation is not expected.
p)	Autoignition temperature	715 °C (1319 °F) at 1,013 hPa
q)	Decomposition temperature	No data available
r)	Viscosity	No data available
s)	Explosive properties	No data available
t)	Oxidizing properties	No data available

9.2 Other safety information

Surface tension	38.2 mN/m at 50.0 °C (122.0 °F)
Relative vapor density	3.2 at 20 °C (68 °F) - (Air = 1.0)

SECTION 10: Stability and reactivity

10.1 Reactivity

Forms explosive mixtures with air on intense heating.
A range from approx. 15 Kelvin below the flash point is to be rated as critical.
The following applies in general to flammable organic substances and mixtures: in correspondingly fine distribution, when whirled up a dust explosion potential may generally be assumed.

10.2 Chemical stability

The product is chemically stable under standard ambient conditions (room temperature) .
Contains the following stabilizer(s):
Hypophosphorous acid (0.15 %)

10.3 Possibility of hazardous reactions

Exothermic reaction with:
Aluminum
Aldehydes
halogens
hydrogen peroxide
iron(III) compounds
Oxidizing agents
Strong acids
Strong bases
formaldehyde
Risk of explosion with:
nitrites
nitrates
salts of oxyhalogenic acids
peroxi compounds

The life science business of Merck KGaA, Darmstadt, Germany
operates as MilliporeSigma in the US and Canada

10.4 Conditions to avoid
Strong heating.

10.5 Incompatible materials
rubber, various plastics, various alloys, various metals

10.6 Hazardous decomposition products
In the event of fire: see section 5

SECTION 11: Toxicological information

11.1 Information on toxicological effects

Acute toxicity
Acute toxicity estimate Oral - 100.1 mg/kg
(Calculation method)
Acute toxicity estimate Oral - 100.1 mg/kg
(Expert judgment)
Remarks: Classified according to Regulation (EU) 1272/2008, Annex VI (Table 3.1/3.2)
Acute toxicity estimate Inhalation - 4 h - 0.51 mg/l - dust/mist(Calculation method)

Acute toxicity estimate Inhalation - 4 h - 0.51 mg/l - dust/mist

(Expert judgment)
Symptoms: Irritation, Lung edema
Remarks: Classified according to Regulation (EU) 1272/2008, Annex VI (Table 3.1/3.2)
Acute toxicity estimate Dermal - 660 mg/kg
(Calculation method)
LD50 Dermal - Rat - female - 660 mg/kg
(OECD Test Guideline 402)
No data available

Skin corrosion/irritation
Skin - In vitro study
Result: Causes burns.
(OECD Test Guideline 431)

Serious eye damage/eye irritation
Eyes - Rabbit
Result: Corrosive
(OECD Test Guideline 405)
Remarks: Causes serious eye damage.
Risk of blindness!

Respiratory or skin sensitization
Sensitisation test: - Guinea pig
Result: negative
Remarks: (IUCLID)

Germ cell mutagenicity
Suspected of causing genetic defects.
Test Type: Mutagenicity (mammal cell test): chromosome aberration.
Test system: Chinese hamster ovary cells
Metabolic activation: Metabolic activation

The life science business of Merck KGaA, Darmstadt, Germany
operates as MilliporeSigma in the US and Canada

Method: OECD Test Guideline 473
Result: positive
Test Type: Mutagenicity (mammal cell test): micronucleus.
Test system: Chinese hamster ovary cells
Metabolic activation: with and without metabolic activation
Method: OECD Test Guideline 487
Result: positive

Carcinogenicity
This product is or contains a component that is not classifiable as to its carcinogenicity based on its IARC, ACGIH, NTP, or EPA classification.

IARC: No ingredient of this product present at levels greater than or equal to 0.1% is identified as probable, possible or confirmed human carcinogen by IARC.

NTP: No ingredient of this product present at levels greater than or equal to 0.1% is identified as a known or anticipated carcinogen by NTP.

OSHA: No component of this product present at levels greater than or equal to 0.1% is on OSHA's list of regulated carcinogens.

Reproductive toxicity
No data available

Specific target organ toxicity - single exposure
No data available

Specific target organ toxicity - repeated exposure
May cause damage to organs through prolonged or repeated exposure.
- Nervous system, Kidney, Liver, Skin
Remarks: Classified according to Regulation (EU) 1272/2008, Annex VI (Table 3.1/3.2)

Aspiration hazard
No data available

11.2 Additional Information

Material is extremely destructive to tissue of the mucous membranes and upper respiratory tract, eyes, and skin., spasm, inflammation and edema of the larynx, spasm, inflammation and edema of the bronchi, pneumonitis, pulmonary edema, burning sensation, Cough, wheezing, laryngitis, Shortness of breath, Headache, Nausea, Vomiting, Circulatory collapse, tachypnea, paralysis, Convulsions, Coma., necrosis of mouth and G.I. Tract, Jaundice, respiratory failure, cardiac arrest
To the best of our knowledge, the chemical, physical, and toxicological properties have not been thoroughly investigated.

Stomach - Irregularities - Based on Human Evidence

Stomach - Irregularities - Based on Human Evidence

SECTION 12: Ecological information

12.1 Toxicity

Toxicity to fish	flow-through test LC50 - Onchorhynchus clarki - 8.9 mg/l - 96 h

The life science business of Merck KGaA, Darmstadt, Germany
operates as MilliporeSigma in the US and Canada

	(US-EPA)
Toxicity to daphnia and other aquatic invertebrates	static test EC50 - Ceriodaphnia dubia (water flea) - 3.1 mg/l - 48 h (US-EPA)
Toxicity to algae	static test EC50 - Pseudokirchneriella subcapitata (algae) - 61.1 mg/l - 96 h (US-EPA)
Toxicity to bacteria	static test IC50 - microorganisms - 21 mg/l - 24 h Remarks: (ECHA)
Toxicity to fish(Chronic toxicity)	semi-static test NOEC - Fish - 0.077 mg/l - 60 d Remarks: (ECHA)
Toxicity to daphnia and other aquatic invertebrates(Chronic toxicity)	semi-static test NOEC - Daphnia magna (Water flea) - 0.16 mg/l - 16 d Remarks: (ECHA)

12.2 Persistence and degradability

Biodegradability	aerobic - Exposure time 100 h Result: 62 % - Readily biodegradable. (OECD Test Guideline 301C)

12.3 Bioaccumulative potential

Bioaccumulation	Danio rerio (zebra fish) - 5 h at 25 °C - 2 mg/l(Phenol) Bioconcentration factor (BCF): 17.5 (OECD Test Guideline 305) Remarks: Does not bioaccumulate.

12.4 Mobility in soil

No data available

12.5 Results of PBT and vPvB assessment

PBT/vPvB assessment not available as chemical safety assessment not required/not conducted

12.6 Endocrine disrupting properties

No data available

12.7 Other adverse effects

No data available

The life science business of Merck KGaA, Darmstadt, Germany
operates as MilliporeSigma in the US and Canada

SECTION 13: Disposal considerations

13.1 Waste treatment methods

Product
Waste material must be disposed of in accordance with the national and local regulations. Leave chemicals in original containers. No mixing with other waste. Handle uncleaned containers like the product itself.

SECTION 14: Transport information

DOT (US)
UN number: 1671 Class: 6.1 Packing group: II
Proper shipping name: Phenol, solid
Reportable Quantity (RQ): 1000 lbs
Poison Inhalation Hazard: No

IMDG
UN number: 1671 Class: 6.1 Packing group: II EMS-No: F-A, S-A
Proper shipping name: PHENOL, SOLID
Marine pollutant : yes

IATA
UN number: 1671 Class: 6.1 Packing group: II
Proper shipping name: Phenol, solid

SECTION 15: Regulatory information

CERCLA Reportable Quantity

Components	CAS-No.	Component RQ (lbs)	Calculated product RQ (lbs)
Phenol	108-95-2	1000	1000

SARA 304 Extremely Hazardous Substances Reportable Quantity

Components	CAS-No.	Component RQ (lbs)	Calculated product RQ (lbs)
Phenol	108-95-2	1000	1000

SARA 302 Extremely Hazardous Substances Threshold Planning Quantity

Components	CAS-No.	Component TPQ (lbs)
Phenol	108-95-2	10000
Phenol	108-95-2	500*

*: Solid in the molten or powdered form (particles < 100 microns), in solution, or meeting the NFPA reactivity criteria

SARA 311/312 Hazards : Acute Health Hazard
Chronic Health Hazard

The life science business of Merck KGaA, Darmstadt, Germany
operates as MilliporeSigma in the US and Canada

SARA 313 : The following components are subject to reporting levels established by SARA Title III, Section 313:

Phenol	108-95-2	>= 90 - <= 100 %

US State Regulations

Massachusetts Right To Know

No components are subject to the Massachusetts Right to Know Act.

Maine Chemicals of High Concern

Product does not contain any listed chemicals

Vermont Chemicals of High Concern

Product does not contain any listed chemicals

Washington Chemicals of High Concern

Product does not contain any listed chemicals

The ingredients of this product are reported in the following inventories:

TSCA : All substances listed as active on the TSCA inventory

TSCA list

No substances are subject to a Significant New Use Rule.

No substances are subject to TSCA 12(b) export notification requirements.

SECTION 16: Other information

Further information

The information is believed to be correct but is not exhaustive and will be used solely as a guideline, which is based on current knowledge of the chemical substance or mixture and is applicable to appropriate safety precautions for the product. It does not represent any guarantee of the properties of the product. Sigma-Aldrich Corporation and its Affiliates shall not be held liable for any damage resulting from handling or from contact with the above product. See www.sigma-aldrich.com and/or the reverse side of invoice or packing slip for additional terms and conditions of sale.

Copyright 2020 Sigma-Aldrich Co. LLC. License granted to make unlimited paper copies for internal use only.

The branding on the header and/or footer of this document may temporarily not visually match the product purchased as we transition our branding. However, all of the information in the document regarding the product remains unchanged and matches the product ordered. For further information please contact mlsbranding@sial.com.

Version: 6.10 Revision Date: 09/06/2024 Print Date: 09/06/2024

The life science business of Merck KGaA, Darmstadt, Germany
operates as MilliporeSigma in the US and Canada

SAFETY DATA SHEET

Version 3.10
Revision Date 03/03/2015
Print Date 02/07/2016

1. PRODUCT AND COMPANY IDENTIFICATION

1.1 Product identifiers

Product name : Potassium

Product Number : 244864
Brand : Aldrich

CAS-No. : 7440-09-7

1.2 Relevant identified uses of the substance or mixture and uses advised against

Identified uses : Laboratory chemicals, Manufacture of substances

1.3 Details of the supplier of the safety data sheet

Company : Sigma-Aldrich
3050 Spruce Street
SAINT LOUIS MO 63103
USA

Telephone : +1 800-325-5832
Fax : +1 800-325-5052

1.4 Emergency telephone number

Emergency Phone # : (314) 776-6555

2. HAZARDS IDENTIFICATION

2.1 Classification of the substance or mixture

GHS Classification in accordance with 29 CFR 1910 (OSHA HCS)
Substances and mixtures, which in contact with water, emit flammable gases (Category 1), H260
Skin corrosion (Category 1A), H314
Serious eye damage (Category 1), H318
Carcinogenicity (Category 1A), H350

For the full text of the H-Statements mentioned in this Section, see Section 16.

2.2 GHS Label elements, including precautionary statements

Pictogram



Signal word Danger

Hazard statement(s)

H260	In contact with water releases flammable gases which may ignite spontaneously.
H314	Causes severe skin burns and eye damage.
H318	Causes serious eye damage.
H350	May cause cancer.

Precautionary statement(s)

P201	Obtain special instructions before use.
P202	Do not handle until all safety precautions have been read and understood.
P223	Keep away from any possible contact with water, because of violent reaction and possible flash fire.

P231 + P232	Handle under inert gas. Protect from moisture.
P260	Do not breathe dust or mist.
P264	Wash skin thoroughly after handling.
P280	Wear protective gloves/ protective clothing/ eye protection/ face protection.
P281	Use personal protective equipment as required.
P301 + P330 + P331	IF SWALLOWED: Rinse mouth. Do NOT induce vomiting.
P303 + P361 + P353	IF ON SKIN (or hair): Remove/ Take off immediately all contaminated clothing. Rinse skin with water/ shower.
P304 + P340 + P310	IF INHALED: Remove victim to fresh air and keep at rest in a position comfortable for breathing. Immediately call a POISON CENTER or doctor/ physician.
P305 + P351 + P338 + P310	IF IN EYES: Rinse cautiously with water for several minutes. Remove contact lenses, if present and easy to do. Continue rinsing. Immediately call a POISON CENTER or doctor/ physician.
P308 + P313	IF exposed or concerned: Get medical advice/ attention.
P335 + P334	Brush off loose particles from skin. Immerse in cool water/ wrap in wet bandages.
P363	Wash contaminated clothing before reuse.
P370 + P378	In case of fire: Use dry sand, dry chemical or alcohol-resistant foam for extinction.
P402 + P404	Store in a dry place. Store in a closed container.
P405	Store locked up.
P501	Dispose of contents/ container to an approved waste disposal plant.

2.3 Hazards not otherwise classified (HNOC) or not covered by GHS

Reacts violently with water.
May form explosive peroxides.

3. COMPOSITION/INFORMATION ON INGREDIENTS

3.2 Mixtures

Formula : K
Molecular weight : 39.10 g/mol

Hazardous components

Component		Classification	Concentration
Potassium			
CAS-No. EC-No. Index-No.	7440-09-7 231-119-8 019-001-00-2	Water-react. 1; Skin Corr. 1A; Eye Dam. 1; H260, H314	>= 90 - <= 100 %
Paraffin oils			
CAS-No. EC-No.	8012-95-1 232-384-2	Carc. 1A; H350	>= 1 - < 5 %

For the full text of the H-Statements mentioned in this Section, see Section 16.

4. FIRST AID MEASURES

4.1 Description of first aid measures

General advice
Consult a physician. Show this safety data sheet to the doctor in attendance.Move out of dangerous area.

If inhaled
If breathed in, move person into fresh air. If not breathing, give artificial respiration. Consult a physician.

In case of skin contact
Take off contaminated clothing and shoes immediately. Wash off with soap and plenty of water. Consult a physician.

In case of eye contact
Rinse thoroughly with plenty of water for at least 15 minutes and consult a physician.Continue rinsing eyes during transport to hospital.

If swallowed
Do NOT induce vomiting. Never give anything by mouth to an unconscious person. Rinse mouth with water. Consult a physician.

4.2 Most important symptoms and effects, both acute and delayed
The most important known symptoms and effects are described in the labelling (see section 2.2) and/or in section 11

4.3 Indication of any immediate medical attention and special treatment needed
No data available

5. FIREFIGHTING MEASURES

5.1 Extinguishing media

Suitable extinguishing media
Dry powder

5.2 Special hazards arising from the substance or mixture
Carbon oxides, Potassium oxides

5.3 Advice for firefighters
Wear self-contained breathing apparatus for firefighting if necessary.

5.4 Further information
No data available

6. ACCIDENTAL RELEASE MEASURES

6.1 Personal precautions, protective equipment and emergency procedures
Use personal protective equipment. Avoid dust formation. Avoid breathing vapours, mist or gas. Ensure adequate ventilation. Evacuate personnel to safe areas. Avoid breathing dust.
For personal protection see section 8.

6.2 Environmental precautions
Prevent further leakage or spillage if safe to do so. Do not let product enter drains.

6.3 Methods and materials for containment and cleaning up
Sweep up and shovel. Contain spillage, and then collect with an electrically protected vacuum cleaner or by wet-brushing and place in container for disposal according to local regulations (see section 13). Do not flush with water. Keep in suitable, closed containers for disposal.

6.4 Reference to other sections
For disposal see section 13.

7. HANDLING AND STORAGE

7.1 Precautions for safe handling
Avoid formation of dust and aerosols.Further processing of solid materials may result in the formation of combustible dusts. The potential for combustible dust formation should be taken into consideration before additional processing occurs.
Provide appropriate exhaust ventilation at places where dust is formed.Keep away from sources of ignition - No smoking.
For precautions see section 2.2.

7.2 Conditions for safe storage, including any incompatibilities
Keep container tightly closed in a dry and well-ventilated place.
Never allow product to get in contact with water during storage.

Handle and store under inert gas.
Storage class (TRGS 510): Hazardous materials, which set free flammable gases upon contact with water

7.3 Specific end use(s)
Apart from the uses mentioned in section 1.2 no other specific uses are stipulated

8. EXPOSURE CONTROLS/PERSONAL PROTECTION

8.1 Control parameters

Components with workplace control parameters

Component	CAS-No.	Value	Control parameters	Basis
Paraffin oils	8012-95-1	STEL	10.000000 mg/m3	USA. ACGIH Threshold Limit Values (TLV)
		TWA	5.000000 mg/m3	USA. Occupational Exposure Limits (OSHA) - Table Z-1 Limits for Air Contaminants
		TWA	5.000000 mg/m3	USA. NIOSH Recommended Exposure Limits
		ST	10.000000 mg/m3	USA. NIOSH Recommended Exposure Limits
		TWA	5.000000 mg/m3	USA. Occupational Exposure Limits (OSHA) - Table Z-1 Limits for Air Contaminants
		TWA	5.000000 mg/m3	USA. ACGIH Threshold Limit Values (TLV)
	Remarks	Upper Respiratory Tract irritation 2014 Adoption Not classifiable as a human carcinogen		
		Upper Respiratory Tract irritation 2014 Adoption Exposure by all routes should be carefully controlled to levels as low as possible. Suspected human carcinogen		
		TWA	5.000000 mg/m3	USA. Occupational Exposure Limits (OSHA) - Table Z-1 Limits for Air Contaminants
		TWA	5.000000 mg/m3	USA. Occupational Exposure Limits (OSHA) - Table Z-1 Limits for Air Contaminants
		Upper Respiratory Tract irritation Exposure by all routes should be carefully controlled to levels as low as possible. Suspected human carcinogen		
		TWA	5.000000 mg/m3	USA. ACGIH Threshold Limit Values (TLV)
		Upper Respiratory Tract irritation Not classifiable as a human carcinogen		
		TWA	5.000000 mg/m3	USA. NIOSH Recommended Exposure Limits
		ST	10.000000 mg/m3	USA. NIOSH Recommended Exposure Limits
		Upper Respiratory Tract irritation Exposure by all routes should be carefully controlled to levels as low as possible. Suspected human carcinogen		

8.2 Exposure controls

Appropriate engineering controls

Handle in accordance with good industrial hygiene and safety practice. Wash hands before breaks and at the end of workday.

Personal protective equipment

Eye/face protection
Face shield and safety glasses Use equipment for eye protection tested and approved under appropriate government standards such as NIOSH (US) or EN 166(EU).

Skin protection
Handle with gloves. Gloves must be inspected prior to use. Use proper glove removal technique (without touching glove's outer surface) to avoid skin contact with this product. Dispose of contaminated gloves after use in accordance with applicable laws and good laboratory practices. Wash and dry hands.

Full contact
Material: Nitrile rubber
Minimum layer thickness: 0.11 mm
Break through time: 480 min
Material tested:Dermatril® (KCL 740 / Aldrich Z677272, Size M)

Splash contact
Material: Nitrile rubber
Minimum layer thickness: 0.11 mm
Break through time: 480 min
Material tested:Dermatril® (KCL 740 / Aldrich Z677272, Size M)

data source: KCL GmbH, D-36124 Eichenzell, phone +49 (0)6659 87300, e-mail sales@kcl.de, test method: EN374
If used in solution, or mixed with other substances, and under conditions which differ from EN 374, contact the supplier of the CE approved gloves. This recommendation is advisory only and must be evaluated by an industrial hygienist and safety officer familiar with the specific situation of anticipated use by our customers. It should not be construed as offering an approval for any specific use scenario.

Body Protection
Complete suit protecting against chemicals, Flame retardant protective clothing, The type of protective equipment must be selected according to the concentration and amount of the dangerous substance at the specific workplace.

Respiratory protection
Where risk assessment shows air-purifying respirators are appropriate use a full-face particle respirator type N100 (US) or type P3 (EN 143) respirator cartridges as a backup to engineering controls. If the respirator is the sole means of protection, use a full-face supplied air respirator. Use respirators and components tested and approved under appropriate government standards such as NIOSH (US) or CEN (EU).

Control of environmental exposure
Prevent further leakage or spillage if safe to do so. Do not let product enter drains.

9. PHYSICAL AND CHEMICAL PROPERTIES

9.1 Information on basic physical and chemical properties

a)	Appearance	Form: Fragments Colour: grey
b)	Odour	No data available
c)	Odour Threshold	No data available
d)	pH	No data available
e)	Melting point/freezing point	Melting point/range: 64 °C (147 °F)
f)	Initial boiling point and boiling range	774 °C (1,425 °F) at 1,013 hPa (760 mmHg)
g)	Flash point	No data available
h)	Evaporation rate	No data available
i)	Flammability (solid, gas)	No data available
j)	Upper/lower	No data available

	flammability or explosive limits	
k)	Vapour pressure	0.12 hPa (0.09 mmHg) at 260 °C (500 °F)
l)	Vapour density	No data available
m)	Relative density	0.860 g/cm3
n)	Water solubility	No data available
o)	Partition coefficient: n-octanol/water	No data available
p)	Auto-ignition temperature	No data available
q)	Decomposition temperature	No data available
r)	Viscosity	No data available
s)	Explosive properties	No data available
t)	Oxidizing properties	No data available

9.2 Other safety information
No data available

10. STABILITY AND REACTIVITY

10.1 Reactivity
No data available

10.2 Chemical stability
Stable under recommended storage conditions.

10.3 Possibility of hazardous reactions
Reacts violently with water.

10.4 Conditions to avoid
Exposure to moisture

10.5 Incompatible materials
Oxidizing agents, Strong oxidizing agents, Carbon oxides, Reacts violently with water., Reacts with water to generate Hydrogen gas.

10.6 Hazardous decomposition products
Other decomposition products - No data available
In the event of fire: see section 5

11. TOXICOLOGICAL INFORMATION

11.1 Information on toxicological effects

Acute toxicity
No data available

Inhalation: No data available

Dermal: No data available

No data available

Skin corrosion/irritation
No data available

Serious eye damage/eye irritation
No data available

Respiratory or skin sensitisation
No data available

Germ cell mutagenicity
No data available

Carcinogenicity

IARC: 1 - Group 1: Carcinogenic to humans (Paraffin oils)

NTP: Known to be human carcinogenThe reference note has been added by TD based on the background information of the NTP. (Paraffin oils)

OSHA: No component of this product present at levels greater than or equal to 0.1% is identified as a carcinogen or potential carcinogen by OSHA.

Reproductive toxicity
No data available
No data available

Specific target organ toxicity - single exposure
No data available

Specific target organ toxicity - repeated exposure
No data available

Aspiration hazard
No data available

Additional Information
RTECS: Not available

Material is extremely destructive to tissue of the mucous membranes and upper respiratory tract, eyes, and skin., spasm, inflammation and edema of the larynx, spasm, inflammation and edema of the bronchi, pneumonitis, pulmonary edema, burning sensation, Cough, wheezing, laryngitis, Shortness of breath, Headache, Nausea

12. ECOLOGICAL INFORMATION

12.1 Toxicity
No data available

12.2 Persistence and degradability
No data available

12.3 Bioaccumulative potential
No data available

12.4 Mobility in soil
No data available

12.5 Results of PBT and vPvB assessment
PBT/vPvB assessment not available as chemical safety assessment not required/not conducted

12.6 Other adverse effects
No data available

13. DISPOSAL CONSIDERATIONS

13.1 Waste treatment methods

Product
Burn in a chemical incinerator equipped with an afterburner and scrubber but exert extra care in igniting as this material is highly flammable. Offer surplus and non-recyclable solutions to a licensed disposal company. Contact a licensed professional waste disposal service to dispose of this material. Dissolve or mix the material with a combustible solvent and burn in a chemical incinerator equipped with an afterburner and scrubber.

Contaminated packaging
Dispose of as unused product.

14. TRANSPORT INFORMATION

DOT (US)

UN number: 2257 Class: 4.3 Packing group: I
Proper shipping name: Potassium
Reportable Quantity (RQ):

Poison Inhalation Hazard: No

IMDG
UN number: 2257 Class: 4.3 Packing group: I EMS-No: F-G, S-N
Proper shipping name: POTASSIUM

IATA
UN number: 2257 Class: 4.3 Packing group: I
Proper shipping name: Potassium
IATA Passenger: Not permitted for transport

15. REGULATORY INFORMATION

SARA 302 Components
No chemicals in this material are subject to the reporting requirements of SARA Title III, Section 302.

SARA 313 Components
This material does not contain any chemical components with known CAS numbers that exceed the threshold (De Minimis) reporting levels established by SARA Title III, Section 313.

SARA 311/312 Hazards
Reactivity Hazard, Acute Health Hazard, Chronic Health Hazard

Massachusetts Right To Know Components

	CAS-No.	Revision Date
Potassium	7440-09-7	1993-04-24
Paraffin oils	8012-95-1	2007-03-01

Pennsylvania Right To Know Components

	CAS-No.	Revision Date
Potassium	7440-09-7	1993-04-24
Paraffin oils	8012-95-1	2007-03-01

New Jersey Right To Know Components

	CAS-No.	Revision Date
Potassium	7440-09-7	1993-04-24
Paraffin oils	8012-95-1	2007-03-01

California Prop. 65 Components

WARNING! This product contains a chemical known to the State of California to cause cancer.	CAS-No.	Revision Date
Paraffin oils	8012-95-1	1987-02-27

16. OTHER INFORMATION

Full text of H-Statements referred to under sections 2 and 3.

Carc.	Carcinogenicity
Eye Dam.	Serious eye damage
H260	In contact with water releases flammable gases which may ignite spontaneously.
H314	Causes severe skin burns and eye damage.
H318	Causes serious eye damage.
H350	May cause cancer.
Skin Corr.	Skin corrosion
Water-react.	Substances and mixtures, which in contact with water, emit flammable gases

HMIS Rating
Health hazard: 3

Chronic Health Hazard:	*
Flammability:	4
Physical Hazard	2

NFPA Rating

Health hazard:	3
Fire Hazard:	4
Reactivity Hazard:	2
Special hazard.I:	W

Further information

Copyright 2015 Sigma-Aldrich Co. LLC. License granted to make unlimited paper copies for internal use only.
The above information is believed to be correct but does not purport to be all inclusive and shall be used only as a guide. The information in this document is based on the present state of our knowledge and is applicable to the product with regard to appropriate safety precautions. It does not represent any guarantee of the properties of the product. Sigma-Aldrich Corporation and its Affiliates shall not be held liable for any damage resulting from handling or from contact with the above product. See www.sigma-aldrich.com and/or the reverse side of invoice or packing slip for additional terms and conditions of sale.

Preparation Information

Sigma-Aldrich Corporation
Product Safety – Americas Region
1-800-521-8956

Version: 3.10 Revision Date: 03/03/2015 Print Date: 02/07/2016

SAFETY DATA SHEET

Version 3.9
Revision Date 05/23/2016
Print Date 06/21/2016

1. PRODUCT AND COMPANY IDENTIFICATION

1.1 Product identifiers

Product name : *p*-Xylene

Product Number : 95680
Brand : Sigma-Aldrich
Index-No. : 601-022-00-9

CAS-No. : 106-42-3

1.2 Relevant identified uses of the substance or mixture and uses advised against

Identified uses : Laboratory chemicals, Synthesis of substances

1.3 Details of the supplier of the safety data sheet

Company : Sigma-Aldrich
3050 Spruce Street
SAINT LOUIS MO 63103
USA

Telephone : +1 800-325-5832
Fax : +1 800-325-5052

1.4 Emergency telephone number

Emergency Phone # : (314) 776-6555

2. HAZARDS IDENTIFICATION

2.1 Classification of the substance or mixture

GHS Classification in accordance with 29 CFR 1910 (OSHA HCS)
Flammable liquids (Category 3), H226
Acute toxicity, Inhalation (Category 4), H332
Acute toxicity, Dermal (Category 4), H312
Skin irritation (Category 2), H315
Acute aquatic toxicity (Category 2), H401

For the full text of the H-Statements mentioned in this Section, see Section 16.

2.2 GHS Label elements, including precautionary statements

Pictogram



Signal word Warning

Hazard statement(s)
H226 Flammable liquid and vapour.
H312 + H332 Harmful in contact with skin or if inhaled
H315 Causes skin irritation.
H401 Toxic to aquatic life.

Precautionary statement(s)
P210 Keep away from heat/sparks/open flames/hot surfaces. No smoking.
P233 Keep container tightly closed.
P240 Ground/bond container and receiving equipment.

P241	Use explosion-proof electrical/ ventilating/ lighting/ equipment.
P242	Use only non-sparking tools.
P243	Take precautionary measures against static discharge.
P261	Avoid breathing dust/ fume/ gas/ mist/ vapours/ spray.
P264	Wash skin thoroughly after handling.
P271	Use only outdoors or in a well-ventilated area.
P273	Avoid release to the environment.
P280	Wear protective gloves/ protective clothing/ eye protection/ face protection.
P303 + P361 + P353	IF ON SKIN (or hair): Remove/ Take off immediately all contaminated clothing. Rinse skin with water/ shower.
P304 + P340	IF INHALED: Remove victim to fresh air and keep at rest in a position comfortable for breathing.
P312	Call a POISON CENTER/doctor if you feel unwell.
P322	Specific measures (see supplemental first aid instructions on this label).
P332 + P313	If skin irritation occurs: Get medical advice/ attention.
P362	Take off contaminated clothing and wash before reuse.
P370 + P378	In case of fire: Use dry sand, dry chemical or alcohol-resistant foam for extinction.
P403 + P235	Store in a well-ventilated place. Keep cool.
P501	Dispose of contents/ container to an approved waste disposal plant.

2.3 Hazards not otherwise classified (HNOC) or not covered by GHS - none

3. COMPOSITION/INFORMATION ON INGREDIENTS

3.1 Substances

Synonyms	:	1,4-Dimethylbenzene
Formula	:	C_8H_{10}
Molecular weight	:	106.17 g/mol
CAS-No.	:	106-42-3
EC-No.	:	203-396-5
Index-No.	:	601-022-00-9

Hazardous components

Component	Classification	Concentration
p-Xylene		
	Flam. Liq. 3; Acute Tox. 4; Skin Irrit. 2; Aquatic Acute 2; H226, H312 + H332, H315, H401	<= 100 %

For the full text of the H-Statements mentioned in this Section, see Section 16.

4. FIRST AID MEASURES

4.1 Description of first aid measures

General advice
Consult a physician. Show this safety data sheet to the doctor in attendance.Move out of dangerous area.

If inhaled
If breathed in, move person into fresh air. If not breathing, give artificial respiration. Consult a physician.

In case of skin contact
Wash off with soap and plenty of water. Consult a physician.

In case of eye contact
Flush eyes with water as a precaution.

If swallowed
Do NOT induce vomiting. Never give anything by mouth to an unconscious person. Rinse mouth with water. Consult a physician.

4.2 Most important symptoms and effects, both acute and delayed
The most important known symptoms and effects are described in the labelling (see section 2.2) and/or in section 11

4.3 Indication of any immediate medical attention and special treatment needed
No data available

5. FIREFIGHTING MEASURES

5.1 Extinguishing media

Suitable extinguishing media
Use water spray, alcohol-resistant foam, dry chemical or carbon dioxide.

5.2 Special hazards arising from the substance or mixture
No data available

5.3 Advice for firefighters
Wear self-contained breathing apparatus for firefighting if necessary.

5.4 Further information
Use water spray to cool unopened containers.

6. ACCIDENTAL RELEASE MEASURES

6.1 Personal precautions, protective equipment and emergency procedures
Use personal protective equipment. Avoid breathing vapours, mist or gas. Ensure adequate ventilation. Remove all sources of ignition. Beware of vapours accumulating to form explosive concentrations. Vapours can accumulate in low areas.
For personal protection see section 8.

6.2 Environmental precautions
Prevent further leakage or spillage if safe to do so. Do not let product enter drains. Discharge into the environment must be avoided.

6.3 Methods and materials for containment and cleaning up
Contain spillage, and then collect with an electrically protected vacuum cleaner or by wet-brushing and place in container for disposal according to local regulations (see section 13).

6.4 Reference to other sections
For disposal see section 13.

7. HANDLING AND STORAGE

7.1 Precautions for safe handling
Avoid contact with skin and eyes. Avoid inhalation of vapour or mist.
Keep away from sources of ignition - No smoking.Take measures to prevent the build up of electrostatic charge.
For precautions see section 2.2.

7.2 Conditions for safe storage, including any incompatibilities
Keep container tightly closed in a dry and well-ventilated place. Containers which are opened must be carefully resealed and kept upright to prevent leakage.

7.3 Specific end use(s)
Apart from the uses mentioned in section 1.2 no other specific uses are stipulated

8. EXPOSURE CONTROLS/PERSONAL PROTECTION

8.1 Control parameters

Components with workplace control parameters

Component	CAS-No.	Value	Control parameters	Basis
p-Xylene	106-42-3	TWA	100.000000 ppm	USA. ACGIH Threshold Limit Values (TLV)
	Remarks	Eye & Upper Respiratory Tract irritation		

		Central Nervous System impairment Substances for which there is a Biological Exposure Index or Indices (see BEI® section) Not classifiable as a human carcinogen		
		STEL	150.000000 ppm	USA. ACGIH Threshold Limit Values (TLV)
		Eye & Upper Respiratory Tract irritation Central Nervous System impairment Substances for which there is a Biological Exposure Index or Indices (see BEI® section) Not classifiable as a human carcinogen		
		ST	150.000000 ppm 655.000000 mg/m3	USA. NIOSH Recommended Exposure Limits
		TWA	100.000000 ppm 435.000000 mg/m3	USA. NIOSH Recommended Exposure Limits
		TWA	100.000000 ppm 435.000000 mg/m3	USA. Occupational Exposure Limits (OSHA) - Table Z-1 Limits for Air Contaminants
		The value in mg/m3 is approximate.		
		TWA	100.000000 ppm	USA. ACGIH Threshold Limit Values (TLV)
		Central Nervous System impairment Upper Respiratory Tract irritation Eye irritation Substances for which there is a Biological Exposure Index or Indices (see BEI® section) Not classifiable as a human carcinogen		
		STEL	150.000000 ppm	USA. ACGIH Threshold Limit Values (TLV)
		Central Nervous System impairment Upper Respiratory Tract irritation Eye irritation Substances for which there is a Biological Exposure Index or Indices (see BEI® section) Not classifiable as a human carcinogen		
		TWA	100 ppm	USA. ACGIH Threshold Limit Values (TLV)
		Central Nervous System impairment Upper Respiratory Tract irritation Eye irritation Substances for which there is a Biological Exposure Index or Indices (see BEI® section) Not classifiable as a human carcinogen		
		STEL	150 ppm	USA. ACGIH Threshold Limit Values (TLV)
		Central Nervous System impairment Upper Respiratory Tract irritation Eye irritation Substances for which there is a Biological Exposure Index or Indices (see BEI® section) Not classifiable as a human carcinogen		

		TWA	100 ppm 435 mg/m3	USA. Occupational Exposure Limits (OSHA) - Table Z-1 Limits for Air Contaminants
		The value in mg/m3 is approximate.		

Biological occupational exposure limits

Component	CAS-No.	Parameters	Value	Biological specimen	Basis
p-Xylene	106-42-3	Methylhippuric acids	1.5g/g creatinine	Urine	ACGIH - Biological Exposure Indices (BEI)
	Remarks	End of shift (As soon as possible after exposure ceases)			
		Methylhippuric acids	1,500.0000 mg/g	Urine	ACGIH - Biological Exposure Indices (BEI)
		End of shift (As soon as possible after exposure ceases)			

8.2 Exposure controls

Appropriate engineering controls
Handle in accordance with good industrial hygiene and safety practice. Wash hands before breaks and at the end of workday.

Personal protective equipment

Eye/face protection
Face shield and safety glasses Use equipment for eye protection tested and approved under appropriate government standards such as NIOSH (US) or EN 166(EU).

Skin protection
Handle with gloves. Gloves must be inspected prior to use. Use proper glove removal technique (without touching glove's outer surface) to avoid skin contact with this product. Dispose of contaminated gloves after use in accordance with applicable laws and good laboratory practices. Wash and dry hands.

Full contact
Material: Fluorinated rubber
Minimum layer thickness: 0.7 mm
Break through time: 480 min
Material tested:Vitoject® (KCL 890 / Aldrich Z677698, Size M)

Splash contact
Material: Nitrile rubber
Minimum layer thickness: 0.4 mm
Break through time: 30 min
Material tested:Camatril® (KCL 730 / Aldrich Z677442, Size M)

data source: KCL GmbH, D-36124 Eichenzell, phone +49 (0)6659 87300, e-mail sales@kcl.de, test method: EN374
If used in solution, or mixed with other substances, and under conditions which differ from EN 374, contact the supplier of the CE approved gloves. This recommendation is advisory only and must be evaluated by an industrial hygienist and safety officer familiar with the specific situation of anticipated use by our customers. It should not be construed as offering an approval for any specific use scenario.

Body Protection
Complete suit protecting against chemicals, Flame retardant antistatic protective clothing., The type of protective equipment must be selected according to the concentration and amount of the dangerous substance at the specific workplace.

Respiratory protection
Where risk assessment shows air-purifying respirators are appropriate use a full-face respirator with multi-purpose combination (US) or type ABEK (EN 14387) respirator cartridges as a backup to engineering controls. If the respirator is the sole means of protection, use a full-face supplied air respirator. Use respirators and components tested and approved under appropriate government standards such as NIOSH (US) or CEN (EU).

Control of environmental exposure
Prevent further leakage or spillage if safe to do so. Do not let product enter drains. Discharge into the environment must be avoided.

9. PHYSICAL AND CHEMICAL PROPERTIES

9.1 Information on basic physical and chemical properties

a)	Appearance	Form: liquid, clear Colour: colourless
b)	Odour	No data available
c)	Odour Threshold	No data available
d)	pH	No data available
e)	Melting point/freezing point	13.0 °C (55.4 °F)
f)	Initial boiling point and boiling range	137.0 - 138.0 °C (278.6 - 280.4 °F)
g)	Flash point	25.0 °C (77.0 °F) - closed cup
h)	Evaporation rate	No data available
i)	Flammability (solid, gas)	No data available
j)	Upper/lower flammability or explosive limits	Upper explosion limit: 7 %(V) Lower explosion limit: 1.1 %(V)
k)	Vapour pressure	21.3 hPa (16.0 mmHg) at 37.7 °C (99.9 °F) 12.0 hPa (9.0 mmHg) at 20.0 °C (68.0 °F)
l)	Vapour density	No data available
m)	Relative density	0.86 g/cm3
n)	Water solubility	0.2 g/l
o)	Partition coefficient: n-octanol/water	log Pow: 3.15
p)	Auto-ignition temperature	529.0 °C (984.2 °F)
q)	Decomposition temperature	No data available
r)	Viscosity	No data available
s)	Explosive properties	No data available
t)	Oxidizing properties	No data available

9.2 Other safety information

Surface tension	28.3 mN/m at 20.0 °C (68.0 °F)

10. STABILITY AND REACTIVITY

10.1 Reactivity
No data available

10.2 Chemical stability
Stable under recommended storage conditions.

10.3 Possibility of hazardous reactions
Vapours may form explosive mixture with air.

10.4 Conditions to avoid
Heat, flames and sparks.

10.5 Incompatible materials
Strong oxidizing agents

10.6 Hazardous decomposition products
Hazardous decomposition products formed under fire conditions. - Carbon oxides
In the event of fire: see section 5

11. TOXICOLOGICAL INFORMATION

11.1 Information on toxicological effects

Acute toxicity
LD50 Oral - Rat - 5,000 mg/kg

LD50 Oral - Rat - male - 3,523 mg/kg

LC50 Inhalation - Rat - 4 h - 4550 ppm
Remarks: Lungs, Thorax, or Respiration:Chronic pulmonary edema. Liver:Other changes. Blood:Changes in cell count (unspecified).

No data available

Skin corrosion/irritation
Skin - Rabbit
Result: Moderate skin irritation - 4 h

Serious eye damage/eye irritation
No data available

Respiratory or skin sensitisation
No data available

Germ cell mutagenicity
No data available

Carcinogenicity

IARC:	3 - Group 3: Not classifiable as to its carcinogenicity to humans (p-Xylene)
NTP:	No component of this product present at levels greater than or equal to 0.1% is identified as a known or anticipated carcinogen by NTP.
OSHA:	No component of this product present at levels greater than or equal to 0.1% is identified as a carcinogen or potential carcinogen by OSHA.

Reproductive toxicity
No data available

May cause reproductive disorders.

Specific target organ toxicity - single exposure
No data available

Specific target organ toxicity - repeated exposure
No data available

Aspiration hazard
No data available

Additional Information
RTECS: ZE2625000

narcosis, Lung irritation, chest pain, pulmonary edema, Central nervous system depression, Gastrointestinal disturbance, Liver injury may occur., Kidney injury may occur., Blood disorders

Stomach - Irregularities - Based on Human Evidence
Stomach - Irregularities - Based on Human Evidence

12. ECOLOGICAL INFORMATION

12.1 Toxicity

Toxicity to fish	LC50 - Oncorhynchus mykiss (rainbow trout) - 2.60 mg/l - 96 h
	LC50 - Carassius auratus (goldfish) - 18.00 mg/l - 24 h
Toxicity to daphnia and other aquatic invertebrates	EC50 - Daphnia magna (Water flea) - 35.50 - 63.10 mg/l - 48 h
Toxicity to algae	EC50 - Pseudokirchneriella subcapitata (green algae) - 3.20 - 4.40 mg/l - 72 h

12.2 Persistence and degradability

Biodegradability Result: 87.8 % - Readily biodegradable

12.3 Bioaccumulative potential

No data available

12.4 Mobility in soil

No data available

12.5 Results of PBT and vPvB assessment

PBT/vPvB assessment not available as chemical safety assessment not required/not conducted

12.6 Other adverse effects

An environmental hazard cannot be excluded in the event of unprofessional handling or disposal.
Toxic to aquatic life.

13. DISPOSAL CONSIDERATIONS

13.1 Waste treatment methods

Product

Burn in a chemical incinerator equipped with an afterburner and scrubber but exert extra care in igniting as this material is highly flammable. Offer surplus and non-recyclable solutions to a licensed disposal company. Contact a licensed professional waste disposal service to dispose of this material.

Contaminated packaging

Dispose of as unused product.

14. TRANSPORT INFORMATION

DOT (US)

UN number: 1307 Class: 3 Packing group: III
Proper shipping name: Xylenes
Reportable Quantity (RQ): 100 lbs

Poison Inhalation Hazard: No

IMDG

UN number: 1307 Class: 3 Packing group: III EMS-No: F-E, S-D
Proper shipping name: XYLENES

IATA

UN number: 1307 Class: 3 Packing group: III
Proper shipping name: Xylenes

15. REGULATORY INFORMATION

SARA 302 Components

No chemicals in this material are subject to the reporting requirements of SARA Title III, Section 302.

SARA 313 Components

The following components are subject to reporting levels established by SARA Title III, Section 313:

	CAS-No.	Revision Date
p-Xylene	106-42-3	2007-07-01

SARA 311/312 Hazards

Fire Hazard, Acute Health Hazard, Chronic Health Hazard

California Prop. 65 Components
This product does not contain any chemicals known to State of California to cause cancer, birth defects, or any other reproductive harm.

16. OTHER INFORMATION

Full text of H-Statements referred to under sections 2 and 3.

Acute Tox.	Acute toxicity
Aquatic Acute	Acute aquatic toxicity
Flam. Liq.	Flammable liquids
H226	Flammable liquid and vapour.
H312	Harmful in contact with skin.
H312 + H332	Harmful in contact with skin or if inhaled
H315	Causes skin irritation.
H332	Harmful if inhaled.

HMIS Rating

Health hazard:	1
Chronic Health Hazard:	*
Flammability:	3
Physical Hazard	0

NFPA Rating

Health hazard:	1
Fire Hazard:	3
Reactivity Hazard:	0

Further information
Copyright 2016 Sigma-Aldrich Co. LLC. License granted to make unlimited paper copies for internal use only.
The above information is believed to be correct but does not purport to be all inclusive and shall be used only as a guide. The information in this document is based on the present state of our knowledge and is applicable to the product with regard to appropriate safety precautions. It does not represent any guarantee of the properties of the product. Sigma-Aldrich Corporation and its Affiliates shall not be held liable for any damage resulting from handling or from contact with the above product. See www.sigma-aldrich.com and/or the reverse side of invoice or packing slip for additional terms and conditions of sale.

Preparation Information
Sigma-Aldrich Corporation
Product Safety – Americas Region
1-800-521-8956

Version: 3.9 Revision Date: 05/23/2016 Print Date: 06/21/2016

SAFETY DATA SHEET

Creation Date 01-Jul-2010 **Revision Date** 10-Feb-2015 **Revision Number** 1

1. Identification

Product Name **Pyrene**

Cat No. : **AC180830000; AC180830250; AC180831000; AC180835000**

Synonyms Benzo[def]phenanthrene

Recommended Use Laboratory chemicals.

Uses advised against No Information available

Details of the supplier of the safety data sheet

Company
Fisher Scientific
One Reagent Lane
Fair Lawn, NJ 07410
Tel: (201) 796-7100

Entity / Business Name
Acros Organics
One Reagent Lane
Fair Lawn, NJ 07410

Emergency Telephone Number
For information **US** call: 001-800-ACROS-01 / **Europe** call: +32 14 57 52 11
Emergency Number **US:**001-201-796-7100 / **Europe:** +32 14 57 52 99
CHEMTREC Tel. No.**US:**001-800-424-9300 / **Europe:**001-703-527-3887

2. Hazard(s) identification

Classification
This chemical is considered hazardous by the 2012 OSHA Hazard Communication Standard (29 CFR 1910.1200)

Skin Corrosion/irritation	Category 2
Serious Eye Damage/Eye Irritation	Category 2
Specific target organ toxicity (single exposure)	Category 3
Target Organs - Central nervous system (CNS).	
Specific target organ toxicity - (repeated exposure)	Category 2
Target Organs - Liver.	

Label Elements

Signal Word
Warning

Hazard Statements
Causes skin irritation
Causes serious eye irritation
May cause drowsiness or dizziness
May cause damage to organs through prolonged or repeated exposure



Precautionary Statements
Prevention
Wear protective gloves/protective clothing/eye protection/face protection
Use only outdoors or in a well-ventilated area
Do not breathe dust/fume/gas/mist/vapors/spray
Wash face, hands and any exposed skin thoroughly after handling
Do not get in eyes, on skin, or on clothing
Response
Get medical attention/advice if you feel unwell
Inhalation
IF INHALED: Remove victim to fresh air and keep at rest in a position comfortable for breathing
Skin
IF ON SKIN: Wash with plenty of soap and water
Take off contaminated clothing and wash before reuse
If skin irritation occurs: Get medical advice/attention
Eyes
IF IN EYES: Rinse cautiously with water for several minutes. Remove contact lenses, if present and easy to do. Continue rinsing
If eye irritation persists: Get medical advice/attention
Storage
Store in a well-ventilated place. Keep container tightly closed
Store locked up
Disposal
Dispose of contents/container to an approved waste disposal plant
Hazards not otherwise classified (HNOC)
Very toxic to aquatic life with long lasting effects

3. Composition / information on ingredients

Component	CAS-No	Weight %
Pyrene	129-00-0	>95

4. First-aid measures

Eye Contact Rinse immediately with plenty of water, also under the eyelids, for at least 15 minutes. Obtain medical attention.

Skin Contact Wash off immediately with plenty of water for at least 15 minutes. Obtain medical attention.

Inhalation Move to fresh air. If breathing is difficult, give oxygen. Obtain medical attention.

Ingestion Do not induce vomiting. Obtain medical attention.

Most important symptoms/effects No information available.
Notes to Physician Treat symptomatically

5. Fire-fighting measures

Suitable Extinguishing Media Use water spray, alcohol-resistant foam, dry chemical or carbon dioxide.

Unsuitable Extinguishing Media No information available

Flash Point	210 °C / 410 °F
Method -	No information available
Autoignition Temperature	No information available
Explosion Limits	
Upper	No data available
Lower	No data available
Sensitivity to Mechanical Impact	No information available
Sensitivity to Static Discharge	No information available

Specific Hazards Arising from the Chemical
Keep product and empty container away from heat and sources of ignition.

Hazardous Combustion Products
Carbon monoxide (CO) Carbon dioxide (CO_2)
Protective Equipment and Precautions for Firefighters
As in any fire, wear self-contained breathing apparatus pressure-demand, MSHA/NIOSH (approved or equivalent) and full protective gear. Thermal decomposition can lead to release of irritating gases and vapors.

NFPA

Health	Flammability	Instability	Physical hazards
2	1	0	N/A

6. Accidental release measures

Personal Precautions	Ensure adequate ventilation. Use personal protective equipment. Avoid dust formation.
Environmental Precautions	Should not be released into the environment. See Section 12 for additional ecological information. Avoid release to the environment. Collect spillage.
Methods for Containment and Clean Up	Sweep up or vacuum up spillage and collect in suitable container for disposal. Avoid dust formation.

7. Handling and storage

Handling	Ensure adequate ventilation. Wear personal protective equipment. Avoid contact with skin, eyes and clothing. Avoid dust formation. Avoid breathing dust/fume/gas/mist/vapours/spray. Avoid ingestion and inhalation.
Storage	Keep containers tightly closed in a dry, cool and well-ventilated place.

8. Exposure controls / personal protection

Exposure Guidelines	This product does not contain any hazardous materials with occupational exposure limits established by the region specific regulatory bodies.
Engineering Measures	Ensure adequate ventilation, especially in confined areas. Ensure that eyewash stations and safety showers are close to the workstation location.

Personal Protective Equipment

Eye/face Protection	Wear appropriate protective eyeglasses or chemical safety goggles as described by OSHA's eye and face protection regulations in 29 CFR 1910.133 or European Standard EN166.
Skin and body protection	Wear appropriate protective gloves and clothing to prevent skin exposure.
Respiratory Protection	Follow the OSHA respirator regulations found in 29 CFR 1910.134 or European Standard EN 149. Use a NIOSH/MSHA or European Standard EN 149 approved respirator if exposure limits are exceeded or if irritation or other symptoms are experienced.

Hygiene Measures Handle in accordance with good industrial hygiene and safety practice.

9. Physical and chemical properties

Physical State	Solid
Appearance	Yellow
Odor	Odorless
Odor Threshold	No information available
pH	No information available
Melting Point/Range	148 - 152 °C / 298 - 306 °F
Boiling Point/Range	393 °C / 739.4 °F @ 760 mmHg
Flash Point	210 °C / 410 °F
Evaporation Rate	No information available
Flammability (solid,gas)	No information available
Flammability or explosive limits	
Upper	No data available
Lower	No data available
Vapor Pressure	No information available
Vapor Density	No information available
Relative Density	No information available
Solubility	No information available
Partition coefficient; n-octanol/water	No data available
Autoignition Temperature	No information available
Decomposition Temperature	No information available
Viscosity	No information available
Molecular Formula	C16 H10
Molecular Weight	202.25

10. Stability and reactivity

Reactive Hazard None known, based on information available

Stability Stable under normal conditions.

Conditions to Avoid Incompatible products. Excess heat. Avoid dust formation.

Incompatible Materials Strong oxidizing agents

Hazardous Decomposition Products Carbon monoxide (CO), Carbon dioxide (CO_2)

Hazardous Polymerization Hazardous polymerization does not occur.

Hazardous Reactions None under normal processing.

11. Toxicological information

Acute Toxicity

Product Information No acute toxicity information is available for this product

Component Information

Component	LD50 Oral	LD50 Dermal	LC50 Inhalation
Pyrene	2700 mg/kg (Rat)	Not listed	Not listed

Toxicologically Synergistic Products No information available

Delayed and immediate effects as well as chronic effects from short and long-term exposure

Irritation Irritating to eyes and skin

Sensitization No information available

Carcinogenicity The table below indicates whether each agency has listed any ingredient as a carcinogen.

Component	CAS-No	IARC	NTP	ACGIH	OSHA	Mexico
Pyrene	129-00-0	Not listed	Not listed	Not listed	Not listed	Not listed

Mutagenic Effects No information available

Reproductive Effects No information available.

Developmental Effects No information available.

Teratogenicity No information available.

STOT - single exposure Central nervous system (CNS)
STOT - repeated exposure Liver

Aspiration hazard No information available

Symptoms / effects,both acute and delayed No information available

Endocrine Disruptor Information No information available

Other Adverse Effects Tumorigenic effects have been reported in experimental animals. The toxicological properties have not been fully investigated. See actual entry in RTECS for complete information.

12. Ecological information

Ecotoxicity

Very toxic to aquatic organisms, may cause long-term adverse effects in the aquatic environment. Do not empty into drains. Do not flush into surface water or sanitary sewer system. Do not allow material to contaminate ground water system.

Component	Freshwater Algae	Freshwater Fish	Microtox	Water Flea
Pyrene	Not listed	Oncorhynchus mykiss: LC50 > 2mg/L 96h	Not listed	EC50 48h 1.8 mg/L EC50 48h 0.002-0.003 mg/L

Persistence and Degradability No information available
Bioaccumulation/ Accumulation No information available.

Mobility .

Component	log Pow
Pyrene	4.88

13. Disposal considerations

Waste Disposal Methods Chemical waste generators must determine whether a discarded chemical is classified as a hazardous waste. Chemical waste generators must also consult local, regional, and national hazardous waste regulations to ensure complete and accurate classification.

14. Transport information

DOT

UN-No UN3077
Proper Shipping Name Environmentally hazardous substance, solid, n.o.s
Proper technical name Pyrene
Hazard Class 9
Packing Group III

TDG

UN-No UN3077
Proper Shipping Name Environmentally hazardous substance, solid, n.o.s.
Hazard Class 9
Packing Group III

IATA

UN-No	UN3077
Proper Shipping Name	Environmentally hazardous substance, solid, n.o.s
Hazard Class	9
Packing Group	III

IMDG/IMO

UN-No	UN3077
Proper Shipping Name	Environmentally hazardous substance, solid, n.o.s
Hazard Class	9
Packing Group	III

15. Regulatory information

International Inventories

Component	TSCA	DSL	NDSL	EINECS	ELINCS	NLP	PICCS	ENCS	AICS	IECSC	KECL
Pyrene	X	X	-	204-927-3	-		X	X	X	X	-

Legend:
X - Listed
E - Indicates a substance that is the subject of a Section 5(e) Consent order under TSCA.
F - Indicates a substance that is the subject of a Section 5(f) Rule under TSCA.
N - Indicates a polymeric substance containing no free-radical initiator in its inventory name but is considered to cover the designated polymer made with any free-radical initiator regardless of the amount used.
P - Indicates a commenced PMN substance
R - Indicates a substance that is the subject of a Section 6 risk management rule under TSCA.
S - Indicates a substance that is identified in a proposed or final Significant New Use Rule
T - Indicates a substance that is the subject of a Section 4 test rule under TSCA.
XU - Indicates a substance exempt from reporting under the Inventory Update Rule, i.e. Partial Updating of the TSCA Inventory Data Base Production and Site Reports (40 CFR 710(B).
Y1 - Indicates an exempt polymer that has a number-average molecular weight of 1,000 or greater.
Y2 - Indicates an exempt polymer that is a polyester and is made only from reactants included in a specified list of low concern reactants that comprises one of the eligibility criteria for the exemption rule.

U.S. Federal Regulations

TSCA 12(b) Not applicable

SARA 313 Not applicable

SARA 311/312 Hazardous Categorization

Acute Health Hazard	Yes
Chronic Health Hazard	Yes
Fire Hazard	No
Sudden Release of Pressure Hazard	No
Reactive Hazard	No

Clean Water Act

Component	CWA - Hazardous Substances	CWA - Reportable Quantities	CWA - Toxic Pollutants	CWA - Priority Pollutants
Pyrene	-	-	X	X

Clean Air Act Not applicable

OSHA Occupational Safety and Health Administration
Not applicable

CERCLA
This material, as supplied, contains one or more substances regulated as a hazardous substance under the Comprehensive Environmental Response Compensation and Liability Act (CERCLA) (40 CFR 302)

Component	Hazardous Substances RQs	CERCLA EHS RQs
Pyrene	5000 lb	5000 lb

California Proposition 65 This product does not contain any Proposition 65 chemicals

State Right-to-Know

Component	Massachusetts	New Jersey	Pennsylvania	Illinois	Rhode Island
Pyrene	X	X	X	X	-

U.S. Department of Transportation

Reportable Quantity (RQ): N
DOT Marine Pollutant N
DOT Severe Marine Pollutant N

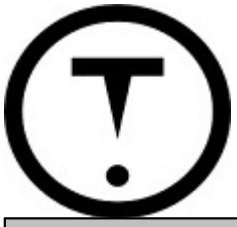
U.S. Department of Homeland Security
This product does not contain any DHS chemicals.

Other International Regulations

Mexico - Grade No information available

Canada
This product has been classified in accordance with the hazard criteria of the Controlled Products Regulations (CPR) and the MSDS contains all the information required by the CPR

WHMIS Hazard Class D2B Toxic materials



16. Other information

Prepared By
Regulatory Affairs
Thermo Fisher Scientific
Email: EMSDS.RA@thermofisher.com

Creation Date 01-Jul-2010
Revision Date 10-Feb-2015
Print Date 10-Feb-2015
Revision Summary This document has been updated to comply with the US OSHA HazCom 2012 Standard replacing the current legislation under 29 CFR 1910.1200 to align with the Globally Harmonized System of Classification and Labeling of Chemicals (GHS)

Disclaimer
The information provided on this Safety Data Sheet is correct to the best of our knowledge, information and belief at the date of its publication. The information given is designed only as a guide for safe handling, use, processing, storage, transportation, disposal and release and is not to be considered as a warranty or quality specification. The information relates only to the specific material designated and may not be valid for such material used in combination with any other material or in any process, unless specified in the text.

End of SDS

SAFETY DATA SHEET

Version 6.7
Revision Date 10/27/2023
Print Date 07/13/2024

SECTION 1: Identification of the substance/mixture and of the company/undertaking

1.1 Product identifiers

Product name : *sec*-Butylbenzene

Product Number : B90408
Brand : Aldrich
CAS-No. : 135-98-8

1.2 Relevant identified uses of the substance or mixture and uses advised against

Identified uses : Laboratory chemicals, Synthesis of substances

1.3 Details of the supplier of the safety data sheet

Company : Sigma-Aldrich Inc.
3050 SPRUCE ST
ST. LOUIS MO 63103
UNITED STATES

Telephone : +1 314 771-5765
Fax : +1 800 325-5052

1.4 Emergency telephone

Emergency Phone # : 800-424-9300 CHEMTREC (USA) +1-703-527-3887 CHEMTREC (International) 24 Hours/day; 7 Days/week

SECTION 2: Hazards identification

2.1 Classification of the substance or mixture

GHS Classification in accordance with 29 CFR 1910 (OSHA HCS)

Flammable liquids (Category 3), H226
Acute toxicity, Oral (Category 4), H302
Short-term (acute) aquatic hazard (Category 1), H400
Long-term (chronic) aquatic hazard (Category 1), H410

For the full text of the H-Statements mentioned in this Section, see Section 16.

2.2 GHS Label elements, including precautionary statements

Pictogram



The life science business of Merck KGaA, Darmstadt, Germany
operates as MilliporeSigma in the US and Canada

Signal Word	Warning
Hazard statement(s)	
H226	Flammable liquid and vapor.
H302	Harmful if swallowed.
H410	Very toxic to aquatic life with long lasting effects.
Precautionary statement(s)	
P210	Keep away from heat/ sparks/ open flames/ hot surfaces. No smoking.
P233	Keep container tightly closed.
P240	Ground/bond container and receiving equipment.
P241	Use explosion-proof electrical/ ventilating/ lighting/ equipment.
P242	Use only non-sparking tools.
P243	Take precautionary measures against static discharge.
P264	Wash skin thoroughly after handling.
P270	Do not eat, drink or smoke when using this product.
P273	Avoid release to the environment.
P280	Wear protective gloves/ eye protection/ face protection.
P301 + P312 + P330	IF SWALLOWED: Call a POISON CENTER/ doctor if you feel unwell. Rinse mouth.
P303 + P361 + P353	IF ON SKIN (or hair): Take off immediately all contaminated clothing. Rinse skin with water/ shower.
P370 + P378	In case of fire: Use dry sand, dry chemical or alcohol-resistant foam to extinguish.
P391	Collect spillage.
P403 + P235	Store in a well-ventilated place. Keep cool.
P501	Dispose of contents/ container to an approved waste disposal plant.

2.3 Hazards not otherwise classified (HNOC) or not covered by GHS - none

SECTION 3: Composition/information on ingredients

3.1 Substances

Synonyms	:	2-Phenylbutane
Formula	:	$C_{10}H_{14}$
Molecular weight	:	134.22 g/mol
CAS-No.	:	135-98-8
EC-No.	:	205-227-0

Component	Classification	Concentration
sec-Butylbenzene		
	Flam. Liq. 3; Acute Tox. 4; Aquatic Acute 1; Aquatic Chronic 1; H226, H302, H400, H410 M-Factor - Aquatic Acute: 1	<= 100 %

The life science business of Merck KGaA, Darmstadt, Germany
operates as MilliporeSigma in the US and Canada

For the full text of the H-Statements mentioned in this Section, see Section 16.

SECTION 4: First aid measures

4.1 Description of first-aid measures

General advice
Show this material safety data sheet to the doctor in attendance.

If inhaled
After inhalation: fresh air.

In case of skin contact
In case of skin contact: Take off immediately all contaminated clothing. Rinse skin with water/ shower.

In case of eye contact
After eye contact: rinse out with plenty of water. Remove contact lenses.

If swallowed
After swallowing: immediately make victim drink water (two glasses at most). Consult a physician.

4.2 Most important symptoms and effects, both acute and delayed

The most important known symptoms and effects are described in the labelling (see section 2.2) and/or in section 11

4.3 Indication of any immediate medical attention and special treatment needed

No data available

SECTION 5: Firefighting measures

5.1 Extinguishing media

Suitable extinguishing media
Carbon dioxide (CO2) Foam Dry powder

Unsuitable extinguishing media
For this substance/mixture no limitations of extinguishing agents are given.

5.2 Special hazards arising from the substance or mixture

Carbon oxides
Combustible.
Vapors are heavier than air and may spread along floors.
Forms explosive mixtures with air at elevated temperatures.
Development of hazardous combustion gases or vapours possible in the event of fire.

5.3 Advice for firefighters

In the event of fire, wear self-contained breathing apparatus.

5.4 Further information

Remove container from danger zone and cool with water. Prevent fire extinguishing water from contaminating surface water or the ground water system.

The life science business of Merck KGaA, Darmstadt, Germany
operates as MilliporeSigma in the US and Canada

SECTION 6: Accidental release measures

6.1 Personal precautions, protective equipment and emergency procedures

Advice for non-emergency personnel: Do not breathe vapors, aerosols. Avoid substance contact. Ensure adequate ventilation. Keep away from heat and sources of ignition.
Evacuate the danger area, observe emergency procedures, consult an expert.
For personal protection see section 8.

6.2 Environmental precautions

Do not let product enter drains. Risk of explosion.

6.3 Methods and materials for containment and cleaning up

Cover drains. Collect, bind, and pump off spills. Observe possible material restrictions (see sections 7 and 10). Take up with liquid-absorbent material (e.g. Chemizorb®). Dispose of properly. Clean up affected area.

6.4 Reference to other sections

For disposal see section 13.

SECTION 7: Handling and storage

7.1 Precautions for safe handling

Advice on protection against fire and explosion
Keep away from open flames, hot surfaces and sources of ignition.Take precautionary measures against static discharge.

Hygiene measures
Change contaminated clothing. Preventive skin protection recommended. Wash hands after working with substance.
For precautions see section 2.2.

7.2 Conditions for safe storage, including any incompatibilities

Storage conditions
Keep container tightly closed in a dry and well-ventilated place. Keep away from heat and sources of ignition.

Storage class
Storage class (TRGS 510): 3: Flammable liquids

7.3 Specific end use(s)

Apart from the uses mentioned in section 1.2 no other specific uses are stipulated

SECTION 8: Exposure controls/personal protection

8.1 Control parameters

Ingredients with workplace control parameters
Contains no substances with occupational exposure limit values.

The life science business of Merck KGaA, Darmstadt, Germany
operates as MilliporeSigma in the US and Canada

8.2 Exposure controls

Appropriate engineering controls

Change contaminated clothing. Preventive skin protection recommended. Wash hands after working with substance.

Personal protective equipment

Eye/face protection

Use equipment for eye protection tested and approved under appropriate government standards such as NIOSH (US) or EN 166(EU). Safety glasses

Skin protection

Handle with gloves. Gloves must be inspected prior to use. Use proper glove removal technique (without touching glove's outer surface) to avoid skin contact with this product. Dispose of contaminated gloves after use in accordance with applicable laws and good laboratory practices. Wash and dry hands.

Full contact
Material: Fluorinated rubber
Minimum layer thickness: 0.7 mm
Break through time: 480 min
Material tested:Vitoject® (KCL 890 / Aldrich Z677698, Size M)

Splash contact
Material: Fluorinated rubber
Minimum layer thickness: 0.7 mm
Break through time: 480 min
Material tested:Vitoject® (KCL 890 / Aldrich Z677698, Size M)

data source: KCL GmbH, D-36124 Eichenzell, phone +49 (0)6659 87300, e-mail sales@kcl.de, test method: EN374
If used in solution, or mixed with other substances, and under conditions which differ from EN 374, contact the supplier of the EC approved gloves. This recommendation is advisory only and must be evaluated by an industrial hygienist and safety officer familiar with the specific situation of anticipated use by our customers. It should not be construed as offering an approval for any specific use scenario.

Body Protection

Flame retardant antistatic protective clothing.

Respiratory protection

Recommended Filter type: Filter type ABEK
The entrepeneur has to ensure that maintenance, cleaning and testing of respiratory protective devices are carried out according to the instructions of the producer. These measures have to be properly documented.
required when vapours/aerosols are generated.
Our recommendations on filtering respiratory protection are based on the following standards: DIN EN 143, DIN 14387 and other accompanying standards relating to the used respiratory protection system.

Control of environmental exposure

Do not let product enter drains. Risk of explosion.

The life science business of Merck KGaA, Darmstadt, Germany
operates as MilliporeSigma in the US and Canada

SECTION 9: Physical and chemical properties

9.1 Information on basic physical and chemical properties

a)	Appearance	Form: liquid, clear Color: colorless
b)	Odor	No data available
c)	Odor Threshold	No data available
d)	pH	No data available
e)	Melting point/freezing point	Melting point/range: 75.5 °C (167.9 °F) - lit.
f)	Initial boiling point and boiling range	173 - 174 °C 343 - 345 °F - lit.
g)	Flash point	52.0 °C (125.6 °F) - closed cup
h)	Evaporation rate	No data available
i)	Flammability (solid, gas)	No data available
j)	Upper/lower flammability or explosive limits	Lower explosion limit: 0.8 %(V)
k)	Vapor pressure	No data available
l)	Vapor density	No data available
m)	Density	0.863 g/mL at 25 °C (77 °F) - lit.
	Relative density	No data available
n)	Water solubility	No data available
o)	Partition coefficient: n-octanol/water	No data available
p)	Autoignition temperature	418.0 °C (784.4 °F)
q)	Decomposition temperature	No data available
r)	Viscosity	No data available
s)	Explosive properties	No data available
t)	Oxidizing properties	No data available

9.2 Other safety information

No data available

The life science business of Merck KGaA, Darmstadt, Germany
operates as MilliporeSigma in the US and Canada

SECTION 10: Stability and reactivity

10.1 Reactivity
Vapor/air-mixtures are explosive at intense warming.

10.2 Chemical stability
The product is chemically stable under standard ambient conditions (room temperature) .

10.3 Possibility of hazardous reactions
Violent reactions possible with:
Strong oxidizing agents

10.4 Conditions to avoid
Heating.

10.5 Incompatible materials
various plastics

10.6 Hazardous decomposition products
In the event of fire: see section 5

SECTION 11: Toxicological information

11.1 Information on toxicological effects

Acute toxicity
LD50 Oral - Rat - 1,926 mg/kg
Remarks: (RTECS)
Inhalation: No data available
LD50 Dermal - Rabbit - > 13,760 mg/kg
Remarks: (RTECS)
No data available

Skin corrosion/irritation
Skin - Rabbit
Result: Mild eye irritant - 24 h
Remarks: (RTECS)

Serious eye damage/eye irritation
Eyes - Rabbit
Result: Mild eye irritation - 24 h
Remarks: (RTECS)

Respiratory or skin sensitization
No data available

Germ cell mutagenicity
No data available

Carcinogenicity

IARC: No ingredient of this product present at levels greater than or equal to 0.1% is identified as probable, possible or confirmed human carcinogen by IARC.

NTP: No ingredient of this product present at levels greater than or equal to 0.1% is

The life science business of Merck KGaA, Darmstadt, Germany
operates as MilliporeSigma in the US and Canada

identified as a known or anticipated carcinogen by NTP.

OSHA: No component of this product present at levels greater than or equal to 0.1% is on OSHA's list of regulated carcinogens.

Reproductive toxicity
No data available
No data available

Specific target organ toxicity - single exposure
No data available

Specific target organ toxicity - repeated exposure
No data available

Aspiration hazard
No data available

11.2 Additional Information

RTECS: CY9100000
To the best of our knowledge, the chemical, physical, and toxicological properties have not been thoroughly investigated.

After absorption:

Headache
Nausea
narcosis

Other dangerous properties can not be excluded.

Handle in accordance with good industrial hygiene and safety practice.

SECTION 12: Ecological information

12.1 Toxicity

Toxicity to daphnia and other aquatic invertebrates	semi-static test EC50 - Daphnia magna (Water flea) - 0.6 mg/l - 48 h (OECD Test Guideline 202) Remarks: (in analogy to similar products)
Toxicity to algae	static test ErC50 - Pseudokirchneriella subcapitata (green algae) - 0.42 mg/l - 72 h (OECD Test Guideline 201) Remarks: (in analogy to similar products)
	static test NOEC - Pseudokirchneriella subcapitata (green algae) - 0.26 mg/l - 72 h (OECD Test Guideline 201) Remarks: (in analogy to similar products)

The life science business of Merck KGaA, Darmstadt, Germany
operates as MilliporeSigma in the US and Canada

12.2 Persistence and degradability
No data available

12.3 Bioaccumulative potential
No data available

12.4 Mobility in soil
No data available

12.5 Results of PBT and vPvB assessment
PBT/vPvB assessment not available as chemical safety assessment not required/not conducted

12.6 Endocrine disrupting properties
No data available

12.7 Other adverse effects
Discharge into the environment must be avoided.

SECTION 13: Disposal considerations

13.1 Waste treatment methods

Product
Waste material must be disposed of in accordance with the national and local regulations. Leave chemicals in original containers. No mixing with other waste. Handle uncleaned containers like the product itself.

SECTION 14: Transport information

DOT (US)
UN number: 2709 Class: 3 Packing group: III
Proper shipping name: Butyl benzenes
Reportable Quantity (RQ):
Marine pollutant: yes Poison Inhalation Hazard: No

IMDG
UN number: 2709 Class: 3 Packing group: III EMS-No: F-E, S-D
Proper shipping name: BUTYLBENZENES
Marine pollutant : yes
Marine pollutant : yes

IATA
UN number: 2709 Class: 3 Packing group: III
Proper shipping name: Butylbenzenes

The life science business of Merck KGaA, Darmstadt, Germany
operates as MilliporeSigma in the US and Canada

SECTION 15: Regulatory information

SARA 302 Components
This material does not contain any components with a section 302 EHS TPQ.

SARA 313 Components
This material does not contain any chemical components with known CAS numbers that exceed the threshold (De Minimis) reporting levels established by SARA Title III, Section 313.

SARA 311/312 Hazards
Fire Hazard, Acute Health Hazard

Massachusetts Right To Know Components

	CAS-No.	Revision Date
sec-Butylbenzene	135-98-8	1993-04-24

Pennsylvania Right To Know Components

	CAS-No.	Revision Date
sec-Butylbenzene	135-98-8	1993-04-24

SECTION 16: Other information

Further information
The above information is believed to be correct but does not purport to be all inclusive and shall be used only as a guide. The information in this document is based on the present state of our knowledge and is applicable to the product with regard to appropriate safety precautions. It does not represent any guarantee of the properties of the product. Sigma-Aldrich Corporation and its Affiliates shall not be held liable for any damage resulting from handling or from contact with the above product. See www.sigma-aldrich.com and/or the reverse side of invoice or packing slip for additional terms and conditions of sale.

Copyright 2020 Sigma-Aldrich Co. LLC. License granted to make unlimited paper copies for internal use only.

The branding on the header and/or footer of this document may temporarily not visually match the product purchased as we transition our branding. However, all of the information in the document regarding the product remains unchanged and matches the product ordered. For further information please contact misbranding@sial.com.

Version: 6.7 Revision Date: 10/27/2023 Print Date: 07/13/2024

The life science business of Merck KGaA, Darmstadt, Germany
operates as MilliporeSigma in the US and Canada

SAFETY DATA SHEET

Revision Date 10-Feb-2015 **Revision Number** 1

1. Identification

Product Name **Selenium**

Cat No. : **AC419270000; AC419271000; AC419275000**

Synonyms None

Recommended Use Laboratory chemicals.

Uses advised against No Information available

Details of the supplier of the safety data sheet

Company
Fisher Scientific
One Reagent Lane
Fair Lawn, NJ 07410
Tel: (201) 796-7100

Entity / Business Name
Acros Organics
One Reagent Lane
Fair Lawn, NJ 07410

Emergency Telephone Number
For information **US** call: 001-800-ACROS-01 / **Europe** call: +32 14 57 52 11
Emergency Number **US:**001-201-796-7100 / **Europe:** +32 14 57 52 99
CHEMTREC Tel. No.**US:**001-800-424-9300 / **Europe:**001-703-527-3887

2. Hazard(s) identification

Classification

This chemical is considered hazardous by the 2012 OSHA Hazard Communication Standard (29 CFR 1910.1200)

Acute oral toxicity	Category 3
Acute Inhalation Toxicity - Dusts and Mists	Category 3
Specific target organ toxicity - (repeated exposure)	Category 2

Label Elements

Signal Word
Danger

Hazard Statements
Toxic if swallowed
Toxic if inhaled
May cause damage to organs through prolonged or repeated exposure



Precautionary Statements
Prevention

Wash face, hands and any exposed skin thoroughly after handling
Do not eat, drink or smoke when using this product
Use only outdoors or in a well-ventilated area
Do not breathe dust/fume/gas/mist/vapors/spray

Response

Get medical attention/advice if you feel unwell

Inhalation

IF INHALED: Remove victim to fresh air and keep at rest in a position comfortable for breathing
Call a POISON CENTER or doctor/physician

Ingestion

IF SWALLOWED: Immediately call a POISON CENTER or doctor/physician
Rinse mouth

Storage

Store locked up
Store in a well-ventilated place. Keep container tightly closed

Disposal

Dispose of contents/container to an approved waste disposal plant

Hazards not otherwise classified (HNOC)

May cause long lasting harmful effects to aquatic life

3. Composition / information on ingredients

Component	CAS-No	Weight %
Selenium	7782-49-2	> 99.5

4. First-aid measures

Eye Contact Rinse immediately with plenty of water, also under the eyelids, for at least 15 minutes.

Skin Contact Wash off immediately with soap and plenty of water while removing all contaminated clothes and shoes.

Inhalation Remove from exposure, lie down. Move to fresh air. If breathing is difficult, give oxygen. If not breathing, give artificial respiration. Immediate medical attention is required.

Ingestion Do not induce vomiting. Never give anything by mouth to an unconscious person. Drink plenty of water. Call a physician immediately. If possible drink milk afterwards.

Most important symptoms/effects No information available.
Notes to Physician Treat symptomatically

5. Fire-fighting measures

Suitable Extinguishing Media Water spray. Carbon dioxide (CO_2). Dry chemical. chemical foam.

Unsuitable Extinguishing Media No information available

Flash Point No information available
Method - No information available

Autoignition Temperature No information available
Explosion Limits
Upper No data available
Lower No data available
Sensitivity to Mechanical Impact No information available
Sensitivity to Static Discharge No information available

Specific Hazards Arising from the Chemical

Vapors may form explosive mixtures with air.

Hazardous Combustion Products
None known
Protective Equipment and Precautions for Firefighters
As in any fire, wear self-contained breathing apparatus pressure-demand, MSHA/NIOSH (approved or equivalent) and full protective gear.

NFPA

Health	Flammability	Instability	Physical hazards
3	0	0	N/A

6. Accidental release measures

Personal Precautions Ensure adequate ventilation. Use personal protective equipment.
Environmental Precautions See Section 12 for additional ecological information. Avoid release to the environment. Collect spillage.

Methods for Containment and Clean Up Sweep up or vacuum up spillage and collect in suitable container for disposal.

7. Handling and storage

Handling Avoid contact with skin and eyes. Do not breathe dust. Do not breathe vapors or spray mist. Use only in area provided with appropriate exhaust ventilation.

Storage Keep in a dry, cool and well-ventilated place. Keep container tightly closed. Keep under nitrogen.

8. Exposure controls / personal protection

Exposure Guidelines

Component	ACGIH TLV	OSHA PEL	NIOSH IDLH
Selenium	TWA: 0.2 mg/m³	(Vacated) TWA: 0.2 mg/m³	IDLH: 1 mg/m³ TWA: 0.2 mg/m³

Component	Quebec	Mexico OEL (TWA)	Ontario TWAEV
Selenium	TWA: 0.2 mg/m³	TWA: 0.2 mg/m³	TWA: 0.2 mg/m³

Legend

ACGIH - American Conference of Governmental Industrial Hygienists
OSHA - Occupational Safety and Health Administration
NIOSH IDLH: The National Institute for Occupational Safety and Health Immediately Dangerous to Life or Health

Engineering Measures Ensure that eyewash stations and safety showers are close to the workstation location.

Personal Protective Equipment

Eye/face Protection Wear appropriate protective eyeglasses or chemical safety goggles as described by OSHA's eye and face protection regulations in 29 CFR 1910.133 or European Standard EN166.

Skin and body protection Wear appropriate protective gloves and clothing to prevent skin exposure.

Respiratory Protection A NIOSH/MSHA approved air purifying dust or mist respirator or European Standard EN 149.

Hygiene Measures Handle in accordance with good industrial hygiene and safety practice.

9. Physical and chemical properties

Physical State	Powder Solid
Appearance	Grey
Odor	No information available
Odor Threshold	No information available
pH	No information available
Melting Point/Range	217 - 222 °C / 422.6 - 431.6 °F
Boiling Point/Range	685 °C / 1265 °F
Flash Point	No information available
Evaporation Rate	No information available
Flammability (solid,gas)	No information available
Flammability or explosive limits	
Upper	No data available
Lower	No data available
Vapor Pressure	1 mmHg @ 345 °C
Vapor Density	No information available
Relative Density	4.810
Solubility	No information available
Partition coefficient; n-octanol/water	No data available
Autoignition Temperature	No information available
Decomposition Temperature	No information available
Viscosity	No information available
Molecular Formula	Se
Molecular Weight	78.96

10. Stability and reactivity

Reactive Hazard None known, based on information available

Stability Stable under normal conditions.

Conditions to Avoid Incompatible products.

Incompatible Materials Acids, Strong oxidizing agents, Fluorine, oxygen, Metals

Hazardous Decomposition Products None under normal use conditions

Hazardous Polymerization Hazardous polymerization does not occur.

Hazardous Reactions None under normal processing.

11. Toxicological information

Acute Toxicity

Product Information No acute toxicity information is available for this product

Component Information

Component	LD50 Oral	LD50 Dermal	LC50 Inhalation
Selenium	6700 mg/kg (Rat)	Not listed	Not listed

Toxicologically Synergistic Products No information available

Delayed and immediate effects as well as chronic effects from short and long-term exposure

Irritation No information available

Sensitization No information available

Carcinogenicity The table below indicates whether each agency has listed any ingredient as a carcinogen.

Component	CAS-No	IARC	NTP	ACGIH	OSHA	Mexico
Selenium	7782-49-2	Not listed	Not listed	Not listed	Not listed	Not listed

Mutagenic Effects No information available

Reproductive Effects No information available.

Developmental Effects No information available.

Teratogenicity No information available.

STOT - single exposure None known
STOT - repeated exposure None known

Aspiration hazard No information available

Symptoms / effects,both acute and delayed No information available
Endocrine Disruptor Information No information available

Other Adverse Effects The toxicological properties have not been fully investigated.

12. Ecological information

Ecotoxicity
Do not empty into drains.

Persistence and Degradability No information available
Bioaccumulation/ Accumulation No information available.

Mobility No information available.

13. Disposal considerations

Waste Disposal Methods Chemical waste generators must determine whether a discarded chemical is classified as a hazardous waste. Chemical waste generators must also consult local, regional, and national hazardous waste regulations to ensure complete and accurate classification.

14. Transport information

DOT
- **UN-No** UN3283
- **Hazard Class** 6.1
- **Packing Group** III

TDG
- **UN-No** UN3283
- **Hazard Class** 6.1
- **Packing Group** III

IATA
- **UN-No** 3283
- **Proper Shipping Name** SELENIUM COMPOUND, SOLID, N.O.S.
- **Hazard Class** 6.1
- **Packing Group** III

IMDG/IMO
- **UN-No** 3283
- **Proper Shipping Name** SELENIUM COMPOUND, SOLID, N.O.S.
- **Hazard Class** 6.1
- **Packing Group** III

15. Regulatory information

International Inventories

Component	TSCA	DSL	NDSL	EINECS	ELINCS	NLP	PICCS	ENCS	AICS	IECSC	KECL
Selenium	X	X	-	231-957-4	-		X	-	X	X	X

Legend:
X - Listed
E - Indicates a substance that is the subject of a Section 5(e) Consent order under TSCA.
F - Indicates a substance that is the subject of a Section 5(f) Rule under TSCA.
N - Indicates a polymeric substance containing no free-radical initiator in its inventory name but is considered to cover the designated polymer made with any free-radical initiator regardless of the amount used.
P - Indicates a commenced PMN substance
R - Indicates a substance that is the subject of a Section 6 risk management rule under TSCA.
S - Indicates a substance that is identified in a proposed or final Significant New Use Rule
T - Indicates a substance that is the subject of a Section 4 test rule under TSCA.
XU - Indicates a substance exempt from reporting under the Inventory Update Rule, i.e. Partial Updating of the TSCA Inventory Data Base Production and Site Reports (40 CFR 710(B).
Y1 - Indicates an exempt polymer that has a number-average molecular weight of 1,000 or greater.
Y2 - Indicates an exempt polymer that is a polyester and is made only from reactants included in a specified list of low concern reactants that comprises one of the eligibility criteria for the exemption rule.

U.S. Federal Regulations

TSCA 12(b) Not applicable

SARA 313

Component	CAS-No	Weight %	SARA 313 - Threshold Values %
Selenium	7782-49-2	> 99.5	1.0

SARA 311/312 Hazardous Categorization

Acute Health Hazard	Yes
Chronic Health Hazard	Yes
Fire Hazard	No
Sudden Release of Pressure Hazard	No
Reactive Hazard	No

Clean Water Act

Component	CWA - Hazardous Substances	CWA - Reportable Quantities	CWA - Toxic Pollutants	CWA - Priority Pollutants
Selenium	-	-	X	X

Clean Air Act Not applicable

Component	HAPS Data	Class 1 Ozone Depletors	Class 2 Ozone Depletors
Selenium	X		-

OSHA Occupational Safety and Health Administration
Not applicable

CERCLA
This material, as supplied, contains one or more substances regulated as a hazardous substance under the Comprehensive Environmental Response Compensation and Liability Act (CERCLA) (40 CFR 302)

Component	Hazardous Substances RQs	CERCLA EHS RQs
Selenium	100 lb	-

California Proposition 65 This product does not contain any Proposition 65 chemicals

State Right-to-Know

Component	Massachusetts	New Jersey	Pennsylvania	Illinois	Rhode Island
Selenium	X	X	X	X	X

U.S. Department of Transportation

Reportable Quantity (RQ):	N
DOT Marine Pollutant	N
DOT Severe Marine Pollutant	N

U.S. Department of Homeland Security
This product does not contain any DHS chemicals.

Other International Regulations

Mexico - Grade No information available

Canada
This product has been classified in accordance with the hazard criteria of the Controlled Products Regulations (CPR) and the MSDS contains all the information required by the CPR

WHMIS Hazard Class D1A Very toxic materials
D2B Toxic materials



16. Other information

Prepared By Regulatory Affairs
Thermo Fisher Scientific
Email: EMSDS.RA@thermofisher.com

Revision Date 10-Feb-2015
Print Date 10-Feb-2015
Revision Summary This document has been updated to comply with the US OSHA HazCom 2012 Standard replacing the current legislation under 29 CFR 1910.1200 to align with the Globally Harmonized System of Classification and Labeling of Chemicals (GHS)

Disclaimer
The information provided on this Safety Data Sheet is correct to the best of our knowledge, information and belief at the date of its publication. The information given is designed only as a guide for safe handling, use, processing, storage, transportation, disposal and release and is not to be considered as a warranty or quality specification. The information relates only to the specific material designated and may not be valid for such material used in combination with any other material or in any process, unless specified in the text.

End of SDS

SAFETY DATA SHEET

Version 4.6
Revision Date 12/02/2015
Print Date 02/09/2016

1. PRODUCT AND COMPANY IDENTIFICATION

1.1 Product identifiers

Product name : Silver

Product Number : 327093
Brand : Aldrich

CAS-No. : 7440-22-4

1.2 Relevant identified uses of the substance or mixture and uses advised against

Identified uses : Laboratory chemicals, Synthesis of substances

1.3 Details of the supplier of the safety data sheet

Company : Sigma-Aldrich
3050 Spruce Street
SAINT LOUIS MO 63103
USA

Telephone : +1 800-325-5832
Fax : +1 800-325-5052

1.4 Emergency telephone number

Emergency Phone # : (314) 776-6555

2. HAZARDS IDENTIFICATION

2.1 Classification of the substance or mixture

Not a hazardous substance or mixture.

2.2 GHS Label elements, including precautionary statements

Not a hazardous substance or mixture.

2.3 Hazards not otherwise classified (HNOC) or not covered by GHS - none

3. COMPOSITION/INFORMATION ON INGREDIENTS

3.1 Substances

Formula : Ag
Molecular weight : 107.87 g/mol
CAS-No. : 7440-22-4
EC-No. : 231-131-3

Hazardous components

Component	Classification	Concentration
Silver		
		<= 100 %

4. FIRST AID MEASURES

4.1 Description of first aid measures

If inhaled
If breathed in, move person into fresh air. If not breathing, give artificial respiration.

In case of skin contact
Wash off with soap and plenty of water.

In case of eye contact
Flush eyes with water as a precaution.

If swallowed
Never give anything by mouth to an unconscious person. Rinse mouth with water.

4.2 Most important symptoms and effects, both acute and delayed
The most important known symptoms and effects are described in the labelling (see section 2.2) and/or in section 11

4.3 Indication of any immediate medical attention and special treatment needed
No data available

5. FIREFIGHTING MEASURES

5.1 Extinguishing media

Suitable extinguishing media
Use water spray, alcohol-resistant foam, dry chemical or carbon dioxide.

5.2 Special hazards arising from the substance or mixture
Silver/silver oxides

5.3 Advice for firefighters
Wear self-contained breathing apparatus for firefighting if necessary.

5.4 Further information
No data available

6. ACCIDENTAL RELEASE MEASURES

6.1 Personal precautions, protective equipment and emergency procedures
Avoid dust formation. Avoid breathing vapours, mist or gas.
For personal protection see section 8.

6.2 Environmental precautions
No special environmental precautions required.

6.3 Methods and materials for containment and cleaning up
Sweep up and shovel. Keep in suitable, closed containers for disposal.

6.4 Reference to other sections
For disposal see section 13.

7. HANDLING AND STORAGE

7.1 Precautions for safe handling
Further processing of solid materials may result in the formation of combustible dusts. The potential for combustible dust formation should be taken into consideration before additional processing occurs.
Provide appropriate exhaust ventilation at places where dust is formed.
For precautions see section 2.2.

7.2 Conditions for safe storage, including any incompatibilities
Keep container tightly closed in a dry and well-ventilated place.

Air sensitive. Store under inert gas. Keep in a dry place.
Storage class (TRGS 510): Non Combustible Solids

7.3 Specific end use(s)
Apart from the uses mentioned in section 1.2 no other specific uses are stipulated

8. EXPOSURE CONTROLS/PERSONAL PROTECTION

8.1 Control parameters

Components with workplace control parameters

Component	CAS-No.	Value	Control parameters	Basis
Silver	7440-22-4	TWA	0.010000 mg/m3	USA. Occupational Exposure Limits (OSHA) - Table Z-1 Limits for Air Contaminants
		TWA	0.010000 mg/m3	USA. Occupational Exposure Limits (OSHA) - Table Z-1 Limits for Air Contaminants
		TWA	0.100000 mg/m3	USA. ACGIH Threshold Limit Values (TLV)
	Remarks	Argyria		
		TWA	0.010000 mg/m3	USA. NIOSH Recommended Exposure Limits
		TWA	0.010000 mg/m3	USA. Occupational Exposure Limits (OSHA) - Table Z-1 Limits for Air Contaminants
		TWA	0.010000 mg/m3	USA. NIOSH Recommended Exposure Limits
		TWA	0.100000 mg/m3	USA. ACGIH Threshold Limit Values (TLV)
		Argyria		
		TWA	0.010000 mg/m3	USA. NIOSH Recommended Exposure Limits
		TWA	0.1 mg/m3	USA. ACGIH Threshold Limit Values (TLV)
		Argyria		
		TWA	0.01 mg/m3	USA. Occupational Exposure Limits (OSHA) - Table Z-1 Limits for Air Contaminants

8.2 Exposure controls

Appropriate engineering controls
General industrial hygiene practice.

Personal protective equipment

Eye/face protection
Use equipment for eye protection tested and approved under appropriate government standards such as NIOSH (US) or EN 166(EU).

Skin protection
Handle with gloves. Gloves must be inspected prior to use. Use proper glove removal technique (without touching glove's outer surface) to avoid skin contact with this product. Dispose of contaminated gloves after use in accordance with applicable laws and good laboratory practices. Wash and dry hands.

Full contact
Material: Nitrile rubber
Minimum layer thickness: 0.11 mm
Break through time: 480 min
Material tested:Dermatril® (KCL 740 / Aldrich Z677272, Size M)

Splash contact
Material: Nitrile rubber
Minimum layer thickness: 0.11 mm
Break through time: 480 min
Material tested:Dermatril® (KCL 740 / Aldrich Z677272, Size M)

data source: KCL GmbH, D-36124 Eichenzell, phone +49 (0)6659 87300, e-mail sales@kcl.de, test method: EN374
If used in solution, or mixed with other substances, and under conditions which differ from EN 374, contact the supplier of the CE approved gloves. This recommendation is advisory only and must be evaluated by an industrial hygienist and safety officer familiar with the specific situation of anticipated use by our customers. It should not be construed as offering an approval for any specific use scenario.

Body Protection
Choose body protection in relation to its type, to the concentration and amount of dangerous substances, and to the specific work-place., The type of protective equipment must be selected according to the concentration and amount of the dangerous substance at the specific workplace.

Respiratory protection
Respiratory protection is not required. Where protection from nuisance levels of dusts are desired, use type N95 (US) or type P1 (EN 143) dust masks. Use respirators and components tested and approved under appropriate government standards such as NIOSH (US) or CEN (EU).

Control of environmental exposure
No special environmental precautions required.

9. PHYSICAL AND CHEMICAL PROPERTIES

9.1 Information on basic physical and chemical properties

a)	Appearance	Form: powder
b)	Odour	No data available
c)	Odour Threshold	No data available
d)	pH	No data available
e)	Melting point/freezing point	Melting point/range: 960 °C (1,760 °F) - lit.
f)	Initial boiling point and boiling range	2,212 °C (4,014 °F) - lit.
g)	Flash point	No data available
h)	Evaporation rate	No data available
i)	Flammability (solid, gas)	No data available
j)	Upper/lower flammability or explosive limits	No data available
k)	Vapour pressure	No data available
l)	Vapour density	No data available
m)	Relative density	10.49 g/cm3
n)	Water solubility	No data available
o)	Partition coefficient: n-octanol/water	No data available
p)	Auto-ignition temperature	No data available
q)	Decomposition temperature	No data available
r)	Viscosity	No data available
s)	Explosive properties	No data available
t)	Oxidizing properties	No data available

9.2 Other safety information
No data available

10. STABILITY AND REACTIVITY

10.1 Reactivity
No data available

10.2 Chemical stability
Stable under recommended storage conditions.

10.3 Possibility of hazardous reactions
No data available

10.4 Conditions to avoid
No data available

10.5 Incompatible materials
Oxygen, Strong acids and strong bases

10.6 Hazardous decomposition products
Other decomposition products - No data available
In the event of fire: see section 5

11. TOXICOLOGICAL INFORMATION

11.1 Information on toxicological effects

Acute toxicity
LD50 Oral - Rat - male - > 5,000 mg/kg

Inhalation: No data available

Dermal: No data available

No data available

Skin corrosion/irritation
No data available

Serious eye damage/eye irritation
No data available

Respiratory or skin sensitisation
No data available

Germ cell mutagenicity
No data available

Carcinogenicity

Carcinogenicity - Rat - Unreported
Tumorigenic:Tumors at site or application.

Carcinogenicity classification not possible from current data.

IARC:	No component of this product present at levels greater than or equal to 0.1% is identified as probable, possible or confirmed human carcinogen by IARC.
NTP:	No component of this product present at levels greater than or equal to 0.1% is identified as a known or anticipated carcinogen by NTP.
OSHA:	No component of this product present at levels greater than or equal to 0.1% is identified as a carcinogen or potential carcinogen by OSHA.

Reproductive toxicity
No data available

No data available

Specific target organ toxicity - single exposure
No data available

Specific target organ toxicity - repeated exposure
No data available

Aspiration hazard
No data available

Additional Information
RTECS: Not available

May cause argyria (a slate-gray or bluish discoloration of the skin and deep tissues due to the deposit of insoluble albuminate of silver).

12. ECOLOGICAL INFORMATION

12.1 Toxicity
No data available

12.2 Persistence and degradability
No data available

12.3 Bioaccumulative potential
No data available

12.4 Mobility in soil
No data available

12.5 Results of PBT and vPvB assessment
PBT/vPvB assessment not available as chemical safety assessment not required/not conducted

12.6 Other adverse effects

No data available

13. DISPOSAL CONSIDERATIONS

13.1 Waste treatment methods

Product
Offer surplus and non-recyclable solutions to a licensed disposal company.

Contaminated packaging
Dispose of as unused product.

14. TRANSPORT INFORMATION

DOT (US)
UN number: 3077 Class: 9 Packing group: III
Proper shipping name: Environmentally hazardous substances, solid, n.o.s. (Silver)
Reportable Quantity (RQ): 1 lbs

Poison Inhalation Hazard: No

IMDG
Not dangerous goods

IATA
Not dangerous goods

15. REGULATORY INFORMATION

SARA 302 Components
No chemicals in this material are subject to the reporting requirements of SARA Title III, Section 302.

SARA 313 Components
The following components are subject to reporting levels established by SARA Title III, Section 313:

	CAS-No.	Revision Date
Silver	7440-22-4	1993-04-24

SARA 311/312 Hazards
No SARA Hazards

Massachusetts Right To Know Components

	CAS-No.	Revision Date
Silver	7440-22-4	1993-04-24

Pennsylvania Right To Know Components

	CAS-No.	Revision Date

Silver	7440-22-4	1993-04-24

New Jersey Right To Know Components

	CAS-No.	Revision Date
Silver	7440-22-4	1993-04-24

California Prop. 65 Components

This product does not contain any chemicals known to State of California to cause cancer, birth defects, or any other reproductive harm.

16. OTHER INFORMATION

HMIS Rating

Health hazard:	0
Chronic Health Hazard:	
Flammability:	0
Physical Hazard	0

NFPA Rating

Health hazard:	0
Fire Hazard:	0
Reactivity Hazard:	0

Further information

Copyright 2015 Sigma-Aldrich Co. LLC. License granted to make unlimited paper copies for internal use only.
The above information is believed to be correct but does not purport to be all inclusive and shall be used only as a guide. The information in this document is based on the present state of our knowledge and is applicable to the product with regard to appropriate safety precautions. It does not represent any guarantee of the properties of the product. Sigma-Aldrich Corporation and its Affiliates shall not be held liable for any damage resulting from handling or from contact with the above product. See www.sigma-aldrich.com and/or the reverse side of invoice or packing slip for additional terms and conditions of sale.

Preparation Information

Sigma-Aldrich Corporation
Product Safety – Americas Region
1-800-521-8956

Version: 4.6 Revision Date: 12/02/2015 Print Date: 02/09/2016

Fisher Scientific

Part of Thermo Fisher Scientific

SAFETY DATA SHEET

Revision Date 10-Feb-2015 **Revision Number** 1

1. Identification

Product Name **2-(2,4,5-Trichlorophenoxy)propionic acid**

Cat No. : **AC171700000; AC171700050**

Synonyms Silvex

Recommended Use Laboratory chemicals.

Uses advised against No Information available

Details of the supplier of the safety data sheet

Company
Fisher Scientific
One Reagent Lane
Fair Lawn, NJ 07410
Tel: (201) 796-7100

Entity / Business Name
Acros Organics
One Reagent Lane
Fair Lawn, NJ 07410

Emergency Telephone Number
For information **US** call: 001-800-ACROS-01 / **Europe** call: +32 14 57 52 11
Emergency Number **US:**001-201-796-7100 / **Europe:** +32 14 57 52 99
CHEMTREC Tel. No.**US:**001-800-424-9300 / **Europe:**001-703-527-3887

2. Hazard(s) identification

Classification

This chemical is considered hazardous by the 2012 OSHA Hazard Communication Standard (29 CFR 1910.1200)

Acute oral toxicity	Category 4
Skin Corrosion/irritation	Category 2
Serious Eye Damage/Eye Irritation	Category 2
Carcinogenicity	Category 2

Label Elements

Signal Word
Warning

Hazard Statements
Harmful if swallowed
Causes skin irritation
Causes serious eye irritation
Suspected of causing cancer



Precautionary Statements
Prevention
Obtain special instructions before use
Do not handle until all safety precautions have been read and understood
Use personal protective equipment as required
Wash face, hands and any exposed skin thoroughly after handling
Do not eat, drink or smoke when using this product
Wear eye/face protection
Response
IF exposed or concerned: Get medical attention/advice
Skin
IF ON SKIN: Wash with plenty of soap and water
If skin irritation occurs: Get medical advice/attention
Take off contaminated clothing and wash before reuse
Eyes
IF IN EYES: Rinse cautiously with water for several minutes. Remove contact lenses, if present and easy to do. Continue rinsing
If eye irritation persists: Get medical advice/attention
Ingestion
IF SWALLOWED: Call a POISON CENTER or doctor/physician if you feel unwell
Rinse mouth
Storage
Store locked up
Disposal
Dispose of contents/container to an approved waste disposal plant
Hazards not otherwise classified (HNOC)
Very toxic to aquatic life with long lasting effects

3. Composition / information on ingredients

Component	CAS-No	Weight %
Silvex (2,4,5-TP)	93-72-1	97

4. First-aid measures

Eye Contact Rinse immediately with plenty of water, also under the eyelids, for at least 15 minutes. Obtain medical attention.

Skin Contact Wash off immediately with soap and plenty of water while removing all contaminated clothes and shoes. Obtain medical attention.

Inhalation Remove from exposure, lie down. Move to fresh air. Obtain medical attention.

Ingestion Clean mouth with water. Get medical attention.

Most important symptoms/effects No information available.
Notes to Physician Treat symptomatically

5. Fire-fighting measures

Suitable Extinguishing Media Water spray. Carbon dioxide (CO_2). Dry chemical. chemical foam.

Unsuitable Extinguishing Media No information available

Flash Point No information available
Method - No information available

Autoignition Temperature No information available
Explosion Limits
Upper No data available
Lower No data available
Sensitivity to Mechanical Impact No information available
Sensitivity to Static Discharge No information available

Specific Hazards Arising from the Chemical
Keep product and empty container away from heat and sources of ignition.

Hazardous Combustion Products
Hydrogen chloride gas Carbon monoxide (CO) Carbon dioxide (CO_2)
Protective Equipment and Precautions for Firefighters
As in any fire, wear self-contained breathing apparatus pressure-demand, MSHA/NIOSH (approved or equivalent) and full protective gear.

NFPA

Health	Flammability	Instability	Physical hazards
2	0	0	N/A

6. Accidental release measures

Personal Precautions Ensure adequate ventilation. Use personal protective equipment.
Environmental Precautions See Section 12 for additional ecological information. Avoid release to the environment. Collect spillage.

Methods for Containment and Clean Up Avoid dust formation. Sweep up or vacuum up spillage and collect in suitable container for disposal. Do not let this chemical enter the environment.

7. Handling and storage

Handling Avoid contact with skin and eyes. Do not breathe dust. Do not breathe vapors or spray mist. Do not ingest.

Storage Keep in a dry, cool and well-ventilated place. Keep container tightly closed.

8. Exposure controls / personal protection

Exposure Guidelines This product does not contain any hazardous materials with occupational exposure limits established by the region specific regulatory bodies.

Engineering Measures Ensure adequate ventilation, especially in confined areas.

Personal Protective Equipment

Eye/face Protection Wear appropriate protective eyeglasses or chemical safety goggles as described by OSHA's eye and face protection regulations in 29 CFR 1910.133 or European Standard EN166.

Skin and body protection Wear appropriate protective gloves and clothing to prevent skin exposure.

Respiratory Protection Follow the OSHA respirator regulations found in 29 CFR 1910.134 or European Standard EN 149. Use a NIOSH/MSHA or European Standard EN 149 approved respirator if exposure limits are exceeded or if irritation or other symptoms are experienced.

Hygiene Measures Handle in accordance with good industrial hygiene and safety practice.

9. Physical and chemical properties

Physical State	Powder Solid
Appearance	Beige
Odor	Slight
Odor Threshold	No information available
pH	No information available
Melting Point/Range	177 - 181 °C / 350.6 - 357.8 °F
Boiling Point/Range	No information available
Flash Point	No information available
Evaporation Rate	No information available
Flammability (solid,gas)	No information available
Flammability or explosive limits	
Upper	No data available
Lower	No data available
Vapor Pressure	No information available
Vapor Density	No information available
Relative Density	1.209
Solubility	No information available
Partition coefficient; n-octanol/water	No data available
Autoignition Temperature	No information available
Decomposition Temperature	No information available
Viscosity	No information available
Molecular Formula	C9 H7 Cl3 O3
Molecular Weight	269.51

10. Stability and reactivity

Reactive Hazard None known, based on information available

Stability Stable under normal conditions.

Conditions to Avoid Incompatible products.

Incompatible Materials Strong oxidizing agents

Hazardous Decomposition Products Hydrogen chloride gas, Carbon monoxide (CO), Carbon dioxide (CO_2)

Hazardous Polymerization No information available.

Hazardous Reactions None under normal processing.

11. Toxicological information

Acute Toxicity

Product Information No acute toxicity information is available for this product

Component Information

Component	LD50 Oral	LD50 Dermal	LC50 Inhalation
Silvex (2,4,5-TP)	650 mg/kg (Rat)	3200 mg/kg (Rabbit)	Not listed

Toxicologically Synergistic Products No information available

Delayed and immediate effects as well as chronic effects from short and long-term exposure

Irritation No information available

Sensitization No information available

Carcinogenicity The table below indicates whether each agency has listed any ingredient as a carcinogen.

Component	CAS-No	IARC	NTP	ACGIH	OSHA	Mexico
Silvex (2,4,5-TP)	93-72-1	Group 2B	Not listed	Not listed	X	Not listed

Mutagenic Effects No information available

Reproductive Effects No information available.

Developmental Effects No information available.

Teratogenicity No information available.

STOT - single exposure None known
STOT - repeated exposure None known

Aspiration hazard No information available

Symptoms / effects,both acute and delayed No information available
Endocrine Disruptor Information No information available

Other Adverse Effects See actual entry in RTECS for complete information.

12. Ecological information

Ecotoxicity
Do not empty into drains.

Persistence and Degradability No information available
Bioaccumulation/ Accumulation No information available.

Mobility No information available.

13. Disposal considerations

Waste Disposal Methods Chemical waste generators must determine whether a discarded chemical is classified as a hazardous waste. Chemical waste generators must also consult local, regional, and national hazardous waste regulations to ensure complete and accurate classification.

14. Transport information

DOT Not regulated
TDG Not regulated
IATA
- **UN-No** 3077
- **Proper Shipping Name** ENVIRONMENTALLY HAZARDOUS SUBSTANCE, SOLID, N.O.S.*
- **Hazard Class** 9
- **Packing Group** III

IMDG/IMO
- **UN-No** 3077
- **Proper Shipping Name** ENVIRONMENTALLY HAZARDOUS SUBSTANCE, SOLID, N.O.S.
- **Hazard Class** 9
- **Packing Group** III

15. Regulatory information

International Inventories

Component	TSCA	DSL	NDSL	EINECS	ELINCS	NLP	PICCS	ENCS	AICS	IECSC	KECL
Silvex (2,4,5-TP)	-	-	-	202-271-2	-		X	X	-	-	-

Legend:
X - Listed

E - Indicates a substance that is the subject of a Section 5(e) Consent order under TSCA.
F - Indicates a substance that is the subject of a Section 5(f) Rule under TSCA.
N - Indicates a polymeric substance containing no free-radical initiator in its inventory name but is considered to cover the designated polymer made with any free-radical initiator regardless of the amount used.
P - Indicates a commenced PMN substance
R - Indicates a substance that is the subject of a Section 6 risk management rule under TSCA.
S - Indicates a substance that is identified in a proposed or final Significant New Use Rule
T - Indicates a substance that is the subject of a Section 4 test rule under TSCA.
XU - Indicates a substance exempt from reporting under the Inventory Update Rule, i.e. Partial Updating of the TSCA Inventory Data Base Production and Site Reports (40 CFR 710(B).
Y1 - Indicates an exempt polymer that has a number-average molecular weight of 1,000 or greater.
Y2 - Indicates an exempt polymer that is a polyester and is made only from reactants included in a specified list of low concern reactants that comprises one of the eligibility criteria for the exemption rule.

U.S. Federal Regulations

TSCA 12(b) Not applicable

SARA 313 Not applicable

SARA 311/312 Hazardous Categorization

Acute Health Hazard	Yes
Chronic Health Hazard	Yes
Fire Hazard	No
Sudden Release of Pressure Hazard	No
Reactive Hazard	No

Clean Water Act

Component	CWA - Hazardous Substances	CWA - Reportable Quantities	CWA - Toxic Pollutants	CWA - Priority Pollutants
Silvex (2,4,5-TP)	X	100 lb	-	-

Clean Air Act Not applicable

OSHA Occupational Safety and Health Administration
Not applicable

CERCLA
This material, as supplied, contains one or more substances regulated as a hazardous substance under the Comprehensive Environmental Response Compensation and Liability Act (CERCLA) (40 CFR 302)

Component	Hazardous Substances RQs	CERCLA EHS RQs
Silvex (2,4,5-TP)	100 lb	-

California Proposition 65 This product does not contain any Proposition 65 chemicals

State Right-to-Know

Component	Massachusetts	New Jersey	Pennsylvania	Illinois	Rhode Island
Silvex (2,4,5-TP)	X	X	X	X	-

U.S. Department of Transportation

Reportable Quantity (RQ):	N
DOT Marine Pollutant	N
DOT Severe Marine Pollutant	N

U.S. Department of Homeland Security
This product does not contain any DHS chemicals.

Other International Regulations

Mexico - Grade No information available

Canada

This product has been classified in accordance with the hazard criteria of the Controlled Products Regulations (CPR) and the MSDS contains all the information required by the CPR

WHMIS Hazard Class D1B Toxic materials
D2B Toxic materials



16. Other information

Prepared By Regulatory Affairs
Thermo Fisher Scientific
Email: EMSDS.RA@thermofisher.com

Revision Date 10-Feb-2015
Print Date 10-Feb-2015
Revision Summary This document has been updated to comply with the US OSHA HazCom 2012 Standard replacing the current legislation under 29 CFR 1910.1200 to align with the Globally Harmonized System of Classification and Labeling of Chemicals (GHS)

Disclaimer

The information provided on this Safety Data Sheet is correct to the best of our knowledge, information and belief at the date of its publication. The information given is designed only as a guide for safe handling, use, processing, storage, transportation, disposal and release and is not to be considered as a warranty or quality specification. The information relates only to the specific material designated and may not be valid for such material used in combination with any other material or in any process, unless specified in the text.

End of SDS

SAFETY DATA SHEET

Version 4.11
Revision Date 03/05/2015
Print Date 02/07/2016

1. PRODUCT AND COMPANY IDENTIFICATION

1.1 Product identifiers

Product name : Sodium

Product Number : 483745
Brand : Aldrich

CAS-No. : 7440-23-5

1.2 Relevant identified uses of the substance or mixture and uses advised against

Identified uses : Laboratory chemicals, Manufacture of substances

1.3 Details of the supplier of the safety data sheet

Company : Sigma-Aldrich
3050 Spruce Street
SAINT LOUIS MO 63103
USA

Telephone : +1 800-325-5832
Fax : +1 800-325-5052

1.4 Emergency telephone number

Emergency Phone # : (314) 776-6555

2. HAZARDS IDENTIFICATION

2.1 Classification of the substance or mixture

GHS Classification in accordance with 29 CFR 1910 (OSHA HCS)
Substances and mixtures, which in contact with water, emit flammable gases (Category 1), H260
Skin corrosion (Category 1B), H314
Serious eye damage (Category 1), H318
Carcinogenicity (Category 1A), H350

For the full text of the H-Statements mentioned in this Section, see Section 16.

2.2 GHS Label elements, including precautionary statements

Pictogram



Signal word Danger

Hazard statement(s)

H260	In contact with water releases flammable gases which may ignite spontaneously.
H314	Causes severe skin burns and eye damage.
H318	Causes serious eye damage.
H350	May cause cancer.

Precautionary statement(s)

P201	Obtain special instructions before use.
P202	Do not handle until all safety precautions have been read and understood.
P223	Keep away from any possible contact with water, because of violent reaction and possible flash fire.

P231 + P232	Handle under inert gas. Protect from moisture.
P260	Do not breathe dust or mist.
P264	Wash skin thoroughly after handling.
P280	Wear protective gloves/ protective clothing/ eye protection/ face protection.
P281	Use personal protective equipment as required.
P301 + P330 + P331	IF SWALLOWED: Rinse mouth. Do NOT induce vomiting.
P303 + P361 + P353	IF ON SKIN (or hair): Remove/ Take off immediately all contaminated clothing. Rinse skin with water/ shower.
P304 + P340 + P310	IF INHALED: Remove victim to fresh air and keep at rest in a position comfortable for breathing. Immediately call a POISON CENTER or doctor/ physician.
P305 + P351 + P338 + P310	IF IN EYES: Rinse cautiously with water for several minutes. Remove contact lenses, if present and easy to do. Continue rinsing. Immediately call a POISON CENTER or doctor/ physician.
P308 + P313	IF exposed or concerned: Get medical advice/ attention.
P335 + P334	Brush off loose particles from skin. Immerse in cool water/ wrap in wet bandages.
P363	Wash contaminated clothing before reuse.
P370 + P378	In case of fire: Use dry sand, dry chemical or alcohol-resistant foam for extinction.
P402 + P404	Store in a dry place. Store in a closed container.
P405	Store locked up.
P501	Dispose of contents/ container to an approved waste disposal plant.

2.3 Hazards not otherwise classified (HNOC) or not covered by GHS

Reacts violently with water.

3. COMPOSITION/INFORMATION ON INGREDIENTS

3.2 Mixtures

Formula : Na
Molecular weight : 22.99 g/mol

Hazardous components

Component		Classification	Concentration
Sodium			
CAS-No. EC-No. Index-No.	7440-23-5 231-132-9 011-001-00-0	Water-react. 1; Skin Corr. 1B; Eye Dam. 1; H260, H314	>= 90 - <= 100 %
Paraffin oils			
CAS-No. EC-No.	8012-95-1 232-384-2	Carc. 1A; H350	>= 90 - <= 100 %

For the full text of the H-Statements mentioned in this Section, see Section 16.

4. FIRST AID MEASURES

4.1 Description of first aid measures

General advice
Consult a physician. Show this safety data sheet to the doctor in attendance.Move out of dangerous area.

If inhaled
If breathed in, move person into fresh air. If not breathing, give artificial respiration. Consult a physician.

In case of skin contact
Take off contaminated clothing and shoes immediately. Wash off with soap and plenty of water. Consult a physician.

In case of eye contact
Rinse thoroughly with plenty of water for at least 15 minutes and consult a physician.Continue rinsing eyes during transport to hospital.

If swallowed
Do NOT induce vomiting. Never give anything by mouth to an unconscious person. Rinse mouth with water. Consult a physician.

4.2 Most important symptoms and effects, both acute and delayed
The most important known symptoms and effects are described in the labelling (see section 2.2) and/or in section 11

4.3 Indication of any immediate medical attention and special treatment needed
No data available

5. FIREFIGHTING MEASURES

5.1 Extinguishing media

Suitable extinguishing media
Dry powder

5.2 Special hazards arising from the substance or mixture
No data available

5.3 Advice for firefighters
Wear self-contained breathing apparatus for firefighting if necessary.

5.4 Further information
No data available

6. ACCIDENTAL RELEASE MEASURES

6.1 Personal precautions, protective equipment and emergency procedures
Use personal protective equipment. Avoid dust formation. Avoid breathing vapours, mist or gas. Ensure adequate ventilation. Evacuate personnel to safe areas. Avoid breathing dust.
For personal protection see section 8.

6.2 Environmental precautions
Prevent further leakage or spillage if safe to do so. Do not let product enter drains.

6.3 Methods and materials for containment and cleaning up
Sweep up and shovel. Contain spillage, and then collect with an electrically protected vacuum cleaner or by wet-brushing and place in container for disposal according to local regulations (see section 13). Do not flush with water. Keep in suitable, closed containers for disposal.

6.4 Reference to other sections
For disposal see section 13.

7. HANDLING AND STORAGE

7.1 Precautions for safe handling
Avoid formation of dust and aerosols.Further processing of solid materials may result in the formation of combustible dusts. The potential for combustible dust formation should be taken into consideration before additional processing occurs.
Provide appropriate exhaust ventilation at places where dust is formed.Keep away from sources of ignition - No smoking.
For precautions see section 2.2.

7.2 Conditions for safe storage, including any incompatibilities
Keep container tightly closed in a dry and well-ventilated place.
Never allow product to get in contact with water during storage.

Handle and store under inert gas. Air sensitive.
Storage class (TRGS 510): Hazardous materials, which set free flammable gases upon contact with water

7.3 Specific end use(s)
Apart from the uses mentioned in section 1.2 no other specific uses are stipulated

8. EXPOSURE CONTROLS/PERSONAL PROTECTION

8.1 Control parameters

Components with workplace control parameters

Component	CAS-No.	Value	Control parameters	Basis
Paraffin oils	8012-95-1	STEL	10.000000 mg/m3	USA. ACGIH Threshold Limit Values (TLV)
		TWA	5.000000 mg/m3	USA. Occupational Exposure Limits (OSHA) - Table Z-1 Limits for Air Contaminants
		TWA	5.000000 mg/m3	USA. NIOSH Recommended Exposure Limits
		ST	10.000000 mg/m3	USA. NIOSH Recommended Exposure Limits
		TWA	5.000000 mg/m3	USA. Occupational Exposure Limits (OSHA) - Table Z-1 Limits for Air Contaminants
		TWA	5.000000 mg/m3	USA. ACGIH Threshold Limit Values (TLV)
	Remarks	Upper Respiratory Tract irritation 2014 Adoption Not classifiable as a human carcinogen		
		Upper Respiratory Tract irritation 2014 Adoption Exposure by all routes should be carefully controlled to levels as low as possible. Suspected human carcinogen		
		TWA	5.000000 mg/m3	USA. Occupational Exposure Limits (OSHA) - Table Z-1 Limits for Air Contaminants
		TWA	5.000000 mg/m3	USA. Occupational Exposure Limits (OSHA) - Table Z-1 Limits for Air Contaminants
		Upper Respiratory Tract irritation Exposure by all routes should be carefully controlled to levels as low as possible. Suspected human carcinogen		
		TWA	5.000000 mg/m3	USA. ACGIH Threshold Limit Values (TLV)
		Upper Respiratory Tract irritation Not classifiable as a human carcinogen		
		TWA	5.000000 mg/m3	USA. NIOSH Recommended Exposure Limits
		ST	10.000000 mg/m3	USA. NIOSH Recommended Exposure Limits
		Upper Respiratory Tract irritation Exposure by all routes should be carefully controlled to levels as low as possible. Suspected human carcinogen		

8.2 Exposure controls

Appropriate engineering controls
Handle in accordance with good industrial hygiene and safety practice. Wash hands before breaks and at the end of workday.

Personal protective equipment

Eye/face protection
Face shield and safety glasses Use equipment for eye protection tested and approved under appropriate government standards such as NIOSH (US) or EN 166(EU).

Skin protection
Handle with gloves. Gloves must be inspected prior to use. Use proper glove removal technique (without touching glove's outer surface) to avoid skin contact with this product. Dispose of contaminated gloves after use in accordance with applicable laws and good laboratory practices. Wash and dry hands.

Full contact
Material: Nitrile rubber
Minimum layer thickness: 0.11 mm
Break through time: 480 min
Material tested:Dermatril® (KCL 740 / Aldrich Z677272, Size M)

Splash contact
Material: Nitrile rubber
Minimum layer thickness: 0.11 mm
Break through time: 480 min
Material tested:Dermatril® (KCL 740 / Aldrich Z677272, Size M)

data source: KCL GmbH, D-36124 Eichenzell, phone +49 (0)6659 87300, e-mail sales@kcl.de, test method: EN374
If used in solution, or mixed with other substances, and under conditions which differ from EN 374, contact the supplier of the CE approved gloves. This recommendation is advisory only and must be evaluated by an industrial hygienist and safety officer familiar with the specific situation of anticipated use by our customers. It should not be construed as offering an approval for any specific use scenario.

Body Protection
Complete suit protecting against chemicals, Flame retardant protective clothing, The type of protective equipment must be selected according to the concentration and amount of the dangerous substance at the specific workplace.

Respiratory protection
Where risk assessment shows air-purifying respirators are appropriate use a full-face particle respirator type N100 (US) or type P3 (EN 143) respirator cartridges as a backup to engineering controls. If the respirator is the sole means of protection, use a full-face supplied air respirator. Use respirators and components tested and approved under appropriate government standards such as NIOSH (US) or CEN (EU).

Control of environmental exposure
Prevent further leakage or spillage if safe to do so. Do not let product enter drains.

9. PHYSICAL AND CHEMICAL PROPERTIES

9.1 Information on basic physical and chemical properties

a)	Appearance	Form: Pieces
b)	Odour	No data available
c)	Odour Threshold	No data available
d)	pH	No data available
e)	Melting point/freezing point	Melting point/range: 97.8 °C (208.0 °F) - lit.
f)	Initial boiling point and boiling range	883 °C (1,621 °F) - lit.
g)	Flash point	82 °C (180 °F)
h)	Evaporation rate	No data available
i)	Flammability (solid, gas)	No data available
j)	Upper/lower flammability or explosive limits	No data available
k)	Vapour pressure	No data available
l)	Vapour density	No data available
m)	Relative density	0.97 g/cm3

n)	Water solubility	No data available
o)	Partition coefficient: n-octanol/water	No data available
p)	Auto-ignition temperature	No data available
q)	Decomposition temperature	No data available
r)	Viscosity	No data available
s)	Explosive properties	No data available
t)	Oxidizing properties	No data available

9.2 Other safety information
No data available

10. STABILITY AND REACTIVITY

10.1 Reactivity
No data available

10.2 Chemical stability
Stable under recommended storage conditions.

10.3 Possibility of hazardous reactions
Reacts violently with water.

10.4 Conditions to avoid
Air Do not allow water to enter container.
Exposure to moisture

10.5 Incompatible materials
Oxidizing agents

10.6 Hazardous decomposition products
Other decomposition products - No data available
In the event of fire: see section 5

11. TOXICOLOGICAL INFORMATION

11.1 Information on toxicological effects

Acute toxicity
No data available

Inhalation: No data available

Dermal: No data available

No data available

Skin corrosion/irritation
No data available

Serious eye damage/eye irritation
No data available

Respiratory or skin sensitisation
No data available

Germ cell mutagenicity
No data available

Carcinogenicity

IARC: 1 - Group 1: Carcinogenic to humans (Paraffin oils)

NTP: Known to be human carcinogenThe reference note has been added by TD based on the background information of the NTP. (Paraffin oils)

OSHA: No component of this product present at levels greater than or equal to 0.1% is identified as a carcinogen or potential carcinogen by OSHA.

Reproductive toxicity
No data available
No data available

Specific target organ toxicity - single exposure
No data available

Specific target organ toxicity - repeated exposure
No data available

Aspiration hazard
No data available

Additional Information
RTECS: Not available

burning sensation, Cough, wheezing, laryngitis, Shortness of breath, spasm, inflammation and edema of the larynx, spasm, inflammation and edema of the bronchi, pneumonitis, pulmonary edema, Material is extremely destructive to tissue of the mucous membranes and upper respiratory tract, eyes, and skin., Aspiration may lead to:, lipid pneumonia, Effects due to ingestion may include:, laxative effect, Gastrointestinal disturbance, To the best of our knowledge, the chemical, physical, and toxicological properties have not been thoroughly investigated.

12. ECOLOGICAL INFORMATION

12.1 Toxicity
No data available

12.2 Persistence and degradability
No data available

12.3 Bioaccumulative potential
No data available

12.4 Mobility in soil
No data available

12.5 Results of PBT and vPvB assessment
PBT/vPvB assessment not available as chemical safety assessment not required/not conducted

12.6 Other adverse effects
No data available

13. DISPOSAL CONSIDERATIONS

13.1 Waste treatment methods

Product
Burn in a chemical incinerator equipped with an afterburner and scrubber but exert extra care in igniting as this material is highly flammable. Offer surplus and non-recyclable solutions to a licensed disposal company. Contact a licensed professional waste disposal service to dispose of this material. Dissolve or mix the material with a combustible solvent and burn in a chemical incinerator equipped with an afterburner and scrubber.

Contaminated packaging
Dispose of as unused product.

14. TRANSPORT INFORMATION

DOT (US)
UN number: 1428 Class: 4.3 Packing group: I
Proper shipping name: Sodium
Reportable Quantity (RQ): 10 lbs

Poison Inhalation Hazard: No

IMDG
UN number: 1428 Class: 4.3 Packing group: I EMS-No: F-G, S-N
Proper shipping name: SODIUM

IATA
UN number: 1428 Class: 4.3 Packing group: I
Proper shipping name: Sodium
IATA Passenger: Not permitted for transport

15. REGULATORY INFORMATION

SARA 302 Components
No chemicals in this material are subject to the reporting requirements of SARA Title III, Section 302.

SARA 313 Components
This material does not contain any chemical components with known CAS numbers that exceed the threshold (De Minimis) reporting levels established by SARA Title III, Section 313.

SARA 311/312 Hazards
Reactivity Hazard, Acute Health Hazard, Chronic Health Hazard

Massachusetts Right To Know Components

	CAS-No.	Revision Date
Sodium	7440-23-5	1993-04-24
Paraffin oils	8012-95-1	2007-03-01

Pennsylvania Right To Know Components

	CAS-No.	Revision Date
Sodium	7440-23-5	1993-04-24
Paraffin oils	8012-95-1	2007-03-01

New Jersey Right To Know Components

	CAS-No.	Revision Date
Sodium	7440-23-5	1993-04-24
Paraffin oils	8012-95-1	2007-03-01

California Prop. 65 Components

WARNING! This product contains a chemical known to the State of California to cause cancer.	CAS-No.	Revision Date
Paraffin oils	8012-95-1	1987-02-27

16. OTHER INFORMATION

Full text of H-Statements referred to under sections 2 and 3.

Carc.	Carcinogenicity
Eye Dam.	Serious eye damage
H260	In contact with water releases flammable gases which may ignite spontaneously.
H314	Causes severe skin burns and eye damage.
H318	Causes serious eye damage.
H350	May cause cancer.
Skin Corr.	Skin corrosion
Water-react.	Substances and mixtures, which in contact with water, emit flammable gases

HMIS Rating

Health hazard:	3
Chronic Health Hazard:	*
Flammability:	4
Physical Hazard	2

NFPA Rating

Health hazard:	3
Fire Hazard:	4
Reactivity Hazard:	2
Special hazard.I:	W

Further information

Copyright 2015 Sigma-Aldrich Co. LLC. License granted to make unlimited paper copies for internal use only.
The above information is believed to be correct but does not purport to be all inclusive and shall be used only as a guide. The information in this document is based on the present state of our knowledge and is applicable to the product with regard to appropriate safety precautions. It does not represent any guarantee of the properties of the product. Sigma-Aldrich Corporation and its Affiliates shall not be held liable for any damage resulting from handling or from contact with the above product. See www.sigma-aldrich.com and/or the reverse side of invoice or packing slip for additional terms and conditions of sale.

Preparation Information

Sigma-Aldrich Corporation
Product Safety – Americas Region
1-800-521-8956

Version: 4.11 Revision Date: 03/05/2015 Print Date: 02/07/2016

SAFETY DATA SHEET

Version 3.14
Revision Date 12/02/2015
Print Date 02/18/2016

1. PRODUCT AND COMPANY IDENTIFICATION

1.1 Product identifiers

Product name : Styrene

Product Number : 240869
Brand : Aldrich
Index-No. : 601-026-00-0

CAS-No. : 100-42-5

1.2 Relevant identified uses of the substance or mixture and uses advised against

Identified uses : Laboratory chemicals, Synthesis of substances

1.3 Details of the supplier of the safety data sheet

Company : Sigma-Aldrich
3050 Spruce Street
SAINT LOUIS MO 63103
USA

Telephone : +1 800-325-5832
Fax : +1 800-325-5052

1.4 Emergency telephone number

Emergency Phone # : (314) 776-6555

2. HAZARDS IDENTIFICATION

2.1 Classification of the substance or mixture

GHS Classification in accordance with 29 CFR 1910 (OSHA HCS)
Flammable liquids (Category 3), H226
Acute toxicity, Inhalation (Category 4), H332
Skin irritation (Category 2), H315
Eye irritation (Category 2A), H319
Carcinogenicity (Category 2), H351
Reproductive toxicity (Category 2), H361
Specific target organ toxicity - repeated exposure (Category 1), H372
Acute aquatic toxicity (Category 2), H401

For the full text of the H-Statements mentioned in this Section, see Section 16.

2.2 GHS Label elements, including precautionary statements

Pictogram



Signal word Danger

Hazard statement(s)
H226 Flammable liquid and vapour.
H315 Causes skin irritation.
H319 Causes serious eye irritation.
H332 Harmful if inhaled.
H351 Suspected of causing cancer.
H361 Suspected of damaging fertility or the unborn child.

H372	Causes damage to organs through prolonged or repeated exposure.
H401	Toxic to aquatic life.

Precautionary statement(s)

P201	Obtain special instructions before use.
P202	Do not handle until all safety precautions have been read and understood.
P210	Keep away from heat/sparks/open flames/hot surfaces. No smoking.
P233	Keep container tightly closed.
P240	Ground/bond container and receiving equipment.
P241	Use explosion-proof electrical/ ventilating/ lighting/ equipment.
P242	Use only non-sparking tools.
P243	Take precautionary measures against static discharge.
P260	Do not breathe dust/ fume/ gas/ mist/ vapours/ spray.
P264	Wash skin thoroughly after handling.
P270	Do not eat, drink or smoke when using this product.
P271	Use only outdoors or in a well-ventilated area.
P273	Avoid release to the environment.
P280	Wear protective gloves/ protective clothing/ eye protection/ face protection.
P303 + P361 + P353	IF ON SKIN (or hair): Take off immediately all contaminated clothing. Rinse skin with water/shower.
P304 + P340 + P312	IF INHALED: Remove person to fresh air and keep comfortable for breathing. Call a POISON CENTER or doctor/ physician if you feel unwell.
P305 + P351 + P338	IF IN EYES: Rinse cautiously with water for several minutes. Remove contact lenses, if present and easy to do. Continue rinsing.
P308 + P313	IF exposed or concerned: Get medical advice/ attention.
P332 + P313	If skin irritation occurs: Get medical advice/ attention.
P337 + P313	If eye irritation persists: Get medical advice/ attention.
P362	Take off contaminated clothing and wash before reuse.
P370 + P378	In case of fire: Use dry sand, dry chemical or alcohol-resistant foam to extinguish.
P403 + P235	Store in a well-ventilated place. Keep cool.
P405	Store locked up.
P501	Dispose of contents/ container to an approved waste disposal plant.

2.3 Hazards not otherwise classified (HNOC) or not covered by GHS

Lachrymator.

3. COMPOSITION/INFORMATION ON INGREDIENTS

3.1 Substances

Synonyms	:	Phenylethylene Vinylbenzene
Formula	:	$C_8H_8C_8H_8$
Molecular weight	:	104.15 g/mol
CAS-No.	:	100-42-5
EC-No.	:	202-851-5
Index-No.	:	601-026-00-0

Hazardous components

Component	Classification	Concentration
Styrene		
	Flam. Liq. 3; Acute Tox. 4; Skin Irrit. 2; Eye Irrit. 2A; Carc. 2; Repr. 2; STOT RE 1; Aquatic Acute 2; H226, H315, H319, H332, H351, H361, H372, H401	<= 100 %

For the full text of the H-Statements mentioned in this Section, see Section 16.

4. FIRST AID MEASURES

4.1 Description of first aid measures

General advice
Consult a physician. Show this safety data sheet to the doctor in attendance.Move out of dangerous area.

If inhaled
If breathed in, move person into fresh air. If not breathing, give artificial respiration. Consult a physician.

In case of skin contact
Wash off with soap and plenty of water. Take victim immediately to hospital. Consult a physician.

In case of eye contact
Rinse thoroughly with plenty of water for at least 15 minutes and consult a physician.

If swallowed
Do NOT induce vomiting. Never give anything by mouth to an unconscious person. Rinse mouth with water. Consult a physician.

4.2 Most important symptoms and effects, both acute and delayed
The most important known symptoms and effects are described in the labelling (see section 2.2) and/or in section 11

4.3 Indication of any immediate medical attention and special treatment needed
No data available

5. FIREFIGHTING MEASURES

5.1 Extinguishing media

Suitable extinguishing media
Use water spray, alcohol-resistant foam, dry chemical or carbon dioxide.

5.2 Special hazards arising from the substance or mixture
Carbon oxides
Container explosion may occur under fire conditions., Vapours may form explosive mixture with air.

5.3 Advice for firefighters
Wear self-contained breathing apparatus for firefighting if necessary.

5.4 Further information
Use water spray to cool unopened containers.

6. ACCIDENTAL RELEASE MEASURES

6.1 Personal precautions, protective equipment and emergency procedures
Use personal protective equipment. Avoid breathing vapours, mist or gas. Ensure adequate ventilation. Remove all sources of ignition. Evacuate personnel to safe areas. Beware of vapours accumulating to form explosive concentrations. Vapours can accumulate in low areas.
For personal protection see section 8.

6.2 Environmental precautions
Prevent further leakage or spillage if safe to do so. Do not let product enter drains. Discharge into the environment must be avoided.

6.3 Methods and materials for containment and cleaning up
Contain spillage, and then collect with an electrically protected vacuum cleaner or by wet-brushing and place in container for disposal according to local regulations (see section 13).

6.4 Reference to other sections
For disposal see section 13.

7. HANDLING AND STORAGE

7.1 Precautions for safe handling
Avoid contact with skin and eyes. Avoid inhalation of vapour or mist.
Keep away from sources of ignition - No smoking.Take measures to prevent the build up of electrostatic charge.

For precautions see section 2.2.

7.2 Conditions for safe storage, including any incompatibilities

Keep container tightly closed in a dry and well-ventilated place. Containers which are opened must be carefully resealed and kept upright to prevent leakage.

Recommended storage temperature 2 - 8 °C

Light sensitive.
Storage class (TRGS 510): Flammable liquids

7.3 Specific end use(s)

Apart from the uses mentioned in section 1.2 no other specific uses are stipulated

8. EXPOSURE CONTROLS/PERSONAL PROTECTION

8.1 Control parameters

Components with workplace control parameters

Component	CAS-No.	Value	Control parameters	Basis
Styrene	100-42-5	TWA	50.000000 ppm 215.000000 mg/m3	USA. NIOSH Recommended Exposure Limits
		ST	100.000000 ppm 425.000000 mg/m3	USA. NIOSH Recommended Exposure Limits
	Remarks	See Table Z-2		
		TWA	100.000000 ppm	USA. Occupational Exposure Limits (OSHA) - Table Z-2
		Z37.15-1969		
		CEIL	200.000000 ppm	USA. Occupational Exposure Limits (OSHA) - Table Z-2
		Z37.15-1969		
		Peak	600.000000 ppm	USA. Occupational Exposure Limits (OSHA) - Table Z-2
		Z37.15-1969		
		TWA	20.000000 ppm	USA. ACGIH Threshold Limit Values (TLV)
		Central Nervous System impairment Upper Respiratory Tract irritation Peripheral neuropathy Substances for which there is a Biological Exposure Index or Indices (see BEI® section) Not classifiable as a human carcinogen		
		STEL	40.000000 ppm	USA. ACGIH Threshold Limit Values (TLV)
		Central Nervous System impairment Upper Respiratory Tract irritation Peripheral neuropathy Substances for which there is a Biological Exposure Index or Indices (see BEI® section) Not classifiable as a human carcinogen		
		TWA	100 ppm	USA. Occupational Exposure Limits (OSHA) - Table Z-2
		Z37.15-1969		

		CEIL	200 ppm	USA. Occupational Exposure Limits (OSHA) - Table Z-2
		Z37.15-1969		
		Peak	600 ppm	USA. Occupational Exposure Limits (OSHA) - Table Z-2
		Z37.15-1969		

Biological occupational exposure limits

Component	CAS-No.	Parameters	Value	Biological specimen	Basis
Styrene	100-42-5	Mandelic acid plus phenylglyoxylic acid	400mg/g Creatinine	Urine	ACGIH - Biological Exposure Indices (BEI)
	Remarks	End of shift (As soon as possible after exposure ceases)			
		Styrene	0.2000 mg/l	In venous blood	ACGIH - Biological Exposure Indices (BEI)
		End of shift (As soon as possible after exposure ceases)			
		Mandelic acid plus phenylglyoxylic acid	400mg/g Creatinine	Urine	ACGIH - Biological Exposure Indices (BEI)
		End of shift (As soon as possible after exposure ceases)			
		Styrene	40 µg/l	Urine	ACGIH - Biological Exposure Indices (BEI)
		End of shift (As soon as possible after exposure ceases)			

8.2 Exposure controls

Appropriate engineering controls
Handle in accordance with good industrial hygiene and safety practice. Wash hands before breaks and at the end of workday.

Personal protective equipment

Eye/face protection
Face shield and safety glasses Use equipment for eye protection tested and approved under appropriate government standards such as NIOSH (US) or EN 166(EU).

Skin protection
Handle with gloves. Gloves must be inspected prior to use. Use proper glove removal technique (without touching glove's outer surface) to avoid skin contact with this product. Dispose of contaminated gloves after use in accordance with applicable laws and good laboratory practices. Wash and dry hands.

Full contact
Material: Fluorinated rubber
Minimum layer thickness: 0.7 mm
Break through time: 480 min
Material tested:Vitoject® (KCL 890 / Aldrich Z677698, Size M)

Splash contact
Material: Nitrile rubber
Minimum layer thickness: 0.4 mm
Break through time: 32 min
Material tested:Camatril® (KCL 730 / Aldrich Z677442, Size M)

data source: KCL GmbH, D-36124 Eichenzell, phone +49 (0)6659 87300, e-mail sales@kcl.de, test method: EN374
If used in solution, or mixed with other substances, and under conditions which differ from EN 374, contact the supplier of the CE approved gloves. This recommendation is advisory only and must be evaluated by an industrial hygienist and safety officer familiar with the specific situation of anticipated use by our customers. It should not be construed as offering an approval for any specific use scenario.

Body Protection
Complete suit protecting against chemicals, Flame retardant antistatic protective clothing., The type of protective equipment must be selected according to the concentration and amount of the dangerous substance at the specific workplace.

Respiratory protection
Where risk assessment shows air-purifying respirators are appropriate use a full-face respirator with multi-purpose combination (US) or type ABEK (EN 14387) respirator cartridges as a backup to engineering controls. If the respirator is the sole means of protection, use a full-face supplied air respirator. Use respirators and components tested and approved under appropriate government standards such as NIOSH (US) or CEN (EU).

Control of environmental exposure
Prevent further leakage or spillage if safe to do so. Do not let product enter drains. Discharge into the environment must be avoided.

9. PHYSICAL AND CHEMICAL PROPERTIES

9.1 Information on basic physical and chemical properties

a)	Appearance	Form: liquid, clear Colour: colourless
b)	Odour	sweet
c)	Odour Threshold	No data available
d)	pH	No data available
e)	Melting point/freezing point	Melting point/range: -31 °C (-24 °F) - lit.
f)	Initial boiling point and boiling range	145 - 146 °C (293 - 295 °F) - lit.
g)	Flash point	32.0 °C (89.6 °F) - closed cup
h)	Evaporation rate	No data available
i)	Flammability (solid, gas)	No data available
j)	Upper/lower flammability or explosive limits	Upper explosion limit: 8.9 %(V) Lower explosion limit: 1.1 %(V)
k)	Vapour pressure	6 hPa (5 mmHg) at 20 °C (68 °F)
l)	Vapour density	3.6
m)	Relative density	0.906 g/cm3 at 25 °C (77 °F)
n)	Water solubility	0.05 g/l at 25 °C (77 °F) - slightly soluble
o)	Partition coefficient: n-octanol/water	No data available
p)	Auto-ignition temperature	490.0 °C (914.0 °F) 480.0 °C (896.0 °F)
q)	Decomposition temperature	No data available
r)	Viscosity	No data available
s)	Explosive properties	No data available
t)	Oxidizing properties	No data available

9.2 Other safety information

Relative vapour density	3.6

10. STABILITY AND REACTIVITY

10.1 Reactivity
No data available

10.2 Chemical stability
Stable under recommended storage conditions.
Test for peroxide formation before distillation or evaporation. Test for peroxide formation or discard after 1 year.
Stable under recommended storage conditions.

10.3 Possibility of hazardous reactions
Vapours may form explosive mixture with air.Vapours may form explosive mixture with air.

10.4 Conditions to avoid
May polymerize on exposure to light.
Heat, flames and sparks.

10.5 Incompatible materials
Oxidizing agents, Copper

10.6 Hazardous decomposition products
Other decomposition products - No data available
In the event of fire: see section 5

11. TOXICOLOGICAL INFORMATION

11.1 Information on toxicological effects

Acute toxicity
LD50 Oral - Rat - > 6,000 mg/kg

LC50 Inhalation - Rat - 4 h - 12,000 mg/m3

LD50 Dermal - Rat - male and female - > 2,000 mg/kg

No data available

Skin corrosion/irritation
Skin - Rabbit
Result: Skin irritation
(OECD Test Guideline 404)

Serious eye damage/eye irritation
Eyes - Rabbit
Result: Eye irritation - 24 h

Respiratory or skin sensitisation
Maximisation Test (GPMT) - Guinea pig
Does not cause skin sensitisation.
(OECD Test Guideline 406)

Germ cell mutagenicity
Laboratory experiments have shown mutagenic effects.

Carcinogenicity

This product is or contains a component that has been reported to be possibly carcinogenic based on its IARC, ACGIH, NTP, or EPA classification.

IARC:	2B - Group 2B: Possibly carcinogenic to humans (Styrene)
NTP:	Reasonably anticipated to be a human carcinogen (Styrene)
OSHA:	No component of this product present at levels greater than or equal to 0.1% is identified as a carcinogen or potential carcinogen by OSHA.

Reproductive toxicity
Suspected of damaging the unborn child. Suspected human reproductive toxicant

Specific target organ toxicity - single exposure
No data available

Specific target organ toxicity - repeated exposure
Causes damage to organs through prolonged or repeated exposure.

Aspiration hazard
No data available

Additional Information
RTECS: WL3675000

Dermatitis, Central nervous system depression, Nausea, Dizziness, Headache, To the best of our knowledge, the chemical, physical, and toxicological properties have not been thoroughly investigated.

Endocrine system. -

12. ECOLOGICAL INFORMATION

12.1 Toxicity

Toxicity to fish	NOEC - Pimephales promelas (fathead minnow) - 4 mg/l - 96 h
	LC50 - Pimephales promelas (fathead minnow) - 32 mg/l - 96 h
	LOEC - Pimephales promelas (fathead minnow) - 7.6 mg/l - 96 h
Toxicity to daphnia and other aquatic invertebrates	EC50 - Daphnia magna (Water flea) - 4.7 mg/l - 48 h (OECD Test Guideline 202)
Toxicity to algae	IC50 - Pseudokirchneriella subcapitata (green algae) - 1.4 mg/l - 72 h

12.2 Persistence and degradability

Biodegradability	aerobic - Exposure time 28 d Result: > 60 % - Readily biodegradable

12.3 Bioaccumulative potential
No data available

12.4 Mobility in soil
No data available

12.5 Results of PBT and vPvB assessment
PBT/vPvB assessment not available as chemical safety assessment not required/not conducted

12.6 Other adverse effects
An environmental hazard cannot be excluded in the event of unprofessional handling or disposal.
Toxic to aquatic life.

No data available

13. DISPOSAL CONSIDERATIONS

13.1 Waste treatment methods

Product
Burn in a chemical incinerator equipped with an afterburner and scrubber but exert extra care in igniting as this material is highly flammable. Offer surplus and non-recyclable solutions to a licensed disposal company. Contact a licensed professional waste disposal service to dispose of this material.

Contaminated packaging
Dispose of as unused product.

14. TRANSPORT INFORMATION

DOT (US)
UN number: 2055 Class: 3 Packing group: III
Proper shipping name: Styrene monomer, stabilized
Reportable Quantity (RQ): 1000 lbs

Poison Inhalation Hazard: No

IMDG
UN number: 2055 Class: 3 Packing group: III EMS-No: F-E, S-D
Proper shipping name: STYRENE MONOMER, STABILIZED

IATA
UN number: 2055 Class: 3 Packing group: III
Proper shipping name: Styrene monomer, stabilized

15. REGULATORY INFORMATION

SARA 302 Components
No chemicals in this material are subject to the reporting requirements of SARA Title III, Section 302.

SARA 313 Components
The following components are subject to reporting levels established by SARA Title III, Section 313:

	CAS-No.	Revision Date
Styrene	100-42-5	2007-07-01

SARA 311/312 Hazards
Fire Hazard, Chronic Health Hazard

Massachusetts Right To Know Components

	CAS-No.	Revision Date
Styrene	100-42-5	2007-07-01

Pennsylvania Right To Know Components

	CAS-No.	Revision Date
Styrene	100-42-5	2007-07-01

New Jersey Right To Know Components

	CAS-No.	Revision Date
Styrene	100-42-5	2007-07-01

California Prop. 65 Components
This product does not contain any chemicals known to State of California to cause cancer, birth defects, or any other reproductive harm.

16. OTHER INFORMATION

Full text of H-Statements referred to under sections 2 and 3.

Acute Tox.	Acute toxicity
Aquatic Acute	Acute aquatic toxicity
Carc.	Carcinogenicity
Eye Irrit.	Eye irritation
Flam. Liq.	Flammable liquids
H226	Flammable liquid and vapour.
H315	Causes skin irritation.
H319	Causes serious eye irritation.
H332	Harmful if inhaled.
H351	Suspected of causing cancer.
H361	Suspected of damaging fertility or the unborn child.
H372	Causes damage to organs through prolonged or repeated exposure.
H401	Toxic to aquatic life.

HMIS Rating

Health hazard:	1
Chronic Health Hazard:	*
Flammability:	3
Physical Hazard	0

NFPA Rating

Health hazard:	2
Fire Hazard:	3
Reactivity Hazard:	0

Further information

Copyright 2015 Sigma-Aldrich Co. LLC. License granted to make unlimited paper copies for internal use only.
The above information is believed to be correct but does not purport to be all inclusive and shall be used only as a guide. The information in this document is based on the present state of our knowledge and is applicable to the product with regard to appropriate safety precautions. It does not represent any guarantee of the properties of the product. Sigma-Aldrich Corporation and its Affiliates shall not be held liable for any damage resulting from handling or from contact with the above product. See www.sigma-aldrich.com and/or the reverse side of invoice or packing slip for additional terms and conditions of sale.

Preparation Information

Sigma-Aldrich Corporation
Product Safety – Americas Region
1-800-521-8956

Version: 3.14 Revision Date: 12/02/2015 Print Date: 02/18/2016

SAFETY DATA SHEET

Version 6.12
Revision Date 09/07/2024
Print Date 09/08/2024

SECTION 1: Identification of the substance/mixture and of the company/undertaking

1.1 Product identifiers

Product name : *tert*-Butanol

Product Number : 471712
Brand : Sigma-Aldrich
Index-No. : 603-005-00-1
CAS-No. : 75-65-0

1.2 Relevant identified uses of the substance or mixture and uses advised against

Identified uses : Laboratory chemicals, Synthesis of substances

Uses advised against : The product is being supplied under the TSCA R&D Exemption (40 CFR Section 720.36). It is the recipient's responsibility to comply with the requirements of the R&D exemption. The product may not be used for a non-exempt commercial purpose under TSCA unless appropriate consent is granted in writing by MilliporeSigma.

1.3 Details of the supplier of the safety data sheet

Company : Sigma-Aldrich Inc.
3050 SPRUCE ST
ST. LOUIS MO 63103
UNITED STATES

Telephone : +1 314 771-5765
Fax : +1 800 325-5052

1.4 Emergency telephone

Emergency Phone # : 800-424-9300 CHEMTREC (USA) +1-703-527-3887 CHEMTREC (International) 24 Hours/day; 7 Days/week

SECTION 2: Hazards identification

2.1 Classification of the substance or mixture

GHS Classification in accordance with 29 CFR 1910 (OSHA HCS)

Flammable liquids (Category 2), H225
Acute toxicity, Inhalation (Category 4), H332
Eye irritation (Category 2A), H319

The life science business of Merck KGaA, Darmstadt, Germany
operates as MilliporeSigma in the US and Canada

Specific target organ toxicity - single exposure (Category 3), Respiratory system, Central nervous system, H335, H336

For the full text of the H-Statements mentioned in this Section, see Section 16.

2.2 GHS Label elements, including precautionary statements

Pictogram



Signal Word Danger

Hazard Statements

H225	Highly flammable liquid and vapor.
H319	Causes serious eye irritation.
H332	Harmful if inhaled.
H335	May cause respiratory irritation.
H336	May cause drowsiness or dizziness.

Precautionary Statements

P210	Keep away from heat/ sparks/ open flames/ hot surfaces. No smoking.
P233	Keep container tightly closed.
P240	Ground/bond container and receiving equipment.
P241	Use explosion-proof electrical/ ventilating/ lighting/ equipment.
P242	Use only non-sparking tools.
P243	Take precautionary measures against static discharge.
P261	Avoid breathing mist or vapors.
P264	Wash skin thoroughly after handling.
P271	Use only outdoors or in a well-ventilated area.
P280	Wear protective gloves/ eye protection/ face protection.
P303 + P361 + P353	IF ON SKIN (or hair): Take off immediately all contaminated clothing. Rinse skin with water/ shower.
P304 + P340 + P312	IF INHALED: Remove person to fresh air and keep comfortable for breathing. Call a POISON CENTER/ doctor if you feel unwell.
P305 + P351 + P338	IF IN EYES: Rinse cautiously with water for several minutes. Remove contact lenses, if present and easy to do. Continue rinsing.
P337 + P313	If eye irritation persists: Get medical advice/ attention.
P370 + P378	In case of fire: Use dry sand, dry chemical or alcohol-resistant foam to extinguish.
P403 + P233	Store in a well-ventilated place. Keep container tightly closed.
P403 + P235	Store in a well-ventilated place. Keep cool.
P405	Store locked up.
P501	Dispose of contents/ container to an approved waste disposal plant.

2.3 Hazards not otherwise classified (HNOC) or not covered by GHS - none

SECTION 3: Composition/information on ingredients

3.1 Substances

Synonyms : 2-Methyl-2-propanol

The life science business of Merck KGaA, Darmstadt, Germany
operates as MilliporeSigma in the US and Canada

Trimethyl carbinol
tert-Butyl alcohol

Formula	:	$C_4H_{10}O$
Molecular weight	:	74.12 g/mol
CAS-No.	:	75-65-0
EC-No.	:	200-889-7
Index-No.	:	603-005-00-1

Component	Classification	Concentration
tert-Butanol		
	Flam. Liq. 2; Acute Tox. 4; Eye Irrit. 2A; STOT SE 3; H225, H332, H319, H335, H336 Concentration limits: 20 %: STOT SE 3, H335;	<= 100 %

For the full text of the H-Statements mentioned in this Section, see Section 16.

SECTION 4: First aid measures

4.1 Description of first-aid measures

General advice
Show this material safety data sheet to the doctor in attendance.

If inhaled
After inhalation: fresh air. Immediately call in physician. If breathing stops: immediately apply artificial respiration, if necessary also oxygen.

In case of skin contact
In case of skin contact: Take off immediately all contaminated clothing. Rinse skin with water/ shower.

In case of eye contact
After eye contact: rinse out with plenty of water. Call in ophthalmologist. Remove contact lenses.

If swallowed
After swallowing: immediately make victim drink water (two glasses at most). Consult a physician.

4.2 Most important symptoms and effects, both acute and delayed
The most important known symptoms and effects are described in the labelling (see section 2.2) and/or in section 11

4.3 Indication of any immediate medical attention and special treatment needed
No data available

The life science business of Merck KGaA, Darmstadt, Germany
operates as MilliporeSigma in the US and Canada

SECTION 5: Firefighting measures

5.1 Extinguishing media

Suitable extinguishing media
Carbon dioxide (CO2) Foam Dry powder

Unsuitable extinguishing media
For this substance/mixture no limitations of extinguishing agents are given.

5.2 Special hazards arising from the substance or mixture

Carbon oxides
Flash back possible over considerable distance.
Combustible.
Pay attention to flashback.
Vapors are heavier than air and may spread along floors.
Development of hazardous combustion gases or vapours possible in the event of fire.
Forms explosive mixtures with air at ambient temperatures.

5.3 Advice for firefighters

In the event of fire, wear self-contained breathing apparatus.

5.4 Further information

In case of fire: Evacuate area. Fight fire remotely due to the risk of explosion.Remove container from danger zone and cool with water. Prevent fire extinguishing water from contaminating surface water or the ground water system.

SECTION 6: Accidental release measures

6.1 Personal precautions, protective equipment and emergency procedures

Advice for non-emergency personnel: Do not breathe vapors, aerosols. Avoid substance contact. Ensure adequate ventilation. Keep away from heat and sources of ignition.
Evacuate the danger area, observe emergency procedures, consult an expert.
For personal protection see section 8.

6.2 Environmental precautions

Do not let product enter drains. Risk of explosion.

6.3 Methods and materials for containment and cleaning up

Cover drains. Collect, bind, and pump off spills. Observe possible material restrictions (see sections 7 and 10). Take up with liquid-absorbent material (e.g. Chemizorb®).
Dispose of properly. Clean up affected area.

6.4 Reference to other sections

For disposal see section 13.

SECTION 7: Handling and storage

7.1 Precautions for safe handling

Advice on safe handling
Work under hood. Do not inhale substance/mixture. Avoid generation of vapours/aerosols.

The life science business of Merck KGaA, Darmstadt, Germany
operates as MilliporeSigma in the US and Canada

Advice on protection against fire and explosion
Keep away from open flames, hot surfaces and sources of ignition.Take precautionary measures against static discharge.

Hygiene measures
Change contaminated clothing. Preventive skin protection recommended. Wash hands after working with substance.
For precautions see section 2.2.

7.2 Conditions for safe storage, including any incompatibilities

Storage conditions
Keep container tightly closed in a dry and well-ventilated place. Keep away from heat and sources of ignition.

Storage class
Storage class (TRGS 510): 3: Flammable liquids

7.3 Specific end use(s)
Apart from the uses mentioned in section 1.2 no other specific uses are stipulated

SECTION 8: Exposure controls/personal protection

8.1 Control parameters

Ingredients with workplace control parameters

Component	CAS-No.	Value	Control parameters	Basis
tert-Butanol	75-65-0	TWA	100 ppm	USA. ACGIH Threshold Limit Values (TLV)
	Remarks	Not classifiable as a human carcinogen		
		TWA	100 ppm 300 mg/m3	USA. NIOSH Recommended Exposure Limits
		ST	150 ppm 450 mg/m3	USA. NIOSH Recommended Exposure Limits
		TWA	100 ppm 300 mg/m3	USA. Occupational Exposure Limits (OSHA) - Table Z-1 Limits for Air Contaminants
		STEL	150 ppm 450 mg/m3	California permissible exposure limits for chemical contaminants (Title 8, Article 107)
		PEL	100 ppm 300 mg/m3	California permissible exposure limits for chemical contaminants (Title 8, Article 107)

8.2 Exposure controls

Appropriate engineering controls
Change contaminated clothing. Preventive skin protection recommended. Wash hands after working with substance.

The life science business of Merck KGaA, Darmstadt, Germany
operates as MilliporeSigma in the US and Canada

Personal protective equipment

Eye/face protection
Use equipment for eye protection tested and approved under appropriate government standards such as NIOSH (US) or EN 166(EU). Safety glasses

Skin protection
This recommendation applies only to the product stated in the safety data sheet, supplied by us and for the designated use. When dissolving in or mixing with other substances and under conditions deviating from those stated in EN 16523-1 please contact the supplier of CE-approved gloves (e.g. KCL GmbH, D-36124 Eichenzell, Internet: www.kcl.de).
Full contact
Material: Nitrile rubber
Minimum layer thickness: 0.4 mm
Break through time: 480 min
Material tested:Camatril® (KCL 730 / Aldrich Z677442, Size M)

This recommendation applies only to the product stated in the safety data sheet, supplied by us and for the designated use. When dissolving in or mixing with other substances and under conditions deviating from those stated in EN 16523-1 please contact the supplier of CE-approved gloves (e.g. KCL GmbH, D-36124 Eichenzell, Internet: www.kcl.de).
Splash contact
Material: Chloroprene
Minimum layer thickness: 0.65 mm
Break through time: 240 min
Material tested:KCL 720 Camapren®

Body Protection
Flame retardant antistatic protective clothing.

Respiratory protection
Recommended Filter type: Filter A (acc. to DIN 3181) for vapours of organic compounds
The entrepeneur has to ensure that maintenance, cleaning and testing of respiratory protective devices are carried out according to the instructions of the producer. These measures have to be properly documented.
required when vapours/aerosols are generated. Our recommendations on filtering respiratory protection are based on the following standards: DIN EN 143, DIN 14387 and other accompanying standards relating to the used respiratory protection system.

Control of environmental exposure
Do not let product enter drains. Risk of explosion.

SECTION 9: Physical and chemical properties

9.1 Information on basic physical and chemical properties

a)	Appearance	Form: liquid
b)	Odor	camphor-like
c)	Odor Threshold	ca.71 ppm

The life science business of Merck KGaA, Darmstadt, Germany
operates as MilliporeSigma in the US and Canada

d)	pH	at 20 °C (68 °F)neutral
e)	Melting point/freezing point	Melting point/ range: 23 - 26 °C (73 - 79 °F)
f)	Initial boiling point and boiling range	83 °C 181 °F
g)	Flash point	15 °C (59 °F) - closed cup
h)	Evaporation rate	No data available
i)	Flammability (solid, gas)	No data available
j)	Upper/lower flammability or explosive limits	Upper explosion limit: 8.0 %(V) Lower explosion limit: 2.3 %(V)
k)	Vapor pressure	40.7 hPa at 20 °C (68 °F)
l)	Vapor density	2.56
m)	Density	0.775 g/mL at 25 °C (77 °F)
	Relative density	No data available
n)	Water solubility	soluble
o)	Partition coefficient: n-octanol/water	log Pow: 0.30 - Bioaccumulation is not expected.
p)	Autoignition temperature	470 °C (878 °F) at 1,013 hPa - see user defined free text
q)	Decomposition temperature	No data available
r)	Viscosity	5.72 mm2/s at 25 °C (77 °F) - OECD Test Guideline 114 - 2.23 mm2/s at 45 °C (113 °F) - OECD Test Guideline 114 -
s)	Explosive properties	No data available
t)	Oxidizing properties	none

9.2 Other safety information

Surface tension	69.8 mN/m at 1.09g/l at 21 °C (70 °F) - OECD Test Guideline 115
Dissociation constant	19.2 at 20 °C (68 °F)
Relative vapor density	2.56

SECTION 10: Stability and reactivity

10.1 Reactivity

Vapors may form explosive mixture with air.

The life science business of Merck KGaA, Darmstadt, Germany
operates as MilliporeSigma in the US and Canada

10.2 Chemical stability
The product is chemically stable under standard ambient conditions (room temperature) .

10.3 Possibility of hazardous reactions
Violent reactions possible with:
Alkali metals
Alkaline earth metals
Strong acids
Aluminum
Strong oxidizing agents

10.4 Conditions to avoid
Warming.

10.5 Incompatible materials
No data available

10.6 Hazardous decomposition products
In the event of fire: see section 5

SECTION 11: Toxicological information

11.1 Information on toxicological effects

Acute toxicity
LD50 Oral - Rat - male and female - 3,046 mg/kg
(US-EPA)
Acute toxicity estimate Inhalation - 4 h - 11.1 mg/l - vapor

(Expert judgment)
Remarks: Classified according to Regulation (EU) 1272/2008, Annex VI (Table 3.1/3.2)
LD50 Dermal - Rabbit - male and female - > 2,000 mg/kg
(US-EPA)

Skin corrosion/irritation
Skin - Rabbit
Result: No skin irritation - 24 h
(Draize Test)

Serious eye damage/eye irritation
Eyes - Rabbit
Result: Causes serious eye irritation.
(US-EPA)

Respiratory or skin sensitization
Maximization Test - Guinea pig
Result: negative
(OECD Test Guideline 406)

Germ cell mutagenicity
Test Type: In vitro mammalian cell gene mutation test
Test system: Mouse lymphoma test
Metabolic activation: with and without metabolic activation
Method: OECD Test Guideline 476

The life science business of Merck KGaA, Darmstadt, Germany
operates as MilliporeSigma in the US and Canada

Result: negative
Test Type: Chromosome aberration test in vitro
Test system: Chinese hamster ovary cells
Metabolic activation: with and without metabolic activation
Method: OECD Test Guideline 473
Result: negative
Test Type: Ames test
Test system: Salmonella typhimurium
Metabolic activation: with and without metabolic activation
Method: OECD Test Guideline 471
Result: negative
Test Type: sister chromatid exchange assay
Test system: Chinese hamster ovary cells
Metabolic activation: with and without metabolic activation
Method: OECD Test Guideline 479
Result: negative

Test Type: Micronucleus test
Species: Mouse
Cell type: Red blood cells (erythrocytes)
Application Route: Oral
Method: OECD Test Guideline 474
Result: negative

Carcinogenicity

IARC: No ingredient of this product present at levels greater than or equal to 0.1% is identified as probable, possible or confirmed human carcinogen by IARC.

NTP: No ingredient of this product present at levels greater than or equal to 0.1% is identified as a known or anticipated carcinogen by NTP.

OSHA: No component of this product present at levels greater than or equal to 0.1% is on OSHA's list of regulated carcinogens.

Reproductive toxicity
No data available

Specific target organ toxicity - single exposure
Inhalation - May cause respiratory irritation. - Respiratory system
Remarks: Classified according to Regulation (EU) 1272/2008, Annex VI (Table 3.1/3.2)
Inhalation - May cause drowsiness or dizziness. - Nervous system

Specific target organ toxicity - repeated exposure
No data available

Aspiration hazard
No data available

11.2 Additional Information

RTECS: EO1925000
drying, cracking of the skin, Skin irritation
To the best of our knowledge, the chemical, physical, and toxicological properties have not been thoroughly investigated.

Liver - Irregularities - Based on Human Evidence

The life science business of Merck KGaA, Darmstadt, Germany
operates as MilliporeSigma in the US and Canada

Liver - Irregularities - Based on Human Evidence

SECTION 12: Ecological information

12.1 Toxicity

Toxicity to fish	flow-through test LC50 - Pimephales promelas (fathead minnow) - > 961 mg/l - 96 h (OECD Test Guideline 203)
Toxicity to daphnia and other aquatic invertebrates	static test EC50 - Daphnia magna (Water flea) - 933 mg/l - 48 h (Directive 67/548/EEC, Annex V, C.2.)
Toxicity to algae	static test ErC50 - Pseudokirchneriella subcapitata (green algae) - > 976 mg/l - 72 h (OECD Test Guideline 201)
Toxicity to bacteria	static test EC50 - Pseudomonas putida - > 10,000 mg/l - 16 h (DIN 38 412 Part 8)
	static test EC10 - Pseudomonas putida - 6,900 mg/l - 16 h (DIN 38 412 Part 8)
Toxicity to daphnia and other aquatic invertebrates(Chronic toxicity)	semi-static test EC50 - Daphnia magna (Water flea) - > 100 mg/l - 21 d (OECD Test Guideline 211)
	semi-static test NOEC - Daphnia magna (Water flea) - 100 mg/l - 21 d (OECD Test Guideline 211)

12.2 Persistence and degradability

Biodegradability	aerobic - Exposure time 56 d Result: 66 % - Inherently biodegradable. Remarks: (ECHA)

12.3 Bioaccumulative potential

No data available

12.4 Mobility in soil

No data available

12.5 Results of PBT and vPvB assessment

PBT/vPvB assessment not available as chemical safety assessment not required/not conducted

12.6 Endocrine disrupting properties

No data available

12.7 Other adverse effects

No data available

The life science business of Merck KGaA, Darmstadt, Germany
operates as MilliporeSigma in the US and Canada

SECTION 13: Disposal considerations

13.1 Waste treatment methods

Product
Waste material must be disposed of in accordance with the national and local regulations. Leave chemicals in original containers. No mixing with other waste. Handle uncleaned containers like the product itself.

SECTION 14: Transport information

DOT (US)
UN number: 1120 Class: 3 Packing group: II
Proper shipping name: Butanols
Reportable Quantity (RQ):
Poison Inhalation Hazard: No

IMDG
UN number: 1120 Class: 3 Packing group: II EMS-No: F-E, S-D
Proper shipping name: BUTANOLS

IATA
UN number: 1120 Class: 3 Packing group: II
Proper shipping name: Butanols

SECTION 15: Regulatory information

CERCLA Reportable Quantity
This material does not contain any components with a CERCLA RQ.

SARA 304 Extremely Hazardous Substances Reportable Quantity
This material does not contain any components with a section 304 EHS RQ.

SARA 302 Extremely Hazardous Substances Threshold Planning Quantity
This material does not contain any components with a section 302 EHS TPQ.

SARA 311/312 Hazards : Fire Hazard
Acute Health Hazard
Chronic Health Hazard

SARA 313 : The following components are subject to reporting levels established by SARA Title III, Section 313:

tert-Butanol	75-65-0	>= 90 - <= 100 %

The life science business of Merck KGaA, Darmstadt, Germany
operates as MilliporeSigma in the US and Canada

US State Regulations

Massachusetts Right To Know

tert-Butanol	75-65-0

Pennsylvania Right To Know

tert-Butanol	75-65-0

Maine Chemicals of High Concern

Product does not contain any listed chemicals

Vermont Chemicals of High Concern

Product does not contain any listed chemicals

Washington Chemicals of High Concern

Product does not contain any listed chemicals

The ingredients of this product are reported in the following inventories:

TSCA : All substances listed as active on the TSCA inventory

TSCA list

No substances are subject to a Significant New Use Rule.

No substances are subject to TSCA 12(b) export notification requirements.

SECTION 16: Other information

Further information

The information is believed to be correct but is not exhaustive and will be used solely as a guideline, which is based on current knowledge of the chemical substance or mixture and is applicable to appropriate safety precautions for the product. It does not represent any guarantee of the properties of the product. Sigma-Aldrich Corporation and its Affiliates shall not be held liable for any damage resulting from handling or from contact with the above product. See www.sigma-aldrich.com and/or the reverse side of invoice or packing slip for additional terms and conditions of sale.

Copyright 2020 Sigma-Aldrich Co. LLC. License granted to make unlimited paper copies for internal use only.

The branding on the header and/or footer of this document may temporarily not visually match the product purchased as we transition our branding. However, all of the information in the document regarding the product remains unchanged and matches the product ordered. For further information please contact mlsbranding@sial.com.

Version: 6.12 Revision Date: 09/07/2024 Print Date: 09/08/2024

The life science business of Merck KGaA, Darmstadt, Germany
operates as MilliporeSigma in the US and Canada

SAFETY DATA SHEET

Version 3.5
Revision Date 11/04/2015
Print Date 02/22/2016

1. PRODUCT AND COMPANY IDENTIFICATION

1.1 Product identifiers

Product name : *tert*-Butylbenzene

Product Number : B90602
Brand : Aldrich

CAS-No. : 98-06-6

1.2 Relevant identified uses of the substance or mixture and uses advised against

Identified uses : Laboratory chemicals, Synthesis of substances

1.3 Details of the supplier of the safety data sheet

Company : Sigma-Aldrich
3050 Spruce Street
SAINT LOUIS MO 63103
USA

Telephone : +1 800-325-5832
Fax : +1 800-325-5052

1.4 Emergency telephone number

Emergency Phone # : (314) 776-6555

2. HAZARDS IDENTIFICATION

2.1 Classification of the substance or mixture

GHS Classification in accordance with 29 CFR 1910 (OSHA HCS)
Flammable liquids (Category 3), H226
Eye irritation (Category 2A), H319
Acute aquatic toxicity (Category 2), H401
Chronic aquatic toxicity (Category 2), H411

For the full text of the H-Statements mentioned in this Section, see Section 16.

2.2 GHS Label elements, including precautionary statements

Pictogram



Signal word Warning

Hazard statement(s)
H226 Flammable liquid and vapour.
H319 Causes serious eye irritation.
H411 Toxic to aquatic life with long lasting effects.

Precautionary statement(s)
P210 Keep away from heat/sparks/open flames/hot surfaces. No smoking.
P233 Keep container tightly closed.
P240 Ground/bond container and receiving equipment.
P241 Use explosion-proof electrical/ ventilating/ lighting/ equipment.
P242 Use only non-sparking tools.
P243 Take precautionary measures against static discharge.

P264	Wash skin thoroughly after handling.
P273	Avoid release to the environment.
P280	Wear protective gloves/ protective clothing/ eye protection/ face protection.
P303 + P361 + P353	IF ON SKIN (or hair): Remove/ Take off immediately all contaminated clothing. Rinse skin with water/ shower.
P305 + P351 + P338	IF IN EYES: Rinse cautiously with water for several minutes. Remove contact lenses, if present and easy to do. Continue rinsing.
P337 + P313	If eye irritation persists: Get medical advice/ attention.
P370 + P378	In case of fire: Use dry sand, dry chemical or alcohol-resistant foam for extinction.
P391	Collect spillage.
P403 + P235	Store in a well-ventilated place. Keep cool.
P501	Dispose of contents/ container to an approved waste disposal plant.

2.3 Hazards not otherwise classified (HNOC) or not covered by GHS - none

3. COMPOSITION/INFORMATION ON INGREDIENTS

3.1 Substances

Synonyms : 2-Methyl-2-phenylpropane

Formula : $C_{10}H_{14}$

Molecular weight : 134.22 g/mol

CAS-No. : 98-06-6

EC-No. : 202-632-4

Hazardous components

Component	Classification	Concentration
tert-Butylbenzene		
	Flam. Liq. 3; Eye Irrit. 2A; Aquatic Acute 2; Aquatic Chronic 2; H226, H319, H411	<= 100 %

For the full text of the H-Statements mentioned in this Section, see Section 16.

4. FIRST AID MEASURES

4.1 Description of first aid measures

General advice
Consult a physician. Show this safety data sheet to the doctor in attendance.Move out of dangerous area.

If inhaled
If breathed in, move person into fresh air. If not breathing, give artificial respiration. Consult a physician.

In case of skin contact
Wash off with soap and plenty of water. Consult a physician.

In case of eye contact
Rinse thoroughly with plenty of water for at least 15 minutes and consult a physician.

If swallowed
Do NOT induce vomiting. Never give anything by mouth to an unconscious person. Rinse mouth with water. Consult a physician.

4.2 Most important symptoms and effects, both acute and delayed
The most important known symptoms and effects are described in the labelling (see section 2.2) and/or in section 11

4.3 Indication of any immediate medical attention and special treatment needed
No data available

5. FIREFIGHTING MEASURES

5.1 Extinguishing media

Suitable extinguishing media
For small (incipient) fires, use media such as "alcohol" foam, dry chemical, or carbon dioxide. For large fires, apply water from as far as possible. Use very large quantities (flooding) of water applied as a mist or spray; solid streams of water may be ineffective. Cool all affected containers with flooding quantities of water.

5.2 Special hazards arising from the substance or mixture
Carbon oxides

5.3 Advice for firefighters
Wear self-contained breathing apparatus for firefighting if necessary.

5.4 Further information
Use water spray to cool unopened containers.

6. ACCIDENTAL RELEASE MEASURES

6.1 Personal precautions, protective equipment and emergency procedures
Use personal protective equipment. Avoid breathing vapours, mist or gas. Ensure adequate ventilation. Remove all sources of ignition. Beware of vapours accumulating to form explosive concentrations. Vapours can accumulate in low areas.
For personal protection see section 8.

6.2 Environmental precautions
Prevent further leakage or spillage if safe to do so. Do not let product enter drains. Discharge into the environment must be avoided.

6.3 Methods and materials for containment and cleaning up
Contain spillage, and then collect with an electrically protected vacuum cleaner or by wet-brushing and place in container for disposal according to local regulations (see section 13).

6.4 Reference to other sections
For disposal see section 13.

7. HANDLING AND STORAGE

7.1 Precautions for safe handling
Avoid contact with skin and eyes. Avoid inhalation of vapour or mist.
Keep away from sources of ignition - No smoking.Take measures to prevent the build up of electrostatic charge.
For precautions see section 2.2.

7.2 Conditions for safe storage, including any incompatibilities
Store in cool place. Keep container tightly closed in a dry and well-ventilated place. Containers which are opened must be carefully resealed and kept upright to prevent leakage.

7.3 Specific end use(s)
Apart from the uses mentioned in section 1.2 no other specific uses are stipulated

8. EXPOSURE CONTROLS/PERSONAL PROTECTION

8.1 Control parameters

Components with workplace control parameters
Contains no substances with occupational exposure limit values.

8.2 Exposure controls

Appropriate engineering controls
Handle in accordance with good industrial hygiene and safety practice. Wash hands before breaks and at the end of workday.

Personal protective equipment

Eye/face protection
Face shield and safety glasses Use equipment for eye protection tested and approved under appropriate government standards such as NIOSH (US) or EN 166(EU).

Skin protection
Handle with gloves. Gloves must be inspected prior to use. Use proper glove removal technique (without touching glove's outer surface) to avoid skin contact with this product. Dispose of contaminated gloves after use in accordance with applicable laws and good laboratory practices. Wash and dry hands.

Full contact
Material: Fluorinated rubber
Minimum layer thickness: 0.7 mm
Break through time: 480 min
Material tested:Vitoject® (KCL 890 / Aldrich Z677698, Size M)

Splash contact
Material: Fluorinated rubber
Minimum layer thickness: 0.7 mm
Break through time: 480 min
Material tested:Vitoject® (KCL 890 / Aldrich Z677698, Size M)

data source: KCL GmbH, D-36124 Eichenzell, phone +49 (0)6659 87300, e-mail sales@kcl.de, test method: EN374
If used in solution, or mixed with other substances, and under conditions which differ from EN 374, contact the supplier of the CE approved gloves. This recommendation is advisory only and must be evaluated by an industrial hygienist and safety officer familiar with the specific situation of anticipated use by our customers. It should not be construed as offering an approval for any specific use scenario.

Body Protection
Impervious clothing, Flame retardant antistatic protective clothing., The type of protective equipment must be selected according to the concentration and amount of the dangerous substance at the specific workplace.

Respiratory protection
Where risk assessment shows air-purifying respirators are appropriate use a full-face respirator with multi-purpose combination (US) or type ABEK (EN 14387) respirator cartridges as a backup to engineering controls. If the respirator is the sole means of protection, use a full-face supplied air respirator. Use respirators and components tested and approved under appropriate government standards such as NIOSH (US) or CEN (EU).

Control of environmental exposure
Prevent further leakage or spillage if safe to do so. Do not let product enter drains. Discharge into the environment must be avoided.

9. PHYSICAL AND CHEMICAL PROPERTIES

9.1 Information on basic physical and chemical properties

a)	Appearance	Form: liquid, clear Colour: colourless
b)	Odour	No data available
c)	Odour Threshold	No data available
d)	pH	No data available
e)	Melting point/freezing point	Melting point/range: -58 °C (-72 °F) - lit.
f)	Initial boiling point and boiling range	169 °C (336 °F) - lit.
g)	Flash point	34.0 °C (93.2 °F) - closed cup
h)	Evaporation rate	No data available
i)	Flammability (solid, gas)	No data available
j)	Upper/lower	Lower explosion limit: 0.8 %(V)

	flammability or explosive limits	
k)	Vapour pressure	No data available
l)	Vapour density	No data available
m)	Relative density	0.867 g/cm3 at 25 °C (77 °F)
n)	Water solubility	No data available
o)	Partition coefficient: n-octanol/water	log Pow: 3.80
p)	Auto-ignition temperature	450.0 °C (842.0 °F)
q)	Decomposition temperature	No data available
r)	Viscosity	No data available
s)	Explosive properties	No data available
t)	Oxidizing properties	No data available

9.2 Other safety information
No data available

10. STABILITY AND REACTIVITY

10.1 Reactivity
No data available

10.2 Chemical stability
Stable under recommended storage conditions.

10.3 Possibility of hazardous reactions
Vapours may form explosive mixture with air.

10.4 Conditions to avoid
Heat, flames and sparks.

10.5 Incompatible materials
Strong oxidizing agents

10.6 Hazardous decomposition products
Other decomposition products - No data available
In the event of fire: see section 5

11. TOXICOLOGICAL INFORMATION

11.1 Information on toxicological effects

Acute toxicity
LD50 Oral - Rat - 3,045 mg/kg
Remarks: Behavioral:Somnolence (general depressed activity). Behavioral:Tremor. Gastrointestinal:Changes in structure or function of salivary glands.

Inhalation: No data available

Dermal: No data available

No data available

Skin corrosion/irritation
No data available

Serious eye damage/eye irritation
No data available

Respiratory or skin sensitisation
No data available

Germ cell mutagenicity
No data available

Carcinogenicity

IARC: No component of this product present at levels greater than or equal to 0.1% is identified as probable, possible or confirmed human carcinogen by IARC.

ACGIH: No component of this product present at levels greater than or equal to 0.1% is identified as a carcinogen or potential carcinogen by ACGIH.

NTP: No component of this product present at levels greater than or equal to 0.1% is identified as a known or anticipated carcinogen by NTP.

OSHA: No component of this product present at levels greater than or equal to 0.1% is identified as a carcinogen or potential carcinogen by OSHA.

Reproductive toxicity
No data available

No data available

Specific target organ toxicity - single exposure
No data available

Specific target organ toxicity - repeated exposure
No data available

Aspiration hazard
No data available

Additional Information
RTECS: CY9120000

To the best of our knowledge, the chemical, physical, and toxicological properties have not been thoroughly investigated.

12. ECOLOGICAL INFORMATION

12.1 Toxicity

Toxicity to fish	LC0 - Leuciscus idus (Golden orfe) - 44 mg/l - 48.0 h
	LC50 - Leuciscus idus (Golden orfe) - 65 mg/l - 48.0 h
Toxicity to daphnia and other aquatic invertebrates	LC50 - Daphnia magna (Water flea) - 41 mg/l - 24 h

12.2 Persistence and degradability
No data available

12.3 Bioaccumulative potential
No data available

12.4 Mobility in soil
No data available

12.5 Results of PBT and vPvB assessment
PBT/vPvB assessment not available as chemical safety assessment not required/not conducted

12.6 Other adverse effects
An environmental hazard cannot be excluded in the event of unprofessional handling or disposal.
Toxic to aquatic life.

13. DISPOSAL CONSIDERATIONS

13.1 Waste treatment methods

Product
Burn in a chemical incinerator equipped with an afterburner and scrubber but exert extra care in igniting as this material is highly flammable. Offer surplus and non-recyclable solutions to a licensed disposal company. Contact a licensed professional waste disposal service to dispose of this material.

Contaminated packaging
Dispose of as unused product.

14. TRANSPORT INFORMATION

DOT (US)
UN number: 2709 Class: 3 Packing group: III
Proper shipping name: Butyl benzenes
Marine pollutant:yes
Poison Inhalation Hazard: No

IMDG
UN number: 2709 Class: 3 Packing group: III EMS-No: F-E, S-D
Proper shipping name: BUTYLBENZENES
Marine pollutant:yes

IATA
UN number: 2709 Class: 3 Packing group: III
Proper shipping name: Butylbenzenes

15. REGULATORY INFORMATION

SARA 302 Components
No chemicals in this material are subject to the reporting requirements of SARA Title III, Section 302.

SARA 313 Components
This material does not contain any chemical components with known CAS numbers that exceed the threshold (De Minimis) reporting levels established by SARA Title III, Section 313.

SARA 311/312 Hazards
Fire Hazard, Acute Health Hazard

Massachusetts Right To Know Components
No components are subject to the Massachusetts Right to Know Act.

Pennsylvania Right To Know Components

	CAS-No.	Revision Date
tert-Butylbenzene	98-06-6	1993-04-24

New Jersey Right To Know Components

	CAS-No.	Revision Date
tert-Butylbenzene	98-06-6	1993-04-24

California Prop. 65 Components
This product does not contain any chemicals known to State of California to cause cancer, birth defects, or any other reproductive harm.

16. OTHER INFORMATION

Full text of H-Statements referred to under sections 2 and 3.

Aquatic Acute	Acute aquatic toxicity
Aquatic Chronic	Chronic aquatic toxicity
Eye Irrit.	Eye irritation
Flam. Liq.	Flammable liquids

H226	Flammable liquid and vapour.
H319	Causes serious eye irritation.
H401	Toxic to aquatic life.
H411	Toxic to aquatic life with long lasting effects.

HMIS Rating

Health hazard:	2
Chronic Health Hazard:	
Flammability:	3
Physical Hazard	0

NFPA Rating

Health hazard:	2
Fire Hazard:	3
Reactivity Hazard:	0

Further information

Copyright 2015 Sigma-Aldrich Co. LLC. License granted to make unlimited paper copies for internal use only.
The above information is believed to be correct but does not purport to be all inclusive and shall be used only as a guide. The information in this document is based on the present state of our knowledge and is applicable to the product with regard to appropriate safety precautions. It does not represent any guarantee of the properties of the product. Sigma-Aldrich Corporation and its Affiliates shall not be held liable for any damage resulting from handling or from contact with the above product. See www.sigma-aldrich.com and/or the reverse side of invoice or packing slip for additional terms and conditions of sale.

Preparation Information

Sigma-Aldrich Corporation
Product Safety – Americas Region
1-800-521-8956

Version: 3.5 Revision Date: 11/04/2015 Print Date: 02/22/2016

SAFETY DATA SHEET

Version 8.10
Revision Date 09/06/2024
Print Date 09/07/2024

SECTION 1: Identification of the substance/mixture and of the company/undertaking

1.1 Product identifiers

Product name : Tetrachloroethylene

Product Number : 371696
Brand : Sigma-Aldrich
Index-No. : 602-028-00-4
CAS-No. : 127-18-4

1.2 Relevant identified uses of the substance or mixture and uses advised against

Identified uses : Laboratory chemicals, Synthesis of substances

Uses advised against : The product is being supplied under the TSCA R&D Exemption (40 CFR Section 720.36). It is the recipient's responsibility to comply with the requirements of the R&D exemption. The product may not be used for a non-exempt commercial purpose under TSCA unless appropriate consent is granted in writing by MilliporeSigma.

1.3 Details of the supplier of the safety data sheet

Company : Sigma-Aldrich Inc.
3050 SPRUCE ST
ST. LOUIS MO 63103
UNITED STATES

Telephone : +1 314 771-5765
Fax : +1 800 325-5052

1.4 Emergency telephone

Emergency Phone # : 800-424-9300 CHEMTREC (USA) +1-703-527-3887 CHEMTREC (International) 24 Hours/day; 7 Days/week

SECTION 2: Hazards identification

2.1 Classification of the substance or mixture

GHS Classification in accordance with 29 CFR 1910 (OSHA HCS)

Skin irritation (Category 2), H315
Eye irritation (Category 2A), H319
Skin sensitization (Category 1), H317

The life science business of Merck KGaA, Darmstadt, Germany
operates as MilliporeSigma in the US and Canada

Carcinogenicity (Category 2), H351
Specific target organ toxicity - single exposure (Category 3), Central nervous system, H336
Short-term (acute) aquatic hazard (Category 2), H401
Long-term (chronic) aquatic hazard (Category 2), H411

For the full text of the H-Statements mentioned in this Section, see Section 16.

2.2 GHS Label elements, including precautionary statements

Pictogram



Signal Word: Warning

Hazard Statements

H315	Causes skin irritation.
H317	May cause an allergic skin reaction.
H319	Causes serious eye irritation.
H336	May cause drowsiness or dizziness.
H351	Suspected of causing cancer.
H411	Toxic to aquatic life with long lasting effects.

Precautionary Statements

P201	Obtain special instructions before use.
P202	Do not handle until all safety precautions have been read and understood.
P261	Avoid breathing mist or vapors.
P264	Wash skin thoroughly after handling.
P271	Use only outdoors or in a well-ventilated area.
P272	Contaminated work clothing must not be allowed out of the workplace.
P273	Avoid release to the environment.
P280	Wear protective gloves/ protective clothing/ eye protection/ face protection.
P302 + P352	IF ON SKIN: Wash with plenty of soap and water.
P304 + P340 + P312	IF INHALED: Remove person to fresh air and keep comfortable for breathing. Call a POISON CENTER/ doctor if you feel unwell.
P305 + P351 + P338	IF IN EYES: Rinse cautiously with water for several minutes. Remove contact lenses, if present and easy to do. Continue rinsing.
P308 + P313	IF exposed or concerned: Get medical advice/ attention.
P333 + P313	If skin irritation or rash occurs: Get medical advice/ attention.
P337 + P313	If eye irritation persists: Get medical advice/ attention.
P362	Take off contaminated clothing and wash before reuse.
P391	Collect spillage.
P403 + P233	Store in a well-ventilated place. Keep container tightly closed.
P405	Store locked up.
P501	Dispose of contents/ container to an approved waste disposal plant.

2.3 Hazards not otherwise classified (HNOC) or not covered by GHS - none

The life science business of Merck KGaA, Darmstadt, Germany
operates as MilliporeSigma in the US and Canada

SECTION 3: Composition/information on ingredients

3.1 Substances

Synonyms	:	Perchloroethylene PCE
Formula	:	C_2Cl_4
Molecular weight	:	165.83 g/mol
CAS-No.	:	127-18-4
EC-No.	:	204-825-9
Index-No.	:	602-028-00-4

Component	Classification	Concentration
Tetrachlorethylene		
	Skin Irrit. 2; Eye Irrit. 2A; Skin Sens. 1; Carc. 2; STOT SE 3; Aquatic Acute 2; Aquatic Chronic 2; H315, H319, H317, H351, H336, H401, H411 Concentration limits: >= 20 %: STOT SE 3, H336;	<= 100 %

For the full text of the H-Statements mentioned in this Section, see Section 16.

SECTION 4: First aid measures

4.1 Description of first-aid measures

General advice
Show this material safety data sheet to the doctor in attendance.

If inhaled
After inhalation: fresh air. Call in physician.

In case of skin contact
In case of skin contact: Take off immediately all contaminated clothing. Rinse skin with water/ shower. Consult a physician.

In case of eye contact
After eye contact: rinse out with plenty of water. Call in ophthalmologist. Remove contact lenses.

If swallowed
After swallowing: immediately make victim drink water (two glasses at most). Consult a physician.

4.2 Most important symptoms and effects, both acute and delayed

The most important known symptoms and effects are described in the labelling (see section 2.2) and/or in section 11

The life science business of Merck KGaA, Darmstadt, Germany
operates as MilliporeSigma in the US and Canada

4.3 Indication of any immediate medical attention and special treatment needed
No data available

SECTION 5: Firefighting measures

5.1 Extinguishing media

Suitable extinguishing media
Water Foam Carbon dioxide (CO2) Dry powder

Unsuitable extinguishing media
For this substance/mixture no limitations of extinguishing agents are given.

5.2 Special hazards arising from the substance or mixture
Carbon oxides
Hydrogen chloride gas
Combustible.
Development of hazardous combustion gases or vapours possible in the event of fire.

5.3 Advice for firefighters
Stay in danger area only with self-contained breathing apparatus. Prevent skin contact by keeping a safe distance or by wearing suitable protective clothing.

5.4 Further information
Suppress (knock down) gases/vapors/mists with a water spray jet. Prevent fire extinguishing water from contaminating surface water or the ground water system.

SECTION 6: Accidental release measures

6.1 Personal precautions, protective equipment and emergency procedures
Advice for non-emergency personnel: Do not breathe vapors, aerosols. Avoid substance contact. Ensure adequate ventilation. Evacuate the danger area, observe emergency procedures, consult an expert.
For personal protection see section 8.

6.2 Environmental precautions
Do not let product enter drains.

6.3 Methods and materials for containment and cleaning up
Cover drains. Collect, bind, and pump off spills. Observe possible material restrictions (see sections 7 and 10). Take up with liquid-absorbent material (e.g. Chemizorb®). Dispose of properly. Clean up affected area.

6.4 Reference to other sections
For disposal see section 13.

SECTION 7: Handling and storage

7.1 Precautions for safe handling

Advice on safe handling
Work under hood. Do not inhale substance/mixture. Avoid generation of vapours/aerosols.

The life science business of Merck KGaA, Darmstadt, Germany
operates as MilliporeSigma in the US and Canada

Hygiene measures
Immediately change contaminated clothing. Apply preventive skin protection. Wash hands and face after working with substance.
For precautions see section 2.2.

7.2 Conditions for safe storage, including any incompatibilities

Storage conditions
Tightly closed. Keep in a well-ventilated place. Keep locked up or in an area accessible only to qualified or authorized persons.

Storage class
Storage class (TRGS 510): 6.1C: Combustible, acute toxic Cat.3 / toxic compounds or compounds which causing chronic effects

7.3 Specific end use(s)
Apart from the uses mentioned in section 1.2 no other specific uses are stipulated

SECTION 8: Exposure controls/personal protection

8.1 Control parameters

Ingredients with workplace control parameters

Component	CAS-No.	Value	Control parameters	Basis
Tetrachlorethylene	127-18-4	TWA	25 ppm	USA. ACGIH Threshold Limit Values (TLV)
	Remarks	Confirmed animal carcinogen with unknown relevance to humans		
		STEL	100 ppm	USA. ACGIH Threshold Limit Values (TLV)
		Confirmed animal carcinogen with unknown relevance to humans		
		Potential Occupational Carcinogen		

The life science business of Merck KGaA, Darmstadt, Germany
operates as MilliporeSigma in the US and Canada

		TWA	100 ppm	USA. Occupational Exposure Limits (OSHA) - Table Z-2
		CEIL	200 ppm	USA. Occupational Exposure Limits (OSHA) - Table Z-2
		Peak	300 ppm	USA. Occupational Exposure Limits (OSHA) - Table Z-2
		PEL	25 ppm 170 mg/m3	California permissible exposure limits for chemical contaminants (Title 8, Article 107)
		STEL	100 ppm 685 mg/m3	California permissible exposure limits for chemical contaminants (Title 8, Article 107)
		C	300 ppm	California permissible exposure limits for chemical contaminants (Title 8, Article 107)

Biological occupational exposure limits

Component	CAS-No.	Parameters	Value	Biological specimen	Basis
Tetrachlorethylene	127-18-4	Tetrachloroethylene	3parts per million	In end-exhaled air	ACGIH - Biological Exposure Indices (BEI)
	Remarks	Prior to shift (16 hours after exposure ceases)			
		Tetrachloroethylene	0.5 mg/l	In blood	ACGIH - Biological Exposure Indices (BEI)
		Prior to shift (16 hours after exposure ceases)			

8.2 Exposure controls

Appropriate engineering controls
Immediately change contaminated clothing. Apply preventive skin protection. Wash hands and face after working with substance.

Personal protective equipment

Eye/face protection
Use equipment for eye protection tested and approved under appropriate government standards such as NIOSH (US) or EN 166(EU). Safety glasses

Skin protection
This recommendation applies only to the product stated in the safety data sheet, supplied by us and for the designated use. When dissolving in or mixing with other substances and under conditions deviating from those stated in EN 16523-1 please contact the supplier of CE-approved gloves (e.g. KCL GmbH, D-36124 Eichenzell, Internet: www.kcl.de).
Full contact
Material: Viton®
Minimum layer thickness: 0.7 mm

The life science business of Merck KGaA, Darmstadt, Germany
operates as MilliporeSigma in the US and Canada

Break through time: 480 min
Material tested:Vitoject® (KCL 890 / Aldrich Z677698, Size M)

This recommendation applies only to the product stated in the safety data sheet, supplied by us and for the designated use. When dissolving in or mixing with other substances and under conditions deviating from those stated in EN 16523-1 please contact the supplier of CE-approved gloves (e.g. KCL GmbH, D-36124 Eichenzell, Internet: www.kcl.de).
Splash contact
Material: Nitrile rubber
Minimum layer thickness: 0.4 mm
Break through time: 240 min
Material tested:Camatril® (KCL 730 / Aldrich Z677442, Size M)

Body Protection
protective clothing

Respiratory protection
Recommended Filter type: Filter A (acc. to DIN 3181) for vapours of organic compounds
The entrepeneur has to ensure that maintenance, cleaning and testing of respiratory protective devices are carried out according to the instructions of the producer. These measures have to be properly documented.
required when vapours/aerosols are generated. Our recommendations on filtering respiratory protection are based on the following standards: DIN EN 143, DIN 14387 and other accompanying standards relating to the used respiratory protection system.

Control of environmental exposure
Do not let product enter drains.

SECTION 9: Physical and chemical properties

9.1 Information on basic physical and chemical properties

a)	Appearance	Form: liquid, clear Color: colorless
b)	Odor	No data available
c)	Odor Threshold	No data available
d)	pH	No data available
e)	Melting point/freezing point	Melting point/ range: -22 °C (-8 °F) - lit.
f)	Initial boiling point and boiling range	121 °C 250 °F - lit.
g)	Flash point	()No data available
h)	Evaporation rate	No data available
i)	Flammability (solid, gas)	No data available
j)	Upper/lower	No data available

The life science business of Merck KGaA, Darmstadt, Germany
operates as MilliporeSigma in the US and Canada

	flammability or explosive limits	
k)	Vapor pressure	25.3 hPa at 25.0 °C (77.0 °F) 17.3 hPa at 20.0 °C(68.0 °F)
l)	Vapor density	No data available
m)	Density	1.623 g/cm3 at 25 °C (77 °F) - lit.
	Relative density	No data available
n)	Water solubility	0.15 g/l at 25 °C (77 °F)
o)	Partition coefficient: n-octanol/water	log Pow: 2.53 at 23 °C (73 °F) - Bioaccumulation is not expected.
p)	Autoignition temperature	No data available
q)	Decomposition temperature	No data available
r)	Viscosity	No data available
s)	Explosive properties	No data available
t)	Oxidizing properties	No data available

9.2 Other safety information

Surface tension	32.1 mN/m at 20 °C (68 °F)

SECTION 10: Stability and reactivity

10.1 Reactivity
No data available

10.2 Chemical stability
The product is chemically stable under standard ambient conditions (room temperature) .

10.3 Possibility of hazardous reactions
Risk of explosion with:
Alkali metals
Aluminum
sodium amide
Barium
nitrogen dioxide
Oxygen
with
alkali hydroxides
Exothermic reaction with:
strong alkalis
Alkaline earth metals
strong alkalis
Light metals
Powdered metals

The life science business of Merck KGaA, Darmstadt, Germany
operates as MilliporeSigma in the US and Canada

Oxidizing agents
Strong acids
Strong bases
nitrous gases
Risk of ignition or formation of inflammable gases or vapours with:
zinc oxide
with
Aluminum

10.4 Conditions to avoid
no information available

10.5 Incompatible materials
various plastics

10.6 Hazardous decomposition products
In the event of fire: see section 5

SECTION 11: Toxicological information

11.1 Information on toxicological effects

Acute toxicity
LD50 Oral - Rat - male and female - 3,420 mg/kg
(OECD Test Guideline 401)
Remarks: (ECHA)
Inhalation: No data available
Dermal: No data available
No data available

Skin corrosion/irritation
Skin - Rabbit
Result: Skin irritation - 4 h
(OECD Test Guideline 404)
Remarks: (ECHA)

Serious eye damage/eye irritation
Eyes - Rabbit
Result: Mild eye irritation - 24 h
(Draize Test)
Remarks: (RTECS)

Respiratory or skin sensitization
Local lymph node assay (LLNA) - Mouse
Result: May cause sensitization by skin contact.
(OECD Test Guideline 429)
Remarks: (ECHA)

Germ cell mutagenicity
Test Type: Chromosome aberration test in vitro
Test system: Chinese hamster ovary cells
Metabolic activation: with and without metabolic activation
Method: OECD Test Guideline 473

The life science business of Merck KGaA, Darmstadt, Germany
operates as MilliporeSigma in the US and Canada

Result: negative
Remarks: (ECHA)
Test Type: Ames test
Test system: Salmonella typhimurium
Metabolic activation: without metabolic activation
Method: OECD Test Guideline 471
Result: negative
Remarks: (ECHA)

Test Type: Micronucleus test
Species: Mouse

Application Route: Intraperitoneal
Method: OECD Test Guideline 474
Result: negative
Remarks: (ECHA)

Carcinogenicity
Suspected of causing cancer.

IARC:	2A - Group 2A: Probably carcinogenic to humans (Tetrachlorethylene)
NTP:	RAHC - Reasonably anticipated to be a human carcinogen (Tetrachlorethylene)
OSHA:	No component of this product present at levels greater than or equal to 0.1% is on OSHA's list of regulated carcinogens.

Reproductive toxicity
No data available

Specific target organ toxicity - single exposure
May cause drowsiness or dizziness.

Specific target organ toxicity - repeated exposure
No data available

Aspiration hazard
No data available

11.2 Additional Information

Repeated dose toxicity - Mouse - female - Oral - LOAEL (Lowest observed adverse effect level) - 390 mg/kg

RTECS: KX3850000
narcosis, Liver injury may occur., Kidney injury may occur.

SECTION 12: Ecological information

12.1 Toxicity

Toxicity to fish	flow-through test LC50 - Oncorhynchus mykiss (rainbow trout) - 5 mg/l - 96 h Remarks: (ECHA)

The life science business of Merck KGaA, Darmstadt, Germany
operates as MilliporeSigma in the US and Canada

Toxicity to daphnia and other aquatic invertebrates	EC50 - Daphnia magna (Water flea) - 7.50 mg/l - 48 h
Toxicity to algae	ErC50 - Chlamydomonas reinhardtii (green algae) - 3.64 mg/l - 72 h Remarks: (ECHA)
Toxicity to fish(Chronic toxicity)	flow-through test NOEC - Jordanella floridae - 1.99 mg/l - 10 d Remarks: (ECHA)
Toxicity to daphnia and other aquatic invertebrates(Chronic toxicity)	semi-static test NOEC - Daphnia magna (Water flea) - 0.51 mg/l - 28 d Remarks: (ECHA)

12.2 Persistence and degradability

Biodegradability	aerobic - Exposure time 28 d Result: 11 % - Not readily biodegradable. (OECD Test Guideline 301C)

12.3 Bioaccumulative potential

Bioaccumulation	Lepomis macrochirus (Bluegill) - 21 d - 0.00343 mg/l(Tetrachlorethylene) Bioconcentration factor (BCF): 49

12.4 Mobility in soil

No data available

12.5 Results of PBT and vPvB assessment

PBT/vPvB assessment not available as chemical safety assessment not required/not conducted

12.6 Endocrine disrupting properties

No data available

12.7 Other adverse effects

No data available

SECTION 13: Disposal considerations

13.1 Waste treatment methods

Product

Waste material must be disposed of in accordance with the national and local regulations. Leave chemicals in original containers. No mixing with other waste. Handle uncleaned containers like the product itself.

The life science business of Merck KGaA, Darmstadt, Germany
operates as MilliporeSigma in the US and Canada

SECTION 14: Transport information

DOT (US)

UN number: 1897 Class: 6.1 Packing group: III
Proper shipping name: Tetrachloroethylene
Reportable Quantity (RQ): 100 lbs
Reportable Quantity (RQ): 100 lbs
Reportable Quantity (RQ): 10 lbs
Reportable Quantity (RQ): 10 lbs
Marine pollutant: yes Poison Inhalation Hazard: No

IMDG

UN number: 1897 Class: 6.1 Packing group: III EMS-No: F-A, S-A
Proper shipping name: TETRACHLOROETHYLENE
Marine pollutant : yes
Marine pollutant : yes

IATA

UN number: 1897 Class: 6.1 Packing group: III
Proper shipping name: Tetrachloroethylene

SECTION 15: Regulatory information

CERCLA Reportable Quantity

Components	CAS-No.	Component RQ (lbs)	Calculated product RQ (lbs)
Tetrachlorethylene	127-18-4	100	100
Tetrachlorethylene	127-18-4	100	100 (D039)
Tetrachlorethylene	127-18-4	10	10 (F001)
Tetrachlorethylene	127-18-4	10	10 (F002)

SARA 304 Extremely Hazardous Substances Reportable Quantity

This material does not contain any components with a section 304 EHS RQ.

SARA 302 Extremely Hazardous Substances Threshold Planning Quantity

This material does not contain any components with a section 302 EHS TPQ.

SARA 311/312 Hazards : Acute Health Hazard
Chronic Health Hazard

SARA 313 : The following components are subject to reporting levels established by SARA Title III, Section 313:

Tetrachlorethylene 127-18-4 >= 90 - <= 100 %

US State Regulations

Massachusetts Right To Know

Tetrachlorethylene 127-18-4

The life science business of Merck KGaA, Darmstadt, Germany
operates as MilliporeSigma in the US and Canada

Pennsylvania Right To Know

Tetrachlorethylene 127-18-4

Maine Chemicals of High Concern

Product does not contain any listed chemicals

Vermont Chemicals of High Concern

Tetrachlorethylene 127-18-4

Washington Chemicals of High Concern

Tetrachlorethylene 127-18-4

California Prop. 65

WARNING: This product can expose you to chemicals including Tetrachlorethylene, which is/are known to the State of California to cause cancer. For more information go to www.P65Warnings.ca.gov.

The ingredients of this product are reported in the following inventories:

TSCA : All substances listed as active on the TSCA inventory

TSCA list

No substances are subject to a Significant New Use Rule.

No substances are subject to TSCA 12(b) export notification requirements.

SECTION 16: Other information

Further information

The information is believed to be correct but is not exhaustive and will be used solely as a guideline, which is based on current knowledge of the chemical substance or mixture and is applicable to appropriate safety precautions for the product. It does not represent any guarantee of the properties of the product. Sigma-Aldrich Corporation and its Affiliates shall not be held liable for any damage resulting from handling or from contact with the above product. See www.sigma-aldrich.com and/or the reverse side of invoice or packing slip for additional terms and conditions of sale.

Copyright 2020 Sigma-Aldrich Co. LLC. License granted to make unlimited paper copies for internal use only.

The branding on the header and/or footer of this document may temporarily not visually match the product purchased as we transition our branding. However, all of the information in the document regarding the product remains unchanged and matches the product ordered. For further information please contact mlsbranding@sial.com.

Version: 8.10 Revision Date: 09/06/2024 Print Date: 09/07/2024

The life science business of Merck KGaA, Darmstadt, Germany
operates as MilliporeSigma in the US and Canada

SAFETY DATA SHEET

Version 4.11
Revision Date 10/29/2015
Print Date 03/03/2016

1. PRODUCT AND COMPANY IDENTIFICATION

1.1 Product identifiers

Product name : Tetrahydrofuran

Product Number : 401757
Brand : Sigma-Aldrich
Index-No. : 603-025-00-0

CAS-No. : 109-99-9

1.2 Relevant identified uses of the substance or mixture and uses advised against

Identified uses : Laboratory chemicals, Synthesis of substances

1.3 Details of the supplier of the safety data sheet

Company : Sigma-Aldrich
3050 Spruce Street
SAINT LOUIS MO 63103
USA

Telephone : +1 800-325-5832
Fax : +1 800-325-5052

1.4 Emergency telephone number

Emergency Phone # : (314) 776-6555

2. HAZARDS IDENTIFICATION

2.1 Classification of the substance or mixture

GHS Classification in accordance with 29 CFR 1910 (OSHA HCS)
Flammable liquids (Category 2), H225
Acute toxicity, Oral (Category 4), H302
Eye irritation (Category 2A), H319
Carcinogenicity (Category 2), H351
Specific target organ toxicity - single exposure (Category 3), Respiratory system, H335

For the full text of the H-Statements mentioned in this Section, see Section 16.

2.2 GHS Label elements, including precautionary statements

Pictogram



Signal word Danger

Hazard statement(s)
H225 Highly flammable liquid and vapour.
H302 Harmful if swallowed.
H319 Causes serious eye irritation.
H335 May cause respiratory irritation.
H351 Suspected of causing cancer.

Precautionary statement(s)
P201 Obtain special instructions before use.
P202 Do not handle until all safety precautions have been read and

	understood.
P210	Keep away from heat/sparks/open flames/hot surfaces. No smoking.
P233	Keep container tightly closed.
P240	Ground/bond container and receiving equipment.
P241	Use explosion-proof electrical/ ventilating/ lighting/ equipment.
P242	Use only non-sparking tools.
P243	Take precautionary measures against static discharge.
P261	Avoid breathing dust/ fume/ gas/ mist/ vapours/ spray.
P264	Wash skin thoroughly after handling.
P270	Do not eat, drink or smoke when using this product.
P271	Use only outdoors or in a well-ventilated area.
P280	Wear protective gloves/ protective clothing/ eye protection/ face protection.
P301 + P312 + P330	IF SWALLOWED: Call a POISON CENTER or doctor/ physician if you feel unwell. Rinse mouth.
P303 + P361 + P353	IF ON SKIN (or hair): Take off immediately all contaminated clothing. Rinse skin with water/shower.
P304 + P340 + P312	IF INHALED: Remove person to fresh air and keep comfortable for breathing. Call a POISON CENTER or doctor/ physician if you feel unwell.
P305 + P351 + P338	IF IN EYES: Rinse cautiously with water for several minutes. Remove contact lenses, if present and easy to do. Continue rinsing.
P308 + P313	IF exposed or concerned: Get medical advice/ attention.
P337 + P313	If eye irritation persists: Get medical advice/ attention.
P370 + P378	In case of fire: Use dry sand, dry chemical or alcohol-resistant foam to extinguish.
P403 + P233	Store in a well-ventilated place. Keep container tightly closed.
P403 + P235	Store in a well-ventilated place. Keep cool.
P405	Store locked up.
P501	Dispose of contents/ container to an approved waste disposal plant.

2.3 Hazards not otherwise classified (HNOC) or not covered by GHS

May form explosive peroxides.

3. COMPOSITION/INFORMATION ON INGREDIENTS

3.1 Substances

Synonyms	:	THF
Formula	:	C_4H_8O
Molecular weight	:	72.11 g/mol
CAS-No.	:	109-99-9
EC-No.	:	203-726-8
Index-No.	:	603-025-00-0
Registration number	:	01-2119444314-46-XXXX

Hazardous components

Component	Classification	Concentration
Tetrahydrofuran		
	Flam. Liq. 2; Acute Tox. 4; Eye Irrit. 2A; Carc. 2; STOT SE 3; H225, H302, H319, H335, H351	<= 100 %

For the full text of the H-Statements mentioned in this Section, see Section 16.

4. FIRST AID MEASURES

4.1 Description of first aid measures

General advice

Consult a physician. Show this safety data sheet to the doctor in attendance.Move out of dangerous area.

If inhaled
If breathed in, move person into fresh air. If not breathing, give artificial respiration. Consult a physician.

In case of skin contact
Wash off with soap and plenty of water. Consult a physician.

In case of eye contact
Rinse thoroughly with plenty of water for at least 15 minutes and consult a physician.

If swallowed
Do NOT induce vomiting. Never give anything by mouth to an unconscious person. Rinse mouth with water. Consult a physician.

4.2 Most important symptoms and effects, both acute and delayed
The most important known symptoms and effects are described in the labelling (see section 2.2) and/or in section 11

4.3 Indication of any immediate medical attention and special treatment needed
No data available

5. FIREFIGHTING MEASURES

5.1 Extinguishing media

Suitable extinguishing media
Use water spray, alcohol-resistant foam, dry chemical or carbon dioxide.

5.2 Special hazards arising from the substance or mixture
Carbon oxides

5.3 Advice for firefighters
Wear self-contained breathing apparatus for firefighting if necessary.

5.4 Further information
Use water spray to cool unopened containers.

6. ACCIDENTAL RELEASE MEASURES

6.1 Personal precautions, protective equipment and emergency procedures
Use personal protective equipment. Avoid breathing vapours, mist or gas. Ensure adequate ventilation. Remove all sources of ignition. Evacuate personnel to safe areas. Beware of vapours accumulating to form explosive concentrations. Vapours can accumulate in low areas.
For personal protection see section 8.

6.2 Environmental precautions
Prevent further leakage or spillage if safe to do so. Do not let product enter drains.

6.3 Methods and materials for containment and cleaning up
Contain spillage, and then collect with an electrically protected vacuum cleaner or by wet-brushing and place in container for disposal according to local regulations (see section 13).

6.4 Reference to other sections
For disposal see section 13.

7. HANDLING AND STORAGE

7.1 Precautions for safe handling
Avoid contact with skin and eyes. Avoid inhalation of vapour or mist.
Use explosion-proof equipment.Keep away from sources of ignition - No smoking.Take measures to prevent the build up of electrostatic charge.
For precautions see section 2.2.

7.2 Conditions for safe storage, including any incompatibilities
Keep container tightly closed in a dry and well-ventilated place. Containers which are opened must be carefully resealed and kept upright to prevent leakage.

Dry residue is explosive. Store under inert gas. Test for peroxide formation periodically and before distillation.
Storage class (TRGS 510): Flammable liquids

7.3 Specific end use(s)

Apart from the uses mentioned in section 1.2 no other specific uses are stipulated

8. EXPOSURE CONTROLS/PERSONAL PROTECTION

8.1 Control parameters

Components with workplace control parameters

Component	CAS-No.	Value	Control parameters	Basis
Tetrahydrofuran	109-99-9	TWA	50.000000 ppm	USA. ACGIH Threshold Limit Values (TLV)
	Remarks	Central Nervous System impairment Upper Respiratory Tract irritation Kidney damage Confirmed animal carcinogen with unknown relevance to humans Danger of cutaneous absorption		
		STEL	100.000000 ppm	USA. ACGIH Threshold Limit Values (TLV)
		Central Nervous System impairment Upper Respiratory Tract irritation Kidney damage Confirmed animal carcinogen with unknown relevance to humans Danger of cutaneous absorption		
		TWA	200.000000 ppm 590.000000 mg/m3	USA. NIOSH Recommended Exposure Limits
		ST	250.000000 ppm 735.000000 mg/m3	USA. NIOSH Recommended Exposure Limits
		TWA	200.000000 ppm 590.000000 mg/m3	USA. Occupational Exposure Limits (OSHA) - Table Z-1 Limits for Air Contaminants
		The value in mg/m3 is approximate.		

Biological occupational exposure limits

Component	CAS-No.	Parameters	Value	Biological specimen	Basis
Tetrahydrofuran	109-99-9	Tetrahydrofuran	2.0000 mg/l	Urine	ACGIH - Biological Exposure Indices (BEI)
	Remarks	End of shift (As soon as possible after exposure ceases)			

Derived No Effect Level (DNEL)

Application Area	Exposure routes	Health effect	Value
Workers	Skin contact	Long-term systemic effects	25mg/kg BW/d
Consumers	Skin contact	Long-term systemic effects	15mg/kg BW/d
Workers	Inhalation	Long-term local effects	150 mg/m3
Workers	Inhalation	Long-term systemic effects	150 mg/m3
Consumers	Inhalation	Long-term systemic effects	62 mg/m3
Consumers	Inhalation	Acute local effects	150 mg/m3
Consumers	Inhalation	Acute systemic effects	150 mg/m3

Predicted No Effect Concentration (PNEC)

Compartment	Value
Soil	2.13 mg/kg
Marine water	0.432 mg/l
Fresh water	4.32 mg/l
Marine sediment	2.33 mg/kg
Fresh water sediment	23.3 mg/kg
Onsite sewage treatment plant	4.6 mg/l

8.2 Exposure controls

Appropriate engineering controls
Handle in accordance with good industrial hygiene and safety practice. Wash hands before breaks and at the end of workday.

Personal protective equipment

Eye/face protection
Face shield and safety glasses Use equipment for eye protection tested and approved under appropriate government standards such as NIOSH (US) or EN 166(EU).

Skin protection
Handle with gloves. Gloves must be inspected prior to use. Use proper glove removal technique (without touching glove's outer surface) to avoid skin contact with this product. Dispose of contaminated gloves after use in accordance with applicable laws and good laboratory practices. Wash and dry hands.

Splash contact
Material: butyl-rubber
Minimum layer thickness: 0.3 mm
Break through time: 18 min
Material tested:Butoject® (KCL 897 / Aldrich Z677647, Size M)

data source: KCL GmbH, D-36124 Eichenzell, phone +49 (0)6659 87300, e-mail sales@kcl.de, test method: EN374
If used in solution, or mixed with other substances, and under conditions which differ from EN 374, contact the supplier of the CE approved gloves. This recommendation is advisory only and must be evaluated by an industrial hygienist and safety officer familiar with the specific situation of anticipated use by our customers. It should not be construed as offering an approval for any specific use scenario.

Body Protection
Complete suit protecting against chemicals, Flame retardant antistatic protective clothing., The type of protective equipment must be selected according to the concentration and amount of the dangerous substance at the specific workplace.

Respiratory protection
Where risk assessment shows air-purifying respirators are appropriate use a full-face respirator with multi-purpose combination (US) or type AXBEK (EN 14387) respirator cartridges as a backup to engineering controls. If the respirator is the sole means of protection, use a full-face supplied air respirator. Use respirators and components tested and approved under appropriate government standards such as NIOSH (US) or CEN (EU).

Control of environmental exposure
Prevent further leakage or spillage if safe to do so. Do not let product enter drains.

9. PHYSICAL AND CHEMICAL PROPERTIES

9.1 Information on basic physical and chemical properties

a)	Appearance	Form: liquid, clear Colour: colourless
b)	Odour	ether-like
c)	Odour Threshold	No data available
d)	pH	ca.7
e)	Melting point/freezing	Melting point/range: -108.44 °C (-163.19 °F) at 1,013.25 hPa (760.00

	point	mmHg)
f)	Initial boiling point and boiling range	65.0 - 67.0 °C (149.0 - 152.6 °F) at 1,013.25 hPa (760.00 mmHg)
g)	Flash point	-17.0 °C (1.4 °F) - closed cup
h)	Evaporation rate	No data available
i)	Flammability (solid, gas)	No data available
j)	Upper/lower flammability or explosive limits	Upper explosion limit: 11.8 %(V) Lower explosion limit: 1.8 %(V)
k)	Vapour pressure	170 hPa (128 mmHg) at 20.0 °C (68.0 °F)
l)	Vapour density	ca.2.5 at 25 °C (77 °F) - (Air = 1.0)
m)	Relative density	0.89 g/cm3
n)	Water solubility	soluble
o)	Partition coefficient: n-octanol/water	log Pow: 0.46
p)	Auto-ignition temperature	215 °C (419 °F) at 1,013 hPa (760 mmHg)
q)	Decomposition temperature	No data available
r)	Viscosity	0.518 mm2/s at 25 °C (77 °F) - 0.403 mm2/s at 50 °C (122 °F) -
s)	Explosive properties	Not explosive, In use may form flammable/explosive vapour-air mixture.
t)	Oxidizing properties	The substance or mixture is not classified as oxidizing.

9.2 Other safety information

Relative vapour density	ca.2.5 at 25 °C (77 °F) - (Air = 1.0)

10. STABILITY AND REACTIVITY

10.1 Reactivity
No data available

10.2 Chemical stability
Stable under recommended storage conditions.
Test for peroxide formation before distillation or evaporation. Test for peroxide formation or discard after 1 year.

10.3 Possibility of hazardous reactions
Vapours may form explosive mixture with air.

10.4 Conditions to avoid
Heat, flames and sparks.

10.5 Incompatible materials
Strong oxidizing agents, Acids

10.6 Hazardous decomposition products
Other decomposition products - No data available
In the event of fire: see section 5

11. TOXICOLOGICAL INFORMATION

11.1 Information on toxicological effects

Acute toxicity
LD50 Oral - Rat - 1,650 mg/kg

LC50 Inhalation - Rat - 6 h - 14.7 mg/l
Remarks: Material may be irritating to mucous membranes and upper respiratory tract.

LD50 Dermal - Rat - > 2,000 mg/kg

No data available

Skin corrosion/irritation
Based on available data, the classification criteria are not met.

Serious eye damage/eye irritation
Eyes - Rabbit
Result: Risk of serious damage to eyes.
(Draize Test)

Respiratory or skin sensitisation
Based on available data, the classification criteria are not met.

Germ cell mutagenicity
In vivo tests did not show mutagenic effects

Ames test
S. typhimurium
Result: negative

Carcinogenicity

Suspected human carcinogens

IARC:	No component of this product present at levels greater than or equal to 0.1% is identified as probable, possible or confirmed human carcinogen by IARC.
NTP:	No component of this product present at levels greater than or equal to 0.1% is identified as a known or anticipated carcinogen by NTP.
OSHA:	No component of this product present at levels greater than or equal to 0.1% is identified as a carcinogen or potential carcinogen by OSHA.

Reproductive toxicity
No data available

No toxicity to reproduction

Specific target organ toxicity - single exposure
May cause drowsiness or dizziness. - Nervous system
May cause respiratory irritation.

Specific target organ toxicity - repeated exposure
The substance or mixture is not classified as specific target organ toxicant, repeated exposure.

Aspiration hazard
No aspiration toxicity classification

Additional Information
RTECS: LU5950000

Central nervous system depression, Cough, chest pain, Difficulty in breathing, Exposure to high airborne concentrations can cause anesthetic effects.

Stomach - Irregularities - Based on Human Evidence
Stomach - Irregularities - Based on Human Evidence

12. ECOLOGICAL INFORMATION

12.1 Toxicity

Toxicity to fish	LC50 - Pimephales promelas (fathead minnow) - 2,160 mg/l - 96 h
Toxicity to daphnia and other aquatic invertebrates	EC50 - Daphnia magna (Water flea) - 382 mg/l - 24 h
Toxicity to algae	Growth inhibition IC50 - Algae - 3,700 mg/l - 192 h

12.2 Persistence and degradability

Biodegradability

(OECD Test Guideline 301)

Remarks: According to the results of tests of biodegradability this product is not readily biodegradable.

12.3 Bioaccumulative potential

No bioaccumulation is to be expected (log Pow <= 4).

12.4 Mobility in soil

No data available

12.5 Results of PBT and vPvB assessment

PBT/vPvB assessment not available as chemical safety assessment not required/not conducted

12.6 Other adverse effects

No data available

13. DISPOSAL CONSIDERATIONS

13.1 Waste treatment methods

Product

Burn in a chemical incinerator equipped with an afterburner and scrubber but exert extra care in igniting as this material is highly flammable. Offer surplus and non-recyclable solutions to a licensed disposal company. Contact a licensed professional waste disposal service to dispose of this material.

Contaminated packaging

Dispose of as unused product.

14. TRANSPORT INFORMATION

DOT (US)

UN number: 2056 Class: 3 Packing group: II

Proper shipping name: Tetrahydrofuran

Reportable Quantity (RQ): 1000 lbs

Poison Inhalation Hazard: No

IMDG

UN number: 2056 Class: 3 Packing group: II EMS-No: F-E, S-D

Proper shipping name: TETRAHYDROFURAN

IATA

UN number: 2056 Class: 3 Packing group: II

Proper shipping name: Tetrahydrofuran

15. REGULATORY INFORMATION

SARA 302 Components

No chemicals in this material are subject to the reporting requirements of SARA Title III, Section 302.

SARA 313 Components

This material does not contain any chemical components with known CAS numbers that exceed the threshold (De Minimis) reporting levels established by SARA Title III, Section 313.

SARA 311/312 Hazards

Fire Hazard, Acute Health Hazard, Chronic Health Hazard

Massachusetts Right To Know Components

	CAS-No.	Revision Date
Tetrahydrofuran	109-99-9	1993-04-24

Pennsylvania Right To Know Components

	CAS-No.	Revision Date
Tetrahydrofuran	109-99-9	1993-04-24

New Jersey Right To Know Components

	CAS-No.	Revision Date
Tetrahydrofuran	109-99-9	1993-04-24

California Prop. 65 Components

This product does not contain any chemicals known to State of California to cause cancer, birth defects, or any other reproductive harm.

16. OTHER INFORMATION

Full text of H-Statements referred to under sections 2 and 3.

Acute Tox.	Acute toxicity
Carc.	Carcinogenicity
Eye Irrit.	Eye irritation
Flam. Liq.	Flammable liquids
H225	Highly flammable liquid and vapour.
H302	Harmful if swallowed.
H319	Causes serious eye irritation.
H335	May cause respiratory irritation.
H351	Suspected of causing cancer.
STOT SE	Specific target organ toxicity - single exposure

HMIS Rating

Health hazard:	1
Chronic Health Hazard:	*
Flammability:	3
Physical Hazard	0

NFPA Rating

Health hazard:	2
Fire Hazard:	3
Reactivity Hazard:	0

Further information

Copyright 2015 Sigma-Aldrich Co. LLC. License granted to make unlimited paper copies for internal use only.
The above information is believed to be correct but does not purport to be all inclusive and shall be used only as a guide. The information in this document is based on the present state of our knowledge and is applicable to the product with regard to appropriate safety precautions. It does not represent any guarantee of the properties of the product. Sigma-Aldrich Corporation and its Affiliates shall not be held liable for any damage resulting from handling or from contact with the above product. See www.sigma-aldrich.com and/or the reverse side of invoice or packing slip for additional terms and conditions of sale.

Preparation Information

Sigma-Aldrich Corporation
Product Safety – Americas Region
1-800-521-8956

Version: 4.11 Revision Date: 10/29/2015 Print Date: 03/03/2016

Thallium

SAFETY DATA SHEET

1 PRODUCT AND SUPPLIER IDENTIFICATION

Product Name: Thallium Solid

Formula: Tl

Supplier: ESPI Metals
1050 Benson Way
Ashland, OR 97520

Telephone: 800-638-2581

Fax: 541-488-8313

Email: sales@espimetals.com

Emergency: Infotrac 800-535-5053 (US) or 352-323-3500 (24 hour)

Recommended Uses: Scientific Research

2 HAZARDS IDENTIFICATION

GHS Classification (29 CFR 1910.1200): Acute toxicity - oral, category 2.

GHS Label Elements:



Signal Word: Danger

Hazard Statements: H300 Fatal if swallowed.

Precautionary Statements: P264 Wash hands thoroughly after handling, P270 Do not eat, drink or smoke when using this product, P301+P310 IF SWALLOWED: Immediately call a POISON CENTER or doctor/physician, P330 Rinse mouth, P405 Store locked up, P501 Dispose of contents/container in accordance with local, state or federal regulations.

3 COMPOSITION/INFORMATION ON INGREDIENTS

Ingredient: Thallium

CAS#: 7440-28-0

%: 100

EC#: 231-138-1

4 FIRST AID MEASURES

General Measures: Emergency responders should take care to avoid secondary exposure to thallium if it is present. Wear appropriate protective equipment.

INHALATION: Remove to fresh air, keep warm and quiet, give oxygen if breathing is difficult. Seek immediate medical attention. If mouth-to-mouth is necessary always use a barrier or bag-valve-mask device.

INGESTION: Rinse mouth with water. Do not induce vomiting. Seek immediate medical attention. Never induce vomiting or give anything by mouth to an unconscious person.

SKIN: Remove contaminated clothing, wash affected area with soap and water taking care not to break the skin and to cover all open wounds. Seek medical attention. Contaminated clothing should be safely contained and properly disposed of.

EYES: Flush eyes with lukewarm water, including under upper and lower eyelids, for at least 15 minutes. Seek medical attention immediately.

Most Important Symptoms/Effects, Acute and Delayed: Symptoms are usually delayed and include gastrointestinal distress and neurological symptoms. See section 11 for more information.

Indication of Immediate Medical Attention and Special Treatment: No other information available.

5 FIREFIGHTING MEASURES

Extinguishing Media: Use extinguishing media suitable for surrounding materials and type of fire.

Unsuitable Extinguishing Media: No further information available.

Specific Hazards Arising from the Material: Under fire conditions, thallium may release highly toxic fumes or gases.

Special Protective Equipment and Precautions for Firefighters: Full face, self-contained breathing apparatus and full protective clothing.

6 ACCIDENTAL RELEASE MEASURES

Personal Precautions, Protective Equipment, and Emergency Procedures: Wear appropriate respiratory and protective equipment specified in section 8. Isolate spill area and provide ventilation. Avoid breathing dust or fume. Avoid contact with skin and eyes. Eliminate all sources of ignition.

Methods and Materials for Containment and Cleaning Up: Scoop up or vacuum with a system utilizing a HEPA filtration system and place in properly labeled sealed containers. Special precautions must be taken when changing filters on HEPA vacuum cleaners used to clean up hazardous materials. Avoid creating dusts. Avoid contamination of air and water.

Environmental Precautions: Do not allow to enter drains or to be released to the environment.

7 HANDLING AND STORAGE

Precautions for Safe Handling: Wear appropriate respiratory and protective equipment specified in section 8. Only trained personnel should work with this product. Handle in a well-ventilated area. Avoid exposure to high temperature. Avoid breathing fumes. Avoid contact with skin and eyes. Wash thoroughly before eating or smoking.

Conditions for Safe Storage, Including Any Incompatibilities: Store under dry, inert gas such as argon, or can also be stored under deaerated water. Store in sealed unbreakable containers; the original labeled shipping container when possible. Store in an area that is cool, dry and temperature-controlled, away from direct sunlight, heat and ignition sources or where freezing is possible. Do not store together with acids, halogens or oxidizers. See section 10 for more information on incompatible materials.

8 EXPOSURE CONTROLS AND PERSONAL PROTECTION

Exposure Limits: Thallium (Soluble compounds, as Tl)

OSHA/PEL: 0.1 mg/m^3

ACGIH/TLV: 0.02 mg/m^3(inhalable)

Appropriate Engineering Controls: Handle in an enclosed, controlled process under dry argon. Whenever possible the use of local exhaust ventilation, process enclosure or other engineering controls is the preferred method of controlling exposure to meet established occupational exposure limits. Use good housekeeping and sanitation practices. Do not use tobacco or food in work area. Wash thoroughly before eating or smoking. Clothing worn in areas of exposure to thallium dust or vapor should be restricted to the workplace and stored in special lockers.

Individual Protection Measures, Such as Personal Protective Equipment:

Respiratory Protection: When potential exposures are above the occupational limits, approved respirators must be used.

Eye Protection: Splash goggles or safety glasses.

Skin Protection: Wear impermeable gloves, protective work clothing as necessary.

9 PHYSICAL AND CHEMICAL PROPERTIES

Appearance:

Form: Rod

Color: Gray metallic

Odor: Odorless

Odor Threshold: Not determined

pH: N/A

Melting Point: 303.5 ^{o}C

Boiling Point: 1457±10 ^{o}C

Flash Point: N/A

Evaporation Rate: N/A

Flammability: No data

Upper Flammable Limit: No data

Lower Flammable Limit: No data

Vapor Pressure: 1 mm Hg @ 825 ^{o}C

Vapor Density: N/A

Relative Density (Specific Gravity): 11.85 g/cc

Solubility in H_2O: Insoluble

Partition Coefficient (n-octanol/water): Not determined

Autoignition Temperature: No data

Decomposition Temperature: No data

Viscosity: N/A

10 STABILITY AND REACTIVITY

Reactivity: No data

Chemical Stability: Stable under recommended storage conditions.

Possibility of Hazardous Reactions: High temperatures will generate toxic thallium oxide fumes.

Conditions to Avoid: Avoid high temperatures, reacts slowly with moist air.

Incompatible Materials: Oxidizing agents, strong acids, halogens, air and moisture.

Hazardous Decomposition Products: Thallium oxide fume.

11 TOXICOLOGICAL INFORMATION

Likely Routes of Exposure: Inhalation, skin and eyes.

Symptoms of Exposure: Abdominal pain and vomiting, extreme pain in the extremities, lethargy, hair loss.

Acute and Chronic Effects: Almost all of the available information refers to ingestion of thallium compounds, largely due to accidental ingestion, intentional poisoning and suicide attempts. Adverse reactions are dose dependent and occur in 3 stages. Massive doses may cause gastrointestinal distress (nausea, vomiting and abdominal pain) within 30 minutes but symptoms are usually delayed for 8 hours or longer. Gastrointestinal symptoms from smaller doses may

be delayed 24-48 hours. This is followed by neurological effects 2-5 days or even longer after ingestion, although it may occur as early as 12 hours after massive exposure. Other effects include hair loss, severe pain in the extremities, lethargy, ataxia, back pain, abnormal reflexes, neuropathy, muscle weakness, mental abnormalities, tremors, abnormal vision, headache, coma, convulsion, and death. There was no information available for exposure to thallium metal specifically rather than thallium compounds, and little conclusive information regarding exposure via inhalation.

Acute Toxicity: No data

Carcinogenicity: **NTP**: Not identified as carcinogenic **IARC**: Not identified as carcinogenic

To the best of our knowledge the chemical, physical and toxicological characteristics of the substance are not fully known.

12 ECOLOGICAL INFORMATION

Ecotoxicity: LC50 - Cyprinodon variegatus (sheepshead minnow) - 21.0 mg/l - 96.0 h

Persistence and Degradability: No data

Bioaccumulative Potential: No data

Mobility in Soil: No data

Other Adverse Effects: Do not allow material to be released to the environment. No further relevant information available.

13 DISPOSAL CONSIDERATIONS

Waste Disposal Method:

Product: Dispose of in accordance with Federal, State and Local regulations.

Packaging: Dispose of in accordance with Federal, State and Local regulations.

14 TRANSPORT INFORMATION

UN Number: UN3288

UN Proper Shipping Name: Toxic solid, inorganic, n.o.s. (Thallium)

Transport Hazard Class: 6.1

Packing Group: II

Marine Pollutant: Yes

15 REGULATORY INFORMATION

TSCA Listed: All components are listed.

Regulation (EC) No 1272/2008 (CLP): Acute toxicity - oral, category 2, Hazardous to the aquatic environment - acute hazard, category 3, Hazardous to the aquatic environment - chronic hazard, category 3.

Canada WHMIS Classification (CPR, SOR/88-66): Acute toxicity.

HMIS Ratings: **Health**: 3 **Flammability**: 0 **Physical**: 0

NFPA Ratings: **Health**: 3 **Flammability**: 0 **Instability**: 0

Chemical Safety Assessment: A chemical safety assessment has not been carried out.

16 OTHER INFORMATION

The information contained in this document is based on the state of our knowledge at the time of publication and is believed to be correct, but does not purport to be all inclusive and shall be used only as a guide. ESPI Metals makes no representation, warranty, or guarantee of any kind with respect to the information contained in this document or any use of the product based on this information. ESPI Metals shall not be held liable for any damages resulting from handling or from contact with the above product. Users should satisfy themselves that they have all current data relevant to their particular use.

Prepared by: ESPI Metals

Revised/Reviewed: July 2015

Safety Data Sheets (SDS)

SECTION 1-IDENTIFICATION

Product name: Toluene

Other names:-

Proper shipping name: Toluene

Recommended use of the chemical and restrictions on use:
The major use of toluene is as a mixture added to gasoline to improve octane ratings. Used as a solvent for paint, resins, lacquers inks & adhesives. Component of solvent blends and thinners. Used in the manufacture of chemicals, dyes, explosives, benzoic acid. Some grades of toluene may contain traces of xylene and benzene.
The use of a quantity of material in an unventilated or confined space may result in increased exposure and an irritating atmosphere developing. Before starting consider control of exposure by mechanical ventilation.
WARNING: Intentional misuse by concentrating/inhaling contents may be lethal.

Manufacturer/Supplier Name: Taiwan SM Corp., Kaohsiung plant
Address: NO.7, Industrial 1st Rd, Lin-Yuan Kaohsiung County 83203, Taiwan, R.O.C.
Phone No.: 886-7-6414511

Emergency phone No./Fax No.: 886-7-6414511 Ext. 221 (on duty), 886-7-6414517 (off duty)/886-7-6423828

SECTION 2-HAZARDS IDENTIFICATION

GHS Classification:

Flammable Liquid Category 2
Acute Toxicity (Oral) Category 4
Skin Corrosion/ Irritation Category 2
Serious Eye Damage/ Eye Irritation Category 2
Specific Target Organ Toxicity Repeated Exposure Category 2
Hazardous To The Aquatic Environment (Acute) Category 3
Aspiration Hazard Category 1

GHS Label elements:

Hazard symbols



Signal word

Danger

Hazard statements

Highly flammable liquid and vapor
Harmful if inhaled
Causes skin irritation
Causes serious eye irritation
May cause damage to organs through prolonged or repeated exposure.
May cause long lasting harmful effects to aquatic life.
May be fatal if swallowed and enters airways.

Precautionary statements

Use only in well ventilated area.
Control of exposure by mechanical ventilation in an unventilated or confined space.
Avoid breathing vapors and contact with skin and eyes.
Wear breathing apparatus/protective gloves/face protection.
Store in well-ventilated place.
Disposal must be in accordance with applicable federal, state, or local regulations.

Other hazards: —

SECTION 3-COMPOSITION/INFORMATION ON INGREDIENTS

CAS No.	Chemical Name	wt% by weight	EINECS No.
00108-88-3	Toluene	97.0 min.	203-625-9
Synonyms	**Methylbenzol; Methylbenzene; Toluol; Phenylmethane**		

SECTION 4-FIRST AID MEASURES

Description of necessary first aid measures

Eye:

1. Flush immediately with warm water for at least 20 minutes.
2. Ensure complete irrigation of the eye by keeping eyelids apart and away from eye and moving the eyelids by occasionally lifting the upper and lower lids.
3. If pain persists or recurs seek medical attention.
4. Removal of contact lenses after an eye injury should only be undertaken by skilled personnel.

Skin:

1. Removing contaminated clothing, shoes, and leathery wearings, cleaning procedure is available before reused or waste treatment.
2. Washing affected area thoroughly with soap and water for at least 20 minutes.
3. Call a Physician if irritation develops or persists.

Ingestion:

1. If spontaneous vomiting appears imminent or occurs, hold patient's head down, lower than their hips to help avoid possible aspiration of vomits.
2. If victim is conscious and alert, give 2～4 cupfuls of milk/water to dilute the substance in stomach.
3. Never give anything by mouth to an unconscious person.
4. Don't induce vomiting unless directed to do so by medical person.
5. If vomiting occurs, lean patient forward or place on left side (head-down position, if possible) to maintain open airway and prevent aspiration.
6. Then seek for medical attention.

Inhalation:

1. Remove from further exposure and flush thoroughly with air.
2. Lay patient down. Keep warm and rested.
3. Prostheses such as false teeth, which may block airway, should be removed, where possible, prior to initiating first aid procedures.
4. If respiratory irritation, seek immediate medical assistance and call a physician.

Most important symptoms/effects, acute and delayed

Headache, fatigue, drowsiness, insomnia, anorexia and pain in limbs, nervousness, impairment of memory.

Indication of immediate medical attention and special treatment needed, if necessary

For acute or short term repeated exposures to toluene:

Inhalation:

1. Inhalation overexposure can produce toxic effects. Monitor for respiratory distress.
2. If cough or difficulty in breathing develops, evaluate for upper respiratory tract inflammation, bronchitis, and pneumonitis. Administer supplemental oxygen with assisted ventilation, as required.
3. This material (or a component) sensitizes the heart to the effects of sympathomimetic amines. Epinephrine and other sympathomimetic drugs may initiate cardiac arrhythmias in individuals exposed to this material.
4. Administration of sympathomimetic drugs should be avoided.

Ingestion:

1. If ingested, this material presents a significant aspiration and chemical pneumonitis hazard.
2. Induction of emesis is not recommended.
3. Consider activated charcoal and/or gastric lavage.
4. If patient is obtunded, protect the airway by cuffed endotracheal intubation or by placement of the body in a Trendelenburg and left lateral decubitus position.

SECTION 5-FIRE FIGHTING MEASURES

Extinguishing media

Foam、CO_2、Dry chemical、Water fog.

Specific hazards arising from the chemical

1. Liquid and vapor are highly flammable.
2. Severe fire hazard when exposed to heat, flame and/or oxidizers.
3. Vapor may travel a considerable distance to source of ignition.
4. Heating may cause expansion or decomposition leading to violent rupture of containers.
5. On combustion, may emit toxic fumes of carbon monoxide (CO).

Special protective equipment and precautions for fire-fighters

1. Firefighters must use full bunker gear including NIOSH-approved positive pressure self-contained breathing apparatus to protect against potential hazardous combustion or decomposition products and oxygen deficiencies.
2. Evacuate area and fight the fire from a maximum distance or use unmanned hose holders or monitor nozzles.
3. Cover pooling liquid with foam.
4. Containers can build pressure if exposed to radiant heat; cool adjacent containers with flooding quantities of water until well after the fire is out.
5. Withdraw immediately from the area if there is a rising sound from a venting safety device or discoloration of vessels, tanks, or pipelines.
6. Be aware that burning liquid will float on water.
7. Notify appropriate authorities of potential fire and explosion hazard if liquid enter sewers or waterways

SECTION 6-ACCIDENTAL RELEASE MEASURES

Personal precautions, protective equipment and emergency procedure

1. Personal protective equipment (specified in Section 8)
   Eyes : Chemical safety goggles are recommended, and a face shield is added when needed.
   Skin : Wear appropriate protective gloves to avoid skin contact.
   Clothing: When direct contact is likely, use rubberized clothings, apron and boots.
   Respiratory : When limits are exceeded, wear a respirator approved by NIOSH/MSHA for protection against organic dust, mists and vapors.
2. Remove all sources of ignition. No smoking, naked lights or ignition sources. Ventilate area of leak or spill.
3. Keep unnecessary and unprotected personnel from entering. Evacuate personnel from the danger area. Consult with an expert about the emergency procedures.

Environmental precautions

1. Prevent spillage from entering drains, surface, and groundwater.
2. Contain and recover liquid when possible. Use non-sparking tools and equipment.
3. Collect liquid in an appropriate container or absorb with an inert material (e.g. vermiculite, dry sand, earth), and place in a chemical waste container.
4. Report the accidental spill/release to Local/State government.

Methods and materials for containment and cleaning up

Minor spill:

1. Remove all ignition sources.
2. Clean up all spills immediately.
3. Avoid breathing vapors and contact with skin and eyes.
4. Control personal contact by using protective equipment.
5. Contain and absorb small quantities with vermiculite or other absorbent material.
6. Wipe up.
7. Collect residues in a flammable waste container.

Major spill

1. Clear area of personnel and move upwind.
2. Alert emergency responders and tell them location and nature of hazard.
3. May be violently or explosively reactive.
4. Wear breathing apparatus plus protective gloves.
5. Prevent spillage from entering drains or water course.
6. No smoking, naked lights or ignition sources. Increase ventilation.
7. Stop leak if safe to do so.
8. Water spray or fog may be used to disperse/absorb vapor.
9. Contain spill with sand, earth or vermiculite.
10. Use only spark-free shovels and explosion proof equipment.
11. Collect recoverable product into labeled containers for recycling..
12. Absorb remaining product with sand, earth or vermiculite.
13. Collect solid residues and seal in labeled drums for disposal.
14. Wash area and prevent runoff into drains.
15. If contamination of drains or waterways occurs, advise emergency services.

SECTION 7-HANDLING AND STORAGE

Precautions for safe handling

1. Wash thoroughly after handling.
2. Use only in well ventilated area.
3. Ground and bond containers when transferring.
4. Use spark-free tools and explosion proof equipment.
5. Empty containers retain product residue (liquid/vapor), and can be dangerous.
6. Do not pressurize, cut, weld, braze, solder, drill, or expose empty containers to heat, sparks or open flames.

Conditions for safe storage, including any incompatibilities

1. Store in original containers in approved flame-proof area.
2. No smoking, naked lights, heat or ignition sources.
3. DO NOT store in pits, depressions, basements or areas where vapors may be trapped.
4. Keep containers securely sealed.
5. Store away from incompatible materials in a cool, dry well ventilated area.
6. Protect containers against physical damage and check regularly for leaks.
7. Keep containers tightly closed and store in a cool, dry, well-ventilated place, plainly labeled, and out of closed vehicles.
8. Ground all equipment containing this material.
9. Observe manufacturer's storing and handling recommendations.
10. Containers should be able to withstand pressures expected from warming and cooling in storage. This flammable liquid should be stored in a separate safety cabinet or room. A refrigerated room is preferable for materials with a flash point temperature lower than 70°F (21°C).

SECTION 8-EXPOSURE CONTROLS, PERSONAL PROTECTION

OSHA - Final PELs : 200 ppm TWA.
OSHA Ceiling : 300ppm.
ACGIH : 50 ppm, skin -potential forcutaneous absorption.
NIOSH : 100 ppm TWA; 375 mg/m^3 TWA; 500 ppm IDLH.
Taiwan TWA : 100 ppm (skin).
Taiwan STEL : 125 ppm (skin).
Taiwan Ceiling : -------.
Taiwan BEI : 1 mg/l (before on duty).

Engineering control

1. Process should be located at least 17 meter (50 feet) away from open flames and all high temperature operations likely to cause ignition of the styrene monomer vapor.
2. In venting styrene monomer vapors, consideration should be given to possible halogenation of the vapors by low concentrations of free chlorine and bromine with the resultant formation of lacrimations.
3. Process should be designed so that the operator is not exposed to direct contact with Toluene or the vapor. The technical problems of designing equipment, providing adequate ventilation and operating procedures which promise maximum security and economy, can best be handled by competent engineers.
4. It is essential for safety that equipment be used and maintained as recommended by the manufacturer.
5. Tanks used to store or process Toluene should be closed vessels vented to a safe point of discharge in the outside atmosphere away from operating stations, roadways, and at least 17 meter (50 feet) from possible sources of ignitions. All sparks, flames, heated surface, or other sources of ignition should be kept away from all vents. It is advisable, to provide suction on vessels when inspection or observation openings are made, to minimize or eliminate escape of vapors.

Personal protective equipment

Eye Protection:
Safety glasses equipped with side shields are recommended as minimum protection in industrial settings. Chemical goggles should be worn during transfer operations or when there is a likelihood of misting, splashing, or spraying of this material. A suitable emergency eye wash water and safety shower should be located near the work station.

Skin protection:
Wear impervious protective clothing, including boots, gloves, lab coat, apron or coveralls, as appropriate, to prevent skin contact.

Clothing:
Avoid skin contact. Wear long-sleeved fire-retardant garments (e.g., Nomex®) while working with flammable and combustible liquids. Additional chemical-resistant protective gear may be required if splashing or spraying conditions exist. This may include an apron, boots and additional facial protection. If product comes in contact with clothing, immediately remove soaked clothing and shower. Promptly remove and discard contaminated leather goods.

Respirators:
For known vapor concentrations above the occupational exposure guidelines (see below), use a NIOSH-approved organic vapor respirator if adequate protection is provided. Protection factors vary depending upon the type of respirator used. Respirators should be used in accordance with OSHA requirements (29 CFR 1910.134). For airborne vapor concentrations that exceed the recommended protection factors for organic vapor respirators, use a full-face, positive-pressure, supplied air respirator. Due to fire and explosion hazards, do not enter atmospheres containing concentrations greater than 10% of the lower flammable limit of this product.

SECTION 9-PHYSICAL AND CHEMICAL PROPERTIES

Appearance : Transparent liquid	Upper/lower explosive limits : 1.2%～7.1%
Odour : pleasant aromatic petroleum odour	Vapor Pressure : 22 mmHg @20℃/68℉
Odour threshold : 0.16～37 ppm (detect) 1.9～69 ppm (recognition)	Vapor Density : 3.1 (air=1)
PH : Not available	Relative density : 0.86 (water=1)
Melting/Freezing Point : －95 ℃	Solubility in water : 54～58 mg/100 ml
Initial boiling point/boiling range : 110.6 ℃	Partition coefficient : 2.73 (n-octanol/water)
Flash point : 4.4 ℃ (closed cup)	Auto-ignition temperature : 480℃
Evaporation Rate : 2.24 (BuAc=1)	Decomposition temperature : Not available
Flammability (solid/gas) : Not available	Viscosity : 0.6 mPa.s max @20℃
Molecular Formula : $C_6H_5CH_3$	Molecular Weight : 92.056

SECTION 10-STABILITY AND REACTIVITY

Reactivity
Vapor is explosive when exposed to heat or flame

Chemical stability
Stable at room temperature in closed containers under normal storage and handling conditions.

Possibility of hazardous reaction
Has not been reported.

Condition to avoid
Product is highly flammable – Keep away from sources of ignition. Avoid the higher temperatures. Keep away from open fire, heating elements and heat radiating surface and prevent from forming of the vapours mixtures with air in explosion limits.

Incompatible materials
Heat, flame, strong oxidizers, nitric and sulfuric acids, chlorine, nitrogen tetraoxide; will attack some forms of plastics, rubber, coatings.

Hazardous decomposition products
Carbon monoxide, carbon dioxide, hydrocarbons.

SECTION 11-TOXICOLOGICAL INFORMATION

Routes of exposure
Eye, Skin, inhalation, Ingestion.

Symptoms (treatments as indicated in Section 4)
Eye: The liquid produces a high level of eye discomfort and is capable of causing pain and severe conjunctivitis. Corneal injury may develop, with possible permanent impairment of vision, if not promptly and adequately treated. There is evidence that material may produce eye irritation in some persons and produce eye damage 24 hours or more after instillation. Severe inflammation may be expected with pain. There may be damage to the cornea. Unless treatment is prompt and adequate there may be permanent loss of vision. Conjunctivitis can occur following repeated exposure.

Skin: Contact with the material may damage the health of the individual; systemic effects may result following absorption. The material may cause moderate inflammation of the skin either following direct contact or after a delay of some time. Repeated exposure can cause contact dermatitis which is characterized by redness, swelling and blistering. Entry into the blood-stream, through, for example, cuts, abrasions or lesions, may produce systemic injury with harmful effects. Examine the skin prior to the use of the material and ensure that any external damage is suitably protected.

Ingestion: Accidental ingestion of the material may be harmful; animal experiments indicate that ingestion of less than 150 gram may be fatal or may produce serious damage to the health of the individual. Swallowing of the liquid may cause aspiration into the lungs with the risk of chemical pneumonitis; serious consequences may result. (ICSC13733). Considered an unlikely route of entry in commercial/industrial environments. The liquid may produce gastrointestinal discomfort and may be harmful if swallowed. Ingestion may result in nausea, pain and vomiting. Vomit entering the lungs by aspiration may cause potentially lethal chemical pneumonitis.

Inhalation: Inhalation of vapours or aerosols (mists, fumes), generated by the material during the course of normal handling, may be damaging to the health of the individual. There is some evidence to suggest that the material can cause respiratory irritation in some persons. The body's response to such irritation can cause further lung damage. Inhalation of vapours may cause drowsiness and dizziness. This may be accompanied by sleepiness, reduced alertness, loss of reflexes, lack of co-ordination, and vertigo. Inhalation of high concentrations of gas/vapour causes lung irritation with coughing and nausea, central nervous depression with headache and dizziness, slowing of reflexes, fatigue and inco-ordination. If exposure to highly concentrated solvent atmosphere is prolonged this may lead to narcosis, unconsciousness, even coma and possible death. The use of a quantity of material in an unventilated or confined space may result in increased exposure and an irritating atmosphere developing. Before starting consider control of exposure by mechanical ventilation.

Chronic exposure: There has been some concern that this material can cause cancer or mutations but there is not enough data to make an assessment. Substance accumulation, in the human body, may occur and may cause some concern following repeated or long-term occupational exposure.

Toxicity
LD50: <870 mg/kg (rat, oral)
LC50: 6000 ppm/6h (rat, inhalation)

Chronic effect
Carcinogenicity:
ACGIH : A4-Not classifiable as a Human Carcinogen.
OSHA : Possible select carcinogen.
IARC : Group 3 carcinogen.

Epide miology: Not available.

Teratogenicity: Teratogenic effects have occurred in experimental animals.

Reproductive Effects: Adverse reproductive effects have occurred in experimental animals.

Neurotoxicity: Not available.

Mutagenicity: Not available.

SECTION 12-ECOLOGICAL INFORMATION

Ecotoxicity
LC_{50} (96 hr.) Fish: 7.3～22.8 mg/l
EC_{50} (48 hr.) Water flea: —
Biocencentration factor (BCF): 1.67～380

Persistence and degradability
1. The material are expected to form a slick on the surface of waters after release in calm sea conditions. This is expected to evaporate and enter the atmosphere where it will be degraded through reaction with hydroxyl radicals.
2. Some of the material will become associated with benthic sediments, and it is likely to be spread over a fairly wide area of sea floor. Marine sediments may be either aerobic or anaerobic. The material, in probability, is biodegradable, under aerobic conditions. Evidence also suggests that the hydrocarbons may be degradable under anaerobic conditions although such degradation in benthic sediments may be a relatively slow process.
3. Under aerobic conditions the material will degrade to water and carbon dioxide, while under aerobic processes it will produce water, methane, carbon dioxide and carbon dioxide.
4. Based on test results, as well as theoretical considerations, the potential for bioaccumulation may be high. Toxic effects are often observed in species such as blue mussel, daphnia, freshwater green algae, marine copepods and amphipods.

Half-life (Air): 10～104 hr
Half-life (Surface water): 96～528 hr
Half-life (Ground water): 168～672 hr
Half-life (Soil): 96～528 hr

Bioaccumulative potential
This material is not expected to significantly bioaccumulate.

Mobility in soil: —

Other adverse effects: —

SECTION 13-DISPOSAL CONSIDERATIONS

Residues and spilled material are hazardous waste due to ignitability. Disposal must be in accordance with applicable federal, state, or local regulations.
The container for this product can present explosion or fire hazards, even when emptied. To avoid risk of injury, do not cut, puncture, or weld on or near this container. Since the emptied containers retain product residue, follow label warnings even after container is emptied.

SECTION 14-TRANSPORTATION INFORMATION

US DOT	Shipping Name	Toluene	Hazard Labels	
	Hazard Class	3		
	UN Number	1294		
	Packing Group	II		
Sea(IMO/IMDG)	Shipping Name	Toluene	Hazard Labels	
	Hazard Class	3.2		
	UN Number	1294		
	Packing Group	II		
	IMDG Code Page	3285		
	MARPOL	Not a DOT "Marine Pollutant" per 49 CFR 171.8.		
Air(ICAO/IATA)	Shipping Name	Toluene	Hazard Labels	
	Hazard Class	3.2		
	Subsidiary Class	1294		
	Packing Group	II		
RID/ ADR	No information available.			
Canadian TDG	Shipping Name	Toluene	Hazard Labels	
	Hazard Class	3		
	UN Number	1294		
	Packing Group	II		
	Subsidiary Class	9.2		

SECTION 15-REGULATORY INFORMATION

US FEDERAL

TSCA

CAS# 108-88-3 is listed on the TSCA inventory.

Health & Safety Reporting List

CAS# 108-88-3: Effective Date: 10/4/82; Sunset Date: 10/4/92

Chemical Test Rules

None of the chemicals in this product are under a Chemical Test Rule.

Section 12b

None of the chemicals are listed under TSCA Section 12b.

TSCA Significant New Use Rule

None of the chemicals in this material have a SNUR under TSCA.

SARA

Section 302 (RQ)

CAS# 108-88-3 : final RQ = 1000 pounds (454 kg)

Section 302 (TPQ)

None of the chemicals in this material have a TPQ.

SARA Codes

CAS# 108-88-3 : acute, flammable.

Section 313

This material contains Toluene (CAS# 108-88-3, 99% & 100%), which is subject to the reporting requirements of Section 313 of SARA Title III and 40 CFR Part 372.

Clean Air Act

CAS# 108-88-3 is listed as a hazardous air pollutant (HAP).

This material does not contain any Class 1 Ozone depletors.

This material does not contain any Class 2 Ozone depletors.

Clean Water Act

CAS# 108-88-3 is listed as a Hazardous Substance under the CWA.
CAS# 108-88-3 is listed as a Priority Pollutant under the Clean Water Act.
CAS# 108-88-3 is listed as a Toxic Pollutant under the Clean Water Act.

OSHA

None of the chemicals in this product are considered highly hazardous by OSHA.

STATE

Toluene can be found on the following state right to know lists: California, New Jersey, Florida, Pennsylvania, Minnesota, Massachusetts.

WARNING: This product contains Toluene, a chemical known to the state of California to cause birth defects or other reproductive harm.

California No Significant Risk Level: None of the chemicals in this product are listed.

European/International Regulations

European Labeling in Accordance with EC Directives

Hazard Symbols: XN F
Risk Phrases : R 10 Flammable.
R 20 Harmful by inhalation.
Safety Phrases : S 9 Keep container in a well-ventilated place.
S 16 Keep away from sources of ignition - No smoking.
S 25 Avoid contact with eyes.
S 29 Do not empty into drains.
S 33 Take precautionary measures against static discharges.

WGK (Water Danger/Protection)

CAS# 108-88-3: 2

United Kingdom Occupational Exposure Limits

CAS# 108-88-3: OES-United Kingdom, TWA 50 ppm TWA; 191 mg/m3 TWA.
CAS# 108-88-3: OES-United Kingdom, STEL 150 ppm STEL; 574 mg/m3 STEL.

CANADA

CAS#100-42-5 is listed on Canada's DSL/NDSL list.
This product has a WHMIS classification of B2, D2A (99%)/B3, D2A (100%).
CAS# 105-05-5 is not listed on Canada's Ingredient Disclosure List.

Exposure Limits

- CAS# 108-88-3: OEL-AUSTRALIA:TWA 100 ppm (375 mg/m3);STEL 150 ppm (560 mg/m3)
- OEL-BELGIUM:TWA 100 ppm (377 mg/m3);STEL 150 ppm (565 mg/m3)
- OEL-CZECHOSLOVAKIA:TWA 200 mg/m3;STEL 1000 mg/m3
- OEL-DENMARK:TWA 50 ppm (190 mg/m3);Skin
- OEL-FINLAND:TWA 100 ppm (375 mg/m3);STEL 150 ppm; Skin
- OEL-FRANCE:TWA 100 ppm (375 mg/m3);STEL 150 ppm (560 mg/m3)
- OEL-GERMANY:TWA 100 ppm (380 mg/m3)
- OEL-HUNGARY:TWA 100 mg/m3;STEL 300 mg/m3;Skin
- OEL-JAPAN:TWA 100 ppm (380 mg/m3)
- OEL-THE NETHERLANDS:TWA 100 ppm (375 mg/m3);Skin
- OEL-THE PHILIPPINES:TWA 100 ppm (375 mg/m3)
- OEL-POLAND:TWA 100 mg/m3
- OEL-RUSSIA:TWA 100 ppm; STEL 50 mg/m3
- OEL-SWEDEN:TWA 50 ppm (200 mg/m3);STEL 100 ppm (400 mg/m3);Skin
- OEL-SWITZERLAND:TWA 100 ppm (380 mg/m3);STEL 500 ppm
- OEL-THAILAND:TWA 200 ppm; STEL 300 ppm
- OEL-TURKEY:TWA 200 ppm (750 mg/m3)
- OEL-UNITED KINGDOM:TWA 100 ppm (375 mg/m3);STEL 150 ppm; Skin OEL IN BULGARIA, COLOMBIA, JORDAN, KOREA check ACGIH TLV OEL IN NEW ZEALAND, SINGAPORE, VIETNAM check ACGI TLV

SECTION 16-OTHER INFORMATION

References and sources

1. CHEMINFO Data Bank, CCINFO CD, 2005-3
2. HAZARD TEXT Data Bank, TOMES PLUS CD, Vol.65, 2005
3. RETECS Data Bank, TOMES CPS CD, Vol.65, 2005
4. HSDB Data Bank, TOMES CPS CD, Vol.65, 2005
5. Hazardous Substance Data Bank, Environment Protection, Administration, Executive Yuan, ROC (Taiwan)
6. Chemwatch Data Bank, 2005-1
7. SDS, GHS in Taiwan, Council of Labor Affairs, Executive Yuan, ROC (Taiwan)

Version	Date	Remark
Version 1	06/01/1998	Original Version.
Version 2	04/20/2001	Updated 10 sections to 16 sections.
Version 3	08/01/2003	Updated “SECTION 9-PHYSICAL AND CHEMICAL PROPERTIES”.
Version 4	01/01/2006	Updated “SECTION 14-TRANSPORTATION INFORMATION”.
Version 5	08/05/2008	Updated each section by GHS SDS.
Prepared by	Safety & Environment Protection Section, Taiwan SM Corporation Kaohsiung Plant.	

SAFETY DATA SHEET

Version 6.8
Revision Date 09/07/2024
Print Date 09/08/2024

SECTION 1: Identification of the substance/mixture and of the company/undertaking

1.1 Product identifiers

Product name : PCB No 28

Product Number : 35601
Brand : Sigma-Aldrich
Index-No. : 602-039-00-4
CAS-No. : 7012-37-5

1.2 Relevant identified uses of the substance or mixture and uses advised against

Identified uses : Laboratory chemicals, Synthesis of substances

Uses advised against : The product is being supplied under the TSCA R&D Exemption (40 CFR Section 720.36). It is the recipient's responsibility to comply with the requirements of the R&D exemption. The product may not be used for a non-exempt commercial purpose under TSCA unless appropriate consent is granted in writing by MilliporeSigma.

1.3 Details of the supplier of the safety data sheet

Company : Sigma-Aldrich Inc.
3050 SPRUCE ST
ST. LOUIS MO 63103
UNITED STATES

Telephone : +1 314 771-5765
Fax : +1 800 325-5052

1.4 Emergency telephone

Emergency Phone # : 800-424-9300 CHEMTREC (USA) +1-703-527-3887 CHEMTREC (International) 24 Hours/day; 7 Days/week

SECTION 2: Hazards identification

2.1 Classification of the substance or mixture

GHS Classification in accordance with 29 CFR 1910 (OSHA HCS)

Specific target organ toxicity - repeated exposure (Category 2), H373
Short-term (acute) aquatic hazard (Category 1), H400
Long-term (chronic) aquatic hazard (Category 1), H410

The life science business of Merck KGaA, Darmstadt, Germany
operates as MilliporeSigma in the US and Canada

For the full text of the H-Statements mentioned in this Section, see Section 16.

2.2 GHS Label elements, including precautionary statements

Pictogram



Signal Word Warning

Hazard Statements

H373	May cause damage to organs through prolonged or repeated exposure.
H410	Very toxic to aquatic life with long lasting effects.

Precautionary Statements

P260	Do not breathe dust.
P273	Avoid release to the environment.
P314	Get medical advice/ attention if you feel unwell.
P391	Collect spillage.
P501	Dispose of contents/ container to an approved waste disposal plant.

2.3 Hazards not otherwise classified (HNOC) or not covered by GHS - none

SECTION 3: Composition/information on ingredients

3.1 Substances

Synonyms : 2,4,4'-Trichlorobiphenyl
2,4,4'-PCB

Formula : $C_{12}H_7Cl_3$
Molecular weight : 257.54 g/mol
CAS-No. : 7012-37-5
EC-No. : 230-293-2
Index-No. : 602-039-00-4

Component	Classification	Concentration
2,4,4'-Trichlorobiphenyl		
	STOT RE 2; Aquatic Acute 1; Aquatic Chronic 1; H373, H400, H410 Concentration limits: >= 0.005 %: STOT RE 2, H373; >= 0.005 %: STOT RE 2, H373; M-Factor - Aquatic Acute: 10 - Aquatic Chronic: 10	<= 100 %

For the full text of the H-Statements mentioned in this Section, see Section 16.

The life science business of Merck KGaA, Darmstadt, Germany
operates as MilliporeSigma in the US and Canada

SECTION 4: First aid measures

4.1 Description of first-aid measures

General advice
Show this material safety data sheet to the doctor in attendance.

If inhaled
After inhalation: fresh air. Call in physician.

In case of skin contact
In case of skin contact: Take off immediately all contaminated clothing. Rinse skin with water/ shower. Consult a physician.

In case of eye contact
After eye contact: rinse out with plenty of water. Call in ophthalmologist. Remove contact lenses.

If swallowed
After swallowing: immediately make victim drink water (two glasses at most). Consult a physician.

4.2 Most important symptoms and effects, both acute and delayed
The most important known symptoms and effects are described in the labelling (see section 2.2) and/or in section 11

4.3 Indication of any immediate medical attention and special treatment needed
No data available

SECTION 5: Firefighting measures

5.1 Extinguishing media

Suitable extinguishing media
Water Foam Carbon dioxide (CO2) Dry powder

Unsuitable extinguishing media
For this substance/mixture no limitations of extinguishing agents are given.

5.2 Special hazards arising from the substance or mixture
Carbon oxides
Hydrogen chloride gas
Combustible.
Development of hazardous combustion gases or vapours possible in the event of fire.

5.3 Advice for firefighters
Stay in danger area only with self-contained breathing apparatus. Prevent skin contact by keeping a safe distance or by wearing suitable protective clothing.

5.4 Further information
Suppress (knock down) gases/vapors/mists with a water spray jet. Prevent fire extinguishing water from contaminating surface water or the ground water system.

The life science business of Merck KGaA, Darmstadt, Germany
operates as MilliporeSigma in the US and Canada

SECTION 6: Accidental release measures

6.1 Personal precautions, protective equipment and emergency procedures

Advice for non-emergency personnel: Avoid inhalation of dusts. Avoid substance contact. Ensure adequate ventilation. Evacuate the danger area, observe emergency procedures, consult an expert.
For personal protection see section 8.

6.2 Environmental precautions

Do not let product enter drains.

6.3 Methods and materials for containment and cleaning up

Cover drains. Collect, bind, and pump off spills. Observe possible material restrictions (see sections 7 and 10). Take up dry. Dispose of properly. Clean up affected area. Avoid generation of dusts.

6.4 Reference to other sections

For disposal see section 13.

SECTION 7: Handling and storage

7.1 Precautions for safe handling

Advice on safe handling
Work under hood. Do not inhale substance/mixture.

Hygiene measures
Change contaminated clothing. Preventive skin protection recommended. Wash hands after working with substance.
For precautions see section 2.2.

7.2 Conditions for safe storage, including any incompatibilities

Storage conditions
Tightly closed. Dry.

Storage class
Storage class (TRGS 510): 11: Combustible Solids

7.3 Specific end use(s)

Apart from the uses mentioned in section 1.2 no other specific uses are stipulated

SECTION 8: Exposure controls/personal protection

8.1 Control parameters

Ingredients with workplace control parameters

The life science business of Merck KGaA, Darmstadt, Germany
operates as MilliporeSigma in the US and Canada

Component	CAS-No.	Value	Control parameters	Basis
2,4,4'-Trichlorobiphenyl	7012-37-5	TWA	0.001 mg/m3	USA. NIOSH Recommended Exposure Limits
	Remarks	Potential Occupational Carcinogen		

8.2 Exposure controls

Appropriate engineering controls
Change contaminated clothing. Preventive skin protection recommended. Wash hands after working with substance.

Personal protective equipment

Eye/face protection
Use equipment for eye protection tested and approved under appropriate government standards such as NIOSH (US) or EN 166(EU). Safety glasses

Skin protection
Handle with impervious gloves.

This recommendation applies only to the product stated in the safety data sheet, supplied by us and for the designated use. When dissolving in or mixing with other substances and under conditions deviating from those stated in EN 16523-1 please contact the supplier of CE-approved gloves (e.g. KCL GmbH, D-36124 Eichenzell, Internet: www.kcl.de).

Full contact
Material: Nitrile rubber
Minimum layer thickness: 0.11 mm
Break through time: 480 min
Material tested:KCL 741 Dermatril® L

Splash contact
Material: Nitrile rubber
Minimum layer thickness: 0.11 mm
Break through time: 480 min
Material tested:KCL 741 Dermatril® L

Body Protection
protective clothing

Respiratory protection
Recommended Filter type: Filter type P2
The entrepeneur has to ensure that maintenance, cleaning and testing of respiratory protective devices are carried out according to the instructions of the producer.
These measures have to be properly documented.
required when dusts are generated.
Our recommendations on filtering respiratory protection are based on the following standards: DIN EN 143, DIN 14387 and other accompanying standards relating to the used respiratory protection system.

Control of environmental exposure
Do not let product enter drains.

The life science business of Merck KGaA, Darmstadt, Germany
operates as MilliporeSigma in the US and Canada

SECTION 9: Physical and chemical properties

9.1 Information on basic physical and chemical properties

a)	Appearance	Form: solid
b)	Odor	No data available
c)	Odor Threshold	No data available
d)	pH	No data available
e)	Melting point/freezing point	Melting point/ range: 56 °C (133 °F)
f)	Initial boiling point and boiling range	No data available
g)	Flash point	> 100.00 °C (> 212.00 °F)
h)	Evaporation rate	No data available
i)	Flammability (solid, gas)	No data available
j)	Upper/lower flammability or explosive limits	No data available
k)	Vapor pressure	No data available
l)	Vapor density	No data available
m)	Density	No data available
	Relative density	No data available
n)	Water solubility	insoluble
o)	Partition coefficient: n-octanol/water	No data available
p)	Autoignition temperature	No data available
q)	Decomposition temperature	No data available
r)	Viscosity	No data available
s)	Explosive properties	No data available
t)	Oxidizing properties	none

9.2 Other safety information

No data available

The life science business of Merck KGaA, Darmstadt, Germany
operates as MilliporeSigma in the US and Canada

SECTION 10: Stability and reactivity

10.1 Reactivity
The following applies in general to flammable organic substances and mixtures: in correspondingly fine distribution, when whirled up a dust explosion potential may generally be assumed.

10.2 Chemical stability
The product is chemically stable under standard ambient conditions (room temperature) .

10.3 Possibility of hazardous reactions
Violent reactions possible with:
strong oxidising agents

10.4 Conditions to avoid
no information available

10.5 Incompatible materials
No data available

10.6 Hazardous decomposition products
In the event of fire: see section 5

SECTION 11: Toxicological information

11.1 Information on toxicological effects

Acute toxicity
Oral: No data available
Inhalation: No data available
Dermal: No data available

Skin corrosion/irritation
No data available

Serious eye damage/eye irritation
No data available

Respiratory or skin sensitization
No data available

Germ cell mutagenicity
No data available

Carcinogenicity

IARC: 1 - Group 1: Carcinogenic to humans (2,4,4'-Trichlorobiphenyl)

NTP: No ingredient of this product present at levels greater than or equal to 0.1% is identified as a known or anticipated carcinogen by NTP.

OSHA: No component of this product present at levels greater than or equal to 0.1% is on OSHA's list of regulated carcinogens.

Reproductive toxicity
No data available

The life science business of Merck KGaA, Darmstadt, Germany
operates as MilliporeSigma in the US and Canada

Specific target organ toxicity - single exposure
No data available

Specific target organ toxicity - repeated exposure
May cause damage to organs through prolonged or repeated exposure.

Aspiration hazard
No data available

11.2 Additional Information

RTECS: DV8840000
To the best of our knowledge, the chemical, physical, and toxicological properties have not been thoroughly investigated.

SECTION 12: Ecological information

12.1 Toxicity

Toxicity to fish	LC50 - Pimephales promelas (fathead minnow) - > 0.16 mg/l - 96.0 h
Toxicity to daphnia and other aquatic invertebrates	EC50 - Daphnia magna (Water flea) - > 0.16 mg/l - 48 h

12.2 Persistence and degradability
No data available

12.3 Bioaccumulative potential
No data available

12.4 Mobility in soil
No data available

12.5 Results of PBT and vPvB assessment
PBT/vPvB assessment not available as chemical safety assessment not required/not conducted

12.6 Endocrine disrupting properties
No data available

12.7 Other adverse effects
No data available

The life science business of Merck KGaA, Darmstadt, Germany
operates as MilliporeSigma in the US and Canada

SECTION 13: Disposal considerations

13.1 Waste treatment methods

Product
Waste material must be disposed of in accordance with the national and local regulations. Leave chemicals in original containers. No mixing with other waste. Handle uncleaned containers like the product itself.

SECTION 14: Transport information

DOT (US)
UN number: 3432 Class: 9 Packing group: II
Proper shipping name: Polychlorinated biphenyls, solid
Reportable Quantity (RQ):
Marine pollutant: yes Poison Inhalation Hazard: No

IMDG
UN number: 3432 Class: 9 Packing group: II EMS-No: F-A, S-A
Proper shipping name: POLYCHLORINATED BIPHENYLS, SOLID
Marine pollutant : yes
Marine pollutant : yes

IATA
UN number: 3432 Class: 9 Packing group: II
Proper shipping name: Polychlorinated biphenyls, solid

SECTION 15: Regulatory information

CERCLA Reportable Quantity
This material does not contain any components with a CERCLA RQ.

SARA 304 Extremely Hazardous Substances Reportable Quantity
This material does not contain any components with a section 304 EHS RQ.

SARA 302 Extremely Hazardous Substances Threshold Planning Quantity
This material does not contain any components with a section 302 EHS TPQ.

SARA 311/312 Hazards : No SARA Hazards

SARA 313 : This material does not contain any chemical components with known CAS numbers that exceed the threshold (De Minimis) reporting levels established by SARA Title III, Section 313.

US State Regulations

Massachusetts Right To Know
No components are subject to the Massachusetts Right to Know Act.

The life science business of Merck KGaA, Darmstadt, Germany
operates as MilliporeSigma in the US and Canada

Pennsylvania Right To Know

2,4,4'-Trichlorobiphenyl 7012-37-5

Maine Chemicals of High Concern

Product does not contain any listed chemicals

Vermont Chemicals of High Concern

Product does not contain any listed chemicals

Washington Chemicals of High Concern

Product does not contain any listed chemicals

California Prop. 65

WARNING: This product can expose you to chemicals including 2,4,4'-Trichlorobiphenyl, which is/are known to the State of California to cause cancer and birth defects or other reproductive harm. For more information go to www.P65Warnings.ca.gov.

The ingredients of this product are reported in the following inventories:

TSCA : Product contains substance(s) not listed on TSCA inventory.

TSCA list

No substances are subject to a Significant New Use Rule.

The following substance(s) is/are subject to TSCA 12(b) export notification requirements:
2,4,4'-Trichlorobiphenyl 7012-37-5

SECTION 16: Other information

Further information

The information is believed to be correct but is not exhaustive and will be used solely as a guideline, which is based on current knowledge of the chemical substance or mixture and is applicable to appropriate safety precautions for the product. It does not represent any guarantee of the properties of the product. Sigma-Aldrich Corporation and its Affiliates shall not be held liable for any damage resulting from handling or from contact with the above product. See www.sigma-aldrich.com and/or the reverse side of invoice or packing slip for additional terms and conditions of sale.

Copyright 2020 Sigma-Aldrich Co. LLC. License granted to make unlimited paper copies for internal use only.

The branding on the header and/or footer of this document may temporarily not visually match the product purchased as we transition our branding. However, all of the information in the document regarding the product remains unchanged and matches the product ordered. For further information please contact mlsbranding@sial.com.

Version: 6.8 Revision Date: 09/07/2024 Print Date: 09/08/2024

The life science business of Merck KGaA, Darmstadt, Germany
operates as MilliporeSigma in the US and Canada

SAFETY DATA SHEET

Issuing Date 03-Nov-2015 **Revision Date** 21-Jul-2015 **Revision Number** 1

1. IDENTIFICATION OF THE SUBSTANCE/PREPARATION AND OF THE COMPANY/UNDERTAKING

Product identifier

Product Number **601**
Product Name **Total Petroleum Hydrocarbons (TPH) in Water #2**
Synonyms None

Recommended use of the chemical and restrictions on use

Recommended Use Laboratory use only
Uses advised against No information available

Details of the supplier of the safety data sheet

Supplier ERA a Waters Company
Supplier Address 16341 Table Mountain Parkway, Golden, CO 80403 USA
Non-Emergency Telephone Number +1-303-431-8454
Supplier Email sdsinfo@waters.com

Emergency telephone number

Company Emergency Phone Number In case of EMERGENCY call CHEMTREC Day or Night
Within USA and Canada: 800-424-9300
International Call Collect: +1-703-527-3887

2. HAZARDS IDENTIFICATION

Classification

This chemical is considered hazardous by the 2012 OSHA Hazard Communication Standard (29 CFR 1910.1200).

Skin corrosion/irritation	Category 1
Serious eye damage/eye irritation	Category 1

GHS Label elements, including precautionary statements

Emergency Overview

Signal word **Danger**

Hazard Statements
Causes severe skin burns and eye damage



Appearance Clear, colorless **Physical state** Liquid->Liquid **Odor** Odorless

Precautionary Statements - Prevention
Do not breathe dust/fume/gas/mist/vapors/spray
Wash face, hands and any exposed skin thoroughly after handling
Wear protective gloves/protective clothing/eye protection/face protection
Precautionary Statements - Response
Immediately call a POISON CENTER or doctor/physician
Specific treatment (see supplemental first aid instructions on this label)

Eyes
IF IN EYES: Rinse cautiously with water for several minutes. Remove contact lenses, if present and easy to do. Continue rinsing
Immediately call a POISON CENTER or doctor/physician
Skin
IF ON SKIN (or hair): Remove/Take off immediately all contaminated clothing. Rinse skin with water/shower
Wash contaminated clothing before reuse
Inhalation
IF INHALED: Remove victim to fresh air and keep at rest in a position comfortable for breathing
Immediately call a POISON CENTER or doctor/physician
Ingestion
IF SWALLOWED: Rinse mouth. DO NOT induce vomiting

Precautionary Statements - Storage
Store locked up
Precautionary Statements - Disposal
Dispose of contents/container to an approved waste disposal plant

Hazards not otherwise classified (HNOC)

Not applicable
Unknown Toxicity
0 % of the mixture consists of ingredient(s) of unknown toxicity
Other information

No information available
Interactions with Other Chemicals
No information available.

3. COMPOSITION/INFORMATION ON INGREDIENTS

Note: only the components contributing to the product's GHS hazard classification are listed in this section.

Chemical Name	CAS-No	Percent
Hydrochloric Acid	7647-01-0	0.09

4. FIRST AID MEASURES

First aid measures

General Advice	Immediate medical attention is required. Show this safety data sheet to the doctor in attendance.
Eye contact	Rinse immediately with plenty of water, also under the eyelids, for at least 15 minutes. Keep eye wide open while rinsing. Do not rub affected area. Remove contact lenses, if present and easy to do. Continue rinsing. Seek immediate medical attention/advice.
Skin contact	Wash off immediately with soap and plenty of water while removing all contaminated clothes and shoes. Seek immediate medical attention/advice.
Inhalation	Remove to fresh air. If breathing has stopped, give artificial respiration. Get medical attention immediately. Do not use mouth-to-mouth method if victim ingested or inhaled the substance; give artificial respiration with the aid of a pocket mask equipped with a one-way valve or other proper respiratory medical device. If breathing is difficult, (trained personnel should) give oxygen. Delayed pulmonary edema may occur. Get medical attention immediately if symptoms occur.
Ingestion	Do NOT induce vomiting. Rinse mouth immediately and drink plenty of water. Never give anything by mouth to an unconscious person. Call a physician or poison control center immediately.
Self-protection of the first aider	Ensure that medical personnel are aware of the material(s) involved, take precautions to protect themselves and prevent spread of contamination. Avoid contact with skin, eyes or clothing. Avoid direct contact with skin. Use barrier to give mouth-to-mouth resuscitation. Use personal protective equipment as required. Wear personal protective clothing (see section 8).

Most important symptoms and effects, both acute and delayed

Most Important Symptoms and Effects Burning sensation.

Indication of any immediate medical attention and special treatment needed

Notes to Physician Product is a corrosive material. Use of gastric lavage or emesis is contraindicated. Possible perforation of stomach or esophagus should be investigated. Do not give chemical antidotes. Asphyxia from glottal edema may occur. Marked decrease in blood pressure may occur with moist rales, frothy sputum, and high pulse pressure.

5. FIRE-FIGHTING MEASURES

Suitable Extinguishing Media

Use extinguishing measures that are appropriate to local circumstances and the surrounding environment.

Unsuitable Extinguishing Media

CAUTION: Use of water spray when fighting fire may be inefficient.

Specific hazards arising from the chemical

The product causes burns of eyes, skin and mucous membranes. Thermal decomposition can lead to release of irritating gases and vapors.

Uniform Fire Code Corrosive: Other--Liquid

Hazardous Combustion Products

Carbon oxides.

Explosion Data

Sensitivity to Mechanical Impact No.

Sensitivity to Static Discharge No.

Protective equipment and precautions for firefighters

As in any fire, wear self-contained breathing apparatus pressure-demand, MSHA/NIOSH (approved or equivalent) and full protective gear.

6. ACCIDENTAL RELEASE MEASURES

Personal precautions, protective equipment and emergency procedures

Personal precautions Attention! Corrosive material. Avoid contact with skin, eyes or clothing. Ensure adequate ventilation. Use personal protective equipment as required. Evacuate personnel to safe areas. Keep people away from and upwind of spill/leak.

Other Information Refer to protective measures listed in Sections 7 and 8.

Environmental precautions

Environmental precautions Refer to protective measures listed in Sections 7 and 8. Prevent further leakage or spillage if safe to do so. Should not be released into the environment. Do not allow to enter into soil/subsoil. Prevent product from entering drains.

Methods and material for containment and cleaning up

Methods for containment Prevent further leakage or spillage if safe to do so.

Methods for cleaning up Pick up and transfer to properly labeled containers. Soak up with inert absorbent material.

7. HANDLING AND STORAGE

Precautions for safe handling

Handling Handle in accordance with good industrial hygiene and safety practice. Avoid contact with skin, eyes or clothing. In case of insufficient ventilation, wear suitable respiratory equipment. Use only with adequate ventilation and in closed systems. Do not eat, drink or smoke when using this product. Take off contaminated clothing and wash before reuse.

Conditions for safe storage, including any incompatibilities

Storage Keep containers tightly closed in a dry, cool and well-ventilated place. Protect from moisture. Store locked up. Keep out of the reach of children. Store away from other materials.

Incompatible Products Acids. Bases. Oxidizing agent.

8. EXPOSURE CONTROLS/PERSONAL PROTECTION

Control parameters

Exposure Guidelines This product, as supplied, does not contain any hazardous materials with occupational exposure limits established by the region specific regulatory bodies

Chemical Name	ACGIH TLV	OSHA PEL	NIOSH IDLH
Hydrochloric Acid 7647-01-0	Ceiling: 2 ppm	(vacated) Ceiling: 5 ppm (vacated) Ceiling: 7 mg/m³ Ceiling: 5 ppm Ceiling: 7 mg/m³	IDLH: 50 ppm Ceiling: 5 ppm Ceiling: 7 mg/m³

Other Exposure Guidelines Vacated limits revoked by the Court of Appeals decision in AFL-CIO v. OSHA, 965 F.2d 962 (11th Cir., 1992)

Appropriate engineering controls

Engineering Measures Showers
Eyewash stations
Ventilation systems

Individual protection measures, such as personal protective equipment

Eye/face protection Face protection shield.
Skin and body protection Wear protective gloves and protective clothing. Long sleeved clothing. Chemical resistant apron. Impervious gloves.
Respiratory protection No protective equipment is needed under normal use conditions. If exposure limits are exceeded or irritation is experienced, ventilation and evacuation may be required.
Hygiene Measures Handle in accordance with good industrial hygiene and safety practice. Avoid contact with skin, eyes or clothing. Wear suitable gloves and eye/face protection. Do not eat, drink or smoke when using this product. Take off contaminated clothing and wash before reuse. Contaminated work clothing should not be allowed out of the workplace. Regular cleaning of equipment, work area and clothing is recommended. Wash hands before breaks and immediately after handling the product. For environmental protection, remove and wash all contaminated protective equipment before re-use.

9. PHYSICAL AND CHEMICAL PROPERTIES

Physical and Chemical Properties

Physical state Liquid->Liquid
Appearance Clear, colorless
Color No information available
Odor Odorless
Odor Threshold No information available

Property	Values	Remarks Method
pH	<=2	None known
Melting / freezing point	no data available	None known
Boiling point / boiling range	no data available	None known
Flash Point	no data available	None known
Evaporation Rate	no data available	None known
Flammability (solid, gas)	no data available	None known
Flammability Limit in Air		None known
Upper flammability limit	no data available	
Lower flammability limit	no data available	
Vapor pressure	no data available	None known
Vapor density	no data available	None known
Specific Gravity	1	None known
Water Solubility	Soluble in water	None known
Solubility in other solvents	no data available	None known
Partition coefficient: n-octanol/water	no data available	None known
Autoignition temperature	no data available	None known
Decomposition temperature	no data available	None known
Kinematic viscosity	no data available	None known
Dynamic viscosity	no data available	None known

Explosive properties no data available
Oxidizing properties no data available

Other Information

Softening Point no data available
Particle Size no data available
Particle Size Distribution

10. STABILITY AND REACTIVITY

Reactivity

no data available.

Chemical stability
Stable under recommended storage conditions.
Possibility of Hazardous Reactions
None under normal processing.
Hazardous Polymerization
Hazardous polymerization does not occur.
Conditions to avoid
Exposure to air or moisture over prolonged periods.
Incompatible materials
Acids. Bases. Oxidizing agent.
Hazardous Decomposition Products
Carbon oxides.

11. TOXICOLOGICAL INFORMATION

Information on likely routes of exposure

Product Information .

Inhalation Specific test data for the substance or mixture is not available. Corrosive by inhalation. (based on components). Inhalation of corrosive fumes/gases may cause coughing, choking, headache, dizziness, and weakness for several hours. Pulmonary edema may occur with tightness in the chest, shortness of breath, bluish skin, decreased blood pressure, and increased heart rate. Inhaled corrosive substances can lead to a toxic edema of the lungs. Pulmonary edema can be fatal. May cause irritation of respiratory tract.

Eye contact Specific test data for the substance or mixture is not available. Causes burns. (based on components). Corrosive to the eyes and may cause severe damage including blindness. Causes serious eye damage. May cause irreversible damage to eyes.

Skin contact Specific test data for the substance or mixture is not available. May cause irritation. Prolonged contact may cause redness and irritation.

Ingestion Specific test data for the substance or mixture is not available. Causes burns. (based on components). Ingestion causes burns of the upper digestive and respiratory tracts. May cause severe burning pain in the mouth and stomach with vomiting and diarrhea of dark blood. Blood pressure may decrease. Brownish or yellowish stains may be seen around the mouth. Swelling of the throat may cause shortness of breath and choking. May cause lung damage if swallowed. May be fatal if swallowed and enters airways. Ingestion may cause irritation to mucous membranes. Ingestion may cause gastrointestinal irritation, nausea, vomiting and diarrhea.

Component Information

Chemical Name	Oral LD50	Dermal LD50	Inhalation LC50
Hydrochloric Acid 7647-01-0	238 - 277 mg/kg (Rat)	> 5010 mg/kg (Rabbit)	= 1.68 mg/L (Rat) 1 h

Information on toxicological effects

Symptoms Erythema (skin redness). Burning. May cause blindness. Coughing and/ or wheezing.

Delayed and immediate effects as well as chronic effects from short and long-term exposure

Sensitization No information available.
Carcinogenicity The table below indicates whether each agency has listed any ingredient as a carcinogen.

Chemical Name	ACGIH	IARC	NTP	OSHA
Hydrochloric Acid 7647-01-0		Group 1 Group 3		X

Reproductive toxicity No information available.
STOT - single exposure No information available.
STOT - repeated exposure No information available.
Chronic toxicity No known effect based on information supplied. Chronic exposure to corrosive fumes/gases may cause erosion of the teeth followed by jaw necrosis. Bronchial irritation with chronic cough and frequent attacks of pneumonia are common. Gastrointestinal disturbances may also be seen.
Target Organ Effects Respiratory system. Eyes. Skin. Gastrointestinal tract (GI).
Aspiration Hazard No information available.

Numerical measures of toxicity Product Information
The following values are calculated based on chapter 3.1 of the GHS document
Not applicable

12. ECOLOGICAL INFORMATION

Ecotoxicity
Harmful to aquatic life.

Chemical Name	Toxicity to Algae	Toxicity to Fish	Toxicity to Microorganisms	Daphnia Magna (Water Flea)
Hydrochloric Acid 7647-01-0		96h LC50: = 282 mg/L (Gambusia affinis)		

Persistence and Degradability
No information available.
Bioaccumulation
No information available

Other adverse effects
No information available.

13. DISPOSAL CONSIDERATIONS

Waste treatment methods

Disposal methods This material, as supplied, is a hazardous waste according to federal regulations (40 CFR 261).
Contaminated Packaging Dispose of contents/containers in accordance with local regulations.
US EPA Waste Number D002

California Hazardous Waste Codes 791

14. TRANSPORT INFORMATION

DOT Not regulated
Proper Shipping Name NON REGULATED
Hazard Class N/A

TDG Not regulated

MEX Not regulated

ICAO Not regulated

IATA Not regulated
Proper Shipping Name NON REGULATED
Special Provisions None

IMDG Not regulated
Special Provisions None
Marine Pollutant Not applicable

RID Not regulated
Special Provisions None

ADR Not regulated
Special Provisions None

ADN Not regulated

15. REGULATORY INFORMATION

International Inventories

TSCA	Complies
DSL	All components are listed either on the DSL or NDSL.
ENCS	Contact supplier for inventory compliance status
KECL	Contact supplier for inventory compliance status
PICCS	Contact supplier for inventory compliance status
AICS	Contact supplier for inventory compliance status

TSCA - United States Toxic Substances Control Act Section 8(b) Inventory
DSL/NDSL - Canadian Domestic Substances List/Non-Domestic Substances List
EINECS/ELINCS - European Inventory of Existing Chemical Substances/European List of Notified Chemical Substances
ENCS - Japan Existing and New Chemical Substances
IECSC - China Inventory of Existing Chemical Substances
KECL - Korean Existing and Evaluated Chemical Substances
PICCS - Philippines Inventory of Chemicals and Chemical Substances
AICS - Australian Inventory of Chemical Substances

US Federal Regulations

SARA 313

Section 313 of Title III of the Superfund Amendments and Reauthorization Act of 1986 (SARA). This product contains a chemical or chemicals which are subject to the reporting requirements of the Act and Title 40 of the Code of Federal Regulations, Part 372

Chemical Name	CAS-No	Percent	SARA 313 - Threshold Values %
Hydrochloric Acid - 7647-01-0	7647-01-0	0.09	1.0

SARA 311/312 Hazard Categories

Acute Health Hazard	Yes
Chronic Health Hazard	No
Fire Hazard	No
Sudden release of pressure hazard	No
Reactive Hazard	No

CWA (Clean Water Act)

This product does not contain any substances regulated as pollutants pursuant to the Clean Water Act (40 CFR 122.21 and 40 CFR 122.42)

Chemical Name	CWA - Reportable Quantities	CWA - Toxic Pollutants	CWA - Priority Pollutants	CWA - Hazardous Substances
Hydrochloric Acid 7647-01-0	5000 lb			X

CERCLA

This material, as supplied, does not contain any substances regulated as hazardous substances under the Comprehensive Environmental Response Compensation and Liability Act (CERCLA) (40 CFR 302) or the Superfund Amendments and Reauthorization Act (SARA) (40 CFR 355). There may be specific reporting requirements at the local, regional, or state level

pertaining to releases of this material

Chemical Name	Hazardous Substances RQs	Extremely Hazardous Substances RQs	RQ
Hydrochloric Acid 7647-01-0	5000 lb	5000 lb	RQ 5000 lb final RQ RQ 2270 kg final RQ

US State Regulations

California Proposition 65

This product does not contain any Proposition 65 chemicals.

U.S. State Right-to-Know Regulations

.

International Regulations

Component	Carcinogen Status	Exposure Limits
Hydrochloric Acid 7647-01-0 (0.09)		Mexico: Ceiling 5 ppm Mexico: Ceiling 7 mg/m^3

Canada

WHMIS Hazard Class

Not determined

16. OTHER INFORMATION

NFPA	**Health Hazards** 3	**Flammability** 0	**Instability** 0	**Physical and Chemical Hazards** -
HMIS	**Health Hazards** 3	**Flammability** 0	**Physical Hazard** 0	**Personal Protection** X

Prepared By

Product Stewardship
23 British American Blvd.
Latham, NY 12110
1-800-572-6501

Issuing Date 03-Nov-2015

Revision Date 21-Jul-2015

Revision Note No information available

Disclaimer

The information provided in this Safety Data Sheet is correct to the best of our knowledge, information and belief at the date of its publication. The information given is designed only as a guidance for safe handling, use, processing, storage, transportation, disposal and release and is not to be considered a warranty or quality specification. The information relates only to the specific material designated and may not be valid for such material used in combination with any other materials or in any process, unless specified in the text

The supplier identified below generated this SDS using the UL SDS template. UL did not test, certify, or approve the substance described in this SDS, and all information in this SDS was provided by the supplier or was reproduced from publically available regulatory data sources. UL makes no representations or warranties regarding the completeness or accuracy of the information in this SDS and disclaims all liability in connection with the use of this information or the substance described in this SDS. The layout, appearance and format of this SDS is © 2014 UL LLC. All rights reserved

End of Safety Data Sheet

SAFETY DATA SHEET
Xylene

SECTION 1: Identification of the substance/mixture and of the company/undertaking

Date issued 11.11.2013

1.1. Product identifier

Product name	Xylene
Chemical name	Xylene
Synonyms	Xylol, dimethyl benzene, xylenol
REACH Reg No.	01-2119488216-32-0000
CAS no.	1330-20-7
EC no.	215-535-7
Index no.	601-022-00-9
Article no.	13000000

1.2. Relevant identified uses of the substance or mixture and uses advised against

Use of the substance/preparation For the preparation of paints and as a solvent. General purpose cleaner.

1.3. Details of the supplier of the safety data sheet

Manufacturer

Company name	Fred Holmberg & Co AB
Office address	Geijersgatan 8
Postal address	Box 60056
Postcode	S-216 10
City	Limhamn
Country	Sweden
Tel	+46 (0)40 15 79 20
Fax	+46 (0)40 16 22 95
E-mail	info@holmberg.se
Website	http://www.holmberg.se/en/

1.4. Emergency telephone number

Emergency telephone 112 (Europe)

SECTION 2: Hazards identification

2.1. Classification of substance or mixture

Classification according to 67/548/EEC or 1999/45/EC	Xi; R38 Xn; R20/21 R10
Classification according to Regulation (EC) No 1272/2008 [CLP/GHS]	Flam. Liq. 3; H226; Acute tox. 4; H312; Skin Irrit. 2; H315; Acute tox. 4; H332;

2.2. Label elements

Hazard Pictograms (CLP)



Signal word	Danger
Hazard statements	H226 Flammable liquid and vapour. H312 Harmful in contact with skin. H315 Causes skin irritation. H332 Harmful if inhaled.
Precautionary statements	P210 Keep away from heat/sparks/open flames/hot surfaces. – No smoking. P233 Keep container tightly closed. P243 Take precautionary measures against static discharge. P280 Wear protective gloves/protective clothing/eye protection/face protection. P301 + P310 IF SWALLOWED: Immediately call a POISON CENTER or doctor/physician. P303 + P361 + P353 IF ON SKIN (or hair): Remove/Take off immediately all contaminated clothing. Rinse skin with water/shower. P331 Do NOT induce vomiting. P403 + P235 Store in a well-ventilated place. Keep cool.

2.3. Other hazards

Other hazards	Not known.

SECTION 3: Composition/information on ingredients

3.2. Mixtures

Substance	Identification	Classification	Contents
Xylene	CAS no.: 1330-20-7 EC no.: 215-535-7 Index no.: 601-022-00-9	R10 Xn; R20/21 Xi; R38 Flam. Liq. 3; H226 Acute tox. 4; H332 Acute tox. 4; H312 Skin Irrit. 2; H315 Note : C	75 - 90 %
Ethylbenzene	CAS no.: 100-41-4 EC no.: 202-849-4 Index no.: 601-023-00-4 Synonyms: Ethylbenzene	F; R11 Xn; R20 Flam. Liq. 2; H225 Acute tox. 4; H332	10 - 25 %

Column headings	CAS no. = Chemical Abstracts Service; EU (Einecs or Elincs number) = European inventory of Existing Commercial Chemical Substances; Ingredient name = Name as specified in the substance list (substances that are not included in the substance list must be translated, if possible). Contents given in; %, %wt/wt, %vol/wt, %vol/vol, mg/m3, ppb, ppm, weight%, vol%
HH/HF/HE	T+ = Very toxic, T = Toxic, C = Corrosive, Xn = Harmful, Xi = Irritating, E = Explosive, O = Oxidizing, F+ = Extremly flammable, F = Very flammable, N = Environmental hazard

SECTION 4: First aid measures

4.1. Description of first aid measures

Inhalation	Move the exposed person to fresh air at once. Get medical attention if any discomfort continues.
Skin contact	Remove contaminated clothes and rinse skin thoroughly with water.
Eye contact	Immediately flush with plenty of water for up to 15 minutes. Remove any contact lenses and open eyes wide apart. Get medical attention if any discomfort continues.
Ingestion	NEVER MAKE AN UNCONSCIOUS PERSON VOMIT OR DRINK FLUIDS! Do not induce vomiting. Rinse mouth with water. Get medical attention.

4.2. Most important symptoms and effects, both acute and delayed

Information for health personnel	Treat Symptomatically. Do not give victim anything to drink if he is

unconscious.

4.3. Indication of any immediate medical attention and special treatment needed

Specific details on antidotes	No recommendation given.

SECTION 5: Firefighting measures

5.1. Extinguishing media

Suitable extinguishing media	Extinguish with alcohol-resistant foam, carbon dioxide, dry powder or water fog.

5.2. Special hazards arising from the substance or mixture

Fire and explosion hazards	Solvent vapours may form explosive mixtures with air.
Hazardous combustion products	Fire creates: Carbon monoxide (CO). Carbon dioxide (CO2).

5.3. Advice for firefighters

Fire fighting procedures	No specific fire fighting procedure given.

SECTION 6: Accidental release measures

6.1. Personal precautions, protective equipment and emergency procedures

Personal protection measures	Ensure suitable personal protection (including respiratory protection) during removal of spillages in a confined area. Ventilate well. Stop leak if possible without risk. Avoid contact with skin and eyes. Do not breathe vapour.

6.2. Environmental precautions

Environmental precautionary measures	Avoid discharge into drains, water courses or onto the ground.

6.3. Methods and material for containment and cleaning up

Cleaning method	Dam and absorb spillages with sand, earth or other non-combustible material.

6.4. Reference to other sections

Other instructions	No recommendation given.

SECTION 7: Handling and storage

7.1. Precautions for safe handling

Handling	Keep away from heat, sparks and open flame. Take precautionary measures against static discharges. Mechanical ventilation may be required.

Protective Safety Measures

Advice on general occupational hygiene	Provide easy access to water supply and eye wash facilities.

7.2. Conditions for safe storage, including any incompatibilities

Storage	Keep away from heat, sparks and open flame. Ground container and transfer equipment to eliminate static electric sparks. Store in a cool and well-ventilated place.

7.3. Specific end use(s)

Specific use(s)	Not entered.

SECTION 8: Exposure controls/personal protection

8.1. Control parameters

DNEL / PNEC

Method of testing	Contents
DNEL	Group: Industrial Exposure route: Inhalation Exposure frequency: Short term (acute) Critical Component: Etylbenzen Value: 289 mg/kg/dag

DNEL	Group: Industrial Exposure route: Inhalation Exposure frequency: Long term (repeated) Critical Component: Etylbenzen Type of effect: Systemic effect Value: 77 mg/kg/dag
DNEL	Group: Industrial Exposure route: Dermal Exposure frequency: Long term (repeated) Critical Component: Etylbenzen Type of effect: Systemic effect Value: 180 mg/kg/dag
DNEL	Group: Consumer Exposure route: Inhalation Exposure frequency: Long term (repeated) Critical Component: Etylbenzen Type of effect: Systemic effect Value: 14,8 mg/kg/dag
DNEL	Group: Consumer Exposure route: Dermal Exposure frequency: Long term (repeated) Critical Component: Etylbenzen Type of effect: Systemic effect Value: 108 mg/kg/dag
DNEL	Group: Consumer Exposure route: Oral Exposure frequency: Long term (repeated) Critical Component: Etylbenzen Type of effect: Systemic effect Value: 1,6 mg/kg/dag
DNEL	Group: Industrial Exposure route: Inhalation Exposure frequency: Short term (acute) Critical Component: xylen Value: 442 mg/kg/dag
DNEL	Group: Industrial Exposure route: Inhalation Exposure frequency: Long term (repeated) Critical Component: xylen Type of effect: Systemic effect Value: 221 mg/kg/dag
DNEL	Group: Industrial Exposure route: Dermal Exposure frequency: Long term (repeated) Critical Component: xylen Type of effect: Systemic effect Value: 3182 mg/kg/dag
DNEL	Group: Consumer Exposure route: Inhalation Exposure frequency: Short term (acute) Critical Component: xylen Value: 260 mg/kg/dag
DNEL	Group: Consumer Exposure route: Inhalation Exposure frequency: Long term (repeated) Critical Component: xylen Type of effect: Systemic effect

	Value: 65,3 mg/kg/dag
DNEL	Group: Consumer Exposure route: Dermal Exposure frequency: Long term (repeated) Critical Component: xylen Type of effect: Systemic effect Value: 1872 mg/kg/dag
DNEL	Group: Consumer Exposure route: Oral Exposure frequency: Long term (repeated) Critical Component: xylen Type of effect: Systemic effect Value: 12,5 mg/kg/dag
Exposure guidelines	Country of origin: Sverige Limit value type: NGV 200 mg/m3 OEL Short Term Value: 450 mg/m3 Source: Nationella hygieniska gränsvärden, AFS 2005:17
Other Information	Ovanstående NGV resp. KTV gäller både xylen och etylbenzen

8.2. Exposure controls

Occupational exposure limits: Provide adequate ventilation. Observe Occupational Exposure Limits and minimise the risk of inhalation of vapours. Protective gloves and goggles are recommended. Provide eyewash, quick drench.

Safety signs



Respiratory protection

Respiratory protection: Respiratory protection must be used if air contamination exceeds acceptable level. Use respiratory equipment with gas filter, type A2.

Hand protection

Hand protection: Use protective gloves. Chemical resistant gloves required for prolonged or repeated contact. Gloves of nitrile rubber, PVA or Viton are recommended.

Eye / face protection

Eye protection: Use safety goggles or face shield in case of splash risk.

Skin protection

Skin protection (except hands): Wear appropriate clothing to prevent any possibility of skin contact.

Hygiene / Environmental

Specific hygiene measures: Wash hands after contact.

SECTION 9: Physical and chemical properties

9.1. Information on basic physical and chemical properties

Physical state	Fluid.
Colour	Colourless.
Odour	Aromatic.
Comments, pH (as supplied)	Not relevant.
Melting point/melting range	Value: < -48 °C
Boiling point / boiling range	Value: 136-145 °C
Flash point	Value: 27 °C
Evaporation rate	Value: 13,5
Explosion limit	Value: 1-7,1 %
Vapour pressure	Value: 1 kPa Test temperature: 20 °C

Vapour density	Value: 3,7
Specific gravity	Value: 0,870 kg/m3 Test temperature: 20 °C
Solubility description	Soluble in: Organic solvents. Not soluble in water.
Partition coefficient: n-octanol/water	Value: 3,15
Spontaneous combustability	Value: > 432-530 °C
Viscosity	Value: < 0,90 mPas Method of testing: Kinematisk Test temperature: 25 °C

9.2. Other information

SECTION 10: Stability and reactivity

10.1. Reactivity

Reactivity: Heating may cause a fire.

10.2. Chemical stability

Stability: Stable under the prescribed storage conditions.

10.3. Possibility of hazardous reactions

Possibility of hazardous reactions: Not known.

10.4. Conditions to avoid

Conditions to avoid: Avoid heat, flames and other sources of ignition.

10.5. Incompatible materials

Materials to avoid: Avoid contact with oxidising agents (e.g. nitric acid, peroxides and chromates). Strong acids.

10.6. Hazardous decomposition products

Hazardous decomposition products: Fire creates: Carbon monoxide (CO). Carbon dioxide (CO_2).

SECTION 11: Toxicological information

11.1. Information on toxicological effects

Toxicological Information:

Other toxicological data: Acute Toxicity (Oral LD50): mg/kg (oral rat) > 2000
Acute Toxicity (Inhalation LC50): mg/l (vapours) (4h) > 20
Acute Toxicity (Dermal LD50): mg/kg Rabbit > 2000

Toxicological data for substances

Potential acute effects

Inhalation	In high concentrations, vapours are narcotic and may cause headache, fatigue, dizziness and nausea. Icke klassificerad som aspirationstoxisk (Not classified as asp. tox.)
Skin contact	Prolonged or frequent contact may cause redness, itching, eczema and skin cracking. Defats the skin.
Eye contact	May irritate and cause redness and pain.
Ingestion	Ingestion of large amounts may cause unconsciousness. However, ingestion may cause nausea, headache, dizziness and intoxication. Ingestion may cause irritation of the gastrointestinal tract, vomiting and diarrhoea. May cause irritation to the mouth and throat.

Delayed effects / repeated exposure

Sensitisation	Not known.
Chronic effects	None known.

Carcinogenic, Mutagenic or Reprotoxic

Carcinogenicity	None.
Mutagenicity	Not known.
Teratogenic properties	Suspected of damaging the unborn child

Reproductive toxicity	Not known.

SECTION 12: Ecological information

12.1. Toxicity

Acute aquatic, fish	Value: 2 mg/l Method of testing: LC50 Fish, species: Roccus saxatilis Duration: 96h
Acute aquatic, algae	Value: > 3,2 mg/l Method of testing: IC50 Algae, species: Selenastrum Capricornum Duration: 72h
Acute aquatic, Daphnia	Value: 8,5 mg/l Method of testing: EC50 Daphnia, species: Daphnia magna Duration: 48h

12.2. Persistence and degradability

Persistence and degradability description	Lättnedbrytbar av biologiska organismer.
Chemical oxygen demand (COD)	Value: 5 Method of testing: COD
Biological oxygen demand (BOD)	Value: 0,55 Method of testing: BOD

12.3. Bioaccumulative potential

Bioaccumulative potential	Will not bio-accumulate.
Bioconcentration factor (BCF)	Value: 22 Method of testing: BCF

12.4. Mobility in soil

Mobility	The product is insoluble in water and will spread on the water surface.

12.5. Results of PBT and vPvB assessment

PBT assessment results	This substance is not classified as PBT or vPvB.

12.6. Other adverse effects

Other adverse effects / Remarks	None known.

SECTION 13: Disposal considerations

13.1. Waste treatment methods

Specify the appropriate methods of disposal	Confirm disposal procedures with environmental engineer and local regulations. Absorb in vermiculite or dry sand and dispose of at a licenced hazardous waste collection point. Liquid components can be disposed of by incineration.
Product classified as hazardous waste	Yes
Packaging classified as hazardous waste	Yes

SECTION 14: Transport information

14.1. UN number

ADR	1307
RID	1307
IMDG	1307
ICAO/IATA	1307

14.2. UN proper shipping name

ADR	XYLENES

RID	XYLENES
IMDG	XYLENES
ICAO/IATA	XYLENES

14.3. Transport hazard class(es)

ADR	3
Hazard no.	30
RID	3
ADN	33
IMDG	3
ICAO/IATA	3

14.4. Packing group

ADR	III
RID	III
IMDG	III
ICAO/IATA	III

14.5. Environmental hazards

Comment	Not relevant.

14.6. Special precautions for user

EmS	F-E, S-D

14.7. Transport in bulk according to Annex II of MARPOL 73/78 and the IBC Code

SECTION 15: Regulatory information

EC no.	215-535-7

15.1. Safety, health and environmental regulations/legislation specific for the substance or mixture

Other Label Information	Regulation (EC) No 1272/2008 of the European Parliament and of the Council of 16 December 2008 on classification, labelling and packaging of substances and mixtures, amending and repealing Directives 67/548/EEC and 1999/45/EC, and amending Regulation (EC) No 1907/2006 with amendments.
Legislation and regulations	Dangerous Substance Directive 67/548/EEC. The Chemicals (Hazard Information and Packaging for Supply) Regulations 2009 (S.I 2009 No. 716). The List of Wastes (England) (Amendment) Regulations 2005. (SI 2005 No. 895). Avfallsförordningen (2011:927).

15.2. Chemical safety assessment

SECTION 16: Other information

Hazard symbol



R-phrases	R10 Flammable. R38 Irritating to skin. R20/22 Harmful by inhalation and if swallowed. R38 Irritating to skin.
S-phrases	S7 Keep container tightly closed. S16 Keep away from sources of ignition - No smoking.
Classification according to Regulation (EC) No 1272/2008 [CLP/GHS]	Flam. Liq. 3; H226; Acute tox. 4; H312; Skin Irrit. 2; H315;

	Acute tox. 4; H332;
List of relevant R-phrases (under headings 2 and 3).	R38 Irritating to skin. R11 Highly flammable. R10 Flammable. R20/21 Harmful by inhalation and in contact with skin. R20 Harmful by inhalation.
List of relevant H-phrases (Section 2 and 3).	H332 Harmful if inhaled. H312 Harmful in contact with skin. H225 Highly flammable liquid and vapour. H226 Flammable liquid and vapour. H315 Causes skin irritation.
Responsible for safety data sheet	Fred Holmberg & Co AB

SAFETY DATA SHEET

Issuing Date 03-Nov-2015 **Revision Date** 21-Jul-2015 **Revision Number** 1

1. IDENTIFICATION OF THE SUBSTANCE/PREPARATION AND OF THE COMPANY/UNDERTAKING

Product identifier

Product Number **601**
Product Name **Total Petroleum Hydrocarbons (TPH) in Water #2**
Synonyms None

Recommended use of the chemical and restrictions on use

Recommended Use Laboratory use only
Uses advised against No information available

Details of the supplier of the safety data sheet

Supplier ERA a Waters Company
Supplier Address 16341 Table Mountain Parkway, Golden, CO 80403 USA
Non-Emergency Telephone Number +1-303-431-8454
Supplier Email sdsinfo@waters.com

Emergency telephone number

Company Emergency Phone Number In case of EMERGENCY call CHEMTREC Day or Night
Within USA and Canada: 800-424-9300
International Call Collect: +1-703-527-3887

2. HAZARDS IDENTIFICATION

Classification

This chemical is considered hazardous by the 2012 OSHA Hazard Communication Standard (29 CFR 1910.1200).

Skin corrosion/irritation	Category 1
Serious eye damage/eye irritation	Category 1

GHS Label elements, including precautionary statements

Emergency Overview

Signal word **Danger**

Hazard Statements
Causes severe skin burns and eye damage



Appearance Clear, colorless **Physical state** Liquid->Liquid **Odor** Odorless

Precautionary Statements - Prevention
Do not breathe dust/fume/gas/mist/vapors/spray
Wash face, hands and any exposed skin thoroughly after handling
Wear protective gloves/protective clothing/eye protection/face protection
Precautionary Statements - Response
Immediately call a POISON CENTER or doctor/physician
Specific treatment (see supplemental first aid instructions on this label)

Eyes
IF IN EYES: Rinse cautiously with water for several minutes. Remove contact lenses, if present and easy to do. Continue rinsing
Immediately call a POISON CENTER or doctor/physician
Skin
IF ON SKIN (or hair): Remove/Take off immediately all contaminated clothing. Rinse skin with water/shower
Wash contaminated clothing before reuse
Inhalation
IF INHALED: Remove victim to fresh air and keep at rest in a position comfortable for breathing
Immediately call a POISON CENTER or doctor/physician
Ingestion
IF SWALLOWED: Rinse mouth. DO NOT induce vomiting

Precautionary Statements - Storage
Store locked up
Precautionary Statements - Disposal
Dispose of contents/container to an approved waste disposal plant

Hazards not otherwise classified (HNOC)

Not applicable
Unknown Toxicity
0 % of the mixture consists of ingredient(s) of unknown toxicity
Other information

No information available
Interactions with Other Chemicals
No information available.

3. COMPOSITION/INFORMATION ON INGREDIENTS

Note: only the components contributing to the product's GHS hazard classification are listed in this section.

Chemical Name	CAS-No	Percent
Hydrochloric Acid	7647-01-0	0.09

4. FIRST AID MEASURES

First aid measures

General Advice	Immediate medical attention is required. Show this safety data sheet to the doctor in attendance.
Eye contact	Rinse immediately with plenty of water, also under the eyelids, for at least 15 minutes. Keep eye wide open while rinsing. Do not rub affected area. Remove contact lenses, if present and easy to do. Continue rinsing. Seek immediate medical attention/advice.
Skin contact	Wash off immediately with soap and plenty of water while removing all contaminated clothes and shoes. Seek immediate medical attention/advice.
Inhalation	Remove to fresh air. If breathing has stopped, give artificial respiration. Get medical attention immediately. Do not use mouth-to-mouth method if victim ingested or inhaled the substance; give artificial respiration with the aid of a pocket mask equipped with a one-way valve or other proper respiratory medical device. If breathing is difficult, (trained personnel should) give oxygen. Delayed pulmonary edema may occur. Get medical attention immediately if symptoms occur.
Ingestion	Do NOT induce vomiting. Rinse mouth immediately and drink plenty of water. Never give anything by mouth to an unconscious person. Call a physician or poison control center immediately.
Self-protection of the first aider	Ensure that medical personnel are aware of the material(s) involved, take precautions to protect themselves and prevent spread of contamination. Avoid contact with skin, eyes or clothing. Avoid direct contact with skin. Use barrier to give mouth-to-mouth resuscitation. Use personal protective equipment as required. Wear personal protective clothing (see section 8).

Most important symptoms and effects, both acute and delayed

Most Important Symptoms and Effects Burning sensation.

Indication of any immediate medical attention and special treatment needed

Notes to Physician Product is a corrosive material. Use of gastric lavage or emesis is contraindicated. Possible perforation of stomach or esophagus should be investigated. Do not give chemical antidotes. Asphyxia from glottal edema may occur. Marked decrease in blood pressure may occur with moist rales, frothy sputum, and high pulse pressure.

5. FIRE-FIGHTING MEASURES

Suitable Extinguishing Media

Use extinguishing measures that are appropriate to local circumstances and the surrounding environment.

Unsuitable Extinguishing Media

CAUTION: Use of water spray when fighting fire may be inefficient.

Specific hazards arising from the chemical

The product causes burns of eyes, skin and mucous membranes. Thermal decomposition can lead to release of irritating gases and vapors.

Uniform Fire Code Corrosive: Other--Liquid

Hazardous Combustion Products

Carbon oxides.

Explosion Data

Sensitivity to Mechanical Impact No.

Sensitivity to Static Discharge No.

Protective equipment and precautions for firefighters

As in any fire, wear self-contained breathing apparatus pressure-demand, MSHA/NIOSH (approved or equivalent) and full protective gear.

6. ACCIDENTAL RELEASE MEASURES

Personal precautions, protective equipment and emergency procedures

Personal precautions Attention! Corrosive material. Avoid contact with skin, eyes or clothing. Ensure adequate ventilation. Use personal protective equipment as required. Evacuate personnel to safe areas. Keep people away from and upwind of spill/leak.

Other Information Refer to protective measures listed in Sections 7 and 8.

Environmental precautions

Environmental precautions Refer to protective measures listed in Sections 7 and 8. Prevent further leakage or spillage if safe to do so. Should not be released into the environment. Do not allow to enter into soil/subsoil. Prevent product from entering drains.

Methods and material for containment and cleaning up

Methods for containment Prevent further leakage or spillage if safe to do so.

Methods for cleaning up Pick up and transfer to properly labeled containers. Soak up with inert absorbent material.

7. HANDLING AND STORAGE

Precautions for safe handling

Handling Handle in accordance with good industrial hygiene and safety practice. Avoid contact with skin, eyes or clothing. In case of insufficient ventilation, wear suitable respiratory equipment. Use only with adequate ventilation and in closed systems. Do not eat, drink or smoke when using this product. Take off contaminated clothing and wash before reuse.

Conditions for safe storage, including any incompatibilities

Storage Keep containers tightly closed in a dry, cool and well-ventilated place. Protect from moisture. Store locked up. Keep out of the reach of children. Store away from other materials.

Incompatible Products Acids. Bases. Oxidizing agent.

8. EXPOSURE CONTROLS/PERSONAL PROTECTION

Control parameters

Exposure Guidelines This product, as supplied, does not contain any hazardous materials with occupational exposure limits established by the region specific regulatory bodies

Chemical Name	ACGIH TLV	OSHA PEL	NIOSH IDLH
Hydrochloric Acid 7647-01-0	Ceiling: 2 ppm	(vacated) Ceiling: 5 ppm (vacated) Ceiling: 7 mg/m³ Ceiling: 5 ppm Ceiling: 7 mg/m³	IDLH: 50 ppm Ceiling: 5 ppm Ceiling: 7 mg/m³

Other Exposure Guidelines Vacated limits revoked by the Court of Appeals decision in AFL-CIO v. OSHA, 965 F.2d 962 (11th Cir., 1992)

Appropriate engineering controls

Engineering Measures Showers
Eyewash stations
Ventilation systems

Individual protection measures, such as personal protective equipment

Eye/face protection Face protection shield.
Skin and body protection Wear protective gloves and protective clothing. Long sleeved clothing. Chemical resistant apron. Impervious gloves.
Respiratory protection No protective equipment is needed under normal use conditions. If exposure limits are exceeded or irritation is experienced, ventilation and evacuation may be required.
Hygiene Measures Handle in accordance with good industrial hygiene and safety practice. Avoid contact with skin, eyes or clothing. Wear suitable gloves and eye/face protection. Do not eat, drink or smoke when using this product. Take off contaminated clothing and wash before reuse. Contaminated work clothing should not be allowed out of the workplace. Regular cleaning of equipment, work area and clothing is recommended. Wash hands before breaks and immediately after handling the product. For environmental protection, remove and wash all contaminated protective equipment before re-use.

9. PHYSICAL AND CHEMICAL PROPERTIES

Physical and Chemical Properties

Physical state Liquid->Liquid
Appearance Clear, colorless
Color No information available
Odor Odorless
Odor Threshold No information available

Property	Values	Remarks Method
pH	<=2	None known
Melting / freezing point	no data available	None known
Boiling point / boiling range	no data available	None known
Flash Point	no data available	None known
Evaporation Rate	no data available	None known
Flammability (solid, gas)	no data available	None known
Flammability Limit in Air		None known
Upper flammability limit	no data available	
Lower flammability limit	no data available	
Vapor pressure	no data available	None known
Vapor density	no data available	None known
Specific Gravity	1	None known
Water Solubility	Soluble in water	None known
Solubility in other solvents	no data available	None known
Partition coefficient: n-octanol/water	no data available	None known
Autoignition temperature	no data available	None known
Decomposition temperature	no data available	None known
Kinematic viscosity	no data available	None known
Dynamic viscosity	no data available	None known

Explosive properties no data available
Oxidizing properties no data available

Other Information

Softening Point no data available
Particle Size no data available
Particle Size Distribution

10. STABILITY AND REACTIVITY

Reactivity

no data available.

Chemical stability
Stable under recommended storage conditions.
Possibility of Hazardous Reactions
None under normal processing.
Hazardous Polymerization
Hazardous polymerization does not occur.
Conditions to avoid
Exposure to air or moisture over prolonged periods.
Incompatible materials
Acids. Bases. Oxidizing agent.
Hazardous Decomposition Products
Carbon oxides.

11. TOXICOLOGICAL INFORMATION

Information on likely routes of exposure

Product Information .

Inhalation Specific test data for the substance or mixture is not available. Corrosive by inhalation. (based on components). Inhalation of corrosive fumes/gases may cause coughing, choking, headache, dizziness, and weakness for several hours. Pulmonary edema may occur with tightness in the chest, shortness of breath, bluish skin, decreased blood pressure, and increased heart rate. Inhaled corrosive substances can lead to a toxic edema of the lungs. Pulmonary edema can be fatal. May cause irritation of respiratory tract.

Eye contact Specific test data for the substance or mixture is not available. Causes burns. (based on components). Corrosive to the eyes and may cause severe damage including blindness. Causes serious eye damage. May cause irreversible damage to eyes.

Skin contact Specific test data for the substance or mixture is not available. May cause irritation. Prolonged contact may cause redness and irritation.

Ingestion Specific test data for the substance or mixture is not available. Causes burns. (based on components). Ingestion causes burns of the upper digestive and respiratory tracts. May cause severe burning pain in the mouth and stomach with vomiting and diarrhea of dark blood. Blood pressure may decrease. Brownish or yellowish stains may be seen around the mouth. Swelling of the throat may cause shortness of breath and choking. May cause lung damage if swallowed. May be fatal if swallowed and enters airways. Ingestion may cause irritation to mucous membranes. Ingestion may cause gastrointestinal irritation, nausea, vomiting and diarrhea.

Component Information

Chemical Name	Oral LD50	Dermal LD50	Inhalation LC50
Hydrochloric Acid 7647-01-0	238 - 277 mg/kg (Rat)	> 5010 mg/kg (Rabbit)	= 1.68 mg/L (Rat) 1 h

Information on toxicological effects

Symptoms Erythema (skin redness). Burning. May cause blindness. Coughing and/ or wheezing.

Delayed and immediate effects as well as chronic effects from short and long-term exposure

Sensitization No information available.
Carcinogenicity The table below indicates whether each agency has listed any ingredient as a carcinogen.

Chemical Name	ACGIH	IARC	NTP	OSHA
Hydrochloric Acid 7647-01-0		Group 1 Group 3		X

Reproductive toxicity No information available.
STOT - single exposure No information available.
STOT - repeated exposure No information available.
Chronic toxicity No known effect based on information supplied. Chronic exposure to corrosive fumes/gases may cause erosion of the teeth followed by jaw necrosis. Bronchial irritation with chronic cough and frequent attacks of pneumonia are common. Gastrointestinal disturbances may also be seen.
Target Organ Effects Respiratory system. Eyes. Skin. Gastrointestinal tract (GI).
Aspiration Hazard No information available.

Numerical measures of toxicity Product Information
The following values are calculated based on chapter 3.1 of the GHS document
Not applicable

12. ECOLOGICAL INFORMATION

Ecotoxicity
Harmful to aquatic life.

Chemical Name	Toxicity to Algae	Toxicity to Fish	Toxicity to Microorganisms	Daphnia Magna (Water Flea)
Hydrochloric Acid 7647-01-0		96h LC50: = 282 mg/L (Gambusia affinis)		

Persistence and Degradability
No information available.
Bioaccumulation
No information available

Other adverse effects
No information available.

13. DISPOSAL CONSIDERATIONS

Waste treatment methods

Disposal methods This material, as supplied, is a hazardous waste according to federal regulations (40 CFR 261).
Contaminated Packaging Dispose of contents/containers in accordance with local regulations.
US EPA Waste Number D002

California Hazardous Waste Codes 791

14. TRANSPORT INFORMATION

DOT Not regulated
Proper Shipping Name NON REGULATED
Hazard Class N/A

TDG Not regulated

MEX Not regulated

ICAO Not regulated

IATA Not regulated
Proper Shipping Name NON REGULATED
Special Provisions None

IMDG Not regulated
Special Provisions None
Marine Pollutant Not applicable

RID Not regulated
Special Provisions None

ADR Not regulated
Special Provisions None

ADN Not regulated

15. REGULATORY INFORMATION

International Inventories

TSCA	Complies
DSL	All components are listed either on the DSL or NDSL.
ENCS	Contact supplier for inventory compliance status
KECL	Contact supplier for inventory compliance status
PICCS	Contact supplier for inventory compliance status
AICS	Contact supplier for inventory compliance status

TSCA - United States Toxic Substances Control Act Section 8(b) Inventory
DSL/NDSL - Canadian Domestic Substances List/Non-Domestic Substances List
EINECS/ELINCS - European Inventory of Existing Chemical Substances/European List of Notified Chemical Substances
ENCS - Japan Existing and New Chemical Substances
IECSC - China Inventory of Existing Chemical Substances
KECL - Korean Existing and Evaluated Chemical Substances
PICCS - Philippines Inventory of Chemicals and Chemical Substances
AICS - Australian Inventory of Chemical Substances

US Federal Regulations

SARA 313

Section 313 of Title III of the Superfund Amendments and Reauthorization Act of 1986 (SARA). This product contains a chemical or chemicals which are subject to the reporting requirements of the Act and Title 40 of the Code of Federal Regulations, Part 372

Chemical Name	CAS-No	Percent	SARA 313 - Threshold Values %
Hydrochloric Acid - 7647-01-0	7647-01-0	0.09	1.0

SARA 311/312 Hazard Categories

Acute Health Hazard	Yes
Chronic Health Hazard	No
Fire Hazard	No
Sudden release of pressure hazard	No
Reactive Hazard	No

CWA (Clean Water Act)

This product does not contain any substances regulated as pollutants pursuant to the Clean Water Act (40 CFR 122.21 and 40 CFR 122.42)

Chemical Name	CWA - Reportable Quantities	CWA - Toxic Pollutants	CWA - Priority Pollutants	CWA - Hazardous Substances
Hydrochloric Acid 7647-01-0	5000 lb			X

CERCLA

This material, as supplied, does not contain any substances regulated as hazardous substances under the Comprehensive Environmental Response Compensation and Liability Act (CERCLA) (40 CFR 302) or the Superfund Amendments and Reauthorization Act (SARA) (40 CFR 355). There may be specific reporting requirements at the local, regional, or state level

pertaining to releases of this material

Chemical Name	Hazardous Substances RQs	Extremely Hazardous Substances RQs	RQ
Hydrochloric Acid 7647-01-0	5000 lb	5000 lb	RQ 5000 lb final RQ RQ 2270 kg final RQ

US State Regulations

California Proposition 65

This product does not contain any Proposition 65 chemicals.

U.S. State Right-to-Know Regulations

.

International Regulations

Component	Carcinogen Status	Exposure Limits
Hydrochloric Acid 7647-01-0 (0.09)		Mexico: Ceiling 5 ppm Mexico: Ceiling 7 mg/m^3

Canada

WHMIS Hazard Class

Not determined

16. OTHER INFORMATION

NFPA	**Health Hazards** 3	**Flammability** 0	**Instability** 0	**Physical and Chemical Hazards** -
HMIS	**Health Hazards** 3	**Flammability** 0	**Physical Hazard** 0	**Personal Protection** X

Prepared By

Product Stewardship
23 British American Blvd.
Latham, NY 12110
1-800-572-6501

Issuing Date 03-Nov-2015

Revision Date 21-Jul-2015

Revision Note No information available

Disclaimer

The information provided in this Safety Data Sheet is correct to the best of our knowledge, information and belief at the date of its publication. The information given is designed only as a guidance for safe handling, use, processing, storage, transportation, disposal and release and is not to be considered a warranty or quality specification. The information relates only to the specific material designated and may not be valid for such material used in combination with any other materials or in any process, unless specified in the text

The supplier identified below generated this SDS using the UL SDS template. UL did not test, certify, or approve the substance described in this SDS, and all information in this SDS was provided by the supplier or was reproduced from publically available regulatory data sources. UL makes no representations or warranties regarding the completeness or accuracy of the information in this SDS and disclaims all liability in connection with the use of this information or the substance described in this SDS. The layout, appearance and format of this SDS is © 2014 UL LLC. All rights reserved

End of Safety Data Sheet

SAFETY DATA SHEET

Version 4.10
Revision Date 05/27/2016
Print Date 01/23/2017

1. PRODUCT AND COMPANY IDENTIFICATION

1.1 Product identifiers

Product name : *trans*-1,2-Dichloroethene

Product Number : 48527
Brand : Supelco
Index-No. : 602-026-00-3

CAS-No. : 156-60-5

1.2 Relevant identified uses of the substance or mixture and uses advised against

Identified uses : Laboratory chemicals, Synthesis of substances

1.3 Details of the supplier of the safety data sheet

Company : Sigma-Aldrich
3050 Spruce Street
SAINT LOUIS MO 63103
USA

Telephone : +1 800-325-5832
Fax : +1 800-325-5052

1.4 Emergency telephone number

Emergency Phone # : +1-703-527-3887 (CHEMTREC)

2. HAZARDS IDENTIFICATION

2.1 Classification of the substance or mixture

GHS Classification in accordance with 29 CFR 1910 (OSHA HCS)
Flammable liquids (Category 2), H225
Acute toxicity, Inhalation (Category 4), H332
Acute aquatic toxicity (Category 3), H402
Chronic aquatic toxicity (Category 3), H412

For the full text of the H-Statements mentioned in this Section, see Section 16.

2.2 GHS Label elements, including precautionary statements

Pictogram



Signal word Danger

Hazard statement(s)
H225 Highly flammable liquid and vapour.
H332 Harmful if inhaled.
H412 Harmful to aquatic life with long lasting effects.

Precautionary statement(s)
P210 Keep away from heat/sparks/open flames/hot surfaces. No smoking.
P233 Keep container tightly closed.
P240 Ground/bond container and receiving equipment.
P241 Use explosion-proof electrical/ ventilating/ lighting/ equipment.
P242 Use only non-sparking tools.

P243	Take precautionary measures against static discharge.
P261	Avoid breathing dust/ fume/ gas/ mist/ vapours/ spray.
P271	Use only outdoors or in a well-ventilated area.
P273	Avoid release to the environment.
P280	Wear protective gloves/ eye protection/ face protection.
P303 + P361 + P353	IF ON SKIN (or hair): Remove/ Take off immediately all contaminated clothing. Rinse skin with water/ shower.
P304 + P340 + P312	IF INHALED: Remove victim to fresh air and keep at rest in a position comfortable for breathing. Call a POISON CENTER or doctor/ physician if you feel unwell.
P370 + P378	In case of fire: Use dry sand, dry chemical or alcohol-resistant foam for extinction.
P403 + P235	Store in a well-ventilated place. Keep cool.
P501	Dispose of contents/ container to an approved waste disposal plant.

2.3 Hazards not otherwise classified (HNOC) or not covered by GHS - none

3. COMPOSITION/INFORMATION ON INGREDIENTS

3.1 Substances

Synonyms : *trans*-1,2-Dichloroethene
trans-1,2-Dichloroethylene
trans-Acetylene dichloride

Formula : $C_2H_2Cl_2$
Molecular weight : 96.94 g/mol
CAS-No. : 156-60-5
EC-No. : 205-860-2
Index-No. : 602-026-00-3

Hazardous components

Component	Classification	Concentration
trans-Dichloroethylene		
	Flam. Liq. 2; Acute Tox. 4; Aquatic Acute 3; Aquatic Chronic 3; H225, H332, H412	<= 100 %

For the full text of the H-Statements mentioned in this Section, see Section 16.

4. FIRST AID MEASURES

4.1 Description of first aid measures

General advice
Consult a physician. Show this safety data sheet to the doctor in attendance.Move out of dangerous area.

If inhaled
If breathed in, move person into fresh air. If not breathing, give artificial respiration. Consult a physician.

In case of skin contact
Wash off with soap and plenty of water. Consult a physician.

In case of eye contact
Flush eyes with water as a precaution.

If swallowed
Do NOT induce vomiting. Never give anything by mouth to an unconscious person. Rinse mouth with water. Consult a physician.

4.2 Most important symptoms and effects, both acute and delayed
The most important known symptoms and effects are described in the labelling (see section 2.2) and/or in section 11

4.3 Indication of any immediate medical attention and special treatment needed
No data available

5. FIREFIGHTING MEASURES

5.1 Extinguishing media

Suitable extinguishing media
Use water spray, alcohol-resistant foam, dry chemical or carbon dioxide.

5.2 Special hazards arising from the substance or mixture
No data available

5.3 Advice for firefighters
Wear self-contained breathing apparatus for firefighting if necessary.

5.4 Further information
Use water spray to cool unopened containers.

6. ACCIDENTAL RELEASE MEASURES

6.1 Personal precautions, protective equipment and emergency procedures
Use personal protective equipment. Avoid breathing vapours, mist or gas. Ensure adequate ventilation. Remove all sources of ignition. Evacuate personnel to safe areas. Beware of vapours accumulating to form explosive concentrations. Vapours can accumulate in low areas.
For personal protection see section 8.

6.2 Environmental precautions
Prevent further leakage or spillage if safe to do so. Do not let product enter drains. Discharge into the environment must be avoided.

6.3 Methods and materials for containment and cleaning up
Contain spillage, and then collect with an electrically protected vacuum cleaner or by wet-brushing and place in container for disposal according to local regulations (see section 13).

6.4 Reference to other sections
For disposal see section 13.

7. HANDLING AND STORAGE

7.1 Precautions for safe handling
Avoid contact with skin and eyes. Avoid inhalation of vapour or mist.
Use explosion-proof equipment.Keep away from sources of ignition - No smoking.Take measures to prevent the build up of electrostatic charge.
For precautions see section 2.2.

7.2 Conditions for safe storage, including any incompatibilities
Keep container tightly closed in a dry and well-ventilated place. Containers which are opened must be carefully resealed and kept upright to prevent leakage.

Recommended storage temperature 2 - 8 °C

Light sensitive. Air and moisture sensitive. Refrigerate before opening.
Storage class (TRGS 510): Flammable liquids

7.3 Specific end use(s)
Apart from the uses mentioned in section 1.2 no other specific uses are stipulated

8. EXPOSURE CONTROLS/PERSONAL PROTECTION

8.1 Control parameters

Components with workplace control parameters

Component	CAS-No.	Value	Control parameters	Basis
trans-Dichloroethylene	156-60-5	TWA	200.000000 ppm	USA. ACGIH Threshold Limit Values (TLV)
	Remarks	Central Nervous System impairment Eye irritation		

		TWA	200.000000 ppm	USA. ACGIH Threshold Limit Values (TLV)
		Central Nervous System impairment Eye irritation		
		TWA	200 ppm	USA. ACGIH Threshold Limit Values (TLV)
		Central Nervous System impairment Eye irritation		

8.2 Exposure controls

Appropriate engineering controls
Handle in accordance with good industrial hygiene and safety practice. Wash hands before breaks and at the end of workday.

Personal protective equipment

Eye/face protection
Face shield and safety glasses Use equipment for eye protection tested and approved under appropriate government standards such as NIOSH (US) or EN 166(EU).

Skin protection
Handle with gloves. Gloves must be inspected prior to use. Use proper glove removal technique (without touching glove's outer surface) to avoid skin contact with this product. Dispose of contaminated gloves after use in accordance with applicable laws and good laboratory practices. Wash and dry hands.

Body Protection
Complete suit protecting against chemicals, Flame retardant antistatic protective clothing., The type of protective equipment must be selected according to the concentration and amount of the dangerous substance at the specific workplace.

Respiratory protection
Where risk assessment shows air-purifying respirators are appropriate use a full-face respirator with multi-purpose combination (US) or type AXBEK (EN 14387) respirator cartridges as a backup to engineering controls. If the respirator is the sole means of protection, use a full-face supplied air respirator. Use respirators and components tested and approved under appropriate government standards such as NIOSH (US) or CEN (EU).

Control of environmental exposure
Prevent further leakage or spillage if safe to do so. Do not let product enter drains. Discharge into the environment must be avoided.

9. PHYSICAL AND CHEMICAL PROPERTIES

9.1 Information on basic physical and chemical properties

a)	Appearance	Form: liquid, clear Colour: light yellow
b)	Odour	No data available
c)	Odour Threshold	No data available
d)	pH	No data available
e)	Melting point/freezing point	Melting point/range: -50 °C (-58 °F) - lit.
f)	Initial boiling point and boiling range	48 °C (118 °F) - lit.
g)	Flash point	6.0 °C (42.8 °F) - closed cup
h)	Evaporation rate	No data available
i)	Flammability (solid, gas)	No data available
j)	Upper/lower flammability or	Upper explosion limit: 12.8 %(V) Lower explosion limit: 9.7 %(V)

	explosive limits	
k)	Vapour pressure	No data available
l)	Vapour density	No data available
m)	Relative density	1.257 g/cm3 at 25 °C (77 °F)
n)	Water solubility	No data available
o)	Partition coefficient: n-octanol/water	No data available
p)	Auto-ignition temperature	No data available
q)	Decomposition temperature	No data available
r)	Viscosity	No data available
s)	Explosive properties	No data available
t)	Oxidizing properties	No data available

9.2 Other safety information
No data available

10. STABILITY AND REACTIVITY

10.1 Reactivity
No data available

10.2 Chemical stability
Stable under recommended storage conditions.

10.3 Possibility of hazardous reactions
Vapours may form explosive mixture with air.

10.4 Conditions to avoid
Heat, flames and sparks.

10.5 Incompatible materials
Oxidizing agents, Bases

10.6 Hazardous decomposition products
Hazardous decomposition products formed under fire conditions. - Carbon oxides, Hydrogen chloride gas
Other decomposition products - No data available
In the event of fire: see section 5

11. TOXICOLOGICAL INFORMATION

11.1 Information on toxicological effects

Acute toxicity
LD50 Oral - Rat - 1,235 mg/kg

LD50 Oral - Mouse - 2,122 mg/kg
Remarks: Behavioral:Altered sleep time (including change in righting reflex). Behavioral:Somnolence (general depressed activity). Behavioral:Ataxia.

LC50 Inhalation - Rat - 24100 ppm
Remarks: Behavioral:Somnolence (general depressed activity).

LD50 Dermal - Rabbit - > 5,000 mg/kg
Remarks: Prolonged skin contact may cause skin irritation and/or dermatitis. Nutritional and Gross Metabolic:Weight loss or decreased weight gain.

No data available

Skin corrosion/irritation
Skin - Rabbit
Result: Skin irritation - 24 h

Serious eye damage/eye irritation
Eyes - Rabbit
Result: Eye irritation

Respiratory or skin sensitisation
No data available

Germ cell mutagenicity
No data available

Carcinogenicity

IARC: No component of this product present at levels greater than or equal to 0.1% is identified as probable, possible or confirmed human carcinogen by IARC.

No component of this product present at levels greater than or equal to 0.1% is identified as probable, possible or confirmed human carcinogen by IARC.

NTP: No component of this product present at levels greater than or equal to 0.1% is identified as a known or anticipated carcinogen by NTP.

No component of this product present at levels greater than or equal to 0.1% is identified as a known or anticipated carcinogen by NTP.

OSHA: No component of this product present at levels greater than or equal to 0.1% is identified as a carcinogen or potential carcinogen by OSHA.

No component of this product present at levels greater than or equal to 0.1% is identified as a carcinogen or potential carcinogen by OSHA.

Reproductive toxicity
No data available

No data available

Specific target organ toxicity - single exposure
No data available

Specific target organ toxicity - repeated exposure
No data available

Aspiration hazard
No data available

Additional Information
RTECS: Not available

prolonged or repeated exposure can cause:, narcosis, To the best of our knowledge, the chemical, physical, and toxicological properties have not been thoroughly investigated.

Kidney -

12. ECOLOGICAL INFORMATION

12.1 Toxicity

Toxicity to daphnia and other aquatic invertebrates	EC50 - Daphnia magna (Water flea) - 220.00 mg/l - 48 h

12.2 Persistence and degradability
No data available

12.3 Bioaccumulative potential
No data available

12.4 Mobility in soil
No data available

12.5 Results of PBT and vPvB assessment

PBT/vPvB assessment not available as chemical safety assessment not required/not conducted

12.6 Other adverse effects

An environmental hazard cannot be excluded in the event of unprofessional handling or disposal.
Harmful to aquatic life with long lasting effects.

13. DISPOSAL CONSIDERATIONS

13.1 Waste treatment methods

Product

Burn in a chemical incinerator equipped with an afterburner and scrubber but exert extra care in igniting as this material is highly flammable. Offer surplus and non-recyclable solutions to a licensed disposal company. Contact a licensed professional waste disposal service to dispose of this material.

Contaminated packaging

Dispose of as unused product.

14. TRANSPORT INFORMATION

DOT (US)

UN number: 1150 Class: 3 Packing group: II
Proper shipping name: 1,2-Dichloroethylene
Reportable Quantity (RQ): 1000 lbs

Poison Inhalation Hazard: No

IMDG

UN number: 1150 Class: 3 Packing group: II EMS-No: F-E, S-D
Proper shipping name: 1,2-DICHLOROETHYLENE

IATA

UN number: 1150 Class: 3 Packing group: II
Proper shipping name: 1,2-Dichloroethylene

15. REGULATORY INFORMATION

SARA 302 Components

No chemicals in this material are subject to the reporting requirements of SARA Title III, Section 302.

SARA 313 Components

This material does not contain any chemical components with known CAS numbers that exceed the threshold (De Minimis) reporting levels established by SARA Title III, Section 313.

SARA 311/312 Hazards

Fire Hazard

Massachusetts Right To Know Components

	CAS-No.	Revision Date
trans-Dichloroethylene	156-60-5	1993-04-24

Pennsylvania Right To Know Components

	CAS-No.	Revision Date
trans-Dichloroethylene	156-60-5	1993-04-24

New Jersey Right To Know Components

	CAS-No.	Revision Date
trans-Dichloroethylene	156-60-5	1993-04-24

California Prop. 65 Components

This product does not contain any chemicals known to State of California to cause cancer, birth defects, or any other reproductive harm.
This product does not contain any chemicals known to State of California to cause cancer, birth defects, or any other reproductive harm.

16. OTHER INFORMATION

Full text of H-Statements referred to under sections 2 and 3.

Acute Tox.	Acute toxicity
Aquatic Acute	Acute aquatic toxicity
Aquatic Chronic	Chronic aquatic toxicity
Flam. Liq.	Flammable liquids
H225	Highly flammable liquid and vapour.
H332	Harmful if inhaled.
H402	Harmful to aquatic life.

HMIS Rating

Health hazard:	1
Chronic Health Hazard:	*
Flammability:	3
Physical Hazard	0

NFPA Rating

Health hazard:	2
Fire Hazard:	3
Reactivity Hazard:	0

Further information

Copyright 2016 Sigma-Aldrich Co. LLC. License granted to make unlimited paper copies for internal use only.
The above information is believed to be correct but does not purport to be all inclusive and shall be used only as a guide. The information in this document is based on the present state of our knowledge and is applicable to the product with regard to appropriate safety precautions. It does not represent any guarantee of the properties of the product. Sigma-Aldrich Corporation and its Affiliates shall not be held liable for any damage resulting from handling or from contact with the above product. See www.sigma-aldrich.com and/or the reverse side of invoice or packing slip for additional terms and conditions of sale.

Preparation Information

Sigma-Aldrich Corporation
Product Safety – Americas Region
1-800-521-8956

Version: 4.10 Revision Date: 05/27/2016 Print Date: 01/23/2017

SAFETY DATA SHEET

according to Regulation (EC) No. 1907/2006

Version 6.2
Revision Date 23.06.2020
Print Date 19.06.2021
GENERIC EU MSDS - NO COUNTRY SPECIFIC DATA - NO OEL DATA

SECTION 1: Identification of the substance/mixture and of the company/undertaking

1.1 Product identifiers

Product name	:	trans-Chlordane
Product Number	:	ERC-004
Brand	:	Cerilliant
REACH No.	:	A registration number is not available for this substance as the substance or its uses are exempted from registration, the annual tonnage does not require a registration or the registration is envisaged for a later registration deadline.
CAS-No.	:	5103-74-2

1.2 Relevant identified uses of the substance or mixture and uses advised against

Identified uses	:	Laboratory chemicals, Manufacture of substances

1.3 Details of the supplier of the safety data sheet

Company	:	Sigma-Aldrich Inc. 3050 SPRUCE ST ST. LOUIS MO 63103 UNITED STATES
Telephone	:	+1 314 771-5765
Fax	:	+1 800 325-5052

1.4 Emergency telephone

Emergency Phone #	:	800-424-9300 CHEMTREC (USA) +1-703-527-3887 CHEMTREC (International) 24 Hours/day; 7 Days/week

SECTION 2: Hazards identification

2.1 Classification of the substance or mixture

Classification according to Regulation (EC) No 1272/2008
Acute toxicity, Oral (Category 3), H301
Acute toxicity, Inhalation (Category 4), H332
Carcinogenicity (Category 2), H351
Short-term (acute) aquatic hazard (Category 1), H400
Long-term (chronic) aquatic hazard (Category 1), H410

For the full text of the H-Statements mentioned in this Section, see Section 16.

2.2 Label elements

Labelling according Regulation (EC) No 1272/2008

The life science business of Merck operates as MilliporeSigma in the US and Canada

Pictogram	
Signal word	Danger
Hazard statement(s)	
H301	Toxic if swallowed.
H332	Harmful if inhaled.
H351	Suspected of causing cancer.
H410	Very toxic to aquatic life with long lasting effects.
Precautionary statement(s)	
P201	Obtain special instructions before use.
P273	Avoid release to the environment.
P301 + P310 + P330	IF SWALLOWED: Immediately call a POISON CENTER/ doctor. Rinse mouth.
P304 + P340 + P312	IF INHALED: Remove person to fresh air and keep comfortable for breathing. Call a POISON CENTER/ doctor if you feel unwell.
Supplemental Hazard Statements	none

2.3 Other hazards

This substance/mixture contains no components considered to be either persistent, bioaccumulative and toxic (PBT), or very persistent and very bioaccumulative (vPvB) at levels of 0.1% or higher.

SECTION 3: Composition/information on ingredients

3.1 Substances

Molecular weight	:	409,78 g/mol
CAS-No.	:	5103-74-2
EC-No.	:	225-826-0

Component	Classification	Concentration
trans-Chlordane		
	Acute Tox. 3; Acute Tox. 4; Carc. 2; Aquatic Acute 1; Aquatic Chronic 1; H301, H332, H351, H400, H410 M-Factor - Aquatic Acute: 10	<= 100 %

For the full text of the H-Statements mentioned in this Section, see Section 16.

SECTION 4: First aid measures

4.1 Description of first-aid measures

General advice

Consult a physician. Show this material safety data sheet to the doctor in attendance.

If inhaled

If breathed in, move person into fresh air. If not breathing, give artificial respiration. Consult a physician.

The life science business of Merck operates as MilliporeSigma in the US and Canada

In case of skin contact
Wash off with soap and plenty of water. Take victim immediately to hospital. Consult a physician.

In case of eye contact
Flush eyes with water as a precaution.

If swallowed
Never give anything by mouth to an unconscious person. Rinse mouth with water. Consult a physician.

4.2 Most important symptoms and effects, both acute and delayed
The most important known symptoms and effects are described in the labelling (see section 2.2) and/or in section 11

4.3 Indication of any immediate medical attention and special treatment needed
No data available

SECTION 5: Firefighting measures

5.1 Extinguishing media

Suitable extinguishing media
Use water spray, alcohol-resistant foam, dry chemical or carbon dioxide.

5.2 Special hazards arising from the substance or mixture
Carbon oxides, Hydrogen chloride gas

5.3 Advice for firefighters
Wear self-contained breathing apparatus for firefighting if necessary.

5.4 Further information
No data available

SECTION 6: Accidental release measures

6.1 Personal precautions, protective equipment and emergency procedures
Wear respiratory protection. Avoid dust formation. Avoid breathing vapors, mist or gas. Ensure adequate ventilation. Evacuate personnel to safe areas. Avoid breathing dust. For personal protection see section 8.

6.2 Environmental precautions
Prevent further leakage or spillage if safe to do so. Do not let product enter drains. Discharge into the environment must be avoided.

6.3 Methods and materials for containment and cleaning up
Pick up and arrange disposal without creating dust. Sweep up and shovel. Keep in suitable, closed containers for disposal.

6.4 Reference to other sections
For disposal see section 13.

SECTION 7: Handling and storage

7.1 Precautions for safe handling
Avoid contact with skin and eyes. Avoid formation of dust and aerosols. Provide appropriate exhaust ventilation at places where dust is formed. For precautions see section 2.2.

The life science business of Merck operates as MilliporeSigma in the US and Canada

7.2 Conditions for safe storage, including any incompatibilities
Keep container tightly closed in a dry and well-ventilated place. Store in cool place.

7.3 Specific end use(s)
Apart from the uses mentioned in section 1.2 no other specific uses are stipulated

SECTION 8: Exposure controls/personal protection

8.1 Control parameters

Ingredients with workplace control parameters

8.2 Exposure controls

Appropriate engineering controls
Avoid contact with skin, eyes and clothing. Wash hands before breaks and immediately after handling the product.

Personal protective equipment

Eye/face protection
Face shield and safety glasses Use equipment for eye protection tested and approved under appropriate government standards such as NIOSH (US) or EN 166(EU).

Skin protection
Handle with gloves. Gloves must be inspected prior to use. Use proper glove removal technique (without touching glove's outer surface) to avoid skin contact with this product. Dispose of contaminated gloves after use in accordance with applicable laws and good laboratory practices. Wash and dry hands.

The selected protective gloves have to satisfy the specifications of Regulation (EU) 2016/425 and the standard EN 374 derived from it.

Body Protection
Complete suit protecting against chemicals, The type of protective equipment must be selected according to the concentration and amount of the dangerous substance at the specific workplace.

Respiratory protection
Where risk assessment shows air-purifying respirators are appropriate use a full-face particle respirator type N100 (US) or type P3 (EN 143) respirator cartridges as a backup to engineering controls. If the respirator is the sole means of protection, use a full-face supplied air respirator. Use respirators and components tested and approved under appropriate government standards such as NIOSH (US) or CEN (EU).

Control of environmental exposure
Prevent further leakage or spillage if safe to do so. Do not let product enter drains. Discharge into the environment must be avoided.

SECTION 9: Physical and chemical properties

9.1 Information on basic physical and chemical properties

a)	Appearance	Form: crystalline Color: white
b)	Odor	odorless

The life science business of Merck operates as MilliporeSigma in the US and Canada

c)	Odor Threshold	No data available
d)	pH	No data available
e)	Melting point/freezing point	No data available
f)	Initial boiling point and boiling range	No data available
g)	Flash point	No data available
h)	Evaporation rate	No data available
i)	Flammability (solid, gas)	No data available
j)	Upper/lower flammability or explosive limits	No data available
k)	Vapor pressure	No data available
l)	Vapor density	No data available
m)	Relative density	1,590 g/cm3
n)	Water solubility	insoluble
o)	Partition coefficient: n-octanol/water	No data available
p)	Autoignition temperature	No data available
q)	Decomposition temperature	No data available
r)	Viscosity	No data available
s)	Explosive properties	No data available
t)	Oxidizing properties	No data available

9.2 Other safety information
No data available

SECTION 10: Stability and reactivity

10.1 Reactivity
No data available

10.2 Chemical stability
Stable under recommended storage conditions.

10.3 Possibility of hazardous reactions
No data available

10.4 Conditions to avoid
No data available

10.5 Incompatible materials
Strong oxidizing agents

10.6 Hazardous decomposition products
Other decomposition products - No data available

The life science business of Merck operates as MilliporeSigma in the US and Canada

Hazardous decomposition products formed under fire conditions. - Carbon oxides, Hydrogen chloride gas
In the event of fire: see section 5

SECTION 11: Toxicological information

11.1 Information on toxicological effects

Acute toxicity
LD50 Oral - Rat - 200 mg/kg
LD50 Oral - Mouse - 145 mg/kg
Inhalation: (Regulation (EC) No 1272/2008, Annex VI)

Skin corrosion/irritation
No data available

Serious eye damage/eye irritation
No data available

Respiratory or skin sensitization
No data available

Germ cell mutagenicity

Carcinogenicity
Suspected of causing cancer.

IARC: 2B - Group 2B: Possibly carcinogenic to humans (trans-Chlordane)

Reproductive toxicity

Specific target organ toxicity - single exposure
No data available

Specific target organ toxicity - repeated exposure
No data available

Aspiration hazard
No data available

Additional Information
RTECS: Not available

To the best of our knowledge, the chemical, physical, and toxicological properties have not been thoroughly investigated.

To the best of our knowledge, the chemical, physical, and toxicological properties have not been thoroughly investigated.

SECTION 12: Ecological information

12.1 Toxicity

Toxicity to fish	LC50 - Oncorhynchus mykiss (rainbow trout) - 0,044 mg/l - 96,0 h Remarks: (in analogy to similar products)
	LOEC - Pimephales promelas (fathead minnow) - 0,025 mg/l - 48,0 h Remarks: (in analogy to similar products)

The life science business of Merck operates as MilliporeSigma in the US and Canada

Toxicity to daphnia and other aquatic invertebrates	LOEC - Daphnia magna (Water flea) - 0,07 mg/l - 48 h Remarks: (in analogy to similar products)
	LC50 - Daphnia magna (Water flea) - 0,0984 mg/l - 48 h Remarks: (in analogy to similar products)

12.2 Persistence and degradability
No data available

12.3 Bioaccumulative potential
No data available

12.4 Mobility in soil
No data available

12.5 Results of PBT and vPvB assessment
This substance/mixture contains no components considered to be either persistent, bioaccumulative and toxic (PBT), or very persistent and very bioaccumulative (vPvB) at levels of 0.1% or higher.

12.6 Other adverse effects
Very toxic to aquatic life with long lasting effects.
No data available

SECTION 13: Disposal considerations

13.1 Waste treatment methods

Product
Offer surplus and non-recyclable solutions to a licensed disposal company. Dissolve or mix the material with a combustible solvent and burn in a chemical incinerator equipped with an afterburner and scrubber. Waste material must be disposed of in accordance with the Directive on waste 2008/98/EC as well as other national and local regulations. Leave chemicals in original containers. No mixing with other waste. Handle uncleaned containers like the product itself.

Contaminated packaging
Dispose of as unused product.

SECTION 14: Transport information

14.1 UN number
ADR/RID: 3077 IMDG: 3077 IATA: 3077

14.2 UN proper shipping name
ADR/RID: ENVIRONMENTALLY HAZARDOUS SUBSTANCE, SOLID, N.O.S. (trans-Chlordane)
IMDG: ENVIRONMENTALLY HAZARDOUS SUBSTANCE, SOLID, N.O.S. (trans-Chlordane)
IATA: Environmentally hazardous substance, solid, n.o.s. (trans-Chlordane)

14.3 Transport hazard class(es)
ADR/RID: 9 IMDG: 9 IATA: 9

14.4 Packaging group
ADR/RID: III IMDG: III IATA: III

14.5 Environmental hazards
ADR/RID: yes IMDG Marine pollutant: yes IATA: yes

The life science business of Merck operates as MilliporeSigma in the US and Canada

14.6 Special precautions for user

No data available

SECTION 15: Regulatory information

15.1 Safety, health and environmental regulations/legislation specific for the substance or mixture

This material safety data sheet complies with the requirements of Regulation (EC) No. 1907/2006.

15.2 Chemical Safety Assessment

For this product a chemical safety assessment was not carried out

SECTION 16: Other information

Full text of H-Statements referred to under sections 2 and 3.

H301	Toxic if swallowed.
H332	Harmful if inhaled.
H351	Suspected of causing cancer.
H400	Very toxic to aquatic life.
H410	Very toxic to aquatic life with long lasting effects.

Further information

Copyright 2020 Sigma-Aldrich Co. LLC. License granted to make unlimited paper copies for internal use only.

The above information is believed to be correct but does not purport to be all inclusive and shall be used only as a guide. The information in this document is based on the present state of our knowledge and is applicable to the product with regard to appropriate safety precautions. It does not represent any guarantee of the properties of the product. Sigma-Aldrich Corporation and its Affiliates shall not be held liable for any damage resulting from handling or from contact with the above product. See www.sigma-aldrich.com and/or the reverse side of invoice or packing slip for additional terms and conditions of sale.

The branding on the header and/or footer of this document may temporarily not visually match the product purchased as we transition our branding. However, all of the information in the document regarding the product remains unchanged and matches the product ordered. For further information please contact mlsbranding@sial.com.

The life science business of Merck operates as MilliporeSigma in the US and Canada

SAFETY DATA SHEET

Version 4.6
Revision Date 03/02/2015
Print Date 02/18/2016

1. PRODUCT AND COMPANY IDENTIFICATION

1.1 Product identifiers

Product name : Trichloroethylene

Product Number : 251402
Brand : Sigma-Aldrich
Index-No. : 602-027-00-9

CAS-No. : 79-01-6

1.2 Relevant identified uses of the substance or mixture and uses advised against

Identified uses : Laboratory chemicals, Manufacture of substances

1.3 Details of the supplier of the safety data sheet

Company : Sigma-Aldrich
3050 Spruce Street
SAINT LOUIS MO 63103
USA

Telephone : +1 800-325-5832
Fax : +1 800-325-5052

1.4 Emergency telephone number

Emergency Phone # : (314) 776-6555

2. HAZARDS IDENTIFICATION

2.1 Classification of the substance or mixture

GHS Classification in accordance with 29 CFR 1910 (OSHA HCS)
Skin irritation (Category 2), H315
Eye irritation (Category 2A), H319
Germ cell mutagenicity (Category 2), H341
Carcinogenicity (Category 1B), H350
Specific target organ toxicity - single exposure (Category 3), Central nervous system, H336
Acute aquatic toxicity (Category 3), H402
Chronic aquatic toxicity (Category 3), H412

For the full text of the H-Statements mentioned in this Section, see Section 16.

2.2 GHS Label elements, including precautionary statements

Pictogram



Signal word Danger

Hazard statement(s)
H315 Causes skin irritation.
H319 Causes serious eye irritation.
H336 May cause drowsiness or dizziness.
H341 Suspected of causing genetic defects.
H350 May cause cancer.
H412 Harmful to aquatic life with long lasting effects.

Precautionary statement(s)

P201	Obtain special instructions before use.
P202	Do not handle until all safety precautions have been read and understood.
P261	Avoid breathing dust/ fume/ gas/ mist/ vapours/ spray.
P264	Wash skin thoroughly after handling.
P271	Use only outdoors or in a well-ventilated area.
P273	Avoid release to the environment.
P280	Wear eye protection/ face protection.
P280	Wear protective gloves.
P281	Use personal protective equipment as required.
P302 + P352	IF ON SKIN: Wash with plenty of soap and water.
P304 + P340 + P312	IF INHALED: Remove victim to fresh air and keep at rest in a position comfortable for breathing. Call a POISON CENTER or doctor/ physician if you feel unwell.
P305 + P351 + P338	IF IN EYES: Rinse cautiously with water for several minutes. Remove contact lenses, if present and easy to do. Continue rinsing.
P308 + P313	IF exposed or concerned: Get medical advice/ attention.
P332 + P313	If skin irritation occurs: Get medical advice/ attention.
P337 + P313	If eye irritation persists: Get medical advice/ attention.
P362	Take off contaminated clothing and wash before reuse.
P403 + P233	Store in a well-ventilated place. Keep container tightly closed.
P405	Store locked up.
P501	Dispose of contents/ container to an approved waste disposal plant.

2.3 Hazards not otherwise classified (HNOC) or not covered by GHS - none

3. COMPOSITION/INFORMATION ON INGREDIENTS

3.1 Substances

Synonyms	:	TCE Trichloroethene
Formula	:	C_2HCl_3
Molecular weight	:	131.39 g/mol
CAS-No.	:	79-01-6
EC-No.	:	201-167-4
Index-No.	:	602-027-00-9

Hazardous components

Component	Classification	Concentration
Trichloroethylene Included in the Candidate List of Substances of Very High Concern (SVHC) according to Regulation (EC) No. 1907/2006 (REACH)		
	Skin Irrit. 2; Eye Irrit. 2A; Muta. 2; Carc. 1B; STOT SE 3; Aquatic Acute 3; Aquatic Chronic 3; H315, H319, H336, H341, H350, H412	<= 100 %

For the full text of the H-Statements mentioned in this Section, see Section 16.

4. FIRST AID MEASURES

4.1 Description of first aid measures

General advice
Consult a physician. Show this safety data sheet to the doctor in attendance.Move out of dangerous area.

If inhaled
If breathed in, move person into fresh air. If not breathing, give artificial respiration. Consult a physician.

In case of skin contact
Wash off with soap and plenty of water. Consult a physician.

In case of eye contact
Rinse thoroughly with plenty of water for at least 15 minutes and consult a physician.

If swallowed
Never give anything by mouth to an unconscious person. Rinse mouth with water. Consult a physician.

4.2 Most important symptoms and effects, both acute and delayed
The most important known symptoms and effects are described in the labelling (see section 2.2) and/or in section 11

4.3 Indication of any immediate medical attention and special treatment needed
No data available

5. FIREFIGHTING MEASURES

5.1 Extinguishing media

Suitable extinguishing media
Use water spray, alcohol-resistant foam, dry chemical or carbon dioxide.

5.2 Special hazards arising from the substance or mixture
Carbon oxides, Hydrogen chloride gas

5.3 Advice for firefighters
Wear self-contained breathing apparatus for firefighting if necessary.

5.4 Further information
No data available

6. ACCIDENTAL RELEASE MEASURES

6.1 Personal precautions, protective equipment and emergency procedures
Use personal protective equipment. Avoid breathing vapours, mist or gas. Ensure adequate ventilation. Evacuate personnel to safe areas.
For personal protection see section 8.

6.2 Environmental precautions
Prevent further leakage or spillage if safe to do so. Do not let product enter drains. Discharge into the environment must be avoided.

6.3 Methods and materials for containment and cleaning up
Soak up with inert absorbent material and dispose of as hazardous waste. Keep in suitable, closed containers for disposal.

6.4 Reference to other sections
For disposal see section 13.

7. HANDLING AND STORAGE

7.1 Precautions for safe handling
Avoid contact with skin and eyes. Avoid inhalation of vapour or mist.
For precautions see section 2.2.

7.2 Conditions for safe storage, including any incompatibilities
Keep container tightly closed in a dry and well-ventilated place. Containers which are opened must be carefully resealed and kept upright to prevent leakage.

Light sensitive. Handle and store under inert gas.
Storage class (TRGS 510): Non-combustible, acute toxic Cat.3 / toxic hazardous materials or hazardous materials causing chronic effects

7.3 Specific end use(s)
Apart from the uses mentioned in section 1.2 no other specific uses are stipulated

8. EXPOSURE CONTROLS/PERSONAL PROTECTION

8.1 Control parameters

Components with workplace control parameters

Component	CAS-No.	Value	Control parameters	Basis
Trichloroethylene	79-01-6	TWA	10.000000 ppm	USA. ACGIH Threshold Limit Values (TLV)
	Remarks	Central Nervous System impairment cognitive decrement Renal toxicity Substances for which there is a Biological Exposure Index or Indices (see BEI® section) Suspected human carcinogen		
		STEL	25.000000 ppm	USA. ACGIH Threshold Limit Values (TLV)
		Central Nervous System impairment cognitive decrement Renal toxicity Substances for which there is a Biological Exposure Index or Indices (see BEI® section) Suspected human carcinogen		
		Potential Occupational Carcinogen See Appendix C See Appendix A		
		See Table Z-2		
		TWA	100.000000 ppm	USA. Occupational Exposure Limits (OSHA) - Table Z-2
		Z37.19-1967		
		CEIL	200.000000 ppm	USA. Occupational Exposure Limits (OSHA) - Table Z-2
		Z37.19-1967		
		Peak	300.000000 ppm	USA. Occupational Exposure Limits (OSHA) - Table Z-2
		Z37.19-1967		

Biological occupational exposure limits

Component	CAS-No.	Parameters	Value	Biological specimen	Basis
Trichloroethylene	79-01-6	Trichloroacetic acid	15.0000 mg/l	Urine	ACGIH - Biological Exposure Indices (BEI)
	Remarks	End of shift at end of workweek			
		Trichloroethanol	0.5000 mg/l	In blood	ACGIH - Biological Exposure Indices (BEI)
		End of shift at end of workweek			
		Trichloroethylene		In blood	ACGIH - Biological Exposure Indices (BEI)
		End of shift at end of workweek			
		Trichloroethylene		In end-exhaled air	ACGIH - Biological Exposure Indices (BEI)
		End of shift at end of workweek			

8.2 Exposure controls

Appropriate engineering controls

Handle in accordance with good industrial hygiene and safety practice. Wash hands before breaks and at the end of workday.

Personal protective equipment

Eye/face protection
Safety glasses with side-shields conforming to EN166 Use equipment for eye protection tested and approved under appropriate government standards such as NIOSH (US) or EN 166(EU).

Skin protection
Handle with gloves. Gloves must be inspected prior to use. Use proper glove removal technique (without touching glove's outer surface) to avoid skin contact with this product. Dispose of contaminated gloves after use in accordance with applicable laws and good laboratory practices. Wash and dry hands.

Full contact
Material: Fluorinated rubber
Minimum layer thickness: 0.7 mm
Break through time: 480 min
Material tested:Vitoject® (KCL 890 / Aldrich Z677698, Size M)

Splash contact
Material: Fluorinated rubber
Minimum layer thickness: 0.7 mm
Break through time: 480 min
Material tested:Vitoject® (KCL 890 / Aldrich Z677698, Size M)

data source: KCL GmbH, D-36124 Eichenzell, phone +49 (0)6659 87300, e-mail sales@kcl.de, test method: EN374
If used in solution, or mixed with other substances, and under conditions which differ from EN 374, contact the supplier of the CE approved gloves. This recommendation is advisory only and must be evaluated by an industrial hygienist and safety officer familiar with the specific situation of anticipated use by our customers. It should not be construed as offering an approval for any specific use scenario.

Body Protection
Complete suit protecting against chemicals, The type of protective equipment must be selected according to the concentration and amount of the dangerous substance at the specific workplace.

Respiratory protection
Where risk assessment shows air-purifying respirators are appropriate use a full-face respirator with multi-purpose combination (US) or type ABEK (EN 14387) respirator cartridges as a backup to engineering controls. If the respirator is the sole means of protection, use a full-face supplied air respirator. Use respirators and components tested and approved under appropriate government standards such as NIOSH (US) or CEN (EU).

Control of environmental exposure
Prevent further leakage or spillage if safe to do so. Do not let product enter drains. Discharge into the environment must be avoided.

9. PHYSICAL AND CHEMICAL PROPERTIES

9.1 Information on basic physical and chemical properties

a)	Appearance	Form: liquid, clear Colour: colourless
b)	Odour	No data available
c)	Odour Threshold	No data available
d)	pH	No data available
e)	Melting point/freezing point	Melting point/range: -84.8 °C (-120.6 °F) - lit.
f)	Initial boiling point and boiling range	86.7 °C (188.1 °F) - lit.
g)	Flash point	No data available
h)	Evaporation rate	No data available
i)	Flammability (solid, gas)	No data available
j)	Upper/lower	Upper explosion limit: 10.5 %(V)

	flammability or explosive limits	Lower explosion limit: 8 %(V)
k)	Vapour pressure	81.3 hPa (61.0 mmHg) at 20.0 °C (68.0 °F)
l)	Vapour density	No data available
m)	Relative density	1.463 g/mL at 25 °C (77 °F)
n)	Water solubility	No data available
o)	Partition coefficient: n-octanol/water	log Pow: 2.29log Pow: 5
p)	Auto-ignition temperature	410.0 °C (770.0 °F)
q)	Decomposition temperature	No data available
r)	Viscosity	No data available
s)	Explosive properties	No data available
t)	Oxidizing properties	No data available

9.2 Other safety information
No data available

10. STABILITY AND REACTIVITY

10.1 Reactivity
No data available

10.2 Chemical stability
Stable under recommended storage conditions.

10.3 Possibility of hazardous reactions
No data available

10.4 Conditions to avoid
No data available

10.5 Incompatible materials
Oxidizing agents, Strong bases, Magnesium

10.6 Hazardous decomposition products
Other decomposition products - No data available
In the event of fire: see section 5

11. TOXICOLOGICAL INFORMATION

11.1 Information on toxicological effects

Acute toxicity
LD50 Oral - Rat - 4,920 mg/kg

LC50 Inhalation - Mouse - 4 h - 8450 ppm

LD50 Dermal - Rabbit - > 20,000 mg/kg

No data available

Skin corrosion/irritation
Skin - Rabbit
Result: Severe skin irritation - 24 h

Serious eye damage/eye irritation
Eyes - Rabbit
Result: Eye irritation - 24 h

Respiratory or skin sensitisation
No data available

Germ cell mutagenicity
Laboratory experiments have shown mutagenic effects.
In vitro tests showed mutagenic effects

Carcinogenicity

This product is or contains a component that has been reported to be probably carcinogenic based on its IARC, OSHA, ACGIH, NTP, or EPA classification.

Possible human carcinogen

IARC:	1 - Group 1: Carcinogenic to humans (Trichloroethylene)
NTP:	Reasonably anticipated to be a human carcinogen (Trichloroethylene)
OSHA:	No component of this product present at levels greater than or equal to 0.1% is identified as a carcinogen or potential carcinogen by OSHA.

Reproductive toxicity
No data available

No data available

Specific target organ toxicity - single exposure
No data available

Specific target organ toxicity - repeated exposure
No data available

Aspiration hazard
No data available

Additional Information
RTECS: KX4550000

burning sensation, Cough, wheezing, laryngitis, Shortness of breath, Headache, Nausea, Vomiting, Exposure to and/or consumption of alcohol may increase toxic effects., Gastrointestinal disturbance, Kidney injury may occur., narcosis
To the best of our knowledge, the chemical, physical, and toxicological properties have not been thoroughly investigated.

12. ECOLOGICAL INFORMATION

12.1 Toxicity

Toxicity to fish	LC50 - Pimephales promelas (fathead minnow) - 41 mg/l - 96.0 h
	LOEC - other fish - 11 mg/l - 10.0 d
	NOEC - Oryzias latipes - 40 mg/l - 10.0 d
Toxicity to daphnia and other aquatic invertebrates	EC50 - Daphnia magna (Water flea) - 18.00 mg/l - 48 h
Toxicity to algae	IC50 - Pseudokirchneriella subcapitata (green algae) - 175.00 mg/l - 96 h

12.2 Persistence and degradability
No data available

12.3 Bioaccumulative potential
Does not bioaccumulate.

12.4 Mobility in soil
No data available

12.5 Results of PBT and vPvB assessment
PBT/vPvB assessment not available as chemical safety assessment not required/not conducted

12.6 Other adverse effects
An environmental hazard cannot be excluded in the event of unprofessional handling or disposal.
Harmful to aquatic life with long lasting effects.

An environmental hazard cannot be excluded in the event of unprofessional handling or disposal.

Harmful to aquatic organisms, may cause long-term adverse effects in the aquatic environment.

13. DISPOSAL CONSIDERATIONS

13.1 Waste treatment methods

Product
Offer surplus and non-recyclable solutions to a licensed disposal company. Contact a licensed professional waste disposal service to dispose of this material. Dissolve or mix the material with a combustible solvent and burn in a chemical incinerator equipped with an afterburner and scrubber.

Contaminated packaging
Dispose of as unused product.

14. TRANSPORT INFORMATION

DOT (US)
UN number: 1710 Class: 6.1 Packing group: III
Proper shipping name: Trichloroethylene
Reportable Quantity (RQ): 100 lbs

Poison Inhalation Hazard: No

IMDG
UN number: 1710 Class: 6.1 Packing group: III EMS-No: F-A, S-A
Proper shipping name: TRICHLOROETHYLENE

IATA
UN number: 1710 Class: 6.1 Packing group: III
Proper shipping name: Trichloroethylene

15. REGULATORY INFORMATION

SARA 302 Components
No chemicals in this material are subject to the reporting requirements of SARA Title III, Section 302.

SARA 313 Components
The following components are subject to reporting levels established by SARA Title III, Section 313:

	CAS-No.	Revision Date
Trichloroethylene	79-01-6	2007-07-01

SARA 311/312 Hazards
Acute Health Hazard, Chronic Health Hazard

Massachusetts Right To Know Components

	CAS-No.	Revision Date
Trichloroethylene	79-01-6	2007-07-01

Pennsylvania Right To Know Components

	CAS-No.	Revision Date
Trichloroethylene	79-01-6	2007-07-01

New Jersey Right To Know Components

	CAS-No.	Revision Date
Trichloroethylene	79-01-6	2007-07-01

California Prop. 65 Components

WARNING! This product contains a chemical known to the State of California to cause cancer. Trichloroethylene	CAS-No. 79-01-6	Revision Date 2011-09-01
WARNING: This product contains a chemical known to the State of California to cause birth defects or other reproductive harm.	CAS-No. 79-01-6	Revision Date 2011-09-01

16. OTHER INFORMATION

Full text of H-Statements referred to under sections 2 and 3.

Aquatic Acute	Acute aquatic toxicity
Aquatic Chronic	Chronic aquatic toxicity
Carc.	Carcinogenicity
Eye Irrit.	Eye irritation
H315	Causes skin irritation.
H319	Causes serious eye irritation.
H336	May cause drowsiness or dizziness.
H341	Suspected of causing genetic defects.
H350	May cause cancer.
H402	Harmful to aquatic life.

HMIS Rating

Health hazard:	2
Chronic Health Hazard:	*
Flammability:	0
Physical Hazard	0

NFPA Rating

Health hazard:	2
Fire Hazard:	0
Reactivity Hazard:	0

Further information

Copyright 2015 Sigma-Aldrich Co. LLC. License granted to make unlimited paper copies for internal use only.
The above information is believed to be correct but does not purport to be all inclusive and shall be used only as a guide. The information in this document is based on the present state of our knowledge and is applicable to the product with regard to appropriate safety precautions. It does not represent any guarantee of the properties of the product. Sigma-Aldrich Corporation and its Affiliates shall not be held liable for any damage resulting from handling or from contact with the above product. See www.sigma-aldrich.com and/or the reverse side of invoice or packing slip for additional terms and conditions of sale.

Preparation Information

Sigma-Aldrich Corporation
Product Safety – Americas Region
1-800-521-8956

Version: 4.6 Revision Date: 03/02/2015 Print Date: 02/18/2016

SAFETY DATA SHEET

Version 4.17
Revision Date 03/03/2015
Print Date 02/19/2016

1. PRODUCT AND COMPANY IDENTIFICATION

1.1 Product identifiers

Product name : Trichlorofluoromethane

Product Number : 254991
Brand : Aldrich

CAS-No. : 75-69-4

1.2 Relevant identified uses of the substance or mixture and uses advised against

Identified uses : Laboratory chemicals, Manufacture of substances

1.3 Details of the supplier of the safety data sheet

Company : Sigma-Aldrich
3050 Spruce Street
SAINT LOUIS MO 63103
USA

Telephone : +1 800-325-5832
Fax : +1 800-325-5052

1.4 Emergency telephone number

Emergency Phone # : (314) 776-6555

2. HAZARDS IDENTIFICATION

2.1 Classification of the substance or mixture

GHS Classification in accordance with 29 CFR 1910 (OSHA HCS)
Acute toxicity, Dermal (Category 4), H312

For the full text of the H-Statements mentioned in this Section, see Section 16.

2.2 GHS Label elements, including precautionary statements

Pictogram



Signal word Warning

Hazard statement(s)
H312 Harmful in contact with skin.

Precautionary statement(s)
P280 Wear protective gloves/ protective clothing.
P302 + P352 + P312 IF ON SKIN: Wash with plenty of soap and water. Call a POISON CENTER or doctor/ physician if you feel unwell.
P363 Wash contaminated clothing before reuse.
P501 Dispose of contents/ container to an approved waste disposal plant.

2.3 Hazards not otherwise classified (HNOC) or not covered by GHS - none

3. COMPOSITION/INFORMATION ON INGREDIENTS

3.1 Substances

Synonyms : Fluorotrichloromethane
CFC-11

Formula	:	CCl_3F CCl_3F
Molecular weight	:	137.37 g/mol
CAS-No.	:	75-69-4
EC-No.	:	200-892-3

Hazardous components

Component	Classification	Concentration
Trichlorofluoromethane		
	Acute Tox. 4; H312	<= 100 %

For the full text of the H-Statements mentioned in this Section, see Section 16.

4. FIRST AID MEASURES

4.1 Description of first aid measures

General advice
Consult a physician. Show this safety data sheet to the doctor in attendance.Move out of dangerous area.

If inhaled
If breathed in, move person into fresh air. If not breathing, give artificial respiration. Consult a physician.

In case of skin contact
Wash off with soap and plenty of water. Consult a physician.

In case of eye contact
Flush eyes with water as a precaution.

If swallowed
Never give anything by mouth to an unconscious person. Rinse mouth with water. Consult a physician.

4.2 Most important symptoms and effects, both acute and delayed
The most important known symptoms and effects are described in the labelling (see section 2.2) and/or in section 11

4.3 Indication of any immediate medical attention and special treatment needed
No data available

5. FIREFIGHTING MEASURES

5.1 Extinguishing media

Suitable extinguishing media
Use water spray, alcohol-resistant foam, dry chemical or carbon dioxide.

5.2 Special hazards arising from the substance or mixture
Carbon oxides, Hydrogen chloride gas, Hydrogen fluoride

5.3 Advice for firefighters
Wear self-contained breathing apparatus for firefighting if necessary.

5.4 Further information
No data available

6. ACCIDENTAL RELEASE MEASURES

6.1 Personal precautions, protective equipment and emergency procedures
Use personal protective equipment. Avoid breathing vapours, mist or gas. Ensure adequate ventilation.
For personal protection see section 8.

6.2 Environmental precautions
Do not let product enter drains.

6.3 Methods and materials for containment and cleaning up
Soak up with inert absorbent material and dispose of as hazardous waste. Keep in suitable, closed containers for disposal.

6.4 Reference to other sections
For disposal see section 13.

7. HANDLING AND STORAGE

7.1 Precautions for safe handling

Avoid contact with skin and eyes. Avoid inhalation of vapour or mist.
For precautions see section 2.2.

7.2 Conditions for safe storage, including any incompatibilities

Keep container tightly closed in a dry and well-ventilated place.

Recommended storage temperature 2 - 8 °C

Contents under pressure.
Storage class (TRGS 510): Non Combustible Liquids

7.3 Specific end use(s)

Apart from the uses mentioned in section 1.2 no other specific uses are stipulated

8. EXPOSURE CONTROLS/PERSONAL PROTECTION

8.1 Control parameters

Components with workplace control parameters

Component	CAS-No.	Value	Control parameters	Basis
Trichlorofluoromethane	75-69-4	C	1,000.000000 ppm	USA. ACGIH Threshold Limit Values (TLV)
	Remarks	Cardiac sensitization Not classifiable as a human carcinogen		
		C	1,000.000000 ppm 5,600.000000 mg/m3	USA. NIOSH Recommended Exposure Limits
		TWA	1,000.000000 ppm 5,600.000000 mg/m3	USA. Occupational Exposure Limits (OSHA) - Table Z-1 Limits for Air Contaminants
		The value in mg/m3 is approximate.		

8.2 Exposure controls

Appropriate engineering controls

Handle in accordance with good industrial hygiene and safety practice. Wash hands before breaks and at the end of workday.

Personal protective equipment

Eye/face protection

Face shield and safety glasses Use equipment for eye protection tested and approved under appropriate government standards such as NIOSH (US) or EN 166(EU).

Skin protection

Handle with gloves. Gloves must be inspected prior to use. Use proper glove removal technique (without touching glove's outer surface) to avoid skin contact with this product. Dispose of contaminated gloves after use in accordance with applicable laws and good laboratory practices. Wash and dry hands.

Full contact
Material: Nitrile rubber
Minimum layer thickness: 0.4 mm
Break through time: 480 min
Material tested:Camatril® (KCL 730 / Aldrich Z677442, Size M)

Splash contact
Material: Nitrile rubber
Minimum layer thickness: 0.2 mm
Break through time: 30 min

Material tested:Dermatril® P (KCL 743 / Aldrich Z677388, Size M)

data source: KCL GmbH, D-36124 Eichenzell, phone +49 (0)6659 87300, e-mail sales@kcl.de, test method: EN374
If used in solution, or mixed with other substances, and under conditions which differ from EN 374, contact the supplier of the CE approved gloves. This recommendation is advisory only and must be evaluated by an industrial hygienist and safety officer familiar with the specific situation of anticipated use by our customers. It should not be construed as offering an approval for any specific use scenario.

Body Protection
Complete suit protecting against chemicals, The type of protective equipment must be selected according to the concentration and amount of the dangerous substance at the specific workplace.

Respiratory protection
Where risk assessment shows air-purifying respirators are appropriate use a full-face respirator with multi-purpose combination (US) or type AXBEK (EN 14387) respirator cartridges as a backup to engineering controls. If the respirator is the sole means of protection, use a full-face supplied air respirator. Use respirators and components tested and approved under appropriate government standards such as NIOSH (US) or CEN (EU).

Control of environmental exposure
Do not let product enter drains.

9. PHYSICAL AND CHEMICAL PROPERTIES

9.1 Information on basic physical and chemical properties

a)	Appearance	Form: liquid, clear Colour: colourless
b)	Odour	No data available
c)	Odour Threshold	No data available
d)	pH	No data available
e)	Melting point/freezing point	-110.99 - -109.99 °C (-167.78 - -165.98 °F)
f)	Initial boiling point and boiling range	23.7 °C (74.7 °F) - lit.
g)	Flash point	No data available
h)	Evaporation rate	No data available
i)	Flammability (solid, gas)	No data available
j)	Upper/lower flammability or explosive limits	No data available
k)	Vapour pressure	885.7 hPa (664.3 mmHg) at 20.0 °C (68.0 °F) 2,701.2 hPa (2,026.1 mmHg) at 55.0 °C (131.0 °F)
l)	Vapour density	No data available
m)	Relative density	1.494 g/cm3 at 25 °C (77 °F)
n)	Water solubility	1 g/l
o)	Partition coefficient: n-octanol/water	log Pow: 2.53
p)	Auto-ignition temperature	No data available
q)	Decomposition temperature	No data available
r)	Viscosity	No data available
s)	Explosive properties	No data available

t) Oxidizing properties No data available

9.2 Other safety information

Surface tension 18.0 mN/m at 25.0 °C (77.0 °F)

10. STABILITY AND REACTIVITY

10.1 Reactivity
No data available

10.2 Chemical stability
Stable under recommended storage conditions.

10.3 Possibility of hazardous reactions
No data available

10.4 Conditions to avoid
No data available

10.5 Incompatible materials
Strong oxidizing agents, Sodium/sodium oxides, Potassium, Magnesium, Aluminum, Zinc

10.6 Hazardous decomposition products
Other decomposition products - No data available
In the event of fire: see section 5

11. TOXICOLOGICAL INFORMATION

11.1 Information on toxicological effects

Acute toxicity
LD50 Oral - Rat - > 15,000 mg/kg

LC50 Inhalation - Rat - 0.3 h - 130000 ppm
Remarks: Behavioral:Tremor. Behavioral:Convulsions or effect on seizure threshold. Respiratory disorder

No data available

Skin corrosion/irritation
No data available

Serious eye damage/eye irritation
No data available

Respiratory or skin sensitisation
No data available

Germ cell mutagenicity
No data available

Carcinogenicity

IARC: No component of this product present at levels greater than or equal to 0.1% is identified as probable, possible or confirmed human carcinogen by IARC.

NTP: No component of this product present at levels greater than or equal to 0.1% is identified as a known or anticipated carcinogen by NTP.

OSHA: No component of this product present at levels greater than or equal to 0.1% is identified as a carcinogen or potential carcinogen by OSHA.

Reproductive toxicity
No data available

No data available

Specific target organ toxicity - single exposure
No data available

Specific target organ toxicity - repeated exposure
No data available

Aspiration hazard
No data available

Additional Information
RTECS: PB6125000

To the best of our knowledge, the chemical, physical, and toxicological properties have not been thoroughly investigated., Nausea, Dizziness, Headache, Vomiting, Diarrhoea, Abdominal pain, Weakness, Unconsciousness

Liver -

12. ECOLOGICAL INFORMATION

12.1 Toxicity
No data available

12.2 Persistence and degradability
No data available

12.3 Bioaccumulative potential
No data available

12.4 Mobility in soil
No data available

12.5 Results of PBT and vPvB assessment
PBT/vPvB assessment not available as chemical safety assessment not required/not conducted

12.6 Other adverse effects

13. DISPOSAL CONSIDERATIONS

13.1 Waste treatment methods

Product
Offer surplus and non-recyclable solutions to a licensed disposal company.

Contaminated packaging
Dispose of as unused product.

14. TRANSPORT INFORMATION

DOT (US)
UN number: 3082 Class: 9 Packing group: III
Proper shipping name: Environmentally hazardous substance, liquid, n.o.s. (Trichlorofluoromethane)
Reportable Quantity (RQ): 5000 lbs

Poison Inhalation Hazard: No

IMDG
Not dangerous goods

IATA
Not dangerous goods

15. REGULATORY INFORMATION

SARA 302 Components
No chemicals in this material are subject to the reporting requirements of SARA Title III, Section 302.

SARA 313 Components
The following components are subject to reporting levels established by SARA Title III, Section 313:

	CAS-No.	Revision Date
Trichlorofluoromethane	75-69-4	2007-07-01

SARA 311/312 Hazards
Acute Health Hazard

Massachusetts Right To Know Components

	CAS-No.	Revision Date
Trichlorofluoromethane	75-69-4	2007-07-01

Pennsylvania Right To Know Components

	CAS-No.	Revision Date
Trichlorofluoromethane	75-69-4	2007-07-01

New Jersey Right To Know Components

	CAS-No.	Revision Date
Trichlorofluoromethane	75-69-4	2007-07-01

California Prop. 65 Components

This product does not contain any chemicals known to State of California to cause cancer, birth defects, or any other reproductive harm.

16. OTHER INFORMATION

Full text of H-Statements referred to under sections 2 and 3.

Acute Tox.	Acute toxicity
H312	Harmful in contact with skin.

HMIS Rating

Health hazard:	1
Chronic Health Hazard:	
Flammability:	0
Physical Hazard	0

NFPA Rating

Health hazard:	1
Fire Hazard:	0
Reactivity Hazard:	0

Further information

Copyright 2015 Sigma-Aldrich Co. LLC. License granted to make unlimited paper copies for internal use only.
The above information is believed to be correct but does not purport to be all inclusive and shall be used only as a guide. The information in this document is based on the present state of our knowledge and is applicable to the product with regard to appropriate safety precautions. It does not represent any guarantee of the properties of the product. Sigma-Aldrich Corporation and its Affiliates shall not be held liable for any damage resulting from handling or from contact with the above product. See www.sigma-aldrich.com and/or the reverse side of invoice or packing slip for additional terms and conditions of sale.

Preparation Information

Sigma-Aldrich Corporation
Product Safety – Americas Region
1-800-521-8956

Version: 4.17 Revision Date: 03/03/2015 Print Date: 02/19/2016

SAFETY DATA SHEET
CHROMIUM HARD,TRIVALENT

1. Identification

Product identifier

Product name CHROMIUM HARD,TRIVALENT

Product number 2403

Recommended use of the chemical and restrictions on use

Application Industrial Use

Details of the supplier of the safety data sheet

Supplier

SIFCO Applied Surface Concepts
5708 E. Schaaf Road
Independence, Ohio 44131
U.S.A.
Tel.: +1 216-524-0099
Fax: +1 216-524-6331
E-Mail: info@sifcoasc.com

Emergency telephone number

Emergency telephone CHEMTREC (United States) (800) 424-9300; CHEMTREC (International) +1 703-527-3887

2. Hazard(s) identification

Classification of the substance or mixture

Physical hazards Not Classified

Health hazards Skin Corr. 1B - H314 Eye Dam. 1 - H318 STOT SE 3 - H335

Environmental hazards Aquatic Acute 3 - H402

Label elements

Pictogram



Signal word Danger

Hazard statements H314 Causes severe skin burns and eye damage.
H335 May cause respiratory irritation.
H402 Harmful to aquatic life.

CHROMIUM HARD,TRIVALENT

Precautionary statements

P260 Do not breathe vapor/ spray.
P280 Wear protective gloves/ protective clothing/ eye protection/ face protection.
P304+P340 If inhaled: Remove person to fresh air and keep comfortable for breathing.
P305+P351+P338 If in eyes: Rinse cautiously with water for several minutes. Remove contact lenses, if present and easy to do. Continue rinsing.
P363 Wash contaminated clothing before reuse.
P403+P233 Store in a well-ventilated place. Keep container tightly closed.
P501 Dispose of contents/ container in accordance with national regulations.
P264 Wash skin thoroughly after handling.
P270 Do not eat, drink or smoke when using this product.
P284 [In case of inadequate ventilation] wear respiratory protection.
P301+P310 If swallowed: Immediately call a poison center/ doctor.
P302+P352 If on skin: Wash with plenty of water.

Contains AMMONIUM FORMATE, CHROMIUM (III) SULPHATE, AMMONIA ...%

Other hazards

This product does not contain any substances classified as PBT or vPvB.

3. Composition/information on ingredients

Mixtures

AMMONIUM FORMATE **25-30%**

CAS number: 540-69-2

Classification
Skin Irrit. 2 - H315
Eye Irrit. 2 - H319
STOT SE 3 - H335

AMMONIUM CHLORIDE **5-10%**

CAS number: 12125-02-9

Classification
Acute Tox. 4 - H302
Eye Irrit. 2 - H319

CHROMIUM (III) SULPHATE **5-10%**

CAS number: 10101-53-8

Classification
Acute Tox. 4 - H302
Acute Tox. 4 - H312
Acute Tox. 4 - H332
Skin Corr. 1B - H314
Eye Dam. 1 - H318
STOT SE 3 - H335

CHROMIUM HARD,TRIVALENT

Potassium Sulfate	**1-5%**
CAS number: 7778-80-5	
Classification Not Classified	

AMMONIA ...%	**1-5%**
CAS number: 1336-21-6 M factor (Acute) = 1	
Classification Skin Corr. 1B - H314 Eye Dam. 1 - H318 STOT SE 3 - H335 Aquatic Acute 1 - H400	

SODIUM BROMIDE	**<1%**
CAS number: 7647-15-6	
Classification Acute Tox. 4 - H312	

The full text for all hazard statements is displayed in Section 16.

4. First-aid measures

Description of first aid measures

Inhalation Move affected person to fresh air at once. Get medical attention.

Ingestion Get medical attention immediately. Do not induce vomiting.

Skin Contact Remove contaminated clothing immediately and wash skin with soap and water. Continue to rinse for at least 15 minutes and get medical attention.

Eye contact Remove affected person from source of contamination. Rinse immediately with plenty of water. Continue to rinse for at least 15 minutes and get medical attention.

Most important symptoms and effects, both acute and delayed

Inhalation Coughing, chest tightness, feeling of chest pressure.

Ingestion May cause chemical burns in mouth and throat. May cause stomach pain or vomiting.

Skin contact May cause serious chemical burns to the skin.

Eye contact Causes severe burns. May cause serious eye damage.

Indication of immediate medical attention and special treatment needed

Notes for the doctor No specific recommendations.

5. Fire-fighting measures

Extinguishing media

Suitable extinguishing media The product is not flammable. Use fire-extinguishing media suitable for the surrounding fire.

Special hazards arising from the substance or mixture

CHROMIUM HARD,TRIVALENT

Specific hazards Corrosive gases or vapors.

Advice for firefighters

Protective actions during firefighting Wear positive-pressure self-contained breathing apparatus (SCBA) and appropriate protective clothing.

Special protective equipment for firefighters Use protective equipment appropriate for surrounding materials.

6. Accidental release measures

Personal precautions, protective equipment and emergency procedures

Personal precautions Follow precautions for safe handling described in this safety data sheet. Avoid inhalation of vapors. Provide adequate general and local exhaust ventilation.

Environmental precautions

Environmental precautions Do not discharge into drains or watercourses or onto the ground. Inform the relevant authorities if environmental pollution occurs (sewers, waterways, soil or air).

Methods and material for containment and cleaning up

Methods for cleaning up Wear suitable protective equipment, including gloves, goggles/face shield, respirator, boots, clothing or apron, as appropriate. Flush contaminated area with plenty of water. Avoid the spillage or runoff entering drains, sewers or watercourses. Collect and dispose of spillage as indicated in Section 13. Wash thoroughly after dealing with a spillage.

Reference to other sections Wear protective clothing as described in Section 8 of this safety data sheet. See Section 11 for additional information on health hazards. See Section 12 for additional information on ecological hazards. For waste disposal, see Section 13.

7. Handling and storage

Precautions for safe handling

Usage precautions Avoid spilling. Avoid contact with skin and eyes. Avoid inhalation of vapors and spray/mists. Provide adequate general and local exhaust ventilation.

Conditions for safe storage, including any incompatibilities

Storage precautions Store in tightly-closed, original container in a dry, cool and well-ventilated place. Protect from freezing and direct sunlight.

Storage class Corrosive storage.

Specific end uses(s)

Specific end use(s) The identified uses for this product are detailed in Section 1.

8. Exposure controls/Personal protection

Exposure controls

Protective equipment



Appropriate engineering controls As this product contains ingredients with exposure limits, process enclosures, local exhaust ventilation or other engineering controls should be used to keep worker exposure below any statutory or recommended limits, if use generates dust, fumes, gas, vapor or mist.

Eye/face protection Tight-fitting safety glasses.

CHROMIUM HARD,TRIVALENT

Hand protection	It is recommended that chemical-resistant, impervious gloves are worn. Considering the data specified by the glove manufacturer, check during use that the gloves are retaining their protective properties and change them as soon as any deterioration is detected. It is recommended that gloves are made of the following material: Nitrile rubber.
Other skin and body protection	Appropriate footwear and additional protective clothing complying with an approved standard should be worn if a risk assessment indicates skin contamination is possible.
Hygiene measures	Do not eat, drink or smoke when using this product. Wash at the end of each work shift and before eating, smoking and using the toilet.
Respiratory protection	If ventilation is inadequate, suitable respiratory protection must be worn. Respiratory protection must be used if the airborne contamination exceeds the recommended occupational exposure limit.

9. Physical and chemical properties

Information on basic physical and chemical properties

Appearance	Liquid.
Color	Dark. Blue.
Odor	Acidic.
pH	pH (concentrated solution): 6.0-7.0
Initial boiling point and range	100°C/212°F @
Relative density	1.150-1.180
Other information	Not available.

10. Stability and reactivity

Reactivity	There are no known reactivity hazards associated with this product.
Stability	Stable at normal ambient temperatures and when used as recommended.
Possibility of hazardous reactions	Under normal conditions of storage and use, no hazardous reactions will occur.
Conditions to avoid	Avoid excessive heat for prolonged periods of time.
Materials to avoid	None known.
Hazardous decomposition products	None at ambient temperatures.

11. Toxicological information

Information on toxicological effects

Acute toxicity - oral

ATE oral (mg/kg)	4,284.49

Acute toxicity - dermal

ATE dermal (mg/kg)	19,400.35

Acute toxicity - inhalation

ATE inhalation (vapours mg/l)	194.0

CHROMIUM HARD,TRIVALENT

Inhalation	Vapors irritate the respiratory system.
Ingestion	Causes severe burns. May cause chemical burns in mouth, esophagus and stomach.
Skin Contact	May cause serious chemical burns to the skin.
Eye contact	Causes serious eye damage. Immediate first aid is imperative.
Acute and chronic health hazards	May cause burns in mucous membranes, throat, esophagus and stomach.
Route of exposure	Ingestion Inhalation Skin and/or eye contact

Toxicological information on ingredients.

AMMONIUM FORMATE

Acute toxicity - oral	
Acute toxicity oral (LD_{50} mg/kg)	2,250.0
Species	Mouse
ATE oral (mg/kg)	2,250.0

CHROMIUM (III) SULPHATE

Acute toxicity - oral	
ATE oral (mg/kg)	500.0
Acute toxicity - dermal	
ATE dermal (mg/kg)	1,100.0
Acute toxicity - inhalation	
ATE inhalation (vapours mg/l)	11.0

Potassium Sulfate

Acute toxicity - oral	
Acute toxicity oral (LD_{50} mg/kg)	6,600.0
Species	Rat
ATE oral (mg/kg)	6,600.0

AMMONIA ...%

Acute toxicity - oral	
Acute toxicity oral (LD_{50} mg/kg)	350.0
Species	Rat

SODIUM BROMIDE

Acute toxicity - oral

Acute toxicity oral (LD_{50} mg/kg)	3,500.0
Species	Rat
ATE oral (mg/kg)	3,500.0

Acute toxicity - dermal

Acute toxicity dermal (LD_{50} mg/kg)	2,000.0
Species	Rabbit
ATE dermal (mg/kg)	2,000.0

12. Ecological information

Ecotoxicity The product contains a substance which may have hazardous effects on the environment.

Toxicity No data available.

Ecological information on ingredients.

Potassium Sulfate

Acute aquatic toxicity

Acute toxicity - fish LC_{50}, 96 hour: 680 mg/l, Pimephales promelas (Fat-head Minnow)

AMMONIA ...%

Acute aquatic toxicity

$LE(C)_{50}$	0.1 < L(E)C50 ≤ 1
M factor (Acute)	1
Acute toxicity - fish	LC_{50}, 96 hours: 0.53 mg/l, Freshwater fish LC_{50}, 96 hours: 0.75 -3.4 mg/l, Freshwater fish LC_{50}, 96 hours: 8.2 mg/l, Freshwater fish
Acute toxicity - aquatic invertebrates	EC_{50}, 48 hours: 0.66 mg/l, Daphnia magna

SODIUM BROMIDE

Acute aquatic toxicity

Acute toxicity - fish	NOEC, 96 hour: 7800 mg/l, Oryzias latipes (Red killifish) LC_{50}, 96 hour: 160,000 mg/l, Poecilia reticulata (Guppy)
Acute toxicity - aquatic invertebrates	NOEC, 48 hour: 7800 mg/l, Daphnia magna EC_{50}, 48 hours: 5800 mg/l, Daphnia magna

Persistence and degradability

Persistence and degradability No data available.

Bioaccumulative potential

Bio-Accumulative Potential The product does not contain any substances expected to be bioaccumulating.

Mobility in soil

Mobility The product is soluble in water.

CHROMIUM HARD,TRIVALENT

Other adverse effects

Other adverse effects Not determined.

13. Disposal considerations

Waste treatment methods

General information Disposal of this product, process solutions, residues and by-products should at all times comply with the requirements of environmental protection and waste disposal legislation and any local authority requirements.

Disposal methods Dispose of waste to licensed waste disposal site in accordance with the requirements of the local Waste Disposal Authority.

14. Transport information

General The product is not covered by international regulations on the transport of dangerous goods (IMDG, IATA, DOT).

UN Number

UN No. (International) Not applicable.

UN proper shipping name

Proper shipping name (International) Not applicable.

Proper shipping name (DOT) NOT RESTRICTED LIQUID

Transport hazard class(es)

Transport Labels (International) No transport warning sign required.

Packing group

Packing group (International) Not applicable.

Environmental hazards

Environmentally Hazardous Substance
No.

Special precautions for user

Not applicable.

Transport in bulk according to Annex II of MARPOL 73/78 and the IBC Code Not applicable.

15. Regulatory information

National regulations The customer is advised to check if there are specific local or national regulations specifically applicable to the chemicals contained in the product. The hazards statement for this product is in accordance with international regulations, always observing the most stringent requirements.

US Federal Regulations

SARA Section 302 Extremely Hazardous Substances Tier II Threshold Planning Quantities
Exempt.

CHROMIUM HARD,TRIVALENT

CERCLA/Superfund, Hazardous Substances/Reportable Quantities (EPA)

Ammonium Chloride
Final CERCLA RQ: 5,000 lbs
Chromium Sulphate
Final CERCLA RQ: 1,000 lbs

SARA Extremely Hazardous Substances EPCRA Reportable Quantities

Exempt.

SARA 313 Emission Reporting

Chromium Sulphate

CAA Accidental Release Prevention

HAP
Chromium Sulphate

SARA (311/312) Hazard Categories

Acute
Chronic

OSHA Highly Hazardous Chemicals

Exempt.

US State Regulations

California Proposition 65 Carcinogens and Reproductive Toxins

Chromium Sulphate

California Directors List of Hazardous Substances

Ammonium Chloride
Chromium Sulphate

Inventories

US - TSCA

All ingredients are present.

16. Other information

Classification abbreviations and acronyms	Acute Tox. = Acute toxicity Carc. = Carcinogenicity Eye Dam. = Serious eye damage Eye Irrit. = Eye irritation Flam. Liq. = Flammable liquid Muta. = Germ cell mutagenicity Resp. Sens. = Respiratory sensitisation Skin Corr. = Skin corrosion Skin Irrit. = Skin irritation Skin Sens. = Skin sensitisation STOT RE = Specific target organ toxicity-repeated exposure STOT SE = Specific target organ toxicity-single exposure
Revision date	8/10/2018
Revision	3

CHROMIUM HARD,TRIVALENT

Hazard statements in full	H302 Harmful if swallowed. H312 Harmful in contact with skin. H314 Causes severe skin burns and eye damage. H315 Causes skin irritation. H318 Causes serious eye damage. H319 Causes serious eye irritation. H332 Harmful if inhaled. H335 May cause respiratory irritation. H400 Very toxic to aquatic life. H402 Harmful to aquatic life.
NFPA - health hazard	Extremely hazardous, serious injury. (3)
NFPA - flammability hazard	Will not burn. (0)
NFPA - instability hazard	Normally stable. (0)

The Information in this data sheet is believed to be correct but neither we nor our employees or agents give any warranty or make any representation to the accuracy thereof and accept no liability for any loss, injury or damage which may result in it's use. The sole purpose of this data sheet is to provide guidance on the safe handling and use of the products to which it relates. It does not form part of any product specification nor part of any contract. It is not practical for the guidance and information in this data sheet to cover every conceivable application of a product and as we may not be aware of the use to which the products covered by this data sheet are to be put it remains the responsibility of the user to conduct it's own tests and to satisy itself as to the suitability of the product.

SAFETY DATA SHEET

Version 5.8
Revision Date 03/13/2015
Print Date 01/29/2016

1. PRODUCT AND COMPANY IDENTIFICATION

1.1 Product identifiers

Product name : Vanadium(V) oxide

Product Number : 204854
Brand : Aldrich
Index-No. : 023-001-00-8

CAS-No. : 1314-62-1

1.2 Relevant identified uses of the substance or mixture and uses advised against

Identified uses : Laboratory chemicals, Manufacture of substances

1.3 Details of the supplier of the safety data sheet

Company : Sigma-Aldrich
3050 Spruce Street
SAINT LOUIS MO 63103
USA

Telephone : +1 800-325-5832
Fax : +1 800-325-5052

1.4 Emergency telephone number

Emergency Phone # : (314) 776-6555

2. HAZARDS IDENTIFICATION

2.1 Classification of the substance or mixture

GHS Classification in accordance with 29 CFR 1910 (OSHA HCS)
Acute toxicity, Oral (Category 4), H302
Acute toxicity, Inhalation (Category 4), H332
Serious eye damage (Category 1), H318
Germ cell mutagenicity (Category 2), H341
Reproductive toxicity (Category 2), H361
Specific target organ toxicity - single exposure (Category 3), Respiratory system, H335
Specific target organ toxicity - repeated exposure (Category 1), H372
Acute aquatic toxicity (Category 2), H401
Chronic aquatic toxicity (Category 2), H411

For the full text of the H-Statements mentioned in this Section, see Section 16.

2.2 GHS Label elements, including precautionary statements

Pictogram



Signal word Danger

Hazard statement(s)
H302 + H332 Harmful if swallowed or if inhaled
H318 Causes serious eye damage.
H335 May cause respiratory irritation.
H341 Suspected of causing genetic defects.
H361 Suspected of damaging fertility or the unborn child.
H372 Causes damage to organs through prolonged or repeated exposure.

H411	Toxic to aquatic life with long lasting effects.

Precautionary statement(s)

P201	Obtain special instructions before use.
P202	Do not handle until all safety precautions have been read and understood.
P260	Do not breathe dust/ fume/ gas/ mist/ vapours/ spray.
P264	Wash skin thoroughly after handling.
P270	Do not eat, drink or smoke when using this product.
P271	Use only outdoors or in a well-ventilated area.
P273	Avoid release to the environment.
P280	Wear protective gloves/ protective clothing/ eye protection/ face protection.
P301 + P312 + P330	IF SWALLOWED: Call a POISON CENTER or doctor/ physician if you feel unwell. Rinse mouth.
P304 + P340 + P312	IF INHALED: Remove person to fresh air and keep comfortable for breathing. Call a POISON CENTER or doctor/ physician if you feel unwell.
P305 + P351 + P338 + P310	IF IN EYES: Rinse cautiously with water for several minutes. Remove contact lenses, if present and easy to do. Continue rinsing. Immediately call a POISON CENTER or doctor/ physician.
P308 + P313	IF exposed or concerned: Get medical advice/ attention.
P391	Collect spillage.
P403 + P233	Store in a well-ventilated place. Keep container tightly closed.
P405	Store locked up.
P501	Dispose of contents/ container to an approved waste disposal plant.

2.3 Hazards not otherwise classified (HNOC) or not covered by GHS - none

3. COMPOSITION/INFORMATION ON INGREDIENTS

3.1 Substances

Formula	:	O_5V_2
Molecular weight	:	181.88 g/mol
CAS-No.	:	1314-62-1
EC-No.	:	215-239-8
Index-No.	:	023-001-00-8

Hazardous components

Component	Classification	Concentration
Vanadium pentoxide		
	Acute Tox. 4; Eye Dam. 1; Muta. 2; Repr. 2; STOT SE 3; STOT RE 1; Aquatic Acute 2; Aquatic Chronic 2; H302 + H332, H318, H335, H341, H361, H372, H411	<= 100 %

For the full text of the H-Statements mentioned in this Section, see Section 16.

4. FIRST AID MEASURES

4.1 Description of first aid measures

General advice
Consult a physician. Show this safety data sheet to the doctor in attendance.Move out of dangerous area.

If inhaled
If breathed in, move person into fresh air. If not breathing, give artificial respiration. Consult a physician.

In case of skin contact
Wash off with soap and plenty of water. Take victim immediately to hospital. Consult a physician.

In case of eye contact
Rinse thoroughly with plenty of water for at least 15 minutes and consult a physician.

If swallowed
Never give anything by mouth to an unconscious person. Rinse mouth with water. Consult a physician.

4.2 Most important symptoms and effects, both acute and delayed
The most important known symptoms and effects are described in the labelling (see section 2.2) and/or in section 11

4.3 Indication of any immediate medical attention and special treatment needed
No data available

5. FIREFIGHTING MEASURES

5.1 Extinguishing media

Suitable extinguishing media
Use water spray, alcohol-resistant foam, dry chemical or carbon dioxide.

5.2 Special hazards arising from the substance or mixture
Vanadium/vanadium oxides

5.3 Advice for firefighters
Wear self-contained breathing apparatus for firefighting if necessary.

5.4 Further information
No data available

6. ACCIDENTAL RELEASE MEASURES

6.1 Personal precautions, protective equipment and emergency procedures
Use personal protective equipment. Avoid dust formation. Avoid breathing vapours, mist or gas. Ensure adequate ventilation. Evacuate personnel to safe areas. Avoid breathing dust.
For personal protection see section 8.

6.2 Environmental precautions
Prevent further leakage or spillage if safe to do so. Do not let product enter drains. Discharge into the environment must be avoided.

6.3 Methods and materials for containment and cleaning up
Pick up and arrange disposal without creating dust. Sweep up and shovel. Keep in suitable, closed containers for disposal.

6.4 Reference to other sections
For disposal see section 13.

7. HANDLING AND STORAGE

7.1 Precautions for safe handling
Avoid contact with skin and eyes. Avoid formation of dust and aerosols.Further processing of solid materials may result in the formation of combustible dusts. The potential for combustible dust formation should be taken into consideration before additional processing occurs.
Provide appropriate exhaust ventilation at places where dust is formed.
For precautions see section 2.2.

7.2 Conditions for safe storage, including any incompatibilities
Keep container tightly closed in a dry and well-ventilated place.
Storage class (TRGS 510): Non-combustible, acute toxic Cat.3 / toxic hazardous materials or hazardous materials causing chronic effects

7.3 Specific end use(s)
Apart from the uses mentioned in section 1.2 no other specific uses are stipulated

8. EXPOSURE CONTROLS/PERSONAL PROTECTION

8.1 Control parameters

Components with workplace control parameters

Component	CAS-No.	Value	Control parameters	Basis
Vanadium pentoxide	1314-62-1	C	0.100000 mg/m3	USA. Occupational Exposure Limits (OSHA) - Table Z-1 Limits for Air Contaminants
		C	0.500000 mg/m3	USA. Occupational Exposure Limits (OSHA) - Table Z-1 Limits for Air Contaminants
	Remarks	Ceiling limit is to be determined from breathing-zone air samples.		
		TWA	0.050000 mg/m3	USA. ACGIH Threshold Limit Values (TLV)
		Upper Respiratory Tract irritation Lower Respiratory Tract irritation Substances for which there is a Biological Exposure Index or Indices (see BEI® section) Confirmed animal carcinogen with unknown relevance to humans		
		TWA	0.05 mg/m3	USA. ACGIH Threshold Limit Values (TLV)
		Upper Respiratory Tract irritation Lower Respiratory Tract irritation Substances for which there is a Biological Exposure Index or Indices (see BEI® section) Confirmed animal carcinogen with unknown relevance to humans		
		C	0.050000 mg/m3	USA. NIOSH Recommended Exposure Limits
		15 minute ceiling value		
		C	0.050000 mg/m3	USA. NIOSH Recommended Exposure Limits
		15 minute ceiling value		
		C	0.100000 mg/m3	USA. Occupational Exposure Limits (OSHA) - Table Z-1 Limits for Air Contaminants
		Ceiling limit is to be determined from breathing-zone air samples.		
		C	0.500000 mg/m3	USA. Occupational Exposure Limits (OSHA) - Table Z-1 Limits for Air Contaminants
		Ceiling limit is to be determined from breathing-zone air samples.		
		C	0.050000 mg/m3	USA. NIOSH Recommended Exposure Limits
		15 minute ceiling value		
		C	0.050000 mg/m3	USA. NIOSH Recommended Exposure Limits
		15 minute ceiling value		
		C	0.050000 mg/m3	USA. NIOSH Recommended Exposure Limits
		15 minute ceiling value		
		C	0.050000 mg/m3	USA. NIOSH Recommended Exposure Limits
		15 minute ceiling value		

Biological occupational exposure limits

Component	CAS-No.	Parameters	Value	Biological specimen	Basis
Vanadium pentoxide	1314-62-1	Vanadium	0.0500 mg/g	In urine	
	Remarks	End of shift at end of workweek			

8.2 Exposure controls

Appropriate engineering controls
Handle in accordance with good industrial hygiene and safety practice. Wash hands before breaks and at the end of workday.

Personal protective equipment

Eye/face protection
Face shield and safety glasses Use equipment for eye protection tested and approved under appropriate government standards such as NIOSH (US) or EN 166(EU).

Skin protection
Handle with gloves. Gloves must be inspected prior to use. Use proper glove removal technique (without touching glove's outer surface) to avoid skin contact with this product. Dispose of contaminated gloves after use in accordance with applicable laws and good laboratory practices. Wash and dry hands.

Full contact
Material: Nitrile rubber
Minimum layer thickness: 0.11 mm
Break through time: 480 min
Material tested:Dermatril® (KCL 740 / Aldrich Z677272, Size M)

Splash contact
Material: Nitrile rubber
Minimum layer thickness: 0.11 mm
Break through time: 480 min
Material tested:Dermatril® (KCL 740 / Aldrich Z677272, Size M)

data source: KCL GmbH, D-36124 Eichenzell, phone +49 (0)6659 87300, e-mail sales@kcl.de, test method: EN374
If used in solution, or mixed with other substances, and under conditions which differ from EN 374, contact the supplier of the CE approved gloves. This recommendation is advisory only and must be evaluated by an industrial hygienist and safety officer familiar with the specific situation of anticipated use by our customers. It should not be construed as offering an approval for any specific use scenario.

Body Protection
Complete suit protecting against chemicals, The type of protective equipment must be selected according to the concentration and amount of the dangerous substance at the specific workplace.

Respiratory protection
Where risk assessment shows air-purifying respirators are appropriate use a full-face particle respirator type N100 (US) or type P3 (EN 143) respirator cartridges as a backup to engineering controls. If the respirator is the sole means of protection, use a full-face supplied air respirator. Use respirators and components tested and approved under appropriate government standards such as NIOSH (US) or CEN (EU).

Control of environmental exposure
Prevent further leakage or spillage if safe to do so. Do not let product enter drains. Discharge into the environment must be avoided.

9. PHYSICAL AND CHEMICAL PROPERTIES

9.1 Information on basic physical and chemical properties

a)	Appearance	Form: solid
b)	Odour	No data available
c)	Odour Threshold	No data available
d)	pH	No data available
e)	Melting point/freezing point	Melting point/range: 690 °C (1,274 °F) - lit.
f)	Initial boiling point and boiling range	No data available
g)	Flash point	Not applicable

h)	Evaporation rate	No data available
i)	Flammability (solid, gas)	No data available
j)	Upper/lower flammability or explosive limits	No data available
k)	Vapour pressure	No data available
l)	Vapour density	No data available
m)	Relative density	3.35 g/mL at 25 °C (77 °F)
n)	Water solubility	904 g/l at 20 °C (68 °F) - OECD Test Guideline 105
o)	Partition coefficient: n-octanol/water	No data available
p)	Auto-ignition temperature	No data available
q)	Decomposition temperature	No data available
r)	Viscosity	No data available
s)	Explosive properties	No data available
t)	Oxidizing properties	The substance or mixture is not classified as oxidizing.

9.2 Other safety information

Solubility in other solvents	Ethanol - insoluble

10. STABILITY AND REACTIVITY

10.1 Reactivity
No data available

10.2 Chemical stability
Stable under recommended storage conditions.

10.3 Possibility of hazardous reactions
No data available

10.4 Conditions to avoid
No data available

10.5 Incompatible materials
Strong acids

10.6 Hazardous decomposition products
Other decomposition products - No data available
In the event of fire: see section 5

11. TOXICOLOGICAL INFORMATION

11.1 Information on toxicological effects

Acute toxicity
Harmful if swallowed. Classified according to Regulation (EU) 1272/2008, Annex VI (Table 3.1/3.2)

LC50 Inhalation - Rat - female - 4 h - 2.21 mg/l
(OECD Test Guideline 403)

LC50 Dermal - Rat - > 2,500 mg/kg
(OECD Test Guideline 402)

No data available

Skin corrosion/irritation
Skin - in vitro assay
Result: No skin irritation

Serious eye damage/eye irritation
Eyes - Rabbit
Result: Risk of serious damage to eyes.
(OECD Test Guideline 405)

Respiratory or skin sensitisation
No data available

Germ cell mutagenicity
Laboratory experiments have shown mutagenic effects.
In vitro tests showed mutagenic effects

Carcinogenicity

No data available

IARC:	2B - Group 2B: Possibly carcinogenic to humans (Vanadium pentoxide)
NTP:	No component of this product present at levels greater than or equal to 0.1% is identified as a known or anticipated carcinogen by NTP.
OSHA:	No component of this product present at levels greater than or equal to 0.1% is identified as a carcinogen or potential carcinogen by OSHA.

Reproductive toxicity
Possible risk of congenital malformation in the fetus.
Suspected human reproductive toxicant

No data available

Specific target organ toxicity - single exposure
May cause respiratory irritation.
Classified according to Regulation (EU) 1272/2008, Annex VI (Table 3.1/3.2)

Specific target organ toxicity - repeated exposure
Causes damage to organs through prolonged or repeated exposure.

Aspiration hazard
No data available

Additional Information
RTECS: Not available

To the best of our knowledge, the chemical, physical, and toxicological properties have not been thoroughly investigated.

Stomach - Irregularities - Based on Human Evidence
Stomach - Irregularities - Based on Human Evidence

12. ECOLOGICAL INFORMATION

12.1 Toxicity

Toxicity to fish	LC50 - Oncorhynchus mykiss (rainbow trout) - 5.2 mg/l - 96.0 h
Toxicity to daphnia and other aquatic invertebrates	LC50 - Daphnia magna (Water flea) - 1.52 mg/l - 48 h

12.2 Persistence and degradability
No data available

12.3 Bioaccumulative potential
No data available

12.4 Mobility in soil
No data available

12.5 Results of PBT and vPvB assessment
PBT/vPvB assessment not available as chemical safety assessment not required/not conducted

12.6 Other adverse effects
Toxic to aquatic life with long lasting effects.
An environmental hazard cannot be excluded in the event of unprofessional handling or disposal.

13. DISPOSAL CONSIDERATIONS

13.1 Waste treatment methods

Product
Offer surplus and non-recyclable solutions to a licensed disposal company. Contact a licensed professional waste disposal service to dispose of this material. Dissolve or mix the material with a combustible solvent and burn in a chemical incinerator equipped with an afterburner and scrubber.

Contaminated packaging
Dispose of as unused product.

14. TRANSPORT INFORMATION

DOT (US)
UN number: 2862 Class: 6.1 Packing group: III
Proper shipping name: Vanadium pentoxide
Reportable Quantity (RQ): 1000 lbs

Poison Inhalation Hazard: No

IMDG
UN number: 2862 Class: 6.1 Packing group: III EMS-No: F-A, S-A
Proper shipping name: VANADIUM PENTOXIDE
Marine pollutant:yes

IATA
UN number: 2862 Class: 6.1 Packing group: III
Proper shipping name: Vanadium pentoxide

15. REGULATORY INFORMATION

SARA 302 Components
The following components are subject to reporting levels established by SARA Title III, Section 302:

	CAS-No.	Revision Date
Vanadium pentoxide	1314-62-1	2007-07-01

SARA 313 Components

	CAS-No.	Revision Date
Vanadium pentoxide	1314-62-1	2007-07-01

The following components are subject to reporting levels established by SARA Title III, Section 313:

	CAS-No.	Revision Date
Vanadium pentoxide	1314-62-1	2007-07-01

SARA 311/312 Hazards
Acute Health Hazard, Chronic Health Hazard

Massachusetts Right To Know Components

	CAS-No.	Revision Date
Vanadium pentoxide	1314-62-1	2007-07-01

Pennsylvania Right To Know Components

	CAS-No.	Revision Date
Vanadium pentoxide	1314-62-1	2007-07-01

New Jersey Right To Know Components

	CAS-No.	Revision Date
Vanadium pentoxide	1314-62-1	2007-07-01

California Prop. 65 Components

WARNING! This product contains a chemical known to the State of California to cause cancer.	CAS-No.	Revision Date
Vanadium pentoxide	1314-62-1	2007-09-28

16. OTHER INFORMATION

Full text of H-Statements referred to under sections 2 and 3.

Acute Tox.	Acute toxicity
Aquatic Acute	Acute aquatic toxicity
Aquatic Chronic	Chronic aquatic toxicity
Eye Dam.	Serious eye damage
H302	Harmful if swallowed.
H302 + H332	Harmful if swallowed or if inhaled
H318	Causes serious eye damage.
H332	Harmful if inhaled.
H335	May cause respiratory irritation.
H341	Suspected of causing genetic defects.
H361	Suspected of damaging fertility or the unborn child.
H372	Causes damage to organs through prolonged or repeated exposure.
H401	Toxic to aquatic life.

HMIS Rating

Health hazard:	4
Chronic Health Hazard:	*
Flammability:	0
Physical Hazard	0

NFPA Rating

Health hazard:	3
Fire Hazard:	0
Reactivity Hazard:	0

Further information

Copyright 2015 Sigma-Aldrich Co. LLC. License granted to make unlimited paper copies for internal use only.
The above information is believed to be correct but does not purport to be all inclusive and shall be used only as a guide. The information in this document is based on the present state of our knowledge and is applicable to the product with regard to appropriate safety precautions. It does not represent any guarantee of the properties of the product. Sigma-Aldrich Corporation and its Affiliates shall not be held liable for any damage resulting from handling or from contact with the above product. See www.sigma-aldrich.com and/or the reverse side of invoice or packing slip for additional terms and conditions of sale.

Preparation Information

Sigma-Aldrich Corporation
Product Safety – Americas Region
1-800-521-8956

Version: 5.8 Revision Date: 03/13/2015 Print Date: 01/29/2016

SAFETY DATA SHEET

Creation Date 22-Sep-2009 **Revision Date** 25-Apr-2019 **Revision Number** 6

1. Identification

Product Name **Vinylidene chloride, stabilized**

Cat No. : **AC172290000; AC172290010; AC172290025; AC172290250**

CAS-No 75-35-4
Synonyms 1,1-Dichloroethylene

Recommended Use Laboratory chemicals.
Uses advised against Food, drug, pesticide or biocidal product use.

Details of the supplier of the safety data sheet

Company

Fisher Scientific
One Reagent Lane
Fair Lawn, NJ 07410
Tel: (201) 796-7100

Acros Organics
One Reagent Lane
Fair Lawn, NJ 07410

Emergency Telephone Number
For information **US** call: 001-800-ACROS-01 / **Europe** call: +32 14 57 52 11
Emergency Number **US:**001-201-796-7100 / **Europe:** +32 14 57 52 99
CHEMTREC Tel. No.**US:**001-800-424-9300 / **Europe:**001-703-527-3887

2. Hazard(s) identification

Classification
This chemical is considered hazardous by the 2012 OSHA Hazard Communication Standard (29 CFR 1910.1200)

Flammable liquids	Category 1
Acute oral toxicity	Category 4
Acute Inhalation Toxicity - Vapors	Category 4
Serious Eye Damage/Eye Irritation	Category 2
Carcinogenicity	Category 2
Specific target organ toxicity - (repeated exposure)	Category 2
Target Organs - Nasal Cavities, Liver.	

Label Elements

Signal Word
Danger

Hazard Statements
Extremely flammable liquid and vapor
Causes serious eye irritation

Suspected of causing cancer
May cause damage to organs through prolonged or repeated exposure
Harmful if swallowed or if inhaled



Precautionary Statements
Prevention
Obtain special instructions before use
Do not handle until all safety precautions have been read and understood
Use personal protective equipment as required
Wash face, hands and any exposed skin thoroughly after handling
Do not eat, drink or smoke when using this product
Use only outdoors or in a well-ventilated area
Wear eye/face protection
Do not breathe dust/fume/gas/mist/vapors/spray
Keep away from heat/sparks/open flames/hot surfaces. - No smoking
Keep container tightly closed
Ground/bond container and receiving equipment
Use explosion-proof electrical/ventilating/lighting/equipment
Use only non-sparking tools
Take precautionary measures against static discharge
Response
IF exposed or concerned: Get medical attention/advice
Inhalation
IF INHALED: Remove victim to fresh air and keep at rest in a position comfortable for breathing
Skin
IF ON SKIN (or hair): Take off immediately all contaminated clothing. Rinse skin with water/shower
Eyes
IF IN EYES: Rinse cautiously with water for several minutes. Remove contact lenses, if present and easy to do. Continue rinsing
If eye irritation persists: Get medical advice/attention
Ingestion
IF SWALLOWED: Call a POISON CENTER or doctor/physician if you feel unwell
Rinse mouth
Fire
In case of fire: Use CO2, dry chemical, or foam for extinction
Storage
Store locked up
Store in a well-ventilated place. Keep cool
Disposal
Dispose of contents/container to an approved waste disposal plant
Hazards not otherwise classified (HNOC)
Toxic to aquatic life with long lasting effects
WARNING. Cancer - https://www.p65warnings.ca.gov/.

3. Composition/Information on Ingredients

Component	CAS-No	Weight %
Vinylidene chloride	75-35-4	>95
4-Methoxyphenol	150-76-5	0.02

4. First-aid measures

Eye Contact Rinse immediately with plenty of water, also under the eyelids, for at least 15 minutes. Get medical attention.

Skin Contact Wash off immediately with plenty of water for at least 15 minutes. Get medical attention.

Inhalation Remove to fresh air. If breathing is difficult, give oxygen. Get medical attention.

Ingestion Do NOT induce vomiting. Get medical attention.

Most important symptoms and effects Difficulty in breathing. . Inhalation of high vapor concentrations may cause symptoms like headache, dizziness, tiredness, nausea and vomiting

Notes to Physician Treat symptomatically

5. Fire-fighting measures

Suitable Extinguishing Media Water spray. Carbon dioxide (CO_2). Dry chemical. Water mist may be used to cool closed containers. Chemical foam. Water mist may be used to cool closed containers.

Unsuitable Extinguishing Media No information available

Flash Point -25 °C / -13 °F

Method - No information available

Autoignition Temperature 520 °C / 968 °F

Explosion Limits

Upper	16.5%
Lower	8.4%
Sensitivity to Mechanical Impact	No information available
Sensitivity to Static Discharge	No information available

Specific Hazards Arising from the Chemical
Extremely flammable. Vapors may travel to source of ignition and flash back. Vapors may form explosive mixture with air. Containers may explode when heated. Vapors may form explosive mixtures with air.

Hazardous Combustion Products
Carbon monoxide (CO). Carbon dioxide (CO_2). Formaldehyde. peroxides. Hydrogen chloride gas.

Protective Equipment and Precautions for Firefighters
Vapors are heavier than air and may spread along floors. As in any fire, wear self-contained breathing apparatus pressure-demand, MSHA/NIOSH (approved or equivalent) and full protective gear.

NFPA

Health	Flammability	Instability	Physical hazards
2	4	1	N/A

6. Accidental release measures

Personal Precautions Remove all sources of ignition. Take precautionary measures against static discharges.

Environmental Precautions Do not flush into surface water or sanitary sewer system. See Section 12 for additional Ecological Information. Avoid release to the environment. Collect spillage.

Methods for Containment and Clean Up Soak up with inert absorbent material (e.g. sand, silica gel, acid binder, universal binder, sawdust). Keep in suitable, closed containers for disposal. Remove all sources of ignition. Use spark-proof tools and explosion-proof equipment. Do not let this chemical enter the environment.

7. Handling and storage

Handling

Ensure adequate ventilation. Wear personal protective equipment/face protection. Avoid contact with skin and eyes. Take precautionary measures against static discharges. Do not ingest. If swallowed then seek immediate medical assistance. Handle product only in closed system or provide appropriate exhaust ventilation. Use spark-proof tools and explosion-proof equipment. Use only non-sparking tools. Do not subject to grinding/shock/friction. Avoid breathing dust/fume/gas/mist/vapors/spray. Keep away from open flames, hot surfaces and sources of ignition. To avoid ignition of vapors by static electricity discharge, all metal parts of the equipment must be grounded.

Storage

Refrigerator/flammables. Keep away from heat, sparks and flame. Protect from light. May form explosive peroxides on prolonged storage. Keep under nitrogen. Keep containers tightly closed in a dry, cool and well-ventilated place.

8. Exposure controls / personal protection

Exposure Guidelines

Component	ACGIH TLV	OSHA PEL	NIOSH IDLH	Mexico OEL (TWA)
Vinylidene chloride	TWA: 5 ppm	(Vacated) TWA: 1 ppm (Vacated) TWA: 4 mg/m³		TWA: 5 ppm
4-Methoxyphenol	TWA: 5 mg/m³	(Vacated) TWA: 5 mg/m³	TWA: 5 mg/m³	TWA: 5 mg/m³

Legend

ACGIH - American Conference of Governmental Industrial Hygienists
OSHA - Occupational Safety and Health Administration
NIOSH IDLH: NIOSH - National Institute for Occupational Safety and Health

Engineering Measures

Use explosion-proof electrical/ventilating/lighting/equipment. Ensure adequate ventilation, especially in confined areas. Ensure that eyewash stations and safety showers are close to the workstation location.

Personal Protective Equipment

Eye/face Protection

Wear appropriate protective eyeglasses or chemical safety goggles as described by OSHA's eye and face protection regulations in 29 CFR 1910.133 or European Standard EN166.

Skin and body protection

Wear appropriate protective gloves and clothing to prevent skin exposure.

Respiratory Protection

Follow the OSHA respirator regulations found in 29 CFR 1910.134 or European Standard EN 149. Use a NIOSH/MSHA or European Standard EN 149 approved respirator if exposure limits are exceeded or if irritation or other symptoms are experienced.

Hygiene Measures

Handle in accordance with good industrial hygiene and safety practice.

9. Physical and chemical properties

Physical State	Liquid
Appearance	Colorless
Odor	aromatic
Odor Threshold	No information available
pH	7 2.5 g/l aq.sol
Melting Point/Range	-122 °C / -187.6 °F
Boiling Point/Range	31.2 - 32 °C / 88.2 - 89.6 °F @ 760 mmHg
Flash Point	-25 °C / -13 °F
Evaporation Rate	No information available
Flammability (solid,gas)	Not applicable
Flammability or explosive limits	

Upper	16.5%
Lower	8.4%
Vapor Pressure	665 mbar @ 20 °C
Vapor Density	3.4 (Air = 1.0)
Specific Gravity	1.218
Solubility	No information available
Partition coefficient; n-octanol/water	No data available
Autoignition Temperature	520 °C / 968 °F
Decomposition Temperature	No information available
Viscosity	.377 mPa.s at 15 °C
Molecular Formula	C2 H2 Cl2
Molecular Weight	96.94

10. Stability and reactivity

Reactive Hazard None known, based on information available

Stability May form explosive peroxides. Hazardous polymerization may occur upon depletion of inhibitor. Moisture sensitive. Air sensitive. Light sensitive.

Conditions to Avoid Keep away from open flames, hot surfaces and sources of ignition. Excess heat. Exposure to air. Exposure to light. Incompatible products. Exposure to moist air or water.

Incompatible Materials Strong oxidizing agents, Strong bases, Finely powdered metals, oxygen, Peroxides, Metals, copper, Finely powdered metals, Acids

Hazardous Decomposition Products Carbon monoxide (CO), Carbon dioxide (CO_2), Formaldehyde, peroxides, Hydrogen chloride gas

Hazardous Polymerization Hazardous polymerization may occur.

Hazardous Reactions None under normal processing.

11. Toxicological information

Acute Toxicity

Product Information

Oral LD50 Category 4. ATE = 300 - 2000 mg/kg.

Vapor LC50 Category 4. ATE = 10 - 20 mg/l.

Component Information

Component	LD50 Oral	LD50 Dermal	LC50 Inhalation
Vinylidene chloride	LD50 = 1500 mg/kg (Rat) LD50 = 200 mg/kg (Rat)	Not listed	LC50 = 1.66 mg/L (Rat) 4 h LC50 = 6350 ppm (Rat) 4 h
4-Methoxyphenol	1600 mg/kg (Rat)	LD50 > 2000 mg/kg (Rabbit)	Not listed

Toxicologically Synergistic Products No information available

Delayed and immediate effects as well as chronic effects from short and long-term exposure

Irritation May cause skin, eye, and respiratory tract irritation

Sensitization No information available

Carcinogenicity Limited evidence of a carcinogenic effect. The table below indicates whether each agency has listed any ingredient as a carcinogen.

Component	CAS-No	IARC	NTP	ACGIH	OSHA	Mexico
Vinylidene chloride	75-35-4	Group 2B	Not listed	Not listed	X	Not listed
4-Methoxyphenol	150-76-5	Not listed	Not listed	Not listed	Not listed	Not listed

Mutagenic Effects Ames test: positive.

Reproductive Effects No information available.

Developmental Effects No information available.

Teratogenicity No information available.

STOT - single exposure None known
STOT - repeated exposure Nasal Cavities Liver

Aspiration hazard No information available

Symptoms / effects,both acute and delayed Inhalation of high vapor concentrations may cause symptoms like headache, dizziness, tiredness, nausea and vomiting

Endocrine Disruptor Information No information available

Other Adverse Effects The toxicological properties have not been fully investigated. See actual entry in RTECS for complete information.

12. Ecological information

Ecotoxicity

The product contains following substances which are hazardous for the environment. Toxic to aquatic organisms, may cause long-term adverse effects in the aquatic environment.

Component	Freshwater Algae	Freshwater Fish	Microtox	Water Flea
Vinylidene chloride	Not listed	LC50: 161 - 179 mg/L, 96h static (Pimephales promelas) LC50: 57 - 91 mg/L, 96h static (Lepomis macrochirus) LC50: 85 - 117 mg/L, 96h flow-through (Pimephales promelas)	EC50 > 2000 mg/L 17 h	LC50: 62 - 110 mg/L, 48h Static (Daphnia magna) LC50: 9.0 - 14.0 mg/L, 48h Static (Daphnia magna)
4-Methoxyphenol	Not listed	LC50: = 28.5 mg/L, 96h flow-through (Oncorhynchus mykiss) LC50: = 84.3 mg/L, 96h flow-through (Pimephales promelas)	EC50 = 3.66 mg/L 5 min EC50 = 4.30 mg/L 15 min EC50 = 4.61 mg/L 30 min	Not listed

Persistence and Degradability No information available

Bioaccumulation/ Accumulation No information available.

Mobility Will likely be mobile in the environment due to its volatility.

Component	log Pow
Vinylidene chloride	2.02
4-Methoxyphenol	1.3

13. Disposal considerations

Waste Disposal Methods Chemical waste generators must determine whether a discarded chemical is classified as a hazardous waste. Chemical waste generators must also consult local, regional, and national hazardous waste regulations to ensure complete and accurate classification.

Component	RCRA - U Series Wastes	RCRA - P Series Wastes
Vinylidene chloride - 75-35-4	U078	-

14. Transport information

DOT

UN-No	UN1303
Proper Shipping Name	VINYLIDENE CHLORIDE, STABILIZED
Hazard Class	3
Packing Group	I

TDG

UN-No	UN1303
Proper Shipping Name	VINYLIDENE CHLORIDE, STABILIZED
Hazard Class	3
Packing Group	I

IATA

UN-No	UN1303
Proper Shipping Name	VINYLIDENE CHLORIDE, STABILIZED
Hazard Class	3
Packing Group	I

IMDG/IMO

UN-No	UN1303
Proper Shipping Name	VINYLIDENE CHLORIDE, STABILIZED
Hazard Class	3
Subsidiary Hazard Class	P
Packing Group	I

15. Regulatory information

United States of America Inventory

Component	CAS-No	TSCA	TSCA Inventory notification - Active/Inactive	TSCA - EPA Regulatory Flags
Vinylidene chloride	75-35-4	X	ACTIVE	-
4-Methoxyphenol	150-76-5	X	ACTIVE	-

Legend:
TSCA - Toxic Substances Control Act, (40 CFR Part 710)
X - Listed
'-' - Not Listed

TSCA 12(b) - Notices of Export Not applicable

International Inventories
Canada (DSL/NDSL), Europe (EINECS/ELINCS/NLP), Philippines (PICCS), Japan (ENCS), Australia (AICS), China (IECSC), Korea (ECL).

Component	CAS-No	DSL	NDSL	EINECS	PICCS	ENCS	AICS	IECSC	KECL
Vinylidene chloride	75-35-4	X	-	200-864-0	X	X	X	X	KE-10122
4-Methoxyphenol	150-76-5	X	-	205-769-8	X	X	X	X	KE-23353

U.S. Federal Regulations

SARA 313

Component	CAS-No	Weight %	SARA 313 - Threshold Values %
Vinylidene chloride	75-35-4	>95	1.0

SARA 311/312 Hazard Categories See section 2 for more information

CWA (Clean Water Act)

Component	CWA - Hazardous Substances	CWA - Reportable Quantities	CWA - Toxic Pollutants	CWA - Priority Pollutants
Vinylidene chloride	X	100 lb	X	X

Clean Air Act

Component	HAPS Data	Class 1 Ozone Depletors	Class 2 Ozone Depletors
Vinylidene chloride	X		-

OSHA - Occupational Safety and Health Administration: Not applicable

CERCLA: This material, as supplied, contains one or more substances regulated as a hazardous substance under the Comprehensive Environmental Response Compensation and Liability Act (CERCLA) (40 CFR 302)

Component	Hazardous Substances RQs	CERCLA EHS RQs
Vinylidene chloride	100 lb 1 lb	-

California Proposition 65: This product contains the following Proposition 65 chemicals.

Component	CAS-No	California Prop. 65	Prop 65 NSRL	Category
Vinylidene chloride	75-35-4	Carcinogen	0.88 µg/day	Carcinogen

U.S. State Right-to-Know Regulations

Component	Massachusetts	New Jersey	Pennsylvania	Illinois	Rhode Island
Vinylidene chloride	X	X	X	X	X
4-Methoxyphenol	X	X	X	-	X

U.S. Department of Transportation

Reportable Quantity (RQ): N
DOT Marine Pollutant N
DOT Severe Marine Pollutant N

U.S. Department of Homeland Security: This product contains the following DHS chemicals:
Legend - STQs = Screening Threshold Quantities, APA = A placarded amount

Component	DHS Chemical Facility Anti-Terrorism Standard
Vinylidene chloride	Release STQs - 10000lb

Other International Regulations

Mexico - Grade: No information available

16. Other information

Prepared By
Regulatory Affairs
Thermo Fisher Scientific
Email: EMSDS.RA@thermofisher.com

Creation Date 22-Sep-2009
Revision Date 25-Apr-2019
Print Date 25-Apr-2019
Revision Summary This document has been updated to comply with the US OSHA HazCom 2012 Standard replacing the current legislation under 29 CFR 1910.1200 to align with the Globally Harmonized System of Classification and Labeling of Chemicals (GHS).

Disclaimer

The information provided in this Safety Data Sheet is correct to the best of our knowledge, information and belief at the date of its publication. The information given is designed only as a guidance for safe handling, use, processing, storage, transportation, disposal and release and is not to be considered a warranty or quality specification. The information relates only to the specific material designated and may not be valid for such material used in combination with any other materials or in any process, unless specified in the text

End of SDS

Safety Data Sheet
acc. to OSHA HCS

Printing date 03/28/2019 Version Number 4 Reviewed on 03/23/2019

*
1 Identification

· **Product identifier**

· **Trade name: VOC Gas Standard (1X1 mL)**

· **Part number:** DWM-544-1
· **Application of the substance / the mixture** Reagents and Standards for Analytical Chemical Laboratory Use

· **Details of the supplier of the safety data sheet**
· **Manufacturer/Supplier:**
Agilent Technologies, Inc.
5301 Stevens Creek Blvd.
Santa Clara, CA 95051 USA

· **Information department:**
Telephone: 800-227-9770
e-mail: pdl-msds_author@agilent.com
· **Emergency telephone number:** CHEMTREC®: 1-800-424-9300

*
2 Hazard(s) identification

· **Classification of the substance or mixture**


GHS02 Flame

Flam. Liq. 2 H225 Highly flammable liquid and vapor.


GHS06 Skull and crossbones

Acute Tox. 3 H331 Toxic if inhaled.


GHS08 Health hazard

Carc. 1A H350 May cause cancer.
STOT SE 1 H370 Causes damage to organs.

· **Label elements**
· **GHS label elements** The product is classified and labeled according to the Globally Harmonized System (GHS).
· **Hazard pictograms**


GHS02 GHS06 GHS08

· **Signal word** Danger

· **Hazard-determining components of labeling:**
methanol
vinyl chloride
bromomethane
· **Hazard statements**
Highly flammable liquid and vapor.

(Contd. on page 2)

Safety Data Sheet
acc. to OSHA HCS

Trade name: VOC Gas Standard (1X1 mL)

(Contd. of page 1)

Toxic if inhaled.
May cause cancer.
Causes damage to organs.

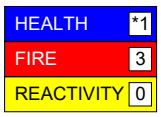
· **Precautionary statements**
Obtain special instructions before use.
Do not handle until all safety precautions have been read and understood.
Keep away from heat/sparks/open flames/hot surfaces. - No smoking.
Ground/bond container and receiving equipment.
Use explosion-proof electrical/ventilating/lighting/equipment.
Use only non-sparking tools.
Take precautionary measures against static discharge.
Do not breathe dust/fume/gas/mist/vapors/spray.
Wash thoroughly after handling.
Do not eat, drink or smoke when using this product.
Use only outdoors or in a well-ventilated area.
Wear protective gloves/protective clothing/eye protection/face protection.
If on skin (or hair): Take off immediately all contaminated clothing. Rinse skin with water/shower.
IF INHALED: Remove person to fresh air and keep comfortable for breathing.
IF exposed or concerned: Get medical advice/attention.
Specific treatment (see on this label).
In case of fire: Use for extinction: CO2, powder or water spray.
Store in a well-ventilated place. Keep container tightly closed.
Store in a well-ventilated place. Keep cool.
Store locked up.
Dispose of contents/container in accordance with local/regional/national/international regulations.

· **Classification system:**
· **NFPA ratings (scale 0 - 4)**



Health = 1
Fire = 3
Reactivity = 0

· **HMIS-ratings (scale 0 - 4)**



Health = *1
Fire = 3
Reactivity = 0

· **Other hazards**
· **Results of PBT and vPvB assessment**
· **PBT:** Not applicable.
· **vPvB:** Not applicable.

*
3 Composition/information on ingredients

· **Chemical characterization: Mixtures**
· **Description:** Mixture of the substances listed below with nonhazardous additions.

· **Dangerous components:**		
67-56-1	methanol	98.483%
74-87-3	chloromethane	0.253%
75-01-4	vinyl chloride	0.253%

(Contd. on page 3)

(Contd. of page 2)

75-00-3	chloroethane	0.253%

4 First-aid measures

· **Description of first aid measures**
· **General information:**
Immediately remove any clothing soiled by the product.
Remove breathing apparatus only after contaminated clothing have been completely removed.
In case of irregular breathing or respiratory arrest provide artificial respiration.
· **After inhalation:**
Supply fresh air or oxygen; call for doctor.
In case of unconsciousness place patient stably in side position for transportation.
· **After skin contact:** Immediately wash with water and soap and rinse thoroughly.
· **After eye contact:** Rinse opened eye for several minutes under running water. Then consult a doctor.
· **After swallowing:** If symptoms persist consult doctor.
· **Information for doctor:**
· **Most important symptoms and effects, both acute and delayed** No further relevant information available.
· **Indication of any immediate medical attention and special treatment needed**
No further relevant information available.

5 Fire-fighting measures

· **Extinguishing media**
· **Suitable extinguishing agents:**
CO2, extinguishing powder or water spray. Fight larger fires with water spray or alcohol resistant foam.
· **For safety reasons unsuitable extinguishing agents:** Water with full jet
· **Special hazards arising from the substance or mixture**
During heating or in case of fire poisonous gases are produced.
· **Advice for firefighters**
· **Protective equipment:** Mouth respiratory protective device.

6 Accidental release measures

· **Personal precautions, protective equipment and emergency procedures**
Mount respiratory protective device.
Wear protective equipment. Keep unprotected persons away.
· **Environmental precautions:** Do not allow to enter sewers/ surface or ground water.
· **Methods and material for containment and cleaning up:**
Absorb with liquid-binding material (sand, diatomite, acid binders, universal binders, sawdust).
Dispose contaminated material as waste according to item 13.
Ensure adequate ventilation.
· **Reference to other sections**
See Section 7 for information on safe handling.
See Section 8 for information on personal protection equipment.
See Section 13 for disposal information.
· **Protective Action Criteria for Chemicals**

· **PAC-1:**		
67-56-1	methanol	530 ppm

(Contd. on page 4)

(Contd. of page 3)

74-87-3	chloromethane	150 ppm
74-83-9	bromomethane	19 ppm
75-01-4	vinyl chloride	250 ppm
75-71-8	dichlorodifluoromethane	3,000 ppm
75-69-4	trichlorofluoromethane	91 ppm
75-00-3	chloroethane	300 ppm

· **PAC-2:**

67-56-1	methanol	2,100 ppm
74-87-3	chloromethane	910 ppm
74-83-9	bromomethane	210 ppm
75-01-4	vinyl chloride	1,200 ppm
75-71-8	dichlorodifluoromethane	10,000 ppm
75-69-4	trichlorofluoromethane	1,000 ppm
75-00-3	chloroethane	5100* ppm

· **PAC-3:**

67-56-1	methanol	7200* ppm
74-87-3	chloromethane	3,000 ppm
74-83-9	bromomethane	740 ppm
75-01-4	vinyl chloride	4800* ppm
75-71-8	dichlorodifluoromethane	50,000 ppm
75-69-4	trichlorofluoromethane	10,000 ppm
75-00-3	chloroethane	20000** ppm

7 Handling and storage

· **Handling:**
· **Precautions for safe handling**
Ensure good ventilation/exhaustion at the workplace.
Open and handle receptacle with care.
Prevent formation of aerosols.
· **Information about protection against explosions and fires:**
Keep ignition sources away - Do not smoke.
Protect against electrostatic charges.
Keep respiratory protective device available.

· **Conditions for safe storage, including any incompatibilities**
· **Storage:**
· **Requirements to be met by storerooms and receptacles:** Store in a cool location.
· **Information about storage in one common storage facility:** Not required.
· **Further information about storage conditions:**
Keep receptacle tightly sealed.
Store in cool, dry conditions in well sealed receptacles.
· **Specific end use(s)** No further relevant information available.

(Contd. on page 5)

(Contd. of page 4)

8 Exposure controls/personal protection

· **Additional information about design of technical systems:** No further data; see item 7.

· **Control parameters**

· **Components with limit values that require monitoring at the workplace:**	
67-56-1 methanol	
PEL	Long-term value: 260 mg/m³, 200 ppm
REL	Short-term value: 325 mg/m³, 250 ppm Long-term value: 260 mg/m³, 200 ppm Skin
TLV	Short-term value: 328 mg/m³, 250 ppm Long-term value: 262 mg/m³, 200 ppm Skin; BEI
74-87-3 chloromethane	
PEL	Long-term value: 100 ppm Ceiling limit value: 200; 300* ppm *5-min peak in any 3 hrs
REL	See Pocket Guide App. A
TLV	Short-term value: 207 mg/m³, 100 ppm Long-term value: 103 mg/m³, 50 ppm Skin
75-01-4 vinyl chloride	
PEL	Short-term value: 5* ppm Long-term value: 1 ppm *Avg. not exceeding any 15 min; see 29CFR1910.1017
REL	See Pocket Guide App.A
TLV	Long-term value: 2.6 mg/m³, 1 ppm
75-00-3 chloroethane	
PEL	Long-term value: 2600 mg/m³, 1000 ppm
REL	Handle with caution; See Pocket Guide App. C
TLV	Long-term value: 264 mg/m³, 100 ppm Skin

· **Ingredients with biological limit values:**	
67-56-1 methanol	
BEI	15 mg/L Medium: urine Time: end of shift Parameter: Methanol (background, nonspecific)

· **Additional information:** The lists that were valid during the creation were used as basis.

· **Exposure controls**
· **Personal protective equipment:**
· **General protective and hygienic measures:**
Keep away from foodstuffs, beverages and feed.
Immediately remove all soiled and contaminated clothing.
Wash hands before breaks and at the end of work.

(Contd. on page 6)

(Contd. of page 5)

Store protective clothing separately.

· **Breathing equipment:**
When used as intended with Agilent instruments, the use of the product under normal laboratory conditions and with standard practices does not result in significant airborne exposures and therefore respiratory protection is not needed.
Under an emergency condition where a respirator is deemed necessary, use a NIOSH or equivalent approved device/equipment with appropriate organic or acid gas cartridge.

· **Protection of hands:**
Although not recommended for constant contact with the chemicals or for clean-up, nitrile gloves 11-13 mil thickness are recommended for normal use. The breakthrough time is 1 hr. For cleaning a spill where there is direct contact of the chemical, butyl rubber gloves are recommended 12-15 mil thickness with breakthrough times exceeding 4 hrs. Supplier recommendations should be followed.

· **Material of gloves**
For normal use: nitrile rubber, 11-13 mil thickness
For direct contact with the chemical: butyl rubber, 12-15 mil thickness

· **Penetration time of glove material**
For normal use: nitrile rubber: 1 hour
For direct contact with the chemical: butyl rubber: >4 hours

· **Eye protection:**



Tightly sealed goggles

9 Physical and chemical properties

· **Information on basic physical and chemical properties**	
· **General Information**	
· **Appearance:**	
Form:	Fluid
Color:	Colorless
· **Odor:**	Alcohol-like
· **Odor threshold:**	Not determined.
· **pH-value:**	Not determined.
· **Change in condition**	
Melting point/Melting range:	-98 °C (-144.4 °F)
Boiling point/Boiling range:	64.7 °C (148.5 °F)
· **Flash point:**	9 °C (48.2 °F)
· **Flammability (solid, gaseous):**	Not applicable.
· **Ignition temperature:**	455 °C (851 °F)
· **Decomposition temperature:**	Not determined.
· **Auto igniting:**	Product is not selfigniting.
· **Danger of explosion:**	Product is not explosive. However, formation of explosive air/vapor mixtures are possible.

(Contd. on page 7)

(Contd. of page 6)

· **Explosion limits:**	
Lower:	5.5 Vol %
Upper:	44 Vol %
· **Vapor pressure at 20 °C (68 °F):**	100 hPa (75 mm Hg)
· **Density at 20 °C (68 °F):**	0.80692 g/cm³ (6.73375 lbs/gal)
· **Relative density**	Not determined.
· **Vapor density**	Not determined.
· **Evaporation rate**	Not determined.
· **Solubility in / Miscibility with**	
Water:	Not miscible or difficult to mix.
· **Partition coefficient (n-octanol/water):**	Not determined.
· **Viscosity:**	
Dynamic:	Not determined.
Kinematic:	Not determined.
· **Solvent content:**	
Organic solvents:	98.7 %
VOC content:	98.48 % 794.7 g/l / 6.63 lb/gal
Solids content:	0.0 %
· **Other information**	No further relevant information available.

10 Stability and reactivity

· **Reactivity** No further relevant information available.
· **Chemical stability**
· **Thermal decomposition / conditions to be avoided:** No decomposition if used according to specifications.
· **Possibility of hazardous reactions** No dangerous reactions known.
· **Conditions to avoid** No further relevant information available.
· **Incompatible materials:** No further relevant information available.
· **Hazardous decomposition products:** No dangerous decomposition products known.

*

11 Toxicological information

· **Information on toxicological effects**
· **Acute toxicity:**

· **LD/LC50 values that are relevant for classification:**		
ATE (Acute Toxicity Estimate)		
Oral	LD50	84,652 mg/kg (rat)
Inhalative	LC50/4 h	3.05 mg/L

67-56-1 methanol		
Oral	LD50	5,628 mg/kg (rat)
Dermal	LD50	15,800 mg/kg (rabbit)

(Contd. on page 8)

(Contd. of page 7)

74-87-3 chloromethane		
Oral	LD50	1,800 mg/kg (rat)
Inhalative	LC50/4 h	>21,800 mg/L (rat)
74-83-9 bromomethane		
Oral	LD50	214 mg/kg (rat)
Inhalative	LC50/4 h	302 mg/L (rat)
75-01-4 vinyl chloride		
Oral	LD50	500 mg/kg (rat)
75-69-4 trichlorofluoromethane		
Oral	LD50	>15,000 mg/kg (rat)
75-00-3 chloroethane		
Inhalative	LC50/4 h	>19,000 mg/L (rat)

· **Primary irritant effect:**
· **on the skin:** No irritant effect.
· **on the eye:** No irritating effect.
· **Sensitization:** No sensitizing effects known.
· **Additional toxicological information:**
The product shows the following dangers according to internally approved calculation methods for preparations:
Toxic

· **Carcinogenic categories**

· **IARC (International Agency for Research on Cancer)**		
74-87-3	chloromethane	3
74-83-9	bromomethane	3
75-01-4	vinyl chloride	1
75-00-3	chloroethane	3

· **NTP (National Toxicology Program)**		
75-01-4	vinyl chloride	K

· **OSHA-Ca (Occupational Safety & Health Administration)**	
75-01-4	vinyl chloride

12 Ecological information

· **Toxicity**
· **Aquatic toxicity:** No further relevant information available.
· **Persistence and degradability** No further relevant information available.
· **Behavior in environmental systems:**
· **Bioaccumulative potential** No further relevant information available.
· **Mobility in soil** No further relevant information available.
· **Additional ecological information:**
· **General notes:**
Water hazard class 2 (Self-assessment): hazardous for water
Do not allow product to reach ground water, water course or sewage system.
Danger to drinking water if even small quantities leak into the ground.
· **Results of PBT and vPvB assessment**
· **PBT:** Not applicable.

(Contd. on page 9)

Safety Data Sheet
acc. to OSHA HCS

(Contd. of page 8)

· **vPvB:** Not applicable.
· **Other adverse effects** No further relevant information available.

13 Disposal considerations

· **Waste treatment methods**
· **Recommendation:**
Must not be disposed of together with household garbage. Do not allow product to reach sewage system.

· **Uncleaned packagings:**
· **Recommendation:** Disposal must be made according to official regulations.

*
14 Transport information

· **Not Regulated, De minimus Quantities**	-
· **UN-Number**	
· **DOT, IMDG, IATA**	UN1230
· **UN proper shipping name**	
· **DOT**	Methanol
· **IMDG, IATA**	METHANOL
· **Transport hazard class(es)**	
· **DOT**	
· **Class**	3 Flammable liquids
· **Label**	3, 6.1
· **IMDG**	
· **Class**	3 Flammable liquids
· **Label**	3/6.1
· **IATA**	
· **Class**	3 Flammable liquids
· **Label**	3 (6.1)
· **Packing group**	
· **DOT, IMDG, IATA**	II

(Contd. on page 10)

(Contd. of page 9)

· **Environmental hazards:**	Not applicable.
· **Special precautions for user**	Warning: Flammable liquids
· **Danger code (Kemler):**	336
· **EMS Number:**	F-E,S-D
· **Stowage Category**	B
· **Stowage Code**	SW2 Clear of living quarters.
· **Transport in bulk according to Annex II of MARPOL73/78 and the IBC Code**	Not applicable.
· **Transport/Additional information:**	
· **DOT**	
· **Quantity limitations**	On passenger aircraft/rail: 1 L On cargo aircraft only: 60 L
· **IMDG**	
· **Limited quantities (LQ)**	1L
· **Excepted quantities (EQ)**	Code: E2 Maximum net quantity per inner packaging: 30 ml Maximum net quantity per outer packaging: 500 ml
· **UN "Model Regulation":**	UN 1230 METHANOL, 3 (6.1), II

*

15 Regulatory information

· **Safety, health and environmental regulations/legislation specific for the substance or mixture**
· **Sara**

· **Section 355 (extremely hazardous substances):**	
74-83-9	bromomethane

· **Section 313 (Specific toxic chemical listings):**
All ingredients are listed.

· **TSCA (Toxic Substances Control Act):**
All ingredients are listed.

· **Proposition 65**

· **Chemicals known to cause cancer:**	
75-01-4	vinyl chloride
75-00-3	chloroethane

· **Chemicals known to cause reproductive toxicity for females:**
None of the ingredients is listed.

· **Chemicals known to cause reproductive toxicity for males:**	
74-87-3	chloromethane

· **Chemicals known to cause developmental toxicity:**	
67-56-1	methanol
74-87-3	chloromethane
74-83-9	bromomethane

(Contd. on page 11)

(Contd. of page 10)

· **Carcinogenic categories**

· **EPA (Environmental Protection Agency)**		
74-87-3	chloromethane	D, CBD
74-83-9	bromomethane	D
75-01-4	vinyl chloride	A, K/L

· **TLV (Threshold Limit Value established by ACGIH)**		
74-87-3	chloromethane	A4
74-83-9	bromomethane	A4
75-01-4	vinyl chloride	A1
75-71-8	dichlorodifluoromethane	A4
75-69-4	trichlorofluoromethane	A4
75-00-3	chloroethane	A3

· **NIOSH-Ca (National Institute for Occupational Safety and Health)**	
74-87-3	chloromethane
74-83-9	bromomethane
75-01-4	vinyl chloride

· **National regulations:**
· **Additional classification according to Decree on Hazardous Materials:**
Carcinogenic hazardous material group III (dangerous).

· **Information about limitation of use:**
Workers are not allowed to be exposed to the hazardous carcinogenic materials contained in this preparation.
Exceptions can be made by the authorities in certain cases.
· **Chemical safety assessment:** A Chemical Safety Assessment has not been carried out.

16 Other information

The information contained in this document is based on Agilent's state of knowledge at the time of preparation.
No warranty as to its accurateness, completeness or suitability for a particular purpose is expressed or implied.

· **Department issuing SDS:** Document Control / Regulatory
· **Contact:** regulatory@ultrasci.com
· **Date of preparation / last revision** 03/28/2019 / 3
· **Abbreviations and acronyms:**
ADR: Accord européen sur le transport des marchandises dangereuses par Route (European Agreement concerning the International Carriage of Dangerous Goods by Road)
IMDG: International Maritime Code for Dangerous Goods
DOT: US Department of Transportation
IATA: International Air Transport Association
ACGIH: American Conference of Governmental Industrial Hygienists
EINECS: European Inventory of Existing Commercial Chemical Substances
ELINCS: European List of Notified Chemical Substances
CAS: Chemical Abstracts Service (division of the American Chemical Society)
NFPA: National Fire Protection Association (USA)
HMIS: Hazardous Materials Identification System (USA)
VOC: Volatile Organic Compounds (USA, EU)
LC50: Lethal concentration, 50 percent
LD50: Lethal dose, 50 percent
PBT: Persistent, Bioaccumulative and Toxic
vPvB: very Persistent and very Bioaccumulative
NIOSH: National Institute for Occupational Safety

(Contd. on page 12)

Safety Data Sheet
acc. to OSHA HCS

Trade name: VOC Gas Standard (1X1 mL)

(Contd. of page 11)

OSHA: Occupational Safety & Health
TLV: Threshold Limit Value
PEL: Permissible Exposure Limit
REL: Recommended Exposure Limit
BEI: Biological Exposure Limit
Flam. Liq. 2: Flammable liquids – Category 2
Acute Tox. 3: Acute toxicity – Category 3
Carc. 1A: Carcinogenicity – Category 1A
STOT SE 1: Specific target organ toxicity (single exposure) – Category 1

· *** Data compared to the previous version altered.**

SAFETY DATA SHEET

Version 4.9
Revision Date 08/24/2015
Print Date 02/07/2016

1. PRODUCT AND COMPANY IDENTIFICATION

1.1 Product identifiers

Product name : Zinc

Product Number : 324930
Brand : Aldrich
Index-No. : 030-001-00-1

CAS-No. : 7440-66-6

1.2 Relevant identified uses of the substance or mixture and uses advised against

Identified uses : Laboratory chemicals, Synthesis of substances

1.3 Details of the supplier of the safety data sheet

Company : Sigma-Aldrich
3050 Spruce Street
SAINT LOUIS MO 63103
USA

Telephone : +1 800-325-5832
Fax : +1 800-325-5052

1.4 Emergency telephone number

Emergency Phone # : (314) 776-6555

2. HAZARDS IDENTIFICATION

2.1 Classification of the substance or mixture

GHS Classification in accordance with 29 CFR 1910 (OSHA HCS)
Self-heating substances and mixtures (Category 1), H251
Substances and mixtures, which in contact with water, emit flammable gases (Category 1), H260
Acute aquatic toxicity (Category 1), H400
Chronic aquatic toxicity (Category 1), H410

For the full text of the H-Statements mentioned in this Section, see Section 16.

2.2 GHS Label elements, including precautionary statements

Pictogram



Signal word Danger

Hazard statement(s)
H251 Self-heating: may catch fire.
H260 In contact with water releases flammable gases which may ignite spontaneously.
H410 Very toxic to aquatic life with long lasting effects.

Precautionary statement(s)
P223 Do not allow contact with water.
P231 + P232 Handle under inert gas. Protect from moisture.
P235 + P410 Keep cool. Protect from sunlight.
P273 Avoid release to the environment.

P280	Wear protective gloves/ eye protection/ face protection.
P335 + P334	Brush off loose particles from skin. Immerse in cool water/ wrap in wet bandages.
P370 + P378	In case of fire: Use dry sand, dry chemical or alcohol-resistant foam to extinguish.
P391	Collect spillage.
P402 + P404	Store in a dry place. Store in a closed container.
P407	Maintain air gap between stacks/ pallets.
P413	Store bulk masses greater than .? kg/ .? lbs at temperatures not exceeding .? °C/ .? °F.
P420	Store away from other materials.
P501	Dispose of contents/ container to an approved waste disposal plant.

2.3 Hazards not otherwise classified (HNOC) or not covered by GHS

Combustible dust

3. COMPOSITION/INFORMATION ON INGREDIENTS

3.1 Substances

Formula	:	Zn
Molecular weight	:	65.39 g/mol
CAS-No.	:	7440-66-6
EC-No.	:	231-175-3
Index-No.	:	030-001-00-1

Hazardous components

Component	Classification	Concentration
Zinc powder (pyrophoric)		
	Self-heat. 1; Water-react. 1; Aquatic Acute 1; Aquatic Chronic 1; H251, H260, H410	<= 100 %

For the full text of the H-Statements mentioned in this Section, see Section 16.

4. FIRST AID MEASURES

4.1 Description of first aid measures

General advice
Consult a physician. Show this safety data sheet to the doctor in attendance.Move out of dangerous area.

If inhaled
If breathed in, move person into fresh air. If not breathing, give artificial respiration. Consult a physician.

In case of skin contact
Wash off with soap and plenty of water. Consult a physician.

In case of eye contact
Flush eyes with water as a precaution.

If swallowed
Never give anything by mouth to an unconscious person. Rinse mouth with water. Consult a physician.

4.2 Most important symptoms and effects, both acute and delayed

The most important known symptoms and effects are described in the labelling (see section 2.2) and/or in section 11

4.3 Indication of any immediate medical attention and special treatment needed

No data available

5. FIREFIGHTING MEASURES

5.1 Extinguishing media

Suitable extinguishing media
Dry powder

5.2 Special hazards arising from the substance or mixture
Zinc/zinc oxides

5.3 Advice for firefighters
Wear self-contained breathing apparatus for firefighting if necessary.

5.4 Further information
No data available

6. ACCIDENTAL RELEASE MEASURES

6.1 Personal precautions, protective equipment and emergency procedures
Avoid dust formation. Avoid breathing vapours, mist or gas. Ensure adequate ventilation. Evacuate personnel to safe areas.
For personal protection see section 8.

6.2 Environmental precautions
Prevent further leakage or spillage if safe to do so. Do not let product enter drains. Discharge into the environment must be avoided.

6.3 Methods and materials for containment and cleaning up
Sweep up and shovel. Contain spillage, and then collect with an electrically protected vacuum cleaner or by wet-brushing and place in container for disposal according to local regulations (see section 13). Do not flush with water. Keep in suitable, closed containers for disposal. Contain spillage, pick up with an electrically protected vacuum cleaner or by wet-brushing and transfer to a container for disposal according to local regulations (see section 13).

6.4 Reference to other sections
For disposal see section 13.

7. HANDLING AND STORAGE

7.1 Precautions for safe handling
Further processing of solid materials may result in the formation of combustible dusts. The potential for combustible dust formation should be taken into consideration before additional processing occurs.
Provide appropriate exhaust ventilation at places where dust is formed.Keep away from sources of ignition - No smoking.
For precautions see section 2.2.

7.2 Conditions for safe storage, including any incompatibilities
Keep container tightly closed in a dry and well-ventilated place.
Never allow product to get in contact with water during storage.

Keep in a dry place.
Storage class (TRGS 510): Pyrophoric and self-heating hazardous materials

7.3 Specific end use(s)
Apart from the uses mentioned in section 1.2 no other specific uses are stipulated

8. EXPOSURE CONTROLS/PERSONAL PROTECTION

8.1 Control parameters

Components with workplace control parameters
Contains no substances with occupational exposure limit values.

8.2 Exposure controls

Appropriate engineering controls
Handle in accordance with good industrial hygiene and safety practice. Wash hands before breaks and at the end of workday.

Personal protective equipment

Eye/face protection
Face shield and safety glasses Use equipment for eye protection tested and approved under appropriate government standards such as NIOSH (US) or EN 166(EU).

Skin protection
Handle with gloves. Gloves must be inspected prior to use. Use proper glove removal technique (without touching glove's outer surface) to avoid skin contact with this product. Dispose of contaminated gloves after use in accordance with applicable laws and good laboratory practices. Wash and dry hands.

Protective gloves against thermal risks

Full contact
Material: Nitrile rubber
Minimum layer thickness: 0.11 mm
Break through time: 480 min
Material tested:Dermatril® (KCL 740 / Aldrich Z677272, Size M)

Splash contact
Material: Nitrile rubber
Minimum layer thickness: 0.11 mm
Break through time: 480 min
Material tested:Dermatril® (KCL 740 / Aldrich Z677272, Size M)

data source: KCL GmbH, D-36124 Eichenzell, phone +49 (0)6659 87300, e-mail sales@kcl.de, test method: EN374
If used in solution, or mixed with other substances, and under conditions which differ from EN 374, contact the supplier of the CE approved gloves. This recommendation is advisory only and must be evaluated by an industrial hygienist and safety officer familiar with the specific situation of anticipated use by our customers. It should not be construed as offering an approval for any specific use scenario.

Body Protection
Flame retardant protective clothing, The type of protective equipment must be selected according to the concentration and amount of the dangerous substance at the specific workplace.

Respiratory protection
Where risk assessment shows air-purifying respirators are appropriate use a full-face particle respirator type N100 (US) or type P3 (EN 143) respirator cartridges as a backup to engineering controls. If the respirator is the sole means of protection, use a full-face supplied air respirator. Use respirators and components tested and approved under appropriate government standards such as NIOSH (US) or CEN (EU).

Control of environmental exposure
Prevent further leakage or spillage if safe to do so. Do not let product enter drains. Discharge into the environment must be avoided.

9. PHYSICAL AND CHEMICAL PROPERTIES

9.1 Information on basic physical and chemical properties

a)	Appearance	Form: powder Colour: grey
b)	Odour	No data available
c)	Odour Threshold	No data available
d)	pH	No data available
e)	Melting point/freezing point	Melting point/range: 420 °C (788 °F) - lit.
f)	Initial boiling point and boiling range	907 °C (1,665 °F) - lit.
g)	Flash point	No data available
h)	Evaporation rate	No data available
i)	Flammability (solid, gas)	May form combustible dust concentrations in air
j)	Upper/lower flammability or explosive limits	No data available
k)	Vapour pressure	1 hPa (1 mmHg) at 487 °C (909 °F)

l)	Vapour density	No data available
m)	Relative density	7.133 g/mL at 25 °C (77 °F)
n)	Water solubility	No data available
o)	Partition coefficient: n-octanol/water	log Pow: 5
p)	Auto-ignition temperature	The substance or mixture is classified as self heating with the category 1.
q)	Decomposition temperature	No data available
r)	Viscosity	No data available
s)	Explosive properties	No data available
t)	Oxidizing properties	No data available

9.2 Other safety information
No data available

10. STABILITY AND REACTIVITY

10.1 Reactivity
No data available

10.2 Chemical stability
Stable under recommended storage conditions.

10.3 Possibility of hazardous reactions
Reacts violently with water.

10.4 Conditions to avoid
Exposure to moisture

10.5 Incompatible materials
Strong acids and oxidizing agents

10.6 Hazardous decomposition products
Other decomposition products - No data available
In the event of fire: see section 5

11. TOXICOLOGICAL INFORMATION

11.1 Information on toxicological effects

Acute toxicity
No data available

Inhalation: No data available

Dermal: No data available

No data available

Skin corrosion/irritation
No data available

Serious eye damage/eye irritation
No data available

Respiratory or skin sensitisation
Did not cause sensitisation on laboratory animals.

Germ cell mutagenicity
No data available

Carcinogenicity

IARC: No component of this product present at levels greater than or equal to 0.1% is identified as

probable, possible or confirmed human carcinogen by IARC.

ACGIH: No component of this product present at levels greater than or equal to 0.1% is identified as a carcinogen or potential carcinogen by ACGIH.

NTP: No component of this product present at levels greater than or equal to 0.1% is identified as a known or anticipated carcinogen by NTP.

OSHA: No component of this product present at levels greater than or equal to 0.1% is identified as a carcinogen or potential carcinogen by OSHA.

Reproductive toxicity
No data available

No data available

Specific target organ toxicity - single exposure
No data available

Specific target organ toxicity - repeated exposure
No data available

Aspiration hazard
No data available

Additional Information
RTECS: ZG8600000

chills, dry throat, sweet taste, Fever, Cough, Nausea, Vomiting, Weakness
To the best of our knowledge, the chemical, physical, and toxicological properties have not been thoroughly investigated.

12. ECOLOGICAL INFORMATION

12.1 Toxicity

Toxicity to fish	LC50 - Cyprinus carpio (Carp) - 450.0 µg/l - 96.0 h
Toxicity to daphnia and other aquatic invertebrates	LC50 - Daphnia magna (Water flea) - 0.068 mg/l - 48 h
	mortality NOEC - Daphnia (water flea) - 0.101 - 0.14 mg/l - 7 d

12.2 Persistence and degradability

12.3 Bioaccumulative potential

Bioaccumulation	Algae - 7 d at 16 °C - 5 µg/l
	Bioconcentration factor (BCF): 466

12.4 Mobility in soil
No data available

12.5 Results of PBT and vPvB assessment
PBT/vPvB assessment not available as chemical safety assessment not required/not conducted

12.6 Other adverse effects
An environmental hazard cannot be excluded in the event of unprofessional handling or disposal.
Very toxic to aquatic life.

13. DISPOSAL CONSIDERATIONS

13.1 Waste treatment methods

Product
Contact a licensed professional waste disposal service to dispose of this material. Burn in a chemical incinerator equipped with an afterburner and scrubber but exert extra care in igniting as this material is highly flammable. Offer surplus and non-recyclable solutions to a licensed disposal company.

Contaminated packaging
Dispose of as unused product.

14. TRANSPORT INFORMATION

DOT (US)
UN number: 1436 Class: 4.3 (4.2) Packing group: II
Proper shipping name: Zinc powder
Reportable Quantity (RQ): 1000 lbs

Poison Inhalation Hazard: No

IMDG
UN number: 1436 Class: 4.3 (4.2) Packing group: II EMS-No: F-G, S-O
Proper shipping name: ZINC POWDER
Marine pollutant:yes

IATA
UN number: 1436 Class: 4.3 (4.2) Packing group: II
Proper shipping name: Zinc powder

15. REGULATORY INFORMATION

SARA 302 Components
No chemicals in this material are subject to the reporting requirements of SARA Title III, Section 302.

SARA 313 Components
The following components are subject to reporting levels established by SARA Title III, Section 313:

	CAS-No.	Revision Date
Zinc powder (pyrophoric)	7440-66-6	1993-04-24

SARA 311/312 Hazards
Reactivity Hazard

Massachusetts Right To Know Components

	CAS-No.	Revision Date
Zinc powder (pyrophoric)	7440-66-6	1993-04-24

Pennsylvania Right To Know Components

	CAS-No.	Revision Date
Zinc powder (pyrophoric)	7440-66-6	1993-04-24

New Jersey Right To Know Components

	CAS-No.	Revision Date
Zinc powder (pyrophoric)	7440-66-6	1993-04-24

California Prop. 65 Components
This product does not contain any chemicals known to State of California to cause cancer, birth defects, or any other reproductive harm.

16. OTHER INFORMATION

Full text of H-Statements referred to under sections 2 and 3.

Aquatic Acute	Acute aquatic toxicity
Aquatic Chronic	Chronic aquatic toxicity
H251	Self-heating: may catch fire.
H260	In contact with water releases flammable gases which may ignite spontaneously.
H400	Very toxic to aquatic life.
H410	Very toxic to aquatic life with long lasting effects.
Self-heat.	Self-heating substances and mixtures

HMIS Rating
Health hazard: 0

Chronic Health Hazard:	
Flammability:	3
Physical Hazard	1

NFPA Rating

Health hazard:	0
Fire Hazard:	3
Reactivity Hazard:	1
Special hazard.I:	W

Further information

Copyright 2015 Sigma-Aldrich Co. LLC. License granted to make unlimited paper copies for internal use only.
The above information is believed to be correct but does not purport to be all inclusive and shall be used only as a guide. The information in this document is based on the present state of our knowledge and is applicable to the product with regard to appropriate safety precautions. It does not represent any guarantee of the properties of the product. Sigma-Aldrich Corporation and its Affiliates shall not be held liable for any damage resulting from handling or from contact with the above product. See www.sigma-aldrich.com and/or the reverse side of invoice or packing slip for additional terms and conditions of sale.

Preparation Information

Sigma-Aldrich Corporation
Product Safety – Americas Region
1-800-521-8956

Version: 4.9 Revision Date: 08/24/2015 Print Date: 02/07/2016

ATTACHMENT F

JOBSITE SAFETY INSPECTION CHECKLIST

Jobsite Safety Inspection Checklist

Date: _____ **Inspected By:** _____

Location: _____ **Project #:** _____

Check one of the following: **A:** Acceptable **NA**: Not Applicable **D**: Deficiency

	A	NA	D	Remark
1. HASP available onsite for inspection?				
2. Health & Safety Compliance agreement (in HASP) appropriately signed by Langan employees and contractors?				
3. Hospital route map with directions posted on site?				
4. Emergency Notification List posted on site?				
5. First Aid kit available and properly stocked?				
6. Personnel trained in CPR/First Aid on site?				
7. MSDSs readily available, and all workers knowledgeable about the specific chemicals and compounds to which they may be exposed?				
8 Appropriate PPE being worn by Langan employees and contractors?				
9. Project site safe practices ("Standing Orders") posted?				
10. Project staff have 40-hr./8-hr./Supervisor HAZWOPER training?				
11. Project staff medically cleared to work in hazardous waste sites and fit-tested to wear respirators, if needed?				
12. Respiratory protection readily available?				
13. Health & Safety Incident Report forms available?				
14. Air monitoring instruments calibrated daily, and results recorded on the Daily Instrument Calibration check sheet?				
15. Air monitoring readings recorded on the air monitoring data sheet/field logbook?				
16. Subcontract workers have received 40-hr./8-hr./Spvsr. HAZWOPER training, as appropriate?				
17. Subcontract workers medically cleared to work on site, and fit-tested for respirator wear?				
18. Subcontract workers have respirators readily available?				
19. Mark outs of underground utilities done prior to initiating any subsurface activities?				
20. Decontamination procedures being followed as outlined in HASP?				
21. Are tools in good condition and properly used?				
22. Drilling performed in areas free from underground objects including utilities?				

23. Adequate size/type fire extinguisher supplied?				
24. Equipment at least 20 feet from overhead powerlines?				
25. Evidence that drilling operator is responsible for the safety of his rig.				
26. Trench sides shored, layer back, or boxed?				
27. Underground utilities located, and authorities contacted before digging?				
28. Ladders in trench (25-foot spacing)?				
29. Excavated material placed more than 2 feet away from excavation edge?				
30. Public protected from exposure to open excavation?				
31. People entering the excavation regarding it as a permit-required confined space and following appropriate procedures?				
32. Confined space entry permit is completed and posted?				
33. All persons knowledgeable about the conditions and characteristics of the confined space?				
34. All persons engaged in confined space operations have been trained in safe entry and rescue (non-entry)?				
35. Full body harnesses, lifelines, and hoisting apparatus available for rescue needs?				
36. Attendant and/or supervisor certified in basic first aid and CPR?				
37. Confined space atmosphere checked before entry and continuously while the work is going on?				
38. Results of confined space atmosphere testing recorded?				
39. Evidence of coordination with off-site rescue services to perform entry rescue, if needed?				
40. Are extension cords rated for this work being used and are they properly maintained?				
41. Are GFCIs provided and being used?				

Unsafe Acts: _____

_____

_____

_____

Notes: _____

_____

_____

_____

ATTACHMENT G

JOB SAFETY ANALYSIS FORM

LANGAN

Job Safety Analysis (JSA)
Construction Health and Safety

JSA TITLE: **JSA NUMBER:**	**DATE CREATED:** **CREATED BY**: **REVISION DATE:** **REVISED BY:**

Langan employees must review and revise the Job Safety Analysis (JSA) as needed to address the any site-specific hazards not identified. Employees must provide their signatures on the last page of the JSA indicating they have review the JSA and are aware the potential hazards associated with this work and will follow the provided preventive or corrective measures.

PERSONAL PROTECTIVE EQUIPMENT REQUIRED: (PPE): ■ Required ☒ As Needed		
☐ Steel-toed boots	☐ Nitrile gloves	☐ Dermal Protection (Specify)
☐ Long-sleeved shirt	☐ Leather/ Cut-resistant gloves	☐ High visibility vest/clothing
☐ Safety glasses	☐ Face Shield	☐ Hard hat
ADDITIONAL PERSONAL PROTECTIVE EQUIPMENT NEEDED (Provide specific type(s) or descriptions)		
☐ Air Monitoring:	☐ Respirators:	☐ Other:
☐ Dermal Protection:	☐ Cartridges:	☐ Other:

JOB STEPS	POTENTIAL HAZARDS	PREVENTATIVE OR CORRECTIVE ACTION
1.	1. 2.	1a. 1b. 2a. 2b.
2.	1.	1
Additional items identified in the field.		
Additional Items.		

If additional items are identified during daily work activities, please notify all relevant personnel about the change and document on this JSA.

LANGAN	Job Safety Analysis (JSA) Construction Health and Safety
JSA Title: COVID-19 Awareness – Site Work **JSA Number: JSA046-00**	
A Job Safety Analysis (JSA) must identify all job steps required to complete the task, the potential hazards employees could be exposed to while performing the job step and the preventative/corrective actions required to reduce/mitigate the identified potential hazards. Employees must certify that they have either prepared the JSA or have reviewed the JSA and are aware of the potential hazards associated with this task and will follow the provided preventive/corrective actions. Prior to the start of any work "TAKE 5" and conduct a Last-Minute Risk Assessment.	

PERSONAL PROTECTIVE EQUIPMENT (Required or to be worn as needed):				
☒ Safety Boots	☐ Long Sleeves	☐ Safety Vest (Class 2)	☐ Hard Hat	☐ Hearing Protection
☐ Safety Glasses	☐ Safety Goggles	☐ Face Shield	☐ Nitrile Gloves	☐ PVC Gloves
☐ Leather Gloves	☐ Cut Resist. Gloves	☐ Fall Protection	☐ Fire Resistant Clothing	☐ Rubber Boots
☐ Insect/Animal Repellent	☐ Ivy Blocker/Cleaner	☐ Traffic Cones/Signs	☐ Life Vest/Jacket	
☒ Other: Alcohol-based hand sanitizer, disinfectant wipes/spray				

JOB STEPS	POTENTIAL HAZARDS	PREVENTATIVE / CORRECTIVE ACTION
1. All Activities	1. Transmittal/exposure of COVID-19	1. Ask yourself and your managers – is this work essential? Can this be done remotely? 2. Stay home if sick or showing symptoms of COVID-19 (e.g., fever, cough, etc.). 3. Carry nitrile gloves, alcohol-based hand sanitizer, face coverings and disinfectant wipes/spray during field work. 4. Check federal, state, and/or local travel restrictions **prior** to travel. Many states, counties, and cities are passing strict "shelter-in-place" or business restrictions in response to COVID-19. 5. Immediately notify Beverly Williams or Rory Johnston (Supervisor if employee chooses) if you display symptoms of COVID-19. Symptoms include fever (over 100.4 F), cough, and shortness of breath. 6. Notify Beverly Williams or Rory Johnston, Supervisor and Coronavirus Task Force if you had close contact with an individual who tested positive or displayed symptoms of COVID-19. 7. Do not touch your face, to the extent possible. 8. Wear face coverings when around other worker to minimize spread of COVID-19. (May be required in certain states or locations.)

JOB STEPS	POTENTIAL HAZARDS	PREVENTATIVE / CORRECTIVE ACTION
		9. Practice social distancing, maintaining at least 6 feet of distance between yourself and others. Avoid gatherings of more than 10 people. Limit, to the extent possible, contact with public items/objects. 10. Clean your hands frequently with soap and water for at least 20 seconds especially after you have been in a public place, or after blowing your nose, coughing, sneezing, or using the rest room. 11. If soap and water are not readily available, use a hand sanitizer that contains at least 60% alcohol. Cover all surfaces of your hands and rub them together until they feel dry. 12. Cover your mouth and nose with a tissue when you cough or sneeze or use the inside of your elbow. 13. Clean and disinfect frequently touched surfaces daily, for example, cell phones, computer equipment, headsets, tables, doorknobs, light switches, countertops, handles, desks, toilets, faucets, and sinks.
2. Travel to Jobsite	1. Transmittal/exposure of COVID-19 between passengers 2. Transmittal/exposure of COVID-19 from previous occupants (rental and fleet vehicles) 3. Transmittal/exposure of COVID-19 while refueling	1. Limit the number of occupants to each vehicle to 2 people. Employees should sit as far away from each other as possible. 2. Disinfect high “hand-traffic” areas of the vehicle: Door handles, steering wheel, turn signal and control rods, dashboard controls, seatbelts, armrests, etc. To the extent possible, do not use recycled air for heat/AC and travel with the windows open. 3. Use hand sanitizer before and after pumping gas and only return to the inside of the vehicle after refueling is complete. 4. Wear nitrile gloves if available or disinfect the keypad, pump handle, and fuel grade button prior to use. 5. Recommend face coverings are worn to minimize spread of COVID-19.
3. Conduct Tailgate Safety Meeting & Complete H&S Paperwork	1. Transmittal/exposure of COVID-19 between meeting participants	1. Practice social distancing, maintaining at least 6 feet of distance between yourself and others. 2. Recommend face coverings are worn when around other workers to minimize spread of COVID-19, 3. Hold meetings outside and keep in mind wind direction. To the extent possible, remain crosswind from other people. 4. Designate a single person to maintain sign-in sheets/permits throughout the day to limit the passing of pens/clipboards between people. 5. Each person should complete their own JSA, even if they are completing similar tasks as others in order to limit the passing of paper/pens/clipboards between people. 6. Include COVID-19 topics and prevention measures in safety meetings.
4. Conduct Site Work	1. Transmittal/exposure of COVID-19 between site workers and public.	1. Practice social distancing maintaining 6 feet of distance between yourself and others. 2. Recommend face coverings are worn when around other workers to minimize spread of COVID-19, 3. To the extent possible, do not interact with the public. If it is necessary, politely explain you are practicing social distance and request they stay at least 6 feet away and they do not attempt to pass objects to you. 4. Wear nitrile gloves during site work underneath the appropriate gloves for your task. Utilize appropriate decontamination procedures, securely bag all waste (including nitrile gloves) generated during site work and dispose of.

JOB STEPS	POTENTIAL HAZARDS	PREVENTATIVE / CORRECTIVE ACTION
		5. Do not share tools. Each person should be equipped with the tools to complete their task or tasks should be divided to remove the need to share tools. If tools must be shared, surfaces should be disinfected. 6. Clean and disinfect surfaces of rental tools and equipment upon receipt. To the extent possible rent equipment from Langan's internal equipment reservation center, where cleaning/disinfecting procedures can be verified.
5. Use of Construction Trailers	1. Transmittal/exposure of COVID-19 between site workers and others.	1. Avoid use of shared trailers, if possible. Minimize trailer use to essential personnel. 2. Practice social distancing; maintaining 6 feet of distance between yourself and others in trailer. 3. Clean and disinfect areas including desks, phones, chairs, and other common areas, before and after use.
6. Purchasing Food from a Restaurant	1. Transmittal/exposure of COVID-19 from other customers, staff, surfaces.	1. To the extent possible, bring your own food. 2. If you must visit a restaurant, call ahead for take-out or "contactless delivery." Do not dine in. When picking up food, follow guidelines for Job Step #8: Purchasing Supplies at Retail/Shipping Centers. 3. Wash hands before and after eating.
7. Smoking Cigarettes	1. Transmittal/exposure of COVID-19 by touching mouth with hands	1. Cigarette smokers are at greater risk of complications arising from COVID-19. Nicotine patches/lozenges/gum, smoking cessation programs, and prescription medications may aid in "kicking the habit" if you decide to quit. 2. Wash hands thoroughly before and after smoking. 3. Discard cigarette butts properly. Do not light cigarettes from others and do not give cigarettes to others.
8. Hotel Stay	1. Transmittal/exposure of COVID-19 from previous occupants, hotel staff, common areas.	1. Verify the hotel chain/brand has modified cleaning procedures to reflect risk of COVID-19. Most hotel companies have issued statements on their websites and in email blasts reflecting these new procedures. 2. Use the front door, and not peripheral entrances. Front doors of hotels are usually automatic. 3. Request ground floor room to avoid elevator use and a room that has not be utilized in 48-72 hours. 4. If elevator use is required, do not directly touch elevator buttons with your hands. Do not ride elevators with other people, to the extent possible. 5. Bring disinfecting wipes or sanitizing spray. Upon arrival, disinfect high "hand-traffic" areas of the hotel room: Door handles, light switches, shower/sink faucet handles, TV remote, curtain/blind handles. Clean these surfaces daily. 6. Place the "Do Not Disturb" Sign on your door to prevent people (housekeeping) from entering your room. 7. Avoid common spaces and hotel sponsored events where crowds will be present. 8. Confirm hotel cleaning procedures have been modified to address COVID-19. Confirm no COVID-19 cases have occurred in hotel
9. Purchasing Supplies at Retail/Shipping Centers	1. Transmittal/exposure of COVID-19 from other customers, staff, surfaces.	1. Plan your travel to limit the need to visit retail/shipping centers. 2. Practice social distancing, maintaining at least 6 feet of distance between yourself and others. If the store is too crowded/small, consider visiting another store or returning at a different time. 3. Avoid high "hand-traffic" items/areas like door handles (i.e. use your shoulder, hip/butt, or open with a disposable napkin/paper towel), credit cards terminals (i.e. use Apple/Android pay if available), shopping carts/baskets (i.e. bring your own shopping

JOB STEPS	POTENTIAL HAZARDS	PREVENTATIVE / CORRECTIVE ACTION
		bags), counter tops (i.e. ask clerk if you can hold the items while they are scanned) and bulk/buffet items (i.e. just avoid them). 4. Disinfect your hands before and after visiting a retail/shipping center.

Print Name	Sign Name	Date
Prepared by:		
Reviewed by:		

LANGAN

Job Safety Analysis (JSA)
Construction Health and Safety

JSA Title: **Environmental Sampling**
JSA Number: **JSA021-01**

A Job Safety Analysis (JSA) must identify all job steps required to complete the task, the potential hazards employees could be exposed to while performing the job step and the preventative/corrective actions required to reduce/mitigate the identified potential hazards. Employees must certify that they have either prepared the JSA or have reviewed the JSA and are aware of the potential hazards associated with this task and will follow the provided preventive/corrective actions. Prior to the start of any work "TAKE 5" and conduct a Last-Minute Risk Assessment.



PERSONAL PROTECTIVE EQUIPMENT (Required or to be worn as needed):				
☒ Safety Shoes	☒ Long Sleeves	☒ Safety Vest (Class 2)	☒ Hard Hat	☐ Hearing Protection
☒ Safety Glasses	☐ Safety Goggles	☐ Face Shield	☒ Nitrile Gloves	☐ PVC Gloves
☐ Leather Gloves	☐ Cut Resist. Gloves	☐ Fall Protection	☒ Fire Resistant Clothing	☐ Rubber Boots
☒ Insect/Animal Repellent	☒ Ivy Blocker/Cleaner	☐ Traffic Cones/Signs	☐ Life Vest/Jacket	
☒ Other: Tyvek Sleeves				

JOB STEPS	POTENTIAL HAZARDS	PREVENTATIVE / CORRECTIVE ACTION
1. Drive to sample location	1. Rough/Off Road terrain	1. Pay attention to road conditions such as road erosion, unprotected embankments, and soft road conditions.
2. Sample Collection (Walking)	1. Slip/Trips/Falls 2. Back strains 3. Wildlife (Insects, Stray animals, rodents) 4. Poisonous vegetation	1. Minimize distance to sample area/ Plan route and check surface prior to carrying heavy equipment/ Locate safest access point/ Follow good housekeeping procedures/ Mark significant below grade hazards (holes, trenches) with spray paint or cones/ Wear foot protection with ankle support and gripping soles. 2. Use proper lifting techniques/ Use wheeled transport/ Obtain assistance where and when needed/ Consider load weight when evaluating what is safe and unsafe to carry. 3. Be aware of surroundings for the presence of wildlife. Do not approach stray animals. Carry and use animal repellant when needed/ Use bug spray when needed. 4. Keep skin covered/ Identify and avoid poisonous vegetation/ Clean areas after contact with suspected vegetation.
3. Sample Collection (Water)	1. Drowning Hazards 2. Chemical burns (when adding acid preservative to sample) 3. Back Strains 4. Ergonomic issues 5. Slip/Trips/Falls	1. Use buddy system/ Wear flotation vest if water is deeper than 2 feet or swift moving/ Select working area with stable footing. Do not attempt to cross or stand in swift moving water. 2. Wear proper PPE (Nitrile gloves, Tyvek Sleeves) 3. Use proper lifting techniques/ Use wheeled transport/ Obtain assistance where and when needed/ Consider load weight when evaluating what is safe or unsafe to carry. 4. When possible, avoid bending over for long periods of time/ Use a small stool for sitting or knee pad for kneeling.

JOB STEPS	POTENTIAL HAZARDS	PREVENTATIVE / CORRECTIVE ACTION
		5. Minimize distance to sample area/ Plan route and check surface prior to carrying heavy equipment/ Locate safest access point/ Follow good housekeeping procedures/ Mark significant below grade hazards (holes, trenches) with spray paint or cones/ Wear foot protection with ankle support and gripping soles/ Avoid standing water or slippery terrain.
4. All activities	1. Slips/ Trips/ Falls 2. Hand injuries, cuts, or lacerations during manual handling of materials 3. Foot injuries 4. Back injuries 5. Traffic 6. Wildlife: Stray dogs, Mice/rats, Vectors (i.e., mosquitoes, bees, etc.) 7. High Noise levels 8. Overhead hazards 9. Heat Stress/ Cold Stress 10. Eye Injuries	1. Be aware of potential trip hazards / Follow good housekeeping procedures/ Mark significant hazards 2. Inspect for jagged/sharp edges, and rough or slippery surfaces / Keep fingers away from pinch points / Wipe off greasy, wet, slippery, or dirty objects before handling / Wear leather/ cut-resistant gloves 3. Wear Langan approved safety shoes 4. Use proper lifting techniques / Consider load location, task repetition, and load weigh when evaluating what is safe or unsafe to lift / Obtain assistance when possible 5. Wear high visibility clothing & vest / Use cones or signs to designate work area 6. Be aware of surroundings at all times, including the presence of wildlife/ Do not approach stray dogs / Carry/use dog/animal repellant / Use bug spray when needed 7. Wear hearing protection 8. Wear hard hat / Avoid areas where overhead hazards exist. 9. Wear proper attire for weather conditions (sunscreen or protective clothing in sunlight, layers for cold weather) / Drink plenty of fluids to avoid dehydration / Takes breaks as necessary to avoid heat/cold stress 10. Wear safety glasses
Additional items.		
Additional Items identified while in the field. (Delete row if not needed.)		

Print Name	Sign Name	Date
Prepared by:		
Reviewed by:		

LANGAN

Job Safety Analysis (JSA)
Construction Health and Safety

JSA Title: **Subsurface Investigation**
JSA Number: **JSA030-01**

A Job Safety Analysis (JSA) must identify all job steps required to complete the task, the potential hazards employees could be exposed to while performing the job step and the preventative/corrective actions required to reduce/mitigate the identified potential hazards. Employees must certify that they have either prepared the JSA or have reviewed the JSA and are aware of the potential hazards associated with this task and will follow the provided preventive/corrective actions. Prior to the start of any work "TAKE 5" and conduct a Last-Minute Risk Assessment.



S – *Stop,* what has changed?
T – *Think* about the task
E – *Evaluate* potential hazards
P – *Plan* safe approach
S - *Start* task / *Stop* & regroup

PERSONAL PROTECTIVE EQUIPMENT (Required or to be worn as needed):				
☒ Safety Shoes	☒ Long Sleeves	☒ Safety Vest (Class 2)	☒ Hard Hat	☒ Hearing Protection
☒ Safety Glasses	☒ Safety Goggles	☐ Face Shield	☐ Nitrile Gloves	☐ PVC Gloves
☒ Leather Gloves	☒ Cut Resist. Gloves	☐ Fall Protection	☐ Fire Resistant Clothing	☐ Rubber Boots
☐ Insect/Animal Repellent	☐ Ivy Blocker/Cleaner	☐ Traffic Cones/Signs	☐ Life Vest/Jacket	
☒ Other: Dielectric Overshoes, Sun Block				

JOB STEPS	POTENTIAL HAZARDS	PREVENTATIVE / CORRECTIVE ACTION
5. Transport equipment to work area	2. Back/strain 3. Slip/Trip/Falls 4. Traffic 5. Cuts/abrasions/contusions from equipment 6. Accidents due to vehicle operations	1. Use proper lifting techniques/Use wheeled transport 2. Minimize distance to work area/unobstructed path to work area/follow good housekeeping procedures 3. Wear proper PPE (high visibility vest or clothing) 4. Wear proper PPE (leather gloves, long sleeves, Langan approved safety shoes) 5. Observe posted speed limits/ Wear seat belts at all times
6. Traffic	1. Hit by moving vehicle	1. Use traffic cones and signage/ Use High visibility traffic vests and clothing/ Caution tape when working near active roadways.
7. Field Work (drilling, resistivity testing, and inspection)	1. Biological Hazards: insects, rats, snakes, poisonous plants, and other animals 2. Heat stress/injuries 3. Cold Stress/injuries 4. High Energy Transmission Lines 5. Underground Utilities 6. Electrical (soil resistivity testing)	1. Inspect work area to identify biological hazards. Wear light colored long sleeve shirt and long pants/ Use insect repellant as necessary/ Beware of tall grass, bushes, woods, and other areas where ticks may live/ Avoid leaving garbage on site to prevent attracting animals/ Identify and avoid contact with poisonous plants/Beware of rats, snakes, or stray animals. 2. Wear proper clothing (light colored)/ drink plenty of water/ take regular breaks/use sun block. 3. Wear proper clothing/ dress in layers/ take regular breaks. 4. Avoid direct contact with high energy transmission lines/ position equipment at least 15 feet or as required by PSE&G from the transmission lines/ wear proper PPE (dielectric overshoes 15 kV minimum rating).

JOB STEPS	POTENTIAL HAZARDS	PREVENTATIVE / CORRECTIVE ACTION
		5. Call one-call service before performing intrusive field work/ Review utility mark-outs and available utility drawings (with respect to proposed work locations)/ Follow Underground Utility Guidelines 6. See AGI Sting R1 operating manual for specific concerns during operating instrument
8. All activities	1. Slips/ Trips/ Falls 2. Hand injuries, cuts, or lacerations during manual handling of materials 3. Foot injuries 4. Back injuries 5. Traffic 6. Wildlife: Stray dogs, Mice/rats, Vectors (i.e., mosquitoes, bees, etc.) 7. High Noise levels 8. Overhead hazards 9. Heat Stress/ Cold Stress 10. Eye Injuries	7. Be aware of potential trip hazards / Follow good housekeeping procedures/ Mark significant hazards. 8. Inspect for jagged/sharp edges, and rough or slippery surfaces / Keep fingers away from pinch points / Wipe off greasy, wet, slippery, or dirty objects before handling / Wear leather/ cut-resistant gloves. 9. Wear Langan approved safety shoes. 10. Use proper lifting techniques / Consider load location, task repetition, and load weigh when evaluating what is safe or unsafe to lift / Obtain assistance when possible. 11. Wear high visibility clothing & vest / Use cones or signs to designate work area. 12. Be aware of surroundings at all times, including the presence of wildlife/ Do not approach stray dogs / Carry/use dog/animal repellant / Use bug spray when needed. 13. Wear proper hearing protection. 14. Wear hard hat / Avoid areas where overhead hazards exist. 15. Wear proper attire for weather conditions (sunscreen or protective clothing in sunlight, layers for cold weather) / Drink plenty of fluids to avoid dehydration / Takes breaks as necessary to avoid heat/cold stress. 16. Wear safety glasses
Additional items.		
Additional Items identified while in the field. (Delete row if not needed.)		

Print Name	Sign Name	Date
Prepared by:		
Reviewed by:		

LANGAN

Job Safety Analysis (JSA)
Construction Health and Safety

JSA Title: **Field Sampling**
JSA Number: **JSA022-01**

A Job Safety Analysis (JSA) must identify all job steps required to complete the task, the potential hazards employees could be exposed to while performing the job step and the preventative/corrective actions required to reduce/mitigate the identified potential hazards. Employees must certify that they have either prepared the JSA or have reviewed the JSA and are aware of the potential hazards associated with this task and will follow the provided preventive/corrective actions. Prior to the start of any work "TAKE 5" and conduct a Last-Minute Risk Assessment.



S – ***Stop,*** *what has changed?*
T – ***Think*** *about the task*
E – ***Evaluate*** *potential hazards*
P – ***Plan*** *safe approach*
S - ***Start*** *task / **Stop** & regroup*

PERSONAL PROTECTIVE EQUIPMENT (Required or to be worn as needed):				
☒ Safety Shoes	☒ Long Sleeves	☐ Safety Vest (Class 2)	☒ Hard Hat	☒ Hearing Protection
☒ Safety Glasses	☐ Safety Goggles	☐ Face Shield	☒ Nitrile Gloves	☐ PVC Gloves
☒ Leather Gloves	☐ Cut Resist. Gloves	☐ Fall Protection	☐ Fire Resistant Clothing	☐ Rubber Boots
☐ Insect/Animal Repellent	☐ Ivy Blocker/Cleaner	☒ Traffic Cones/Signs	☐ Life Vest/Jacket	
☐ Other:				

JOB STEPS	POTENTIAL HAZARDS	PREVENTATIVE / CORRECTIVE ACTION
9. Unpack/Transport equipment to work area.	7. Back Strains 8. Slip/Trips/Falls 9. Cuts/Abrasions from equipment 10. Contusions from dropped equipment	6. Use proper lifting techniques/Use wheeled transport. 7. Minimize distance to work area/Unobstructed path to work area/follow good housekeeping procedures. Mark slip/trip/fall hazards with orange safety cones. 8. Wear proper PPE (leather gloves, long sleeves). 9. Wear proper PPE (Langan approved safety shoes).
10. Initial Site Arrival-Site Assessment	5. Traffic	5. Situational awareness (be alert of your surroundings). Secure area from through traffic.
11. Surface Water Sampling	6. Contaminated media. Skin/eye contact with biological agents and/or chemicals.	6. Wear appropriate PPE (Safety glasses, appropriate gloves). Review (M)SDS for all chemicals being.
12. Sampling from bridges	1. Struck by vehicles	1. Wear appropriate PPE (Safety Vest). Use buddy system and orange safety cones.
13. Icing of Samples/ Transporting coolers/equipment from work area.	11. Back Strains 12. Slips/Trips/Falls 13. Cuts/Abrasions from equipment 14. Pinch/Crushing Hazards.	17. Drain coolers of water. Use proper lifting techniques. Use wheeled transport. 18. Have unobstructed path from work area. Aware of surroundings. 19. Wear proper PPE (Leather gloves, long sleeves) 20. Wear proper PPE (Leather gloves, long sleeves)
14. Site Departure	1. Contaminated PPE/Vehicle	1. Contaminated PPE should be disposed of on-site. Remove boots and soiled clothing for secure storage in trunk. Wash hands promptly.

JOB STEPS	POTENTIAL HAZARDS	PREVENTATIVE / CORRECTIVE ACTION
15. All activities	1. Slips/ Trips/ Falls 2. Hand injuries, cuts, or lacerations during manual handling of materials 3. Foot injuries 4. Back injuries 15. Traffic 16. Wildlife: Stray dogs, Mice/rats, Vectors (i.e., mosquitoes, bees, etc.) 17. High Noise levels 18. Overhead hazards 19. Heat Stress/ Cold Stress 20. Eye Injuries	1. Be aware of potential trip hazards / Follow good housekeeping procedures/ Mark significant hazards 2. Inspect for jagged/sharp edges, and rough or slippery surfaces / Keep fingers away from pinch points / Wipe off greasy, wet, slippery, or dirty objects before handling / Wear leather/ cut-resistant gloves 3. Wear Langan approved safety shoes 4. Use proper lifting techniques / Consider load location, task repetition, and load weigh when evaluating what is safe or unsafe to lift / Obtain assistance when possible 21. Wear high visibility clothing & vest / Use cones or signs to designate work area. 22. Be aware of surroundings at all times, including the presence of wildlife/ Do not approach stray dogs / Carry/use dog/animal repellant / Use bug spray when needed. 23. Wear hearing protection 24. Wear hard hat / Avoid areas where overhead hazards exist. 25. Wear proper attire for weather conditions (sunscreen or protective clothing in sunlight, layers for cold weather) / Drink plenty of fluids to avoid dehydration / Takes breaks as necessary to avoid heat/cold stress. 26. Wear safety glasses
Additional items.		
Additional Items identified while in the field. (Delete row if not needed.)		

Print Name	Sign Name	Date
Prepared by:		
Reviewed by:		

LANGAN

Job Safety Analysis (JSA)
Construction Health and Safety

JSA Title: **Equipment Transportation and Set-up**
JSA Number: **JSA012-01**

A Job Safety Analysis (JSA) must identify all job steps required to complete the task, the potential hazards employees could be exposed to while performing the job step and the preventative/corrective actions required to reduce/mitigate the identified potential hazards. Employees must certify that they have either prepared the JSA or have reviewed the JSA and are aware of the potential hazards associated with this task and will follow the provided preventive/corrective actions. Prior to the start of any work "TAKE 5" and conduct a Last-Minute Risk Assessment.



S – ***Stop,*** *what has changed?*
T – ***Think*** *about the task*
E – ***Evaluate*** *potential hazards*
P – ***Plan*** *safe approach*
S - ***Start*** *task /* ***Stop*** *& regroup*

PERSONAL PROTECTIVE EQUIPMENT (Required or to be worn as needed):				
☒ Safety Shoes	☒ Long Sleeves	☒ Safety Vest (Class 2)	☒ Hard Hat	☒ Hearing Protection
☒ Safety Glasses	☐ Safety Goggles	☐ Face Shield	☐ Nitrile Gloves	☐ PVC Gloves
☒ Leather Gloves	☐ Cut Resist. Gloves	☐ Fall Protection	☐ Fire Resistant Clothing	☐ Rubber Boots
☐ Insect/Animal Repellent	☐ Ivy Blocker/Cleaner	☐ Traffic Cones/Signs	☐ Life Vest/Jacket	
☐ Other:				

JOB STEPS	POTENTIAL HAZARDS	PREVENTATIVE / CORRECTIVE ACTION
16. Transport equipment to work area	11. Back Strain 12. Slips/ Trips/ Falls 13. Traffic 14. Cuts/abrasions from equipment 15. Contusions from dropped equipment	1. Use proper lifting techniques / Use wheeled transport. 2. Minimize distance to work area / Have unobstructed path to work area / Follow good housekeeping procedures. 3. Wear proper PPE (high visibility vest or clothing) 4. Wear proper PPE (leather gloves, long sleeves) 5. Wear proper PPE (safety shoes)
17. Moving equipment to its planned location	6. Pinch Hazard 7. Slips/ Trips/ Falls	1. Wear proper PPE (leather gloves) 2. Be aware of potential trip hazards / Practice good housekeeping procedures / Mark significant below-grade hazards (i.e., holes, trenches) with safety cones or spray paint
18. Equipment Set-up	7. Pinch Hazard 8. Cuts/abrasions to knuckles/hands. 9. Back Strain	1. Wear proper PPE (leather gloves) 2. Wear proper PPE (leather gloves) 3. Use proper lifting techniques / Use wheeled transport
19. All activities	21. Slips/ Trips/ Falls 22. Hand injuries, cuts, or lacerations during manual handling of materials 23. Foot injuries 24. Back injuries 25. Traffic 26. Wildlife: Stray dogs, Mice/rats, Vectors (i.e., mosquitoes, bees, etc.)	27. Be aware of potential trip hazards / Follow good housekeeping procedures/ Mark significant hazards. 28. Inspect for jagged/sharp edges, and rough or slippery surfaces / Keep fingers away from pinch points / Wipe off greasy, wet, slippery, or dirty objects before handling / Wear leather/ cut-resistant gloves. 29. Wear Langan approved safety shoes.

JOB STEPS	POTENTIAL HAZARDS	PREVENTATIVE / CORRECTIVE ACTION
4. All activities (cont'd)	27. High Noise levels 28. Overhead hazards 29. Heat Stress/ Cold Stress 30. Eye Injuries	30. Use proper lifting techniques / Consider load location, task repetition, and load weigh when evaluating what is safe or unsafe to lift / Obtain assistance when possible. 31. Wear high visibility clothing & vest / Use cones or signs to designate work area. 32. Be aware of surroundings at all times, including the presence of wildlife/ Do not approach stray dogs / Carry/use dog/animal repellant / Use bug spray when needed. 33. Wear hearing protection 34. Wear hard hat / Avoid areas where overhead hazards exist. 35. Wear proper attire for weather conditions (sunscreen or protective clothing in sunlight, layers for cold weather) / Drink plenty of fluids to avoid dehydration / Takes breaks as necessary to avoid heat/cold stress. 36. Wear safety glasses
Additional items.		
Additional Items identified while in the field. (Delete row if not needed.)		

Print Name	Sign Name	Date
Prepared by:		
Reviewed by:		

LANGAN

Job Safety Analysis (JSA)
Construction Health and Safety

JSA Title: 55-gallon Drum Sampling
JSA Number: JSA043-01

A Job Safety Analysis (JSA) must identify all job steps required to complete the task, the potential hazards employees could be exposed to while performing the job step and the preventative/corrective actions required to reduce/mitigate the identified potential hazards. Employees must certify that they have either prepared the JSA or have reviewed the JSA and are aware of the potential hazards associated with this task and will follow the provided preventive/corrective actions. Prior to the start of any work "TAKE 5" and conduct a Last-Minute Risk Assessment.



S – *Stop,* what has changed?
T – *Think* about the task
E – *Evaluate* potential hazards
P – *Plan* safe approach
S - *Start* task / *Stop* & regroup

PERSONAL PROTECTIVE EQUIPMENT (Required or to be worn as needed):				
☒ Safety Shoes	☒ Long Sleeves	☒ Safety Vest (Class 2)	☒ Hard Hat	☐ Hearing Protection
☒ Safety Glasses	☒ Safety Goggles	☒ Face Shield	☒ Nitrile Gloves	☒ PVC Gloves
☒ Leather Gloves	☐ Cut Resist. Gloves	☐ Fall Protection	☐ Fire Resistant Clothing	☐ Rubber Boots
☐ Insect/Animal Repellent	☐ Ivy Blocker/Cleaner	☐ Traffic Cones/Signs	☐ Life Vest/Jacket	
☒ Other: All Drums are required to be labeled. Langan employees do not open or move undocumented drums or unlabeled drums without proper project manager authorization.				

JOB STEPS	POTENTIAL HAZARDS	PREVENTATIVE / CORRECTIVE ACTION
20. Unpack/Transport equipment to work area.	16. Back Strains 17. Slip/Trips/Falls 18. Cuts/Abrasions from equipment 4. Contusions from dropped equipment	10. Use proper lifting techniques/Use wheeled transport. 11. Minimize distance to work area/Unobstructed path to work area/follow good housekeeping procedures. Mark slip/trip/fall hazards with orange safety cones. 12. Wear proper PPE (leather gloves, long sleeves). 4. Wear proper PPE (Langan approved safety shoes).
21. Open Drums	1. Hand Injuries, cuts or lacerations when untightening drum locking bolt, removing drum lid strap, or removing lid. 2. Pressure from drums.	1. Inspect for jagged/sharp edges, and rough or slippery surfaces / Keep fingers away from pinch points / Wipe off greasy, wet, slippery, or dirty objects before handling / Wear leather/ cut-resistant gloves. Use non-metallic mallet and non-sparking tools/wrenches. 2. Open drum slowly to relieve pressure. Wear proper PPE: face shield and goggles; correct gloves; and over garments.
22. Collecting Soil/Fluid Sample	8. Irritation to eye from vapor, soil dust, or splashing. 9. Irritation to exposed skin	6. Wear proper eye protection including safety glasses/ face shield/googles and when necessary, splash guard. If dust or vapor phase is present, wear appropriate safety breathing gear (1/2 mask or full face mask with correct filter) 7. Wear proper skin protection including nitrile gloves.
23. Closing Drums	1. Hand Injuries, cuts or lacerations when untightening drum locking bolt, removing drum lid strap, or removing lid.	7. Inspect for jagged/sharp edges, and rough or slippery surfaces / Keep fingers away from pinch points / Wipe off greasy, wet, slippery, or dirty objects before handling / Wear leather/ cut-resistant gloves. Use non-metallic mallet and non-sparking tools/wrenches.

JOB STEPS	POTENTIAL HAZARDS	PREVENTATIVE / CORRECTIVE ACTION
24. Moving Drums	2. Hand Injuries, cuts or lacerations when untightening drum locking bolt, removing drum lid strap, or removing lid. 3. Back Strains	2. Inspect for jagged/sharp edges, and rough or slippery surfaces / Keep fingers away from pinch points / Wipe off greasy, wet, slippery, or dirty objects before handling / Wear leather/ cut-resistant gloves. Use non-metallic mallet and non-sparking tools/wrenches. 3. Use proper lifting techniques/Use wheeled transport.
25. All activities	31. Slips/ Trips/ Falls 32. Hand injuries, cuts, or lacerations during manual handling of materials 33. Foot injuries 34. Back injuries 35. Traffic 36. Wildlife: Stray dogs, Mice/rats, Vectors (i.e., mosquitoes, bees, etc.) 37. High Noise levels 38. Overhead hazards 39. Heat Stress/ Cold Stress 40. Eye Injuries	37. Be aware of potential trip hazards / Follow good housekeeping procedures/ Mark significant hazards. 38. Inspect for jagged/sharp edges, and rough or slippery surfaces / Keep fingers away from pinch points / Wipe off greasy, wet, slippery, or dirty objects before handling / Wear leather/ cut-resistant gloves. 39. Wear Langan approved safety shoes. 40. Use proper lifting techniques / Consider load location, task repetition, and load weigh when evaluating what is safe or unsafe to lift / Obtain assistance when possible. 41. Wear high visibility clothing & vest / Use cones or signs to designate work area. 42. Be aware of surroundings at all times, including the presence of wildlife/ Do not approach stray dogs / Carry/use dog/animal repellant / Use bug spray when needed. 43. Wear hearing protection 44. Wear hard hat / Avoid areas where overhead hazards exist. 45. Wear proper attire for weather conditions (sunscreen or protective clothing in sunlight, layers for cold weather) / Drink plenty of fluids to avoid dehydration / Takes breaks as necessary to avoid heat/cold stress. 46. Wear safety glasses
Additional items.		
Additional Items identified while in the field. (Delete row if not needed.)		

Print Name	Sign Name	Date
Prepared by:		
Reviewed by:		

LANGAN

Job Safety Analysis (JSA)
Construction Health and Safety

JSA Title: Direct-Push Soil Borings
JSA Number: JSA004-01

A Job Safety Analysis (JSA) must identify all job steps required to complete the task, the potential hazards employees could be exposed to while performing the job step and the preventative/corrective actions required to reduce/mitigate the identified potential hazards. Employees must certify that they have either prepared the JSA or have reviewed the JSA and are aware of the potential hazards associated with this task and will follow the provided preventive/corrective actions. Prior to the start of any work "TAKE 5" and conduct a Last-Minute Risk Assessment.



S – *Stop,* what has changed?
T – *Think* about the task
E – *Evaluate* potential hazards
P – *Plan* safe approach
S - *Start* task / *Stop* & regroup

PERSONAL PROTECTIVE EQUIPMENT REQUIRED:				
☒ Safety Shoes	☒ Long Sleeves	☒ Safety Vest (Class 2)	☒ Hard Hat	☒ Hearing Protection
☒ Safety Glasses	☐ Safety Goggles	☐ Face Shield	☒ Nitrile Gloves	☐ PVC Gloves
☒ Leather Gloves	☒ Cut Resist. Gloves	☐ Fall Protection	☐ Fire Resistant Clothing	☐ Rubber Boots
☐ Insect/Animal Repellent	☐ Ivy Blocker/Cleaner	☐ Traffic Cones/Signs	☐ Life Vest/Jacket	
☒ Other: Half-face respirator, dust cartridges, PID (if applicable)				

JOB STEPS	POTENTIAL HAZARDS	PREVENTATIVE / CORRECTIVE ACTION
26. Move equipment to work site	19. Back strain when lifting equipment. 20. Slips/ Trips/ Falls while moving equipment. 21. Traffic (if applicable) 22. Pinched fingers or running over toes during GeoProbe set-up. 23. Overturn drilling rig while transporting to loading dock on flat-bed tow truck	13. Use proper lifting technique (use legs for bending and lifting and not the back)/ Use wheeled transport for heavy equipment / Get assistance when handling loads greater than 50 lbs. / Minimize distance to vehicle 14. Use proper lifting technique (use legs for bending and lifting and not the back) / Use wheeled transport for heavy equipment / Get assistance when handling loads greater than 50 lbs. / Minimize distance to vehicle / Have unobstructed path to vehicle or collection point / Do not lift/walk with boxes that are heavy/difficult to lift 15. Wear high visibility safety vests or clothing / Exercise caution 16. Wear proper PPE (cut-resistant gloves) / Stay alert, be aware of geoprobe rig at all times 17. Drill rig should be parked in center of flat-bed tow truck / Emergency brake shall be used at all times during transport on the flat-bed truck/ All unnecessary personnel should stay away from the flat-bed truck during moving activities
27. Calibration of monitoring equipment	10. Skin or eye contact with calibration chemicals 11. Pinch fingers in monitoring equipment	8. Wear proper PPE (safety glasses/ goggles) 9. Wear proper PPE (leather gloves)
28. Set-up GeoProbe rig	10. Geoprobe rig movement	8. All field personnel should stay clear of the GeoProbe rig while moving / Use a spotter when backing up the GeoProbe
29. Advance GeoProbe rods below ground surface to desired depth	4. Underground utilities 5. High noise levels	4. Clean all subsurface soil borings to a minimum of 5 feet below grade. 5. Wear proper PPE (hearing protection)
30. Remove and open acetate liner.	41. Pinched fingers while removing macrocore.	1. Wear proper PPE (nitrile gloves, cut-resistant or leather gloves 2. Wear proper PPE (cut-resistant or leather gloves)

JOB STEPS	POTENTIAL HAZARDS	PREVENTATIVE / CORRECTIVE ACTION
5. Remove and open acetate liner (cont'd)	42. Cuts/lacerations when cutting acetate liner open. 43. Exposure to hazardous vapors 44. Skin contacts with contaminated soil	3. Do not place face over acetate liner when opening / Monitor hazardous vapors in air with PID / Upgrade PPE as necessary based on levels contained in the Construction Health and Safety Plan 4. Wear proper PPE (nitrile gloves)
31. Sample Collections a) Monitor parameters. b) Prepare sample containers and labels	1. Contact with potentially contaminated soil. 2. Lacerations from broken sample bottles 3. Back strain while transporting full coolers. 4. Internal exposure to contaminants and metals through inhalation of dust 5. Slips/ Trips/ Falls	1. Use monitoring devices / Wear proper PPE (safety glasses, nitrile gloves) 2. Do not over-tighten bottle caps / Handle bottles safely to prevent breakage. 6. Use proper lifting techniques / Do not lift heavy loads without assistance. 7. Avoid creating dust / If necessary, wear a half mask respirator with applicable dust cartridge / Inspect respirator for damage and cleanliness prior to use / Clean respirator after each use and store in a clean, secure location. 8. Be alert / Follow good housekeeping procedures
32. Remove excess soil from acetate liner and place in 55-gallon drum (IF NOT PERFORMED BY LANGAN, REMOVE!)	1. Cuts/lacerations from acetate liner 2. Pinched fingers/hand while opening/closing drum. 3. Skin contacts with contaminated soil 4. Soil debris in eyes	1. Wear proper PPE (cut-resistant or leather gloves) 2. Wear proper PPE (cut-resistant or leather gloves) 3. Wear proper PPE (nitrile gloves) 4. Wear proper PPE (safety glasses)

JOB STEPS	POTENTIAL HAZARDS	PREVENTATIVE / CORRECTIVE ACTION
8. Transport drums to central staging location (IF NOT PERFORMED BY LANGAN, REMOVE!)	1. Back, arm or shoulder strain from moving drums. 2. Pinch fingers/hand in drum cart when moving drums. 3. Pinch fingers/hand when operating lift-gate on vehicle. 4. Contact with potentially contaminated groundwater when moving improperly sealed drums. 5. Slips when moving drums. 6. Drop drum on feet/toes	47. Use drum cart for moving drums / Use proper lifting techniques / Do not lift heavy loads without assistance. 48. Wear proper PPE (cut-resistant or leather gloves) 49. Wear proper PPE (cut-resistant or leather gloves) 50. Wear proper PPE (nitrile gloves underneath work gloves) 51. Follow good housekeeping procedures / Ensure route to move drum and storage space is free from obstructions. 52. Wear proper PPE (safety shoes) / Work in a safe manner to prevent dropped drum
9. All activities 9. All activities (cont'd)	1. Slips/ Trips/ Falls 2. Hand injuries, cuts, or lacerations during manual handling of materials 3. Foot injuries 4. Back injuries 5. Traffic 6. Wildlife: Stray dogs, Mice/rats, Vectors (i.e., mosquitoes, bees, etc.) 7. High Noise levels 8. Overhead hazards 9. Heat Stress/ Cold Stress 10. Eye Injuries	1. Be aware of potential trip hazards / Follow good housekeeping procedures/ Mark significant hazards. 2. Inspect for jagged/sharp edges, and rough or slippery surfaces / Keep fingers away from pinch points / Wipe off greasy, wet, slippery, or dirty objects before handling / Wear leather/ cut-resistant gloves. 3. Wear Langan approved safety shoes. 4. Use proper lifting techniques / Consider load location, task repetition, and load weigh when evaluating what is safe or unsafe to lift / Obtain assistance when possible. 5. Wear high visibility clothing & vest / Use cones or signs to designate work area. 6. Be aware of surroundings at all times, including the presence of wildlife/ Do not approach stray dogs / Carry/use dog/animal repellant / Use bug spray when needed. 7. Wear hearing protection 8. Wear hard hat / Avoid areas where overhead hazards exist. 9. Wear proper attire for weather conditions (sunscreen or protective clothing in sunlight, layers for cold weather) / Drink plenty of fluids to avoid dehydration / Takes breaks as necessary to avoid heat/cold stress. 10. Wear safety glasses
Additional items.		
Additional Items identified while in the field. (Delete row if not needed.)		

Print Name	Sign Name	Date

Prepared by:		
Reviewed by:		

LANGAN

Job Safety Analysis (JSA)
Construction Health and Safety

JSA Title: Geophysical Investigation
JSA Number: JSA023-01

A Job Safety Analysis (JSA) must identify all job steps required to complete the task, the potential hazards employees could be exposed to while performing the job step and the preventative/corrective actions required to reduce/mitigate the identified potential hazards. Employees must certify that they have either prepared the JSA or have reviewed the JSA and are aware of the potential hazards associated with this task and will follow the provided preventive/corrective actions. Prior to the start of any work "TAKE 5" and conduct a Last-Minute Risk Assessment.



S – *Stop,* what has changed?
T – *Think* about the task
E – *Evaluate* potential hazards
P – *Plan* safe approach
S - *Start* task / *Stop* & regroup

PERSONAL PROTECTIVE EQUIPMENT (Required or to be worn as needed):				
☒ Safety Shoes	☒ Long Sleeves	☒ Safety Vest (Class 2)	☒ Hard Hat	☒ Hearing Protection
☒ Safety Glasses	☐ Safety Goggles	☐ Face Shield	☒ Nitrile Gloves	☐ PVC Gloves
☒ Leather Gloves	☒ Cut Resist. Gloves	☐ Fall Protection	☐ Fire Resistant Clothing	☐ Rubber Boots
☐ Insect/Animal Repellent	☐ Ivy Blocker/Cleaner	☐ Traffic Cones/Signs	☐ Life Vest/Jacket	
☐ Other:				

JOB STEPS	POTENTIAL HAZARDS	PREVENTATIVE / CORRECTIVE ACTION
33. Transport equipment to work area	24. Back/strain 25. Slip/Trip/Falls 26. Traffic 27. Cuts/abrasions/contusions from equipment	18. Use proper lifting techniques/Use wheeled transport 19. Minimize distance to work area/unobstructed path to work area/follow good housekeeping procedures 20. Wear proper PPE (high visibility vest or clothing) 21. Wear proper PPE (leather gloves, long sleeves, Langan approved safety shoes)
34. Supervision of subcontractor and all other activities	12. Slip/Trips/Falls 13. Hand injuries 14. Foot injuries 15. Back injuries/Strains 16. Traffic 17. Wildlife a. Wildlife b. Mice/rats c. Vectors (i.e., mosquitoes, bees, etc.) 7. Heat/Cold Stress	10. Be aware of potential trip hazards/follow good housekeeping procedures/mark significant below-grade hazards (i.e., holes, trenches, wires, ropes) with safety cones or spray paint. 11. Wear proper PPE (leather gloves)/watch wear you place your hands/inspect material or equipment for jagged, rough, or slippery surfaces/ watch for pinch points/ wipe off slippery, wet, or dirty items prior to handling. 12. Wear proper PPE (Langan approved safety shoes)/ Be aware of uneven terrain) 13. Use proper lifting techniques/ Buddy system when lifting/ use wheeled transport. 14. Wear proper PPE (high-visibility shirts and vests)/ use cones if appropriate/ notify equipment operators of work area. 15. Be aware of surroundings at all times for the presence of wildlife. a. Do not approach stray animals. b. Carry animal repellant/ use if situation arises. c. Use bug spray when needed. 7. Wear proper attire for weather conditions (sunscreen, protective clothing in

JOB STEPS	POTENTIAL HAZARDS	PREVENTATIVE / CORRECTIVE ACTION
		sunlight or layer clothing in cold weather)/ drink plenty of fluids/ take regular breaks.
35. All activities	45. Slips/ Trips/ Falls 46. Hand injuries, cuts, or lacerations during manual handling of materials 47. Foot injuries 48. Back injuries 49. Traffic 50. Wildlife: Stray dogs, Mice/rats, Vectors (i.e., mosquitoes, bees, etc.) 51. High Noise levels 52. Overhead hazards 53. Heat Stress/ Cold Stress 54. Eye Injuries	53. Be aware of potential trip hazards / Follow good housekeeping procedures/ Mark significant hazards. 54. Inspect for jagged/sharp edges, and rough or slippery surfaces / Keep fingers away from pinch points / Wipe off greasy, wet, slippery, or dirty objects before handling / Wear leather/ cut-resistant gloves. 55. Wear Langan approved safety shoes. 56. Use proper lifting techniques / Consider load location, task repetition, and load weigh when evaluating what is safe or unsafe to lift / Obtain assistance when possible. 57. Wear high visibility clothing & vest / Use cones or signs to designate work area. 58. Be aware of surroundings at all times, including the presence of wildlife/ Do not approach stray dogs / Carry/use dog/animal repellant / Use bug spray when needed. 59. Wear proper hearing protection. 60. Wear hard hat / Avoid areas where overhead hazards exist. 61. Wear proper attire for weather conditions (sunscreen or protective clothing in sunlight, layers for cold weather) / Drink plenty of fluids to avoid dehydration / Takes breaks as necessary to avoid heat/cold stress. 62. Wear safety glasses
Additional items.		
Additional Items identified while in the field. (Delete row if not needed.)		

Print Name	Sign Name	Date
Prepared by:		
Reviewed by:		

LANGAN

Job Safety Analysis (JSA)
Health and Safety

JSA Title: **Ladder Use**
JSA Number: **JSA056**

A Job Safety Analysis (JSA) must identify all job steps required to complete the task, the potential hazards employees could be exposed to while performing the job step and the preventative/corrective actions required to reduce/mitigate the identified potential hazards. Employees must certify that they have either prepared the JSA or have reviewed the JSA and are aware of the potential hazards associated with this task and will follow the provided preventive/corrective actions. Prior to the start of any work "TAKE 5" and conduct a Last Minute Risk Assessment.



S – ***Stop,*** *what has changed?*

T – ***Think*** *about the task*

E – ***Evaluate*** *potential hazards*

P – ***Plan*** *safe approach*

S - ***Start*** *task /* ***Stop*** *& regroup*

PERSONAL PROTECTIVE EQUIPMENT (Required or to be worn as needed):				
☒ Safety Shoes	☐ Long Sleeves	☐ Safety Vest (Class 2)	☐ Hard Hat	☐ Hearing Protection
☒ Safety Glasses	☐ Safety Goggles	☐ Face Shield	☐ Nitrile Gloves	☐ PVC Gloves
☐ Leather Gloves	☐ Cut Resist. Gloves	☒ Fall Protection	☐ Fire Resistant Clothing	☐ Rubber Boots
☐ Insect/Animal Repellent	☐ Ivy Blocker/Cleaner	☐ Traffic Cones/Signs	☐ Life Vest/Jacket	
☐ Other:				

JOB STEPS	POTENTIAL HAZARDS	PREVENTATIVE / CORRECTIVE ACTION
36. Use of Ladders and Inspection of Ladders Before Use	1. Ladders (portable, fixed) 2. Rolling or pinching objects 3. Sharp objects	22. Inspect all ladders for structural defects prior to each use. Decals, weight restrictions, non painted surfaces. 23. Use the correct type and size of ladder to safely work. 24. . Do not use metal or wooden ladders
37. Use of Ladder(s)	18. Ladders (portable, fixed) 19.Elevated work platform or stairs 20.Slippery surfaces (water, ice, snow) 21.Rolling or pinching objects 22.Sharp objects 23.Poor Housekeeping 24.Repetitive motion or other ergonomic concerns 25.Airborne dust	16. Maintain three points of contact when ascending and descending ladders. 17. Insure area at bottom of ladder is free of obstructions and tripping hazards. 18. Never carry tools in your hands while ascending or descending a ladder. 19. Utilize rope buckets to pull tools up to you or tool belts. Extension ladders will extend up to 36 inches above the landing that is being accessed and be tied off and secured to prevent them from moving or falling. 20. A spotter must hold the ladder if the employee needs to climb the ladder to tie the ladder off. When using an extension ladder, for every 4' of rise, the base must come out 1' (4 to 1 ratio)

JOB STEPS	POTENTIAL HAZARDS	PREVENTATIVE / CORRECTIVE ACTION
		21. If working from a ladder 6 ft. or higher, fall protection is required. Fall protection is not required for climbing ladders less than 20 ft. in height. 22. Use the proper ladder for the job at all times. 23. The belt buckle may never extend past either rail on the side of the ladder. 24. Do not climb higher than the second tread from the top on a stepladder or the third rung 25. Before ascending or descending a ladder, wait until other workers have completely cleared the ladder. Do not stand directly below a person who is climbing or descending a ladder to avoid falling objects.
38. All activities	55. Slips/ Trips/ Falls 56. Hand injuries, cuts or lacerations during manual handling of materials 57. Foot injuries 58. Back injuries 59. Eye Injuries	63. Be aware of potential trip hazards / Follow good housekeeping procedures/ Mark significant hazards 64. Inspect for jagged/sharp edges, and rough or slippery surfaces / Keep fingers away from pinch points / Wipe off greasy, wet, slippery or dirty objects before handling / Wear leather/ cut-resistant gloves 65. Wear proper PPE (Langan approved safety shoes) 66. Use proper lifting techniques / Consider load location, task repetition, and load weigh when evaluating what is safe or unsafe to lift / Obtain assistance when possible 67. Wear high visibility clothing & vest / Use cones or signs to designate work area 68. Wear hard hat / Avoid areas were overhead hazards exist. 69. Wear proper attire for weather conditions (sunscreen or protective clothing in sunlight, layers for cold weather) / Drink plenty of fluids to avoid dehydration / Takes breaks as necessary to avoid heat/cold stress 70. Wear safety glasses

Print Name	Sign Name	Date
Prepared by:		
Reviewed by:		

LANGAN

Job Safety Analysis (JSA)
Health and Safety

JSA Title: **Mechanical Connection Oversight**
JSA Number: **JSA027-01**

A Job Safety Analysis (JSA) must identify all job steps required to complete the task, the potential hazards employees could be exposed to while performing the job step and the preventative/corrective actions required to reduce/mitigate the identified potential hazards. Employees must certify that they have either prepared the JSA or have reviewed the JSA and are aware of the potential hazards associated with this task and will follow the provided preventive/corrective actions. Prior to the start of any work "TAKE 5" and conduct a Last Minute Risk Assessment.



S – ***Stop,*** *what has changed?*

T – ***Think*** *about the task*

E – ***Evaluate*** *potential hazards*

P – ***Plan*** *safe approach*

S - ***Start*** *task /* ***Stop*** *& regroup*

PERSONAL PROTECTIVE EQUIPMENT (Required or to be worn as needed):				
☒ Safety Shoes	☒ Long Sleeves	☒ Safety Vest (Class 2)	☒ Hard Hat	☒ Hearing Protection
☒ Safety Glasses	☐ Safety Goggles	☒ Face Shield	☒ Nitrile Gloves	☐ PVC Gloves
☒ Leather Gloves	☒ Cut Resist. Gloves	☐ Fall Protection	☐ Fire Resistant Clothing	☐ Rubber Boots
☐ Insect/Animal Repellent	☐ Ivy Blocker/Cleaner	☐ Traffic Cones/Signs	☐ Life Vest/Jacket	
☐ Other:				

JOB STEPS	POTENTIAL HAZARDS	PREVENTATIVE / CORRECTIVE ACTION
39. Transport equipment to work area	28. Back Strain 29. Slips/ Trips/ Falls 30. Traffic 31. Cuts/abrasions from equipment 32. Contusions from dropped equipment	6. Use proper lifting techniques / Use wheeled transport 7. Minimize distance to work area / Have unobstructed path to work area / Follow good housekeeping procedures 8. Wear proper PPE (high visibility vest or clothing) 9. Wear proper PPE (leather gloves, long sleeves) 10. Wear proper PPE (Langan approved safety shoes)
40. Piping and connections	6. Pinch Hazard 7. Cuts/abrasions to knuckles/hands 8. Back Strain 9. High pressure water spray	1. Wear proper PPE (leather gloves) 2. Wear proper PPE (leather gloves or cut resistant gloves) 3. Use proper lifting techniques / Use wheeled transport 4. Ensure connections are tight and secure/ Wear proper PPE (face shield and safety glasses)
41. All activities	60. Slips/ Trips/ Falls 61. Hand injuries, cuts or lacerations during manual handling of materials 62. Foot injuries 63. Back injuries 64. Traffic 65. Wildlife: Stray dogs, Mice/rats, Vectors (i.e. mosquitoes, bees, etc.) 66. High Noise levels 67. Overhead hazards 68. Heat Stress/ Cold Stress 69. Eye Injuries	71. Be aware of potential trip hazards / Follow good housekeeping procedures/ Mark significant hazards 72. Inspect for jagged/sharp edges, rough or slippery surfaces / Keep fingers away from pinch points / Wipe off greasy, wet, slippery or dirty objects before handling / Wear leather and/or cut-resistant gloves 73. Wear Langan approved safety shoes 74. Use proper lifting techniques / Consider load location, task repetition, and load weigh / Obtain assistance when possible 75. Wear high visibility clothing & vest / Use cones or signs to designate work area 76. Be aware of surroundings for presence of wildlife/ Do not approach stray animals / Carry or use animal repellant / Use bug spray when needed

JOB STEPS	POTENTIAL HAZARDS	PREVENTATIVE / CORRECTIVE ACTION
		77. Wear proper PPE (hearing protection) 78. Wear hard hat / Avoid areas were overhead hazards exist. 79. Wear proper attire for weather conditions (sunscreen or protective clothing in sunlight, layers for cold weather) / Drink plenty of fluids to avoid dehydration / Takes breaks as necessary to avoid heat/cold stress 80. Wear safety glasses
Additional items.		
Additional Items identified while in the field. (Delete row if not needed.)		

Print Name	Sign Name	Date
Prepared by:		
Reviewed by:		

LANGAN

Job Safety Analysis (JSA)
Health and Safety

JSA Title: Soil Sampling from Excavator Bucket
JSA Number: JSA057

A Job Safety Analysis (JSA) must identify all job steps required to complete the task, the potential hazards employees could be exposed to while performing the job step and the preventative/corrective actions required to reduce/mitigate the identified potential hazards. Employees must certify that they have either prepared the JSA or have reviewed the JSA and are aware of the potential hazards associated with this task and will follow the provided preventive/corrective actions. Prior to the start of any work "TAKE 5" and conduct a Last Minute Risk Assessment.



S – ***Stop,*** *what has changed?*

T – ***Think*** *about the task*

E – ***Evaluate*** *potential hazards*

P – ***Plan*** *safe approach*

S - ***Start*** *task /* ***Stop*** *& regroup*

PERSONAL PROTECTIVE EQUIPMENT (Required or to be worn as needed):				
☒ Safety Shoes	☐ Long Sleeves	☒ Safety Vest (Class 2)	☒ Hard Hat	☐ Hearing Protection
☒ Safety Glasses	☒ Safety Goggles	☐ Face Shield	☒ Nitrile Gloves	☐ PVC Gloves
☐ Leather Gloves	☐ Cut Resist. Gloves	☐ Fall Protection	☐ Fire Resistant Clothing	☐ Rubber Boots
☐ Insect/Animal Repellent	☐ Ivy Blocker/Cleaner	☒ Traffic Cones/Signs	☐ Life Vest/Jacket	
☐ Other:				

JOB STEPS	POTENTIAL HAZARDS	PREVENTATIVE / CORRECTIVE ACTION
42. Drive to site and/or sample location.	33. Rough/Off-Road terrain; 34. Low-light or other hazardous environmental conditions.	1. Pay attention to road conditions such as road erosion, unprotected embankments, and soft road conditions; 2. Ensure vehicle is properly equipped and outfitted for the terrain and all environmental conditions.
43. Initial Site Arrival Site Assessment.	1. Unsafe driving conditions including personnel walking within driving areas, open excavation or pits, steep slopes etc.; 2. Biological hazards (snakes, poison oak, bees).	1. Maintain situational awareness upon arriving to the work site (be alert of your surroundings). Secure the work area from through traffic.
44. Unpack and transport equipment to work area.	1. Back Strains; 2. Slip/Trips/Falls; 3. Cuts/Abrasions from equipment; 4. Contusions from dropped equipment.	1. Use proper lifting techniques and use wheeled transport; 2. Minimize distance to work area and create unobstructed path to work area. Follow good housekeeping procedures. Mark slip/trip/fall hazards with orange safety cones and/or caution tape; 3. Wear proper PPE (gloves, long sleeves, etc.); 4. Wear proper PPE (Langan-approved safety shoes, hardhat, etc.).
45. Earth Moving Equipment.	1. Equipment striking, crushing, running over employee etc.	1. Place traffic cones and use caution tape to clearly delineate the excavators front and rear swing radius. Do not enter the excavators or other heavy equipment swing radius/travel paths while in operation; 2. Ensure all employees working in the vicinity of the excavator/heavy equipment maintain direct line of sight with the operator at all times; don't walk behind equipment or within the operators blind spots; maintain a safe distance away from the equipment; 3. Designate one employee as the "spotter" to communicate with the excavator operator, and establish a shut-down signal that, when

JOB STEPS	POTENTIAL HAZARDS	PREVENTATIVE / CORRECTIVE ACTION
		sounded, instructs the excavator operator to freeze/stop all movement of the equipment; 4. Direct operator to completely power down the excavator before approaching (i.e. breaking the swing radius plane) the excavator bucket to collect a sample; 5. Direct the operator keep the equipment completely powered-down until all employees are at a safe distance, and it is safe to continue work. The designated spotter should be the only person directing the operator to power the equipment back on. 6. Conduct a planned pause anytime there is a change in procedure or before beginning a new task; 7. Wear proper PPE (high vis vest/clothing).
46. Icing of Samples & Transporting coolers/equipment from work area.	1. Back Strains 2. Slips/Trips/Falls 3. Cuts/Abrasions from equipment 4. Pinch/Crushing Hazards.	1. Drain coolers of water. Use proper lifting techniques. Use wheeled transport whenever possible; 2. Plan for and utilize a safe and unobstructed path of travel to and from work area. Maintain situational awareness when traveling to and from work area; 3. Wear proper PPE (Leather gloves, long sleeves); 4. Wear proper PPE (Leather gloves, long sleeves, hard hat, Langan approved safety shoes).
47. Excavated soil.	1. Hazardous substances.	1. Use proper equipment to monitor excavated soil for contaminates; 2. Ensure levels do not exceed PEL's for contaminates; 3. Wear proper PPE.
48. Changing site conditions.	1. Stockpiles and/or excavations/trenches/pits creating unsafe paths of travel. 2. Unforeseen conditions	1. Take time to plan out stockpile, excavation, trench, and/or test pit locations, ensuring that the planned work will not create unsafe conditions or paths of travel once performed; 2. Maintain situational awareness throughout the work day (be alert of the evolving site conditions); 3. If stockpile, excavation, trench, and/or test pit locations create pinch points, site constraints, or unsafe paths of travel or other unsafe site conditions, stop work immediately and direct the excavator operator to correct the unsafe conditions by moving stockpiles, backfilling excavations, trenches, and/or test pits etc.; 4. Use stop work and conduct a planned pause to address changed site conditions.
49. All activities.	1. Slips/ Trips/ Falls; 2. Hand injuries, cuts or lacerations during manual handling of materials; 3. Foot injuries; 4. Back injuries; 5. Traffic; 6. Wildlife: Stray dogs, Mice/rats, Vectors (i.e. mosquitoes, bees, etc.); 7. High Noise levels; 8. Overhead hazards; 9. Heat Stress/ Cold Stress; 10. Eye Injuries.	1. Be aware of potential trip hazards. Follow good housekeeping procedures. Mark significant hazards; 2. Inspect for jagged/sharp edges, and rough or slippery surfaces. Keep fingers away from pinch points. Wipe off greasy, wet, slippery or dirty objects before handling. Wear proper PPE (leather/ cut-resistant gloves); 3. Wear proper PPE (Langan approved safety shoes); 4. Use proper lifting techniques. Consider load location, task repetition, and load weigh when evaluating what is safe or unsafe to lift. Obtain assistance when possible; 5. Wear high visibility clothing & vest / Use cones or signs to designate work area;

JOB STEPS	POTENTIAL HAZARDS	PREVENTATIVE / CORRECTIVE ACTION
		6. Be aware of surroundings at all times, including the presence of wildlife. Do not approach stray dogs. Carry/use dog/animal repellant. Use bug spray when needed; 7. Wear hearing protection; 8. Wear hard hat / Avoid areas were overhead hazards exist; 9. Wear proper attire for weather conditions (sunscreen or protective clothing in sunlight, layers for cold weather). Drink plenty of fluids to avoid dehydration. Take breaks as necessary to avoid heat/cold stress; 10. Wear safety glasses

Print Name	**Sign Name**	**Date**
Prepared by:		
Reviewed by:		

LANGAN

Job Safety Analysis (JSA)
Health and Safety

JSA Title: **Site Inspection**
JSA Number: **JSA024-01**

A Job Safety Analysis (JSA) must identify all job steps required to complete the task, the potential hazards employees could be exposed to while performing the job step and the preventative/corrective actions required to reduce/mitigate the identified potential hazards. Employees must certify that they have either prepared the JSA or have reviewed the JSA and are aware of the potential hazards associated with this task and will follow the provided preventive/corrective actions. Prior to the start of any work "TAKE 5" and conduct a Last Minute Risk Assessment.



S – ***Stop,*** *what has changed?*

T – ***Think*** *about the task*

E – ***Evaluate*** *potential hazards*

P – ***Plan*** *safe approach*

S - ***Start*** *task /* ***Stop*** *& regroup*

PERSONAL PROTECTIVE EQUIPMENT (Required or to be worn as needed):				
☒ Safety Shoes	☒ Long Sleeves	☒ Safety Vest (Class 2)	☒ Hard Hat	☒ Hearing Protection
☒ Safety Glasses	☐ Safety Goggles	☐ Face Shield	☒ Nitrile Gloves	☐ PVC Gloves
☒ Leather Gloves	☐ Cut Resist. Gloves	☐ Fall Protection	☐ Fire Resistant Clothing	☒ Rubber Boots
☒ Insect/Animal Repellent	☐ Ivy Blocker/Cleaner	☒ Traffic Cones/Signs	☐ Life Vest/Jacket	
☐ Other:				

JOB STEPS	POTENTIAL HAZARDS	PREVENTATIVE / CORRECTIVE ACTION
50. Jobsite Pre-briefing	35. None	25. Review JSA, SOP's, and discuss hazards that may be present and control measures for present hazards while on-site.

JOB STEPS	POTENTIAL HAZARDS	PREVENTATIVE / CORRECTIVE ACTION
2. Working near railroads	1. Passing Trains. 2. Slip/Trips/Falls.	1. Wear reflective vest/ Stay away from tracks/ Do not cross tracks within 10 ft. of train car or when there is a train within view/listen for train horn. 2. Be aware of tripping hazards/ Follow good housekeeping procedures/ Mark significant hazards with spray paint or cones.
3. Walking around site	10. Uneven terrain 11. Wildlife: Stray animals, mice/rats, vectors (i.e. mosquitoes, bees, etc.) 12. Weather: Heat/cold stress 13. Slip/Trips/Falls 14. Foot injuries 15. Eye injuries	9. Pay attention to surrounding area (puddles, wet, frozen, uneven areas); Mark with cones or spray paint. 10. Use bug spray/ Avoid stray animals/Use repellant when needed. 11. Dress for the correct weather situation/ Use sunscreen or protective clothing in sunlight, layers in cold weather/ Drink plenty of fluids/ Take breaks when needed. 4. Be aware of tripping hazards/ Follow good housekeeping procedures/ Mark significant hazards with spray paint or cones. 5. Wear proper PPE (Langan approved safety shoes)/ Change wet socks during cold weather. 6. Wear proper PPE (safety glasses/goggles).
4. Working near road	1. Passing vehicles 2. Slip/Trips/Falls	1. Wear reflective vest/ Stay away from roadway/ Use buddy system/ Place signage or cones when needed. 2. Be aware of tripping hazards/ Follow good housekeeping procedures/ Mark significant hazards with spray paint or cones.
5. All activities	70. Slips/ Trips/ Falls 71. Hand injuries, cuts or lacerations during manual handling of materials 72. Foot injuries 73. Back injuries 74. Traffic 75. Wildlife: Stray dogs, Mice/rats, Vectors (i.e. mosquitoes, bees, etc.) 76. High Noise levels 77. Overhead hazards 78. Heat Stress/ Cold Stress 79. Eye Injuries	81. Be aware of potential trip hazards / Follow good housekeeping procedures/ Mark significant hazards 82. Inspect for jagged/sharp edges, and rough or slippery surfaces / Keep fingers away from pinch points / Wipe off greasy, wet, slippery or dirty objects before handling / Wear leather/ cut-resistant gloves 83. Wear Langan approved safety shoes 84. Use proper lifting techniques / Consider load location, task repetition, and load weigh when evaluating what is safe or unsafe to lift / Obtain assistance when possible 85. Wear high visibility clothing & vest / Use cones or signs to designate work area 86. Be aware of surroundings at all times, including the presence of wildlife/ Do not approach stray dogs / Carry/use dog/animal repellant / Use bug spray when needed 87. Wear hearing protection 88. Wear hard hat / Avoid areas were overhead hazards exist. 89. Wear proper attire for weather conditions (sunscreen or protective clothing in sunlight, layers for cold weather) / Drink plenty of fluids to avoid dehydration / Takes breaks as necessary to avoid heat/cold stress 90. Wear safety glasses
Additional items.		

JOB STEPS	POTENTIAL HAZARDS	PREVENTATIVE / CORRECTIVE ACTION
Additional Items identified while in the field. (Delete row if not needed.)		

Print Name	Sign Name	Date
Prepared by:		
Reviewed by:		

LANGAN

Job Safety Analysis (JSA)
Health and Safety

JSA Title: Groundwater Sampling
JSA Number: JSA008-01

A Job Safety Analysis (JSA) must identify all job steps required to complete the task, the potential hazards employees could be exposed to while performing the job step and the preventative/corrective actions required to reduce/mitigate the identified potential hazards. Employees must certify that they have either prepared the JSA or have reviewed the JSA and are aware of the potential hazards associated with this task and will follow the provided preventive/corrective actions. Prior to the start of any work "TAKE 5" and conduct a Last-Minute Risk Assessment.



S – *Stop,* what has changed?
T – *Think* about the task
E – *Evaluate* potential hazards
P – *Plan* safe approach
S - *Start* task / *Stop* & regroup

PERSONAL PROTECTIVE EQUIPMENT (Required or to be worn as needed):				
☒ Safety Shoes	☒ Long Sleeves	☒ Safety Vest (Class 2)	☒ Hard Hat	☒ Hearing Protection
☒ Safety Glasses	☐ Safety Goggles	☐ Face Shield	☒ Nitrile Gloves	☐ PVC Gloves
☒ Leather Gloves	☐ Cut Resist. Gloves	☒ Fall Protection	☐ Fire Resistant Clothing	☐ Rubber Boots
☐ Insect/Animal Repellent	☐ Ivy Blocker/Cleaner	☐ Traffic Cones/Signs	☐ Life Vest/Jacket	
☒ Other: Tyvek sleeves, Dermal Protection, PID				

JOB STEPS	POTENTIAL HAZARDS	PREVENTATIVE / CORRECTIVE ACTION
51. Transport equipment to work area	1. Back Strain 2. Slips/ Trips/ Falls 3. Traffic 4. Cuts/abrasions from equipment 5. Contusions from dropped equipment	1. Use proper lifting techniques / Use wheeled transport. 2. Minimize distance to work area / Have unobstructed path to work area / Follow good housekeeping procedures. 3. Wear proper PPE (high visibility vest or clothing) 4. Wear proper PPE (leather gloves, long sleeves) 5. Wear proper PPE (safety shoes)
52. Remove well cover	26. Scrape knuckles/hand 27. Strain wrist/bruise palm 28. Pinch fingers or hand	3. Wear proper PPE (leather gloves) 4. Using a hammer, tap the end of the wrench to loosen grip of bolts. 5. Wear proper PPE (leather gloves)
53. Remove well cap and lock	11. Well can pops from pressure. 12. Exposure to hazardous substances through inhalation or dermal exposure 13. Scrape knuckles/hand 14. Strain write/bruise palm	5. Remove cap slowly to relieve pressure / Do not place face over well when opening / Wear proper PPE (safety glasses) 6. Use direct air monitoring/reading instrument (i.e., PID) / Be familiar with and follow actions prescribed in the HASP / Wear proper PPE (nitrile gloves) 7. Wear proper PPE (leather gloves) 8. Using hammer, tap the end of the wrench to loosen grip
54. Measure head-space vapor levels	1. Exposure to hazardous substances through inhalation	1. Do not place face over well when collecting measurement
55. Remove dedicated tubing (if necessary)	1. Exposure to hazardous substances through inhalation or dermal exposure 2. Tubing swings around after removal	1. Wear proper PPE (nitrile gloves, Tyvek sleeves) 2. Wear proper PPE (safety glasses)
56. Set-up plastic sheeting for work site around the well	1. Lacerations when cutting plastic sheeting.	1. Use scissors to cut plastic sheeting / Cut motions should always be away from body and body parts

JOB STEPS	POTENTIAL HAZARDS	PREVENTATIVE / CORRECTIVE ACTION
57. Measure depth to water	1. Exposure to hazardous substances through inhalation or dermal exposure 2. Pinch fingers or hand in water level instrument	1. Wear proper PPE (nitrile gloves) 2. Wear proper PPE (leather gloves)
58. Calibrate monitoring equipment	1. Skin or eye contact with calibration chemicals 2. Pinch fingers or hand in monitoring equipment	1. Wear proper PPE (safety glasses, nitrile gloves) 2. Wear proper PPE (leather gloves) / Avoid pinch points
59. Install sampling pump in well	1. Hand injuries during installation of pump 2. Lacerations when cutting tubing. 3. Back strain during installation of pump 4. Physical hazards associated with manual lifting of heavy equipment. 5. Back strain from starting generator. 6. Burns from hot exhaust from generator. 7. Electrical shock from improper use of generator and pump 8. Contaminated water spray from loose connections	1. Wear proper PPE (leather gloves, nitrile gloves) 2. Use safety tubing cutter. 3. Use proper lifting techniques. 4. Use proper lifting techniques / Use wheeled transport for heavy equipment. 5. Use arm when starting generator / Do not over-strain if generator does not start. 6. Do not touch generator near exhaust / Use proper handle to carry / Allow generator to cool down before moving. 7. Properly plug in pump to generator / Do not allow the pump or generator to contact water / Check for breaks in the cord. 8. Check all tubing connections to ensure they are tight and secure

JOB STEPS	POTENTIAL HAZARDS	PREVENTATIVE / CORRECTIVE ACTION
10. Purge water	1. Contact with potentially contaminated groundwater. 2. Back strain from lifting buckets of water 3. Tripping potential on sample discharge lines and pump electric lines	1. Wear proper PPE (safety glasses, nitrile gloves) 2. Use proper lifting techniques / Use wheeled transport. 3. Organize discharge of electric line to keep out of way as much as possible / Mark potential tripping hazards with caution tape or safety cones
11. Sample water collection	1. Contact with potentially contaminated groundwater through dermal exposure. 2. Contact with and burns from acid used for sample preservation. 3. Tripping potential on sample discharge lines and pump electric lines 4. Lacerations from broken sample bottles 5. Back strain when transporting coolers full of collected samples. 6. Slips/ Trips/ Falls	1. Wear proper PPE (safety glasses, nitrile gloves) 2. Wear proper PPE (safety glasses, nitrile gloves) / Ensure sample bottle lids are secure before use and after sample collection. 3. Organize line to keep out of the way as much as possible / Mark potential tripping hazards with caution tape or safety cones. 4. Do not over-tighten bottle caps / Handle bottles safely to prevent breakage / Wrap glass bottles in bubble wrap, if possible 5. Use proper lifting techniques / Use wheeled transport / Seek assistance if coolers weight exceeds 50lbs. / Minimize distance to vehicle. 6. Have unobstructed path to vehicle or collection point / Follow good housekeeping procedures / Do not lift/walk with coolers that are too heavy/difficult to lift
12. Remove pump and pack up equipment	1. Back strain when removing pump or lifting heavy equipment	1. Use proper lifting technique / Use wheeled transport for heavy equipment
13. Replace well cap and lock	1. Scrape fingers/hand 2. Strain wrist/bruise palm	1. Wear proper PPE (leather gloves) 2. Using hammer, tap the end of the well cap to tighten grip
14. Replace well cover	1. Scrape knuckles/hand 2. Strain write/bruise palm. 3. Pinch fingers or hand	1. Wear proper PPE (leather gloves) 2. Using hammer, tap the end of the wrench to tighten the grip of the bolts. 3. Wear proper PPE (leather gloves)
15. Transport drums to disposal staging location	1. Back, arm or shoulder strain from moving drums. 2. Pinch hazard 3. Contact with potentially contaminated groundwater when moving improperly sealed drums. 4. Slips/ Trips/ Falls when moving drum. 5. Drop drum on feet/toes	1. Use drum cart for moving drums / Use proper lifting techniques / Obtain assistance, if needed 2. Wear proper PPE (leather gloves) 3. Wear proper PPE (nitrile gloves under leather gloves) / Properly seal drum to prevent leak. 4. Ensure route to move drum to storage space is dry and free from obstructions. 5. Wear proper PPE (safety shoes)
16. Place used PPE in designated disposal drum	1. Pressure build-up inside drum 2. Pinch hazard	1. Remove cap from bung hole in drum to relieve pressure. 2. Wear proper PPE (leather gloves)
17. Decontaminate equipment	1. Splashing water/soap from decontamination 2. Contact with potentially contaminated groundwater through dermal exposure. 3. Electrical shock from broken electric cords	1. Wear proper PPE (safety glasses) 2. Wear proper PPE (safety glasses, dermal protection) 3. Properly plug in pump to generator / Do not allow the pump or generator to contact water / Check for breaks in the cord
18. All activities	80. Slips/ Trips/ Falls 81. Hand injuries, cuts, or lacerations during manual handling of materials 82. Foot injuries 83. Back injuries 84. Traffic 85. Wildlife: Stray dogs, Mice/rats, Vectors (i.e., mosquitoes, bees, etc.)	91. Be aware of potential trip hazards / Follow good housekeeping procedures/ Mark significant hazards. 92. Inspect for jagged/sharp edges, and rough or slippery surfaces / Keep fingers away from pinch points / Wipe off greasy, wet, slippery, or dirty objects before handling / Wear leather/ cut-resistant gloves. 93. Wear Langan approved safety shoes.

JOB STEPS	POTENTIAL HAZARDS	PREVENTATIVE / CORRECTIVE ACTION
	86. High Noise levels 87. Overhead hazards 88. Heat Stress/ Cold Stress 89. Eye Injuries	94. Use proper lifting techniques / Consider load location, task repetition, and load weigh when evaluating what is safe or unsafe to lift / Obtain assistance when possible. 95. Wear high visibility clothing & vest / Use cones or signs to designate work area. 96. Be aware of surroundings at all times, including the presence of wildlife/ Do not approach stray dogs / Carry/use dog/animal repellant / Use bug spray when needed. 97. Wear hearing protection 98. Wear hard hat / Avoid areas where overhead hazards exist. 99. Wear proper attire for weather conditions (sunscreen or protective clothing in sunlight, layers for cold weather) / Drink plenty of fluids to avoid dehydration / Takes breaks as necessary to avoid heat/cold stress. 100. Wear safety glasses
Additional items.		
Additional Items identified while in the field. (Delete row if not needed.)		

Print Name	Sign Name	Date
Prepared by:		
Reviewed by:		

LANGAN

Job Safety Analysis (JSA)
Health and Safety

JSA Title: **Well Installation**
JSA Number: **JSA019-01**

A Job Safety Analysis (JSA) must identify all job steps required to complete the task, the potential hazards employees could be exposed to while performing the job step and the preventative/corrective actions required to reduce/mitigate the identified potential hazards. Employees must certify that they have either prepared the JSA or have reviewed the JSA and are aware of the potential hazards associated with this task and will follow the provided preventive/corrective actions. Prior to the start of any work "TAKE 5" and conduct a Last-Minute Risk Assessment.



S – ***Stop,*** *what has changed?*
T – ***Think*** *about the task*
E – ***Evaluate*** *potential hazards*
P – ***Plan*** *safe approach*
S - ***Start*** *task /* ***Stop*** *& regroup*

PERSONAL PROTECTIVE EQUIPMENT REQUIRED:				
☒ Safety Shoes	☒ Long Sleeves	☒ Safety Vest (Class 2)	☒ Hard Hat	☒ Hearing Protection
☒ Safety Glasses	☐ Safety Goggles	☐ Face Shield	☒ Nitrile Gloves	☐ PVC Gloves
☒ Leather Gloves	☐ Cut Resist. Gloves	☐ Fall Protection	☐ Fire Resistant Clothing	☐ Rubber Boots
☐ Insect/Animal Repellent	☐ Ivy Blocker/Cleaner	☐ Traffic Cones/Signs	☐ Life Vest/Jacket	
☒ Other: PID, Tyvek sleeves				

JOB STEPS	POTENTIAL HAZARDS	PREVENTATIVE / CORRECTIVE ACTION
60. Move equipment to work site	36. Back strain when lifting equipment. 37. Slips/ Trips/ Falls while moving equipment. 38. Traffic (if applicable) 39. Pinched fingers or running over toes during GeoProbe set-up. 40. Overturn drilling rig while transporting to loading dock on flat-bed tow truck	26. Use proper lifting technique (use legs for bending and lifting and not the back)/ Use wheeled transport for heavy equipment / Get assistance when handling loads greater than 50 lbs. / Minimize distance to vehicle 27. Use proper lifting technique (use legs for bending and lifting and not the back) / Use wheeled transport for heavy equipment / Get assistance when handling loads greater than 50 lbs. / Minimize distance to vehicle / Have unobstructed path to vehicle or collection point / Do not lift/walk with boxes that are heavy/difficult to lift 28. Wear high visibility safety vests or clothing / Exercise caution 29. Wear proper PPE (cut-resistant gloves) / Stay alert, be aware of geoprobe rig at all times 30. Drill rig should be parked in center of flat-bed tow truck / Emergency brake shall be used at all times during transport on the flat-bed truck/ All unnecessary personnel should stay away from the flat-bed truck during moving activities
61. Calibration of monitoring equipment	29. Skin or eye contact with calibration chemicals 30. Pinch fingers in monitoring equipment	26. Wear proper PPE (safety glasses/ goggles) 27. Wear proper PPE (leather gloves)
28. Set-up GeoProbe rig	15. Geoprobe rig movement	9. All field personnel should stay clear of the GeoProbe rig while moving / Use a spotter when backing up the GeoProbe
29. Advance GeoProbe rods below ground surface to desired depth	16. Underground utilities 17. High noise levels	12. Clean all subsurface soil borings to a minimum of 5 feet below grade. 13. Wear proper PPE (hearing protection)

JOB STEPS	POTENTIAL HAZARDS	PREVENTATIVE / CORRECTIVE ACTION
30. Remove and open acetate liner. 5. Remove and open acetate liner (cont'd)	90. Pinched fingers while removing macrocore. 91. Cuts/lacerations when cutting acetate liner open. 92. Exposure to hazardous vapors 93. Skin contacts with contaminated soil	5. Wear proper PPE (nitrile gloves, cut-resistant or leather gloves 6. Wear proper PPE (cut-resistant or leather gloves) 7. Do not place face over acetate liner when opening / Monitor hazardous vapors in air with PID / Upgrade PPE as necessary based on levels contained in the Health and Safety Plan 8. Wear proper PPE (nitrile gloves)
6. Remove excess soil from acetate liner and place in 55-gallon drum (IF NOT PERFORMED BY LANGAN, REMOVE!)	5. Cuts/lacerations from acetate liner 6. Pinched fingers/hand while opening/closing drum. 7. Skin contacts with contaminated soil 8. Soil debris in eyes	5. Wear proper PPE (cut-resistant or leather gloves) 6. Wear proper PPE (cut-resistant or leather gloves) 7. Wear proper PPE (nitrile gloves) 8. Wear proper PPE (safety glasses)
7. Attach hollow-stem augers to the GeoProbe rig; Advance augers and attach. additional augers until desired depth is reached	1. Strain wrist/bruise palm 2. Pinched fingers 3. Back Strain 4. Clothing entanglement 5. Carbon monoxide poisoning 6. Bruise toes/foot 7. High noise levels 8. Skin contacts with contaminated soil	1. Wear proper PPE (cut-resistant or leather gloves) 2. Wear proper PPE (cut-resistant or leather gloves) 3. Use proper lifting techniques. 4. Wear proper work attire(no loose clothing/strings) 5. Properly ventilate work area 6. Wear proper PPE (safety shoes) 7. Wear proper PPE (hearing protection) 8. Wear proper PPE (Tyvek sleeves, nitrile gloves)
8. Install monitoring well	1. Pinched fingers 2. Lacerations/abrasions 3. Back Strain	1. Wear proper PPE (cut-resistant or leather gloves) 2. Wear proper PPE (cut-resistant or leather gloves) 3. Use proper lifting techniques
9. Tremie-grout annulus space above bentonite seal	1. Back strain 2. Pinched fingers	1. Use proper lifting techniques. 2. Wear proper PPE (cut-resistant or leather gloves)
10. Install flush-mount monitoring well pad	1. Splashed concrete. 2. Pinched fingers 3. Cuts/lacerations	1. Wear proper PPE (safety glasses) 2. Wear proper PPE (cut-resistant or leather gloves) 3. Wear proper PPE (cut-resistant or leather gloves)
11. Decontaminate equipment	1. Splashing water/soap 2. Contact with potentially contaminated groundwater/soil through dermal exposure. 3. Electrical shock from broken electric cords	1. Wear proper PPE (safety glasses) 2. Wear proper PPE (safety glasses, dermal protection) 3. Properly plug in pump to generator / Do not allow the pump or generator to contact water / Check for breaks in the cord
12. Transport drums to central staging location (IF NOT PERFORMED BY LANGAN, REMOVE!)	7. Back, arm or shoulder strain from moving drums. 8. Pinch fingers/hand in drum cart when moving drums. 9. Pinch fingers/hand when operating lift-gate on vehicle. 10. Contact with potentially contaminated groundwater when moving improperly sealed drums. 11. Slips when moving drums. 12. Drop drum on feet/toes	101. Use drum cart for moving drums / Use proper lifting techniques / Do not lift heavy loads without assistance. 102. Wear proper PPE (cut-resistant or leather gloves) 103. Wear proper PPE (cut-resistant or leather gloves) 104. Wear proper PPE (nitrile gloves underneath work gloves) 105. Follow good housekeeping procedures / Ensure route to move drum and storage space is free from obstructions. 106. Wear proper PPE (safety shoes) / Work in a safe manner to prevent dropped drum

JOB STEPS	POTENTIAL HAZARDS	PREVENTATIVE / CORRECTIVE ACTION
13. All activities 13. All activities (cont'd)	11. Slips/ Trips/ Falls 12. Hand injuries, cuts, or lacerations during manual handling of materials 13. Foot injuries 14. Back injuries 15. Traffic 16. Wildlife: Stray dogs, Mice/rats, Vectors (i.e., mosquitoes, bees, etc.) 17. High Noise levels 18. Overhead hazards 19. Heat Stress/ Cold Stress 20. Eye Injuries	11. Be aware of potential trip hazards / Follow good housekeeping procedures/ Mark significant hazards. 12. Inspect for jagged/sharp edges, and rough or slippery surfaces / Keep fingers away from pinch points / Wipe off greasy, wet, slippery, or dirty objects before handling / Wear leather/ cut-resistant gloves. 13. Wear Langan approved safety shoes. 14. Use proper lifting techniques / Consider load location, task repetition, and load weigh when evaluating what is safe or unsafe to lift / Obtain assistance when possible. 15. Wear high visibility clothing & vest / Use cones or signs to designate work area. 16. Be aware of surroundings at all times, including the presence of wildlife/ Do not approach stray dogs / Carry/use dog/animal repellant / Use bug spray when needed. 17. Wear hearing protection 18. Wear hard hat / Avoid areas where overhead hazards exist. 19. Wear proper attire for weather conditions (sunscreen or protective clothing in sunlight, layers for cold weather) / Drink plenty of fluids to avoid dehydration / Takes breaks as necessary to avoid heat/cold stress. 20. Wear safety glasses
Additional items.		
Additional Items identified while in the field. (Delete row if not needed.)		

Print Name	Sign Name	Date
Prepared by:		
Reviewed by:		

LANGAN

Job Safety Analysis (JSA)
Health and Safety

JSA Title: **Monitoring Well Development**
JSA Number: **JSA026-01**

A Job Safety Analysis (JSA) must identify all job steps required to complete the task, the potential hazards employees could be exposed to while performing the job step and the preventative/corrective actions required to reduce/mitigate the identified potential hazards. Employees must certify that they have either prepared the JSA or have reviewed the JSA and are aware of the potential hazards associated with this task and will follow the provided preventive/corrective actions. Prior to the start of any work "TAKE 5" and conduct a Last-Minute Risk Assessment.



S – *Stop*, what has changed?
T – *Think* about the task
E – *Evaluate* potential hazards
P – *Plan* safe approach
S - *Start* task / *Stop* & regroup

PERSONAL PROTECTIVE EQUIPMENT (Required or to be worn as needed):				
☒ Safety Shoes	☒ Long Sleeves	☒ Safety Vest (Class 2)	☒ Hard Hat	☐ Hearing Protection
☒ Safety Glasses	☐ Safety Goggles	☒ Face Shield	☒ Nitrile Gloves	☐ PVC Gloves
☒ Leather Gloves	☒ Cut Resist. Gloves	☐ Fall Protection	☐ Fire Resistant Clothing	☐ Rubber Boots
☐ Insect/Animal Repellent	☐ Ivy Blocker/Cleaner	☐ Traffic Cones/Signs	☐ Life Vest/Jacket	
☒ Other: Tyvek Sleeves				

JOB STEPS	POTENTIAL HAZARDS	PREVENTATIVE / CORRECTIVE ACTION
62. Transport equipment to work area	41. Back Strains 42. Slips/Trips/Falls 43. Traffic 44. Cuts/Abrasions/Contusions from equipment	31. Use proper lifting techniques/ Use wheeled transport/ use buddy system when lifting equipment. 32. Minimize distance from work area/ unobstructed path to collection points and vehicle/ Follow good housekeeping procedures. 33. Wear high-visibility vest or clothing/Exercise caution/ Use traffic cones or signage if needed. 34. Wear proper PPE (leather gloves, long sleeves, Langan approved safety shoes).
63. Measure depth of water	31. Exposure to hazardous substances 32. Pinched fingers	31. Wear proper PPE (Nitrile gloves, Safety glasses/Face shield). 32. Wear proper PPE (cut-resistant gloves).
64. Install Tremie pipe in the monitoring well and connect to water source.	16. Hand injuries during installation (pinched fingers/hands). 17. Back strain from holding Tremie pipe. 18. High pressure water spray.	10. Wear proper PPE (Nitrile gloves/cut-resistant gloves). 11. Use proper lifting techniques/ Use two personnel when lowering pump greater than 80 feet. 12. Ensure all those connections are tight and secure/ Use proper PPE (face shield and safety glasses).
65. Install pump in to well. a. Connect pump to sample tubing. b. Lower pump to desired depth in well. c. Connect sample tubing to flow cell. d. Connect pump to power source	18. Hand injuries during pump installation and sample tubing cutting. 19. Back strain 20. Electric shock 21. Exhaust gases from generator 22. Burns from hot equipment	14. Wear proper PPE when installing pump and cutting sample tubing (Nitrile and cut-resistant gloves)/ Use tubing cutter. 15. Proper lifting techniques/ Two personnel when installing pump at depths greater than 80 feet/ Use buddy when lifting heavy loads (pump, generator)/Use wheeled transport. 16. Ensure equipment is (LO/TO: locked out/tagged out) prior to preforming any electrical connections/ Inspect wires for frays or cuts/Ensure generator is properly grounded prior to starting.

JOB STEPS	POTENTIAL HAZARDS	PREVENTATIVE / CORRECTIVE ACTION
(generator) e. Turn on power source (generator)		17. Position generator so that exhaust is flowing away from work area. 18. Do not touch exhaust or any hot part of generator/ Allow equipment time to cool down prior to carrying/ Use proper PPE (long sleeves, leather gloves)
66. Develop monitoring well. a. Jet water into well using Tremie pipe. b. Turn pump on and adjust to desired flow rate. c. Surge pump up and down well to remove sediment from screen. d. Containerize all purge water from well.	94. Hand injuries 95. Face injuries 96. Contaminated spray from water	107. Wear proper PPE (cut-resistant gloves and nitrile gloves). 108. Wear proper PPE (face shield and safety glasses)/do not stand over well opening. 109. Wear proper PPE (Face shield and safety goggles)/Tyvek over garments/ Ensure all connections are secure and tight/ Tubing outlet is contained in an overflow container.
67. Drum staging area.	1. Back, Arm, and shoulder strain. 2. Pinch points 3. Cross contamination 4. Slip/Trips/Falls	1. Use proper lifting techniques/ Use drum carts when moving drums/ use buddy system for moving of drums if needed/Move drums shortest distance needed. 2. Keep fingers and feet away from pinch points/ Use proper PPE (cut-resistant gloves, Langan approved safety shoes) 3. Use proper PPE (Nitrile gloves, Tyvek sleeves) 4. Ensure pathway is clear prior to moving equipment/ Mark all hazards/ Use additional person as a spotter if needed.
68. Equipment pack-up	1. Back Strains 2. Slips/Trips/Falls 3. Traffic 4. Cuts/Abrasions/Contusions from equipment.	1. Use proper lifting techniques/ Use wheeled transport/ use buddy system when lifting equipment. 2. Minimize distance from work area/ Unobstructed path to collection points and vehicle/ Follow good housekeeping procedures. 3. Wear high-visibility vest or clothing/Exercise caution/ Use traffic cones or signage if needed. 110. Wear proper PPE (leather gloves, long sleeves, Langan approved safety shoes).
69. All activities	1. Slips/ Trips/ Falls 2. Hand injuries, cuts, or lacerations during manual handling of materials 3. Foot injuries 97. Back injuries 98. Traffic 99. Wildlife: Stray dogs, Mice/rats, Vectors (i.e., mosquitoes, bees, etc.) 100. High Noise levels 101. Overhead hazards 102. Heat Stress/ Cold Stress 103. Eye Injuries	1. Be aware of potential trip hazards / Follow good housekeeping procedures/ Mark significant hazards 2. Inspect for jagged/sharp edges, and rough or slippery surfaces / Keep fingers away from pinch points / Wipe off greasy, wet, slippery, or dirty objects before handling / Wear leather/ cut-resistant gloves 3. Wear Langan approved safety shoes 4. Use proper lifting techniques / Consider load location, task repetition, and load weigh when evaluating what is safe or unsafe to lift / Obtain assistance when possible 5. Wear high visibility clothing & vest / Use cones or signs to designate work area 6. Be aware of surroundings at all times, including the presence of wildlife/ Do not approach stray dogs / Carry/use dog/animal repellant / Use bug spray when needed 7. Wear hearing protection 8. Wear hard hat / Avoid areas where overhead hazards exist. 9. Wear proper attire for weather conditions (sunscreen or protective clothing

JOB STEPS	POTENTIAL HAZARDS	PREVENTATIVE / CORRECTIVE ACTION
		in sunlight, layers for cold weather) / Drink plenty of fluids to avoid dehydration / Takes breaks as necessary to avoid heat/cold stress 10. Wear safety glasses.
Additional items.		
Additional Items identified while in the field. (Delete row if not needed.)		

Print Name	Sign Name	Date
Prepared by:		
Reviewed by:		

LANGAN

Job Safety Analysis (JSA)
Health and Safety

JSA Title: **Groundwater/Product Purging/Sampling with Bailer**
JSA Number: **JSA053**

A Job Safety Analysis (JSA) must identify all job steps required to complete the task, the potential hazards employees could be exposed to while performing the job step and the preventative/corrective actions required to reduce/mitigate the identified potential hazards. Employees must certify that they have either prepared the JSA or have reviewed the JSA and are aware of the potential hazards associated with this task and will follow the provided preventive/corrective actions. Prior to the start of any work "TAKE 5" and conduct a Last-Minute Risk Assessment.



S – ***Stop,*** *what has changed?*
T – ***Think*** *about the task*
E – ***Evaluate*** *potential hazards*
P – ***Plan*** *safe approach*
S - ***Start*** *task / **Stop** & regroup*

PERSONAL PROTECTIVE EQUIPMENT (Required or to be worn as needed):				
☒ Safety Shoes	☒ Long Sleeves	☒ Safety Vest (Class 2)	☒ Hard Hat	☒ Hearing Protection
☒ Safety Glasses	☒ Safety Goggles	☒ Face Shield	☒ Nitrile Gloves	☒ PVC Gloves
☒ Leather Gloves	☐ Cut Resist. Gloves	☐ Fall Protection	☒ Fire Resistant Clothing	☐ Rubber Boots
☐ Insect/Animal Repellent	☐ Ivy Blocker/Cleaner	☒ Traffic Cones/Signs	☐ Life Vest/Jacket	
☒ Other: Tyvek sleeves, Dermal Protection, PID, absorbent pads				

JOB STEPS	POTENTIAL HAZARDS	PREVENTATIVE / CORRECTIVE ACTION
70. Transport equipment to work area	6. Back Strain 7. Slips/ Trips/ Falls 8. Traffic 9. Cuts/abrasions from equipment 10. Contusions from dropped equipment	6. Use proper lifting techniques / Use wheeled transport. 7. Minimize distance to work area / Have unobstructed path to work area / Follow good housekeeping procedures. 8. Wear proper PPE (high visibility vest or clothing) 9. Wear proper PPE (leather gloves, long sleeves) 10. Wear proper PPE (safety shoes)
71. Remove well cover	33. Scrape knuckles/hand 34. Strain wrist/bruise plan 35. Pinch fingers or hand	6. Wear proper PPE (leather gloves) 7. Using a hammer, tap the end of the wrench to loosen grip of bolts. 8. Wear proper PPE (leather gloves)
72. Remove well cap and lock	19. Well can pops from pressure. 20. Exposure to hazardous substances through inhalation or dermal exposure 21. Scrape knuckles/hand 22. Pinch points 23. Strain write/bruise palm	9. Remove cap slowly to relieve pressure / Do not place face over well when opening / Wear proper PPE (safety glasses, face shield, hand protection) 10. Use direct air monitoring/reading instrument (i.e., PID) / Be familiar with and follow actions prescribed in the HASP / Wear proper PPE (nitrile gloves) 11. Wear proper PPE (leather gloves) 12. Using hammer, tap the end of the wrench to loosen grip
73. Measure head-space vapor levels	2. Exposure to hazardous substances through inhalation	2. Do not place face over well when collecting measurement
74. Set-up plastic sheeting/absorbent pads	2. Lacerations when cutting plastic sheeting/absorbent pads.	2. Use scissors to cut plastic sheeting/absorbent pads / Cut motions should always be away from body and body parts

JOB STEPS	POTENTIAL HAZARDS	PREVENTATIVE / CORRECTIVE ACTION
for work site around the well		
75. Lower Bailer sleeve into well	7. Repetitive motion injury (pulled arm/back muscles) 8. Dehydration	7. Take breaks while lowering bailer into well/ Use a mechanical device to lower bailer into well/ Rotate employees (take turns conducting the manual labor portion) 8. Take breaks and drink water.

JOB STEPS	POTENTIAL HAZARDS	PREVENTATIVE / CORRECTIVE ACTION
7. Purge/Sample water/product collection	1. Contact with potentially contaminated groundwater or product through dermal exposure 2. Contact with and burns from acid used for sample preservation 9. Tripping potential on sampling lanyard 10. Lacerations from broken sample bottles 11. Back strain when transporting coolers full of collected samples. 12. Slips/ Trips/ Falls	1. Wear proper PPE (safety glasses, nitrile gloves, safety shield, Tyvek) 2. Ensure sample bottle lids are secure before use and after sample collection 3. Organize lanyard to keep out of the way as much as possible / Mark potential tripping hazards with caution tape or safety cones 9. Do not over-tighten bottle caps / Handle bottles safely to prevent breakage / Wrap glass bottles in bubble wrap, if possible 10. Use proper lifting techniques / Use wheeled transport / Seek assistance if coolers weight exceeds 50lbs. / Minimize distance to vehicle. 11. Have unobstructed path to vehicle or collection point / Follow good housekeeping procedures / Do not lift/walk with coolers that are too heavy/difficult to lift
8. Retrieval of bailer	9. Repetitive motion injury (pulled arm/back muscles) 10. Dehydration	9. Take breaks while retrieving bailer out of the well/ Use a mechanical device to raise bailer out of well/ Rotate employees (take turns conducting the manual labor portion) 10. Take breaks and drink water.
9. Pack-up equipment	2. Back strain when removing or lifting heavy equipment	2. Use proper lifting technique / Use wheeled transport for heavy equipment
10. Replace well cap and lock	3. Scrape fingers/hand 4. Strain wrist/bruise palm	3. Wear proper PPE (leather gloves) 4. Using hammer, tap the end of the well cap to tighten grip
11. Replace well cover	4. Scrape knuckles/hand 5. Strain write/bruise palm. 6. Pinch fingers or hand	4. Wear proper PPE (leather gloves) 5. Using hammer, tap the end of the wrench to tighten the grip of the bolts. 6. Wear proper PPE (leather gloves)
12. Place used PPE in designated disposal drum	3. Pressure build-up inside drum 4. Pinch hazard	3. Remove cap from bung hole in drum to relieve pressure. 4. Wear proper PPE (leather gloves) 5. Product drums may require additional spill protection/electrical grounding, check local regulations
13. Decontaminate equipment	4. Splashing water/soap from decontamination 5. Contact with potentially contaminated groundwater through dermal exposure.	4. Wear proper PPE (safety glasses) 5. Wear proper PPE (safety glasses, dermal protection)

JOB STEPS	POTENTIAL HAZARDS	PREVENTATIVE / CORRECTIVE ACTION
14. All activities	104. Slips/ Trips/ Falls 105. Hand injuries, cuts, or lacerations during manual handling of materials 106. Foot injuries 107. Back injuries 108. Traffic 109. Wildlife: Stray dogs, Mice/rats, Vectors (i.e., mosquitoes, bees, etc.) 110. High Noise levels 111. Overhead hazards 112. Heat Stress/ Cold Stress 113. Eye Injuries	111. Be aware of potential trip hazards / Follow good housekeeping procedures/ Mark significant hazards. 112. Inspect for jagged/sharp edges, and rough or slippery surfaces / Keep fingers away from pinch points / Wipe off greasy, wet, slippery, or dirty objects before handling / Wear leather/ cut-resistant gloves. 113. Wear Langan approved safety shoes. 114. Use proper lifting techniques / Consider load location, task repetition, and load weigh when evaluating what is safe or unsafe to lift / Obtain assistance when possible. 115. Wear high visibility clothing & vest / Use cones or signs to designate work area. 116. Be aware of surroundings at all times, including the presence of wildlife/ Do not approach stray dogs / Carry/use dog/animal repellant / Use bug spray when needed. 117. Wear hearing protection 118. Wear hard hat / Avoid areas where overhead hazards exist. 119. Wear proper attire for weather conditions (sunscreen or protective clothing in sunlight, layers for cold weather) / Drink plenty of fluids to avoid dehydration / Takes breaks as necessary to avoid heat/cold stress. 120. Wear safety glasses
Additional items.		
Additional Items identified while in the field. (Delete row if not needed.)		

Print Name	**Sign Name**	**Date**
Prepared by:		
Reviewed by:		

LANGAN

Job Safety Analysis (JSA)
Health and Safety

JSA Title: Hammer Drill
JSA Number: JSA049

A Job Safety Analysis (JSA) must identify all job steps required to complete the task, the potential hazards employees could be exposed to while performing the job step and the preventative/corrective actions required to reduce/mitigate the identified potential hazards. Employees must certify that they have either prepared the JSA or have reviewed the JSA and are aware of the potential hazards associated with this task and will follow the provided preventive/corrective actions. Prior to the start of any work "TAKE 5" and conduct a Last-Minute Risk Assessment.



S – ***Stop,*** *what has changed?*
T – ***Think*** *about the task*
E – ***Evaluate*** *potential hazards*
P – ***Plan*** *safe approach*
S - ***Start*** *task /* ***Stop*** *& regroup*

PERSONAL PROTECTIVE EQUIPMENT (Required or to be worn as needed):				
☒ Safety Shoes	☒ Long Sleeves	☒ Safety Vest (Class 2)	☒ Hard Hat	☒ Hearing Protection
☒ Safety Glasses	☐ Safety Goggles	☒ Face Shield	☒ Nitrile Gloves	☐ PVC Gloves
☒ Leather Gloves	☐ Cut Resist. Gloves	☐ Fall Protection	☐ Fire Resistant Clothing	☐ Rubber Boots
☐ Insect/Animal Repellent	☐ Ivy Blocker/Cleaner	☒ Traffic Cones/Signs	☐ Life Vest/Jacket	
☐ Other:				

JOB STEPS	POTENTIAL HAZARDS	PREVENTATIVE / CORRECTIVE ACTION
76. Transport equipment to work area	45. Back Strain 46. Slips/ Trips/ Falls 47. Traffic 48. Cuts/abrasions from equipment 49. Contusions from dropped equipment	11. Use proper lifting techniques / Use wheeled transport. 12. Minimize distance to work area / Have unobstructed path to work area / Follow good housekeeping procedures. 13. Wear proper PPE (high visibility vest or clothing) 14. Wear proper PPE (leather gloves, long sleeves) 15. Wear proper PPE (safety shoes)
77. Electrical Connection	36. Inspect electrical cord to drill. 37. Inspect hammer drill. 38. Inspect extension cord. 39. Test GFCI	9. Check the plug, ensure all connections are in place, check cord for frayed sections. If plug or cord are worn, do not use equipment until repaired. 10. Inspect chuck for proper grasping and holding of bit, check that plastic housing is not cracked or missing pieces. Do not use if chuck does not work properly or housing is compromised. 11. Inspect extension cord, if worn or stripped pull from service and replace 12. Test GFCI, replace if GFCI fails
78. Drill Bit	1. Inspect drill bit	1. Replace if worn. 2. Wear proper PPE (leather gloves) when installing and removing drill bit. 3. Ensure equipment is unplugged from electrical power when removing and installing drill bit.
79. Use of Hammer Drill	1. Hazards associated with using hammer drill, flying objects, heavy equipment, ground level hazards and dust. 2. Slips/ Trips/ Falls 3. Hazards associated drilling into concrete slab	1. Maintain a safe distance from other site operations / Wear proper PPE (hard hat, safety glasses, safety shoes, safety vest, ear protection and leather gloves) 2. Be aware of potential trip hazards / Follow good housekeeping procedures / Mark extension cord pathway with safety cones. 3. Do not push hammer drill during use.

JOB STEPS	POTENTIAL HAZARDS	PREVENTATIVE / CORRECTIVE ACTION
80. All activities 4. All activities (cont'd)	114. Slips/ Trips/ Falls 115. Hand injuries, cuts, or lacerations during manual handling of materials 116. Foot injuries 117. Back injuries 118. Traffic 119. Wildlife: Stray dogs, Mice/rats, Vectors (i.e., mosquitoes, bees, etc.) 120. High Noise levels 121. Overhead hazards 122. Heat Stress/ Cold Stress 123. Eye Injuries	121. Be aware of potential trip hazards / Follow good housekeeping procedures/ Mark significant hazards. 122. Inspect for jagged/sharp edges, and rough or slippery surfaces / Keep fingers away from pinch points / Wipe off greasy, wet, slippery, or dirty objects before handling / Wear leather/ cut-resistant gloves. 123. Wear Langan approved safety shoes. 124. Use proper lifting techniques / Consider load location, task repetition, and load weigh when evaluating what is safe or unsafe to lift / Obtain assistance when possible. 125. Wear high visibility clothing & vest / Use cones or signs to designate work area. 126. Be aware of surroundings at all times, including the presence of wildlife/ Do not approach stray dogs / Carry/use dog/animal repellant / Use bug spray when needed. 127. Wear hearing protection 128. Wear hard hat / Avoid areas where overhead hazards exist. 129. Wear proper attire for weather conditions (sunscreen or protective clothing in sunlight, layers for cold weather) / Drink plenty of fluids to avoid dehydration / Takes breaks as necessary to avoid heat/cold stress. 130. Wear safety glasses
Additional items.		
Additional Items identified while in the field. (Delete row if not needed.)		

Print Name	Sign Name	Date
Prepared by:		
Reviewed by:		

LANGAN

Job Safety Analysis (JSA)
Health and Safety

JSA Title: **Test Pits**
JSA Number: **JSA016-01**

A Job Safety Analysis (JSA) must identify all job steps required to complete the task, the potential hazards employees could be exposed to while performing the job step and the preventative/corrective actions required to reduce/mitigate the identified potential hazards. Employees must certify that they have either prepared the JSA or have reviewed the JSA and are aware of the potential hazards associated with this task and will follow the provided preventive/corrective actions. Prior to the start of any work "TAKE 5" and conduct a Last-Minute Risk Assessment.



S – ***Stop,*** *what has changed?*
T – ***Think*** *about the task*
E – ***Evaluate*** *potential hazards*
P – ***Plan*** *safe approach*
S - ***Start*** *task /* ***Stop*** *& regroup*

PERSONAL PROTECTIVE EQUIPMENT (Required or to be worn as needed):				
☒ Safety Shoes	☒ Long Sleeves	☒ Safety Vest (Class 2)	☒ Hard Hat	☒ Hearing Protection
☒ Safety Glasses	☐ Safety Goggles	☐ Face Shield	☐ Nitrile Gloves	☐ PVC Gloves
☒ Leather Gloves	☐ Cut Resist. Gloves	☐ Fall Protection	☐ Fire Resistant Clothing	☐ Rubber Boots
☐ Insect/Animal Repellent	☐ Ivy Blocker/Cleaner	☐ Traffic Cones/Signs	☐ Life Vest/Jacket	
☐ Other:				

JOB STEPS	POTENTIAL HAZARDS	PREVENTATIVE / CORRECTIVE ACTION
81. Transport equipment to work area	50. Back Strain 51. Slips/ Trips/ Falls 52. Traffic 53. Cuts/abrasions from equipment 54. Contusions from dropped equipment	16. Use proper lifting techniques / Use wheeled transport 17. Minimize distance to work area / Have unobstructed path to work area / Follow good housekeeping procedures 18. Wear proper PPE (high visibility vest or clothing) 19. Wear proper PPE (leather gloves, long sleeves) 20. Wear proper PPE (safety shoes)
82. Digging Test Pit	40. Back Strain 41. Unstable walls of excavation	13. Observe proper digging technique. Ensure spoil pile and equipment are at least 2 feet from edge of excavation. 14. Excavate test pit in a stepped manor.
83. All activities	124. Slips/ Trips/ Falls 125. Hand injuries, cuts, or lacerations during manual handling of materials 126. Foot injuries 127. Back injuries 128. Traffic 129. Wildlife: Stray dogs, Mice/rats, Vectors (i.e., mosquitoes, bees, etc.) 130. High Noise levels 131. Overhead hazards 132. Heat Stress/ Cold Stress 133. Eye Injuries	131. Be aware of potential trip hazards / Follow good housekeeping procedures/ Mark significant hazards 132. Inspect for jagged/sharp edges, and rough or slippery surfaces / Keep fingers away from pinch points / Wipe off greasy, wet, slippery or dirty objects before handling / Wear leather/ cut-resistant gloves 133. Wear Langan approved safety shoes 134. Use proper lifting techniques / Consider load location, task repetition, and load weigh when evaluating what is safe or unsafe to lift / Obtain assistance when possible 135. Wear high visibility clothing & vest / Use cones or signs to designate work area

JOB STEPS	POTENTIAL HAZARDS	PREVENTATIVE / CORRECTIVE ACTION
3. All activities (cont'd)		136. Be aware of surroundings at all times, including the presence of wildlife/ Do not approach stray dogs / Carry/use dog/animal repellant / Use bug spray when needed. 137. Wear hearing protection 138. Wear hard hat / Avoid areas where overhead hazards exist. 139. Wear proper attire for weather conditions (sunscreen or protective clothing in sunlight, layers for cold weather) / Drink plenty of fluids to avoid dehydration / Takes breaks as necessary to avoid heat/cold stress. 140. Wear safety glasses
Additional items.		
Additional Items identified while in the field. (Delete row if not needed.)		

Print Name	Sign Name	Date
Prepared by:		
Reviewed by:		

LANGAN

Job Safety Analysis (JSA)
Health and Safety

JSA Title: Hand Auger Soil Sampling
JSA Number: JSA003-01

A Job Safety Analysis (JSA) must identify all job steps required to complete the task, the potential hazards employees could be exposed to while performing the job step and the preventative/corrective actions required to reduce/mitigate the identified potential hazards. Employees must certify that they have either prepared the JSA or have reviewed the JSA and are aware of the potential hazards associated with this task and will follow the provided preventive/corrective actions. Prior to the start of any work "TAKE 5" and conduct a Last-Minute Risk Assessment.



S – *Stop,* what has changed?
T – *Think* about the task
E – *Evaluate* potential hazards
P – *Plan* safe approach
S - *Start* task / *Stop* & regroup

PERSONAL PROTECTIVE EQUIPMENT REQUIRED:				
☒ Safety Shoes	☒ Long Sleeves	☒ Safety Vest (Class 2)	☒ Hard Hat	☒ Hearing Protection
☒ Safety Glasses	☐ Safety Goggles	☐ Face Shield	☒ Nitrile Gloves	☐ PVC Gloves
☒ Leather Gloves	☐ Cut Resist. Gloves	☐ Fall Protection	☐ Fire Resistant Clothing	☐ Rubber Boots
☐ Insect/Animal Repellent	☐ Ivy Blocker/Cleaner	☒ Traffic Cones/Signs	☐ Life Vest/Jacket	
☒ Other: Half-face respirator, dust cartridges, PID (if applicable)				

JOB STEPS	POTENTIAL HAZARDS	PREVENTATIVE / CORRECTIVE ACTION
84. Unpack equipment	55. Slips/ Trips/ Falls 56. Physical hazards including strains and hand injury	1. Be aware of hazards in area/ Place safety cones in areas of potential slips/trips/falls 2. Use proper lifting techniques / Do not lift heavy loads without assitance / Avoid putting hands near pinch points / Wear proper PPE (leather gloves)
85. Calibration of monitoring equipment	42. Skin or eye contact with calibration chemicals 43. Pinch fingers in monitoring equipment	33. Wear proper PPE (safety glasses/ goggles) 34. Wear proper PPE (leather gloves)
86. Advancing and removing hand auger	24. Physical hazards including back strain and hand injury	13. Twist auger using arms and shoulders/ Do not over exert / Keep back in neutral position, bend at the knees / Request assistance when needed / Remove auger from ground keeping back in neutral position and lift using legs
87. Sample collections a) Monitor parameters b) Prepare sample containers and labels c) Collect soil sample d) Securely cap containers, label and store in sample cooler until shipping e) Deliver cooler to lab or courier to lab	23. Contact with potentially contaminated soil 24. Lacerations from broken sample bottles 25. Back strain with transporting coolers 26. Internal exposure to contaminants through inhalation of dust 27. Slips/ Trips/ Falls	19. Use monitoring devices / Wear proper PPE (safety glasses, nitrile gloves) 20. Do not over-tighten bottles caps / Handle bottles safety to prevent breakage 21. Use proper lifting techniques / Do not lift heavy loads without assistance 22. Avoid creating dust / If necessary, wear a half-face respirator with applicable dust cartridges / Inspect respirator for damage and cleanliness prior to use / Clean respirator after each use and store in a clean, secure location 23. Be alert / Follow good housekeeping procedures
88. Decontamination of equipment	134. Splashing water/soap from decontamination 135. Contact with potentially contaminated soil	141. Wear proper PPE (safety glasses, gloves) 142. Wear proper PPE (safety glasses, gloves)

JOB STEPS	POTENTIAL HAZARDS	PREVENTATIVE / CORRECTIVE ACTION
89. All activities 6. All activities (cont'd)	1. Slips/ Trips/ Falls 2. Hand injuries, cuts or lacerations during manual handling of materials 3. Foot injuries 4. Back injuries 5. Traffic 6. Wildlife: Stray dogs, Mice/rats, Vectors (i.e. mosquitoes, bees, etc.) 7. High Noise levels 8. Overhead hazards 9. Heat Stress/ Cold Stress 10. Eye Injuries	1. Be aware of potential trip hazards / Follow good housekeeping procedures/ Mark significant hazards 2. Inspect for jagged/sharp edges, and rough or slippery surfaces / Keep fingers away from pinch points / Wipe off greasy, wet, slippery or dirty objects before handling / Wear leather/ cut-resistant gloves 3. Wear Langan approved safety shoes 4. Use proper lifting techniques / Consider load location, task repetition, and load weigh when evaluating what is safe or unsafe to lift / Obtain assistance when possible 5. Wear high visibility clothing & vest / Use cones or signs to designate work area 6. Be aware of surroundings at all times, including the presence of wildlife/ Do not approach stray dogs / Carry/use dog/animal repellant / Use bug spray when needed 7. Wear hearing protection 8. Wear hard hat / Avoid areas were overhead hazards exist. 9. Wear proper attire for weather conditions (sunscreen or protective clothing in sunlight, layers for cold weather) / Drink plenty of fluids to avoid dehydration / Takes breaks as necessary to avoid heat/cold stress 10. Wear safety glasses
Additional items.		
Additional Items identified while in the field. (Delete row if not needed.)		

Print Name	Sign Name	Date
Prepared by:		
Reviewed by:		

LANGAN

Job Safety Analysis (JSA)
Health and Safety

JSA Title: **Groundwater/Product Purgeing/Sampling with Bailer**
JSA Number: **JSA053**

A Job Safety Analysis (JSA) must identify all job steps required to complete the task, the potential hazards employees could be exposed to while performing the job step and the preventative/corrective actions required to reduce/mitigate the identified potential hazards. Employees must certify that they have either prepared the JSA or have reviewed the JSA and are aware of the potential hazards associated with this task and will follow the provided preventive/corrective actions. Prior to the start of any work "TAKE 5" and conduct a Last Minute Risk Assessment.



S – ***Stop,*** *what has changed?*
T – ***Think*** *about the task*
E – ***Evaluate*** *potential hazards*
P – ***Plan*** *safe approach*
S - ***Start*** *task /* ***Stop*** *& regroup*

PERSONAL PROTECTIVE EQUIPMENT (Required or to be worn as needed):				
☒ Safety Shoes	☒ Long Sleeves	☒ Safety Vest (Class 2)	☒ Hard Hat	☒ Hearing Protection
☒ Safety Glasses	☒ Safety Goggles	☒ Face Shield	☒ Nitrile Gloves	☒ PVC Gloves
☒ Leather Gloves	☐ Cut Resist. Gloves	☐ Fall Protection	☒ Fire Resistant Clothing	☐ Rubber Boots
☐ Insect/Animal Repellent	☐ Ivy Blocker/Cleaner	☒ Traffic Cones/Signs	☐ Life Vest/Jacket	
☒ Other: Tyvek sleeves, Dermal Protection, PID, absorbent pads				

JOB STEPS	POTENTIAL HAZARDS	PREVENTATIVE / CORRECTIVE ACTION
90. Transport equipment to work area	11. Back Strain 12. Slips/ Trips/ Falls 13. Traffic 14. Cuts/abrasions from equipment 15. Contusions from dropped equipment	11. Use proper lifting techniuqes / Use wheeled transport 12. Minimize distance to work area / Have unobstructed path to work area / Follow good housekeeping procedures 13. Wear proper PPE (high visibility vest or clothing) 14. Wear proper PPE (leather gloves, long sleeves) 15. Wear proper PPE (safety shoes)
91. Remove well cover	44. Scrape knuckles/hand 45. Strain wrist/bruise plam 46. Pinch fingers or hand	15. Wear proper PPE (leather gloves) 16. Using a hammer, tap the end of the wrench to loosen grip of bolts 17. Wear proper PPE (leather gloves)
92. Remove well cap and lock	25. Well can pops from pressure 26. Exposure to hazardous substances through inhalation or dermal exposure 27. Scrape knuckles/hand 28. Pinch points 29. Strain write/bruise palm	13. Remove cap slowly to relieve pressure / Do not place face over well when opening / Wear proper PPE (safety glasses, face shield, hand protection) 14. Use direct air monitoring/reading instrument (i.e. PID) / Be familiar with and follow actions prescribed in the HASP / Wear proper PPE (nitrile gloves) 15. Wear proper PPE (leather gloves) 16. Using hammer, tap the end of the wrench to loosen grip
93. Measure head-space vapor levels	3. Exposure to hazardous substances through inhalation	3. Do not place face over well when collecting measurement
94. Set-up plastic sheeting/absorbent pads for work site around the well	3. Lacerations when cutting plastic sheeting/absorbent pads	3. Use scissors to cut plastic sheeting/absorbent pads / Cut motions should always be away from body and body parts

JOB STEPS	POTENTIAL HAZARDS	PREVENTATIVE / CORRECTIVE ACTION
95. Lower Bailer sleeve into well	12. Repetitive motion injury (pulled arm/back muscles) 13. Dehydration	13. Take breaks while lowering bailer into well/ Use a mechanical device to lower bailer into well/ Rotate employees (take turns conducting the manual labor portion) 14. Take breaks and drink water.

JOB STEPS	POTENTIAL HAZARDS	PREVENTATIVE / CORRECTIVE ACTION
7. Purge/Sample water/product collection	1. Contact with potentially contaminated groundwater or product through dermal exposure 2. Contact with and burns from acid used for sample preservation 15. Tripping potential on sampling lanyard 16. Lacerations from broken sample bottles 17. Back strain when transporting coolers full of collected samples 18. Slips/ Trips/ Falls	1. Wear proper PPE (safety glasses, nitrile gloves, safety shield, Tyvek) 2. Ensure sample bottle lids are secure before use and after sample collection 3. Organize lanyard to keep out of the way as much as possible / Mark potential tripping hazards with caution tape or safety cones 14. Do not over-tighten bottle caps / Handle bottles safely to prevent breakage / Wrap glass bottles in bubble wrap, if possible 15. Use proper lifting techniques / Use wheeled transport / Seek assistance if coolers weight exceeds 50lbs. / Minimize distance to vehicle 16. Have unobstructed path to vehicle or collection point / Follow good housekeeping procedures / Do not lift/walk with coolers that are too heavy/difficult to lift
8. Retieval of bailer	11. Repetitive motion injury (pulled arm/back muscles) 12. Dehydration	11. Take breaks while retrieving bailer out of the well/ Use a mechanical device to raise bailer out of well/ Rotate employees (take turns conducting the manual labor portion) 12. Take breaks and drink water.
9. Pack-up equipment	3. Back strain when removing or lifting heavy equipment	3. Use proper lifting technique / Use wheeled transport for heavy equipment
10. Replace well cap and lock	5. Scrape fingers/hand 6. Strain wrist/bruise palm	5. Wear proper PPE (leather gloves) 6. Using hammer, tap the end of the well cap to tighten grip
11. Replace well cover	7. Scrape knuckles/hand 8. Strain write/bruise palm 9. Pinch fingers or hand	7. Wear proper PPE (leather gloves) 8. Using hammer, tap the end of the wrench to tighten the grip of the bolts 9. Wear proper PPE (leather gloves)
12. Place used PPE in designated dispoal drum	5. Pressure build-up inside drum 6. Pinch hazard	6. Remove cap from bung hole in drum to relieve pressure 7. Wear proper PPE (leather gloves) 8. Product drums may require additional spill protecton/electrical grounding, check local regulations
13. Decontaminate equipment	6. Splashing water/soap from decontamination 7. Contact with potentially contaminated groundwater through dermal exposure	6. Wear proper PPE (safety glasses) 7. Wear proper PPE (safety glasses, dermal protection)

JOB STEPS	POTENTIAL HAZARDS	PREVENTATIVE / CORRECTIVE ACTION
14. All activities	136. Slips/ Trips/ Falls 137. Hand injuries, cuts or lacerations during manual handling of materials 138. Foot injuries 139. Back injuries 140. Traffic 141. Wildlife: Stray dogs, Mice/rats, Vectors (i.e. mosquitoes, bees, etc.) 142. High Noise levels 143. Overhead hazards 144. Heat Stress/ Cold Stress 145. Eye Injuries	143. Be aware of potential trip hazards / Follow good housekeeping procedures/ Mark significant hazards 144. Inspect for jagged/sharp edges, and rough or slippery surfaces / Keep fingers away from pinch points / Wipe off greasy, wet, slippery or dirty objects before handling / Wear leather/ cut-resistant gloves 145. Wear Langan approved safety shoes 146. Use proper lifting techniques / Consider load location, task repetition, and load weigh when evaluating what is safe or unsafe to lift / Obtain assistance when possible 147. Wear high visibility clothing & vest / Use cones or signs to designate work area 148. Be aware of surroundings at all times, including the presence of wildlife/ Do not approach stray dogs / Carry/use dog/animal repellant / Use bug spray when needed 149. Wear hearing protection 150. Wear hard hat / Avoid areas were overhead hazards exist. 151. Wear proper attire for weather conditions (sunscreen or protective clothing in sunlight, layers for cold weather) / Drink plenty of fluids to avoid dehydration / Takes breaks as necessary to avoid heat/cold stress 152. Wear safety glasses
Additional items.		
Additional Items identified while in the field. (Delete row if not needed.)		

Print Name	**Sign Name**	**Date**
Prepared by:		
Reviewed by:		

LANGAN

Job Safety Analysis (JSA)
Health and Safety

JSA Title: **Sub-slab soil gas temporary point installation and sampling**
JSA Number: **JSA037-01**

A Job Safety Analysis (JSA) must identify all job steps required to complete the task, the potential hazards employees could be exposed to while performing the job step and the preventative/corrective actions required to reduce/mitigate the identified potential hazards. Employees must certify that they have either prepared the JSA or have reviewed the JSA and are aware of the potential hazards associated with this task and will follow the provided preventive/corrective actions. Prior to the start of any work "TAKE 5" and conduct a Last Minute Risk Assessment.



S – ***Stop,*** *what has changed?*
T – ***Think*** *about the task*
E – ***Evaluate*** *potential hazards*
P – ***Plan*** *safe approach*
S - ***Start*** *task /* ***Stop*** *& regroup*

PERSONAL PROTECTIVE EQUIPMENT (Required or to be worn as needed):				
☒ Safety Shoes	☒ Long Sleeves	☒ Safety Vest (Class 2)	☒ Hard Hat	☐ Hearing Protection
☒ Safety Glasses	☒ Safety Goggles	☐ Face Shield	☒ Nitrile Gloves	☐ PVC Gloves
☒ Leather Gloves	☐ Cut Resist. Gloves	☐ Fall Protection	☐ Fire Resistant Clothing	☐ Rubber Boots
☒ Insect/Animal Repellent	☐ Ivy Blocker/Cleaner	☒ Traffic Cones/Signs	☐ Life Vest/Jacket	
☒ Other: Tyvek Sleeves				

JOB STEPS	POTENTIAL HAZARDS	PREVENTATIVE / CORRECTIVE ACTION
96. Transport equipment to work site	57. Back injuries 58. Slips/Trips/Falls 59. Traffic 60. Hand injuries	35. Use proper lifting techniques/ Use wheeled transport/ Get assistance when need with moving equipment/ Minimize distance from vehicle 36. Minimize distance from vehicle/ Have unobstructed pathway to vehicle and collection points/ Mark tripping hazards with spray paint, cones, or caution tape/ Observe good housekeeping procedures. 37. Wear proper PPE (High Visibility vest and clothing)/ Exercise caution (stay alert-stay alive) 38. Wear proper PPE (leather gloves)/ Keep finger and hands clear of pinch points.
97. Mark area for drilling	47. Slips/Trips/Falls	35. Minimize distance from vehicle/ Have unobstructed pathway to vehicle and collection points/ Mark tripping hazards with spray paint, cones, or caution tape/ Observe good housekeeping procedures
98. Drill sampling points with hammer drill	30. Eye injuries 31. Dust exposure 32. Hand injuries 33. Catch items (clothing) 34. Electric shock 35. Chemical atmosphere hazard (vapor) 36. Slips/Trips/Falls	14. Wear proper PPE (safety glasses) 15. Wear proper PPE (dust mask) 16. Wear proper PPE (leather gloves)/ Keep hands and fingers out of pinch points/ Avoid drill catching on ground and twisting wrist or hand/ Release drill grip if drill becomes caught/ Ensure drill is unplugged prior to inserting bit. 17. Tie up or tuck-in all loose clothing/ Maintain distance from drill 18. Inspect power cable for cuts or nicks before use/ Use GFCI outlet on power cord/ Do not use in wet conditions 19. Monitor air, vapors with Photo-ionization detector (PID)

JOB STEPS	POTENTIAL HAZARDS	PREVENTATIVE / CORRECTIVE ACTION
		20. Minimize distance from vehicle/ Have unobstructed pathway to vehicle and collection points/ Mark tripping hazards with spray paint, cones, or caution tape/ Observe good housekeeping procedures
99. Measure vapor content and depth to bottom of hole	1. Chemical atmosphere hazard (vapors)	1. Monitor air, vapors with Photo-ionization detector (PID)/ Keep face away from opening of hole while collecting measurements
100. Set-up of shroud and sampling canister system	1. Hand injuries 2. Chemical atmosphere hazard (vapors) 3. Slips/Trips/Falls	1. Wear proper PPE (leather gloves, nitrile gloves)/ Keep fingers away from pinch points when installing pump/ Do not use open blades, use tubing cutter 2. Monitor air, vapors with Photo-ionization detector (PID)/ Keep face away from opening of hole while collecting measurements 3. Minimize distance from vehicle/ Have unobstructed pathway to vehicle and collection points/ Mark tripping hazards with spray paint, cones, or caution tape/ Observe good housekeeping procedures
101. Purge soil gas	1. Chemical atmosphere hazard (vapors)	1. Monitor air, vapors with Photo-ionization detector (PID)/ Keep face away from exhaust port of pump
102. Sample collection (opening and closing valves)	1. Hand injuries	1. Wear proper PPE (leather gloves)/ Keep fingers away from pinch points
103. Sealing sampling holes	1. Back injuries 2. Concrete dust 3. Eye injuries	1. Use proper lifting techniques for lifting of cement bags 2. Wear proper PPE (dust mask) 3. Wear proper PPE (safety glasses)
104. All activities	146. Slips/ Trips/ Falls 147. Hand injuries, cuts or lacerations during manual handling of materials 148. Foot injuries 149. Back injuries 150. Traffic 151. Wildlife: Stray animals, Mice/rats, Vectors (i.e. mosquitoes, bees, etc.) 152. High Noise levels 153. Overhead hazards 154. Heat or cold injuries 155. Eye Injuries	153. Be aware of potential trip hazards/ Follow good housekeeping procedures/ Mark significant hazards 154. Inspect for jagged/sharp edges, and rough or slippery surfaces/ Keep fingers away from pinch points/ Wipe off greasy, wet, slippery or dirty objects before handling/ Wear leather/ cut-resistant gloves Wear proper PPE (Langan approved safety shoes) 155. Use proper lifting techniques/ Consider load location, task repetition, and load weigh when evaluating what is safe or unsafe to lift/ Obtain assistance when possible 156. Wear high visibility clothing & vest/ Use cones or signs to designate work area 157. Be aware of surroundings at all times, including the presence of wildlife/ Do not approach stray animals/ Carry and use animal repellant when needed/ Use bug spray when needed 158. Wear hearing protection 159. Wear hard hat/ Avoid areas were overhead hazards exist. 160. Wear proper attire for weather conditions (sunscreen or protective clothing in sunlight, layers for cold weather)/ Drink plenty of fluids to avoid dehydration/ Takes breaks as necessary to avoid heat/cold stress 161. Wear safety glasses

JOB STEPS	POTENTIAL HAZARDS	PREVENTATIVE / CORRECTIVE ACTION
Additional items.		
Additional Items identified while in the field. (Delete row if not needed.)		

Print Name	Sign Name	Date
Prepared by:		
Reviewed by:		

LANGAN

Job Safety Analysis (JSA)
Health and Safety

JSA Title: Indoor Air Sampling
JSA Number: JSA007-01

A Job Safety Analysis (JSA) must identify all job steps required to complete the task, the potential hazards employees could be exposed to while performing the job step and the preventative/corrective actions required to reduce/mitigate the identified potential hazards. Employees must certify that they have either prepared the JSA or have reviewed the JSA and are aware of the potential hazards associated with this task and will follow the provided preventive/corrective actions. Prior to the start of any work "TAKE 5" and conduct a Last Minute Risk Assessment.



S – *Stop,* what has changed?
T – *Think* about the task
E – *Evaluate* potential hazards
P – *Plan* safe approach
S - *Start* task / *Stop* & regroup

PERSONAL PROTECTIVE EQUIPMENT (Required or to be worn as needed):				
☒ Safety Shoes	☒ Long Sleeves	☒ Safety Vest (Class 2)	☒ Hard Hat	☒ Hearing Protection
☒ Safety Glasses	☐ Safety Goggles	☐ Face Shield	☒ Nitrile Gloves	☐ PVC Gloves
☒ Leather Gloves	☐ Cut Resist. Gloves	☐ Fall Protection	☐ Fire Resistant Clothing	☐ Rubber Boots
☐ Insect/Animal Repellent	☐ Ivy Blocker/Cleaner	☒ Traffic Cones/Signs	☐ Life Vest/Jacket	
☒ Other: PID, Respiratory Protection (if necessary)				

JOB STEPS	POTENTIAL HAZARDS	PREVENTATIVE / CORRECTIVE ACTION
105. Building walkthrough and background contaminant removal	61. Slips / Trips/ Falls 62. Exposure to substances/vapors during removal	21. Be aware of potential trip hazards / Follow good housekeeping procedures / Mark significant below-grade hazards (i.e. holes, trenches) with safety cones or spray paint 22. Monitor indoor air concentrations with a PID / Wear proper PPE (nitrile gloves) / Wear proper respiratory protection if necessary
106. Transport equipment to work area	16. Back Strain 17. Slips/ Trips/ Falls 18. Traffic 19. Cuts/abrasions from equipment 20. Contusions from dropped equipment	16. Use proper lifting techniques / Use wheeled transport 17. Minimize distance to work area / Have unobstructed path to work area / Follow good housekeeping procedures 18. Wear proper PPE (high visibility vest or clothing) 19. Wear proper PPE (leather gloves, long sleeves) 20. Wear proper PPE (safety shoes)
107. Mark out areas for indoor air sampling	48. Slips/ Trips/ Falls	18. Be aware of potential trip hazards / Follow good housekeeping procedures / Mark significant below-grade hazards (i.e. holes, trenches) with safety cones or spray paint
108. Set-up canisters and begin indoor air sampling	37. Dropping crates or canisters 38. Pinch hazard	17. Exercise caution when moving crates and canisters / Use proper housekeeping of materials during sample events / Do not carry too many items at one time / Perform several trips, if necessary 18. Wear proper PPE (leather gloves)
109. Sample collection	4. Dropping crates or canisters 5. Pinched fingers from opening valves	4. Exercise caution when moving crates and canisters / Use proper housekeeping of materials during sample events / Do not carry too many items at one time / Perform several trips, if necessary 5. Wear proper PPE (leather gloves) / Keep fingers away from pinch points
110. Pack up equipment	3. Back strain	3. Use proper lifting techniques / Use wheeled transport

JOB STEPS	POTENTIAL HAZARDS	PREVENTATIVE / CORRECTIVE ACTION
	4. Slips/ Trips/ Falls 5. Traffic	4. Be aware of potential trip hazards / Follow good housekeeping procedures / Minimize distance to vehicle 5. Wear proper PPE (safety vest)
111. All activities	156. Slips/ Trips/ Falls 157. Hand injuries, cuts or lacerations during manual handling of materials 158. Foot injuries 159. Back injuries 160. Traffic 161. Wildlife: Stray dogs, Mice/rats, Vectors (i.e. mosquitoes, bees, etc.) 162. High Noise levels 163. Overhead hazards 164. Heat Stress/ Cold Stress 165. Eye Injuries	162. Be aware of potential trip hazards / Follow good housekeeping procedures/ Mark significant hazards 163. Inspect for jagged/sharp edges, and rough or slippery surfaces / Keep fingers away from pinch points / Wipe off greasy, wet, slippery or dirty objects before handling / Wear leather/ cut-resistant gloves 164. Wear Langan approved safety shoes 165. Use proper lifting techniques / Consider load location, task repetition, and load weigh when evaluating what is safe or unsafe to lift / Obtain assistance when possible 166. Wear high visibility clothing & vest / Use cones or signs to designate work area 167. Be aware of surroundings at all times, including the presence of wildlife/ Do not approach stray dogs / Carry/use dog/animal repellant / Use bug spray when needed 168. Wear hearing protection 169. Wear hard hat / Avoid areas were overhead hazards exist. 170. Wear proper attire for weather conditions (sunscreen or protective clothing in sunlight, layers for cold weather) / Drink plenty of fluids to avoid dehydration / Takes breaks as necessary to avoid heat/cold stress 171. Wear safety glasses
Additional items.		
Additional Items identified while in the field. (Delete row if not needed.)		

Print Name	Sign Name	Date
Prepared by:		
Reviewed by:		

LANGAN

Job Safety Analysis (JSA)
Health and Safety

JSA Title: Geotechnical Drilling
JSA Number: JSA014-01

A Job Safety Analysis (JSA) must identify all job steps required to complete the task, the potential hazards employees could be exposed to while performing the job step and the preventative/corrective actions required to reduce/mitigate the identified potential hazards. Employees must certify that they have either prepared the JSA or have reviewed the JSA and are aware of the potential hazards associated with this task and will follow the provided preventive/corrective actions. Prior to the start of any work "TAKE 5" and conduct a Last-Minute Risk Assessment.



S – *Stop,* what has changed?
T – *Think* about the task
E – *Evaluate* potential hazards
P – *Plan* safe approach
S - *Start* task / *Stop* & regroup

PERSONAL PROTECTIVE EQUIPMENT (Required or to be worn as needed):				
☒ Safety Shoes	☒ Long Sleeves	☒ Safety Vest (Class 2)	☒ Hard Hat	☒ Hearing Protection
☒ Safety Glasses	☐ Safety Goggles	☒ Face Shield	☒ Nitrile Gloves	☐ PVC Gloves
☒ Leather Gloves	☐ Cut Resist. Gloves	☐ Fall Protection	☐ Fire Resistant Clothing	☐ Rubber Boots
☐ Insect/Animal Repellent	☐ Ivy Blocker/Cleaner	☐ Traffic Cones/Signs	☐ Life Vest/Jacket	
☒ Other: NomeX (as needed)				

JOB STEPS	POTENTIAL HAZARDS	PREVENTATIVE / CORRECTIVE ACTION
112. Transport equipment to work area	63. Back Strain 64. Slips/ Trips/ Falls 65. Traffic 66. Cuts/abrasions from equipment 67. Contusions from dropped equipment	23. Use proper lifting techniques / Use wheeled transport. 24. Minimize distance to work area / Have unobstructed path to work area / Follow good housekeeping procedures. 25. Wear proper PPE (high visibility vest or clothing) 26. Wear proper PPE (leather gloves, long sleeves) 27. Wear proper PPE (safety shoes)
113. Set-up HSA/SPT rig	49. Slips/ Trips/ Falls 50. Pinch Hazards 51. High noise levels 52. Clothing entanglement 53. Electrocution/falling equipment and debris from raising HSA/SPT rig mast. 54. Carbon monoxide poisoning 55. HSA/SPT rig roll-over 56. HSA/SPT rig movement	19. Be aware of potential trip hazards / Follow good housekeeping procedures / Mark significant below-grade hazards (i.e., holes, trenches) with safety cones or spray paint 20. Wear proper PPE (leather gloves) 21. Wear proper PPE (hearing protection) 22. Wear proper attire for HSA/SPT rig (no loose clothing, strings, etc.) 23. Wear proper PPE (hard hats) / Be aware of locations at all times / Look up, down and around before raising mast / Check HSA/SPT drill rig mast for loose objects/debris before raising 24. Stand upwind of rig engine 25. Do not move rig with mast raised / Set stabilizers prior to raising mast / Inspect work area / If area appears unstable, the boring locations should be moved. 26. All field personnel should stay clear of rig while moving / Use a spotter when backing up the rig
114. Advance HSA/SPT rods, augers, and casing below ground surface	39. Strain wrist/bruise palm 40. Pinched fingers 41. Back strain	19. Wear proper PPE (leather gloves) / Use proper technique for preparing rods / Use second person, if necessary 20. Wear proper PPE (leather gloves)

JOB STEPS	POTENTIAL HAZARDS	PREVENTATIVE / CORRECTIVE ACTION
115. Advance HSA/SPT rods, augers, and casing below ground surface (cont'd)	42. Clothing entanglement 43. Carbon monoxide poisoning 44. Bruised/Broken toes/feet 45. High noise levels	21. Use proper lifting techniques / Obtain assistance if needed 22. Wear proper attire for HSA/SPT rig (no loose clothing, strings, etc.) 23. Stand upwind of the rig 24. Wear proper PPE (safety shoes) 25. Wear proper PPE (hearing protection)
116. Remove and open split spoon	28. Pinched fingers 29. Cuts/lacerations 30. Skin contact with contaminated soil and groundwater	1. Wear proper PPE (nitrile and leather gloves) 2. Wear proper PPE (leather gloves) 3. Wear proper PPE (nitrile gloves, safety glasses)
117. Repeat steps 3 and 4 until desired depth is reached	5. See steps 3 and 4	1. See steps 3 and 4
118. Remove HSA/SPT rods, augers and casing and place in storage rack	1. Clothing entanglement 2. Back strain 3. Pinched fingers 4. Carbon monoxide poisoning 5. High noise levels	1. Wear proper attire for HSA/SPT rig (no loose clothing, strings, etc.) 2. Use proper lifting techniques / Obtain assistance if needed 3. Wear proper PPE (leather gloves) 4. Stand upwind of rig engine 5. Wear proper PPE (hearing protection)
119. Tremie-grout borehole with a cement-bentonite grout mixture	1. Splash cement/bentonite grout on face/eyes 2. Back strain 3. Pinched fingers	1. Wear proper PPE (safety glasses) 2. Use proper lifting techniques / Obtain assistance if needed 3. Wear proper PPE (nitrile gloves, leather gloves)
120. Decontaminate equipment	1. Contact with potentially impacted material 2. Contact with sharp pieces of equipment	1. Wear proper PPE (safety glasses, nitrile gloves) 2. Wear proper PPE (leather gloves)
121. Patch soil boring location to return to pre-existing conditions (i.e. concrete, asphalt, grass)	1. Cuts/lacerations 2. Splashed concrete on face/eyes 3. Hammer fingers/hands when patching asphalt	1. Wear proper PPE (leather gloves) / Use scissors for cutting 2. Use proper PPE (safety glasses) 3. Be aware of hands/fingers during hammering / Wear proper PPE (leather gloves)
122. All activities	166. Slips/ Trips/ Falls 167. Hand injuries, cuts, or lacerations during manual handling of materials 168. Foot injuries 169. Back injuries 170. Traffic 171. Wildlife: Stray dogs, Mice/rats, Vectors (i.e. mosquitoes, bees, etc.) 172. High Noise levels 173. Overhead hazards 174. Heat Stress/ Cold Stress 175. Eye Injuries	172. Be aware of potential trip hazards / Follow good housekeeping procedures/ Mark significant hazards 173. Inspect for jagged/sharp edges, and rough or slippery surfaces / Keep fingers away from pinch points / Wipe off greasy, wet, slippery or dirty objects before handling / Wear leather/ cut-resistant gloves 174. Wear Langan approved safety shoes 175. Use proper lifting techniques / Consider load location, task repetition, and load weigh when evaluating what is safe or unsafe to lift / Obtain assistance when possible 176. Wear high visibility clothing & vest / Use cones or signs to designate work area 177. Be aware of surroundings at all times, including the presence of wildlife/ Do not approach stray dogs / Carry/use dog/animal repellant / Use bug spray when needed 178. Wear hearing protection 179. Wear hard hat / Avoid areas were overhead hazards exist.

JOB STEPS	POTENTIAL HAZARDS	PREVENTATIVE / CORRECTIVE ACTION
		180. Wear proper attire for weather conditions (sunscreen or protective clothing in sunlight, layers for cold weather) / Drink plenty of fluids to avoid dehydration / Takes breaks as necessary to avoid heat/cold stress 181. Wear safety glasses
Additional items.		
Additional Items identified while in the field. (Delete row if not needed.)		

Print Name	Sign Name	Date
Prepared by:		
Reviewed by:		

LANGAN

Job Safety Analysis (JSA)
Health and Safety

JSA Title: **Test Pits**
JSA Number: **JSA016-01**

A Job Safety Analysis (JSA) must identify all job steps required to complete the task, the potential hazards employees could be exposed to while performing the job step and the preventative/corrective actions required to reduce/mitigate the identified potential hazards. Employees must certify that they have either prepared the JSA or have reviewed the JSA and are aware of the potential hazards associated with this task and will follow the provided preventive/corrective actions. Prior to the start of any work "TAKE 5" and conduct a Last Minute Risk Assessment.



S – *Stop,* what has changed?
T – *Think* about the task
E – *Evaluate* potential hazards
P – *Plan* safe approach
S - *Start* task / *Stop* & regroup

PERSONAL PROTECTIVE EQUIPMENT (Required or to be worn as needed):				
☒ Safety Shoes	☒ Long Sleeves	☒ Safety Vest (Class 2)	☒ Hard Hat	☒ Hearing Protection
☒ Safety Glasses	☐ Safety Goggles	☐ Face Shield	☐ Nitrile Gloves	☐ PVC Gloves
☒ Leather Gloves	☐ Cut Resist. Gloves	☐ Fall Protection	☐ Fire Resistant Clothing	☐ Rubber Boots
☐ Insect/Animal Repellent	☐ Ivy Blocker/Cleaner	☐ Traffic Cones/Signs	☐ Life Vest/Jacket	
☐ Other:				

JOB STEPS	POTENTIAL HAZARDS	PREVENTATIVE / CORRECTIVE ACTION
123. Transport equipment to work area	68. Back Strain 69. Slips/ Trips/ Falls 70. Traffic 71. Cuts/abrasions from equipment 72. Contusions from dropped equipment	28. Use proper lifting techniques / Use wheeled transport 29. Minimize distance to work area / Have unobstructed path to work area / Follow good housekeeping procedures 30. Wear proper PPE (high visibility vest or clothing) 31. Wear proper PPE (leather gloves, long sleeves) 32. Wear proper PPE (safety shoes)
124. Digging Test Pit	57. Back Strain 58. Unstable walls of excavation	27. Observe proper digging technique. Ensure spoil pile and equipment are at least 2 feet from edge of excavation. 28. Excavate test pit in a stepped manor.
125. All activities	176. Slips/ Trips/ Falls 177. Hand injuries, cuts, or lacerations during manual handling of materials 178. Foot injuries 179. Back injuries 180. Traffic 181. Wildlife: Stray dogs, Mice/rats, Vectors (i.e. mosquitoes, bees, etc.) 182. High Noise levels 183. Overhead hazards 184. Heat Stress/ Cold Stress 185. Eye Injuries	182. Be aware of potential trip hazards / Follow good housekeeping procedures/ Mark significant hazards 183. Inspect for jagged/sharp edges, and rough or slippery surfaces / Keep fingers away from pinch points / Wipe off greasy, wet, slippery or dirty objects before handling / Wear leather/ cut-resistant gloves 184. Wear Langan approved safety shoes 185. Use proper lifting techniques / Consider load location, task repetition, and load weigh when evaluating what is safe or unsafe to lift / Obtain assistance when possible 186. Wear high visibility clothing & vest / Use cones or signs to designate work area 187. Be aware of surroundings at all times, including the presence of wildlife/ Do not approach stray dogs / Carry/use dog/animal repellant / Use bug spray when needed.

JOB STEPS	POTENTIAL HAZARDS	PREVENTATIVE / CORRECTIVE ACTION
3. All activities (cont'd)		188. Wear hearing protection 189. Wear hard hat / Avoid areas where overhead hazards exist. 190. Wear proper attire for weather conditions (sunscreen or protective clothing in sunlight, layers for cold weather) / Drink plenty of fluids to avoid dehydration / Takes breaks as necessary to avoid heat/cold stress. 191. Wear safety glasses
Additional items.		
Additional Items identified while in the field. (Delete row if not needed.)		

Print Name	Sign Name	Date
Prepared by:		
Reviewed by:		

ATTACHMENT H

TAILGATE SAFETY BRIEFING FORM

LANGAN TAILGATE SAFETY BRIEFING

Date:_____ Time: _____

Leader:_____ Location:_____

Work Task:

_____

_____

SAFETY TOPICS (*provide some detail of discussion points*)

Chemical Exposure Hazards and Control:_____

_____

Physical Hazards and Control: _____

Air Monitoring: _____

PPE: _____

_____

Communications:_____

Safe Work Practices: _____

_____

Emergency Response: _____

Hospital/Medical Center Location: _____

Phone Nos.: _____

Other: _____

FOR FOLLOW-UP (the issues, responsibilities, due dates, etc.**)**

_____

_____

_____

ATTENDEES

PRINT NAME	COMPANY	SIGNATURE

ATTACHMENT 2

QUALITY ASSURANCE PROJECT PLAN

QUALITY ASSURANCE PROJECT PLAN

C Block
21 Freeman Street, 37 Freeman Street, and 209 West Street
Brooklyn, New York

Prepared For:

GPLC HoldCo LLC, GPLC Member LLC and GPLC Owner LLC
535 Madison Avenue
New York, NY 10022

Prepared By:

Langan Engineering, Environmental, Surveying, Landscape Architecture and Geology, D.P.C.
368 Ninth Avenue, 8th Floor
New York, New York 10001

May 16, 2025
Langan Project No. 170229030

LANGAN

TABLE OF CONTENTS

1.0 PROJECT DESCRIPTION 1
1.1 Introduction 1
1.2 Project Objectives 1
1.3 Scope of Work 1
2.0 DATA QUALITY OBJECTIVES AND PROCESS 1
3.0 PROJECT ORGANIZATION 3
4.0 QUALITY ASSURANCE OBJECTIVES FOR COLLECTION OF DATA 4
4.1 Precision 4
4.2 Accuracy 5
4.3 Representativeness 5
4.4 Completeness 6
4.5 Comparability 6
4.6 Sensitivity 6
5.0 SAMPLE COLLECTION AND FIELD DATA ACQUISITION PROCEDURES 8
5.1 Field Documentation Procedures 8
5.1.1 Field Data and Notes 8
5.1.2 Sample Labeling 9
5.2 Equipment Calibration and Preventative Maintenance 10
5.3 Sample Collection 11
5.4 Sample Containers and Handling 14
5.5 Sample Preservation 14
5.6 Sample Shipment 15
5.6.1 Packaging 15
5.6.2 Shipping 15
5.7 Decontamination Procedures 15
5.7.1 Decontamination General Sample Collection 15
5.7.2 Decontamination for PFAS Sample Collection 15
5.8 Residuals Management 16
5.9 Chain of Custody Procedures 16
5.10 Laboratory Sample Storage Procedures 21
5.11 Special Considerations for PFAS Sample Collection 21
5.12 PFAS Target Analyte List 22
6.0 DATA REDUCTION, VALIDATION, AND REPORTING 24
6.1 Introduction 24
6.2 Data Reduction 24
6.3 Data Validation 25

7.0 QUALITY ASSURANCE PERFORMANCE AUDITS AND SYSTEM AUDITS 26
7.1 Introduction 26
7.2 System Audits 26
7.3 Performance Audits 26
7.4 Formal Audits 26
8.0 CORRECTIVE ACTION 28
8.1 Introduction 28
8.2 Procedure Description 28
9.0 REFERENCES 31

FIGURES

Figure 5.1 Sample Custody 18

Figure 5.2 Sample Chain-of-Custody Form – Soil and Groundwater Samples 19

Figure 5.3 Sample Chain-of-Custody Form – Soil Vapor and Ambient Air Samples 20

Figure 8.1 Correction Action Request Form 30

ATTACHMENTS

Attachment A Proposed Sample Location Plan
Attachment B Résumés
Attachment C Laboratory Reporting Limits and Method Detection Limits
Attachment D Analytical Methods/Quality Assurance Summary Table
Attachment E Sample Nomenclature Standard Operating Procedure
Attachment F PFAS Sampling Protocol and Laboratory SOP

1.0 PROJECT DESCRIPTION

1.1 INTRODUCTION

This Quality Assurance Project Plan (QAPP) is for the about 163,000-square-foot (±3.74 acres) site located at 21 Freeman Street (Building C1), 37 Freeman Street (Building C2), and 209 West Street (Building C3) in the Greenpoint neighborhood of Brooklyn, New York and is identified as Block 2502, part of (p/o) Lot 1 and p/o Lot 5, and Block 2510, p/o Lot 1 and p/o Lot 100 on the Brooklyn Borough Tax Map. The site is a paved and vacant parcel of land and is bound by Greenpoint Landing Parcel D (Block 2472, Lots 2, 3, 4, 21 and 23, Block 2502, Lot 2 and part of Lot 5) to the north; West Street to the east, a parking lot to the south, and the East River to the west.

This QAPP specifies analytical methods to be used to ensure that data collected during the Supplemental Remedial Investigation (SRI) is precise, accurate, representative, comparable, complete, and meets the sensitivity requirements of the project.

1.2 PROJECT OBJECTIVES

The objective of the scope of work is to supplement the 2022 Remedial Investigation (RI), to investigate and characterize the nature and extent of environmental contamination at and emanating from the site, and to provide sufficient information to evaluate remedial alternatives and threats to human health and the environment, as required per the BCP.

1.3 SCOPE OF WORK

The scope of work covered in this QAPP is detailed in the Supplemental Remedial Investigation Work Plan No. 1 (SRIWP No. 1). The SRIWP proposes groundwater sampling. Groundwater samples will be collected at twelve existing groundwater monitoring wells that were installed during the 2022 RI.

The proposed sample location plan is included as Attachment A, which is also provided as Figure 1 in SRIWP No. 1.

2.0 DATA QUALITY OBJECTIVES AND PROCESS

Data Quality Objectives (DQOs) are qualitative and quantitative statements to help ensure that data of known and appropriate quality are obtained during the project. The quality of the data must be sufficient to fulfill the overall objective of the SRI. The overall objective is to supplement the 2022 RI, to investigate and characterize the nature and extent of environmental impacts at and emanating from the site, and to provide sufficient information to evaluate remedial alternatives, as required. All data shall be defined as definitive data.

The DQO process is an iterative process where various options for implementing a project are explored, dissected, and recombined. The feasibility and costs of various options are estimated, and then the most advantageous option is selected and developed into project work plans that will be implemented.

DQOs for sampling activities are determined by evaluating five factors:

- Data needs and uses: The types of data required and how the data will be used after it is obtained.
- Parameters of Interest: The types of chemical or physical parameters required for the intended use.
- Level of Concern: Levels of constituents, which may require remedial actions or further investigations, based on comparison to Title 6 of the Official Compilation of New York Codes, Rules and Regulations Part 375 NYSDEC Unrestricted Use Soil Cleanup Objectives for soil samples and to the New York State Department of Health (NYSDOH) "Guidance for Evaluating Soil Vapor Intrusion in the State of New York" (October 2006, with updates February 2024) for soil vapor samples.
- Required Analytical Level: The level of data quality, data precision, and QA/QC documentation required for chemical analysis.
- Required Detection Limits: The detection limits necessary based on the above information.

The investigation will be evaluated using the DQO process on an individual, task-specific basis. DQOs and the required level of review will be determined during this process.

3.0 PROJECT ORGANIZATION

Lagan will arrange data analysis and reporting tasks related to the site sampling. The analytical services will be performed by an Environmental Laboratory Approval Program (ELAP)-certified laboratory. Data validation services will be performed by approved data validation contractor(s).

The required sampling will be conducted by Langan; the analytical services will be performed by Alpha Analytical, Inc. of Westborough, Massachusetts NYSDOH ELAP certification number 11148). Data validation services will be performed by Joseph Conboy of Langan.

Resumes for Langan personnel can be found in Attachment B; key contacts for this project are as follows:

Park Tower Group:	Anne Carson Blair Telephone: 212-310-9768
Langan Project Manager:	Gregory C. Wyka, PG Telephone: (212) 479-5476
Langan Field Team Leader:	Elizabeth Burgess, PE Telephone: (212) 479-5499
Langan Health & Safety Officer:	Tony Moffa, CHMM Telephone: (215) 491-6500
Langan Quality Assurance Manager:	Mimi Raygorodetsky Telephone: (212) 479-5441
Langan Data Validator:	Joseph Conboy Telephone: (609) 282-8055
Laboratory Representative:	Pace Analytical Services Ben Rao Telephone: (201) 812-2633

4.0 QUALITY ASSURANCE OBJECTIVES FOR COLLECTION OF DATA

The overall quality assurance objective is to develop and implement procedures for sampling, laboratory analysis, field measurements, and reporting that will provide data of sufficient quality to evaluate the engineering controls on the site. The sample set, chemical analysis results, and interpretations must be based on data that meet or exceed quality assurance objectives established for the site. Quality assurance objectives are usually expressed in terms of precision, accuracy or bias, representativeness, completeness, comparability, and sensitivity of analysis. Variances from the quality assurance objectives at any stage of the investigation will result in the implementation of appropriate corrective measures and an assessment of the impact of corrective measures on the usability of the data.

4.1 PRECISION

Precision is a measure of the degree to which two or more measurements are in agreement. Field precision is assessed through the collection and measurement of field duplicates. Laboratory precision and sample heterogeneity also contribute to the uncertainty of field duplicate measurements. This uncertainty is taken into account during the data assessment process. If the media listed below are sampled, the following field duplicate precision criteria will be applied,:

Aqueous and Canister Air Samples

- Results greater than 5 times the laboratory reporting limit (RL) must have a relative percent difference (RPD) $\leq 30\%$.
- Results less than 5 times the RL must have an absolute difference $\leq \pm$RL.

Soil Samples

- Results greater than 5 times the laboratory RL must have a RPD $\leq 50\%$.
- Results less than 5 times the RL must have an absolute difference $\leq 2\times \pm$RL.

Soil Vapor Samples

- Results greater than 5 times the laboratory RL must have a RPD $\leq 50\%$.
- Results less than 5 times the RL must have an absolute difference $\leq 2\times \pm$RL.

RLs and method detection limits (MDL) are provided in Attachment C.

Laboratory precision is assessed through the analysis of matrix spike/matrix spike duplicates (MS/MSD), laboratory control sample/laboratory control sample duplicates (LCS/LCSD) and subsequent calculation of RPD. For outliers, if additional sample volume is present, the MS/MSD

should be reanalyzed and the RPD recomputed. If additional volume is not present, an evaluation will be performed to determine the extent of potential matrix interference.

4.2 ACCURACY

Accuracy is the measurement of the reproducibility of the sampling and analytical methodology. It should be noted that precise data may not be accurate data. For the purpose of this QAPP, bias is defined as the constant or systematic distortion of a measurement process, which manifests itself as a persistent positive or negative deviation from the known or true value. This may be due to (but not limited to) improper sample collection, sample matrix, poorly calibrated analytical or sampling equipment, or limitations or errors in analytical methods and techniques.

Accuracy in the field is assessed through the use of field and trip blanks and through compliance to all sample handling, preservation, and holding time requirements. All field and trip blanks should be non-detect when analyzed by the laboratory. Any contaminant detected in an associated field blank will be evaluated against laboratory blanks (preparation or method) and evaluated against field samples collected on the same day to determine potential for bias.

Laboratory accuracy is assessed by evaluating the percent recoveries of MS/MSD samples, LCS/LCSD, surrogate compound recoveries, internal standard area counts, initial and continuing calibrations, and the results of method, initial and continuing calibration blanks. MS/MSD, LCS/LCSD, and surrogate percent recoveries will be compared to either method-specific control limits or laboratory-derived control limits. Sample volume permitting, samples displaying outliers should be reanalyzed. All associated method blanks should be non-detect when analyzed by the laboratory.

4.3 REPRESENTATIVENESS

Representativeness expresses the degree to which data accurately and precisely represents a characteristic of a population, parameter variations at a sampling point, a process condition, or an environmental condition within a defined spatial and/or temporal boundary. Representativeness is dependent upon the adequate design of the sampling program and will be satisfied by ensuring that the scope of work is followed and that specified sampling and analysis techniques are used. This is performed by following applicable standard operating procedures (SOPs) and this QAPP. All field technicians will be given copies of appropriate documents prior to sampling events and are required to read, understand, and follow each document as it pertains to the tasks at hand.

Representativeness in the laboratory is ensured by compliance with nationally-recognized analytical methods, meeting sample holding times, and maintaining sample integrity while the samples are in the laboratory's possession. This is performed by following all applicable analytical

methods, laboratory-issued SOPs, the laboratory's Quality Assurance Manual, and this QAPP. The laboratory is required to be properly certified and accredited.

4.4 COMPLETENESS

Laboratory completeness is the ratio of total number of samples analyzed and verified as acceptable compared to the number of samples submitted to the fixed-base laboratory for analysis, expressed as a percent. Three measures of completeness are defined:

- Sampling completeness, defined as the number of valid samples collected relative to the number of samples planned for collection;
- Analytical completeness, defined as the number of valid sample measurements relative to the number of valid samples collected; and
- Overall completeness, defined as the number of valid sample measurements relative to the number of samples planned for collection.

All data will meet a 90% completeness criterion. If the criterion is not met, sample results will be evaluated for trends in rejected and unusable data. The effect of unusable data required for a determination of compliance will also be evaluated.

4.5 COMPARABILITY

Comparability is an expression of the confidence with which one data set can be compared to another. Comparability is dependent upon the proper design of the sampling program and will be satisfied by ensuring that the sampling plan is followed and that sampling is performed according to the SOPs or other project-specific procedures. Analytical data will be comparable when similar sampling and analytical methods are used as documented in the QAPP. Comparability will be controlled by requiring the use of specific nationally-recognized analytical methods and requiring consistent method performance criteria. Comparability is also dependent on similar quality assurance objectives. Previously collected data will be evaluated to determine whether they may be combined with contemporary data sets.

4.6 SENSITIVITY

Sensitivity is the ability of the instrument or method to detect target analytes at the levels of interest. The project manager will select, with input from the laboratory and quality assurance personnel, sampling and analytical procedures that achieve the required levels of detection and quality control acceptance limits that meet established performance criteria. Concurrently, the project manager will select the level of data assessment to ensure that only data meeting the project DQOs are used in decision-making.

Field equipment will be used that can achieve the required levels of detection for analytical measurements in the field. In addition, the field sampling staff will collect and submit full volumes of samples as required by the laboratory for analysis, whenever possible. Full volume aliquots will help ensure achievement of the required limits of detection and allow for reanalysis if necessary.

Analytical methods and quality assurance parameters associated with the sampling program are presented in Attachment D. The frequency of associated field blanks, trip blanks and duplicate samples will be based on the recommendations listed in DER-10, and as described in Section 5.3.

Site-specific MS and MSD samples will be prepared and analyzed by the analytical laboratory by spiking an aliquot of submitted sample volume with analytes of interest. A MS/MSD analysis will be analyzed at a rate of 1 out of every 20 samples, or one per analytical batch. MS/MSD samples are only required for soil and groundwater samples.

5.0 SAMPLE COLLECTION AND FIELD DATA ACQUISITION PROCEDURES

Soil sampling, if completed, and groundwater sampling, will be conducted in accordance with the established NYSDEC protocols contained in DER-10/Technical Guidance for Site Investigation and Remediation (May 2010) and NYSDEC guidance for Sampling, Analysis, and Assessment of PFAS under NYSDEC's Part 375 Remedial Programs (April 2023). Sub-slab and soil vapor sampling, if completed, will be conducted in accordance with NYSDOH Guidance for Evaluating Soil Vapor Intrusion in the State of New York (October 2006, with updates February 2024). The following sections describe procedures to be followed for specific tasks.

5.1 FIELD DOCUMENTATION PROCEDURES

Field documentation procedures will include summarizing field data in field books and proper sample labeling. These procedures are described in the following sections.

5.1.1 Field Data and Notes

Field notebooks contain the documentary evidence regarding procedures conducted by field personnel. Hard cover, bound field notebooks will be used because of their compact size, durability, and secure page binding. The pages of the notebook will not be removed.

Entries will be made in waterproof, permanent blue or black ink. No erasures will be allowed. If an incorrect entry is made, the information will be crossed out with a single strike mark and the change initialed and dated by the team member making the change. Each entry will be dated. Entries will be legible and contain accurate and complete documentation of the individual or sampling team's activities or observations made. The level of detail will be sufficient to explain and reconstruct the activity conducted. Each entry will be signed by the person(s) making the entry.

The following types of information will be provided for each sampling task, as appropriate:

- Project name and number
- Reasons for being on-site or taking the sample(s)
- Date and time of activity
- Sample identification number(s)
- Geographical location of sampling points with references to the site, other facilities or a map coordinate system; sketches will be made in the field logbook when appropriate
- Physical location of sampling locations such as depth below ground surface

- Description of the method of sampling including procedures followed, equipment used and any departure from the specified procedures
- Description of the sample including physical characteristics, odor, etc.
- Readings obtained from health and safety equipment
- Weather conditions at the time of sampling and previous meteorological events that may affect the representative nature of a sample
- Photographic information including a brief description of what was photographed, the date and time, the compass direction of the picture and the number of the picture on the camera
- Other pertinent observations such as the presence of other persons on the site, actions by others that may affect performance of site tasks, etc.
- Names of sampling personnel and signature of persons making entries

Field records will also be collected on field data sheets including boring logs, which will be used for geologic and drilling data during soil boring activities. Field data sheets will include the project-specific number and stored in the field project files when not in use. At the completion of the field activities, the field data sheets will be maintained in the central project file.

5.1.2 Sample Labeling

Each sample collected will be assigned a unique identification number and abbreviation in accordance with the sample nomenclature guidance provided in the following table and the Standard Operating Procedure provided in Attachment E.

Sample Nomenclature Summary	
AA	Ambient Air
IA	Indoor Air
DUP	Field Duplicate
EB	Environmental Boring
LB	Langan Boring
SB	Soil Boring
FB	Field Blank
MW	Monitoring Well
SV	Soil Vapor
SSV	Sub-Slab Soil Vapor
TB	Trip Blank
(#-#)	Depth Interval
MMDDYY	Date of Sampling

Each sample container will have a sample label affixed to the outside with the date and time of sample collection and project name. In addition, the label will contain the sample identification number, analysis required and chemical preservatives added, if any. All documentation will be completed in waterproof ink.

5.2 EQUIPMENT CALIBRATION AND PREVENTATIVE MAINTENANCE

A PID will be used during the sampling activities to evaluate work zone action levels, screen soil samples (if collected), and collect monitoring well headspace readings. Field calibration and/or field checking of the PID will be the responsibility of the field team leader and the Site Health & Safety Officer, and will be accomplished by following the procedures outlined in the operating manual for the instrument. At a minimum, field calibration and/or field equipment checking will be performed once daily, prior to use. Field calibration will be documented in the field notebook. Entries made into the logbook regarding the status of field equipment will include the following information:

- Date and time of calibration
- Type of equipment serviced and identification number (such as serial number)
- Reference standard used for calibration
- Calibration and/or maintenance procedure used
- Other pertinent information

A water quality meter (Horiba U-52 or similar) will be used during purging of groundwater to measure pH, specific conductance, temperature, dissolved oxygen, turbidity and oxidation-reduction-potential (ORP), every five minutes, or, depending on pump flow rate, after at least one full volume of the water quality meter flow through cell has passed through. A portable turbidity meter (LaMotte or similar) may also be used to measure turbidity. Water-quality meters should be calibrated and the results documented before use each day using standardized field calibration procedures and calibration checks.

Equipment that fails calibration or becomes inoperable during use will be removed from service and segregated to prevent inadvertent utilization. The equipment will be properly tagged to indicate that it is out of calibration. Such equipment will be repaired and recalibrated to the manufacturer's specifications by qualified personnel. Equipment that cannot be repaired will be replaced.

Off-site calibration and maintenance of field instruments will be conducted as appropriate throughout the duration of project activities. All field instrumentation, sampling equipment and

accessories will be maintained in accordance with the manufacturer's recommendations and specifications and established field equipment practice. Off-site calibration and maintenance will be performed by qualified personnel. A logbook will be kept to document that established calibration and maintenance procedures have been followed. Documentation will include both scheduled and unscheduled maintenance.

5.3 SAMPLE COLLECTION

Soil Samples

Soil samples, if collected, will be visually classified and field screened using a PID to assess potential impacts from VOCs and for health and safety monitoring. Soil samples collected for analysis of VOCs will be collected using either En Core® or Terra Core® sampling equipment. For analysis of non-volatile parameters, samples will be homogenized and placed into glass jars. Samples will be collected with unused sterile sampling scoops or spoons and homogenized in unused sterile polyethylene zipper bags. After collection, all sample jars will be capped and securely tightened, and placed in iced coolers and maintained at 4°C ±2°C until they are transferred to the laboratory for analysis, in accordance with the procedures outlined in Sections 5.4 and 5.6. Analysis and/or extraction and digestion of collected soil samples will meet the holding times required for each analyte as specified in Attachment D. In addition, analysis of collected soil samples will meet all quality assurance criteria set forth by this QAPP and DER-10.

Groundwater Samples

Groundwater sampling will be conducted using low-flow sampling procedures following USEPA guidance ("Low Stress [low flow] Purging and Sampling Procedure for the Collection of Groundwater Samples from Monitoring Wells", EQASOP-GW4, dated September 19, 2017) and NYSDEC guidance for Sampling, Analysis, and Assessment of PFAS under NYSDEC's Part 375 Remedial Programs (April 2023).

During purging, field parameters should be measured, including: water level drawdown, purge rate, pH, specific conductance, temperature, dissolved oxygen, turbidity and oxidation-reduction-potential (ORP), every five minutes using a water quality meter (YSI 6820 or similar) and a depth-to-water interface probe that should be decontaminated between wells. Samples should generally not be collected until the field parameters have stabilized. Field parameters will be considered stable once three sets of measurements are within ±0.1 standard units for pH, ±3% for conductivity and temperature, ±10 millivolts for ORP, and ±10% for turbidity and dissolved oxygen. Purge rates should be adjusted to keep the drawdown in the well to less than 0.3 feet, as practical. Additionally, an attempt should be made to achieve a stable turbidity reading of less than 10 Nephelometric Turbidity Units (NTU) prior to sampling. If the turbidity reading does not stabilize at reading of less than 10 NTU for a given well, then both filtered and unfiltered samples

should be collected from that well. If necessary, field filtration should be performed using a 0.45 micron disposable in-line filter. Groundwater samples should be collected after parameters have stabilized as noted above or the readings are within the precision of the meter. Deviations from the stabilization and drawdown criteria, if any, should be noted on the sampling logs.

Samples should be collected directly into laboratory-supplied jars. After collection, all sample jars will be capped and securely tightened, and placed in iced coolers and maintained at 4°C ±2°C until they are transferred to the laboratory for analysis, in accordance with the procedures outlined in Sections 5.4 and 5.6. Analysis and/or extraction and digestion of collected groundwater samples will meet the holding times required for each analyte as specified in Attachment D. In addition, analysis of collected groundwater samples will meet all quality assurance criteria set forth by this QAPP and DER-10.

Soil Vapor and Ambient Air Samples

If soil vapor and ambient air samples are collected, prior to sample collection, a pre-sampling inspection will be conducted to document chemicals and potential subsurface pathways at the site. The pre-sampling inspection will assess the potential for impacts from any chemical or petroleum storage within the on-site buildings. Soil vapor and ambient air samples will be collected into laboratory-supplied, batch certified-clean Summa® canisters calibrated for a sampling rate of eight hours. Sub-slab soil vapor and indoor air samples will be collected into laboratory-supplied, individual certified-clean Summa® canisters calibrated for a sampling rate of eight hours. The pressure gauges on each calibrated flow controller should be monitored throughout sample collection. Sample collection should be stopped when the pressure reading reaches -4 mmHg.

Emerging Contaminant Samples

Soil and groundwater samples collected for analysis of per- and polyfluoroalkyl substances (PFAS) and 1,4-dioxane will be collected in accordance with the specialized protocol outlined in this section and the *Sampling, Analysis, and Assessment of Per- and Polyfuoroalkyl Substances (PFAS) under NYSDEC's Part 375 Remedial Programs*, issued by the NYSDEC in April 2023. Soil and groundwater samples collected from select sample locations will be analyzed for 1,4-dioxane by EPA Method 8270 and for PFAS by EPA Method 1633 Modified in accordance with the procedure outlined in Attachment F.

Soil samples (if collected) will be homogenized and placed into glass jars. Samples will be collected with unused sterile sampling scoops or spoons. After collection, all sample jars will be capped and securely tightened, and placed in iced coolers and maintained at 4°C ±2°C until they are transferred to the laboratory for analysis.

Groundwater sampling will be performed using low-flow sampling procedures following USEPA guidance ("Low Stress [low flow] Purging and Sampling Procedure for the Collection of Groundwater Samples from Monitoring Wells", January 19, 2017). Groundwater samples will be collected using a peristaltic pump fitted with dedicated, non-Teflon high-density polyethylene (HDPE) tubing and using low-flow purging techniques to minimize drawdown. A Horiba U-52 (or similar) will be used to monitor water quality parameters (pH, conductivity, temperature, dissolved oxygen, oxidation-reduction-potential (ORP), and turbidity. Groundwater samples will be collected after the parameters stabilized within about 10 percent of consecutive values, to the extent practical, and turbidity is below 10 nephelometric turbidity units (NTU).

Food and beverages will be prohibited near the sampling equipment. Additionally, no cosmetics, moisturizers, hand cream, sunscreen or clothing materials containing Gore-Tex or Tyvek will be worn during sampling. Non-disposable components of the pump will be decontaminated with Alconox and water. Field personnel will wear nitrile gloves while collecting and handing soil and groundwater samples.

Sample Field Blanks, Equipment Blanks, Trip Blanks and Duplicates

Field blanks will be collected for quality assurance purposes at a rate of one per 20 investigative samples per matrix (soil and groundwater only). Field blanks will be obtained by pouring laboratory-demonstrated analyte-free water on or through a decontaminated sampling device following use and implementation of decontamination protocols. The water will be collected off of the sampling device into a laboratory-provided sample container for analysis. Field blank samples will be analyzed for the complete list of analytes on the day of sampling. To assess contamination resulting from sample transport, trip blanks will be collected at a rate of one per day if soil or groundwater samples are analyzed for VOCs during that day. Field blanks and equipment blanks collected for PFAS will be collected at a minimum of one per day or one per 20 investigative samples per matrix; whichever frequency is higher.

Equipment blanks will be collected for quality assurance purposes at a rate of one per day per matrix for soil and groundwater PFAS samples. Field blanks will be obtained by pouring laboratory-demonstrated PFAS-free water on or through a decontaminated sampling device following use and implementation of decontamination protocols. The water will be collected off of the sampling device into a laboratory-provided sample container for analysis.

Duplicate soil and groundwater samples will be collected and analyzed for quality assurance purposes. Duplicate samples will be collected at a frequency of 1 per 20 investigative samples per matrix and will be submitted to the laboratory as "blind" samples. If less than 20 samples are collected during a particular sampling event, one duplicate sample will be collected.

5.4 SAMPLE CONTAINERS AND HANDLING

Certified, commercially clean sample containers will be obtained from the analytical laboratory. If soil samples or groundwater are being collected, the laboratory will also prepare and supply the required trip blanks and field blank sample containers and reagent preservatives. Sample bottle containers, including the field blank containers, will be placed into plastic coolers by the laboratory. These coolers will be received by the field sampling team within 24 hours of their preparation in the laboratory. Prior to the commencement of field work, Langan field personnel will fill the plastic coolers with ice in Ziploc® bags (or equivalent) to maintain a temperature of 4° ±2° C.

Soil and/or groundwater samples collected in the field for laboratory analysis will be placed directly into the laboratory-supplied sample containers. Samples will then be placed and stored on-ice in laboratory provided coolers until shipment to the laboratory. The temperature in the coolers containing samples and associated field blanks will be maintained at a temperature of 4°±2°C while on-site and during sample shipment to the analytical laboratory.

Soil and groundwater sampling for PFAS will be collected in accordance with EPA Method 1633 Field Sampling Guidelines. PFAS samples will be collected first in High Density Polyethylene (HDPE)/polypropylene containers using sampling equipment either made with stainless steel, HDPE, or polypropylene. Food and beverages will be prohibited near the sampling equipment. Additionally, no cosmetics, moisturizers, hand cream, sun screen or clothing materials containing Gore-Tex™ or Tyvek® will be worn during sampling.

Possession of samples collected in the field will be traceable from the time of collection until they are analyzed by the analytical laboratory or are properly disposed. Chain-of-custody procedures, described in Section 5.9, will be followed to maintain and document sample possession. Samples will be packaged and shipped as described in Section 5.6.

5.5 SAMPLE PRESERVATION

Sample preservation measures will be used in an attempt to prevent sample decomposition by contamination, degradation, biological transformation, chemical interactions and other factors during the time between sample collection and analysis. Preservation will commence at the time of sample collection and will continue until analyses are performed. Should chemical preservation be required, the analytical laboratory will add the preservatives to the appropriate sample containers before shipment to the office or field. Samples will be preserved according to the requirements of the specific analytical method selected, as shown in Attachment D.

5.6 SAMPLE SHIPMENT

5.6.1 Packaging

Soil and groundwater sample containers will be placed in plastic coolers. Ice in Ziploc® bags (or equivalent) will be placed around sample containers. Cushioning material will be added around the sample containers if necessary. Chains-of-custody and other paperwork will be placed in a Ziploc® bag (or equivalent) and placed inside the cooler. The cooler will be taped closed and custody seals will be affixed to one side of the cooler at a minimum. If the samples are being shipped by an express delivery company (e.g. FedEx) then laboratory address labels will be placed on top of the cooler.

5.6.2 Shipping

Standard procedures to be followed for shipping environmental samples to the analytical laboratory are outlined below.

- All environmental samples will be transported to the laboratory by a laboratory-provided courier under the chain-of-custody protocols described in Section 5.9.
- Prior notice will be provided to the laboratory regarding when to expect shipped samples. If the number, type or date of shipment changes due to site constraints or program changes, the laboratory will be informed.

5.7 DECONTAMINATION PROCEDURES

5.7.1 Decontamination General Sample Collection

Decontamination procedures will be used for non-dedicated sampling equipment. Decontamination of field personnel is discussed in the site-specific sample Health and Safety Plan (HASP) included in Attachment 1 of the SRIWP. Field sampling equipment that is to be reused will be decontaminated in the field in accordance with the following procedures:

1. Laboratory-grade glassware detergent and tap water scrub to remove visual contamination
2. Generous tap water rinse
3. Distilled/de-ionized water rinse

5.7.2 Decontamination for PFAS Sample Collection

In addition to general decontamination procedures are outlined in Section 5.7.1, sampling equipment will be thoroughly decontaminated before mobilization and between sample locations. Field sampling equipment, including water level indicators and other non-dedicated equipment,

requires cleaning between uses. Non-dedicated equipment used for PFAS sampling will be rinsed using a three bucket rinse procedure. An about 3-gallon solution of decontamination fluid consisting of Alconox or Citranox and deionized (DI) water will be prepared in a 5-gallon bucket for the first equipment rinse. A second 5-gallon bucket will be filled with about 3 gallons of DI water for the second rinse. A third 5-gallon bucket will be filled with about 3 gallons of DI water for the final rinse. Powderless nitrile (non-latex) gloves will be donned during the handling of sampling equipment and sample containers. The Safety Data Sheets of detergents used in decontamination procedures will be reviewed to ensure fluoro-surfactants and 1,4-dioxane are not listed as ingredients. Laboratory-verified PFAS-free water will be used as the final rinse during decontamination of sampling equipment

5.8 RESIDUALS MANAGEMENT

Debris (e.g., paper, plastic and disposable personal protective equipment) will be collected in plastic garbage bags and disposed of as non-hazardous industrial waste. Soil cuttings, if generated, with no apparent staining, odors, or elevated PID readings will be used to backfill boring holes. Soil to be disposed off-site will be placed in 55-gallon, UN/Department of Transportation (DOT) approved drums. Decontamination and well development/purging fluids will be placed in DOT-approved fluid drums with closed tops. All drums will be properly labeled, sealed, and characterized as necessary.

If initial analytical data is insufficient to gain disposal facility acceptance, waste characterization samples will be analyzed for parameters that are typically required by disposal facilities. Additional sampling and analyses may be required based on the selected disposal facility.

Samples will be collected in accordance with the selected disposal facility's requirements and will be collected to be representative of the material requiring disposal at a frequency consistent with disposal facility requirements. It is anticipated that all drummed material will be transported off-site and disposed of at a permitted facility.

5.9 CHAIN OF CUSTODY PROCEDURES

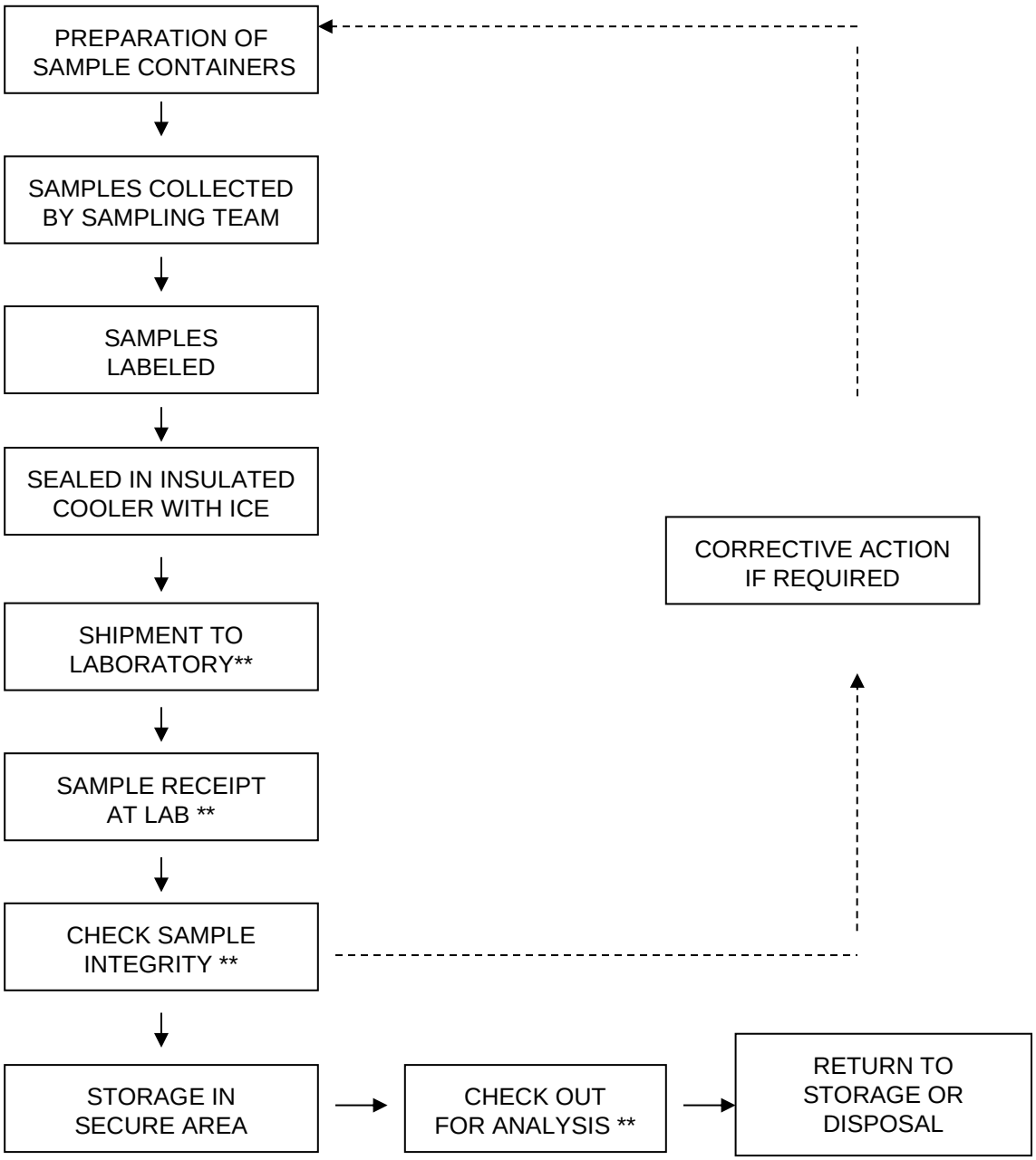
A chain-of-custody protocol has been established for collected samples that will be followed during sample handling activities in both field and laboratory operations. The primary purpose of the chain-of-custody procedures is to document the possession of the samples from collection through shipping, storage and analysis to data reporting and disposal. Chain-of-custody refers to actual possession of the samples. Samples are considered to be in custody if they are within sight of the individual responsible for their security or locked in a secure location. Each person who takes possession of the samples, except the shipping courier, is responsible for sample integrity and safe keeping. Chain-of-custody procedures are provided below:

- Chain-of-custody will be initiated by the laboratory supplying the pre-cleaned and prepared sample containers. Chain-of-custody forms will accompany the sample containers.
- Following sample collection, the chain-of-custody form will be completed for the sample collected. The sample identification number, date and time of sample collection, analysis requested and other pertinent information (e.g., preservatives) will be recorded on the form. All entries will be made in waterproof, permanent blue or black ink.
- Langan field personnel will be responsible for the care and custody of the samples collected until the samples are transferred to another party, dispatched to the laboratory, or disposed. The sampling team leader will be responsible for enforcing chain-of-custody procedures during field work.
- When the form is full or when all samples have been collected that will fit in a single cooler, the sampling team leader will check the form for possible errors and sign the chain-of-custody form. Any necessary corrections will be made to the record with a single strike mark, dated, and initialed.

When soil and groundwater samples are collected, sample coolers will be accompanied by the chain-of-custody form, sealed in a Ziploc® bag (or equivalent) and placed on top of the samples or taped to the inside of the cooler lid. If applicable, a shipping bill will be completed for each cooler and the shipping bill number recorded on the chain-of-custody form.

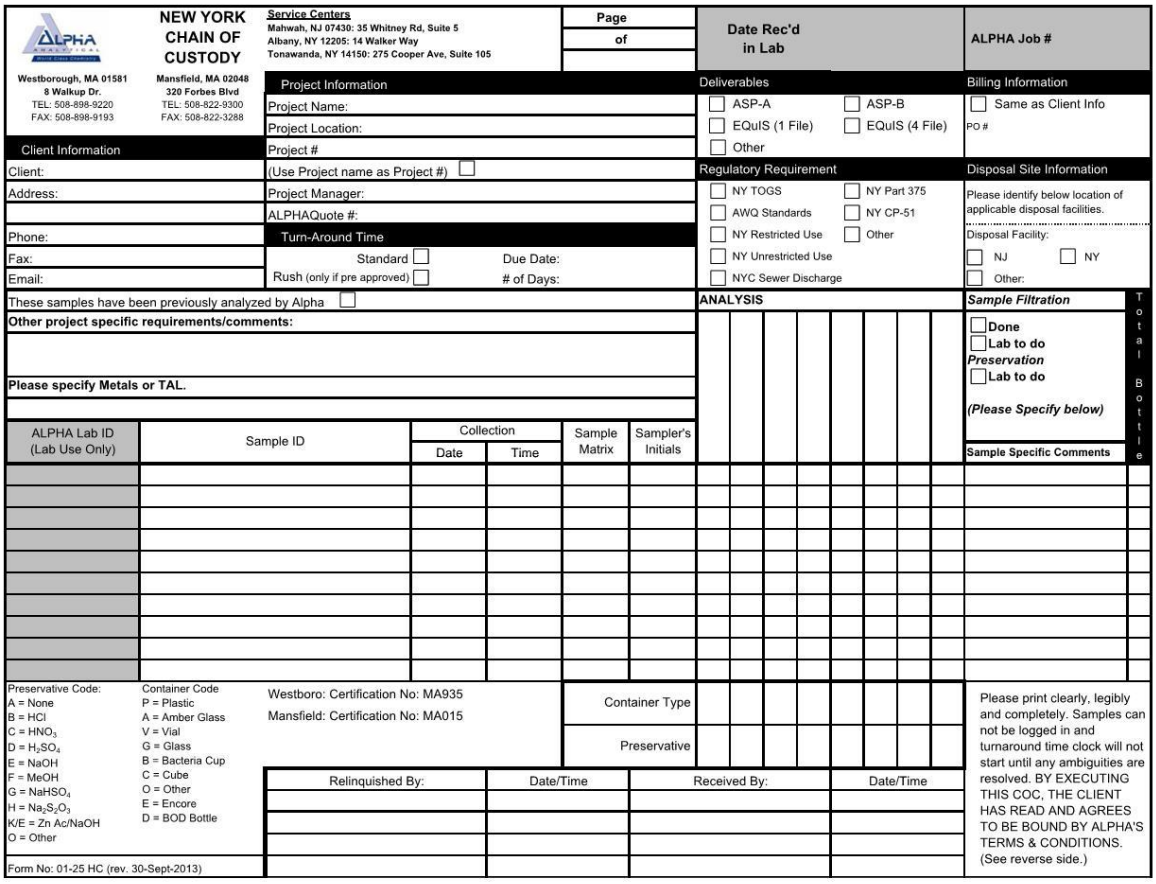
Samples will be packaged for shipment to the laboratory with the appropriate chain-of-custody form. A copy of the form will be retained by the sampling team for the project file and the original will be sent to the laboratory with the samples. Bills of lading will also be retained as part of the documentation for the chain-of-custody records, if applicable. When transferring custody of the samples, the individuals relinquishing and receiving custody of the samples will verify sample numbers and condition and will document the sample acquisition and transfer by signing and dating the chain-of-custody form. This process documents sample custody transfer from the sampler to the analytical laboratory. A flow chart showing a sample custody process is included as Figure 5.1, and an example chain-of-custody form for soil and groundwater samples is included as Figure 5.2.

Figure 5.1 Sample Custody



** REQUIRES SIGN-OFF ON CHAIN-OF-CUSTODY FORM

Figure 5.2 Sample Chain-of-Custody Form – Soil and Groundwater Samples



ALPHA ANALYTICAL

NEW YORK CHAIN OF CUSTODY

Page of

Date Rec'd in Lab

ALPHA Job #

Westborough, MA 01581 — 8 Walkup Dr. — TEL: 508-898-9220 — FAX: 508-898-9193

Mansfield, MA 02048 — 320 Forbes Blvd — TEL: 508-822-9300 — FAX: 508-822-3288

Service Centers
Mahwah, NJ 07430: 35 Whitney Rd, Suite 5
Albany, NY 12205: 14 Walker Way
Tonawanda, NY 14150: 275 Cooper Ave, Suite 105

Project Information
Project Name:
Project Location:
Project #
(Use Project name as Project #) ☐
Project Manager:
ALPHAQuote #:

Turn-Around Time
Standard ☐ Due Date:
Rush (only if pre approved) ☐ # of Days:

Deliverables
☐ ASP-A ☐ ASP-B
☐ EQuIS (1 File) ☐ EQuIS (4 File)
☐ Other

Billing Information
☐ Same as Client Info
PO #

Client Information
Client:
Address:
Phone:
Fax:
Email:

Regulatory Requirement
☐ NY TOGS ☐ NY Part 375
☐ AWQ Standards ☐ NY CP-51
☐ NY Restricted Use ☐ Other
☐ NY Unrestricted Use
☐ NYC Sewer Discharge

Disposal Site Information
Please identify below location of applicable disposal facilities.
Disposal Facility:
☐ NJ ☐ NY
☐ Other:

These samples have been previously analyzed by Alpha ☐

Other project specific requirements/comments:

Please specify Metals or TAL.

ANALYSIS

Sample Filtration
☐ Done
☐ Lab to do
Preservation
☐ Lab to do
(Please Specify below)

Total Bottle

ALPHA Lab ID (Lab Use Only)	Sample ID	Collection Date	Collection Time	Sample Matrix	Sampler's Initials	Sample Specific Comments

Preservative Code:
A = None
B = HCl
C = HNO_3
D = H_2SO_4
E = NaOH
F = MeOH
G = $NaHSO_4$
H = $Na_2S_2O_3$
K/E = Zn Ac/NaOH
O = Other

Container Code
P = Plastic
A = Amber Glass
V = Vial
G = Glass
B = Bacteria Cup
C = Cube
O = Other
E = Encore
D = BOD Bottle

Westboro: Certification No: MA935
Mansfield: Certification No: MA015

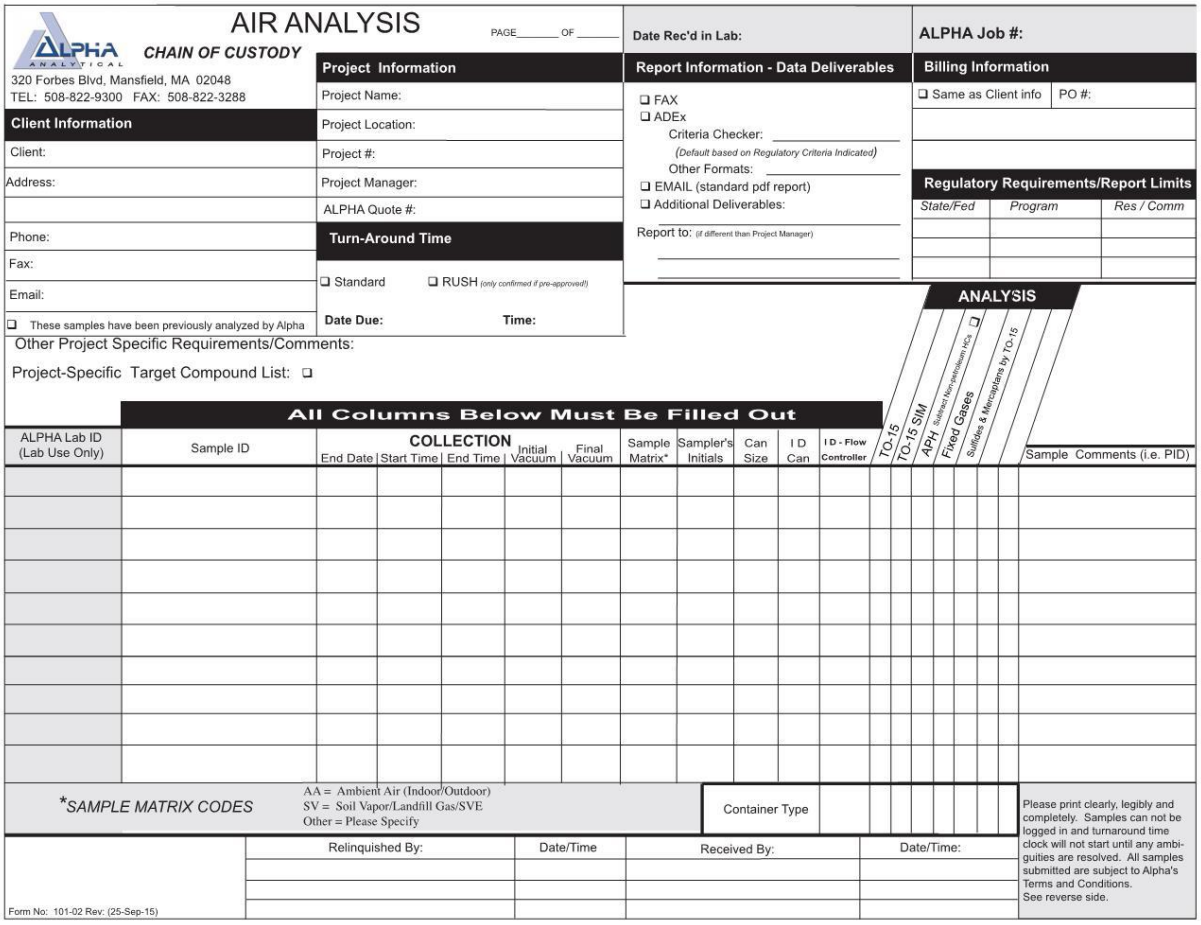
Container Type
Preservative

Relinquished By:	Date/Time	Received By:	Date/Time

Please print clearly, legibly and completely. Samples can not be logged in and turnaround time clock will not start until any ambiguities are resolved. BY EXECUTING THIS COC, THE CLIENT HAS READ AND AGREES TO BE BOUND BY ALPHA'S TERMS & CONDITIONS. (See reverse side.)

Form No: 01-25 HC (rev. 30-Sept-2013)

Figure 5.3 Sample Chain-of-Custody Form – Soil Vapor and Ambient Air Samples



AIR ANALYSIS — CHAIN OF CUSTODY

PAGE_____ OF _____

ALPHA ANALYTICAL
320 Forbes Blvd, Mansfield, MA 02048
TEL: 508-822-9300 FAX: 508-822-3288

Date Rec'd in Lab:

ALPHA Job #:

Client Information
Client:
Address:
Phone:
Fax:
Email:
❑ These samples have been previously analyzed by Alpha

Project Information
Project Name:
Project Location:
Project #:
Project Manager:
ALPHA Quote #:

Turn-Around Time
❑ Standard ❑ RUSH (only confirmed if pre-approved!)
Date Due: Time:

Report Information - Data Deliverables
❑ FAX
❑ ADEx
Criteria Checker: _____
(Default based on Regulatory Criteria Indicated)
Other Formats: _____
❑ EMAIL (standard pdf report)
❑ Additional Deliverables:
Report to: (if different than Project Manager)

Billing Information
❑ Same as Client info PO #:

Regulatory Requirements/Report Limits

State/Fed	Program	Res / Comm

Other Project Specific Requirements/Comments:

Project-Specific Target Compound List: ❑

ANALYSIS

All Columns Below Must Be Filled Out

ALPHA Lab ID (Lab Use Only)	Sample ID	COLLECTION End Date	Start Time	End Time	Initial Vacuum	Final Vacuum	Sample Matrix*	Sampler's Initials	Can Size	I D Can	I D - Flow Controller	TO-15	TO-15 SIM	APH Sulfate/Non-petroleum HCs	Fixed Gases	Sulfides & Mercaptans by TO-15	❑	Sample Comments (i.e. PID)

*SAMPLE MATRIX CODES
AA = Ambient Air (Indoor/Outdoor)
SV = Soil Vapor/Landfill Gas/SVE
Other = Please Specify

Container Type

Please print clearly, legibly and completely. Samples can not be logged in and turnaround time clock will not start until any ambiguities are resolved. All samples submitted are subject to Alpha's Terms and Conditions.
See reverse side.

Relinquished By:	Date/Time	Received By:	Date/Time:

Form No: 101-02 Rev: (25-Sep-15)

Laboratory chain-of-custody will be maintained throughout the analytical processes as described in the laboratory's Quality Assurance Manual. The analytical laboratory will provide a copy of the chain-of-custody in the analytical data deliverable package. The chain-of-custody becomes the permanent record of sample handling and shipment.

5.10 LABORATORY SAMPLE STORAGE PROCEDURES

The subcontracted laboratory will use a laboratory information management system to track and schedule samples upon receipt by the analytical laboratories. Any sample anomalies identified during sample log-in must be evaluated on individual merit for the impact upon the results and the data quality objectives of the project. When irregularities do exist, the environmental consultant must be notified to discuss recommended courses of action and documentation of the issue must be included in the project file.

For samples requiring thermal preservation, the temperature of each cooler will be immediately recorded. Each sample and container will be assigned a unique laboratory identification number and secured within the custody room walk-in coolers designated for new samples. Samples will be, as soon as practical, disbursed in a manner that is functional for the operational team. The temperature of all coolers and freezers will be monitored and recorded using a certified temperature sensor. Any temperature excursions outside of acceptance criteria (i.e., below 2°C or above 6°C) will initiate an investigation to determine whether any samples may have been affected. Samples for VOCs will be maintained in satellite storage areas within the VOC laboratory. Following analysis, the laboratory's specific procedures for retention and disposal will be followed as specified in the laboratory's SOPs and/or Quality Assurance Manual.

5.11 SPECIAL CONSIDERATIONS FOR PFAS SAMPLE COLLECTION

Soil and groundwater samples collected for analysis of PFAS will be collected in accordance with the specialized protocol outlined in this section. Soil and groundwater samples collected from select sample locations will be analyzed for 1,4-dioxane by EPA Method 8270 SIM, and for PFAS by EPA Method 1633 Modified in accordance with the procedure outlined in Attachment F.

The following special considerations apply to the collection of groundwater samples for PFAS analysis to prevent cross-contamination:

- Field equipment will not contain Teflon®
- All sampling material will be made from stainless steel, HDPE, acetate, silicon, or polypropylene
- No waterproof field books will be used
- No plastic clipboards, binders, or spiral hard cover notebooks will be used

- No adhesives will be used
- No sharpies or permanent markers will be used; ball point pens are acceptable
- Aluminum foil will not be used
- PFAS samples will be kept in a separate cooler from other sampling containers
- Coolers will be filled only with regular ice

PFAS compound sampling protocols and laboratory SOP are provided in Attachment F.

5.12 PFAS TARGET ANALYTE LIST

At minimum, the laboratory will report the following PFAS target compounds:

Group	Analyte Name	Abbreviation	CAS #
Perfluoroalkyl carboxylates	Perfluorobutanoic acid	PFBA	375-22-4
	Perfluoropentanoic acid	PFPeA	2706-90-3
	Perfluorohexanoic acid	PFHxA	307-24-4
	Perfluoroheptanoic acid	PFHpA	375-85-9
	Perfluorooctanoic acid	PFOA	335-67-1
	Perfluorononanoic acid	PFNA	375-95-1
	Perfluorodecanoic acid	PFDA	335-76-2
	Perfluoroundecanoic acid	PFUA/PFUdA	2058-94-8
	Perfluorododecanoic acid	PFDoA	307-55-1
	Perfluorotridecanoic acid	PFTriA/PFTrDA	72629-94-8
	Perfluorotetradecanoic acid	PFTA/PFTeDA	376-06-7
Perfluoroalkyl sulfonates	Perfluorobutanesulfonic acid	PFBS	375-73-5
	Perfluoropentanesulfonic acid	PFPeS	2706-91-4
	Perfluorohexanesulfonic acid	PFHxS	355-46-4
	Perfluoroheptanesulfonic acid	PFHpS	375-92-8
	Perfluorooctanessulfonic acid	PFOS	1763-23-1
	Perfluorononanesulfonic acid	PFNS	68259-12-1
	Perfluorodecanesulfonic acid	PFDS	335-77-3
	Perfluorododecanesulfonic acid	PFDoS	79780-39-5
Fluorotelomer sulfonic acids	4:2 Fluorotelomer sulfonic acid	4:2 FTS	757124-72-4
	6:2 Fluorotelomer sulfonic acid	6:2 FTS	27619-97-2
	8:2 Fluorotelomer sulfonic acid	8:2 FTS	39108-34-4
Fluorotelomer carboxylic acids	3:3 Fluorotelomer carboxylic acid	3:3 FTCA	356-02-5
	5:3 Fluorotelomer carboxylic acid	5:3 FTCA	914637-49-3
	7:3 Fluorotelomer carboxylic acid	7:3 FTCA	812-70-4
Perfluorooctane-sulfonamides	Perfluroroctanesulfonamide	PFOSA	754-91-6
	N-methylperfluorooctane sulfonamide	NMeFOSA	31506-32-8
	N-ethylperfluorooctane sulfonamide	NEtFOSA	4151-50-2

Perfluorooctane-sulfonamidoacetic acids	N-methyl perfluorooctanesulfonamidoacetic acid	N-MeFOSAA	2355-31-9
	N-ethyl perfluorooctanesulfonamidoacetic acid	N-EtFOSAA	2991-50-6
Perfluorooctane sulfonamide ethanols	N-methylperfluorooctane sulfonamidoethanol	MeFOSE	24448-09-7
	N-ethylperfluorooctane sulfonamidoethanol	EtFOSE	1691-99-2
Ether sulfonic acids	9-Chlorohexadecafluoro-3-oxanonane-1-sulfonic acid (F-53B Major)	9Cl-PF3ONS	756426-58-1
	11-Chloroeicosafluoro-3-oxaundecane-1-sulfonic acid (F-53B Minor)	11Cl-PF3OUdS	763051-92-9
	Perfluoro(2-ethoxyethane) sulfonic acid	PFEESA	113507-82-7

6.0 DATA REDUCTION, VALIDATION, AND REPORTING

6.1 INTRODUCTION

Data collected during the field investigation will be reduced and reviewed by the laboratory quality assurance personnel, and a report on the findings will be tabulated in a standard format. The criteria used to identify and quantify the analytes will be those specified for the applicable methods in the USEPA SW-846 and subsequent updates. The data package provided by the laboratory will contain all items specified in the USEPA SW-846 methodology appropriate for the analyses to be performed, and be reported in standard format.

The completed copies of the chain-of-custody records (both external and internal) accompanying each sample from time of initial bottle preparation to completion of analysis shall be attached to the analytical reports.

6.2 DATA REDUCTION

The Analytical Services Protocol (ASP) Category B data packages and an electronic data deliverable (EDD) will be provided by the laboratory after receipt of a complete sample delivery group. The Project Manager will immediately arrange for archiving the results and preparation of result tables. These tables will form the database for assessment of the site contamination condition.

Each EDD deliverable must be formatted using a Microsoft Windows operating system and the NYSDEC data deliverable format for EQuIS. To avoid transcription errors, data will be loaded directly into the ASCII format from the laboratory information management system. If this cannot be accomplished, the consultant should be notified via letter of transmittal indicating that manual entry of data is required for a particular method of analysis. All EDDs must also undergo a quality control check by the laboratory before delivery. The original data, tabulations, and electronic media are stored in a secure and retrievable fashion.

The Project Manager or Task Manager will maintain close contact with the quality assurance reviewer to ensure all non-conformance issues are acted upon prior to data manipulation and assessment routines. Once the quality assurance review has been completed, the Project Manager may direct the Team Leaders or others to initiate and finalize the analytical data assessment.

6.3 DATA VALIDATION

Data validation will be performed in accordance with the USEPA Region 2 SOPs for data validation and USEPA's National Functional Guidelines for Organic and Inorganic Data Review. Tier 1 data validation (the equivalent of USEPA's Stage 2A validation) will be performed to evaluate data quality. Tier 1 data validation is based on completeness and compliance checks of sample-related QC results including:

- Holding times;
- Sample preservation;
- Blank results (method, trip, and field blanks);
- Surrogate recovery compounds and extracted internal standards (as applicable);
- LCS and LCSD recoveries and RPDs;
- MS and MSD recoveries and RPDs;
- Laboratory duplicate RPDs; and
- Field duplicate RPDs

A DUSR will be prepared by the data validator and reviewed by the Quality Assurance Manager before issuance. The DUSR will present the results of data validation, including a summary assessment of laboratory data packages, sample preservation and chain-of-custody procedures, and a summary assessment of precision, accuracy, representativeness, comparability, and completeness for each analytical method.

Based on the results of data validation, the validated analytical results reported by the laboratory will be assigned one of the following usability flags:

- "U" - Not detected. The associated number indicates the approximate sample concentration necessary to be detected significantly greater than the level of the highest associated blank;
- "UJ" - Not detected. Quantitation limit may be inaccurate or imprecise;
- "J" - Analyte is present. Reported value may be associated with a higher level of uncertainty than is normally expected with the analytical method
- "R" – Unreliable result; data is rejected or unusable. Analyte may or may not be present in the sample; and
- No Flag - Result accepted without qualification.

7.0 QUALITY ASSURANCE PERFORMANCE AUDITS AND SYSTEM AUDITS

7.1 INTRODUCTION

Quality assurance audits may be performed by the project quality assurance group under the direction and approval of the Quality Assurance Manager (QAM). These audits will be implemented to evaluate the capability and performance of project and subcontractor personnel, items, activities, and documentation of the measurement system(s). Functioning as an independent body and reporting directly to corporate quality assurance management, the QAM may plan, schedule, and approve system and performance audits based upon procedures customized to the project requirements. At times, the QAM may request additional personnel with specific expertise from company and/or project groups to assist in conducting performance audits. However, these personnel will not have responsibility for the project work associated with the performance audit.

7.2 SYSTEM AUDITS

System audits may be performed by the QAM or designated auditors, and encompass a qualitative evaluation of measurement system components to ascertain their appropriate selection and application. In addition, field and laboratory quality control procedures and associated documentation may be system audited. These audits may be performed once during the performance of the project. Additional audits may occur if conditions adverse to quality are detected or at the request of the Project Manager.

7.3 PERFORMANCE AUDITS

The laboratory may be required to conduct an analysis of Performance Evaluation samples or provide proof that Performance Evaluation samples submitted by USEPA or a state agency have been analyzed within the past twelve months.

7.4 FORMAL AUDITS

Formal audits refer to any system or performance audit that is documented and implemented by the quality assurance group. These audits encompass documented activities performed by qualified lead auditors to a written procedure or checklists to objectively verify that quality assurance requirements have been developed, documented, and instituted in accordance with contractual and project criteria. Formal audits may be performed on project and subcontractor work at various locations.

Audit reports will be written by auditors who have performed the site audit after gathering and evaluating all data. Items, activities, and documents determined by lead auditors to be in noncompliance shall be identified at exit interviews conducted with the involved management.

Non-compliances will be logged, and documented through audit findings, which are attached to and are a part of the integral audit report. These audit-finding forms are directed to management to satisfactorily resolve the noncompliance in a specified and timely manner.

The Project Manager has overall responsibility to ensure that all corrective actions necessary to resolve audit findings are acted upon promptly and satisfactorily. Audit reports must be submitted to the Project Manager within fifteen days of completion of the audit. Serious deficiencies will be reported to the Project Manager within 24 hours. All audit checklists, audit reports, audit findings, and acceptable resolutions are approved by the QAM prior to issue. Verification of acceptable resolutions may be determined by re-audit or documented surveillance of the item or activity. Upon verification acceptance, the QAM will close out the audit report and findings.

8.0 CORRECTIVE ACTION

8.1 INTRODUCTION

The following procedures have been established to ensure that conditions adverse to quality, such as malfunctions, deficiencies, deviations, and errors, are promptly investigated, documented, evaluated, and corrected.

8.2 PROCEDURE DESCRIPTION

When a significant condition adverse to quality is noted at a site, laboratory, or subcontractor location, the cause of the condition will be determined and corrective action will be taken to preclude repetition. Condition identification, cause, reference documents, and corrective action planned to be taken will be documented and reported to the QAM, Project Manager, Field Team Leader and involved contractor management, at a minimum. Implementation of corrective action is verified by documented follow-up action.

All project personnel have the responsibility, as part of the normal work duties, to promptly identify, solicit approved correction, and report conditions adverse to quality. Corrective actions will be initiated as follows:

- When predetermined acceptance standards are not attained;
- When procedure or data compiled are determined to be deficient;
- When equipment or instrumentation is found to be faulty;
- When samples and analytical test results are not clearly traceable;
- When quality assurance requirements have been violated;
- When designated approvals have been circumvented;
- As a result of system and performance audits;
- As a result of a management assessment;
- As a result of laboratory/field comparison studies; and
- As required by USEPA SW-846, and subsequent updates, or by the NYSDEC ASP.

Project management personnel, field investigation teams, remedial response planning personnel, and laboratory groups monitor ongoing work performance during the normal course of daily responsibilities. Work may be audited at project sites, laboratories, or contractor locations. Activities, or documents ascertained to be noncompliant with quality assurance requirements will be documented. Corrective actions will be mandated through audit finding sheets attached to the audit report. Audit findings are logged, maintained, and controlled by the Task Manager.

Personnel assigned to quality assurance functions will have the responsibility to issue and control Corrective Action Request (CAR) Forms (Figure 8.1 or similar by email). The CAR identifies the out-of-compliance condition, reference document(s), and recommended corrective action(s) to be administered. The CAR is issued to the personnel responsible for the affected item or activity. A copy is also submitted to the Project Manager. The individual to whom the CAR is addressed returns the requested response promptly to the quality assurance personnel, affixing his/her signature and date to the corrective action block, after stating the cause of the conditions and corrective action to be taken. The quality assurance personnel maintain the log for status of CARs, confirms the adequacy of the intended corrective action, and verifies its implementation. CARs will be retained in the project file for the records.

Any project personnel may identify noncompliance issues; however, the designated quality assurance personnel are responsible for documenting, numbering, logging, and verifying the close out action. The Project Manager will be responsible for ensuring that all recommended corrective actions are implemented, documented, and approved.

Figure 8.1 Correction Action Request Form

CORRECTIVE ACTION REQUEST

Number: _____ Date: _____

TO: _____

You are hereby requested to take corrective actions indicated below and as otherwise determined by you to (a) resolve the noted condition and (b) to prevent it from recurring. Your written response is to be returned to the project quality assurance manager by _____

CONDITION:

REFERENCE DOCUMENTS:

RECOMMENDED CORRECTIVE ACTIONS:

_____ _____ _____ _____ _____ _____

Originator Date Approval Date Approval Date

RESPONSE

CAUSE OF CONDITION

CORRECTIVE ACTION

(A) RESOLUTION

(B) PREVENTION

(C) AFFECTED DOCUMENTS

C.A. FOLLOWUP:

CORRECTIVE ACTION VERIFIED BY: _____ DATE:_____

9.0 REFERENCES

NYSDEC. Division of Environmental Remediation. DER-10/Technical Guidance for Site Investigation and Remediation, dated May 3, 2010.

NYSDEC. Guidance for Sampling, Analysis, and Assessment of PFAS under NYSDEC's Part 375 Remedial Programs dated April 2023

USEPA, 2016. Low/Medium Volatile Data Validation. SOP No. HW-33A, Revision 1, dated September 2016. USEPA Region II.

USEPA, 2015. PCB Aroclor Data Validation. SOP No. HW-37A, Revision 0, dated July 2015. USEPA Region II.

USEPA, 2016. ICP-AES Data Validation. SOP No. HW-3a, Revision 1, dated September 2016. USEPA Region II.

USEPA, 2016. Mercury and Cyanide Data Validation. SOP No. HW-3c, Revision 1, dated September 2016. USEPA Region II.

USEPA, 2016. Pesticide Data Validation. SOP No. HW-36A, Revision 1, dated October 2016. USEPA Region II.

USEPA, 2016. Semivolatile Data Validation. SOP No. HW-35A, Revision 1, dated September 2016. USEPA Region II.

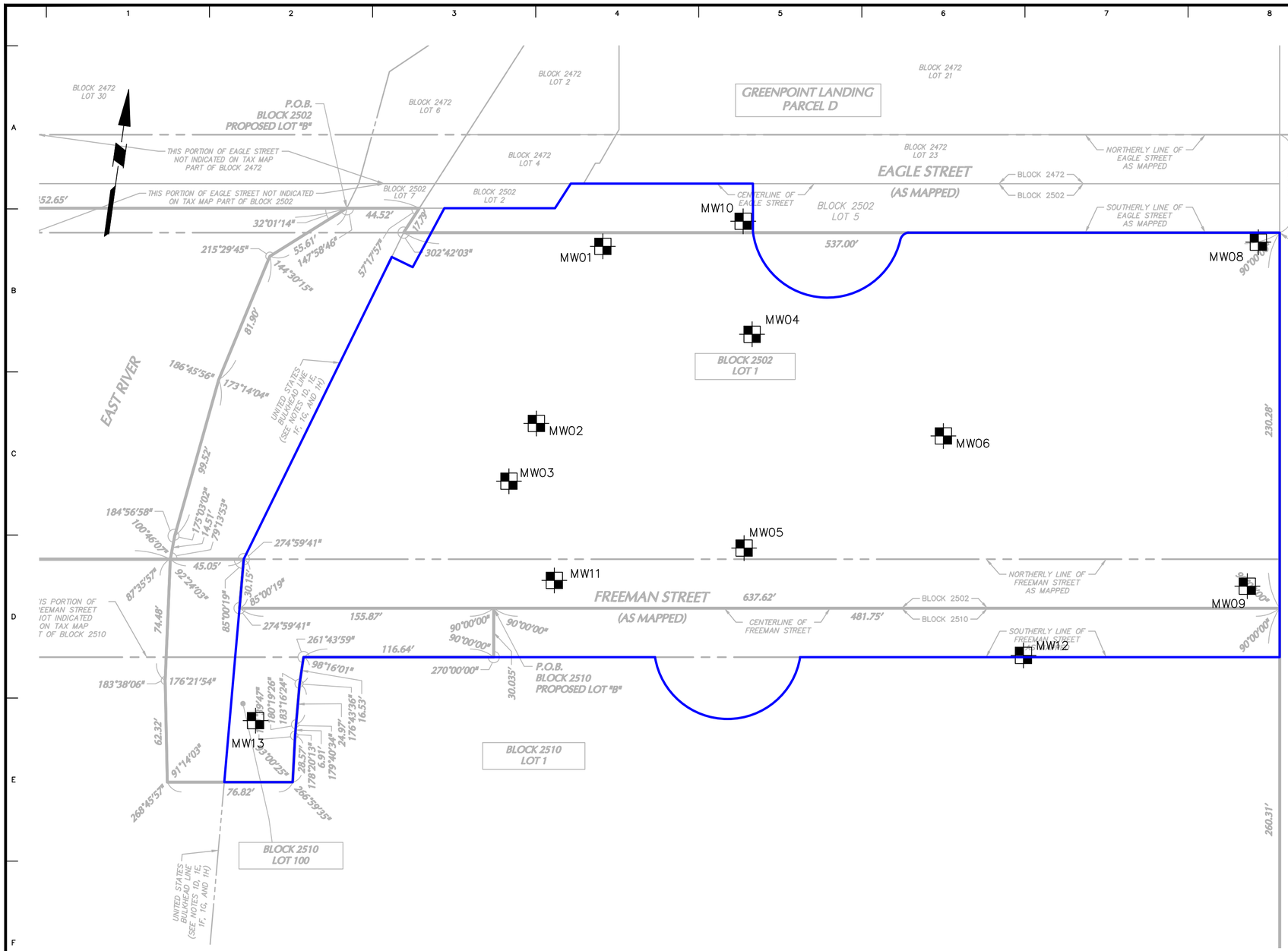
USEPA, 2016. Analysis of Volatile Organic Compounds in Air Contained in Canisters by Method TO-15, Revision 6, dated September 2016. USEPA Region II.

USEPA 2017. National Functional Guidelines for Superfund Organic Methods Data Review, Office of Superfund Remediation and Technology Innovation, EPA-540-R-2017-002, January 2017.

USEPA 2017b. National Functional Guidelines for Superfund Inorganic Methods Data Review, Office of Superfund Remediation and Technology Innovation, EPA-540-R-201 7-001, January 2017

ATTACHMENT A

PROPOSED SAMPLING LOCATION PLAN



LEGEND:

APPROXIMATE SITE BOUNDARY

MW01 APPROXIMATE LOCATION OF EXISTING GROUNDWATER MONITORING WELL (LANGAN, 2022)

NOTES:

1. BASE MAP IS TAKEN FROM "FINAL SURVEY', FIGURE FS103, PREPARED BY LANGAN, DATED FEBRUARY 26, 2025.
2. ALL LOCATIONS ARE APPROXIMATE.

SCALE: 1 INCH = 50 FEET

WARNING: IT IS A VIOLATION OF THE NYS EDUCATION LAW ARTICLE 145 FOR ANY PERSON, UNLESS HE IS ACTING UNDER THE DIRECTION OF A LICENSED PROFESSIONAL ENGINEER, LAND SURVEYOR OR GEOLOGIST, TO ALTER THIS ITEM IN ANY WAY.

LANGAN
Langan Engineering, Environmental, Surveying, Landscape Architecture and Geology, D.P.C.
368 Ninth Avenue, 8th Floor
New York, NY 10001
T: 212.479.5400 F: 212.479.5444 www.langan.com

Project
C BLOCK
BLOCK NO. 2502, p/o LOT NOs. 1 & 5, AND BLOCK NO. 2510, p/o LOT NOs. 1 & 100
KINGS NEW YORK

Figure Title
PROPOSED SAMPLE LOCATION MAP

Project No.	170229030
Date	05/13/2025
Drawn By	VK
Checked By	GW
Figure	1

PROJECT NO. 170229030 LANGAN

© 2024 Langan

Filename: \\Langan.com\data\NYC\data0\170229030\Project Data\CAD\Sheet Files\Environmental\RIR Figures\SRIWP - Proposed Sample Location Map.dwg Date: 5/14/2025 Time: 13:40 User: vkanagaratnam Style Table: Langan.stb Layout: SRIWP Figure 1

ATTACHMENT B

RESUMES

GREGORY C. WYKA, PG, LEED AP

SENIOR PROJECT GEOLOGIST

ENVIRONMENTAL ENGINEERING

Mr. Wyka is a professional geologist with 16 years of experience in regulatory government, brownfield redevelopment, and environmental liability consulting. His expertise includes due diligence, real estate development, site characterizations, remedial investigations, conceptual site modeling, remedial strategies and designs, remedial action implementation and management. Mr. Wyka maintains an understanding of how to integrate remediation with property redevelopment and he provides technical, regulatory, logistical, and risk management guidance to clients, including developers, owners, and environmental attorneys. Mr. Wyka manages construction projects and remediation projects in the New York State Inactive Hazardous Waste Disposal Site Program (State Superfund Program), New York State Spill Response Program, New York State Brownfield Cleanup Program, and the New York City E-Designation and Voluntary Cleanup Programs. Through many of these projects, Mr. Wyka has routine exposure to other real estate development services, including civil engineering, geotechnical engineering, surveying, natural resources and permits, land use planning, hazardous building materials, environmental compliance, landscape architecture, and waterfront engineering, that has shaped him into a resourceful and practical asset to his clients.

SELECTED PROJECTS

- The Dupont, Brooklyn, NY
- Greenpoint Landing, Brooklyn, NY: Brownfield Redevelopment, BCP, E-Designation, NYC VCP
- Anable Basin, Long Island City, NY; Brownfield Redevelopment, BCP.
- NYCSCA Due Diligence, Phase I ESA and Phase II ESI, New York, NY
- Fulfillment Center Due Diligence, Phase I ESA and Phase II ESI, New York, NY
- 489 State Street/100 Flatbush Avenue, Brownfield Redevelopment, NYC VCP, Brooklyn, NY
- One Third Avenue, Brownfield Development, NYC VCP, Brooklyn, NY
- One45 – Phase I and II, Brownfield Redevelopment, BCP, New York, NY
- 25-01 Queens Plaza North, Brownfield Redevelopment, BCP, Long Island City, NY
- Alafia/Jamaica Bay Landing, Brownfield Redevelopment, Brooklyn, NY
- 111 Washington Street, Brownfield Redevelopment, BCP, New York, NY
- 41 Kensico Drive, Brownfield Development, BCP, Mt. Kisco, NY
- 2409 Jerome Avenue, Brownfield Redevelopment, BCP, Bronx, NY
- 82 King Street, Brownfield Redevelopment, BCP, New York, NY



EDUCATION

B.A., Geology, Chemistry and Environmental Studies
Bowdoin College

PROFESSIONAL REGISTRATION

Professional Geologist (PG) in NY

LEED Accredited Professional (LEED AP) Neighborhood Development

40-Hour HAZWOPER

AFFILIATIONS

New York State Council of Professional Geologists (NYSCPG)

NYSCPG President

NYSCPG Fundraising Chair

New York City Brownfield Partnership

- 300 West 122nd Street, Brownfield Redevelopment, BCP, New York, NY
- 517 West 29th Street, Brownfield Redevelopment, NYC VCP, New York, NY
- 160 Leroy Street, New York, NY: Brownfield Redevelopment; E-Designation, NYC VCP
- 685 First Avenue, New York, NY: Brownfield Redevelopment: NYSDEC Voluntary Cleanup Program
- 700-708 First Avenue, New York, NY: Brownfield Redevelopment, BCP
- Inlet Assemblage/30 Gem Street, Brownfield Redevelopment, Brooklyn, NY
- 60 West Street, Brooklyn, NY: Brownfield Redevelopment, E-Designation
- 27-19 44th Drive, Long Island City, NY: Brownfield Redevelopment
- 515 West 42nd Street, New York, NY: E-Designation
- Brooklyn Bridge Park, Pierhouse: Brownfield Redevelopment 550 Myrtle Avenue, Brooklyn, NY: E-Designation
- 50 Jay Street, Phase I ESA, Brooklyn, NY
- 205 Water Street, Brooklyn, NY: Brownfield Redevelopment, E-Designation
- 29-01 Borden Avenue, Long Island City, NY; Brownfield Redevelopment, NYSDEC Spills
- 29-10 Hunters Point Avenue, Long Island City, NY: Brownfield Redevelopment
- 30-27 Greenpoint Avenue, Long Island City, NY: NYSDEC Spills
- 55 Water Street, New York, NY: Emergency petroleum spill closure (Tropical Storm Sandy)
- 144 East 201st Street, New York, NY: Brownfield Redevelopment, E-Designation
- 310 Meserole Street, Phase I ESA, Brooklyn, NY
- 13-17 Laight Street, Phase I ESA, New York, NY
- 460 Mother Gaston Boulevard, Phase I ESA, Brooklyn, NY
- 25 Kent Avenue, Phase I ESA, Brooklyn, NY
- 1110 Oak Point Avenue, Phase I ESA, Bronx, NY
- 859-863 Lexington Avenue, Phase I ESA, New York, NY
- 49 East 21st Street, Phase I ESA, New York, NY
- 1552-1560 Broadway, Phase I ESA, New York, NY
- 287-291 East Houston Street, Phase I ESA, New York, NY
- Big River Study Area (Superfund), Remedial Investigation, Old Lead Belt, Park Hills and Desloge, MO
  Berry's Creek Study Area (Superfund Site), Remedial Investigation, Bergen County, NJ
- Everglades Restoration Project, Remedial Investigation, Clewiston, FL
- Marble River Wind Farm, Wetland Delineation, Ellenburg, NY

ELIZABETH BURGESS, PE

PROJECT ENGINEER

ENVIRONMENTAL ENGINEERING

Ms. Burgess is an environmental engineer with over 7 years of experience in environmental consulting in the New York metropolitan area. Ms. Burgess has a background in remedial investigations, environmental site assessments, and remedial oversight and implementation. She is currently involved with various environmental projects in the greater New York City area in the New York State Brownfield Cleanup Program and New York City Office of Environmental Remediation Voluntary Cleanup Program.

In 2024, Commercial Observer named Ms. Burgess a Top Young Professional. In 2022, Ms. Burgess was selected as one of Women Builders Council's Next Generation of Women Builders.



SELECTED PROJECTS

- Willets Point Development, Brownfield Redevelopment, Flushing, NY
- NYCFC Stadium, Brownfield Site Management/Redevelopment, Flushing, NY
- Hemlock Ridge, Phase I and Phase II Due Diligence, Shelby, NY
- CDG Solar Portfolio, Phase I and Phase II Due Diligence, Various Projects in New York, Massachusetts, and Maine
- 240 Huntington Street, Brownfield Redevelopment, Brooklyn, NY
- Greenpoint Landing – Parcels C, D, E1, and West Street Extension, NYCOER Voluntary Cleanup Program, Brooklyn, NY
- Governors Island Center for Climate, Remediation/Redevelopment, New York, NY
- 88 9th Street, Brownfield Redevelopment, Brooklyn, NY
- 540 Hudson Street, Brownfield Redevelopment, In-Situ Groundwater Remediation, New York, NY
- 144-150 Barrow Street, Brownfield Redevelopment, New York, NY
- Greenpoint Marina, Spill Remediation Oversight, Brooklyn, NY
- 416 and 420 Kent Avenue, Brownfield Site Management, Brooklyn, NY
- 35-01 Northern Boulevard, Environmental Assessment, Queens, NY
- 41 Kensico Drive, Brownfield Redevelopment, Mount Kisco, NY
- 50 Hudson Yards, E-Designation Remediation/Redevelopment, New York, NY
- 491 Wortman Avenue, AS/SVE System O&M, Brooklyn, NY
- 60 Charlton Street, NYCOER, New York, NY
- 131-01 39th Avenue, Remedial Investigation, Remedial Action Work Plan, Flushing, NY
- Greenpoint Terminal Market, Brooklyn, NY
- Plainfield Central Business District, NJDEP SRP Brownfield Development Areas, Phase II ESI, Plainfield, NJ
- PSE&G Linear Construction Oversight, Hoboken, NJ
- Kearny Horizontal Directional Drilling, Environmental Oversight, Jersey City, NJ
- Lawrence Township Maintenance Facility, NJDOT, Remedial Action Sampling, Lawrence, NJ

EDUCATION

M.Eng., Systems Engineering
Cornell University

B.S., Environmental Engineering
University of Connecticut

PROFESSIONAL REGISTRATION

Professional Engineer (PE) in NY

10-Hour OSHA

40-Hour HAZWOPER

AFFILIATIONS

American Society of Civil Engineers (ASCE)

New York City Brownfield Partnership, Board Member, Scholarship Committee Co-chair

- Route 206 Bypass, Remedial Investigation, Remedial Investigation Report, Hillsborough, NJ
- Bruckner Expressway, Limited ESA, Bronx, NY
- PSE&G Emergency Spill Responses, Remedial Action Reports, NJ
- 215 North 10th Street, Waste Characterization Implementation and Reporting, NYSDEC BCP Office Support, Brooklyn, NY
-

SELECTED PUBLICATIONS, REPORTS, AND PRESENTATIONS

Musayev S., Burgess E., Mellor J., "A Global Performance Assessment of Rainwater Harvesting under Climate Change." *Resources, Conservation and Recycling*, vol. 132, 2018, pp. 62–70.

ANTHONY MOFFA, JR., ASP, CHMM, COSS, CSP

ASSOCIATE
CORPORATE HEALTH AND SAFETY MANAGER

Anthony is Langan's Corporate Health & Safety Manager and is responsible for managing health and safety compliance in all Langan office locations. He has 29 years of experience in the health and safety field. He is responsible for ensuring compliance with all federal and state occupational health and safety laws and development and implementation of corporate health and safety policies. His responsibilities include reviewing and updating Langan's Corporate Health and Safety Program and assisting employees in the development of site specific Health & Safety Plans. He maintains and manages health and safety records for employees in all Langan office locations including medical evaluations, respirator fit testing, and Hazardous Waste Operations and Emergency Response training. He is also responsible for documentation and investigation of work-related injuries and incidents and sharing this information with employees to assist in the prevention of future incidents. He is also the chairman of the Corporate Health & Safety Committee and Health & Safety Leadership Team that meet periodically throughout the year. He is responsible for coordinating and providing health and safe training to Langan employees. He was formerly the Environmental, Health and Safety Coordinator at a chemical manufacturer. His experience included employee hazard communications, development of material safety data sheets for developed products, respirator fit testing and conducting required Occupational Health & Safety Association and Department of Transportation training.



EDUCATION

B.S., Physics
West Chester University

PROFESSIONAL REGISTRATION

Associate Safety Professional (ASP)

Certified Hazardous Material Manager (CHMM)

Certified Occupational Safety Specialist (COSS)

Certified Safety Professional (CSP)

AFFILIATIONS

Pennsylvania Chamber of Business & Industry

Chemical Council of New Jersey

New Jersey Business & Industry Association

American Society of Safety Professionals

MIMI RAYGORODETSKY

PRINCIPAL/VICE PRESIDENT

ENVIRONMENTAL ENGINEERING

Ms. Raygorodetsky sources and directs large, complex environmental remediation and redevelopment projects from the earliest stages of pre-development diligence, through the remediation/construction phase, to long-term operation and monitoring of remedial systems and engineering controls. She has a comprehensive understanding of federal, state and local regulatory programs and she uses this expertise to guide her clients through a preliminary cost benefit analysis to select the right program(s) given the clients' legal obligations, development desires and risk tolerance. She is particularly strong at integrating the requirements of selected programs and client development needs to develop and design targeted and streamlined diligence programs and remediation strategies. Ms. Raygorodetsky is also highly skilled in integrating remediation with construction on large urban waterfront projects, which tend to more complex than landside projects.

In 2022, Bisnow honored Ms. Raygorodetsky with the Women Leading Real Estate Award and Crain's New York Business named her as a Notable Woman in Construction, Design & Architecture.

SELECTED PROJECTS

CULTURAL AND CIVIC

- Ferry Point Waterfront Park, Redevelopment of a Former Landfill into a Park, Bronx, NY
- Battery Maritime Building (10 South Street), Phase I ESA, New York, NY
- Brooklyn Bridge Park, Pier 1, Waste Characterization and Remediation, Brooklyn, NY
- Winchester Arms Munitions Factory, New Haven, CT
- Former Georgetown Heating Plant, HazMat and Phase I ESA, Washington D.C.
- Marks Jewish Community House of Bensonhurst, Phase I and HazMat Renovation, Brooklyn, NY

RESIDENTIAL and MIXED-USE

- The Dupont, Brooklyn, NY
- Greenpoint Landing, Remediation/Redevelopment, Brooklyn, NY
- The Alloy Block, 80-110 Flatbush Avenue, Brooklyn, NY
- Pratt Landing, NYS DEC Brownfield Cleanup Program, New Rochelle, NY
- 250 Water Street, Phase I and Phase II Property Transaction, New York, NY
- Residences at 100 Barrow Street, Phase I ESA, New York, NY
- Residences at 22-12 Jackson Avenue, Due Diligence for Building Sale, Long Island City, NY
- Residential Development at 351-357 Broadway, Phase 1 ESA,



EDUCATION

B.A., Biology and Spanish Literature
Colby College

AFFILIATIONS

New York Women Executives in Real Estate (WX) - Board Member; Vice President and Gala Chair

New York Building Congress, Council of Industry Women - Committee Member

New York City Brownfield Partnership - Founding Member and President

NYC Office of Environmental Remediation Technical Task Force - Committee Member

New York League of Conservation Voters (NYLCV), Education Fund – State Board Member

Real Estate Board of New York Management Division Environment Committee – Member

New York, NY
- Residences at 2253-2255 Broadway, Phase I and Phase II Services, New York, NY
- Post-Hurricane Sandy Mold Remediation, Various Private Homes, Far Rockaway, NY
- Brooklyn Bridge Park, One John Street Development, Pre-Construction Due Diligence and Construction Administration, Brooklyn, NY
- Retirement Communities on100-acre Parcels in ME, NJ, MA, CT, and NJ
- 27-19 44th Drive, Residential Redevelopment, Long Island City, NY
- 450 Union Street, Phase I and Phase II Remediation (NYS DEC Brownfield Cleanup Program), New York, NY
- 420 Kent Avenue, NYS DEC Brownfield Cleanup Program, Brooklyn, NY
- 416 Kent Avenue, NYS DEC Brownfield Cleanup Program, Brooklyn, NY
- 42-02 Crescent Street Redevelopment, Phase I and II Environmental, Long Island City, NY
- 160 East 22nd Street, New York, NY
- 363-365 Bond Street/400 Carroll Street, Brooklyn, NY
- 218 Front Street/98 Gold Street, Planning and Brownfield Consulting, Brooklyn, NY
- 55 West 17th Street, Brownfield Site Support, New York, NY
- 846 Sixth Avenue, New York, NY
- 39 West 23rd Street, E-Designation Brownfield, New York, NY
- Post-Hurricane Sandy Mold Remediation, Various Private Homes, Nassau and Suffolk Counties, Long Island, NY
- Prince Point Residential Development, Phase I ESA, Staten Island, NY
- 546 West 44th Street, Brownfields Remediation, New York, NY
- ABC Blocks 25-27 (Mixed-Use Properties), Brownfield Cleanup Program, Long Island City, NY
- 7 West 21st Street, Brownfields Remediation, New York, NY
- 132 East 23rd Street, New York, NY
- 515 West 42nd Street, E-Designation, New York, NY

OFFICE/COMMERCIAL

- IAC Building (555 West 18th Street), New York, NY
- 25 Kent Avenue, Due Diligence for Purchase of a Brownfields Location, Brooklyn, NY
- 264 Fifth Avenue, Phase I ESA, New York, NY
- 262 Fifth Avenue, Phase I ESA, New York, NY
- 787 Eleventh Avenue (Office Building Renovation), Phase I UST Closure, New York, NY
- 110 Third Avenue, New York, NY
- 310 Meserole Street, Due Diligence Property Purchase, Brooklyn, NY
- 711 Eleventh Avenue, Due Diligence/Owner's Representative, New York, NY

K-12 AND UNIVERSITY

- Lycee Francais (East 76th Street & York Avenue), New York, NY
- Pratt Institute, 550 Myrtle Avenue Renovations, Environmental Remediation, Brooklyn, NY

SELECTED PUBLICATIONS, REPORTS, AND PRESENTATIONS

Raygorodetsky, M., “The Perils and Pleasures of Urban Waterfront Development”, Environmental Law In New York, February 3, 2020.

JOSEPH CONBOY

SENIOR STAFF CHEMIST

ENVIRONMNETAL

Mr. Conboy has nine years of environmental chemistry, quality assurance, and environmental database management experience, with a current emphasis on validation of laboratory data for submittal to NJDEP via the New Jersey Data of Known Quality Protocols and to NYSDEC. Previous work experience includes performing validation of data for projects in USEPA Regions 2 and 3 while employing appropriate validation guidelines for each region, managing large data sets, updating appropriate regulatory limits, performing statistical evaluations, and preparing electronic data deliverables and report deliverables using the Earthsoft EQuIS database program, and acted as an intermediary between project managers, field staff, and laboratories. Mr. Conboy also has experience in field sampling techniques and maintains current OSHA HAZWOPER certification.



EDUCATION

B.Sc., Chemistry with a minor in Mathematics
Rowan University

CERTIFICATIONS & TRAINING

OSHA 40-Hour HAZWOPER 29 CFR 1910.120(e)(4) Certification

NJ Analytical Guidance and Data Usability Training

USEPA Data Validation Training

Earthsoft EQuIS Environmental Database Training

SELECTED PROJECTS

- 1400 Ferris, Bronx, NY – Completed validation of soil and groundwater data and prepared the Data Usability Summary Report for submittal to NYSDEC. USEPA Region II guidelines, with aide from National Functional Guidelines, were employed to perform validation of VOCs and SVOCs including 1,4-dioxane, and tangentially used based on professional judgment to perform validation of PFAS data.
- Broome Street Parking Lot, NY - Completed validation of waste characterization data and prepared the Data Usability Summary Report for submittal to NYSDEC. USEPA Region II guidelines, with aide from National Functional Guidelines, were employed to perform validation of VOCs, SVOCs, herbicides, PCBs, pesticides, metals including mercury, ignitability temperature, pH, reactive cyanide, reactive sulfide, cyanide, and hexavalent chromium. Toxicity characteristic leachate procedure extraction data for VOCs, SVOCs, herbicides, pesticides, metals, and mercury were also validated.
- 215 North 10th Street, Brooklyn, NY - Completed validation of soil and groundwater data and prepared the Data Usability Summary Report for submittal to NYSDEC. USEPA Region II guidelines, with aide from National Functional Guidelines, were employed to perform validation of VOC, SVOC, SVOC SIM, herbicide, PCB, pesticide, metals, mercury, cyanide, hexavalent chromium, trivalent chromium data.
- 35 Commercial Street, Brooklyn, NY - Completed validation of soil data and prepared the Data Usability Summary Report for submittal to NYSDEC. USEPA Region II guidelines, with aide from National Functional Guidelines, were employed to perform validation of VOC, SVOC, SVOC SIM, herbicide, PCB, pesticide, metals, mercury, cyanide, hexavalent chromium, trivalent chromium data, and tangentially used based on professional judgment to perform validation of PFAS data.
- Suffolk Street, Lower East Side, NY- Completed validation of soil, groundwater, and soil vapor data and prepared the Data Usability Summary Report for submittal to NYSDEC. USEPA Region II

guidelines, with aide from National Functional Guidelines, were employed to perform validation of VOC, VOCs by USEPA TO-15, SVOC, SVOC SIM, herbicide, PCB, pesticide, metals, mercury, cyanide, hexavalent chromium, trivalent chromium data, and tangentially used based on professional judgment to perform validation of PFAS data.

- Managed a database for a confidential client containing 10+ years of environmental chemical data from multiple laboratories, requiring select data validation in accordance with New Jersey Data of Known Quality Protocols and identifying areas of delineation from historic field information. Once identified, NJDEP designated groundwater, surface water, soil, sediment, soil vapor, and custom screening criteria were researched and applied to each area, requiring individualized flagging for reporting.*
- Prepared the New Jersey Data of Known Quality Protocol Data Usability Evaluation and managed the database for a confidential client for a data set greater than 20 years old. A DUE or any validation effort was not prepared in the 20 years prior to current. This included data from variations of methods for volatile organic compounds, semivolatile organic compounds, total and dissolved metals, pesticides, herbicides, natural attenuation parameters, and per- and polyfluoroalkyl substances in multiple media.*
- Performed 200+ Stage 2a validations for a combined 87-acre USEPA designated Corrective Action site under the Resource Conservation and Recovery Act, including a quick-turn USEPA required PCB by soxhlet extraction investigation across multiple plants. Once a former train car painting facility, USEPA required a quick-turn PCB by soxhlet extraction soil investigation.
- Preparation of a quality assurance program for a confidential client in West Virginia. A quick turn QAPP was prepared in a service location new to the consultant, resulting in research into state requirements for data usability and auditing newly employed laboratories. The QAPP was understood to be prepared for groundwater only, but the client did not reveal the need for sediment and soil. Two QAPPs were submitted for review to governing agencies.*
- Used statistical software to determine a localized background upper confidence limit of chromium for a confidential client's sand and gravel site. Validation was used to confirm laboratory procedures, and data was used in ProUCL calculations to compare to researched background chromium levels for Pennsylvania soils. *
- Prepared daily perimeter dust and air monitoring summaries and validation of low level mirex data for a confidential client's superfund site. Low level mirex data was generated by university laboratories and subject to validation following national functional guidelines to aide in river clean-up, including sediment, surface water, and treatment system water matrices.*

**Project completed prior to employment at LANGAN.*

ATTACHMENT C

LABORATORY REPORTING LIMITS AND METHOD DETECTION LIMITS

Date Created: 02/18/25
Created By: Ben Rao
File: PM18698-1
Page: 1

Langan Engineering & Environmental

TCL Volatiles - EPA 8260D/5035 High&Low (SOIL)

Holding Time: 14 days
Container/Sample Preservation: 1 - 1 Vial MeOH/2 Vial Water

Analyte	CAS #	RL	MDL	Units	LCS Criteria	LCS RPD	MS Criteria	MS RPD	Duplicate RPD	Surrogate Criteria		
Methylene chloride	75-09-2	5	2.29	ug/kg	70-130	30	70-130	30	30			
1,1-Dichloroethane	75-34-3	1	0.145	ug/kg	70-130	30	70-130	30	30			
Chloroform	67-66-3	1.5	0.14	ug/kg	70-130	30	70-130	30	30			
Carbon tetrachloride	56-23-5	1	0.23	ug/kg	70-130	30	70-130	30	30			
1,2-Dichloropropane	78-87-5	1	0.125	ug/kg	70-130	30	70-130	30	30			
Dibromochloromethane	124-48-1	1	0.14	ug/kg	70-130	30	70-130	30	30			
1,1,2-Trichloroethane	79-00-5	1	0.267	ug/kg	70-130	30	70-130	30	30			
Tetrachloroethene	127-18-4	0.5	0.196	ug/kg	70-130	30	70-130	30	30			
Chlorobenzene	108-90-7	0.5	0.127	ug/kg	70-130	30	70-130	30	30			
Trichlorofluoromethane	75-69-4	4	0.695	ug/kg	70-139	30	70-139	30	30			
1,2-Dichloroethane	107-06-2	1	0.257	ug/kg	70-130	30	70-130	30	30			
1,1,1-Trichloroethane	71-55-6	0.5	0.167	ug/kg	70-130	30	70-130	30	30			
Bromodichloromethane	75-27-4	0.5	0.109	ug/kg	70-130	30	70-130	30	30			
trans-1,3-Dichloropropene	10061-02-6	1	0.273	ug/kg	70-130	30	70-130	30	30			
cis-1,3-Dichloropropene	10061-01-5	0.5	0.158	ug/kg	70-130	30	70-130	30	30			
1,3-Dichloropropene, Total	542-75-6	0.5	0.158	ug/kg				30	30			
1,1-Dichloropropene	563-58-6	0.5	0.159	ug/kg	70-130	30	70-130	30	30			
Bromoform	75-25-2	4	0.246	ug/kg	70-130	30	70-130	30	30			
1,1,2,2-Tetrachloroethane	79-34-5	0.5	0.166	ug/kg	70-130	30	70-130	30	30			
Benzene	71-43-2	0.5	0.166	ug/kg	70-130	30	70-130	30	30			
Toluene	108-88-3	1	0.543	ug/kg	70-130	30	70-130	30	30			
Ethylbenzene	100-41-4	1	0.141	ug/kg	70-130	30	70-130	30	30			
Chloromethane	74-87-3	4	0.932	ug/kg	52-130	30	52-130	30	30			
Bromomethane	74-83-9	2	0.581	ug/kg	57-147	30	57-147	30	30			
Vinyl chloride	75-01-4	1	0.335	ug/kg	67-130	30	67-130	30	30			
Chloroethane	75-00-3	2	0.452	ug/kg	50-151	30	50-151	30	30			
1,1-Dichloroethene	75-35-4	1	0.238	ug/kg	65-135	30	65-135	30	30			
trans-1,2-Dichloroethene	156-60-5	1.5	0.137	ug/kg	70-130	30	70-130	30	30			
Trichloroethene	79-01-6	0.5	0.137	ug/kg	70-130	30	70-130	30	30			
1,2-Dichlorobenzene	95-50-1	2	0.144	ug/kg	70-130	30	70-130	30	30			
1,3-Dichlorobenzene	541-73-1	2	0.148	ug/kg	70-130	30	70-130	30	30			
1,4-Dichlorobenzene	106-46-7	2	0.171	ug/kg	70-130	30	70-130	30	30			
Methyl tert butyl ether	1634-04-4	2	0.201	ug/kg	66-130	30	66-130	30	30			
p/m-Xylene	179601-23-1	2	0.56	ug/kg	70-130	30	70-130	30	30			
o-Xylene	95-47-6	1	0.291	ug/kg	70-130	30	70-130	30	30			
Xylene (Total)	1330-20-7	1	0.291	ug/kg				30	30			
cis-1,2-Dichloroethene	156-59-2	1	0.175	ug/kg	70-130	30	70-130	30	30			
1,2-Dichloroethene (total)	540-59-0	1	0.137	ug/kg				30	30			
Dibromomethane	74-95-3	2	0.238	ug/kg	70-130	30	70-130	30	30			
Styrene	100-42-5	1	0.196	ug/kg	70-130	30	70-130	30	30			
Dichlorodifluoromethane	75-71-8	10	0.915	ug/kg	30-146	30	30-146	30	30			
Acetone	67-64-1	10	4.811	ug/kg	54-140	30	54-140	30	30			

Please Note that the RL information provided in this table is calculated using a 100% Solids factor. (Soil/Solids only)
Please Note that the information provided in this table is subject to change at anytime at the discretion of Pace Analytical Services.

Langan Engineering & Environmental

TCL Volatiles - EPA 8260D/5035 High&Low (SOIL)

Holding Time: 14 days
Container/Sample Preservation: 1 - 1 Vial MeOH/2 Vial Water

Analyte	CAS #	RL	MDL	Units	LCS Criteria	LCS RPD	MS Criteria	MS RPD	Duplicate RPD	Surrogate Criteria		
Carbon disulfide	75-15-0	10	4.55	ug/kg	59-130	30	59-130	30	30			
2-Butanone	78-93-3	10	2.22	ug/kg	70-130	30	70-130	30	30			
Vinyl acetate	108-05-4	10	2.15	ug/kg	70-130	30	70-130	30	30			
4-Methyl-2-pentanone	108-10-1	10	1.28	ug/kg	70-130	30	70-130	30	30			
1,2,3-Trichloropropane	96-18-4	2	0.127	ug/kg	68-130	30	68-130	30	30			
2-Hexanone	591-78-6	10	1.18	ug/kg	70-130	30	70-130	30	30			
Bromochloromethane	74-97-5	2	0.205	ug/kg	70-130	30	70-130	30	30			
2,2-Dichloropropane	594-20-7	2	0.202	ug/kg	70-130	30	70-130	30	30			
1,2-Dibromoethane	106-93-4	1	0.279	ug/kg	70-130	30	70-130	30	30			
1,3-Dichloropropane	142-28-9	2	0.167	ug/kg	69-130	30	69-130	30	30			
1,1,1,2-Tetrachloroethane	630-20-6	0.5	0.132	ug/kg	70-130	30	70-130	30	30			
Bromobenzene	108-86-1	2	0.145	ug/kg	70-130	30	70-130	30	30			
n-Butylbenzene	104-51-8	1	0.167	ug/kg	70-130	30	70-130	30	30			
sec-Butylbenzene	135-98-8	1	0.146	ug/kg	70-130	30	70-130	30	30			
tert-Butylbenzene	98-06-6	2	0.118	ug/kg	70-130	30	70-130	30	30			
o-Chlorotoluene	95-49-8	2	0.191	ug/kg	70-130	30	70-130	30	30			
p-Chlorotoluene	106-43-4	2	0.108	ug/kg	70-130	30	70-130	30	30			
1,2-Dibromo-3-chloropropane	96-12-8	3	0.998	ug/kg	68-130	30	68-130	30	30			
Hexachlorobutadiene	87-68-3	4	0.169	ug/kg	67-130	30	67-130	30	30			
Isopropylbenzene	98-82-8	1	0.109	ug/kg	70-130	30	70-130	30	30			
p-Isopropyltoluene	99-87-6	1	0.109	ug/kg	70-130	30	70-130	30	30			
Acrylonitrile	107-13-1	4	1.15	ug/kg	70-130	30	70-130	30	30			
n-Propylbenzene	103-65-1	1	0.171	ug/kg	70-130	30	70-130	30	30			
1,2,3-Trichlorobenzene	87-61-6	2	0.322	ug/kg	70-130	30	70-130	30	30			
1,2,4-Trichlorobenzene	120-82-1	2	0.272	ug/kg	70-130	30	70-130	30	30			
1,3,5-Trimethylbenzene	108-67-8	2	0.193	ug/kg	70-130	30	70-130	30	30			
1,2,4-Trimethylbenzene	95-63-6	2	0.334	ug/kg	70-130	30	70-130	30	30			
1,4-Dioxane	123-91-1	80	35.1	ug/kg	65-136	30	65-136	30	30			
1,4-Diethylbenzene	105-05-5	2	0.177	ug/kg	70-130	30	70-130	30	30			
4-Ethyltoluene	622-96-8	2	0.384	ug/kg	70-130	30	70-130	30	30			
1,2,4,5-Tetramethylbenzene	95-93-2	2	0.191	ug/kg	70-130	30	70-130	30	30			
Ethyl ether	60-29-7	2	0.341	ug/kg	67-130	30	67-130	30	30			
trans-1,4-Dichloro-2-butene	110-57-6	5	1.42	ug/kg	70-130	30	70-130	30	30			
1,2-Dichloroethane-d4	*17060-07-0*									*70-130*		
2-Chloroethoxyethane												
Toluene-d8	*2037-26-5*									*70-130*		
4-Bromofluorobenzene	*460-00-4*									*70-130*		
Dibromofluoromethane	*1868-53-7*									*70-130*		

Please Note that the RL information provided in this table is calculated using a 100% Solids factor. (Soil/Solids only)
Please Note that the information provided in this table is subject to change at anytime at the discretion of Pace Analytical Services.

Date Created: 02/18/25
Created By: Ben Rao
File: PM18698-1
Page: 1

Langan Engineering & Environmental

NYTCL Semivolatiles - EPA 8270E (SOIL)

Holding Time: 14 days
Container/Sample Preservation: 1 - Glass 250ml/8oz unpreserved

Analyte	CAS #	RL	MDL	Units	LCS Criteria	LCS RPD	MS Criteria	MS RPD	Duplicate RPD	Surrogate Criteria		
Acenaphthene	83-32-9	133.6	17.3012	ug/kg	31-137	50	31-137	50	50			
1,2,4-Trichlorobenzene	120-82-1	167	19.1048	ug/kg	38-107	50	38-107	50	50			
Hexachlorobenzene	118-74-1	100.2	18.704	ug/kg	40-140	50	40-140	50	50			
Bis(2-chloroethyl)ether	111-44-4	150.3	22.6452	ug/kg	40-140	50	40-140	50	50			
2-Chloronaphthalene	91-58-7	167	16.5664	ug/kg	40-140	50	40-140	50	50			
1,2-Dichlorobenzene	95-50-1	167	29.9932	ug/kg	40-140	50	40-140	50	50			
1,3-Dichlorobenzene	541-73-1	167	28.724	ug/kg	40-140	50	40-140	50	50			
1,4-Dichlorobenzene	106-46-7	167	29.1582	ug/kg	28-104	50	28-104	50	50			
3,3'-Dichlorobenzidine	91-94-1	167	44.422	ug/kg	40-140	50	40-140	50	50			
2,4-Dinitrotoluene	121-14-2	167	33.4	ug/kg	40-132	50	40-132	50	50			
2,6-Dinitrotoluene	606-20-2	167	28.6572	ug/kg	40-140	50	40-140	50	50			
Fluoranthene	206-44-0	100.2	19.1716	ug/kg	40-140	50	40-140	50	50			
4-Chlorophenyl phenyl ether	7005-72-3	167	17.869	ug/kg	40-140	50	40-140	50	50			
4-Bromophenyl phenyl ether	101-55-3	167	25.4842	ug/kg	40-140	50	40-140	50	50			
Bis(2-chloroisopropyl)ether	108-60-1	200.4	28.5236	ug/kg	40-140	50	40-140	50	50			
Bis(2-chloroethoxy)methane	111-91-1	180.36	16.7334	ug/kg	40-117	50	40-117	50	50			
Hexachlorobutadiene	87-68-3	167	24.4488	ug/kg	40-140	50	40-140	50	50			
Hexachlorocyclopentadiene	77-47-4	477.62	151.302	ug/kg	40-140	50	40-140	50	50			
Hexachloroethane	67-72-1	133.6	27.0206	ug/kg	40-140	50	40-140	50	50			
Isophorone	78-59-1	150.3	21.6766	ug/kg	40-140	50	40-140	50	50			
Naphthalene	91-20-3	167	20.3406	ug/kg	40-140	50	40-140	50	50			
Nitrobenzene	98-95-3	150.3	24.716	ug/kg	40-140	50	40-140	50	50			
NitrosoDiPhenylAmine(NDPA)/DPA	86-30-6	133.6	19.0046	ug/kg	36-157	50	36-157	50	50			
n-Nitrosodi-n-propylamine	621-64-7	167	25.7848	ug/kg	32-121	50	32-121	50	50			
Bis(2-Ethylhexyl)phthalate	117-81-7	167	57.782	ug/kg	40-140	50	40-140	50	50			
Butyl benzyl phthalate	85-68-7	167	42.084	ug/kg	40-140	50	40-140	50	50			
Di-n-butylphthalate	84-74-2	167	31.6632	ug/kg	40-140	50	40-140	50	50			
Di-n-octylphthalate	117-84-0	167	56.78	ug/kg	40-140	50	40-140	50	50			
Diethyl phthalate	84-66-2	167	15.4642	ug/kg	40-140	50	40-140	50	50			
Dimethyl phthalate	131-11-3	167	35.07	ug/kg	40-140	50	40-140	50	50			
Benzo(a)anthracene	56-55-3	100.2	18.8042	ug/kg	40-140	50	40-140	50	50			
Benzo(a)pyrene	50-32-8	133.6	40.748	ug/kg	40-140	50	40-140	50	50			
Benzo(b)fluoranthene	205-99-2	100.2	28.1228	ug/kg	40-140	50	40-140	50	50			
Benzo(k)fluoranthene	207-08-9	100.2	26.72	ug/kg	40-140	50	40-140	50	50			
Chrysene	218-01-9	100.2	17.368	ug/kg	40-140	50	40-140	50	50			
Acenaphthylene	208-96-8	133.6	25.7848	ug/kg	40-140	50	40-140	50	50			
Anthracene	120-12-7	100.2	32.565	ug/kg	40-140	50	40-140	50	50			
Benzo(ghi)perylene	191-24-2	133.6	19.6392	ug/kg	40-140	50	40-140	50	50			
Fluorene	86-73-7	167	16.2324	ug/kg	40-140	50	40-140	50	50			
Phenanthrene	85-01-8	100.2	20.3072	ug/kg	40-140	50	40-140	50	50			
Dibenzo(a,h)anthracene	53-70-3	100.2	19.3052	ug/kg	40-140	50	40-140	50	50			
Indeno(1,2,3-cd)Pyrene	193-39-5	133.6	23.2798	ug/kg	40-140	50	40-140	50	50			

Please Note that the RL information provided in this table is calculated using a 100% Solids factor. ***(Soil/Solids only)***
Please Note that the information provided in this table is subject to change at anytime at the discretion of Pace Analytical Services.

Date Created: 02/18/25
Created By: Ben Rao
File: PM18698-1

Langan Engineering & Environmental

NYTCL Semivolatiles - EPA 8270E (SOIL)

Holding Time: 14 days
Container/Sample Preservation: 1 - Glass 250ml/8oz unpreserved

Analyte	CAS #	RL	MDL	Units	LCS Criteria	LCS RPD	MS Criteria	MS RPD	Duplicate RPD	Surrogate Criteria		
Pyrene	129-00-0	100.2	16.5998	ug/kg	35-142	50	35-142	50	50			
Biphenyl	92-52-4	380.76	21.71	ug/kg	37-127	50	37-127	50	50			
4-Chloroaniline	106-47-8	167	30.394	ug/kg	40-140	50	40-140	50	50			
2-Nitroaniline	88-74-4	167	32.1976	ug/kg	47-134	50	47-134	50	50			
3-Nitroaniline	99-09-2	167	31.4962	ug/kg	26-129	50	26-129	50	50			
4-Nitroaniline	100-01-6	167	69.138	ug/kg	41-125	50	41-125	50	50			
Dibenzofuran	132-64-9	167	15.7982	ug/kg	40-140	50	40-140	50	50			
2-Methylnaphthalene	91-57-6	200.4	20.1736	ug/kg	40-140	50	40-140	50	50			
Acetophenone	98-86-2	167	20.6746	ug/kg	14-144	50	14-144	50	50			
2,4,6-Trichlorophenol	88-06-2	100.2	31.6632	ug/kg	30-130	50	30-130	50	50			
P-Chloro-M-Cresol	59-50-7	167	24.883	ug/kg	26-103	50	26-103	50	50			
2-Chlorophenol	95-57-8	167	19.7394	ug/kg	25-102	50	25-102	50	50			
2,4-Dichlorophenol	120-83-2	150.3	26.8536	ug/kg	30-130	50	30-130	50	50			
2,4-Dimethylphenol	105-67-9	167	55.11	ug/kg	30-130	50	30-130	50	50			
2-Nitrophenol	88-75-5	360.72	62.792	ug/kg	30-130	50	30-130	50	50			
4-Nitrophenol	100-02-7	233.8	68.136	ug/kg	11-114	50	11-114	50	50			
2,4-Dinitrophenol	51-28-5	801.6	77.822	ug/kg	4-130	50	4-130	50	50			
4,6-Dinitro-o-cresol	534-52-1	434.2	80.16	ug/kg	10-130	50	10-130	50	50			
Pentachlorophenol	87-86-5	133.6	36.74	ug/kg	17-109	50	17-109	50	50			
Phenol	108-95-2	167	25.217	ug/kg	26-90	50	26-90	50	50			
2-Methylphenol	95-48-7	167	25.885	ug/kg	30-130.	50	30-130.	50	50			
3-Methylphenol/4-Methylphenol	106-44-5	240.48	26.1522	ug/kg	30-130	50	30-130	50	50			
2,4,5-Trichlorophenol	95-95-4	167	31.9972	ug/kg	30-130	50	30-130	50	50			
Benzoic Acid	65-85-0	541.08	169.004	ug/kg	10-110	50	10-110	50	50			
Benzyl Alcohol	100-51-6	167	51.102	ug/kg	40-140	50	40-140	50	50			
Carbazole	86-74-8	167	16.2324	ug/kg	54-128	50	54-128	50	50			
1,4-Dioxane	123-91-1	25.05	7.682	ug/kg	40-140	50	40-140	50	50			
2-Fluorophenol	*367-12-4*									*25-120*		
Phenol-d6	*13127-88-3*									*10-120*		
Nitrobenzene-d5	*4165-60-0*									*23-120*		
2-Fluorobiphenyl	*321-60-8*									*30-120*		
2,4,6-Tribromophenol	*118-79-6*									*10-136*		
4-Terphenyl-d14	*1718-51-0*									*18-120*		

Please Note that the RL information provided in this table is calculated using a 100% Solids factor. (Soil/Solids only)
Please Note that the information provided in this table is subject to change at anytime at the discretion of Pace Analytical Services.

Date Created: 02/18/25
Created By: Ben Rao
File: PM18698-1
Page: 1

Langan Engineering & Environmental

TCL Pesticides - EPA 8081B (SOIL)

Holding Time: 14 days
Container/Sample Preservation: 1 - Glass 250ml/8oz unpreserved

Analyte	CAS #	RL	MDL	Units	LCS Criteria	LCS RPD	MS Criteria	MS RPD	Duplicate RPD	Surrogate Criteria		
Delta-BHC	319-86-8	1.6008	0.31349	ug/kg	30-150	30	30-150	50	50			
Lindane	58-89-9	0.667	0.298149	ug/kg	30-150	30	30-150	50	50			
Alpha-BHC	319-84-6	0.667	0.189428	ug/kg	30-150	30	30-150	50	50			
Beta-BHC	319-85-7	1.6008	0.60697	ug/kg	30-150	30	30-150	50	50			
Heptachlor	76-44-8	0.8004	0.358846	ug/kg	30-150	30	30-150	50	50			
Aldrin	309-00-2	1.6008	0.563615	ug/kg	30-150	30	30-150	50	50			
Heptachlor epoxide	1024-57-3	3.0015	0.90045	ug/kg	30-150	30	30-150	50	50			
Endrin	72-20-8	0.667	0.27347	ug/kg	30-150	30	30-150	50	50			
Endrin aldehyde	7421-93-4	2.001	0.70035	ug/kg	30-150	30	30-150	50	50			
Endrin ketone	53494-70-5	1.6008	0.412206	ug/kg	30-150	30	30-150	50	50			
Dieldrin	60-57-1	1.0005	0.50025	ug/kg	30-150	30	30-150	50	50			
4,4'-DDE	72-55-9	1.6008	0.370185	ug/kg	30-150	30	30-150	50	50			
4,4'-DDD	72-54-8	1.6008	0.570952	ug/kg	30-150	30	30-150	50	50			
4,4'-DDT	50-29-3	1.6008	1.28731	ug/kg	30-150	30	30-150	50	50			
Endosulfan I	959-98-8	1.6008	0.378189	ug/kg	30-150	30	30-150	50	50			
Endosulfan II	33213-65-9	1.6008	0.534934	ug/kg	30-150	30	30-150	50	50			
Endosulfan sulfate	1031-07-8	0.667	0.317492	ug/kg	30-150	30	30-150	50	50			
Methoxychlor	72-43-5	3.0015	0.9338	ug/kg	30-150	30	30-150	50	50			
Toxaphene	8001-35-2	30.015	8.4042	ug/kg	30-150	30	30-150	50	50			
cis-Chlordane	5103-71-9	2.001	0.557612	ug/kg	30-150	30	30-150	50	50			
trans-Chlordane	5103-74-2	2.001	0.528264	ug/kg	30-150	30	30-150	50	50			
Chlordane	57-74-9	13.34	5.30265	ug/kg	30-150	30	30-150	50	50			
2,4,5,6-Tetrachloro-m-xylene	*877-09-8*									*30-150*		
Decachlorobiphenyl	*2051-24-3*									*30-150*		

Please Note that the RL information provided in this table is calculated using a 100% Solids factor. ***(Soil/Solids only)***
Please Note that the information provided in this table is subject to change at anytime at the discretion of Pace Analytical Services.

Date Created: 02/18/25
Created By: Ben Rao
File: PM18698-1
Page: 1

Langan Engineering & Environmental

Herbicides -EPA 8151A (SOIL)

Holding Time: 14 days
Container/Sample Preservation: 1 - Glass 250ml/8oz unpreserved

Analyte	CAS #	RL	MDL	Units	LCS Criteria	LCS RPD	MS Criteria	MS RPD	Duplicate RPD	Surrogate Criteria		
2,4-D	94-75-7	0.1665	0.0104895	mg/kg	30-150	30	30-150	30	30			
2,4,5-T	93-76-5	0.1665	0.0051615	mg/kg	30-150	30	30-150	30	30			
2,4,5-TP (Silvex)	93-72-1	0.1665	0.0044289	mg/kg	30-150	30	30-150	30	30			
DCAA	*19719-28-9*									*30-150*		

Please Note that the RL information provided in this table is calculated using a 100% Solids factor. ***(Soil/Solids only)***
Please Note that the information provided in this table is subject to change at anytime at the discretion of Pace Analytical Services.

Date Created: 02/18/25
Created By: Ben Rao
File: PM18698-1

Langan Engineering & Environmental

TCL PCBs - EPA 8082A (SOIL)

Holding Time: 365 days
Container/Sample Preservation: 1 - Glass 250ml/8oz unpreserved

Analyte	CAS #	RL	MDL	Units	LCS Criteria	LCS RPD	MS Criteria	MS RPD	Duplicate RPD	Surrogate Criteria		
Aroclor 1016	12674-11-2	50	4.44	ug/kg	40-140	50	40-140	50	50			
Aroclor 1221	11104-28-2	50	5.01	ug/kg	40-140	50	40-140	50	50			
Aroclor 1232	11141-16-5	50	10.6	ug/kg	40-140	50	40-140	50	50			
Aroclor 1242	53469-21-9	50	6.74	ug/kg	40-140	50	40-140	50	50			
Aroclor 1248	12672-29-6	50	7.5	ug/kg	40-140	50	40-140	50	50			
Aroclor 1254	11097-69-1	50	5.47	ug/kg	40-140	50	40-140	50	50			
Aroclor 1260	11096-82-5	50	9.24	ug/kg	40-140	50	40-140	50	50			
Aroclor 1262	37324-23-5	50	6.35	ug/kg	40-140	50	40-140	50	50			
Aroclor 1268	11100-14-4	50	5.18	ug/kg	40-140	50	40-140	50	50			
PCBs, Total	1336-36-3	50	4.44	ug/kg				50	50			
2,4,5,6-Tetrachloro-m-xylene	*877-09-8*									*30-150*		
Decachlorobiphenyl	*2051-24-3*									*30-150*		

Please Note that the RL information provided in this table is calculated using a 100% Solids factor. ***(Soil/Solids only)***
Please Note that the information provided in this table is subject to change at anytime at the discretion of Pace Analytical Services.

Date Created: 02/18/25
Created By: Ben Rao
File: PM18698-1

Langan Engineering & Environmental

METALS by 6010D (SOIL)

Analyte	CAS #	RL	MDL	Units	LCS Criteria	LCS RPD	MS Criteria	MS RPD	Duplicate RPD	Surrogate Criteria	Holding Time	Container
Aluminum, Total	7429-90-5	4	1.3	mg/kg	80-120		75-125	20	20		180 days	Metals Only-Glass 60mL/2oz unpreserv
Antimony, Total	7440-36-0	2	1.54	mg/kg	80-120		75-125	20	20		180 days	Metals Only-Glass 60mL/2oz unpreserv
Arsenic, Total	7440-38-2	0.4	0.1728	mg/kg	80-120		75-125	20	20		180 days	Metals Only-Glass 60mL/2oz unpreserv
Barium, Total	7440-39-3	0.4	0.0424	mg/kg	80-120		75-125	20	20		180 days	Metals Only-Glass 60mL/2oz unpreserv
Beryllium, Total	7440-41-7	0.2	0.022	mg/kg	80-120		75-125	20	20		180 days	Metals Only-Glass 60mL/2oz unpreserv
Cadmium, Total	7440-43-9	0.4	0.022	mg/kg	80-120		75-125	20	20		180 days	Metals Only-Glass 60mL/2oz unpreserv
Calcium, Total	7440-70-2	4	2.268	mg/kg	80-120		75-125	20	20		180 days	Metals Only-Glass 60mL/2oz unpreserv
Chromium, Total	7440-47-3	0.4	0.3392	mg/kg	80-120		75-125	20	20		180 days	Metals Only-Glass 60mL/2oz unpreserv
Cobalt, Total	7440-48-4	0.8	0.0992	mg/kg	80-120		75-125	20	20		180 days	Metals Only-Glass 60mL/2oz unpreserv
Copper, Total	7440-50-8	0.4	0.0908	mg/kg	80-120		75-125	20	20		180 days	Metals Only-Glass 60mL/2oz unpreserv
Iron, Total	7439-89-6	2	0.42	mg/kg	80-120		75-125	20	20		180 days	Metals Only-Glass 60mL/2oz unpreserv
Lead, Total	7439-92-1	2	0.0952	mg/kg	80-120		75-125	20	20		180 days	Metals Only-Glass 60mL/2oz unpreserv
Magnesium, Total	7439-95-4	4	0.652	mg/kg	80-120		75-125	20	20		180 days	Metals Only-Glass 60mL/2oz unpreserv
Manganese, Total	7439-96-5	0.4	0.2144	mg/kg	80-120		75-125	20	20		180 days	Metals Only-Glass 60mL/2oz unpreserv
Nickel, Total	7440-02-0	1	0.3232	mg/kg	80-120		75-125	20	20		180 days	Metals Only-Glass 60mL/2oz unpreserv
Potassium, Total	7440-09-7	100	20.28	mg/kg	80-120		75-125	20	20		180 days	Metals Only-Glass 60mL/2oz unpreserv
Selenium, Total	7782-49-2	0.8	0.1316	mg/kg	80-120		75-125	20	20		180 days	Metals Only-Glass 60mL/2oz unpreserv
Silver, Total	7440-22-4	0.2	0.1192	mg/kg	80-120		75-125	20	20		180 days	Metals Only-Glass 60mL/2oz unpreserv
Sodium, Total	7440-23-5	80	42.4	mg/kg	80-120		75-125	20	20		180 days	Metals Only-Glass 60mL/2oz unpreserv
Thallium, Total	7440-28-0	0.8	0.3608	mg/kg	80-120		75-125	20	20		180 days	Metals Only-Glass 60mL/2oz unpreserv
Vanadium, Total	7440-62-2	0.4	0.0604	mg/kg	80-120		75-125	20	20		180 days	Metals Only-Glass 60mL/2oz unpreserv
Zinc, Total	7440-66-6	2	0.2424	mg/kg	80-120		75-125	20	20		180 days	Metals Only-Glass 60mL/2oz unpreserv

Please Note that the RL information provided in this table is calculated using a 100% Solids factor. ***(Soil/Solids only)***
Please Note that the information provided in this table is subject to change at anytime at the discretion of Pace Analytical Services.

ed
ed
ed
ed
ed
ed
ed
ed
ed
ed
ed
ed
ed
ed
ed
ed
ed
ed
ed

Date Created: 02/18/25
Created By: Ben Rao
File: PM18698-1
Page: 1

Langan Engineering & Environmental

METALS by 7471B (SOIL)

Analyte	CAS #	RL	MDL	Units	LCS Criteria	LCS RPD	MS Criteria	MS RPD	Duplicate RPD	Surrogate Criteria	Holding Time	Container
Mercury, Total	7439-97-6	0.08	0.05216	mg/kg	80-120		80-120	20	20		28 days	Metals Only-Glass 60mL/2oz unpreserv

Please Note that the RL information provided in this table is calculated using a 100% Solids factor. (Soil/Solids only)
Please Note that the information provided in this table is subject to change at anytime at the discretion of Pace Analytical Services.

ed

Date Created: 02/18/25
Created By: Ben Rao
File: PM18698-1

Langan Engineering & Environmental

WETCHEM (SOIL)

Analyte	CAS #	RL	MDL	Units	LCS Criteria	LCS RPD	MS Criteria	MS RPD	Duplicate RPD	Method	Holding Time	Container
Chromium, Hexavalent	18540-29-9	0.8	0.16	mg/kg	80-120	20	75-125	20	20	7196A	30 days	1 - Glass 120ml/4oz unpreserved
Cyanide, Total	57-12-5	1	0.212	mg/kg	80-120	35	75-125	35	35	9010C/9012B	14 days	1 - Glass 250ml/8oz unpreserved

Please Note that the RL information provided in this table is calculated using a 100% Solids factor. (Soil/Solids only)
Please Note that the information provided in this table is subject to change at anytime at the discretion of Pace Analytical Services.

Date Created: 02/18/25
Created By: Ben Rao
File: PM18698-1

Langan Engineering & Environmental

NY PFAAs via EPA 1633 (SOIL)

Holding Time: 90 days
Container/Sample Preservation: 1 - Plastic 8oz unpreserved

Analyte	CAS #	RL	MDL	Units	LCS Criteria	LCS RPD	MS Criteria	MS RPD	Duplicate RPD	Surrogate Criteria		
Perfluorobutanoic Acid (PFBA)	375-22-4	0.8	0.028	ng/g	70-140	30	70-140	30	30			
Perfluoropentanoic Acid (PFPeA)	2706-90-3	0.4	0.0384	ng/g	60-150	30	60-150	30	30			
Perfluorobutanesulfonic Acid (PFBS)	375-73-5	0.2	0.02	ng/g	65-145	30	65-145	30	30			
1H,1H,2H,2H-Perfluorohexanesulfonic Acid (4:2FTS)	757124-72-4	0.8	0.0776	ng/g	60-150	30	60-150	30	30			
Perfluorohexanoic Acid (PFHxA)	307-24-4	0.2	0.0152	ng/g	65-140	30	65-140	30	30			
Perfluoropentanesulfonic Acid (PFPeS)	2706-91-4	0.2	0.0264	ng/g	55-160	30	55-160	30	30			
Perfluoroheptanoic Acid (PFHpA)	375-85-9	0.2	0.012	ng/g	65-145	30	65-145	30	30			
Perfluorohexanesulfonic Acid (PFHxS)	355-46-4	0.2	0.02	ng/g	60-150	30	60-150	30	30			
Perfluorooctanoic Acid (PFOA)	335-67-1	0.2	0.0264	ng/g	70-150	30	70-150	30	30			
1H,1H,2H,2H-Perfluorooctanesulfonic Acid (6:2FTS)	27619-97-2	0.8	0.148	ng/g	55-200	30	55-200	30	30			
Perfluoroheptanesulfonic Acid (PFHpS)	375-92-8	0.2	0.0448	ng/g	65-155	30	65-155	30	30			
Perfluorononanoic Acid (PFNA)	375-95-1	0.2	0.0128	ng/g	70-155	30	70-155	30	30			
Perfluorooctanesulfonic Acid (PFOS)	1763-23-1	0.2	0.0312	ng/g	65-160	30	65-160	30	30			
Perfluorodecanoic Acid (PFDA)	335-76-2	0.2	0.0352	ng/g	70-155	30	70-155	30	30			
1H,1H,2H,2H-Perfluorodecanesulfonic Acid (8:2FTS)	39108-34-4	0.8	0.2592	ng/g	70-150	30	70-150	30	30			
Perfluorononanesulfonic Acid (PFNS)	68259-12-1	0.2	0.0296	ng/g	55-140	30	55-140	30	30			
N-Methyl Perfluorooctanesulfonamidoacetic Acid (NMeFOSAA	2355-31-9	0.2	0.0856	ng/g	65-155	30	65-155	30	30			
Perfluoroundecanoic Acid (PFUnA)	2058-94-8	0.2	0.0128	ng/g	70-155	30	70-155	30	30			
Perfluorodecanesulfonic Acid (PFDS)	335-77-3	0.2	0.0144	ng/g	40-155	30	40-155	30	30			
Perfluorooctanesulfonamide (FOSA)	754-91-6	0.2	0.0104	ng/g	70-140	30	70-140	30	30			
N-Ethyl Perfluorooctanesulfonamidoacetic Acid (NEtFOSAA)	2991-50-6	0.2	0.044	ng/g	65-165	30	65-165	30	30			
Perfluorododecanoic Acid (PFDoA)	307-55-1	0.2	0.0208	ng/g	70-150	30	70-150	30	30			
Perfluorotridecanoic Acid (PFTrDA)	72629-94-8	0.2	0.016	ng/g	65-150	30	65-150	30	30			
Perfluorotetradecanoic Acid (PFTA)	376-06-7	0.2	0.024	ng/g	65-150	30	65-150	30	30			
2,3,3,3-Tetrafluoro-2-[1,1,2,2,3,3,3-Heptafluoropropoxy]-Pro	13252-13-6	0.8	0.0384	ng/g	70-145	30	70-145	30	30			
4,8-Dioxa-3h-Perfluorononanoic Acid (ADONA)	919005-14-4	0.8	0.0296	ng/g	70-160	30	70-160	30	30			
Perfluorododecane Sulfonic Acid (PFDoDS)	79780-39-5	0.2	0.0216	ng/g	25-160	30	25-160	30	30			
9-Chlorohexadecafluoro-3-Oxanone-1-Sulfonic Acid (9Cl-PF3(	756426-58-1	0.8	0.0296	ng/g	70-150	30	70-150	30	30			
11-Chloroeicosafluoro-3-Oxaundecane-1-Sulfonic Acid (11Cl-F	763051-92-9	0.8	0.04	ng/g	45-160	30	45-160	30	30			
N-Methyl Perfluorooctane Sulfonamide (NMeFOSA)	31506-32-8	0.2	0.0264	ng/g	70-155	30	70-155	30	30			
N-Ethyl Perfluorooctane Sulfonamide (NEtFOSA)	4151-50-2	0.2	0.0216	ng/g	70-140	30	70-140	30	30			
N-Methyl Perfluorooctanesulfonamido Ethanol (NMeFOSE)	24448-09-7	2	0.1216	ng/g	70-140	30	70-140	30	30			
N-Ethyl Perfluorooctanesulfonamido Ethanol (NEtFOSE)	1691-99-2	2	0.0816	ng/g	70-135	30	70-135	30	30			
Perfluoro-3-Methoxypropanoic Acid (PFMPA)	377-73-1	0.4	0.0168	ng/g	30-140	30	30-140	30	30			
Perfluoro-4-Methoxybutanoic Acid (PFMBA)	863090-89-5	0.4	0.024	ng/g	60-150	30	60-150	30	30			
Perfluoro(2-Ethoxyethane)Sulfonic Acid (PFEESA)	113507-82-7	0.4	0.0464	ng/g	70-140	30	70-140	30	30			
Nonafluoro-3,6-Dioxaheptanoic Acid (NFDHA)	151772-58-6	0.4	0.0824	ng/g	60-155	30	60-155	30	30			
3-Perfluoropropyl Propanoic Acid (3:3FTCA)	356-02-5	1	0.092	ng/g	45-130	30	45-130	30	30			
2H,2H,3H,3H-Perfluorooctanoic Acid (5:3FTCA)	914637-49-3	5	0.236	ng/g	60-130	30	60-130	30	30			
3-Perfluoroheptyl Propanoic Acid (7:3FTCA)	812-70-4	5	0.3656	ng/g	60-150	30	60-150	30	30			
Perfluoro[13C4]Butanoic Acid (MPFBA)	*NONE*									*8-130*		
Perfluoro[13C5]Pentanoic Acid (M5PFPEA)	*NONE*									*35-130*		

Please Note that the RL information provided in this table is calculated using a 100% Solids factor. ***(Soil/Solids only)***
Please Note that the information provided in this table is subject to change at anytime at the discretion of Pace Analytical Services.

Langan Engineering & Environmental

NY PFAAs via EPA 1633 (SOIL)

Holding Time: 90 days
Container/Sample Preservation: 1 - Plastic 8oz unpreserved

Analyte	CAS #	RL	MDL	Units	LCS Criteria	LCS RPD	MS Criteria	MS RPD	Duplicate RPD	Surrogate Criteria		
Perfluoro[2,3,4-13C3]Butanesulfonic Acid (M3PFBS)	*NONE*									*40-135*		
1H,1H,2H,2H-Perfluoro[1,2-13C2]Hexanesulfonic Acid (M2-4:	*NONE*									*40-165*		
Perfluoro[1,2,3,4,6-13C5]Hexanoic Acid (M5PFHxA)	*NONE*									*40-130*		
Perfluoro[1,2,3,4-13C4]Heptanoic Acid (M4PFHpA)	*NONE*									*40-130*		
Perfluoro[1,2,3-13C3]Hexanesulfonic Acid (M3PFHxS)	*NONE*									*40-130*		
Perfluoro[13C8]Octanoic Acid (M8PFOA)	*NONE*									*40-130*		
1H,1H,2H,2H-Perfluoro[1,2-13C2]Octanesulfonic Acid (M2-6:	*NONE*									*40-215*		
Perfluoro[13C9]Nonanoic Acid (M9PFNA)	*NONE*									*40-130*		
Perfluoro[13C8]Octanesulfonic Acid (M8PFOS)	*NONE*									*40-130*		
Perfluoro[1,2,3,4,5,6-13C6]Decanoic Acid (M6PFDA)	*NONE*									*40-130*		
1H,1H,2H,2H-Perfluoro[1,2-13C2]Decanesulfonic Acid (M2-8:	*NONE*									*40-275*		
N-Deuteriomethylperfluoro-1-octanesulfonamidoacetic Acid (	*NONE*									*40-135*		
Perfluoro[1,2,3,4,5,6,7-13C7]Undecanoic Acid (M7-PFUDA)	*NONE*									*40-130*		
Perfluoro[13C8]Octanesulfonamide (M8FOSA)	*NONE*									*40-130*		
N-Deuterioethylperfluoro-1-octanesulfonamidoacetic Acid (d5	*NONE*									*40-150*		
Perfluoro[1,2-13C2]Dodecanoic Acid (MPFDOA)	*NONE*									*40-130*		
Perfluoro[1,2-13C2]Tetradecanoic Acid (M2PFTEDA)	*NONE*									*20-130*		
2,3,3,3-Tetrafluoro-2-[1,1,2,2,3,3,3-Heptafluoropropoxy]-13	*NONE*									*40-130*		
N-Methyl-d3-Perfluoro-1-Octanesulfonamide (d3-NMeFOSA)	*NONE*									*10-130*		
N-Ethyl-d5-Perfluoro-1-Octanesulfonamide (d5-NEtFOSA)	*NONE*									*10-130*		
2-(N-Methyl-d3-Perfluoro-1-Octanesulfonamido)ethan-d4-ol (	*1265205-95-5*									*20-130*		
2-(N-Ethyl-d5-Perfluoro-1-Octanesulfonamido)ethan-d4-ol (d	*NONE*									*15-130*		

Please Note that the RL information provided in this table is calculated using a 100% Solids factor. ***(Soil/Solids only)***
Please Note that the information provided in this table is subject to change at anytime at the discretion of Pace Analytical Services.

Date Created: 02/18/25
Created By: Ben Rao
File: PM18699-1

Langan Engineering & Environmental

TCL Volatiles - EPA 8260D (WATER)

Holding Time: 14 days
Container/Sample Preservation: 3 - Vial HCl preserved

Analyte	CAS #	RL	MDL	Units	LCS Criteria	LCS RPD	MS Criteria	MS RPD	Duplicate RPD	Surrogate Criteria		
Methylene chloride	75-09-2	2.5	0.7	ug/l	70-130	20	70-130	20	20			
1,1-Dichloroethane	75-34-3	2.5	0.7	ug/l	70-130	20	70-130	20	20			
Chloroform	67-66-3	2.5	0.7	ug/l	70-130	20	70-130	20	20			
Carbon tetrachloride	56-23-5	0.5	0.134	ug/l	63-132	20	63-132	20	20			
1,2-Dichloropropane	78-87-5	1	0.137	ug/l	70-130	20	70-130	20	20			
Dibromochloromethane	124-48-1	0.5	0.149	ug/l	63-130	20	63-130	20	20			
1,1,2-Trichloroethane	79-00-5	1.5	0.5	ug/l	70-130	20	70-130	20	20			
Tetrachloroethene	127-18-4	0.5	0.181	ug/l	70-130	20	70-130	20	20			
Chlorobenzene	108-90-7	2.5	0.7	ug/l	75-130	20	75-130	20	20			
Trichlorofluoromethane	75-69-4	2.5	0.7	ug/l	62-150	20	62-150	20	20			
1,2-Dichloroethane	107-06-2	0.5	0.132	ug/l	70-130	20	70-130	20	20			
1,1,1-Trichloroethane	71-55-6	2.5	0.7	ug/l	67-130	20	67-130	20	20			
Bromodichloromethane	75-27-4	0.5	0.192	ug/l	67-130	20	67-130	20	20			
trans-1,3-Dichloropropene	10061-02-6	0.5	0.164	ug/l	70-130	20	70-130	20	20			
cis-1,3-Dichloropropene	10061-01-5	0.5	0.144	ug/l	70-130	20	70-130	20	20			
1,3-Dichloropropene, Total	542-75-6	0.5	0.144	ug/l				20	20			
1,1-Dichloropropene	563-58-6	2.5	0.7	ug/l	70-130	20	70-130	20	20			
Bromoform	75-25-2	2	0.65	ug/l	54-136	20	54-136	20	20			
1,1,2,2-Tetrachloroethane	79-34-5	0.5	0.167	ug/l	67-130	20	67-130	20	20			
Benzene	71-43-2	0.5	0.159	ug/l	70-130	20	70-130	20	20			
Toluene	108-88-3	2.5	0.7	ug/l	70-130	20	70-130	20	20			
Ethylbenzene	100-41-4	2.5	0.7	ug/l	70-130	20	70-130	20	20			
Chloromethane	74-87-3	2.5	0.7	ug/l	64-130	20	64-130	20	20			
Bromomethane	74-83-9	2.5	0.7	ug/l	39-139	20	39-139	20	20			
Vinyl chloride	75-01-4	1	0.0714	ug/l	55-140	20	55-140	20	20			
Chloroethane	75-00-3	2.5	0.7	ug/l	55-138	20	55-138	20	20			
1,1-Dichloroethene	75-35-4	0.5	0.169	ug/l	61-145	20	61-145	20	20			
trans-1,2-Dichloroethene	156-60-5	2.5	0.7	ug/l	70-130	20	70-130	20	20			
Trichloroethene	79-01-6	0.5	0.175	ug/l	70-130	20	70-130	20	20			
1,2-Dichlorobenzene	95-50-1	2.5	0.7	ug/l	70-130	20	70-130	20	20			
1,3-Dichlorobenzene	541-73-1	2.5	0.7	ug/l	70-130	20	70-130	20	20			
1,4-Dichlorobenzene	106-46-7	2.5	0.7	ug/l	70-130	20	70-130	20	20			
Methyl tert butyl ether	1634-04-4	2.5	0.166	ug/l	63-130	20	63-130	20	20			
p/m-Xylene	179601-23-1	2.5	0.7	ug/l	70-130	20	70-130	20	20			
o-Xylene	95-47-6	2.5	0.7	ug/l	70-130	20	70-130	20	20			
Xylene (Total)	1330-20-7	2.5	0.7	ug/l				20	20			
cis-1,2-Dichloroethene	156-59-2	2.5	0.7	ug/l	70-130	20	70-130	20	20			
1,2-Dichloroethene (total)	540-59-0	2.5	0.7	ug/l				20	20			
Dibromomethane	74-95-3	5	1	ug/l	70-130	20	70-130	20	20			
1,2,3-Trichloropropane	96-18-4	2.5	0.7	ug/l	64-130	20	64-130	20	20			
Acrylonitrile	107-13-1	5	1.5	ug/l	70-130	20	70-130	20	20			
Styrene	100-42-5	2.5	0.7	ug/l	70-130	20	70-130	20	20			

Please Note that the RL information provided in this table is calculated using a 100% Solids factor. ***(Soil/Solids only)***
Please Note that the information provided in this table is subject to change at anytime at the discretion of Pace Analytical Services.

Date Created: 02/18/25
Created By: Ben Rao
File: PM18699-1

Langan Engineering & Environmental

TCL Volatiles - EPA 8260D (WATER)

Holding Time: 14 days
Container/Sample Preservation: 3 - Vial HCl preserved

Analyte	CAS #	RL	MDL	Units	LCS Criteria	LCS RPD	MS Criteria	MS RPD	Duplicate RPD	Surrogate Criteria		
Dichlorodifluoromethane	75-71-8	5	1	ug/l	36-147	20	36-147	20	20			
Acetone	67-64-1	5	1.46	ug/l	58-148	20	58-148	20	20			
Carbon disulfide	75-15-0	5	1	ug/l	51-130	20	51-130	20	20			
2-Butanone	78-93-3	5	1.94	ug/l	63-138	20	63-138	20	20			
Vinyl acetate	108-05-4	5	1	ug/l	70-130	20	70-130	20	20			
4-Methyl-2-pentanone	108-10-1	5	1	ug/l	59-130	20	59-130	20	20			
2-Hexanone	591-78-6	5	1	ug/l	57-130	20	57-130	20	20			
Bromochloromethane	74-97-5	2.5	0.7	ug/l	70-130	20	70-130	20	20			
2,2-Dichloropropane	594-20-7	2.5	0.7	ug/l	63-133	20	63-133	20	20			
1,2-Dibromoethane	106-93-4	2	0.65	ug/l	70-130	20	70-130	20	20			
1,3-Dichloropropane	142-28-9	2.5	0.7	ug/l	70-130	20	70-130	20	20			
1,1,1,2-Tetrachloroethane	630-20-6	2.5	0.7	ug/l	64-130	20	64-130	20	20			
Bromobenzene	108-86-1	2.5	0.7	ug/l	70-130	20	70-130	20	20			
n-Butylbenzene	104-51-8	2.5	0.7	ug/l	53-136	20	53-136	20	20			
sec-Butylbenzene	135-98-8	2.5	0.7	ug/l	70-130	20	70-130	20	20			
tert-Butylbenzene	98-06-6	2.5	0.7	ug/l	70-130	20	70-130	20	20			
o-Chlorotoluene	95-49-8	2.5	0.7	ug/l	70-130	20	70-130	20	20			
p-Chlorotoluene	106-43-4	2.5	0.7	ug/l	70-130	20	70-130	20	20			
1,2-Dibromo-3-chloropropane	96-12-8	2.5	0.7	ug/l	41-144	20	41-144	20	20			
Hexachlorobutadiene	87-68-3	2.5	0.7	ug/l	63-130	20	63-130	20	20			
Isopropylbenzene	98-82-8	2.5	0.7	ug/l	70-130	20	70-130	20	20			
p-Isopropyltoluene	99-87-6	2.5	0.7	ug/l	70-130	20	70-130	20	20			
n-Propylbenzene	103-65-1	2.5	0.7	ug/l	69-130	20	69-130	20	20			
1,2,3-Trichlorobenzene	87-61-6	2.5	0.7	ug/l	70-130	20	70-130	20	20			
1,2,4-Trichlorobenzene	120-82-1	2.5	0.7	ug/l	70-130	20	70-130	20	20			
1,3,5-Trimethylbenzene	108-67-8	2.5	0.7	ug/l	64-130	20	64-130	20	20			
1,2,4-Trimethylbenzene	95-63-6	2.5	0.7	ug/l	70-130	20	70-130	20	20			
1,4-Dioxane	123-91-1	250	60.8	ug/l	56-162	20	56-162	20	20			
1,4-Diethylbenzene	105-05-5	2	0.7	ug/l	70-130	20	70-130	20	20			
4-Ethyltoluene	622-96-8	2	0.7	ug/l	70-130	20	70-130	20	20			
1,2,4,5-Tetramethylbenzene	95-93-2	2	0.542	ug/l	70-130	20	70-130	20	20			
Ethyl ether	60-29-7	2.5	0.7	ug/l	59-134	20	59-134	20	20			
trans-1,4-Dichloro-2-butene	110-57-6	2.5	0.7	ug/l	70-130	20	70-130	20	20			
1,2-Dichloroethane-d4	*17060-07-0*									*70-130*		
Toluene-d8	*2037-26-5*									*70-130*		
4-Bromofluorobenzene	*460-00-4*									*70-130*		
Dibromofluoromethane	*1868-53-7*									*70-130*		

Please Note that the RL information provided in this table is calculated using a 100% Solids factor. ***(Soil/Solids only)***
Please Note that the information provided in this table is subject to change at anytime at the discretion of Pace Analytical Services.

Date Created: 02/18/25
Created By: Ben Rao
File: PM18699-1

Langan Engineering & Environmental

NYTCL Semivolatiles - EPA 8270E (RVT) (WATER)

Holding Time: 7 days
Container/Sample Preservation: 2 - Amber 100ml unpreserved

Analyte	CAS #	RL	MDL	Units	LCS Criteria	LCS RPD	MS Criteria	MS RPD	Duplicate RPD	Surrogate Criteria		
Acenaphthene	83-32-9	2	0.403	ug/l	37-111	30	37-111	30	30			
1,2,4-Trichlorobenzene	120-82-1	5	0.977	ug/l	39-98	30	39-98	30	30			
Hexachlorobenzene	118-74-1	2	0.452	ug/l	40-140	30	40-140	30	30			
Bis(2-chloroethyl)ether	111-44-4	2	0.392	ug/l	40-140	30	40-140	30	30			
2-Chloronaphthalene	91-58-7	2	0.35	ug/l	40-140	30	40-140	30	30			
1,2-Dichlorobenzene	95-50-1	2	0.329	ug/l	40-140	30	40-140	30	30			
1,3-Dichlorobenzene	541-73-1	2	0.315	ug/l	40-140	30	40-140	30	30			
1,4-Dichlorobenzene	106-46-7	2	0.391	ug/l	36-97	30	36-97	30	30			
3,3'-Dichlorobenzidine	91-94-1	5	1.85	ug/l	40-140	30	40-140	30	30			
2,4-Dinitrotoluene	121-14-2	5	0.541	ug/l	48-143	30	48-143	30	30			
2,6-Dinitrotoluene	606-20-2	5	0.845	ug/l	40-140	30	40-140	30	30			
Fluoranthene	206-44-0	2	0.411	ug/l	40-140	30	40-140	30	30			
4-Chlorophenyl phenyl ether	7005-72-3	2	0.386	ug/l	40-140	30	40-140	30	30			
4-Bromophenyl phenyl ether	101-55-3	2	0.244	ug/l	40-140	30	40-140	30	30			
Bis(2-chloroisopropyl)ether	108-60-1	2	0.403	ug/l	40-140	30	40-140	30	30			
Bis(2-chloroethoxy)methane	111-91-1	5	0.842	ug/l	40-140	30	40-140	30	30			
Hexachlorobutadiene	87-68-3	2	0.355	ug/l	40-140	30	40-140	30	30			
Hexachlorocyclopentadiene	77-47-4	20	1.23	ug/l	40-140	30	40-140	30	30			
Hexachloroethane	67-72-1	2	0.203	ug/l	40-140	30	40-140	30	30			
Isophorone	78-59-1	5	0.862	ug/l	40-140	30	40-140	30	30			
Naphthalene	91-20-3	2	0.542	ug/l	40-140	30	40-140	30	30			
Nitrobenzene	98-95-3	2	0.205	ug/l	40-140	30	40-140	30	30			
NitrosoDiPhenylAmine(NDPA)/DPA	86-30-6	2	0.924	ug/l	40-140	30	40-140	30	30			
n-Nitrosodi-n-propylamine	621-64-7	5	0.906	ug/l	29-132	30	29-132	30	30			
Bis(2-Ethylhexyl)phthalate	117-81-7	3	1.42	ug/l	40-140	30	40-140	30	30			
Butyl benzyl phthalate	85-68-7	5	2.61	ug/l	40-140	30	40-140	30	30			
Di-n-butylphthalate	84-74-2	5	0.957	ug/l	40-140	30	40-140	30	30			
Di-n-octylphthalate	117-84-0	5	2.26	ug/l	40-140	30	40-140	30	30			
Diethyl phthalate	84-66-2	5	0.765	ug/l	40-140	30	40-140	30	30			
Dimethyl phthalate	131-11-3	5	0.916	ug/l	40-140	30	40-140	30	30			
Benzo(a)anthracene	56-55-3	2	0.323	ug/l	40-140	30	40-140	30	30			
Benzo(a)pyrene	50-32-8	2	0.368	ug/l	40-140	30	40-140	30	30			
Benzo(b)fluoranthene	205-99-2	2	0.533	ug/l	40-140	30	40-140	30	30			
Benzo(k)fluoranthene	207-08-9	2	0.621	ug/l	40-140	30	40-140	30	30			
Chrysene	218-01-9	2	0.222	ug/l	40-140	30	40-140	30	30			
Acenaphthylene	208-96-8	2	0.315	ug/l	45-123	30	45-123	30	30			
Anthracene	120-12-7	2	0.467	ug/l	40-140	30	40-140	30	30			
Benzo(ghi)perylene	191-24-2	2	0.369	ug/l	40-140	30	40-140	30	30			
Fluorene	86-73-7	2	0.439	ug/l	40-140	30	40-140	30	30			
Phenanthrene	85-01-8	2	0.419	ug/l	40-140	30	40-140	30	30			
Dibenzo(a,h)anthracene	53-70-3	2	0.286	ug/l	40-140	30	40-140	30	30			
Indeno(1,2,3-cd)Pyrene	193-39-5	2	0.484	ug/l	40-140	30	40-140	30	30			

Please Note that the RL information provided in this table is calculated using a 100% Solids factor. ***(Soil/Solids only)***
Please Note that the information provided in this table is subject to change at anytime at the discretion of Pace Analytical Services.

Langan Engineering & Environmental

NYTCL Semivolatiles - EPA 8270E (RVT) (WATER)

Holding Time: 7 days
Container/Sample Preservation: 2 - Amber 100ml unpreserved

Analyte	CAS #	RL	MDL	Units	LCS Criteria	LCS RPD	MS Criteria	MS RPD	Duplicate RPD	Surrogate Criteria		
Pyrene	129-00-0	2	0.407	ug/l	26-127	30	26-127	30	30			
Biphenyl	92-52-4	2	0.196	ug/l	40-140	30	40-140	30	30			
4-Chloroaniline	106-47-8	5	0.468	ug/l	40-140	30	40-140	30	30			
2-Nitroaniline	88-74-4	5	1.03	ug/l	52-143	30	52-143	30	30			
3-Nitroaniline	99-09-2	5	1.16	ug/l	25-145	30	25-145	30	30			
4-Nitroaniline	100-01-6	5	1.45	ug/l	51-143	30	51-143	30	30			
Dibenzofuran	132-64-9	2	0.401	ug/l	40-140	30	40-140	30	30			
2-Methylnaphthalene	91-57-6	2	0.372	ug/l	40-140	30	40-140	30	30			
Acetophenone	98-86-2	5	0.917	ug/l	39-129	30	39-129	30	30			
2,4,6-Trichlorophenol	88-06-2	5	2.09	ug/l	30-130	30	30-130	30	30			
P-Chloro-M-Cresol	59-50-7	2	0.606	ug/l	23-97	30	23-97	30	30			
2-Chlorophenol	95-57-8	2	0.653	ug/l	27-123	30	27-123	30	30			
2,4-Dichlorophenol	120-83-2	5	1.7	ug/l	30-130	30	30-130	30	30			
2,4-Dimethylphenol	105-67-9	5	2.04	ug/l	30-130	30	30-130	30	30			
2-Nitrophenol	88-75-5	10	1.95	ug/l	30-130	30	30-130	30	30			
4-Nitrophenol	100-02-7	10	1.42	ug/l	10-80	30	10-80	30	30			
2,4-Dinitrophenol	51-28-5	20	5.42	ug/l	20-130	30	20-130	30	30			
4,6-Dinitro-o-cresol	534-52-1	10	2.31	ug/l	20-164	30	20-164	30	30			
Pentachlorophenol	87-86-5	10	2.51	ug/l	9-103	30	9-103	30	30			
Phenol	108-95-2	5	0.35	ug/l	12-110	30	12-110	30	30			
2-Methylphenol	95-48-7	5	2.31	ug/l	30-130	30	30-130	30	30			
3-Methylphenol/4-Methylphenol	106-44-5	5	1.39	ug/l	30-130	30	30-130	30	30			
2,4,5-Trichlorophenol	95-95-4	5	2.07	ug/l	30-130	30	30-130	30	30			
Benzoic Acid	65-85-0	50	2.62	ug/l	10-164	30	10-164	30	30			
Benzyl Alcohol	100-51-6	2	0.381	ug/l	26-116	30	26-116	30	30			
Carbazole	86-74-8	2	0.309	ug/l	55-144	30	55-144	30	30			
2-Fluorophenol	*367-12-4*									*21-120*		
Phenol-d6	*13127-88-3*									*10-120*		
Nitrobenzene-d5	*4165-60-0*									*23-120*		
2-Fluorobiphenyl	*321-60-8*									*15-120*		
2,4,6-Tribromophenol	*118-79-6*									*10-120*		
4-Terphenyl-d14	*1718-51-0*									*41-149*		

Please Note that the RL information provided in this table is calculated using a 100% Solids factor. ***(Soil/Solids only)***
Please Note that the information provided in this table is subject to change at anytime at the discretion of Pace Analytical Services.

Date Created: 02/18/25
Created By: Ben Rao
File: PM18699-1
Page: 1

Langan Engineering & Environmental

NYTCL Semivolatiles -EPA 8270E-SIM (RVT) (WATER)

Holding Time: 7 days
Container/Sample Preservation: 2 - Amber 100ml unpreserved

Analyte	CAS #	RL	MDL	Units	LCS Criteria	LCS RPD	MS Criteria	MS RPD	Duplicate RPD	Surrogate Criteria		
Acenaphthene	83-32-9	0.1	0.0235	ug/l	40-140	40	40-140	40	40			
2-Chloronaphthalene	91-58-7	0.2	0.0227	ug/l	40-140	40	40-140	40	40			
Fluoranthene	206-44-0	0.1	0.0272	ug/l	40-140	40	40-140	40	40			
Hexachlorobutadiene	87-68-3	0.5	0.02	ug/l	40-140	40	40-140	40	40			
Naphthalene	91-20-3	0.1	0.0245	ug/l	40-140	40	40-140	40	40			
Benzo(a)anthracene	56-55-3	0.1	0.0295	ug/l	40-140	40	40-140	40	40			
Benzo(a)pyrene	50-32-8	0.1	0.024	ug/l	40-140	40	40-140	40	40			
Benzo(b)fluoranthene	205-99-2	0.1	0.0272	ug/l	40-140	40	40-140	40	40			
Benzo(k)fluoranthene	207-08-9	0.1	0.0338	ug/l	40-140	40	40-140	40	40			
Chrysene	218-01-9	0.1	0.031	ug/l	40-140	40	40-140	40	40			
Acenaphthylene	208-96-8	0.1	0.0205	ug/l	40-140	40	40-140	40	40			
Anthracene	120-12-7	0.1	0.0239	ug/l	40-140	40	40-140	40	40			
Benzo(ghi)perylene	191-24-2	0.1	0.0237	ug/l	40-140	40	40-140	40	40			
Fluorene	86-73-7	0.1	0.0255	ug/l	40-140	40	40-140	40	40			
Phenanthrene	85-01-8	0.1	0.0392	ug/l	40-140	40	40-140	40	40			
Dibenzo(a,h)anthracene	53-70-3	0.1	0.0235	ug/l	40-140	40	40-140	40	40			
Indeno(1,2,3-cd)Pyrene	193-39-5	0.1	0.022	ug/l	40-140	40	40-140	40	40			
Pyrene	129-00-0	0.1	0.0425	ug/l	40-140	40	40-140	40	40			
2-Methylnaphthalene	91-57-6	0.1	0.0277	ug/l	40-140	40	40-140	40	40			
Pentachlorophenol	87-86-5	0.8	0.0565	ug/l	40-140	40	40-140	40	40			
Hexachlorobenzene	118-74-1	0.8	0.0134	ug/l	40-140	40	40-140	40	40			
Hexachloroethane	67-72-1	0.8	0.0224	ug/l	40-140	40	40-140	40	40			
2-Fluorophenol	*367-12-4*									*21-120*		
Phenol-d6	*13127-88-3*									*10-120*		
Nitrobenzene-d5	*4165-60-0*									*23-120*		
2-Fluorobiphenyl	*321-60-8*									*15-120*		
2,4,6-Tribromophenol	*118-79-6*									*10-120*		
4-Terphenyl-d14	*1718-51-0*									*41-149*		

Please Note that the RL information provided in this table is calculated using a 100% Solids factor. ***(Soil/Solids only)***
Please Note that the information provided in this table is subject to change at anytime at the discretion of Pace Analytical Services.

Date Created: 02/18/25
Created By: Ben Rao
File: PM18699-1
Page: 1

Langan Engineering & Environmental

TCL Pesticides - EPA 8081B (RVT) (WATER)

Holding Time: 7 days
Container/Sample Preservation: 2 - Amber 100ml unpreserved

Analyte	CAS #	RL	MDL	Units	LCS Criteria	LCS RPD	MS Criteria	MS RPD	Duplicate RPD	Surrogate Criteria		
Delta-BHC	319-86-8	0.014	0.0059	ug/l	30-150	20	30-150	30	30			
Lindane	58-89-9	0.014	0.0049	ug/l	30-150	20	30-150	30	30			
Alpha-BHC	319-84-6	0.014	0.0048	ug/l	30-150	20	30-150	30	30			
Beta-BHC	319-85-7	0.02	0.0141	ug/l	30-150	20	30-150	30	30			
Heptachlor	76-44-8	0.014	0.0047	ug/l	30-150	20	30-150	30	30			
Aldrin	309-00-2	0.014	0.0051	ug/l	30-150	20	30-150	30	30			
Heptachlor epoxide	1024-57-3	0.014	0.0045	ug/l	30-150	20	30-150	30	30			
Endrin	72-20-8	0.029	0.0082	ug/l	30-150	20	30-150	30	30			
Endrin aldehyde	7421-93-4	0.03	0.0178	ug/l	30-150	20	30-150	30	30			
Endrin ketone	53494-70-5	0.029	0.0138	ug/l	30-150	20	30-150	30	30			
Dieldrin	60-57-1	0.029	0.0043	ug/l	30-150	20	30-150	30	30			
4,4'-DDE	72-55-9	0.029	0.01	ug/l	30-150	20	30-150	30	30			
4,4'-DDD	72-54-8	0.029	0.0101	ug/l	30-150	20	30-150	30	30			
4,4'-DDT	50-29-3	0.029	0.0134	ug/l	30-150	20	30-150	30	30			
Endosulfan I	959-98-8	0.014	0.0047	ug/l	30-150	20	30-150	30	30			
Endosulfan II	33213-65-9	0.029	0.0084	ug/l	30-150	20	30-150	30	30			
Endosulfan sulfate	1031-07-8	0.029	0.0065	ug/l	30-150	20	30-150	30	30			
Methoxychlor	72-43-5	0.143	0.0141	ug/l	30-150	20	30-150	30	30			
Toxaphene	8001-35-2	0.2	0.0942	ug/l	30-150	20	30-150	30	30			
cis-Chlordane	5103-71-9	0.02	0.0068	ug/l	30-150	20	30-150	30	30			
trans-Chlordane	5103-74-2	0.02	0.011	ug/l	30-150	20	30-150	30	30			
Chlordane	57-74-9	0.143	0.098	ug/l	30-150	20	30-150	30	30			
2,4,5,6-Tetrachloro-m-xylene	*877-09-8*									*30-150*		
Decachlorobiphenyl	*2051-24-3*									*30-150*		

Please Note that the RL information provided in this table is calculated using a 100% Solids factor. ***(Soil/Solids only)***
Please Note that the information provided in this table is subject to change at anytime at the discretion of Pace Analytical Services.

Date Created: 02/18/25
Created By: Ben Rao
File: PM18699-1

Langan Engineering & Environmental

Herbicides -EPA 8151A (WATER)

Holding Time: 7 days
Container/Sample Preservation: 2 - Amber 1L unpreserved

Analyte	CAS #	RL	MDL	Units	LCS Criteria	LCS RPD	MS Criteria	MS RPD	Duplicate RPD	Surrogate Criteria		
2,4-D	94-75-7	10	0.498	ug/l	30-150	25	30-150	25	25			
2,4,5-T	93-76-5	2	0.531	ug/l	30-150	25	30-150	25	25			
2,4,5-TP (Silvex)	93-72-1	2	0.539	ug/l	30-150	25	30-150	25	25			
DCAA	*19719-28-9*									*30-150*		

Please Note that the RL information provided in this table is calculated using a 100% Solids factor. ***(Soil/Solids only)***
Please Note that the information provided in this table is subject to change at anytime at the discretion of Pace Analytical Services.

Date Created: 02/18/25
Created By: Ben Rao
File: PM18699-1
Page: 1

Langan Engineering & Environmental

TCL PCBs - EPA 8082A (RVT) (WATER)

Holding Time: 365 days
Container/Sample Preservation: 2 - Amber 100ml unpreserved

Analyte	CAS #	RL	MDL	Units	LCS Criteria	LCS RPD	MS Criteria	MS RPD	Duplicate RPD	Surrogate Criteria		
Aroclor 1016	12674-11-2	0.071	0.0128	ug/l	40-140	50	40-140	50	50			
Aroclor 1221	11104-28-2	0.071	0.0153	ug/l	40-140	50	40-140	50	50			
Aroclor 1232	11141-16-5	0.071	0.0153	ug/l	40-140	50	40-140	50	50			
Aroclor 1242	53469-21-9	0.071	0.0153	ug/l	40-140	50	40-140	50	50			
Aroclor 1248	12672-29-6	0.071	0.0153	ug/l	40-140	50	40-140	50	50			
Aroclor 1254	11097-69-1	0.071	0.0153	ug/l	40-140	50	40-140	50	50			
Aroclor 1260	11096-82-5	0.071	0.0153	ug/l	40-140	50	40-140	50	50			
Aroclor 1262	37324-23-5	0.071	0.0153	ug/l	40-140	50	40-140	50	50			
Aroclor 1268	11100-14-4	0.071	0.0153	ug/l	40-140	50	40-140	50	50			
PCBs, Total	1336-36-3	0.071	0.0153	ug/l				50	50			
2,4,5,6-Tetrachloro-m-xylene	*877-09-8*									*30-150*		
Decachlorobiphenyl	*2051-24-3*									*30-150*		

Please Note that the RL information provided in this table is calculated using a 100% Solids factor. ***(Soil/Solids only)***
Please Note that the information provided in this table is subject to change at anytime at the discretion of Pace Analytical Services.

Date Created: 02/18/25
Created By: Ben Rao
File: PM18699-1

Langan Engineering & Environmental

METALS by 6020B (WATER)

Analyte	CAS #	RL	MDL	Units	LCS Criteria	LCS RPD	MS Criteria	MS RPD	Duplicate RPD	Surrogate Criteria	Holding Time	Container
Aluminum, Dissolved	7429-90-5	0.01	0.00327	mg/l	80-120		75-125	20	20		180 days	1 - Plastic 500ml HNO3 preserved
Aluminum, Total	7429-90-5	0.01	0.00327	mg/l	80-120		75-125	20	20		180 days	1 - Plastic 500ml HNO3 preserved
Antimony, Total	7440-36-0	0.004	0.000429	mg/l	80-120		75-125	20	20		180 days	1 - Plastic 500ml HNO3 preserved
Antimony, Dissolved	7440-36-0	0.004	0.000429	mg/l	80-120		75-125	20	20		180 days	1 - Plastic 500ml HNO3 preserved
Arsenic, Total	7440-38-2	0.0005	0.000165	mg/l	80-120		75-125	20	20		180 days	1 - Plastic 500ml HNO3 preserved
Arsenic, Dissolved	7440-38-2	0.0005	0.000165	mg/l	80-120		75-125	20	20		180 days	1 - Plastic 500ml HNO3 preserved
Barium, Dissolved	7440-39-3	0.0005	0.000173	mg/l	80-120		75-125	20	20		180 days	1 - Plastic 500ml HNO3 preserved
Barium, Total	7440-39-3	0.0005	0.000173	mg/l	80-120		75-125	20	20		180 days	1 - Plastic 500ml HNO3 preserved
Beryllium, Total	7440-41-7	0.0005	0.000107	mg/l	80-120		75-125	20	20		180 days	1 - Plastic 500ml HNO3 preserved
Beryllium, Dissolved	7440-41-7	0.0005	0.000107	mg/l	80-120		75-125	20	20		180 days	1 - Plastic 500ml HNO3 preserved
Cadmium, Dissolved	7440-43-9	0.0002	0.0000599	mg/l	80-120		75-125	20	20		180 days	1 - Plastic 500ml HNO3 preserved
Calcium, Dissolved	7440-70-2	0.1	0.0394	mg/l	80-120		75-125	20	20		180 days	1 - Plastic 500ml HNO3 preserved
Cadmium, Total	7440-43-9	0.0002	0.0000599	mg/l	80-120		75-125	20	20		180 days	1 - Plastic 500ml HNO3 preserved
Chromium, Dissolved	7440-47-3	0.001	0.000178	mg/l	80-120		75-125	20	20		180 days	1 - Plastic 500ml HNO3 preserved
Calcium, Total	7440-70-2	0.1	0.0394	mg/l	80-120		75-125	20	20		180 days	1 - Plastic 500ml HNO3 preserved
Cobalt, Dissolved	7440-48-4	0.0005	0.000163	mg/l	80-120		75-125	20	20		180 days	1 - Plastic 500ml HNO3 preserved
Chromium, Total	7440-47-3	0.001	0.000178	mg/l	80-120		75-125	20	20		180 days	1 - Plastic 500ml HNO3 preserved
Copper, Dissolved	7440-50-8	0.001	0.000384	mg/l	80-120		75-125	20	20		180 days	1 - Plastic 500ml HNO3 preserved
Cobalt, Total	7440-48-4	0.0005	0.000163	mg/l	80-120		75-125	20	20		180 days	1 - Plastic 500ml HNO3 preserved
Copper, Total	7440-50-8	0.001	0.000384	mg/l	80-120		75-125	20	20		180 days	1 - Plastic 500ml HNO3 preserved
Iron, Dissolved	7439-89-6	0.05	0.0191	mg/l	80-120		75-125	20	20		180 days	1 - Plastic 500ml HNO3 preserved
Lead, Dissolved	7439-92-1	0.001	0.000343	mg/l	80-120		75-125	20	20		180 days	1 - Plastic 500ml HNO3 preserved
Iron, Total	7439-89-6	0.05	0.0191	mg/l	80-120		75-125	20	20		180 days	1 - Plastic 500ml HNO3 preserved
Magnesium, Dissolved	7439-95-4	0.07	0.0242	mg/l	80-120		75-125	20	20		180 days	1 - Plastic 500ml HNO3 preserved
Lead, Total	7439-92-1	0.001	0.000343	mg/l	80-120		75-125	20	20		180 days	1 - Plastic 500ml HNO3 preserved
Manganese, Dissolved	7439-96-5	0.001	0.00044	mg/l	80-120		75-125	20	20		180 days	1 - Plastic 500ml HNO3 preserved
Magnesium, Total	7439-95-4	0.07	0.0242	mg/l	80-120		75-125	20	20		180 days	1 - Plastic 500ml HNO3 preserved
Manganese, Total	7439-96-5	0.001	0.00044	mg/l	80-120		75-125	20	20		180 days	1 - Plastic 500ml HNO3 preserved
Nickel, Dissolved	7440-02-0	0.002	0.000556	mg/l	80-120		75-125	20	20		180 days	1 - Plastic 500ml HNO3 preserved
Potassium, Dissolved	7440-09-7	0.1	0.0309	mg/l	80-120		75-125	20	20		180 days	1 - Plastic 500ml HNO3 preserved
Nickel, Total	7440-02-0	0.002	0.000556	mg/l	80-120		75-125	20	20		180 days	1 - Plastic 500ml HNO3 preserved
Selenium, Dissolved	7782-49-2	0.005	0.00173	mg/l	80-120		75-125	20	20		180 days	1 - Plastic 500ml HNO3 preserved
Potassium, Total	7440-09-7	0.1	0.0309	mg/l	80-120		75-125	20	20		180 days	1 - Plastic 500ml HNO3 preserved
Selenium, Total	7782-49-2	0.005	0.00173	mg/l	80-120		75-125	20	20		180 days	1 - Plastic 500ml HNO3 preserved
Silver, Dissolved	7440-22-4	0.0004	0.000163	mg/l	80-120		75-125	20	20		180 days	1 - Plastic 500ml HNO3 preserved
Silver, Total	7440-22-4	0.0004	0.000163	mg/l	80-120		75-125	20	20		180 days	1 - Plastic 500ml HNO3 preserved
Sodium, Dissolved	7440-23-5	0.5	0.0293	mg/l	80-120		75-125	20	20		180 days	1 - Plastic 500ml HNO3 preserved
Thallium, Dissolved	7440-28-0	0.001	0.000143	mg/l	80-120		75-125	20	20		180 days	1 - Plastic 500ml HNO3 preserved
Sodium, Total	7440-23-5	0.5	0.0293	mg/l	80-120		75-125	20	20		180 days	1 - Plastic 500ml HNO3 preserved
Thallium, Total	7440-28-0	0.001	0.000143	mg/l	80-120		75-125	20	20		180 days	1 - Plastic 500ml HNO3 preserved
Vanadium, Dissolved	7440-62-2	0.005	0.00157	mg/l	80-120		75-125	20	20		180 days	1 - Plastic 500ml HNO3 preserved
Vanadium, Total	7440-62-2	0.005	0.00157	mg/l	80-120		75-125	20	20		180 days	1 - Plastic 500ml HNO3 preserved

Please Note that the RL information provided in this table is calculated using a 100% Solids factor. (Soil/Solids only)
Please Note that the information provided in this table is subject to change at anytime at the discretion of Pace Analytical Services.

Langan Engineering & Environmental

METALS by 6020B (WATER)

Analyte	CAS #	RL	MDL	Units	LCS Criteria	LCS RPD	MS Criteria	MS RPD	Duplicate RPD	Surrogate Criteria	Holding Time	Container
Zinc, Dissolved	7440-66-6	0.01	0.00341	mg/l	80-120		75-125	20	20		180 days	1 - Plastic 500ml HNO3 preserved
Zinc, Total	7440-66-6	0.01	0.00341	mg/l	80-120		75-125	20	20		180 days	1 - Plastic 500ml HNO3 preserved

Please Note that the RL information provided in this table is calculated using a 100% Solids factor. (Soil/Solids only)
Please Note that the information provided in this table is subject to change at anytime at the discretion of Pace Analytical Services.

Date Created: 02/18/25
Created By: Ben Rao
File: PM18699-1
Page: 1

Langan Engineering & Environmental

METALS by 7470A (WATER)

Analyte	CAS #	RL	MDL	Units	LCS Criteria	LCS RPD	MS Criteria	MS RPD	Duplicate RPD	Surrogate Criteria	Holding Time	Container
Mercury, Total	7439-97-6	0.0002	0.0000915	mg/l	80-120		75-125	20	20		28 days	1 - Plastic 500ml HNO3 preserved
Mercury, Dissolved	7439-97-6	0.0002	0.0000915	mg/l	80-120		75-125	35	35		28 days	1 - Plastic 500ml HNO3 preserved

Please Note that the RL information provided in this table is calculated using a 100% Solids factor. (Soil/Solids only)
Please Note that the information provided in this table is subject to change at anytime at the discretion of Pace Analytical Services.

Date Created: 02/18/25
Created By: Ben Rao
File: PM18699-1

Langan Engineering & Environmental

WETCHEM (WATER)

Analyte	CAS #	RL	MDL	Units	LCS Criteria	LCS RPD	MS Criteria	MS RPD	Duplicate RPD	Method	Holding Time	Container
Chromium, Hexavalent	18540-29-9	0.01	0.003	mg/l	85-115	20	85-115	20	20	7196A	24 hours	1 - Plastic 500ml unpreserved
Cyanide, Total	57-12-5	0.005	0.0018	mg/l	85-115	20	80-120	20	20	9010C/9012B	14 days	1 - Plastic 250ml NaOH preserved

Please Note that the RL information provided in this table is calculated using a 100% Solids factor. ***(Soil/Solids only)***
Please Note that the information provided in this table is subject to change at anytime at the discretion of Pace Analytical Services.

Date Created: 02/18/25
Created By: Ben Rao
File: PM18699-1

Langan Engineering & Environmental

1,4 Dioxane via EPA 8270E-SIM (WATER)

Holding Time: 7 days
Container/Sample Preservation: 2 - Amber 250ml unpreserved

Analyte	CAS #	RL	MDL	Units	LCS Criteria	LCS RPD	MS Criteria	MS RPD	Duplicate RPD	Surrogate Criteria		
1,4-Dioxane	123-91-1	150	33.9	ng/l	40-140	30	40-140	30	30			
1,4-Dioxane-d8	*17647-74-4*									*15-110*		
1,4-Dioxane-d8 (IS)	17647-74-4			ng/l								

Please Note that the RL information provided in this table is calculated using a 100% Solids factor. ***(Soil/Solids only)***
Please Note that the information provided in this table is subject to change at anytime at the discretion of Pace Analytical Services.

Date Created: 02/18/25
Created By: Ben Rao
File: PM18699-1
Page: 1

Langan Engineering & Environmental

NY PFAAs via EPA 1633 (WATER)

Holding Time: 28 days
Container/Sample Preservation: 2 - Plastic 500ml unpreserved

Analyte	CAS #	RL	MDL	Units	LCS Criteria	LCS RPD	MS Criteria	MS RPD	Duplicate RPD	Surrogate Criteria		
Perfluorobutanoic Acid (PFBA)	375-22-4	6.4	0.528	ng/l	70-140	30	70-140	30	30			
Perfluoropentanoic Acid (PFPeA)	2706-90-3	3.2	0.36	ng/l	65-135	30	65-135	30	30			
Perfluorobutanesulfonic Acid (PFBS)	375-73-5	1.6	0.4	ng/l	60-145	30	60-145	30	30			
1H,1H,2H,2H-Perfluorohexanesulfonic Acid (4:2FTS)	757124-72-4	6.4	0.912	ng/l	70-145	30	70-145	30	30			
Perfluorohexanoic Acid (PFHxA)	307-24-4	1.6	0.248	ng/l	70-145	30	70-145	30	30			
Perfluoropentanesulfonic Acid (PFPeS)	2706-91-4	1.6	0.208	ng/l	65-140	30	65-140	30	30			
Perfluoroheptanoic Acid (PFHpA)	375-85-9	1.6	0.24	ng/l	70-150	30	70-150	30	30			
Perfluorohexanesulfonic Acid (PFHxS)	355-46-4	1.6	0.136	ng/l	65-145	30	65-145	30	30			
Perfluorooctanoic Acid (PFOA)	335-67-1	1.6	0.264	ng/l	70-150	30	70-150	30	30			
1H,1H,2H,2H-Perfluorooctanesulfonic Acid (6:2FTS)	27619-97-2	6.4	4.816	ng/l	65-155	30	65-155	30	30			
Perfluoroheptanesulfonic Acid (PFHpS)	375-92-8	1.6	0.2	ng/l	70-150	30	70-150	30	30			
Perfluorononanoic Acid (PFNA)	375-95-1	1.6	0.264	ng/l	70-150	30	70-150	30	30			
Perfluorooctanesulfonic Acid (PFOS)	1763-23-1	1.6	0.264	ng/l	55-150	30	55-150	30	30			
Perfluorodecanoic Acid (PFDA)	335-76-2	1.6	0.208	ng/l	70-140	30	70-140	30	30			
1H,1H,2H,2H-Perfluorodecanesulfonic Acid (8:2FTS)	39108-34-4	6.4	1.224	ng/l	60-150	30	60-150	30	30			
Perfluorononanesulfonic Acid (PFNS)	68259-12-1	1.6	0.2	ng/l	65-145	30	65-145	30	30			
N-Methyl Perfluorooctanesulfonamidoacetic Acid (NMeFOSAA	2355-31-9	1.6	0.48	ng/l	50-140	30	50-140	30	30			
Perfluoroundecanoic Acid (PFUnA)	2058-94-8	1.6	0.176	ng/l	70-145	30	70-145	30	30			
Perfluorodecanesulfonic Acid (PFDS)	335-77-3	1.6	0.136	ng/l	60-145	30	60-145	30	30			
Perfluorooctanesulfonamide (FOSA)	754-91-6	1.6	0.096	ng/l	70-145	30	70-145	30	30			
N-Ethyl Perfluorooctanesulfonamidoacetic Acid (NEtFOSAA)	2991-50-6	1.6	0.48	ng/l	70-145	30	70-145	30	30			
Perfluorododecanoic Acid (PFDoA)	307-55-1	1.6	0.216	ng/l	70-140	30	70-140	30	30			
Perfluorotridecanoic Acid (PFTrDA)	72629-94-8	1.6	0.184	ng/l	65-140	30	65-140	30	30			
Perfluorotetradecanoic Acid (PFTA)	376-06-7	1.6	0.16	ng/l	60-140	30	60-140	30	30			
2,3,3,3-Tetrafluoro-2-[1,1,2,2,3,3,3-Heptafluoropropoxy]-Pro	13252-13-6	6.4	1.6	ng/l	70-140	30	70-140	30	30			
4,8-Dioxa-3h-Perfluorononanoic Acid (ADONA)	919005-14-4	6.4	0.376	ng/l	65-145	30	65-145	30	30			
Perfluorododecane Sulfonic Acid (PFDoDS)	79780-39-5	1.6	0.24	ng/l	50-145	30	50-145	30	30			
9-Chlorohexadecafluoro-3-Oxanone-1-Sulfonic Acid (9Cl-PF3(	756426-58-1	6.4	0.44	ng/l	70-155	30	70-155	30	30			
11-Chloroeicosafluoro-3-Oxaundecane-1-Sulfonic Acid (11Cl-F	763051-92-9	6.4	0.448	ng/l	55-160	30	55-160	30	30			
N-Methyl Perfluorooctane Sulfonamide (NMeFOSA)	31506-32-8	1.6	0.224	ng/l	60-150	30	60-150	30	30			
N-Ethyl Perfluorooctane Sulfonamide (NEtFOSA)	4151-50-2	1.6	0.352	ng/l	65-145	30	65-145	30	30			
N-Methyl Perfluorooctanesulfonamido Ethanol (NMeFOSE)	24448-09-7	16	1.304	ng/l	70-145	30	70-145	30	30			
N-Ethyl Perfluorooctanesulfonamido Ethanol (NEtFOSE)	1691-99-2	16	1.104	ng/l	70-135	30	70-135	30	30			
Perfluoro-3-Methoxypropanoic Acid (PFMPA)	377-73-1	3.2	0.248	ng/l	55-140	30	55-140	30	30			
Perfluoro-4-Methoxybutanoic Acid (PFMBA)	863090-89-5	3.2	0.36	ng/l	60-150	30	60-150	30	30			
Perfluoro(2-Ethoxyethane)Sulfonic Acid (PFEESA)	113507-82-7	3.2	0.328	ng/l	70-140	30	70-140	30	30			
Nonafluoro-3,6-Dioxaheptanoic Acid (NFDHA)	151772-58-6	3.2	0.544	ng/l	50-150	30	50-150	30	30			
3-Perfluoropropyl Propanoic Acid (3:3FTCA)	356-02-5	8	0.536	ng/l	65-130	30	65-130	30	30			
2H,2H,3H,3H-Perfluorooctanoic Acid (5:3FTCA)	914637-49-3	40	4.256	ng/l	70-135	30	70-135	30	30			
3-Perfluoroheptyl Propanoic Acid (7:3FTCA)	812-70-4	40	3.184	ng/l	50-145	30	50-145	30	30			
Perfluoro[13C4]Butanoic Acid (MPFBA)	*NONE*									*5-130*		
Perfluoro[13C5]Pentanoic Acid (M5PFPEA)	*NONE*									*40-130*		

Please Note that the RL information provided in this table is calculated using a 100% Solids factor. (Soil/Solids only)
Please Note that the information provided in this table is subject to change at anytime at the discretion of Pace Analytical Services.

Langan Engineering & Environmental

NY PFAAs via EPA 1633 (WATER)

Holding Time: 28 days
Container/Sample Preservation: 2 - Plastic 500ml unpreserved

Analyte	CAS #	RL	MDL	Units	LCS Criteria	LCS RPD	MS Criteria	MS RPD	Duplicate RPD	Surrogate Criteria		
Perfluoro[2,3,4-13C3]Butanesulfonic Acid (M3PFBS)	*NONE*									*40-135*		
1H,1H,2H,2H-Perfluoro[1,2-13C2]Hexanesulfonic Acid (M2-4	*NONE*									*40-200*		
Perfluoro[1,2,3,4,6-13C5]Hexanoic Acid (M5PFHxA)	*NONE*									*40-130*		
Perfluoro[1,2,3,4-13C4]Heptanoic Acid (M4PFHpA)	*NONE*									*40-130*		
Perfluoro[1,2,3-13C3]Hexanesulfonic Acid (M3PFHxS)	*NONE*									*40-130*		
Perfluoro[13C8]Octanoic Acid (M8PFOA)	*NONE*									*40-130*		
1H,1H,2H,2H-Perfluoro[1,2-13C2]Octanesulfonic Acid (M2-6:	*NONE*									*40-200*		
Perfluoro[13C9]Nonanoic Acid (M9PFNA)	*NONE*									*40-130*		
Perfluoro[13C8]Octanesulfonic Acid (M8PFOS)	*NONE*									*40-130*		
Perfluoro[1,2,3,4,5,6-13C6]Decanoic Acid (M6PFDA)	*NONE*									*40-130*		
1H,1H,2H,2H-Perfluoro[1,2-13C2]Decanesulfonic Acid (M2-8:	*NONE*									*40-300*		
N-Deuteriomethylperfluoro-1-octanesulfonamidoacetic Acid (	*NONE*									*40-170*		
Perfluoro[1,2,3,4,5,6,7-13C7]Undecanoic Acid (M7-PFUDA)	*NONE*									*30-130*		
Perfluoro[13C8]Octanesulfonamide (M8FOSA)	*NONE*									*40-130*		
N-Deuterioethylperfluoro-1-octanesulfonamidoacetic Acid (d5	*NONE*									*25-135*		
Perfluoro[1,2-13C2]Dodecanoic Acid (MPFDOA)	*NONE*									*10-130*		
Perfluoro[1,2-13C2]Tetradecanoic Acid (M2PFTEDA)	*NONE*									*10-130*		
2,3,3,3-Tetrafluoro-2-[1,1,2,2,3,3,3-Heptafluoropropoxy]-13	*NONE*									*40-130*		
N-Methyl-d3-Perfluoro-1-Octanesulfonamide (d3-NMeFOSA)	*NONE*									*10-130*		
N-Ethyl-d5-Perfluoro-1-Octanesulfonamide (d5-NEtFOSA)	*NONE*									*10-130*		
2-(N-Methyl-d3-Perfluoro-1-Octanesulfonamido)ethan-d4-ol (	*1265205-95-5*									*10-130*		
2-(N-Ethyl-d5-Perfluoro-1-Octanesulfonamido)ethan-d4-ol (d	*NONE*									*10-130*		

Please Note that the RL information provided in this table is calculated using a 100% Solids factor. ***(Soil/Solids only)***
Please Note that the information provided in this table is subject to change at anytime at the discretion of Pace Analytical Services.

Date Created: 02/18/25
Created By: Ben Rao
File: PM18700-1

Langan Engineering & Environmental

Volatile Organics in Air: TO-15 (AIR)

Holding Time: 30 days
Container/Sample Preservation: 1 - Generic Air Can for Bottleorder

Analyte	CAS #	RL	MDL	Units	LCS Criteria	LCS RPD	MS Criteria	MS RPD	Duplicate RPD	Surrogate Criteria		
1,1,1-Trichloroethane	71-55-6	0.2	0.0614	ppbV	70-130			25	25			
1,1,2,2-Tetrachloroethane	79-34-5	0.2	0.052	ppbV	70-130			25	25			
1,1,2-Trichloroethane	79-00-5	0.2	0.0582	ppbV	70-130			25	25			
1,1-Dichloroethane	75-34-3	0.2	0.0568	ppbV	70-130			25	25			
1,1-Dichloroethene	75-35-4	0.2	0.0568	ppbV	70-130			25	25			
1,2,3-Trimethylbenzene	526-73-8	0.2	0.0576	ppbV	70-130			25	25			
1,2,4-Trichlorobenzene	120-82-1	0.2	0.1	ppbV	70-130			25	25			
1,2,4-Trimethylbenzene	95-63-6	0.2	0.0577	ppbV	70-130			25	25			
1,2,4,5-Tetramethylbenzene	95-93-2	0.2	0.135	ppbV	70-130			25	25			
1,2-Dibromoethane	106-93-4	0.2	0.0544	ppbV	70-130			25	25			
1,2-Dichlorobenzene	95-50-1	0.2	0.0619	ppbV	70-130			25	25			
1,2-Dichloroethane	107-06-2	0.2	0.0787	ppbV	70-130			25	25			
1,2-Dichloropropane	78-87-5	0.2	0.0631	ppbV	70-130			25	25			
1,3,5-Trimethylbenzene	108-67-8	0.2	0.06	ppbV	70-130			25	25			
1,3-Butadiene	106-99-0	0.2	0.0619	ppbV	70-130			25	25			
1,3-Dichlorobenzene	541-73-1	0.2	0.0777	ppbV	70-130			25	25			
1,4-Dichlorobenzene	106-46-7	0.2	0.0826	ppbV	70-130			25	25			
1,4-Dioxane	123-91-1	0.2	0.0538	ppbV	70-130			25	25			
2,2,4-Trimethylpentane	540-84-1	0.2	0.0692	ppbV	70-130			25	25			
2-Butanone	78-93-3	0.5	0.099	ppbV	70-130			25	25			
2-Hexanone	591-78-6	0.2	0.0912	ppbV	70-130			25	25			
2-Methylthiophene	554-14-3	0.2	0.0622	ppbV	70-130			25	25			
3-Methylthiophene	616-44-4	0.2	0.0634	ppbV	70-130			25	25			
3-Chloropropene	107-05-1	0.2	0.086	ppbV	70-130			25	25			
2-Ethylthiophene	872-55-9	0.2	0.0612	ppbV	70-130			25	25			
4-Ethyltoluene	622-96-8	0.2	0.0554	ppbV	70-130			25	25			
Acetone	67-64-1	1	0.515	ppbV	40-160			25	25			
Benzene	71-43-2	0.2	0.0643	ppbV	70-130			25	25			
Benzyl chloride	100-44-7	0.2	0.0939	ppbV	70-130			25	25			
Benzothiophene	95-15-8	0.5	0.273	ppbV	70-130			25	25			
Bromodichloromethane	75-27-4	0.2	0.0689	ppbV	70-130			25	25			
Bromoform	75-25-2	0.2	0.0596	ppbV	70-130			25	25			
Bromomethane	74-83-9	0.2	0.0547	ppbV	70-130			25	25			
Carbon disulfide	75-15-0	0.2	0.0465	ppbV	70-130			25	25			
Carbon tetrachloride	56-23-5	0.2	0.0686	ppbV	70-130			25	25			
Chlorobenzene	108-90-7	0.2	0.0516	ppbV	70-130			25	25			
Chloroethane	75-00-3	0.2	0.0649	ppbV	70-130			25	25			
Chloroform	67-66-3	0.2	0.0552	ppbV	70-130			25	25			
Chloromethane	74-87-3	0.2	0.0576	ppbV	70-130			25	25			
cis-1,2-Dichloroethene	156-59-2	0.2	0.0595	ppbV	70-130			25	25			
cis-1,3-Dichloropropene	10061-01-5	0.2	0.0674	ppbV	70-130			25	25			
Cyclohexane	110-82-7	0.2	0.0728	ppbV	70-130			25	25			

Please Note that the RL information provided in this table is calculated using a 100% Solids factor. ***(Soil/Solids only)***
Please Note that the information provided in this table is subject to change at anytime at the discretion of Pace Analytical Services.

Langan Engineering & Environmental

Volatile Organics in Air: TO-15 (AIR)

Holding Time: 30 days
Container/Sample Preservation: 1 - Generic Air Can for Bottleorder

Analyte	CAS #	RL	MDL	Units	LCS Criteria	LCS RPD	MS Criteria	MS RPD	Duplicate RPD	Surrogate Criteria		
Dibromochloromethane	124-48-1	0.2	0.0566	ppbV	70-130			25	25			
Dichlorodifluoromethane	75-71-8	0.2	0.0757	ppbV	70-130			25	25			
Ethyl Alcohol	GCDAI06	5	1.74	ppbV	40-160			25	25			
Ethyl Acetate	141-78-6	0.5	0.297	ppbV	70-130			25	25			
Ethylbenzene	100-41-4	0.2	0.0575	ppbV	70-130			25	25			
1,1,2-Trichloro-1,2,2-Trifluoroethane	76-13-1	0.2	0.0506	ppbV	70-130			25	25			
1,2-Dichloro-1,1,2,2-tetrafluoroethane	76-14-2	0.2	0.0504	ppbV	70-130			25	25			
Hexachlorobutadiene	87-68-3	0.2	0.0607	ppbV	70-130			25	25			
iso-Propyl Alcohol	67-63-0	1	0.272	ppbV	40-160			25	25			
Methylene chloride	75-09-2	0.5	0.125	ppbV	70-130			25	25			
4-Methyl-2-pentanone	108-10-1	0.5	0.19	ppbV	70-130			25	25			
Methyl tert butyl ether	1634-04-4	0.2	0.045	ppbV	70-130			25	25			
Methyl Methacrylate	80-62-6	0.5	0.226	ppbV	40-160			25	25			
p/m-Xylene	179601-23-1	0.4	0.125	ppbV	70-130			25	25			
o-Xylene	95-47-6	0.2	0.0621	ppbV	70-130			25	25			
Xylene (Total)	1330-20-7	0.2	0.0621	ppbV				25	25			
Heptane	142-82-5	0.2	0.0828	ppbV	70-130			25	25			
n-Heptane	142-82-5	0.2	0.0828	ppbV	70-130			25	25			
n-Hexane	110-54-3	0.2	0.0743	ppbV	70-130			25	25			
Propylene	115-07-1	0.5	0.135	ppbV	70-130			25	25			
Styrene	100-42-5	0.2	0.0596	ppbV	70-130			25	25			
Tetrachloroethene	127-18-4	0.2	0.0627	ppbV	70-130			25	25			
Thiophene	110-02-1	0.2	0.052	ppbV	70-130			25	25			
Tetrahydrofuran	109-99-9	0.5	0.117	ppbV	70-130			25	25			
Toluene	108-88-3	0.2	0.0867	ppbV	70-130			25	25			
trans-1,2-Dichloroethene	156-60-5	0.2	0.0755	ppbV	70-130			25	25			
1,2-Dichloroethene (total)	540-59-0	0.2	0.0595	ppbV				25	25			
trans-1,3-Dichloropropene	10061-02-6	0.2	0.0783	ppbV	70-130			25	25			
1,3-Dichloropropene, Total	542-75-6	0.2	0.0674	ppbV				25	25			
Trichloroethene	79-01-6	0.2	0.0548	ppbV	70-130			25	25			
Trichlorofluoromethane	75-69-4	0.2	0.0787	ppbV	70-130			25	25			
Vinyl acetate	108-05-4	1	0.323	ppbV	70-130			25	25			
Vinyl bromide	593-60-2	0.2	0.0722	ppbV	70-130			25	25			
Vinyl chloride	75-01-4	0.2	0.0582	ppbV	70-130			25	25			
Naphthalene	91-20-3	0.19	0.059	ppbV	70-130			25	25			
Propane	74-98-6	0.5	0.152	ppbV	70-130			25	25			
Acrylonitrile	107-13-1	0.5	0.0894	ppbV	70-130			25	25			
Acrolein	107-02-8	0.5	0.149	ppbV	60-113			25	25			
1,1,1,2-Tetrachloroethane	630-20-6	0.2	0.0508	ppbV	70-130			25	25			
Isopropylbenzene	98-82-8	0.2	0.0621	ppbV	70-130			25	25			

Please Note that the RL information provided in this table is calculated using a 100% Solids factor. ***(Soil/Solids only)***
Please Note that the information provided in this table is subject to change at anytime at the discretion of Pace Analytical Services.

Langan Engineering & Environmental

Volatile Organics in Air: TO-15 (AIR)

Holding Time: 30 days
Container/Sample Preservation: 1 - Generic Air Can for Bottleorder

Analyte	CAS #	RL	MDL	Units	LCS Criteria	LCS RPD	MS Criteria	MS RPD	Duplicate RPD	Surrogate Criteria		
1,2,3-Trichloropropane	96-18-4	0.2	0.0575	ppbV	70-130			25	25			
Acetonitrile	75-05-8	0.2	0.101	ppbV	70-130			25	25			
Bromobenzene	108-86-1	0.2	0.0579	ppbV	70-130			25	25			
Chlorodifluoromethane	75-45-6	0.2	0.0463	ppbV	70-130			25	25			
Dichlorofluoromethane	75-43-4	0.2	0.112	ppbV	70-130			25	25			
Dibromomethane	74-95-3	0.2	0.0598	ppbV	70-130			25	25			
Pentane	109-66-0	0.2	0.113	ppbV	70-130			25	25			
Octane	111-65-9	0.2	0.0676	ppbV	70-130			25	25			
Tertiary-Amyl Methyl Ether	994-05-8	0.2	0.0672	ppbV	70-130			25	25			
o-Chlorotoluene	95-49-8	0.2	0.0761	ppbV	70-130			25	25			
p-Chlorotoluene	106-43-4	0.2	0.0765	ppbV	70-130			25	25			
2,2-Dichloropropane	594-20-7	0.2	0.0429	ppbV	70-130			25	25			
1,1-Dichloropropene	563-58-6	0.2	0.0593	ppbV	70-130			25	25			
Isopropyl Ether	108-20-3	0.2	0.0631	ppbV	70-130			25	25			
Ethyl-Tert-Butyl-Ether	637-92-3	0.2	0.0731	ppbV	70-130			25	25			
1,2,3-Trichlorobenzene	87-61-6	0.2	0.0738	ppbV	70-130			25	25			
Ethyl ether	60-29-7	0.2	0.0853	ppbV	70-130			25	25			
n-Butylbenzene	104-51-8	0.2	0.0536	ppbV	70-130			25	25			
sec-Butylbenzene	135-98-8	0.2	0.0547	ppbV	70-130			25	25			
tert-Butylbenzene	98-06-6	0.2	0.0551	ppbV	70-130			25	25			
1,2-Dibromo-3-chloropropane	96-12-8	0.2	0.0624	ppbV	70-130			25	25			
p-Isopropyltoluene	99-87-6	0.2	0.0567	ppbV	70-130			25	25			
n-Propylbenzene	103-65-1	0.2	0.0633	ppbV	70-130			25	25			
1,3-Dichloropropane	142-28-9	0.2	0.0536	ppbV	70-130			25	25			
Methanol	67-56-1	5	3.029	ppbV	70-130			25	25			
Acetaldehyde	75-07-0	2.5	1.73	ppbV	70-130			25	25			
Butane	106-97-8	0.2	0.08	ppbV	70-130			25	25			
Nonane (C9)	111-84-2	0.2	0.0737	ppbV	70-130			25	25			
Decane (C10)	124-18-5	0.2	0.0697	ppbV	70-130			25	25			
Undecane	1120-21-4	0.2	0.0709	ppbV	70-130			25	25			
Indane	496-11-7	0.2	0.0591	ppbV	70-130			25	25			
Indene	95-13-6	0.2	0.0711	ppbV	70-130			25	25			
1-Methylnaphthalene	90-12-0	1	0.264	ppbV	70-130			25	25			
Dodecane (C12)	112-40-3	0.2	0.0891	ppbV	70-130			25	25			
Butyl Acetate	123-86-4	0.5	0.208	ppbV	70-130			25	25			
tert-Butyl Alcohol	75-65-0	0.5	0.132	ppbV	70-130			25	25			
2-Methylnaphthalene	91-57-6	1	0.259	ppbV	70-130			25	25			
1,2-Dichloroethane-d4	*17060-07-0*									*70-130*		
Toluene-d8	*2037-26-5*									*70-130*		
Bromofluorobenzene	*460-00-4*									*70-130*		

Please Note that the RL information provided in this table is calculated using a 100% Solids factor. (Soil/Solids only)
Please Note that the information provided in this table is subject to change at anytime at the discretion of Pace Analytical Services.

Date Created: 02/18/25
Created By: Ben Rao
File: PM18700-1

Langan Engineering & Environmental

Volatile Organics in Air by TO-15 SIM (AIR)

Holding Time: 30 days
Container/Sample Preservation: 1 - Generic Air Can for Bottleorder

Analyte	CAS #	RL	MDL	Units	LCS Criteria	LCS RPD	MS Criteria	MS RPD	Duplicate RPD	Surrogate Criteria		
1,1,1-Trichloroethane	71-55-6	0.02	0.0059	ppbV	70-130	25		25	25			
1,1,1,2-Tetrachloroethane	630-20-6	0.02	0.01	ppbV	70-130	25		25	25			
1,1,2,2-Tetrachloroethane	79-34-5	0.02	0.0067	ppbV	70-130	25		25	25			
1,1,2-Trichloroethane	79-00-5	0.02	0.0097	ppbV	70-130	25		25	25			
1,1-Dichloroethane	75-34-3	0.02	0.0086	ppbV	70-130	25		25	25			
1,1-Dichloroethene	75-35-4	0.02	0.0077	ppbV	70-130	25		25	25			
1,2,4-Trimethylbenzene	95-63-6	0.02	0.0076	ppbV	70-130	25		25	25			
1,2-Dibromoethane	106-93-4	0.02	0.0091	ppbV	70-130	25		25	25			
1,2-Dichlorobenzene	95-50-1	0.02	0.0062	ppbV	70-130	25		25	25			
1,2-Dichloroethane	107-06-2	0.02	0.0083	ppbV	70-130	25		25	25			
1,2-Dichloropropane	78-87-5	0.02	0.0083	ppbV	70-130	25		25	25			
1,3,5-Trimethylbenzene	108-67-8	0.02	0.0096	ppbV	70-130	25		25	25			
1,3-Butadiene	106-99-0	0.02	0.0106	ppbV	70-130	25		25	25			
1,3-Dichlorobenzene	541-73-1	0.02	0.0077	ppbV	70-130	25		25	25			
1,4-Dichlorobenzene	106-46-7	0.02	0.0075	ppbV	70-130	25		25	25			
1,4-Dioxane	123-91-1	0.1	0.0344	ppbV	70-130	25		25	25			
2,2,4-Trimethylpentane	540-84-1	0.2	0.037	ppbV	70-130	25		25	25			
2-Hexanone	591-78-6	0.2	0.0354	ppbV	70-130	25		25	25			
3-Chloropropene	107-05-1	0.2	0.0327	ppbV	70-130	25		25	25			
4-Ethyltoluene	622-96-8	0.02	0.0099	ppbV	70-130	25		25	25			
Benzene	71-43-2	0.1	0.0298	ppbV	70-130	25		25	25			
Benzyl chloride	100-44-7	0.1	0.0332	ppbV	70-130	25		25	25			
Bromodichloromethane	75-27-4	0.02	0.0074	ppbV	70-130	25		25	25			
Bromoform	75-25-2	0.02	0.0111	ppbV	70-130	25		25	25			
Bromomethane	74-83-9	0.02	0.0094	ppbV	70-130	25		25	25			
Carbon disulfide	75-15-0	0.2	0.0316	ppbV	70-130	25		25	25			
Carbon tetrachloride	56-23-5	0.02	0.011	ppbV	70-130	25		25	25			
Chlorobenzene	108-90-7	0.1	0.0258	ppbV	70-130	25		25	25			
Chloroethane	75-00-3	0.1	0.0395	ppbV	70-130	25		25	25			
Chloroform	67-66-3	0.02	0.0071	ppbV	70-130	25		25	25			
Chloromethane	74-87-3	0.2	0.0756	ppbV	70-130	25		25	25			
cis-1,2-Dichloroethene	156-59-2	0.02	0.0102	ppbV	70-130	25		25	25			
trans-1,2-Dichloroethene	156-60-5	0.02	0.009	ppbV	70-130	25		25	25			
1,2-Dichloroethene (total)	540-59-0	0.02	0.009	ppbV				25	25			
cis-1,3-Dichloropropene	10061-01-5	0.02	0.0118	ppbV	70-130	25		25	25			
1,3-Dichloropropene, Total	542-75-6	0.02	0.0115	ppbV				25	25			
Cyclohexane	110-82-7	0.2	0.0313	ppbV	70-130	25		25	25			
Dibromochloromethane	124-48-1	0.02	0.008	ppbV	70-130	25		25	25			
Dichlorodifluoromethane	75-71-8	0.2	0.0499	ppbV	70-130	25		25	25			
Ethyl Alcohol	GCDAI06	5	1.35	ppbV	40-160	25		25	25			
Ethyl Acetate	141-78-6	0.5	0.323	ppbV	70-130	25		25	25			
Ethylbenzene	100-41-4	0.02	0.0085	ppbV	70-130	25		25	25			

Please Note that the RL information provided in this table is calculated using a 100% Solids factor. ***(Soil/Solids only)***
Please Note that the information provided in this table is subject to change at anytime at the discretion of Pace Analytical Services.

Date Created: 02/18/25
Created By: Ben Rao
File: PM18700-1

Langan Engineering & Environmental

Volatile Organics in Air by TO-15 SIM (AIR)

Holding Time: 30 days
Container/Sample Preservation: 1 - Generic Air Can for Bottleorder

Analyte	CAS #	RL	MDL	Units	LCS Criteria	LCS RPD	MS Criteria	MS RPD	Duplicate RPD	Surrogate Criteria		
1,1,2-Trichloro-1,2,2-Trifluoroethane	76-13-1	0.05	0.0083	ppbV	70-130	25		25	25			
1,2-Dichloro-1,1,2,2-tetrafluoroethane	76-14-2	0.05	0.0064	ppbV	70-130	25		25	25			
Methylene chloride	75-09-2	0.5	0.11	ppbV	70-130	25		25	25			
Methyl tert butyl ether	1634-04-4	0.2	0.0261	ppbV	70-130	25		25	25			
Naphthalene	91-20-3	0.05	0.021	ppbV	70-130	25		25	25			
p/m-Xylene	179601-23-1	0.04	0.018	ppbV	70-130	25		25	25			
o-Xylene	95-47-6	0.02	0.0087	ppbV	70-130	25		25	25			
Heptane	142-82-5	0.2	0.0313	ppbV	70-130	25		25	25			
n-Hexane	110-54-3	0.2	0.0471	ppbV	70-130	25		25	25			
Propylene	115-07-1	0.5	0.167	ppbV	70-130	25		25	25			
Styrene	100-42-5	0.02	0.0079	ppbV	70-130	25		25	25			
Tetrachloroethene	127-18-4	0.02	0.0074	ppbV	70-130	25		25	25			
Tetrahydrofuran	109-99-9	0.5	0.142	ppbV	70-130	25		25	25			
Toluene	108-88-3	0.1	0.0166	ppbV	70-130	25		25	25			
trans-1,3-Dichloropropene	10061-02-6	0.02	0.0115	ppbV	70-130	25		25	25			
Trichloroethene	79-01-6	0.02	0.006	ppbV	70-130	25		25	25			
1,2,4-Trichlorobenzene	120-82-1	0.05	0.0146	ppbV	70-130	25		25	25			
Trichlorofluoromethane	75-69-4	0.05	0.0092	ppbV	70-130	25		25	25			
Vinyl acetate	108-05-4	1	0.286	ppbV	70-130	25		25	25			
Vinyl bromide	593-60-2	0.2	0.0431	ppbV	70-130	25		25	25			
Hexachlorobutadiene	87-68-3	0.05	0.011	ppbV	70-130	25		25	25			
iso-Propyl Alcohol	67-63-0	1	0.249	ppbV	40-160	25		25	25			
Vinyl chloride	75-01-4	0.02	0.0088	ppbV	70-130	25		25	25			
Acrylonitrile	107-13-1	0.5	0.162	ppbV	70-130	25		25	25			
n-Butylbenzene	104-51-8	0.2	0.0319	ppbV	70-130	25		25	25			
sec-Butylbenzene	135-98-8	0.2	0.0266	ppbV	70-130	25		25	25			
Isopropylbenzene	98-82-8	0.2	0.0299	ppbV	70-130	25		25	25			
Xylene (Total)	1330-20-7	0.02	0.0087	ppbV				25	25			
p-Isopropyltoluene	99-87-6	0.2	0.0366	ppbV	70-130	25		25	25			
Acetone	67-64-1	1	0.539	ppbV	40-160	25		25	25			
2-Butanone	78-93-3	0.5	0.132	ppbV	70-130	25		25	25			
4-Methyl-2-pentanone	108-10-1	0.5	0.191	ppbV	70-130	25		25	25			
1,2,3-Trichlorobenzene	87-61-6	0.05	0.0223	ppbV	70-130	25		25	25			
Acrolein	107-02-8	0.05	0.0387	ppbV	60-113	25		25	25			
1,2-Dichloroethane-d4	*17060-07-0*									*70-130*		
Toluene-d8	*2037-26-5*									*70-130*		
Bromofluorobenzene	*460-00-4*									*70-130*		

Please Note that the RL information provided in this table is calculated using a 100% Solids factor. ***(Soil/Solids only)***
Please Note that the information provided in this table is subject to change at anytime at the discretion of Pace Analytical Services.

ATTACHMENT D

ANALYTICAL METHODS/
QUALITY ASSURANCE SUMMARY TABLE

ATTACHMENT D

ANALYTICAL METHODS/QUALITY ASSURANCE SUMMARY TABLE

Matrix Type	Field Parameters	Laboratory Parameters	Analytical Methods	Sample Preservation	Sample Container Volume and Type	Sample Hold Time	Field Duplicate Samples	Field Blank Samples	Media Blank Samples	Equipment Blank Samples	Trip Blank Samples	Ambient Air Samples	MS/MSD Samples
Soil	Total VOCs via PID	Part 375 + TCL VOCs	EPA 8260C	Cool to 4°C	Two 40-ml VOC vials with 5ml H_2O, one with MeOH or 3 En Core Samplers (separate container for % solids)	14 days	1 per 20 samples (minimum 1)	1 per 20 samples (minimum 1)	NA	NA	NA	NA	1 per 20 samples
		Part 375 + TCL SVOCs	EPA 8270D	Cool to 4°C	4 oz. amber glass jar	14 days extract, 40 days after extraction to analysis							
		Part 375 + TAL Metals + Cyanide	EPA 6010C, EPA 7470A, EPA 7196A, EPA 9014/9010C	Cool to 4°C	2 oz. amber glass jar	6 months, except mercury 28 days							
		Part 375 + TCL Pesticides	EPA 8081B	Cool to 4°C	4 oz. amber glass jar	14 days extract, 40 days after extraction to analysis							
		Part 375 + TCL PCBs	EPA 8082A	Cool to 4°C	4 oz. amber glass jar	14 days extract, 40 days after extraction to analysis							
		NYSDEC List PFAS	EPA 1633 Modified	Cool to 4°C	8 oz. HDPE jar	14 days to extract, 28 days after extraction to analysis				1 per day			
		1,4-Dioxane	8270 SIM	Cool to 4°C	4 oz. amber glass jar	14 days extract, 40 days after extraction to analysis				NA			
Groundwater	Temperature, Turbidity, pH, ORP, Conductivity, DO	Part 375 + TCL VOCs	EPA 8260C	Cool to 4°C; HCl to pH <2;no headspace	Three 40-mL VOC vials with Teflon®-lined cap	Analyze within 14 days of collection	1 per 20 samples (minimum 1)	1 per 20 samples (minimum 1)	NA	NA	1 per shipment of VOC samples	NA	1 per 20 samples
		Part 375 + TCL SVOCs	EPA 8270D	Cool to 4°C	Two 1-Liter amber glass	7 days to extract, 40 days after extraction to analysis							
		Part 375 + TAL Metals	EPA 6010C, EPA 7470A	HNO_3	250 ml plastic	6 months, except Mercury 28 days							
		Hexavalent Chromium	EPA 7196A	Cool to 4°C	250 ml plastic	24 hours							
		Cyanide	SM 4500 C/E	NaOH plus 0.6g ascorbic acid	250 ml plastic	14 days							
		Part 375 + TCL Pesticides	EPA 8081B	Cool to 4°C	Two 1-Liter Amber Glass for Pesticides/PCB	7 days to extract, 40 days after extraction to analysis							
		PCBs	EPA 8082A	Cool to 4°C		7 days to extract, 40 days after extraction to analysis							
		PFAS	EPA 1633 Modified	Cool to 4°C	Two 250 mL HDPE	14 days to extract, 40 days after extraction to analysis				1 per day			
		1,4-dioxane	8270 SIM	Cool to 4°C	One 1 -Liter Amber Glass	7 days to extract, 40 days after extraction to analysis				NA			
Soil Vapor	Total VOCs, Oxygen, LEL, CO, and H_2S, with MultiGas Meter	TO-15 Listed VOCs	TO-15	Ambient Temperature	2.7-Liter Summa Canister	Analyze within 30 days of collection	1 per 20 samples (minimum 1)	NA	NA	NA	NA	1 per 10 samples (minimum 1)	NA
Ambient/Indoor Air	Total VOCs via PID				6-Liter Summa Canister		NA	NA	NA	NA			

ATTACHMENT D

ANALYTICAL METHODS/QUALITY ASSURANCE SUMMARY TABLE

Matrix Type	Field Parameters	Laboratory Parameters	Analytical Methods	Sample Preservation	Sample Container Volume and Type	Sample Hold Time	Field Duplicate Samples	Field Blank Samples	Media Blank Samples	Equipment Blank Samples	Trip Blank Samples	Ambient Air Samples	MS/MSD Samples
Soil Vapor	Mercury Vapor via Jerome J405	Mercury Vapor	EPA 6009	Ambient Temperature	Glass Sorbent Tube containing one section of 200 mg Hopcalite	Analyze within 30 days of collection	1 per 20 samples (minimum 1)	NA	3 per set	NA	NA	1 per 10 samples (minimum 1)	NA

Notes:
1. PID - Photoionization Detector
2. VOC - Volatile organic compound
3. EPA - Environmental Protection Agency
4. TCL - Target compound list
5. TAL - Target analyte list
6. ORP - Oxidation reduction potential
7. DO - Dissolved oxygen
8. LEL - Lower explosive limit
9. CO -Carbon monoxide
10. H_2S - Hydrogen sulfide
11. PFAS - Per-fluoroalkyl substances
12. HDPE - High-Density Polyethylene

ATTACHMENT E

SAMPLE NOMENCLATURE STANDARD OPERATING PROCEDURE

SOP #01 – Sample Nomenclature

INTRODUCTION

The Langan Environmental Group conducts an assortment of site investigations where samples (Vapor, Solids, and Aqueous) are collected and submitted to analytical laboratories for analysis. The results of which are then evaluated and entered into a data base allowing quick submittal to the state regulatory authority (New York State Division of Environmental Conservation [NYSDEC]). In addition, Langan is linking their data management system to graphic and analytical software to enable efficient evaluation of the data as well as creating client-ready presentational material.

SCOPE AND APPLICATION

This Standard Operating Procedure (SOP) is applicable to the general framework for labeling vapor, solid (soil) and aqueous (groundwater) samples that will be submitted for laboratory analysis. The nomenclature being introduced is designed to meet the NYSDEC EQuIS standard and has been incorporated into Langan software scripts to assist project personnel in processing the data. While this SOP is applicable to all site investigation; unanticipated conditions may arise which may require considerable flexibility in complying with this SOP. Therefore, guidance provided in this SOP is presented in terms of general steps and strategies that should be applied; but deviation from this SOP must be reported to the Project Manager (PM) immediately.

GENERAL SAMPLE IDENTIFICATION CONSIDERATIONS

Sample Labels

All sample ware must have a label. Recall that when you are using the Encore™ samples (see below); they are delivered in plastic lined foil bags. You are to label the bags[1]:



All other samples containers including Terra Cores™ must be labeled with laboratory provided self-adhesive labels.

Quick Breakdown of Sample Format

The general format for sample nomenclature is:

[1]Both Alpha and York laboratories permit the combining of the three Encore™ into a single bag. This may not be appropriate for all laboratories so please confirm with the labs themselves

LLNN_ID

Where

LL is a grouping of two (2) to four (4) letters signifying the sample media source. In older nomenclature SOPs this portion of the sample identification is commonly referred to as the *Sample Investigation Code*

NN represents a two digit number identifying the specific sample location or sample sequence number

_ ***(underscore)*** is required between the sample lettering and numeric identification and additional modifying data that determines the date of sampling or the depth of the sample interval

ID is a modifier specific to the sample type media (depth of soil sample or date of groundwater sample)

LL – Sample Investigation Code

Langan has devised a list of two to four letters to insure a quick ability to identify the sample investigation.

Code	Investigation
AA	Ambient Air
DS	Drum
EPB	Endpoint Location - Bottom (Excavation)
EPSW	Endpoint Location - Sidewall (Excavation)
FP	Free Product
IA	Indoor Air
IDW	Investigation Derived Waste (Soil Pile)
MW	Monitoring Well (Permanent)
SB	Soil Boring
SG	Staff Gauge (Stream Gauging)
SL	Sludge
SV	Soil Vapor Point
SVE	Soil Vapor Extraction Well
SW	Surface Water
TMW	Temporary Monitoring Well
TP	Test Pit (Excavated Material from Test Pit Not Associated With Sidewall or Bottom Samples)
WC	Waste Characterization Boring
COMP	Composite Sample
TB	Trip Blank (QA/QC Sampling – All Investigations)
FB	Field Blank (QA/QC Sampling – All Investigations)
DUP	Duplicate (QA/QC Sampling – All Investigations)

NN – Numeric Identifier

The two digit number that follows the sample investigation code (LL) identifies the specific sample based on the soil boring, monitoring well, endpoint or other location identification. For a subset of samples

where there is no specific location identifier, the two digit number is the sequence number for the sample submitted. For example, an aqueous sample from a monitoring well identified as MW-1 would have the sample investigation code of MW and the numeric identifier as 01. Note there is no hyphen. The same can be done for soil borings, a soil sample collected from soil boring 9 (SB-9) would be have the LLNN identification of SB09 (again, no hyphen).

Note however that there is a subset of samples related to laboratory analytical quality assurance, among these includes TB, FB, and DUP. On many investigations, the Scope will require multiple collections of these types of samples, therefore the numerical number represents the sequence sample count where the first sample is 01, the second sample is 02, and the third sample is 03 and so on.

_ Underscore
The underscore is required. It separates the investigation code and numeric identifier from the modifier specific to the sample itself. Note that every effort should be made to insure that the underscore is clear on the sample label and chain of custody (COC).

ID – Modifier Specific to Type Media
Each sample investigation code and numeric identifier is further modified by an ID specific to the sample type media. In general, soil samples (soil borings or endpoint samples) use an ID that indicates the depth at which the sample was taken. Aqueous samples (groundwater or surface water samples) are identified by the date the sample was collected. Other types of samples including quality control (TB, FB, and DUP), Vapor samples (AA, IA, SV or SVE), other soil type samples (IDW, sludge, free product, drum, and others) are also identified by a date. The following rules apply to the ID when using sample depth or sample date.

Sample Depth
The sample depth must be whole numbers (no fractions) separated by a hyphen. Thus for a soil sample collected from the soil boring SB-1 from a depth of 6 feet to 8 feet, the sample would be identified as:

SB01_6-8

Unfortunately, the NYSDEC EQuIS system does not accept fractions. Therefore, if your sample interval is a fraction of a foot (6.5-7.5), round up to the larger interval (6-8).

Sample Date
The sample date is always in the format of MMDDYY. Note that the year is two digits. Thus for a groundwater sample collected on July 1, 2015 from the monitoring well MW-1, the sample would be identified as:

MW01_070115

Special Cases
There are a couple of specific sample types that require further explanation.

Endpoint Sampling
End point sidewall samples are sometimes modified by magnetic direction (N, S, E, and W). For example, the first sidewall endpoint sample from the north wall of an excavation at a depth of 5 feet would be written as:

EPSW01_N_5

Again, note that the N in the identification refers to north and is separated from the prefix investigation code/numeric identifier and ID modifier suffix by underscores.

Vapor Extraction Well Sample
As with the sidewall endpoint samples, the sample name is altered by inserting a middle modifier between the prefix and suffix of the sample name. The middle modifier is used to identify the source of the sample (inlet sample port, midpoint sample port or outlet sample port). For example the midpoint port of the vapor extraction well number 1 sampled on July 1, 2015 would be written as;

SVE01_MID_070115

Matrix Spike and Matrix Spike Duplicate
On occasion, a Langan investigation will collect a sample to be used to provide the lab with a site specific medium to spike to determine the quality of the analytical method. This special case of sampling requires additional information to be used in the sample name, specifically, a suffix specifying whether the sample is the matrix spike (MS) or the matrix spike duplicate (MSD). In the following example, the sample is collected from soil boring number 1 at a depth of 2-4 feet. For the matrix spike sample:

SB01_2-4_MS

and for the matrix spike duplicate sample:

SB01_2-4_MSD

Multiple Interval Groundwater Sampling
Although not currently a common practice, low flow sampling facilitates stratigraphic sampling of a monitoring well. If the scope requires stratigraphic sampling then groundwater samples will be labeled with a lower case letter following the well number. For example, placing the pump or sampling tube at 10 feet below surface in MW01 on July 1, 2015 would require the sample to be labeled as:

MW01a_070115

While a second sample where the pump or tubing intake is placed at 20 feet would be labeled as:

MW01b_070115

Note that it is important that you record what depth the intake for each sample represents in your field notes; as this information is going to be critical to interpreting the results.

ATTACHMENT F

PFAS SAMPLING PROTOCOL AND LABORATORY SOP

NEW YORK STATE OF OPPORTUNITY.

Department of Environmental Conservation

SAMPLING, ANALYSIS, AND ASSESSMENT OF PER- AND POLYFLUOROALKYL SUBSTANCES (PFAS)

Under NYSDEC's Part 375 Remedial Programs

April 2023



www.dec.ny.gov

Table of Contents

Objective 1
Applicability 1
Field Sampling Procedures 1
Analysis and Reporting 2
Routine Analysis 2
Additional Analysis 2
Data Assessment and Application to Site Cleanup 3
Water Sample Results 3
Soil Sample Results 3
Testing for Imported Soil 4
Appendix A - Quality Assurance Project Plan (QAPP) Guidelines for PFAS 5
Appendix B - Sampling Protocols for PFAS in Soils, Sediments and Solids 6
Appendix C - Sampling Protocols for PFAS in Monitoring Wells 8
Appendix D - Sampling Protocols for PFAS in Surface Water 10
Appendix E - Sampling Protocols for PFAS in Private Water Supply Wells 12
Appendix F - Sampling Protocols for PFAS in Fish 14
Appendix G - PFAS Analyte List 22
Appendix H - Data Review Guidelines for Analysis of PFAS in Non-Potable Water and Solids 24

ERRATA SHEET for

SAMPLING, ANALYSIS, AND ASSESSMENT OF PER- AND POLYFLUOROALKYL SUBSTANCES (PFAS) Under NYSDEC's Part 375 Remedial Programs Issued January 17, 2020

Citation and Page Number	Current Text	Corrected Text	Date
Title of Appendix I, page 32	Appendix H	Appendix I	2/25/2020
Document Cover, page 1	Guidelines for Sampling and Analysis of PFAS	Sampling, Analysis, and Assessment of Per- and Polyfluoroalkyl Substances (PFAS) Under NYSDEC's Part 375 Remedial Programs	9/15/2020
Data Assessment and Application to Site Cleanup Page 3	Until such time as Ambient Water Quality Standards (AWQS) and Soil Cleanup Objectives (SCOs) for PFOA and PFOS are published	Until such time as Soil Cleanup Objectives (SCOs) for PFOA and PFOS are published	3/28/2023
Water Sample Results Page 3	PFOA and PFOS should be further assessed and considered as potential contaminants of concern in groundwater or surface water if PFOA or PFOS is detected in any water sample at or above 10 ng/L (ppt) and is determined to be attributable to the site, either by a comparison of upgradient and downgradient levels, or the presence of soil source areas, as defined below.	NYSDEC has adopted ambient water quality guidance values for PFOA and PFOS. Groundwater samples should be compared to the human health criteria of 6.7 ng/l (ppt) for PFOA and 2.7 ng/l (ppt) for PFOS. These guidance values also include criteria for surface water for PFOS applicable for aquatic life, which may be applicable at some sites. Drinking water sample results should be compared to the NYS maximum contaminant level (MCL) of 10 ng/l (ppt).Analysis to determine if PFOA and PFOS concentrations are attributable to the site should include a comparison between upgradient and downgradient levels, and the presence of soil source areas, as defined below.	3/28/2023
Soil Sample Results Page 3	Soil cleanup objectives for PFOA and PFOS have been proposed in an upcoming revision to 6 NYCRR Part 375-6. Until SCOs are in effect, the following are to be used as guidance values:	NYSDEC will delay adding soil cleanup objectives for PFOA and PFOS to 6 NYCRR Part 375-6 until the PFAS rural soil background study has been completed. Until SCOs are in effect, the following are to be used as guidance values:	3/28/2023
Protection of Groundwater Page 3	PFOA (ppb) 1.1 PFOS (ppb) 3.7	PFOA (ppb) 0.8 PFOS (ppb) 1.0	3/28/2023

Citation and Page Number	Current Text	Corrected Text	Date
Footnote 2 Page 3	The movement of PFAS in the environment is being aggressively researched at this time; that research will eventually result in more accurate models for the behaviors of these chemicals. In the meantime, DEC has calculated the guidance value for the protection of groundwater using the same procedure used for all other chemicals, as described in Section 7.7 of the Technical Support Document (http://www.dec.ny.gov/docs/remediation_hudson_pdf/techsuppdoc.pdf).	The Protection of Groundwater values are based on the above referenced ambient groundwater guidance values. Details on that calculation are available in the following document, prepared for the February 2022 proposed changes to Part 375 (https://www.dec.ny.gov/docs/remediation_hudson_pdf/part375techsupport.pdf). The movement of PFAS in the environment is being aggressively researched at this time; that research will eventually result in more accurate models for the behaviors of these chemicals. In the meantime, DEC has calculated the guidance value for the protection of groundwater using the same procedure used for all other chemicals, as described in Section 7.7 of the Technical Support Document (http://www.dec.ny.gov/docs/remediation_hudson_pdf/techsuppdoc.pdf).	3/28/2023
Testing for Imported Soil Page 4	If the concentrations of PFOA and PFOS in leachate are at or above 10 ppt (the Maximum Contaminant Levels established for drinking water by the New York State Department of Health), then the soil is not acceptable.	If the concentrations of PFOA and PFOS in leachate are at or above the ambient water quality guidance values for groundwater, then the soil is not acceptable.	3/28/2023
Routine Analysis, page 9	"However, laboratories analyzing environmental samples…PFOA and PFOS in drinking water by EPA Method 537, 537.1 or ISO 25101."	"However, laboratories analyzing environmental samples…PFOA and PFOS in drinking water by EPA Method 537, 537.1, ISO 25101, or Method 533."	9/15/2020
Additional Analysis, page 9, new paragraph regarding soil parameters	None	"In cases where site-specific cleanup objectives for PFOA and PFOS are to be assessed, soil parameters, such as Total Organic Carbon (EPA Method 9060), soil pH (EPA Method 9045), clay content (percent), and cation exchange capacity (EPA Method 9081), should be included in the analysis to help evaluate factors affecting the leachability of PFAS in site soils."	9/15/2020

Citation and Page Number	Current Text	Corrected Text	Date
Data Assessment and Application to Site Cleanup Page 10	Until such time as Ambient Water Quality Standards (AWQS) and Soil Cleanup Objectives (SCOs) for PFAS are published, the extent of contaminated media potentially subject to remediation should be determined on a case-by-case basis using the procedures discussed below and the criteria in DER-10. Target levels for cleanup of PFAS in other media, including biota and sediment, have not yet been established by the DEC.	Until such time as Ambient Water Quality Standards (AWQS) and Soil Cleanup Objectives (SCOs) for PFOA and PFOS are published, the extent of contaminated media potentially subject to remediation should be determined on a case-by-case basis using the procedures discussed below and the criteria in DER-10. Preliminary target levels for cleanup of PFOA and PFOS in other media, including biota and sediment, have not yet been established by the DEC.	9/15/2020
Water Sample Results Page 10	PFAS should be further assessed and considered as a potential contaminant of concern in groundwater or surface water (…) If PFAS are identified as a contaminant of concern for a site, they should be assessed as part of the remedy selection process in accordance with Part 375 and DER-10.	PFOA and PFOS should be further assessed and considered as potential contaminants of concern in groundwater or surface water (…) If PFOA and/or PFOS are identified as contaminants of concern for a site, they should be assessed as part of the remedy selection process in accordance with Part 375 and DER-10.	9/15/2020

Citation and Page Number	Current Text	Corrected Text	Date
Soil Sample Results, page 10	"The extent of soil contamination for purposes of delineation and remedy selection should be determined by having certain soil samples tested by Synthetic Precipitation Leaching Procedure (SPLP) and the leachate analyzed for PFAS. Soil exhibiting SPLP results above 70 ppt for either PFOA or PFOS (individually or combined) are to be evaluated during the cleanup phase."	"Soil cleanup objectives for PFOA and PFOS will be proposed in an upcoming revision to 6 NYCRR Part 375-6. Until SCOs are in effect, the following are to be used as guidance values. " [Interim SCO Table] "PFOA and PFOS results for soil are to be compared against the guidance values listed above. These guidance values are to be used in determining whether PFOA and PFOS are contaminants of concern for the site and for determining remedial action objectives and cleanup requirements. Site-specific remedial objectives for protection of groundwater can also be presented for evaluation by DEC. Development of site-specific remedial objectives for protection of groundwater will require analysis of additional soil parameters relating to leachability. These additional analyses can include any or all the parameters listed above (soil pH, cation exchange capacity, etc.) and/or use of SPLP. As the understanding of PFAS transport improves, DEC welcomes proposals for site-specific remedial objectives for protection of groundwater. DEC will expect that those may be dependent on additional factors including soil pH, aqueous pH, % organic carbon, % Sand/Silt/Clay, soil cations: K, Ca, Mg, Na, Fe, Al, cation exchange capacity, and anion exchange capacity. Site-specific remedial objectives should also consider the dilution attenuation factor (DAF). The NJDEP publication on DAF can be used as a reference: https://www.nj.gov/dep/srp/guidance/rs/daf.pdf. "	9/15/2020

Citation and Page Number	Current Text	Corrected Text	Date
Testing for Imported Soil Page 11	Soil imported to a site for use in a soil cap, soil cover, or as backfill is to be tested for PFAS in general conformance with DER-10, Section 5.4(e) for the PFAS Analyte List (Appendix F) using the analytical procedures discussed below and the criteria in DER-10 associated with SVOCs. If PFOA or PFOS is detected in any sample at or above 1 µg/kg, then soil should be tested by SPLP and the leachate analyzed for PFAS. If the SPLP results exceed 10 ppt for either PFOA or PFOS (individually) then the source of backfill should be rejected, unless a site-specific exemption is provided by DER. SPLP leachate criteria is based on the Maximum Contaminant Levels proposed for drinking water by New York State's Department of Health, this value may be updated based on future Federal or State promulgated regulatory standards. Remedial parties have the option of analyzing samples concurrently for both PFAS in soil and in the SPLP leachate to minimize project delays. Category B deliverables should be submitted for backfill samples, though a DUSR is not required.	Testing for PFAS should be included any time a full TAL/TCL analyte list is required. Results for PFOA and PFOS should be compared to the applicable guidance values. If PFOA or PFOS is detected in any sample at or above the guidance values then the source of backfill should be rejected, unless a site-specific exemption is provided by DER based on SPLP testing, for example. If the concentrations of PFOA and PFOS in leachate are at or above 10 ppt (the Maximum Contaminant Levels established for drinking water by the New York State Department of Health), then the soil is not acceptable. PFOA, PFOS and 1,4-dioxane are all considered semi-volatile compounds, so composite samples are appropriate for these compounds when sampling in accordance with DER-10, Table 5.4(e)10. Category B deliverables should be submitted for backfill samples, though a DUSR is not required.	9/15/2020

Citation and Page Number	Current Text	Corrected Text	Date
Footnotes	None	[1] TOP Assay analysis of highly contaminated samples, such as those from an AFFF (aqueous film-forming foam) site, can result in incomplete oxidation of the samples and an underestimation of the total perfluoroalkyl substances. [2] The movement of PFAS in the environment is being aggressively researched at this time; that research will eventually result in more accurate models for the behaviors of these chemicals. In the meantime, DEC has calculated the soil cleanup objective for the protection of groundwater using the same procedure used for all other chemicals, as described in Section 7.7 of the Technical Support Document (http://www.dec.ny.gov/docs/remediation_hudson_pdf/techsuppdoc.pdf).	9/15/2020
Additional Analysis, page 9	In cases… soil parameters, such as Total Organic Carbon (EPA Method 9060), soil…	In cases… soil parameters, such as Total Organic Carbon (Lloyd Kahn), soil…	1/8/2021
Appendix A, General Guidelines, fourth bullet	List the ELAP-approved lab(s) to be used for analysis of samples	List the ELAP- certified lab(s) to be used for analysis of samples	1/8/2021
Appendix E, Laboratory Analysis and Containers	Drinking water samples collected using this protocol are intended to be analyzed for PFAS by ISO Method 25101.	Drinking water samples collected using this protocol are intended to be analyzed for PFAS by EPA Method 537, 537.1, 533, or ISO Method 25101	1/8/2021
Water Sample Results Page 9	"In addition, further assessment of water may be warranted if either of the following screening levels are met: a. any other individual PFAS (not PFOA or PFOS) is detected in water at or above 100 ng/L; or b. total concentration of PFAS (including PFOA and PFOS) is detected in water at or above 500 ng/L"	Deleted	6/15/2021

Citation and Page Number	Current Text	Corrected Text	Date
Routine Analysis, Page XX	Currently, New York State Department of Health's Environmental Laboratory Approval Program (ELAP)… criteria set forth in the DER's laboratory guidelines for PFAS in non-potable water and solids (Appendix H - Laboratory Guidelines for Analysis of PFAS in Non-Potable Water and Solids).	Deleted	5/31/2022
Analysis and Reporting, Page XX	As of October 2020, the United States Environmental Protection Agency (EPA) does not have a validated method for analysis of PFAS for media commonly analyzed under DER remedial programs (non-potable waters, solids). DER has developed the following guidelines to ensure consistency in analysis and reporting of PFAS.	Deleted	5/31/2022
Routine Analysis, Page XX	LC-MS/MS analysis for PFAS using methodologies based on EPA Method 537.1 is the procedure to use for environmental samples. Isotope dilution techniques should be utilized for the analysis of PFAS in all media.	EPA Method 1633 is the procedure to use for environmental samples.	
Soil Sample Results, Page XX	Soil cleanup objectives for PFOA and PFOS will be proposed in an upcoming revision to 6 NYCRR Part 375-6	Soil cleanup objectives for PFOA and PFOS have been proposed in an upcoming revision to 6 NYCRR Part 375-6	
Appendix A	"Include in the text… LC-MS/MS for PFAS using methodologies based on EPA Method 537.1"	"Include in the text ….EPA Method 1633"	
Appendix A	"Laboratory should have ELAP certification for PFOA and PFOS in drinking water by EPA Method 537, 537.1, EPA Method 533, or ISO 25101"	Deleted	
Appendix B	"Samples collected using this protocol are intended to be analyzed for PFAS using methodologies based on EPA Method 537.1"	"Samples collected using this protocol are intended to be analyzed for PFAS using EPA Method 1633"	

Citation and Page Number	Current Text	Corrected Text	Date
Appendix C	"Samples collected using this protocol are intended to be analyzed for PFAS using methodologies based on EPA Method 537.1"	"Samples collected using this protocol are intended to be analyzed for PFAS using EPA Method 1633"	
Appendix D	"Samples collected using this protocol are intended to be analyzed for PFAS using methodologies based on EPA Method 537.1"	"Samples collected using this protocol are intended to be analyzed for PFAS using EPA Method 1633"	
Appendix G		Updated to include all forty PFAS analytes in EPA Method 533	
Appendix H		Deleted	
Appendix I	Appendix I	Appendix H	
Appendix H	"These guidelines are intended to be used for the validation of PFAS analytical results for projects within the Division of Environmental Remediation (DER) as well as aid in the preparation of a data usability summary report."	"These guidelines are intended to be used for the validation of PFAS using EPA Method 1633 for projects within the Division of Environmental Remediation (DER)."	
Appendix H	"The holding time is 14 days…"	"The holding time is 28 days…"	
Appendix H, Initial Calibration	"The initial calibration should contain a minimum of five standards for linear fit…"	"The initial calibration should contain a minimum of six standards for linear fit…"	
Appendix H, Initial Calibration	Linear fit calibration curves should have an R^2 value greater than 0.990.	Deleted	
Appendix H, Initial Calibration Verification	Initial Calibration Verification Section	Deleted	
Appendix H	secondary Ion Monitoring Section	Deleted	
Appendix H	Branched and Linear Isomers Section	Deleted	

Sampling, Analysis, and Assessment of Per- and Polyfluoroalkyl Substances (PFAS) Under NYSDEC's Part 375 Remedial Programs

Objective

New York State Department of Environmental Conservation's Division of Environmental Remediation (DER) performs or oversees sampling of environmental media and subsequent analysis of PFAS as part of remedial programs implemented under 6 NYCRR Part 375. To ensure consistency in sampling, analysis, reporting, and assessment of PFAS, DER has developed this document which summarizes currently accepted procedures and updates previous DER technical guidance pertaining to PFAS.

Applicability

All work plans submitted to DEC pursuant to one of the remedial programs under Part 375 shall include PFAS sampling and analysis procedures that conform to the guidelines provided herein.

As part of a site investigation or remedial action compliance program, whenever samples of potentially affected media are collected and analyzed for the standard Target Analyte List/Target Compound List (TAL/TCL), PFAS analysis should also be performed. Potentially affected media can include soil, groundwater, surface water, and sediment. Based upon the potential for biota to be affected, biota sampling and analysis for PFAS may also be warranted as determined pursuant to a Fish and Wildlife Impact Analysis. Soil vapor sampling for PFAS is not required.

Field Sampling Procedures

DER-10 specifies technical guidance applicable to DER's remedial programs. Given the prevalence and use of PFAS, DER has developed "best management practices" specific to sampling for PFAS. As specified in DER-10 Chapter 2, quality assurance procedures are to be submitted with investigation work plans. Typically, these procedures are incorporated into a work plan, or submitted as a stand-alone document (e.g., a Quality Assurance Project Plan). Quality assurance guidelines for PFAS are listed in Appendix A - Quality Assurance Project Plan (QAPP) Guidelines for PFAS.

Field sampling for PFAS performed under DER remedial programs should follow the appropriate procedures outlined for soils, sediments, or other solids (Appendix B), non-potable groundwater (Appendix C), surface water (Appendix D), public or private water supply wells (Appendix E), and fish tissue (Appendix F).

QA/QC samples (e.g. duplicates, MS/MSD) should be collected as specified in DER-10, Section 2.3(c). For sampling equipment coming in contact with aqueous samples only, rinsate or equipment blanks should be collected. Equipment blanks should be collected at a minimum frequency of one per day per site or one per twenty samples, whichever is more frequent.

Analysis and Reporting

The investigation work plan should describe analysis and reporting procedures, including laboratory analytical procedures for the methods discussed below. As specified in DER-10 Section 2.2, laboratories should provide a full Category B deliverable. In addition, a Data Usability Summary Report (DUSR) should be prepared by an independent, third-party data validator. Electronic data submissions should meet the requirements provided at: https://www.dec.ny.gov/chemical/62440.html.

DER has developed a *PFAS Analyte List* (Appendix G) for remedial programs to understand the nature of contamination at sites. It is expected that reported results for PFAS will include, at a minimum, all the compounds listed. If lab and/or matrix specific issues are encountered for any analytes, the DER project manager, in consultation with the DER chemist, will make case-by-case decisions as to whether certain analytes may be temporarily or permanently discontinued from analysis at each site. As with other contaminants that are analyzed for at a site, the *PFAS Analyte List* may be refined for future sampling events based on investigative findings.

Routine Analysis

EPA Method 1633 is the procedure to use for environmental samples. Reporting limits for PFOA and PFOS in aqueous samples should not exceed 2 ng/L. Reporting limits for PFOA and PFOS in solid samples should not exceed 0.5 µg/kg. Reporting limits for all other PFAS in aqueous and solid media should be as close to these limits as possible. If laboratories indicate that they are not able to achieve these reporting limits for the entire *PFAS Analyte List*, site-specific decisions regarding acceptance of elevated reporting limits for specific PFAS can be made by the DER project manager in consultation with the DER chemist. Data review guidelines were developed by DER to ensure data comparability and usability (Appendix H - Data Review Guidelines for Analysis of PFAS in Non-Potable Water and Solids).

Additional Analysis

Additional laboratory methods for analysis of PFAS may be warranted at a site, such as the Synthetic Precipitation Leaching Procedure (SPLP) and Total Oxidizable Precursor Assay (TOP Assay).

In cases where site-specific cleanup objectives for PFOA and PFOS are to be assessed, soil parameters, such as Total Organic Carbon (Lloyd Kahn), soil pH (EPA Method 9045), clay content (percent), and cation exchange capacity (EPA Method 9081), should be included in the analysis to help evaluate factors affecting the leachability of PFAS in site soils.

SPLP is a technique used to determine the mobility of chemicals in liquids, soils and wastes, and may be useful in determining the need for addressing PFAS-containing material as part of the remedy. SPLP by EPA Method 1312 should be used unless otherwise specified by the DER project manager in consultation with the DER chemist.

Impacted materials can be made up of PFAS that are not analyzable by routine analytical methodology. A TOP Assay can be utilized to conceptualize the amount and type of oxidizable PFAS which could be liberated in the environment, which approximates the maximum concentration of perfluoroalkyl substances that could be generated if all polyfluoroalkyl substances were oxidized. For example, some polyfluoroalkyl substances may degrade or transform to form perfluoroalkyl substances (such as PFOA or PFOS), resulting in an increase in perfluoroalkyl substance concentrations as contaminated groundwater moves away from a source. The TOP Assay converts, through oxidation, polyfluoroalkyl substances (precursors) into perfluoroalkyl substances that can be detected by routine analytical methodology.[1]

[1] TOP Assay analysis of highly contaminated samples, such as those from an AFFF (aqueous film-forming foam) site, can result in incomplete oxidation of the samples and an underestimation of the total perfluoroalkyl substances.

Commercial laboratories have adopted methods which allow for the quantification of targeted PFAS in air and biota. The EPA's Office of Research and Development (ORD) is currently developing methods which allow for air emissions characterization of PFAS, including both targeted and non-targeted analysis of PFAS. Consult with the DER project manager and the DER chemist for assistance on analyzing biota/tissue and air samples.

Data Assessment and Application to Site Cleanup

Until such time as Soil Cleanup Objectives (SCOs) for PFOA and PFOS are published, the extent of contaminated media potentially subject to remediation should be determined on a case-by-case basis using the procedures discussed below and the criteria in DER-10. Preliminary target levels for cleanup of PFOA and PFOS in other media, including biota and sediment, have not yet been established by the DEC.

Water Sample Results

NYSDEC has adopted ambient water quality guidance values for PFOA and PFOS. Groundwater samples should be compared to the human health criteria of 6.7 ng/l (ppt) for PFOA and 2.7 ng/l (ppt) for PFOS. These human health criteria should also be applied to surface water that is used as a water supply. This guidance also includes criteria for surface water for PFOS applicable for aquatic life, which may be applicable at some sites. Drinking water sample results should be compared to the NYS maximum contaminant level (MCL) of 10 ng/l (ppt). Analysis to determine if PFOA and PFOS concentrations are attributable to the site should include a comparison between upgradient and downgradient levels, and the presence of soil source areas, as defined below.

If PFOA and/or PFOS are identified as contaminants of concern for a site, they should be assessed as part of the remedy selection process in accordance with Part 375 and DER-10.

Soil Sample Results

NYSDEC will delay adding soil cleanup objectives for PFOA and PFOS to 6 NYCRR Part 375-6 until the PFAS rural soil background study has been completed. Until SCOs are in effect, the following are to be used as guidance values:

Guidance Values for Anticipated Site Use	PFOA (ppb)	PFOS (ppb)
Unrestricted	0.66	0.88
Residential	6.6	8.8
Restricted Residential	33	44
Commercial	500	440
Industrial	600	440
Protection of Groundwater[2]	0.8	1.0

PFOA and PFOS results for soil are to be compared against the guidance values listed above. These guidance values are to be used in determining whether PFOA and PFOS are contaminants of concern for the site and for determining remedial action objectives and cleanup requirements. Site-specific remedial objectives for protection of groundwater can also be presented for evaluation by DEC. Development of site-specific remedial objectives for protection of groundwater will require analysis of additional soil parameters relating to leachability. These

[2] The Protection of Groundwater values are based on the above referenced ambient groundwater guidance values. Details on that calculation are available in the following document, prepared for the February 2022 proposed changes to Part 375 (https://www.dec.ny.gov/docs/remediation_hudson_pdf/part375techsupport.pdf). The movement of PFAS in the environment is being aggressively researched at this time; that research will eventually result in more accurate models for the behaviors of these chemicals. In the meantime, DEC has calculated the guidance value for the protection of groundwater using the same procedure used for all other chemicals, as described in Section 7.7 of the Technical Support Document (http://www.dec.ny.gov/docs/remediation_hudson_pdf/techsuppdoc.pdf).

additional analyses can include any or all the parameters listed above (soil pH, cation exchange capacity, etc.) and/or use of SPLP.

As the understanding of PFAS transport improves, DEC welcomes proposals for site-specific remedial objectives for protection of groundwater. DEC will expect that those may be dependent on additional factors including soil pH, aqueous pH, % organic carbon, % Sand/Silt/Clay, soil cations: K, Ca, Mg, Na, Fe, Al, cation exchange capacity, and anion exchange capacity. Site-specific remedial objectives should also consider the dilution attenuation factor (DAF). The NJDEP publication on DAF can be used as a reference: https://www.nj.gov/dep/srp/guidance/rs/daf.pdf.

Testing for Imported Soil

Testing for PFAS should be included any time a full TAL/TCL analyte list is required. Results for PFOA and PFOS should be compared to the applicable guidance values. If PFOA or PFOS is detected in any sample at or above the guidance values then the source of backfill should be rejected, unless a site-specific exemption is provided by DER based on SPLP testing, for example. If the concentrations of PFOA and PFOS in leachate are at or above the ambient water quality guidance values for groundwater, then the soil is not acceptable.

PFOA, PFOS and 1,4-dioxane are all considered semi-volatile compounds, so composite samples are appropriate for these compounds when sampling in accordance with DER-10, Table 5.4(e)10. Category B deliverables should be submitted for backfill samples, though a DUSR is not required.

Appendix A - Quality Assurance Project Plan (QAPP) Guidelines for PFAS

The following guidelines (general and PFAS-specific) can be used to assist with the development of a QAPP for projects within DER involving sampling and analysis of PFAS.

General Guidelines in Accordance with DER-10

- Document/work plan section title – Quality Assurance Project Plan
- Summarize project scope, goals, and objectives
- Provide project organization including names and resumes of the project manager, Quality Assurance Officer (QAO), field staff, and Data Validator
    - The QAO should not have another position on the project, such as project or task manager, that involves project productivity or profitability as a job performance criterion
- List the ELAP certified lab(s) to be used for analysis of samples
- Include a site map showing sample locations
- Provide detailed sampling procedures for each matrix
- Include Data Quality Usability Objectives
- List equipment decontamination procedures
- Include an "Analytical Methods/Quality Assurance Summary Table" specifying:
    - Matrix type
    - Number or frequency of samples to be collected per matrix
    - Number of field and trip blanks per matrix
    - Analytical parameters to be measured per matrix
    - Analytical methods to be used per matrix with minimum reporting limits
    - Number and type of matrix spike and matrix spike duplicate samples to be collected
    - Number and type of duplicate samples to be collected
    - Sample preservation to be used per analytical method and sample matrix
    - Sample container volume and type to be used per analytical method and sample matrix
    - Sample holding time to be used per analytical method and sample matrix
- Specify Category B laboratory data deliverables and preparation of a DUSR

Specific Guidelines for PFAS

- Include in the text that sampling for PFAS will take place
- Include in the text that PFAS will be analyzed by EPA Method 1633
- Include the list of PFAS compounds to be analyzed (*PFAS Analyte List*)
- Include the laboratory SOP for PFAS analysis
- List the minimum method-achievable Reporting Limits for PFAS
    - Reporting Limits should be less than or equal to:
        - Aqueous – 2 ng/L (ppt)
        - Solids – 0.5 µg/kg (ppb)
- Include the laboratory Method Detection Limits for the PFAS compounds to be analyzed
-
- Include detailed sampling procedures
    - Precautions to be taken
    - Pump and equipment types
    - Decontamination procedures
    - Approved materials only to be used
- Specify that regular ice only will be used for sample shipment
- Specify that equipment blanks should be collected at a minimum frequency of 1 per day per site for each matrix

Appendix B - Sampling Protocols for PFAS in Soils, Sediments and Solids

General

The objective of this protocol is to give general guidelines for the collection of soil, sediment and other solid samples for PFAS analysis. The sampling procedure used should be consistent with Sampling Guidelines and Protocols – Technological Background and Quality Control/Quality Assurance for NYS DEC Spill Response Program – March 1991 (http://www.dec.ny.gov/docs/remediation_hudson_pdf/sgpsect5.pdf), with the following limitations.

Laboratory Analysis and Containers

Samples collected using this protocol are intended to be analyzed for PFAS using EPA Method 1633.

The preferred material for containers is high density polyethylene (HDPE). Pre-cleaned sample containers, coolers, sample labels, and a chain of custody form will be provided by the laboratory.

Equipment

Acceptable materials for sampling include stainless steel, HDPE, PVC, silicone, acetate, and polypropylene. Additional materials may be acceptable if pre-approved by New York State Department of Environmental Conservation's Division of Environmental Remediation.

No sampling equipment components or sample containers should come in to contact with aluminum foil, low density polyethylene, glass, or polytetrafluoroethylene (PTFE, Teflon™) materials including sample bottle cap liners with a PTFE layer.

A list of acceptable equipment is provided below, but other equipment may be considered appropriate based on sampling conditions.

- stainless steel spoon
- stainless steel bowl
- steel hand auger or shovel without any coatings

Equipment Decontamination

Standard two step decontamination using detergent (Alconox is acceptable) and clean, PFAS-free water will be performed for sampling equipment. All sources of water used for equipment decontamination should be verified in advance to be PFAS-free through laboratory analysis or certification.

Sampling Techniques

Sampling is often conducted in areas where a vegetative turf has been established. In these cases, a pre-cleaned trowel or shovel should be used to carefully remove the turf so that it may be replaced at the conclusion of sampling. Surface soil samples (e.g. 0 to 6 inches below surface) should then be collected using a pre-cleaned, stainless steel spoon. Shallow subsurface soil samples (e.g. 6 to ~36 inches below surface) may be collected by digging a hole using a pre-cleaned hand auger or shovel. When the desired subsurface depth is reached, a pre-cleaned hand auger or spoon shall be used to obtain the sample.

When the sample is obtained, it should be deposited into a stainless steel bowl for mixing prior to filling the sample containers. The soil should be placed directly into the bowl and mixed thoroughly by rolling the material into the middle until the material is homogenized. At this point the material within the bowl can be placed into the laboratory provided container.

Sample Identification and Logging

A label shall be attached to each sample container with a unique identification. Each sample shall be included on the chain of custody (COC).

Quality Assurance/Quality Control

- Immediately place samples in a cooler maintained at 4 ± 2º Celsius using ice
- Collect one field duplicate for every sample batch, minimum 1 duplicate per 20 samples. The duplicate shall consist of an additional sample at a given location
- Collect one matrix spike / matrix spike duplicate (MS/MSD) for every sample batch, minimum 1 MS/MSD per 20 samples. The MS/MSD shall consist of an additional two samples at a given location and identified on the COC
- Request appropriate data deliverable (Category B) and an electronic data deliverable

Documentation

A soil log or sample log shall document the location of the sample/borehole, depth of the sample, sampling equipment, duplicate sample, visual description of the material, and any other observations or notes determined to be appropriate. Additionally, care should be performed to limit contact with PFAS containing materials (e.g. waterproof field books, food packaging) during the sampling process.

Personal Protection Equipment (PPE)

For most sampling Level D PPE is anticipated to be appropriate. The sampler should wear nitrile gloves while conducting field work and handling sample containers.

Field staff shall consider the clothing to be worn during sampling activities. Clothing that contains PTFE material (including GORE-TEX®) or that have been waterproofed with PFAS materials should be avoided. All clothing worn by sampling personnel should have been laundered multiple times.

Appropriate rain gear (PVC, polyurethane, or rubber rain gear are acceptable), bug spray, and sunscreen should be used that does not contain PFAS. Well washed cotton coveralls may be used as an alternative to bug spray and/or sunscreen.

PPE that contains PFAS is acceptable when site conditions warrant additional protection for the samplers and no other materials can be used to be protective. Documentation of such use should be provided in the field notes.

Appendix C - Sampling Protocols for PFAS in Monitoring Wells

General

The objective of this protocol is to give general guidelines for the collection of groundwater samples for PFAS analysis. The sampling procedure used should be consistent with Sampling Guidelines and Protocols – Technological Background and Quality Control/Quality Assurance for NYS DEC Spill Response Program – March 1991 (http://www.dec.ny.gov/docs/remediation_hudson_pdf/sgpsect5.pdf), with the following limitations.

Laboratory Analysis and Container

Samples collected using this protocol are intended to be analyzed for PFAS using EPA Method 1633.

The preferred material for containers is high density polyethylene (HDPE). Pre-cleaned sample containers, coolers, sample labels, and a chain of custody form will be provided by the laboratory.

Equipment

Acceptable materials for sampling include: stainless steel, HDPE, PVC, silicone, acetate, and polypropylene. Additional materials may be acceptable if pre-approved by New York State Department of Environmental Conservation's Division of Environmental Remediation.

No sampling equipment components or sample containers should come in contact with aluminum foil, low density polyethylene, glass, or polytetrafluoroethylene (PTFE, Teflon™) materials including plumbers tape and sample bottle cap liners with a PTFE layer.

A list of acceptable equipment is provided below, but other equipment may be considered appropriate based on sampling conditions.

- stainless steel inertia pump with HDPE tubing
- peristaltic pump equipped with HDPE tubing and silicone tubing
- stainless steel bailer with stainless steel ball
- bladder pump (identified as PFAS-free) with HDPE tubing

Equipment Decontamination

Standard two step decontamination using detergent (Alconox is acceptable) and clean, PFAS-free water will be performed for sampling equipment. All sources of water used for equipment decontamination should be verified in advance to be PFAS-free through laboratory analysis or certification.

Sampling Techniques

Monitoring wells should be purged in accordance with the sampling procedure (standard/volume purge or low flow purge) identified in the site work plan, which will determine the appropriate time to collect the sample. If sampling using standard purge techniques, additional purging may be needed to reduce turbidity levels, so samples contain a limited amount of sediment within the sample containers. Sample containers that contain sediment may cause issues at the laboratory, which may result in elevated reporting limits and other issues during the sample preparation that can compromise data usability. Sampling personnel should don new nitrile gloves prior to sample collection due to the potential to contact PFAS containing items (not related to the sampling equipment) during the purging activities.

Sample Identification and Logging

A label shall be attached to each sample container with a unique identification. Each sample shall be included on the chain of custody (COC).

Quality Assurance/Quality Control

- Immediately place samples in a cooler maintained at 4 ± 2º Celsius using ice
- Collect one field duplicate for every sample batch, minimum 1 duplicate per 20 samples. The duplicate shall consist of an additional sample at a given location
- Collect one matrix spike / matrix spike duplicate (MS/MSD) for every sample batch, minimum 1 MS/MSD per 20 samples. The MS/MSD shall consist of an additional two samples at a given location and identified on the COC
- Collect one equipment blank per day per site and minimum 1 equipment blank per 20 samples. The equipment blank shall test the new and decontaminated sampling equipment utilized to obtain a sample for residual PFAS contamination. This sample is obtained by using laboratory provided PFAS-free water and passing the water over or through the sampling device and into laboratory provided sample containers
- Additional equipment blank samples may be collected to assess other equipment that is utilized at the monitoring well
- Request appropriate data deliverable (Category B) and an electronic data deliverable

Documentation

A purge log shall document the location of the sample, sampling equipment, groundwater parameters, duplicate sample, visual description of the material, and any other observations or notes determined to be appropriate. Additionally, care should be performed to limit contact with PFAS containing materials (e.g. waterproof field books, food packaging) during the sampling process.

Personal Protection Equipment (PPE)

For most sampling Level D PPE is anticipated to be appropriate. The sampler should wear nitrile gloves while conducting field work and handling sample containers.

Field staff shall consider the clothing to be worn during sampling activities. Clothing that contains PTFE material (including GORE-TEX®) or that have been waterproofed with PFAS materials should be avoided. All clothing worn by sampling personnel should have been laundered multiple times.

Appropriate rain gear (PVC, polyurethane, or rubber rain gear are acceptable), bug spray, and sunscreen should be used that does not contain PFAS. Well washed cotton coveralls may be used as an alternative to bug spray and/or sunscreen.

PPE that contains PFAS is acceptable when site conditions warrant additional protection for the samplers and no other materials can be used to be protective. Documentation of such use should be provided in the field notes.

Appendix D - Sampling Protocols for PFAS in Surface Water

General

The objective of this protocol is to give general guidelines for the collection of surface water samples for PFAS analysis. The sampling procedure used should be consistent with Sampling Guidelines and Protocols – Technological Background and Quality Control/Quality Assurance for NYS DEC Spill Response Program – March 1991 (http://www.dec.ny.gov/docs/remediation_hudson_pdf/sgpsect5.pdf), with the following limitations.

Laboratory Analysis and Container

Samples collected using this protocol are intended to be analyzed for PFAS using EPA Method 1633.

The preferred material for containers is high density polyethylene (HDPE). Pre-cleaned sample containers, coolers, sample labels, and a chain of custody form will be provided by the laboratory.

Equipment

Acceptable materials for sampling include: stainless steel, HDPE, PVC, silicone, acetate, and polypropylene. Additional materials may be acceptable if pre-approved by New York State Department of Environmental Conservation's Division of Environmental Remediation.

No sampling equipment components or sample containers should come in contact with aluminum foil, low density polyethylene, glass, or polytetrafluoroethylene (PTFE, Teflon™) materials including sample bottle cap liners with a PTFE layer.

A list of acceptable equipment is provided below, but other equipment may be considered appropriate based on sampling conditions.

- stainless steel cup

Equipment Decontamination

Standard two step decontamination using detergent (Alconox is acceptable) and clean, PFAS-free water will be performed for sampling equipment. All sources of water used for equipment decontamination should be verified in advance to be PFAS-free through laboratory analysis or certification.

Sampling Techniques

Where conditions permit, (e.g. creek or pond) sampling devices (e.g. stainless steel cup) should be rinsed with site medium to be sampled prior to collection of the sample. At this point the sample can be collected and poured into the sample container.

If site conditions permit, samples can be collected directly into the laboratory container.

Sample Identification and Logging

A label shall be attached to each sample container with a unique identification. Each sample shall be included on the chain of custody (COC).

Quality Assurance/Quality Control

- Immediately place samples in a cooler maintained at 4 ± 2º Celsius using ice
- Collect one field duplicate for every sample batch, minimum 1 duplicate per 20 samples. The duplicate shall consist of an additional sample at a given location
- Collect one matrix spike / matrix spike duplicate (MS/MSD) for every sample batch, minimum 1 MS/MSD per 20 samples. The MS/MSD shall consist of an additional two samples at a given location and identified on the COC
- Collect one equipment blank per day per site and minimum 1 equipment blank per 20 samples. The equipment blank shall test the new and decontaminated sampling equipment utilized to obtain a sample for residual PFAS contamination. This sample is obtained by using laboratory provided PFAS-free water and passing the water over or through the sampling device and into laboratory provided sample containers
- Request appropriate data deliverable (Category B) and an electronic data deliverable

Documentation

A sample log shall document the location of the sample, sampling equipment, duplicate sample, visual description of the material, and any other observations or notes determined to be appropriate. Additionally, care should be performed to limit contact with PFAS containing materials (e.g. waterproof field books, food packaging) during the sampling process.

Personal Protection Equipment (PPE)

For most sampling Level D PPE is anticipated to be appropriate. The sampler should wear nitrile gloves while conducting field work and handling sample containers.

Field staff shall consider the clothing to be worn during sampling activities. Clothing that contains PTFE material (including GORE-TEX®) or that have been waterproofed with PFAS materials should be avoided. All clothing worn by sampling personnel should have been laundered multiple times.

Appropriate rain gear (PVC, polyurethane, or rubber rain gear are acceptable), bug spray, and sunscreen should be used that does not contain PFAS. Well washed cotton coveralls may be used as an alternative to bug spray and/or sunscreen.

PPE that contains PFAS is acceptable when site conditions warrant additional protection for the samplers and no other materials can be used to be protective. Documentation of such use should be provided in the field notes.

Appendix E - Sampling Protocols for PFAS in Private Water Supply Wells

General

The objective of this protocol is to give general guidelines for the collection of water samples from private water supply wells (with a functioning pump) for PFAS analysis. The sampling procedure used should be consistent with Sampling Guidelines and Protocols – Technological Background and Quality Control/Quality Assurance for NYS DEC Spill Response Program – March 1991 (http://www.dec.ny.gov/docs/remediation_hudson_pdf/sgpsect5.pdf), with the following limitations.

Laboratory Analysis and Container

Drinking water samples collected using this protocol are intended to be analyzed for PFAS by EPA Method 537, 537.1, 533, or ISO Method 25101. The preferred material for containers is high density polyethylene (HDPE). Pre-cleaned sample containers, coolers, sample labels, and a chain of custody form will be provided by the laboratory.

Equipment

Acceptable materials for sampling include stainless steel, HDPE, PVC, silicone, acetate, and polypropylene. Additional materials may be acceptable if pre-approved by New York State Department of Environmental Conservation's Division of Environmental Remediation.

No sampling equipment components or sample containers should come in contact with aluminum foil, low density polyethylene, glass, or polytetrafluoroethylene (PTFE, Teflon™) materials (e.g. plumbers tape), including sample bottle cap liners with a PTFE layer.

Equipment Decontamination

Standard two step decontamination using detergent (Alconox is acceptable) and clean, PFAS-free water will be performed for sampling equipment. All sources of water used for equipment decontamination should be verified in advance to be PFAS-free through laboratory analysis or certification.

Sampling Techniques

Locate and assess the pressure tank and determine if any filter units are present within the building. Establish the sample location as close to the well pump as possible, which is typically the spigot at the pressure tank. Ensure sampling equipment is kept clean during sampling as access to the pressure tank spigot, which is likely located close to the ground, may be obstructed and may hinder sample collection.

Prior to sampling, a faucet downstream of the pressure tank (e.g., washroom sink) should be run until the well pump comes on and a decrease in water temperature is noted which indicates that the water is coming from the well. If the homeowner is amenable, staff should run the water longer to purge the well (15+ minutes) to provide a sample representative of the water in the formation rather than standing water in the well and piping system including the pressure tank. At this point a new pair of nitrile gloves should be donned and the sample can be collected from the sample point at the pressure tank.

Sample Identification and Logging

A label shall be attached to each sample container with a unique identification. Each sample shall be included on the chain of custody (COC).

Quality Assurance/Quality Control

- Immediately place samples in a cooler maintained at 4 ± 2º Celsius using ice
- Collect one field duplicate for every sample batch, minimum 1 duplicate per 20 samples. The duplicate shall consist of an additional sample at a given location
- Collect one matrix spike / matrix spike duplicate (MS/MSD) for every sample batch, minimum 1 MS/MSD per 20 samples. The MS/MSD shall consist of an additional two samples at a given location and identified on the COC
- If equipment was used, collect one equipment blank per day per site and a minimum 1 equipment blank per 20 samples. The equipment blank shall test the new and decontaminated sampling equipment utilized to obtain a sample for residual PFAS contamination. This sample is obtained by using laboratory provided PFAS-free water and passing the water over or through the sampling device and into laboratory provided sample containers.
- A field reagent blank (FRB) should be collected at a rate of one per 20 samples. The lab will provide a FRB bottle containing PFAS free water and one empty FRB bottle. In the field, pour the water from the one bottle into the empty FRB bottle and label appropriately.
- Request appropriate data deliverable (Category B) and an electronic data deliverable
- For sampling events where multiple private wells (homes or sites) are to be sampled per day, it is acceptable to collect QC samples at a rate of one per 20 across multiple sites or days.

Documentation

A sample log shall document the location of the private well, sample point location, owner contact information, sampling equipment, purge duration, duplicate sample, visual description of the material, and any other observations or notes determined to be appropriate and available (e.g. well construction, pump type and location, yield, installation date). Additionally, care should be performed to limit contact with PFAS containing materials (e.g. waterproof field books, food packaging) during the sampling process.

Personal Protection Equipment (PPE)

For most sampling Level D PPE is anticipated to be appropriate. The sampler should wear nitrile gloves while conducting field work and handling sample containers.

Field staff shall consider the clothing to be worn during sampling activities. Clothing that contains PTFE material (including GORE-TEX®) or that have been waterproofed with PFAS materials should be avoided. All clothing worn by sampling personnel should have been laundered multiple times.

Appendix F - Sampling Protocols for PFAS in Fish

This appendix contains a copy of the current SOP developed by the Division of Fish and Wildlife (DFW) entitled "General Fish Handling Procedures for Contaminant Analysis" (Ver. 8). This SOP should be followed when collecting fish for contaminant analysis. Note, however, that the Bureau of Ecosystem Health will not be supplying bags or tags. All supplies are the responsibility of the collector

Procedure Name: General Fish Handling Procedures for Contaminant Analysis

Number: FW-005

Purpose: This procedure describes data collection, fish processing and delivery of fish collected for contaminant monitoring. It contains the chain of custody and collection record forms that should be used for the collections.

Organization: Environmental Monitoring Section
Bureau of Ecosystem Health
Division of Fish and Wildlife (DFW)
New York State Department of Environmental Conservation (NYSDEC)
625 Broadway
Albany, New York 12233-4756

Version: 8

Previous Version Date: 21 March 2018

Summary of Changes to this Version: Updated bureau name to Bureau of Ecosystem Health. Added direction to list the names of all field crew on the collection record. Minor formatting changes on chain of custody and collection records.

Originator or Revised by: Wayne Richter, Jesse Becker

Date: 26 April 2019

Quality Assurance Officer and Approval Date: Jesse Becker, 26 April 2019

NEW YORK STATE
DEPARTMENT OF ENVIRONMENTAL CONSERVATION

GENERAL FISH HANDLING PROCEDURES FOR CONTAMINANT ANALYSES

A. Original copies of all continuity of evidence (i.e., Chain of Custody) and collection record forms must accompany delivery of fish to the lab. A copy shall be directed to the Project Leader or as appropriate, Wayne Richter. All necessary forms will be supplied by the Bureau of Ecosystem Health. Because some samples may be used in legal cases, it is critical that each section is filled out completely. Each Chain of Custody form has three main sections:

   1. The top box is to be filled out **and signed** by the person responsible for the fish collection (e.g., crew leader, field biologist, researcher). This person is responsible for delivery of the samples to DEC facilities or personnel (e.g., regional office or biologist).

   2. The second section is to be filled out **and signed** by the person responsible for the collections while being stored at DEC, before delivery to the analytical lab. This may be the same person as in (1), but it is still required that they complete the section. Also important is the **range of identification numbers** (i.e., tag numbers) included in the sample batch.

   3. Finally, the bottom box is to record any transfers between DEC personnel and facilities. Each subsequent transfer should be **identified, signed, and dated**, until laboratory personnel take possession of the fish.

B. The following data are required on each **Fish Collection Record** form:

   1. Project and Site Name.

   2. DEC Region.

   3. All personnel (and affiliation) involved in the collection.

   4. Method of collection (gill net, hook and line, etc.)

   5. Preservation Method.

C. The following data are to be taken on each fish collected and recorded on the **Fish Collection Record** form:

   1. Tag number - Each specimen is to be individually jaw tagged at time of collection with a unique number. Make sure the tag is turned out so that the number can be read without opening the bag. Use tags in sequential order. For small fish or composite samples place the tag inside the bag with the samples. The Bureau of Ecosystem Health can supply the tags.

   2. Species identification (please be explicit enough to enable assigning genus and species). Group fish by species when processing.

   3. Date collected.

   4. Sample location (waterway and nearest prominent identifiable landmark).

   5. Total length (nearest mm or smallest sub-unit on measuring instrument) and weight (nearest g or

smallest sub-unit of weight on weighing instrument). Take all measures as soon as possible with calibrated, protected instruments (e.g. from wind and upsets) and prior to freezing.

6. Sex - fish may be cut enough to allow sexing or other internal investigation, but do not eviscerate. Make any incision on the right side of the belly flap or exactly down the midline so that a left-side fillet can be removed.

D. General data collection recommendations:

1. It is helpful to use an ID or tag number that will be unique. It is best to use metal striped bass or other uniquely numbered metal tags. If uniquely numbered tags are unavailable, values based on the region, water body and year are likely to be unique: for example, R7CAY11001 for Region 7, Cayuga Lake, 2011, fish 1. If the fish are just numbered 1 through 20, we have to give them new numbers for our database, making it more difficult to trace your fish to their analytical results and creating an additional possibility for errors.

2. Process and record fish of the same species sequentially. Recording mistakes are less likely when all fish from a species are processed together. Starting with the bigger fish species helps avoid missing an individual.

3. If using Bureau of Ecosystem Health supplied tags or other numbered tags, use tags in sequence so that fish are recorded with sequential Tag Numbers. This makes data entry and login at the lab and use of the data in the future easier and reduces keypunch errors.

4. Record length and weight as soon as possible after collection and before freezing. Other data are recorded in the field upon collection. An age determination of each fish is optional, but if done, it is recorded in the appropriate “Age” column.

5. For composite samples of small fish, record the number of fish in the composite in the Remarks column. Record the length and weight of each individual in a composite. All fish in a composite sample should be of the same species and members of a composite should be visually matched for size.

6. Please submit photocopies of topographic maps or good quality navigation charts indicating sampling locations. GPS coordinates can be entered in the Location column of the collection record form in addition to or instead for providing a map. These records are of immense help to us (and hopefully you) in providing documented location records which are not dependent on memory and/or the same collection crew. In addition, they may be helpful for contaminant source trackdown and remediation/control efforts of the Department.

7. When recording data on fish measurements, it will help to ensure correct data recording for the data recorder to call back the numbers to the person making the measurements.

E. Each fish is to be placed in its own individual plastic bag. For small fish to be analyzed as a composite, put all of the fish for one composite in the same bag but use a separate bag for each composite. It is important to individually bag the fish to avoid difficulties or cross contamination when processing the fish for chemical analysis. Be sure to include the fish’s tag number inside the bag, preferably attached to the fish with the tag number turned out so it can be read. Tie or otherwise secure the bag closed. **The Bureau of Ecosystem Health will supply the bags.** If necessary, food grade bags may be procured from a suitable vendor (e.g., grocery store). It is preferable to redundantly label each bag with a manila tag tied between the knot and the body of the bag. This tag should be labeled with the project name, collection location, tag number, collection date, and fish species. If scales are collected, the scale envelope should be labeled with

the same information.

F. Groups of fish, by species, are to be placed in one large plastic bag per sampling location. **The Bureau of Ecosystem Health will supply the larger bags.** Tie or otherwise secure the bag closed. Label the site bag with a manila tag tied between the knot and the body of the bag. The tag should contain: project, collection location, collection date, species and **tag number ranges**. Having this information on the manila tag enables lab staff to know what is in the bag without opening it.

G. Do not eviscerate, fillet or otherwise dissect the fish unless specifically asked to. If evisceration or dissection is specified, the fish must be cut along the exact midline or on the right side so that the left side fillet can be removed intact at the laboratory. If filleting is specified, the procedure for taking a standard fillet (SOP PREPLAB 4) must be followed, including removing scales.

H. Special procedures for PFAS: Unlike legacy contaminants such as PCBs, which are rarely found in day to day life, PFAS are widely used and frequently encountered. Practices that avoid sample contamination are therefore necessary. While no standard practices have been established for fish, procedures for water quality sampling can provide guidance. The following practices should be used for collections when fish are to be analyzed for PFAS:

No materials containing Teflon.
No Post-it notes.
No ice packs; only water ice or dry ice.
Any gloves worn must be powder free nitrile.
No Gore-Tex or similar materials (Gore-Tex is a PFC with PFOA used in its manufacture).
No stain repellent or waterproof treated clothing; these are likely to contain PFCs.
Avoid plastic materials, other than HDPE, including clipboards and waterproof notebooks.
Wash hands after handling any food containers or packages as these may contain PFCs.
Keep pre-wrapped food containers and wrappers isolated from fish handling.
Wear clothing washed at least six times since purchase.
Wear clothing washed without fabric softener.
Staff should avoid cosmetics, moisturizers, hand creams and similar products on the day of sampling as many of these products contain PFCs (Fujii et al. 2013). Sunscreen or insect repellent should not contain ingredients with “fluor” in their name. Apply any sunscreen or insect repellent well downwind from all materials. Hands must be washed after touching any of these products.

I. All fish must be kept at a temperature <45° F (<8° C) immediately following data processing. As soon as possible, freeze at -20° C ± 5° C. Due to occasional freezer failures, daily freezer temperature logs are required. The freezer should be locked or otherwise secured to maintain chain of custody.

J. In most cases, samples should be delivered to the Analytical Services Unit at the Hale Creek field station. Coordinate delivery with field station staff and send copies of the collection records, continuity of evidence forms and freezer temperature logs to the field station. For samples to be analyzed elsewhere, non-routine collections or other questions, contact Wayne Richter, Bureau of Ecosystem Health, NYSDEC, 625 Broadway, Albany, New York 12233-4756, 518-402-8974, or the project leader about sample transfer. Samples will then be directed to the analytical facility and personnel noted on specific project descriptions.

K. A recommended equipment list is at the end of this document.

NEW YORK STATE DEPARTMENT OF ENVIRONMENTAL CONSERVATION
DIVISION OF FISH AND WILDLIFE
FISH COLLECTION RECORD

Project and Site Name _____ DEC Region _____

Collections made by (include all crew) _____

Sampling Method: □Electrofishing □Gill netting □Trap netting □Trawling □Seining □Angling □Other _____

Preservation Method: □Freezing □Other _____ Notes (SWFDB survey number): _____

FOR LAB USE ONLY- LAB ENTRY NO.	COLLECTION OR TAG NO.	SPECIES	DATE TAKEN	LOCATION	AGE	SEX &/OR REPROD. CONDIT	LENGTH ( )	WEIGHT ( )	REMARKS

richter: revised 2011, 5/7/15, 10/4/16, 3/20/17; becker: 3/23/17, 4/26/19

NEW YORK STATE DEPARTMENT OF ENVIRONMENTAL CONSERVATION
CHAIN OF CUSTODY

I, _____, of _____ collected the
(Print Name) (Print Business Address)

following on _____, 20____ from _____
(Date) (Water Body)

in the vicinity of _____
(Landmark, Village, Road, etc.)

Town of _____, in _____ County.

Item(s) _____

_____

Said sample(s) were in my possession and handled according to standard procedures provided to me prior to collection. The sample(s) were placed in the custody of a representative of the New York State Department of Environmental Conservation on _____, 20_____.

_____ _____
Signature Date

I, _____, received the above mentioned sample(s) on the date specified and assigned identification number(s) _____ to the sample(s). I have recorded pertinent data for the sample(s) on the attached collection records. The sample(s) remained in my custody until subsequently transferred, prepared or shipped at times and on dates as attested to below.

_____ _____
Signature Date

SECOND RECIPIENT (Print Name)	TIME & DATE	PURPOSE OF TRANSFER
SIGNATURE	UNIT	
THIRD RECIPIENT (Print Name)	TIME & DATE	PURPOSE OF TRANSFER
SIGNATURE	UNIT	
FOURTH RECIPIENT (Print Name)	TIME & DATE	PURPOSE OF TRANSFER
SIGNATURE	UNIT	
RECEIVED IN LABORATORY BY (Print Name)	TIME & DATE	REMARKS
SIGNATURE	UNIT	
LOGGED IN BY (Print Name)	TIME & DATE	ACCESSION NUMBERS
SIGNATURE	UNIT	

richter: revised 21 April 2014; becker: 23 March 2017, 26 April, 2019

NOTICE OF WARRANTY

By signature to the chain of custody (reverse), the signatory warrants that the information provided is truthful and accurate to the best of his/her ability. The signatory affirms that he/she is willing to testify to those facts provided and the circumstances surrounding the same. Nothing in this warranty or chain of custody negates responsibility nor liability of the signatories for the truthfulness and accuracy of the statements provided.

HANDLING INSTRUCTIONS

On day of collection, collector(s) name(s), address(es), date, geographic location of capture (attach a copy of topographic map or navigation chart), species, number kept of each species, and description of capture vicinity (proper noun, if possible) along with name of Town and County must be indicated on reverse.

Retain organisms in manila tagged plastic bags to avoid mixing capture locations. Note appropriate information on each bag tag.

Keep samples as cool as possible. Put on ice if fish cannot be frozen within 12 hours. If fish are held more than 24 hours without freezing, they will not be retained or analyzed.

Initial recipient (either DEC or designated agent) of samples from collector(s) is responsible for obtaining and recording information on the collection record forms which will accompany the chain of custody. This person will seal the container using packing tape and writing his signature, the time and the date across the tape onto the container with indelible marker. Any time a seal is broken, for whatever purpose, the incident must be recorded on the Chain of Custody (reason, time, and date) in the purpose of transfer block. Container then is resealed using new tape and rewriting signature, with time and date.

EQUIPMENT LIST

Scale or balance of appropriate capacity for the fish to be collected.

Fish measuring board.

Plastic bags of an appropriate size for the fish to be collected and for site bags.

Individually numbered metal tags for fish.

Manila tags to label bags.

Small envelops, approximately 2” x 3.5”, if fish scales are to be collected.

Knife for removing scales.

Chain of custody and fish collection forms.

Clipboard.

Pens or markers.

Paper towels.

Dish soap and brush.

Bucket.

Cooler.

Ice.

Duct tape.

Appendix G – PFAS Analyte List

Group	Chemical Name	Abbreviation	CAS Number
Perfluoroalkyl sulfonic acids	Perfluorobutanesulfonic acid	PFBS	375-73-5
	Perfluoropentanesulfonic acid	PFPeS	2706-91-4
	Perfluorohexanesulfonic acid	PFHxS	355-46-4
	Perfluoroheptanesulfonic acid	PFHpS	375-92-8
	Perfluorooctanesulfonic acid	PFOS	1763-23-1
	Perfluorononanesulfonic acid	PFNS	68259-12-1
	Perfluorodecanesulfonic acid	PFDS	335-77-3
	Perfluorododecanesulfonic acid	PFDoS	79780-39-5
Perfluoroalkyl carboxylic acids	Perfluorobutanoic acid	PFBA	375-22-4
	Perfluoropentanoic acid	PFPeA	2706-90-3
	Perfluorohexanoic acid	PFHxA	307-24-4
	Perfluoroheptanoic acid	PFHpA	375-85-9
	Perfluorooctanoic acid	PFOA	335-67-1
	Perfluorononanoic acid	PFNA	375-95-1
	Perfluorodecanoic acid	PFDA	335-76-2
	Perfluoroundecanoic acid	PFUnA	2058-94-8
	Perfluorododecanoic acid	PFDoA	307-55-1
	Perfluorotridecanoic acid	PFTrDA	72629-94-8
	Perfluorotetradecanoic acid	PFTeDA	376-06-7
Per- and Polyfluoroether carboxylic acids	Hexafluoropropylene oxide dimer acid	HFPO-DA	13252-13-6
	4,8-Dioxa-3H-perfluorononanoic acid	ADONA	919005-14-4
	Perfluoro-3-methoxypropanoic acid	PFMPA	377-73-1
	Perfluoro-4-methoxybutanoic acid	PFMBA	863090-89-5
	Nonafluoro-3,6-dioxaheptanoic acid	NFDHA	151772-58-6
Fluorotelomer sulfonic acids	4:2 Fluorotelomer sulfonic acid	4:2-FTS	757124-72-4
	6:2 Fluorotelomer sulfonic acid	6:2-FTS	27619-97-2
	8:2 Fluorotelomer sulfonic acid	8:2-FTS	39108-34-4
Fluorotelomer carboxylic acids	3:3 Fluorotelomer carboxylic acid	3:3 FTCA	356-02-5
	5:3 Fluorotelomer carboxylic acid	5:3 FTCA	914637-49-3
	7:3 Fluorotelomer carboxylic acid	7:3 FTCA	812-70-4
Perfluorooctane sulfonamides	Perfluorooctane sulfonamide	PFOSA	754-91-6
	N-methylperfluorooctane sulfonamide	NMeFOSA	31506-32-8
	N-ethylperfluorooctane sulfonamide	NEtFOSA	4151-50-2
Perfluorooctane sulfonamidoacetic acids	N-methylperfluorooctane sulfonamidoacetic acid	N-MeFOSAA	2355-31-9
	N-ethylperfluorooctane sulfonamidoacetic acid	N-EtFOSAA	2991-50-6
Perfluorooctane sulfonamide ethanols	N-methylperfluorooctane sulfonamidoethanol	MeFOSE	24448-09-7
	N-ethylperfluorooctane sulfonamidoethanol	EtFOSE	1691-99-2

Group	Chemical Name	Abbreviation	CAS Number
Ether sulfonic acids	9-Chlorohexadecafluoro-3-oxanonane-1-sulfonic acid (F-53B Major)	9Cl-PF3ONS	756426-58-1
	11-Chloroeicosafluoro-3-oxaundecane-1-sulfonic acid (F-53B Minor)	11Cl-PF3OUdS	763051-92-9
	Perfluoro(2-ethoxyethane) sulfonic acid	PFEESA	113507-82-7

Appendix H - Data Review Guidelines for Analysis of PFAS in Non-Potable Water and Solids

General

These guidelines are intended to be used for the validation of PFAS using EPA Method 1633 for projects within the Division of Environmental Remediation (DER). Data reviewers should understand the methodology and techniques utilized in the analysis. Consultation with the end user of the data may be necessary to assist in determining data usability based on the data quality objectives in the Quality Assurance Project Plan. A familiarity with the laboratory's Standard Operating Procedure may also be needed to fully evaluate the data. If you have any questions, please contact DER's Quality Assurance Officer, Dana Barbarossa, at dana.barbarossa@dec.ny.gov.

Preservation and Holding Time

Samples should be preserved with ice to a temperature of less than 6°C upon arrival at the lab. The holding time is 28 days to extraction for aqueous and solid samples. The time from extraction to analysis for aqueous samples is 28 days and 40 days for solids.

Temperature greatly exceeds 6ºC upon arrival at the lab*	Use professional judgement to qualify detects and non-detects as estimated or rejected
Holding time exceeding 28 days to extraction	Use professional judgement to qualify detects and non-detects as estimated or rejected if holding time is grossly exceeded

*Samples that are delivered to the lab immediately after sampling may not meet the thermal preservation guidelines. Samples are considered acceptable if they arrive on ice or an attempt to chill the samples is observed.

Initial Calibration

The initial calibration should contain a minimum of six standards for linear fit and six standards for a quadratic fit. The relative standard deviation (RSD) for a quadratic fit calibration should be less than 20%.

The low-level calibration standard should be within 50% - 150% of the true value, and the mid-level calibration standard within 70% - 130% of the true value.

%RSD >20%	J flag detects and UJ non detects

Continuing Calibration Verification

Continuing calibration verification (CCV) checks should be analyzed at a frequency of one per ten field samples. If CCV recovery is very low, where detection of the analyte could be in question, ensure a low level CCV was analyzed and use to determine data quality.

CCV recovery <70 or >130%	J flag results

Blanks

There should be no detections in the method blanks above the reporting limits. Equipment blanks, field blanks, rinse blanks etc. should be evaluated in the same manner as method blanks. Use the most contaminated blank to evaluate the sample results.

Blank Result	Sample Result	Qualification
Any detection	<Reporting limit	Qualify as ND at reporting limit
Any detection	>Reporting Limit and >10x the blank result	No qualification
>Reporting limit	>Reporting limit and <10x blank result	J+ biased high

Field Duplicates

A blind field duplicate should be collected at rate of one per twenty samples. The relative percent difference (RPD) should be less than 30% for analyte concentrations greater than two times the reporting limit. Use the higher result for final reporting.

RPD >30%	Apply J qualifier to parent sample

Lab Control Spike

Lab control spikes should be analyzed with each extraction batch or one for every twenty samples. In the absence of lab derived criteria, use 70% - 130% recovery criteria to evaluate the data.

Recovery <70% or >130% (lab derived criteria can also be used)	Apply J qualifier to detects and UJ qualifier to non detects

Matrix Spike/Matrix Spike Duplicate

One matrix spike and matrix spike duplicate should be collected at a rate of one per twenty samples. Use professional judgement to reject results based on out of control MS/MSD recoveries.

Recovery <70% or >130% (lab derived criteria can also be used)	Apply J qualifier to detects and UJ qualifier to non detects of parent sample only
RPD >30%	Apply J qualifier to detects and UJ qualifier to non detects of parent sample only

Extracted Internal Standards (Isotope Dilution Analytes)

Problematic analytes (e.g. PFBA, PFPeA, fluorotelomer sulfonates) can have wider recoveries without qualification. Qualify corresponding native compounds with a J flag if outside of the range.

Recovery <50% or >150%	Apply J qualifier
Recovery <25% or >150% for poor responding analytes	Apply J qualifier
Isotope Dilution Analyte (IDA) Recovery <10%	Reject results

Signal to Noise Ratio

The signal to noise ratio for the quantifier ion should be at least 3:1. If the ratio is less than 3:1, the peak is discernable from the baseline noise and symmetrical, the result can be reported. If the peak appears to be baseline noise and/or the shape is irregular, qualify the result as tentatively identified.

Reporting Limits

If project-specific reporting limits were not met, please indicate that in the report along with the reason (e.g. over dilution, dilution for non-target analytes, high sediment in aqueous samples).

Peak Integrations

Target analyte peaks should be integrated properly and consistently when compared to standards. Ensure branched isomer peaks are included for PFAS where standards are available. Inconsistencies should be brought to the attention of the laboratory or identified in the data review summary report.

Method 1633 Analysis of Per- and Polyfluoroalkyl Substances (PFAS) in Aqueous, Solid, Biosolids, Oil and Tissue Samples by LC-MS/MS

References: Method 1633 - Analysis of Per- and Polyfluoroalkyl Substances (PFAS) in Aqueous, Solid, Biosolids, Oil and Tissue Samples by LC-MS/MS (2nd Draft -June 2022)

DOD QSM (US Department of Defense Quality Systems Manual for Environmental Laboratories, version 5.4, 20221)

1. Scope and Application

Matrices: Drinking water, Non-potable Water, Tissues, Oils, Biosolids and Solid Matrices

Definitions: Refer to Alpha Analytical Quality Manual.

1.1 Method 1633 is for use in the Clean Water Act (CWA) for the determination of the per- and polyfluoroalkyl substances (PFAS) in Table 1 in aqueous, solid (soil, biosolids, sediment) and tissue samples by liquid chromatography/mass spectrometry (LC-MS/MS).

1.2 The method calibrates and quantifies PFAS analytes using isotopically labeled standards. Where linear and branched isomers are present in the sample and either qualitative or quantitative standards containing branched and linear isomers are commercially available, the PFAS analyte is reported as a single analyte consisting of the sum of the linear and branched isomer concentrations

1.3 This is a liquid chromatography/tandem mass spectrometry (LC/MS/MS) method for the determination of selected perfluorinated alkyl substances (PFAS) in Non-Drinking Water, tissue soil and biosolid Matrices. Accuracy and precision data have been generated for the compounds listed in Table 1.

1.4 The data report packages present the documentation of any method modification related to the samples tested. Depending upon the nature of the modification and the extent of intended use, the laboratory may be required to demonstrate that the modifications will produce equivalent results for the matrix. Approval of all method modifications is by one or more of the following laboratory personnel before performing the modification: Area Supervisor, Department Supervisor, Laboratory Director, or Quality Assurance Officer.

1.5 This method is restricted to use by or under the supervision of analysts experienced in the operation of the LC/MS/MS and in the interpretation of LC/MS/MS data. Each analyst must demonstrate the ability to generate acceptable results with this method by performing an initial demonstration of capability.

2. Summary of Method

2.1 Environmental samples are prepared and extracted using method-specific procedures. Sample extracts are subjected to cleanup procedures designed to remove interferences. Analyses of the sample extracts are conducted by LC-MS/MS in the multiple reaction monitoring (MRM) mode. Sample concentrations are determined by isotope dilution or

extracted internal standard quantification using isotopically labeled compounds added to the samples before extraction.

2.2 Aqueous samples are spiked with isotopically labeled standards, extracted using solid-phase extraction (SPE) cartridges and undergo cleanup using carbon before analysis.

2.3 Solid and Oil samples are spiked with isotopically labeled standards, extracted into basic methanol, and cleaned up by carbon and SPE cartridges before analysis

2.4 Tissue samples are spiked with isotopically labeled standards, extracted in potassium hydroxide and acetonitrile followed by basic methanol, and cleaned up by carbon and SPE cartridges before analysis.

2.5 A sample extract is injected into an LC equipped with a C18 column that is interfaced to an MS/MS). The analytes are separated and identified by comparing the acquired mass spectra and retention times to reference spectra and retention times for calibration standards acquired under identical LC/MS/MS conditions. The concentration of each analyte is determined by using the isotope dilution technique. Extracted Internal Standards (EIS) analytes are used to monitor the extraction efficiency of the method analytes.

2.6 Method Modifications from Reference

N/A

3. Reporting Limits

The reporting limit for PFAS's are listed in Table 8.

4. Interferences

4.1 PFAS standards, extracts and samples should not come in contact with any glass containers or pipettes as these analytes can potentially adsorb to glass surfaces. PFAS analyte and EIS standards commercially purchased in glass ampoules are acceptable; however, all subsequent transfers or dilutions performed by the analyst must be prepared and stored in polypropylene containers.

4.2 Method interferences may be caused by contaminants in solvents, reagents (including reagent water), sample bottles and caps, and other sample processing hardware that lead to discrete artifacts and/or elevated baselines in the chromatograms. The method analytes in this method can also be found in many common laboratory supplies and equipment, such as PTFE (polytetrafluoroethylene) products, LC solvent lines, methanol, aluminum foil, SPE sample transfer lines, etc. All items such as these must be routinely demonstrated to be free from interferences (less than 1/2 the RL for each method analyte) under the conditions of the analysis by analyzing laboratory reagent blanks as described in Section 9.1. Subtracting blank values from sample results is not permitted.

4.3 Matrix interferences may be caused by contaminants that are co-extracted from the sample. The extent of matrix interferences will vary considerably from source to source, depending upon the nature of the water. Humic and/or fulvic material can be co-extracted during SPE and high levels can cause enhancement and/or suppression in the electrospray ionization

source or low recoveries on the SPE sorbent. Total organic carbon (TOC) is a good indicator of humic content of the sample.

4.4 SPE cartridges can be a source of interferences. The analysis of field and laboratory reagent blanks can provide important information regarding the presence or absence of such interferences. Brands and lots of SPE devices should be tested to ensure that contamination does not preclude analyte identification and quantitation.

5. Health and Safety

5.1 The toxicity or carcinogenicity of each reagent and standard used in this method is not fully established; however, each chemical compound should be treated as a potential health hazard. From this viewpoint, exposure to these chemicals must be reduced to the lowest possible level by whatever means available. A reference file of material safety data sheets is available to all personnel involved in the chemical analysis. Additional references to laboratory safety are available in the Chemical Hygiene Plan.

5.2 All personnel handling environmental samples known to contain or to have been in contact with municipal waste must follow safety practices for handling known disease causative agents.

5.3 PFOA has been described as “likely to be carcinogenic to humans.” Pure standard materials and stock standard solutions of these method analytes should be handled with suitable protection to skin and eyes, and care should be taken not to breathe the vapors or ingest the materials.

6. Sample Collection, Preservation, Shipping and Handling

6.1 Sample Collection for Aqueous Samples

6.1.1 Samples must be collected in two (2) 500-mL or 250-mL high density polyethylene (HDPE) container with an unlined plastic screw cap. All sample containers must have linerless HDPE or polypropylene caps.

6.1.2 The sample handler must wash their hands before sampling and wear nitrile gloves while filling and sealing the sample bottles. PFAS contamination during sampling can occur from a number of common sources, such as food packaging and certain foods and beverages. Proper hand washing and wearing nitrile gloves will aid in minimizing this type of accidental contamination of the samples.

6.1.3 Open the tap and allow the system to flush until the water temperature has stabilized (approximately 3 to 5 min). Collect samples from the flowing system.

6.1.4 Fill sample bottles. Samples do not need to be collected headspace free.

6.1.5 After collecting the sample and cap the bottle. Keep the sample sealed from time of collection until extraction.

6.1.6 Maintain all aqueous samples protected from light at 0 - 6 ºC from the time of collection until shipped to the laboratory. Samples must be shipped as soon as practical with sufficient ice to maintain the sample temperature below 6 ºC during transport and be received by the laboratory within 48 hours of collection. The laboratory must confirm that the sample temperature is 0 - 6 ºC upon receipt.

Once received by the laboratory, the samples must be stored at ≤ -20 ºC until sample preparation.

6.2 Sample Collection for Solid and Oil samples.

6.2.1 Grab samples are collected in polypropylene containers. Sample containers and contact surfaces containing PTFE shall be avoided. Samples should fill no more than ¾ full.

6.2.2 Maintain solid samples protected from light (in HDPE containers) at 0 - 6 ºC from the time of collection until receipt at the laboratory. The laboratory must confirm that the sample temperature is 0 - 6 ºC upon receipt. Once received by the laboratory, the samples must be stored at ≤ -20 ºC until sample preparation.

6.3 Sample Collection for fish and other tissue samples

6.3.1 If the time of collection to the time of receipt at the laboratory is expected to exceed 24 hours, the tissue samples must be frozen upon collection and shipped to the laboratory on dry ice.

6.3.2 Once received by the laboratory, the samples must be maintained protected from light at ≤ -20 ºC until prepared. Store unused samples in HDPE containers or wrapped in aluminum foil at ≤ -20 ºC.

6.3.3 The nature of the tissues of interest may vary by project. Field sampling plans and protocols should explicitly state the samples to be collected and if any processing will be conducted in the field (e.g., filleting of whole fish or removal of organs). All field procedures must involve materials and equipment that have been shown to be free of PFAS.

6.4 Sample Preservation

Not applicable.

6.5 Sample Shipping

Samples must be chilled during shipment and must not exceed 0 – 6 °C during the first 48 hours after collection. Sample temperature must be confirmed to be at or below 0 – 6 °C when the samples are received at the laboratory. Samples stored in the lab must be held at or below 6 °C until extraction but should not be frozen.

NOTE: Samples that are significantly above 0 – 6 ° C, at the time of collection, may need to be iced or refrigerated for a period of time, in order to chill them prior to shipping. This will allow them to be shipped with sufficient ice to meet the above requirements.

6.6 Sample Handling

6.6.1 Aqueous samples (including leachates) should be analyzed as soon as possible; however, samples may be held in the laboratory for up to 90 days from collection, when stored at ≤ -20 ºC and protected from the light. When stored at 0 - 6 ºC and protected from the light, aqueous samples may be held for up to 28 days, with the caveat that issues were observed with certain perfluorooctane sulfonamide ethanols and perfluorooctane sulfonamidoacetic acids after 7 days. These issues are more likely to elevate the observed concentrations of other PFAS compounds via the transformation of these precursors if they are present in the sample.

6.6.2 Solid samples (soils and sediments), Oil and tissue samples may be held for up to 90 days, if stored by the laboratory in the dark at either 0 - 6 ºC or ≤ -20 ºC, with the caveat that samples may need to be extracted as soon as possible if NFDHA is an important analyte.

6.6.3 Biosolids samples may be held for up to 90 days, if stored by the laboratory in the dark at 0 - 6 ºC or at -20 ºC. Because microbiological activity in biosolids samples at 0 - 6 ºC may lead to production of gases which may cause the sample to be expelled from the container when it is opened, as well as producing noxious odors, EPA recommends that samples be frozen if they need to be stored for more than a few days before extraction. Store sample extracts in the dark at less than 0 - 4 ºC until analyzed. If stored in the dark at less than 0 - 4 ºC, sample extracts may be stored for up to 90 days, with the caveat that issues were observed for some ether sulfonates after 28 days. These issues may elevate the observed concentrations of the ether sulfonates in the extract over time. Samples may need to be extracted as soon as possible if NFDHA is an important analyte.

7. Equipment and Supplies

7.1 SAMPLE CONTAINERS – 500-mL or 250-mL high density polyethylene (HDPE) bottles fitted with unlined screw caps. Sample bottles must be discarded after use.

7.2 SAMPLE JARS – 8-ounce wide mouth high density polyethylene (HDPE) bottles fitted with unlined screw caps. Sample bottles must be discarded after use.

7.3 POLYPROPYLENE BOTTLES – 4-mL narrow-mouth polypropylene bottles.

7.4 CENTRIFUGE TUBES – 50-mL conical polypropylene tubes with polypropylene screw caps for storing standard solutions and for collection of the extracts.

7.5 AUTOSAMPLER VIALS – Polypropylene 0.7-mL autosampler vials with polypropylene caps.

7.5.1 NOTE: Polypropylene vials and caps are necessary to prevent contamination of the sample from PTFE coated septa. However, polypropylene caps do not reseal, so evaporation occurs after injection. Thus, multiple injections from the same vial are not possible.

7.6 POLYPROPYLENE GRADUATED CYLINDERS – Suggested sizes include 25, 50, 100 and 1000-mL cylinders.

7.7 Auto Pipets – Suggested sizes include 5, 10, 25, 50, 100, 250, 500, 1000, 5000 and 10,000-µls.

7.8 PLASTIC PIPETS – Polypropylene or polyethylene disposable pipets.

7.9 Silanized glass wool (Sigma-Aldrich, Cat # 20411 or equivalent) – store in a clean glass jar and rinsed with methanol (2 times) prior to use.

7.10 Disposable syringe filter, 25-mm, 0.2-µm Nylon membrane, PALL/Acrodisc or equivalent

7.11 Variable volume pipettes with disposable HDPE or polypropylene tips (10 µL to 5 mL) used for preparation of calibration standards and spiked samples.

7.12 ANALYTICAL BALANCE – Capable of weighing to the nearest 0.0001 g.

7.13 ANALYTICAL BALANCE – Capable of weighing to the nearest 0.1 g.

7.14 SOLID PHASE EXTRACTION (SPE) APPARATUS FOR USING CARTRIDGES

7.14.1 SPE CARTRIDGES – (Phenomenex WAX 150 or 250mg or equivalent). The SPE sorbent must have a pKa above 8 so that it remains positively charged during the extraction.

7.14.1.1 Note: SPE cartridges with different bed volume (e.g., 500 mg) may be used; however, the laboratory must demonstrate that the bed volume does not negatively affect analyte absorption and elution, by performing the initial demonstration of capability analyses described in Section 13.

7.14.2 VACUUM EXTRACTION MANIFOLD – A manual vacuum manifold with large volume sampler for cartridge extractions, or an automatic/robotic sample preparation system designed for use with SPE cartridges, may be used if all QC requirements discussed in Section 9 are met. Extraction and/or elution steps may not be changed or omitted to accommodate the use of an automated system. Care must be taken with automated SPE systems to ensure the PTFE commonly used in these systems does not contribute to unacceptable analyte concentrations in the MB.

7.14.3 SAMPLE DELIVERY SYSTEM – Use of a polypropylene transfer tube system, which transfers the sample directly from the sample container to the SPE cartridge, is recommended, but not mandatory. Standard extraction manifolds come equipped with PTFE transfer tube systems. These can be replaced with 1/8” O.D. x 1/16” I.D. polypropylene or polyethylene tubing cut to an appropriate length to ensure no sample contamination from the sample transfer lines. Other types of non-PTFE tubing may be used provided it meets the MB and LCS QC requirements.

7.15 EXTRACT CONCENTRATION SYSTEM – Extracts are concentrated by evaporation with nitrogen using a water bath set no higher than 55 °C.

7.16 LABORATORY OR ASPIRATOR VACUUM SYSTEM – Sufficient capacity to maintain a vacuum of approximately 10 to 15 inches of mercury for extraction cartridges.

7.17 LIQUID CHROMATOGRAPHY (LC)/TANDEM MASS SPECTROMETER (MS/MS) WITH DATA SYSTEM

7.17.1 LC SYSTEM – Instrument capable of reproducibly injecting up to 10-µL aliquots and performing binary linear gradients at a constant flow rate near the flow rate used for development of this method (0.4 mL/min). The LC must be capable of pumping the water/methanol mobile phase without the use of a degasser which pulls vacuum on the mobile phase bottle (other types of degassers are acceptable). Degassers which pull vacuum on the mobile phase bottle will volatilize the ammonium acetate mobile phase causing the analyte peaks to shift to earlier retention times over the course of the analysis batch. The usage of a column heater is optional.

7.17.2 LC/TANDEM MASS SPECTROMETER – The LC/MS/MS must be capable of negative ion electrospray ionization (ESI) near the suggested LC flow rate of 0.4 mL/min. The system must be capable of performing MS/MS to produce unique product ions for the method analytes within specified retention time segments. A minimum of 10 scans across the chromatographic peak is required to ensure adequate precision.

7.17.3 DATA SYSTEM – An interfaced data system is required to acquire, store, reduce, and output mass spectral data. The computer software should have the capability of processing stored LC/MS/MS data by recognizing an LC peak within any given retention time window. The software must allow integration of the ion abundance of any specific ion within specified time or scan number limits. The software must be able to calculate relative response factors, construct linear regressions or quadratic calibration curves, and calculate analyte concentrations.

7.17.4 INSTRUMENT COLUMNS

7.17.4.1 ANALYTICAL: C18 column, 1.7 µm, 50 x 2.1 mm (Waters Acquity UPLC® BEH or equivalent)

7.17.4.2 OPTIONAL GUARD COLUMN: (Phenomenex Kinetex® Evo C18 or equivalent)

8. Reagents and Standards

8.1 GASES, REAGENTS, AND SOLVENTS – Reagent grade or better chemicals must be used.

8.1.1 REAGENT WATER – Purified water which does not contain any measurable quantities of any method analytes or interfering compounds greater than 1/2 the RL for each method analyte of interest. Prior to daily use, at least 3 L of reagent water should be flushed from the purification system to rinse out any build-up of analytes in the system's tubing.

8.1.2 METHANOL (CH_3OH, CAS#: 67-56-1) – High purity, demonstrated to be free of analytes and interferences.

8.1.3 AMMONIUM ACETATE ($NH_4C_2H_3O_2$, CAS#: 631-61-8) – High purity, demonstrated to be free of analytes and interferences. Store at 2-8° and replace 2 years after opening date.

8.1.4 ACETIC ACID (H_3CCOOH, CAS#: 64-19-7) - High purity, demonstrated to be free of analytes and interferences and stored at room temperature.

8.1.4.1 Acetic Acid (0.1%) – Dissolve acetic acid (1 mL) in reagent water (1 L), store at room temperature, replace after 3 months.

8.1.5 1M AMMONIUM ACETATE/REAGENT WATER – High purity, demonstrated to be free of analytes and interferences.

8.1.6 2mM AMMONIUM ACETATE/METHANOL:WATER (5:95) – To prepare, mix 2 ml of 1M AMMONIUM ACETATE,1 ml ACETIC ACID and 50 ml METHANOL into I Liter of REAGENT WATER.

8.1.7 ACETONITRILE – UPLC grade or equivalent, store at room temperature

8.1.8 TOLUENE – HPLC grade or equivalent.

8.1.9 ACETONE – pesticide grade or equivalent

8.1.10 AMMONIUM HYDROXIDE (NH_3, CAS#: 1336-21-6) – High purity, demonstrated to be free of analytes and interferences, and stored at room temperature.

8.1.11 AQUEOUS AMMONIUM HYDROXIDE (3%) – Add ammonium hydroxide (10 mL, 30%) to reagent water (90 mL), store at room temperature, replace after 3 months.

8.1.12 METHANOLIC AMMONIUM HYDROXIDE (0.3%) - add ammonium hydroxide (1 mL, 30%) to methanol (99 mL), store at room temperature, replace after 1 month

8.1.13 METHANOLIC AMMONIUM HYDROXIDE (1%) - add ammonium hydroxide (3.3 mL, 30%) to methanol (97 mL), store at room temperature, replace after 1 month

8.1.14 METHANOLIC AMMONIUM HYDROXIDE (2%) - add ammonium hydroxide (6.6 mL, 30%) to methanol (93.4 mL), store at room temperature, replace after 1 month

8.1.15 METHANOLIC POTASSIUM HYDROXIDE (0.05 M) – add 3.3 g of potassium hydroxide to 1 L of methanol, store at room temperature, replace after 3 months

8.1.16 METHANOL WITH 4% WATER, 1% AMMONIUM HYDROXIDE AND 0.625% ACETIC ACID - add ammonium hydroxide (3.3 mL, 30%), reagent water (1.7 mL) and acetic acid (0.625 mL) to methanol (92 mL), store at room temperature, replace after 1 month. This solution is used to prepare the instrument blank and calibration standards (Section 8.3.2).

8.1.17 FORMIC ACID – (greater than 96% purity or equivalent). Store at room temperature and replace after 2 years.

8.1.18 FORMIC ACID (aqueous, 0.1 M) - dissolve formic acid (4.6 g) in reagent water (1 L), store at room temperature, replace after 2 years.

8.1.19 FORMIC ACID (aqueous, 0.3 M) - dissolve formic acid (13.8 g) in reagent water (1 L), store at room temperature, replace after 2 years.

8.1.20 FORMIC ACID (aqueous, 5% v/v) - mix 5 mL formic acid with 95 mL reagent water, store at room temperature, replace after 2 years.

8.1.21 FORMIC ACID (methanolic 1:1, 0.1 M formic acid/methanol) - mix equal volumes of methanol and 0.1 M formic acid, store at room temperature, replace after 2 years.

8.1.22 FORMIC ACID (aqueous, 50% v/v) - mix 50 mL formic acid with 50 mL reagent water, store at room temperature, replace after 2 years.

8.1.23 POTASSIUM HYDROXIDE – certified ACS or equivalent, store at room temperature, replace after 2 years.

8.1.24 CARBON - – EnviCarb® 1-M-USP or equivalent, verified by lot number before use, stored at room temperature. Loose carbon allows for better adsorption of interferent organics. Note: The single-laboratory validation laboratory achieved better performance with loose carbon than carbon cartridges. Loose carbon will be used for the multi-laboratory validation to set statistically based method criteria.

8.1.25 NITROGEN – Used for the following purposes: Nitrogen aids in aerosol generation of the ESI liquid spray and is used as collision gas in some MS/MS instruments. The nitrogen used should meet or exceed instrument manufacturer's specifications. In addition, Nitrogen is used to concentrate sample extracts (Ultra High Purity or equivalent).

8.1.26 ARGON – Used as collision gas in some MS/MS instruments. Argon should meet or exceed instrument manufacturer's specifications. Nitrogen gas may be used as the collision gas provided sufficient sensitivity (product ion formation) is achieved.

8.2 REFERENCE MATRICES - Matrices in which PFAS and interfering compounds are not detected by this method. These matrices are to be used to prepare the batch QC samples, LOQ/MDL, and IDOC samples.

8.2.1 Reagent water - purified water, Type I

8.2.2 Solid reference matrix Ottawa Sand or equivalent

8.2.3 Tissue Reference matrix – Cod loin or other animal tissue demonstrated to be PFAS free.

8.3 STANDARD SOLUTIONS – When a compound purity is assayed to be 96% or greater, the weight can be used without correction to calculate the concentration of the stock standard. PFAS analyte and IS standards commercially purchased in glass ampoules are acceptable; however, all subsequent transfers or dilutions performed by the analyst must be prepared and stored in polypropylene containers and are stored at ≤4 °C. Standards for sample fortification generally should be prepared in the smallest volume that can be accurately measured to minimize the addition of excess organic solvent to aqueous samples.

8.3.1 Stock standards and diluted stock standards are stored at ≤4 °C. Prepare a spiking solution, containing the method analytes listed in Table 1, in methanol from prime stocks. The solution is used to prepare the calibration standards and to spike the known reference QC samples that are analyzed with every batch. Quantitative standards containing a mixture of branched and linear isomers must be used for method analytes if they are commercially available. Currently, these include PFOS, PFHxS, NEtFOSAA, and NMeFOSAA.

8.3.2 Calibration standard solutions – A series of calibration solutions containing the target analytes and the Labeled extracted internal standards (EIS) and non-extracted internal standards (NIS) is used to establish the initial calibration of the analytical instrument. Table 4 represents the concentrations of the native, EIS and NIS analytes of the calibration curve. Calibration standard solutions are made using the solution described in section 8.1.16.

8.3.3 ISOTOPE DILUTION EXTRACTED INTERNAL STANDARD (EIS) – Isotopically labelled analogs of the target analytes to be used for the quantification of target analytes. EIS stock standard solutions are purchased in glass ampoules and are stored in accordance with the manufacturer's recommendations. The EIS stock solution to be used for the fortification of samples and QC in accordance with the isotope dilution procedure. Table 2 represents the EIS concentrations and nominal sample amounts added to each field sample and QC element.

8.3.4 ISOTOPE DILUTION NON-EXTRACTED INTERNAL STANDARDS (NIS) – Isotopically labelled analogs to be added post extraction for the measurement of EIS extraction efficiency and is added to the final volume of all extractions. Table 3 represents the EIS concentrations and nominal sample amounts added to each field sample and QC element.

9. Quality Control

9.1 Method Blank

9.1.1 A Method Blank (MB) is required with each extraction batch to confirm that potential background contaminants are not interfering with the identification or quantitation of method analytes. An aliquot of reagent water that is treated exactly as a sample including exposure to all glassware, equipment, solvents, reagents and standards. Prep and analyze a MB for every 20 samples. If the MB produces a peak within the retention time window of any analyte that would prevent the determination of that analyte, determine the source of contamination, and eliminate the interference before processing samples. Background contamination must be reduced to an acceptable level before proceeding. Background from method analytes or other contaminants that interfere with the measurement of method analytes must be below the RL. If the method analytes are detected in the MB at concentrations equal to or greater than this level, then all data for the problem analyte(s) must be considered invalid for all samples in the extraction batch.

9.2 Laboratory Control Sample (LCS)

9.2.1 Low Level LCS or OPR (Ongoing Precision Recovery) sample is required with each extraction batch. A LLCS or OPR samples is a method blank spiked with known quantities of analytes. The fortified concentration of the LCS is spiked at 2X the LOQ. Default limits of 70-130% of the true value may be used for analytes until sufficient replicates have been analyzed to generate proper control limits. Calculate the percent recovery (%*R*) for each analyte using the equation:

9.2.2 An LCS or OPR (Ongoing Precision Recovery) sample is required with each extraction batch. A LCS or OPR samples is a method blank spiked with known quantities of analytes. The fortified concentration of the LCS is spiked at the midpoint of the calibration curve. Default limits of 70-130% of the true value may be used for analytes until sufficient replicates have been analyzed to generate proper control limits. Calculate the percent recovery (%*R*) for each analyte using the equation:

$$\%R = \frac{A \times 100}{B}$$

Where:

A = measured concentration in the fortified sample
B =fortification concentration.

9.1.1 Where applicable, in the absence of additional sample volume required to perform matrix specific QC, LCSD's are to be extracted and analyzed. The concentration and analyte

recovery criteria for the LCSD must be the same as the batch LCS The RSD's must fall within ≤30% of the true value for medium and high-level replicates, and ≤50% for low level replicates. Calculate the relative percent difference (RPD) for duplicate MSs (MS and MSD) using the equation:

$$RPD = \frac{|LCS - LCSD|}{(LCS + LCSD) / 2} \times 100$$

9.1.2 If the LCS and or LCSD results do not meet these criteria for method analytes, then all data for the problem analyte(s) must be considered invalid for all samples in the extraction batch.

9.3 Non-extracted Internal Standard Area (NIS)

Each time an initial calibration is performed, use the data from all the initial calibration standards used to meet the linearity test in Section 10.3.3.3 to calculate the mean area response for each of the NIS compounds, using the equation below.

$$\text{Mean Area}_{NISi} = \sum \text{AREA}_{NISi} / n$$

where:

AreaNISi = Area counts for the ith NIS, where i ranges from 1 to 7, for the seven NIS compounds listed in Table 1
n = The number of ICAL standards (the default value is n = 6). If a different number of standards is used for the ICAL, for example, to increase the calibration range or by dropping a point at either end of the range to meet the linearity criterion, change 6 to match the actual number of standards used)
Record the mean areas for each NIS for use in evaluating results for sample analyses. There is no acceptance criterion associated with the mean NIS area data.

9.4 Extracted Internal Standards (EIS)

9.4.1 The EIS standard is fortified into all samples, CCVs, MBs, LCSs, MSs, MSDs, FD, and FRB prior to extraction. It is also added to the CAL standards. The EIS is a means of assessing method performance from extraction to final chromatographic measurement. Calculate the recovery (%R) for the EIS using the following equation:

$$\%R = (A / B) \times 100$$

Where:
A = calculated EIS concentration for the QC or Field Sample
B = fortified concentration of the EIS.

9.4.2 Default limits of 50-150% may be used for analytes until sufficient replicates have been analyzed to generate proper control limits. A low or high percent recovery for a sample, blank, or CCV does not require discarding the analytical data but it may indicate a potential problem with future analytical data. When EIS recovery from a sample, blank, or CCV are outside control limits, check 1) calculations to locate possible errors, 2) standard solutions for degradation, 3) contamination, and 4)

instrument performance. For CCVs and QC elements spiked with all target analytes, if the recovery of the corresponding target analytes meet the acceptance criteria for the EIS in question, the data can be used but all potential biases in the recovery of the EIS must be documented in the sample report. If the associated target analytes do not meet the acceptance criteria, the data must be reanalyzed.

9.5 Matrix Spike (MS/MSD)

9.5.1 Analysis of an MS is prepared one per preparation batch (if required).

9.5.2 Aliquots of field samples that have been fortified with a known concentration of target compounds, prior to sample preparation and extraction, and analyzed to measure the effect of matrix interferences. The use of MS/MSD samples is generally not required in isotope dilution methods because the labeled compounds added to every sample provide more performance data than spiking a single sample in each preparation batch. Aliquots of field samples

9.5.3 Analyte recoveries may exhibit matrix bias. For samples fortified at or above their native concentration, recoveries should range between 50-150%. If the accuracy of any analyte falls outside the designated range, and the laboratory performance for that analyte is shown to be in control in the LCS, the recovery is judged to be matrix biased. The result for that analyte in the unfortified sample is labeled suspect/matrix to inform the data user that the results are suspect due to matrix effects.

9.6 Laboratory Duplicate

9.6.1 FIELD DUPLICATE OR LABORATORY FORTIFIED SAMPLE MATRIX DUPLICATE (FD or MSD) – Within each extraction batch (not to exceed 20 Field Samples), a minimum of one FD or MSD must be analyzed. Duplicates check the precision associated with sample collection, preservation, storage, and laboratory procedures. If method analytes are not routinely observed in Field Samples, an MSD should be analyzed rather than an FD.

9.6.2 Calculate the relative percent difference (*RPD*) for duplicate measurements (*FD1* and *FD2*) using the equation:

$$RPD = \frac{|FD1 - FD2|}{(FD1 + FD2) / 2} \times 100$$

9.6.3 RPDs for FDs should be ≤30%. Greater variability may be observed when FDs have analyte concentrations that are within a factor of 2 of the RL. At these concentrations, FDs should have RPDs that are ≤50%. If the RPD of any analyte falls outside the designated range, and the laboratory performance for that analyte is shown to be in control in the CCV, the recovery is judged to be matrix biased. The result for that analyte in the unfortified sample is labeled suspect/matrix to inform the data user that the results are suspect due to matrix effects.

9.6.4 If an MSD is analyzed instead of a FD, calculate the relative percent difference (RPD) for duplicate MSs (MS and MSD) using the equation:

$$RPD = \frac{|MS - MSD|}{} \times 100$$

(MS + MSD) / 2

9.6.5 RPDs for duplicate MSs should be ≤30% for samples fortified at or above their native concentration. Greater variability may be observed when MSs are fortified at analyte concentrations that are within a factor of 2 of the RL. MSs fortified at these concentrations should have RPDs that are ≤50% for samples fortified at or above their native concentration. If the RPD of any analyte falls outside the designated range, and the laboratory performance for that analyte is shown to be in control in the LCSD where applicable, the result is judged to be matrix biased. If no LCSD is present, the associated MS and MSD are to be re-analyzed to determine if any analytical has occurred. If the resulting RPDs are still outside control limits, the result for that analyte in the unfortified sample is labeled suspect/matrix to inform the data user that the results are suspect due to matrix effects.

9.7 Bile Salt Interference Check

9.7.1 The laboratory must analyze a TDCA standard after the initial calibration, prior to the analysis of tissue samples, to check for interferences caused by bile salts. If an interference is present, the chromatographic conditions must be modified to eliminate the interference from TDCA (e.g., changing the retention time of TDCA such that it falls outside the

9.8 Initial Calibration Verification (ICV)

9.8.1 After each ICAL, analyze a QCS sample from a source different from the source of the CAL standards. If a second vendor is not available, then a different lot of the standard should be used. The QCS should be prepared and analyzed just like a CCV. Acceptance criteria for the QCS are identical to the CCVs; the calculated amount for each analyte must be ± 30% of the expected value. If measured analyte concentrations are not of acceptable accuracy, check the entire analytical procedure to locate and correct the problem.

9.9 Instrument Sensitivity Check (ISC)

9.9.1 At the start of each 12-hour shift, analyze a standard at the LOQ. The signal-to-noise ratio of the ISC standard must be greater than or equal to 3:1. If the requirements cannot be met, the problem must be corrected before analyses can proceed.

9.10 Continuing Calibration Verification (CCV)

9.10.1 CCV Standards must be analyzed at the beginning of each analysis batch, after every 10 Field Samples, and at the end of the analysis batch.

9.10.2 The recovery of native and isotopically labeled compounds for the CVs must be within 70 - 130%

9.11 Method-specific Quality Control Samples

9.11.1 Instrument Blank – During the analysis of a batch of samples, a solvent blank is analyzed after samples containing high level of target compounds (e.g., calibration, CV) to monitor carryover from the previous injection. The injection blank consists of the solution in Section 8.1.16 fortified with the EIS and NIS for quantitation purposes.

9.12 Example Method Sequence

- INSTRUMENT BLANK
- INSTRUMENT SENSITIVITY CHECK
- CALIBRATION VERIFICATION STANDARD
- QUALITATIVE IDENTIFICATION STANDARDS
- TDCA STANDARD (only if analyzing tissues)
- INSTRUMENT BLANK
- METHOD BLANK
- LOW-LEVEL LCS/OPR
- OPR/LCS
- SAMPLE (10 or fewer)
- CALIBRATION VERIFICATION STANDARD
- INSTRUMENT BLANK
- SAMPLE (10 or fewer)
- CALIBRATION VERIFICATION STANDARD
- INSTRUMENT BLANK

10. Procedure

10.1 Equipment Set-up

10.1.1 This procedure may be performed manually or in an automated mode using a robotic or automatic sample preparation device. If an automated system is used to prepare samples, follow the manufacturer's operating instructions, but all extraction and elution steps must be the same as in the manual procedure. Extraction and/or elution steps may not be changed or omitted to accommodate the use of an automated system. If an automated system is used, the MBs should be rotated among the ports to ensure that all the valves and tubing meet the MB requirements.

10.1.2 Some of the PFAS's adsorb to surfaces, including polypropylene. Therefore, the aqueous sample bottles must be rinsed with the elution solvent whether extractions are performed manually or by automation. The bottle rinse is passed through the cartridge to elute the method analytes and is then collected.

10.1.3 The SPE cartridges and sample bottles described in this section are designed as single use items and should be discarded after use. They may not be refurbished for reuse in subsequent analyses.

10.1.4 All SPE apparatus, including manifolds, tubing and sample ports must be thoroughly rinsed following each use with 1% methanolic ammonium hydroxide, followed by Methanol and then DI water. Additionally, sample manifold ports and transfer tubing should be inspected regularly for signs of wear and/or

discoloration. When such observations are made, the associated components should be replaced.

10.1.5 Prior to the start of any extraction, sample site information must be evaluated for any potentially high level PFAS concentrations or sample matrix irregularities that may impact the extraction process. If such samples are identified, aqueous samples may be pre-screened via direct aqueous injection prior to analysis to estimate the potential PFAS concentrations present.

10.1.6 To perform a direct aqueous injection (DAI) screen, the sample should be inverted several times to try and evenly disperse any organic matter present. A 1 ml aliquot (or less depending on the matrix) is to be taken from the parent sample, volume adjusted to 1 ml with reagent water if less than 1ml, fortified with EIS and NIS spiking solutions to match the concentrations of an extracted sample (typically 5 µl per 1 ml DAI), and then analyzed under the same analytical conditions as field samples.

10.2 Sample Preparation of Aqueous Samples

10.2.1 Samples are preserved, collected, and stored as presented in Section 6.

10.2.2 Determine sample volume. Weigh all samples to the nearest 1g. If visible sediment is present, centrifuge and decant into a new HDPE bottle and record the weight of the new container.

NOTE: Some of the PFAS's adsorb to surfaces, thus the sample volume may not be transferred to a graduated cylinder for volume measurement.

10.2.3 The MB, LCS and FRB may be prepared by measuring reagent water with a polypropylene graduated cylinder or filling an HDPE sample bottle near the top.

10.2.4 Check that the pH is 6.5 ± 0.5. If necessary, adjust pH with 50% formic acid or ammonium hydroxide and 3% aqueous ammonium hydroxide. The extract is now ready for solid-phase extraction (SPE) and cleanup.

10.2.5 Add 20 µL of the EIS to each sample and QC, cap and invert to mix.

10.2.6 If the sample is an LCS, LCSD, MS, or MSD, add the necessary amount of analyte PDS. Cap and invert each sample to mix.

10.3 Sample Prep and Extraction Protocol for Solids.

10.3.1 Homogenize and weigh 5 grams of sample (measured to the nearest hundredth of a gram) into a 50 ml polypropylene centrifuge tube. For laboratory control blanks and spikes, 5 grams of clean sand is used.

10.3.1.1 For Biosolids and other complex matrices, a small aliquot may be required due to co-extracted matrix interferences.

10.3.1.2 For batch QC samples using 5 g of reference solid, add 2.5 g of reagent water. The addition of reagent water to the sand provides a matrix closer in composition to real-world samples.

10.3.2 Add 20 µL of the EIS to each sample and QC.

10.3.3 If the sample is an LCS, LCSD, MS, or MSD, add the necessary amount of analyte PDS. Cap and invert each sample to mix.

10.3.4 Vortex the samples to evenly disperse the spiking solutions and allow to equilibrate for 30 minutes.

10.3.5 To all samples, add 10 ml of 0.3% methanolic ammonium hydroxide, cap, vortex for 25 seconds.

10.3.6 Following mixing, shake each sample for 30 minutes on a shaker table.

10.3.7 Centrifuge each sample at 2800RPM for 10 minutes.

10.3.8 Remove the supernatant and transfer to a clean 50 ml polypropylene centrifuge tube.

10.3.9 Repeat steps 10.3.4 to 10.3.7, with 15 ml of 0.3% methanolic ammonium hydroxide, combining the supernatants.

10.3.10 Add 5ml of 0.3% methanolic ammonium hydroxide to the sample, vortex for 25 seconds and centrifuge each sample at 2800RPM for 10 minutes.

10.3.11 Remove the supernatant and transfer to the same 50 ml polypropylene centrifuge tube containing eluates from the previous cycles.

10.3.12 Add 10 mg of carbon to the combined extract, mix by occasional hand shaking for no more than five minutes and then centrifuge at 2800 rpm for 10 minutes. Immediately decant the extract into a 50 ml polypropylene centrifuge tube.

10.3.13 Dilute to approximately 35 mL with reagent water. Samples containing more than 50% water may yield extracts that are greater than 35 mL in volume; therefore, do not add water to these. Determine the water content in the sample as follows (percent moisture is determined from the % solids):

Water Content in Sample = (Sample Weight * Percent moisture) / 100

10.3.14 Concentrate each extract at approximately 55 ºC with a gentle N2 flow to a final volume that is based on the water content of the sample (see table below). Allow extracts to concentrate for 10 minutes, then mix (by vortex if the volume is < 20. Continue concentrating and mixing every 5 minutes until the extract has been reduced to the required volume as specified in the table below. If the extract volume appears to stop dropping, the concentration must be stopped and the volume at which it was stopped recorded.

Water Content in Sample	Concentrated Final Volume
< 5 grams	15 ml
5-8 grams	15-20 ml
8-9 grams	20-22.5 ml
9-10 grams	22.5-25 ml

10.3.15 Add 40 - 50 mL of reagent water to the extract and vortex. Check that the pH is 6.5 ±0.5 and adjust as necessary with 50% formic acid or 30% ammonium hydroxide, or with 5% formic acid and 3% aqueous ammonium hydroxide. The extracts are ready for SPE and cleanup.

10.4 Sample Prep and Extraction Protocol for Oils.

10.4.1 Weigh 1-2 grams of sample (measured to the nearest hundredth of a gram) into a 50 ml polypropylene centrifuge tube. For laboratory control blanks and spikes, 1 grams of mineral oil is used.

10.4.1.1 For batch QC samples use 1 g of reference oil.

10.4.2 Add 20 µL of the EIS to each sample and QC.

10.4.3 If the sample is an LCS, LCSD, MS, or MSD, add the necessary amount of analyte PDS. Cap and invert each sample to mix.

10.4.4 Vortex the samples to evenly disperse the spiking solutions and allow to equilibrate for 30 minutes.

10.4.5 To all samples, add 10 ml of 0.3% methanolic ammonium hydroxide, cap, vortex for 25 seconds.

10.4.6 Following mixing, shake each sample for 30 minutes on a shaker table.

10.4.7 Centrifuge each sample at 2800RPM for 10 minutes.

10.4.8 Remove the supernatant and transfer to a clean 50 ml polypropylene centrifuge tube.

10.4.9 Repeat steps 10.3.4 to 10.3.7, with 15 ml of 0.3% methanolic ammonium hydroxide, combining the supernatants.

10.4.10 Add 5ml of 0.3% methanolic ammonium hydroxide to the sample, vortex for 25 seconds and centrifuge each sample at 2800RPM for 10 minutes.

10.4.11 Remove the supernatant and transfer to the same 50 ml polypropylene centrifuge tube containing eluates from the previous cycles.

10.4.12 Add 10 mg of carbon to the combined extract, mix by occasional hand shaking for no more than five minutes and then centrifuge at 2800 rpm for 10 minutes. Immediately decant the extract into a 50 ml polypropylene centrifuge tube.

10.5 Sample Prep and Extraction Protocol for Tissues.

10.5.1 Homogenize and weigh 2 grams of sample (measured to the nearest hundredth of a gram) into a 50 ml polypropylene centrifuge tube. For laboratory control blanks and spikes, 2 grams of clean tissue is used.

10.5.2 Add 20 µL of the EIS PDS to each sample and QC.

10.5.3 If the sample is an LCS, LCSD, MS, or MSD, add the necessary amount of analyte PDS. Cap and invert each sample to mix.

10.5.4 Add 10 mL of 0.05M KOH in methanol to each sample. Vortex to disperse the tissue then place tubes on a mixing table to extract for at 16 hours. Centrifuge at 2800 rpm for 10 minutes and collect the supernatant in a 50-mL polypropylene centrifuge tube.

10.5.5 Add 10 mL of acetonitrile to remaining tissue in the 50-mL centrifuge tube, vortex to mix and disperse the tissue. Sonicate for 30 minutes. Centrifuge at 2800 rpm for 10 minutes and collect the supernatant, adding it to the 50-mL centrifuge tube containing the initial extract.

10.5.6 Add 5 mL of 0.05M KOH in methanol to the remaining sample in each centrifuge tube. Vortex to disperse the tissue and hand mix briefly. Centrifuge at 2800 rpm

for 10 minutes and collect the supernatant, adding it to the 50-mL centrifuge tube containing the first two extracts.

10.5.7 Add 10 mg of carbon to the combined extract, mix by occasional hand shaking over a period of no more than five minutes and then centrifuge at 2800 rpm for 10 minutes. Immediately decant the extract into a 50-mL centrifuge tube.

10.5.8 Add 1 mL of reagent water to each tube and concentrate each extract at approximately 55 ºC with a gentle N2 flow to a final volume of 2.5 ml.

10.5.9 Add reagent water to each evaporation/concentrator tube to dilute the extracts to 50 mL. Check that the pH = 6.5 ± 0.5 and adjust as needed with 50% formic acid, or ammonium hydroxide or with 5% formic acid and 3% aqueous ammonium hydroxide. The extracts are ready for SPE and cleanup.

10.6 SPE Extract: All matrices

10.6.1 Pack clean silanized glass wool to half the height of the WAX SPE cartridge barrel.

10.6.2 Pre-condition the cartridges by washing them with 3 X 5 mL of 1% methanolic ammonium hydroxide, discarding the wash volumes.

10.6.3 Rinse the cartridge with 5 mL of 0.3M formic acid, allowing the cartridge to drain using gravity only, discarding the rinse volume. Do not allow the cartridge to go dry

10.6.4 Adjust the vacuum so that the approximate flow rate is ~5 mL/min and load the sample across the cartridge. Do not allow the cartridge to go dry before all the sample has passed through.

10.6.5 Once all the sample has passed across the cartridge, rinse the walls of the reservoir with 2 X 5 mL reagent water, loading the rinse across the cartridge.

10.6.6 Rinse the walls of the reservoir with 5 mL of 1:1 0.1M formic acid/methanol and pass the rinse through the cartridge using vacuum. Dry the cartridge by pulling air through for 15 seconds.

10.6.7 Rinse the inside of the sample bottle with 5 mL of 1% methanolic ammonium hydroxide. Use vacuum to pull the elution solvent through the cartridge and into the collection tubes. When the cartridge bed and glass wool are submerged, stop the cartridge flow by closing the valve, keeping the sorbent bed and wool submerged.

10.6.8 Let the wetted sorbent bed and wool soak for 1 minute.

10.6.9 Open the cartridge valve and collect the eluate into a 15 ml polypropylene collection tube.

10.6.10 Add 25 µL of concentrated acetic acid to each sample eluted in the collection tubes and vortex to mix.

10.6.11 Add 10 mg of carbon to each sample and batch QC extract, using a 10-mg scoop. Handshake occasionally for no more than 5 minutes. It is important to minimize the time the sample extract is in contact with the carbon. Immediately vortex (30 seconds) and centrifuge at 2800 rpm for 10 minutes.

10.6.12 Add NIS solution to a clean collection tube. Place a syringe filter (25-mm filter, 0.2-µm nylon membrane) on a 5-mL polypropylene syringe. Take the plunger out and carefully decant the sample supernatant into the syringe barrel. Replace the

plunger and filter the entire extract into the new collection tube containing the NIS.

10.6.13 Vortex to mix and transfer a portion of the extract into a .7-mL polypropylene LC vial for LC-MS/MS analysis. Cap the collection tube containing the remaining extract and store at 4 °C

10.7 Sample Volume Determination

10.7.1 If using weight to determine volume, weigh the empty bottle to the nearest 1 g and determine the sample weight by subtraction of the empty bottle weight from the original sample weight. Assume a sample density of 1.0 g/mL. In either case, the sample volume will be used in the final calculations of the analyte concentration.

10.8 Initial Calibration - Demonstration and documentation of acceptable initial calibration is required before any samples are analyzed. After the initial calibration is successful, a CCV is required at the beginning and end of each period in which analyses are performed, and after every tenth Field Sample.

10.8.1 ESI-MS/MS TUNE

10.8.1.1 Calibrate the mass scale of the MS with the calibration compounds and procedures prescribed by the manufacturer.

10.8.1.2 Optimize the [M-H]- or [M-CO_2]- for each method analyte by infusing approximately 0.5-1.0 µg/mL of each analyte (prepared in the initial mobile phase conditions) directly into the MS at the chosen LC mobile phase flow rate (0.4 mL/min). This tune can be done on a mix of the method analytes. The MS parameters (voltages, temperatures, gas flows, etc.) are varied until optimal analyte responses are determined. The method analytes may have different optima requiring some compromise between the optima.

The Mass spec conditions found in Table 7 show the Sciex Triple Quad 5500+ operation conditions used in this method.

10.8.1.3 Optimize the product ion for each analyte by infusing approximately 0.5-1.0 µg/mL of each analyte (prepared in the initial mobile phase conditions) directly into the MS at the chosen LC mobile phase flow rate (approximately 0.4 mL/min). This tune can be done on a mix of the method analytes. The MS/MS parameters (collision gas pressure, collision energy, etc.) are varied until optimal analyte responses are determined. Typically, the carboxylic acids have very similar MS/MS conditions, and the sulfonic acids have similar MS/MS conditions.

The conditions found on table 5 are representative of expected tune optimizations for each analyte. If conditions other the ones close to the values provided in table 5 are achieved, the process should be re-performed and/or instrument maintenance performed to resolve the problem.

10.8.2 Establish LC operating parameters that optimize resolution and peak shape. Modifying the standard or extract composition to more aqueous content to prevent poor shape is not permitted.

Table 6 represents the operation conditions of a Sciex Exion LC system when running this method.

10.8.3 Inject 2µl of a mid-level CAL standard under LC/MS conditions to obtain the retention times of each method analyte. Divide the chromatogram into retention time windows each of which contains one or more chromatographic peaks. During MS/MS analysis, fragment a small number of selected precursor ions ([M-H]-) for the analytes in each window and choose the most abundant product ion. For maximum sensitivity, small mass windows of ±0.5 daltons around the product ion mass were used for quantitation.

10.8.4 Inject a mid-level CAL standard under optimized LC/MS/MS conditions to ensure that each method analyte is observed in its MS/MS window and that there are at least 10 scans across the peak for optimum precision.

NOTE: PFHxS, PFOS, NMeFOSAA, and NEtFOSAA have multiple chromatographic peaks using the LC conditions in Table 7 due to chromatographic resolution of the linear and branched isomers of these compounds. Most PFAS's are produced by two different processes. One process gives rise to linear PFAS's only while the other process produces both linear and branched isomers. Thus, both branched and linear PFAS's can potentially be found in the environment. For the aforementioned compounds that give rise to more than one peak, all the chromatographic peaks observed in the standard must be integrated and the areas totaled. Chromatographic peaks in a sample must be integrated in the same way as the CAL standard.

10.8.5 Prepare a set of CAL standards as outlined in table 5. The lowest concentration CAL standard must be at or below the LOQ.

10.8.6 The LC/MS/MS system is calibrated using the isotope dilution technique. Target analytes are quantitated against their isotopically labeled analog (Extracted Internal Standard) where commercially available. If a labeled analog is not commercially available, the extracted internal standard with the closest retention time and /or closest chemical similarity is to be used. Use the LC/MS/MS data system software to generate a linear regression or quadratic calibration curve for each of the analytes. This curve must always be forced through zero and may be concentration weighted, if necessary. Forcing zero allows for a better estimate of the background levels of method analytes. A minimum of 6 calibration points are required for a linear or quadratic calibration model.

10.8.7 **CALIBRATION ACCEPTANCE CRITERIA** – A linear fit is acceptable if the calculated RSD or RSE for each target analyte is ≤20%. If linear or Quadratic regressions are used, coefficient of determination (r^2) values must be greater than 0.99. When quantitated using the initial calibration curve, each calibration point at or above the LOQ for each analyte must calculate to be within 70-130% of its true value. The calculate value of each EIS analyte must be within 50-150% of its true value. If these criteria cannot be met, corrective action is taken to reanalyze the CAL standards, restrict the range of calibration.

10.8.8 **Bile salts interference check -** The laboratory must analyze a TDCA standard after the initial calibration, prior to the analysis of tissue samples, to check for interferences caused by bile salts. If an interference is present, the chromatographic conditions must be modified to eliminate the interference from TDCA (e.g., changing the retention time of TDCA such that it falls outside the

retention window for PFOS by at least one minute), and the initial calibration repeated.

10.9 CONTINUING CALIBRATION CHECK (CCV) – Minimum daily calibration verification is as follows. Verify the initial calibration at the beginning and end of each group of analyses, and after every tenth sample during analyses. In this context, a "sample" is considered to be a Field Sample. MBs, CCVs, LCSs, MSs, FDs FRBs and MSDs are not counted as samples. The beginning CCV of each analysis batch must be at or below the RL in order to verify instrument sensitivity prior to any analyses. If standards have been prepared such that all low CAL points are not in the same CAL solution, it may be necessary to analyze two CAL standards to meet this requirement. Alternatively, the analyte concentrations in the analyte PDS may be customized to meet these criteria. Subsequent CCVs should alternate between a medium and Low concentration CAL standard.

10.9.1 Inject an aliquot of the appropriate concentration CAL standard and analyze with the same conditions used during the initial calibration.

10.9.2 Calculate the concentration of each analyte and EIS in the CCV. The calculated amount for each native and EIS analyte for medium level CCVs must be within ± 30% of the true. If these conditions do not exist, then all data for the problem analyte must be considered invalid, and remedial action should be taken which may require recalibration. Any Field or QC Samples that have been analyzed since the last acceptable calibration verification should be reanalyzed after adequate calibration has been restored, with the following exception. If the CCV fails because the calculated concentration is greater than 130% for a particular method analyte, and Field Sample extracts show no detection for that method analyte, non-detects may be reported without re-analysis.

10.9.3 REMEDIAL ACTION – Failure to meet CCV QC performance criteria may require remedial action. Major maintenance, such as cleaning the electrospray probe, atmospheric pressure ionization source, cleaning the mass analyzer, replacing the LC column, etc., requires recalibration and verification of sensitivity by analyzing a CCV at or below the LOQ.

10.10 EXTRACT ANALYSIS

10.10.1 The same operating conditions used for the initial calibration and summarized in Tables 6 and 7 are to be used.

10.10.2 Prior to analysis of sample extracts, the Instrument mass calibration verification must be performed using standards whose mass range brackets the masses of interest and performed in the negative ion mode. The mass calibration is verified if the calculated mass is within ± .2 daltons of the specified mass.

10.10.3 Establish an appropriate retention time window for each analyte. This should be based on measurements of actual retention time variation for each method analyte in CAL standard solutions analyzed on the LC over the course of time. A value of plus or minus three times the standard deviation of the retention time obtained for each method analyte while establishing the initial calibration can be used to calculate a suggested window size. However, the experience of the analyst should weigh heavily on the determination of the appropriate retention window size.

10.10.4 Calibrate the system by either the analysis of a calibration curve or by confirming the initial calibration is still valid by analyzing a CCV.

10.10.5 Begin analyzing Field Samples, including QC samples, at their appropriate frequency by injecting the same size aliquots under the same conditions used to analyze the CAL standards.

10.10.6 For concentrations at or above the method LOQ, the total (branched and linear isomer) quantification ion response to the total (branched and linear isomer) confirmation ion response ratio must fall within ± 50% of the ratio observed in the midpoint initial calibration standard.

10.10.7 At the conclusion of data acquisition, use the same software that was used in the calibration procedure to identify peaks of interest in predetermined retention time windows. Use the data system software to examine the ion abundances of the peaks in the chromatogram. Identify an analyte by comparison of its retention time with that of the corresponding method analyte peak in a reference standard.

10.10.7.1 Method analyte, EIS analyte, and NIS analyte RTs must fall within 0.4 minutes of the predicted retention times from the midpoint standard of the ICAL or initial daily CV, whichever was used to establish the RT window position for the analytical batch. All branched isomer peaks identified in either the calibration standard or the qualitative (technical grade) standard must fall within in the retention time window for that analyte.

10.10.7.2 For all method analytes with exact corresponding isotopically labeled analogs, method analytes must elute within 0.1 minutes of the associated EIS.

10.10.8 The analyst must not extrapolate beyond the established calibration range. If an analyte peak area exceeds the range of the initial calibration curve, the sample should be re-extracted with a reduced sample volume in order to bring the out of range target analytes into the calibration range. If a smaller sample size would not be representative of the entire sample, the following options are recommended. Re-extract an additional aliquot of sufficient size to ensure that it is representative of the entire sample. Spike it with a higher concentration of internal standard. Prior to LC/MS analysis, dilute the sample so that it has a concentration of internal standard equivalent to that present in the calibration standard. Then, analyze the diluted extract.3

10.10.9 In instances where re-extraction is not an option, dilute a subsample of the sample extract with 0.1% acetic acid by a factor no greater than 10x adjust the amount of the NIS in the diluted extract, and analyze the diluted extract. If the responses for each EIS in the diluted extract meet the S/N and retention time, and the EIS recoveries from the analysis of the diluted extract are greater than 5%, then the compounds associated with those EISs may be quantified using isotope dilution. Use the EIS recoveries from the original analysis to select the dilution factor, with the objective of keeping the EIS recoveries in the dilution above that 5% lower limit. If the adjusted EIS recoveries are below 5%, the dilution is assumed invalid. If the adjusted EIS recoveries are greater than 5%, adjust the compound concentrations, detection limits, and minimum levels to account for the dilution.

11. Data Evaluation, Calculations and Reporting

11.1 Complete chromatographic resolution is not necessary for accurate and precise measurements of analyte concentrations using MS/MS. In validating this method, concentrations were calculated by measuring the product ions listed in Table 9.

11.2 Calculate analyte concentrations using the multipoint calibration established in Section 10.9. Do not use daily calibration verification data to quantitate analytes in samples. Adjust final analyte concentrations to reflect the actual sample volume determined in Section 10.8

C_{ex} = (Area of target analyte * Concentration of Labeled analog) / (area of labeled analog * CF)

C_s = (C_{ex} / sample volume in ml) * 1000

C_{ex} = The concentration of the analyte in the extract
CF = calibration factor from calibration.

11.3 Prior to reporting the data, the chromatogram should be reviewed for any incorrect peak identification or poor integration.

11.4 PFHxS, PFOS, PFOA, NMeFOSAA, and NEtFOSAA have multiple chromatographic peaks using the LC conditions in Table 7 due to the linear and branch isomers of these compounds (Sect. 10.10.4.). The areas of all the linear and branched isomer peaks observed in the CAL standards for each of these analytes must be summed and the concentrations reported as a total for each of these analytes.

11.5 Calculations must utilize all available digits of precision, but final reported concentrations should be rounded to an appropriate number of significant figures (one digit of uncertainty), typically two, and not more than three significant figures.

12. Contingencies for Handling Out-of-Control Data or Unacceptable Data

12.1 Section 9.0 outlines sample batch QC acceptance criteria. If non-compliant organic compound results are to be reported, the Organic Section Head and/or the Laboratory Director, and the Operations Manager must approve the reporting of these results. The laboratory Project Manager shall be notified and may choose to relay the non-compliance to the client, for approval, or other corrective action, such as re-sampling and re-analysis. The analyst, Data Reviewer, or Department Supervisor performing the secondary review initiates the project narrative, and the narrative must clearly document the non-compliance and provide a reason for acceptance of these results.

12.2 All results for the organic compounds of interest are reportable without qualification if extraction and analytical holding times are met, preservation requirements (including cooler temperatures) are met, all QC criteria are met, and matrix interference is not suspected during extraction or analysis of the samples. If any of the below QC parameters are not met, all associated samples must be evaluated for re-extraction and/or re-analysis.

13. Method Performance

13.1 Detection Limit Study (DL) / Limit of Detection Study (LOD) / Limit of Quantitation (LOQ)

13.1.1 The laboratory follows the procedure to determine the DL, LOD, and/or LOQ as outlined in Alpha SOP ID 1732. These studies performed by the laboratory are maintained on file for review.

13.2 Demonstration of Capability Studies

13.2.1 Refer to Alpha SOP ID 1739 for further information regarding IDC/DOC Generation.

13.2.2 The analyst must make a continuing, annual, demonstration of the ability to generate acceptable accuracy and precision with this method.

14. Pollution Prevention and Waste Management

14.1 Refer to Alpha's Chemical Hygiene Plan and Hazardous Waste Management and Disposal SOP for further pollution prevention and waste management information.

14.2 This method utilizes SPE to extract analytes from water. It requires the use of very small volumes of organic solvent and very small quantities of pure analytes, thereby minimizing the potential hazards to both the analyst and the environment as compared to the use of large volumes of organic solvents in conventional liquid-liquid extractions.

14.3 The analytical procedures described in this method generate relatively small amounts of waste since only small amounts of reagents and solvents are used. The matrices of concern are finished drinking water or source water. However, laboratory waste management practices must be conducted consistent with all applicable rules and regulations, and that laboratories protect the air, water, and land by minimizing and controlling all releases from fume hoods and bench operations. Also, compliance is required with any sewage discharge permits and regulations, particularly the hazardous waste identification rules and land disposal restrictions.

15. Referenced Documents

Chemical Hygiene Plan – ID 2124

SOP ID 1732 Detection Limit (DL), Limit of Detection (LOD) & Limit of Quantitation (LOQ) SOP

SOP ID 1739 Demonstration of Capability (DOC) Generation SOP

SOP ID 1728 Hazardous Waste Management and Disposal SOP

16. Attachments

Table 1: Names, Abbreviations, and CAS Registry Numbers for Target PFAS, Extracted Internal Standards and Non-extracted Internal Standards

Parameter	Acronym	CAS
PER- and POLYFLUOROALKYLETHER CARBOXYLIC ACIDS (PFECAs)		
Tetrafluoro-2-(heptafluoropropoxy)propanoic acid	HFPO-DA	13252-13-6
4,8-dioxa-3H-perfluorononanoic acid	ADONA	919005-14-4
Perfluoro-3-methoxypropanoic acid	PFMPA	377-73-1
Perfluoro-4-methoxybutanoic acid	PFMBA	863090-89-5
Nonafluoro-3,6-dioxaheptanoic acid	NFDHA	151772-58-6
PERFLUOROALKYLCARBOXILIC ACIDS (PFCAs)		
Perfluorobutanoic acid	PFBA	375-22-4
Perfluoropentanoic acid	PFPeA	2706-90-3
Perfluorohexanoic acid	PFHxA	307-24-4
Perfluoroheptanoic acid	PFHpA	375-85-9

Perfluorooctanoic acid	PFOA	335-67-1
Perfluorononanoic acid	PFNA	375-95-1
Perfluorodecanoic acid	PFDA	335-76-2
Perfluoroundecanoic acid	PFUnA	2058-94-8
Perfluorododecanoic acid	PFDoA	307-55-1
Perfluorotridecanoic acid	PFTrDA	72629-94-8
Perfluoorotetradecanoic acid	PFTeDA	376-06-7
PERFLUOROALKYL SULFONIC ACIDS (PFASs)		
Perfluorobutanesulfonic acid	PFBS	375-73-5
Perfluoropentanesulfonic acid	PFPeS	2706-91-4
Perfluorohexanesulfonic acid	PFHxS	355-46-4
Perfluoroheptanesulfonic acid	PFHpS	375-92-8
Perfluorooctanesulfonic acid	PFOS	1763-23-1
Perfluorononanesulfonic acid	PFNS	68259-12-1
Perfluorodecanesulfonic acid	PFDS	335-77-3
Perfluorododecanesulfonic acid	PFDoS	79780-39-5
CHLORO-PERFLUOROALKYLSULFONATE		
11-chloroeicosafluoro-3-oxaundecane-1-sulfonic acid	11Cl-PF3OUdS	763051-92-9

Perfluoro(2-ethoxyethane)sulfonic acid	PFEESA	113507-82-7
9-chlorohexadecafluoro-3-oxanone-1-sulfonic acid	9Cl-PF3ONS	756426-58-1
FLUOROTELOMER CARBOXYLIC ACIDS		
3-Perfluoropropyl propanoic acid	3:3FTCA	356-02-5
2H,2H,3H,3H-Perfluorooctanoic acid	5:3FTCA	914637-49-3
Perfluoroheptyl propanoic acid	7:3FTCA	812-70-4
PERFLUOROOCTANESULFONAMIDES		
Perfluorooctanesulfonamide	PFOSA	754-91-6
N-methylperfluoro-1-octanesulfonamide	NMeFOSA	31506-32-8
N-ethylperfluoro-1-octanesulfonamide	NEtFOSA	4151-50-2
PERFLUOROCTANE SULFONAMIDE ETHANOLS		
N-Methyl perfluorooctanesulfonamidoethanol	NMeFOSE	24448-09-7
N-ethyl perfluorooctanesulfonamidoethanol	NEtFOSE	1691-99-2
TELOMER SULFONIC ACIDS		
1H,1H,2H,2H-perfluorohexanesulfonic acid (4:2)	4:2FTS	757124-72-4
1H,1H,2H,2H-perfluorooctanesulfonic acid (6:2)	6:2FTS	27619-97-2
1H,1H,2H,2H-perfluorodecanesulfonic acid (8:2)	8:2FTS	39108-34-4
PERFLUOROOCTANESULFONAMIDOACETIC ACIDS		

N-methyl perfluorooctanesulfonamidoacetic acid	NMeFOSAA	2355-31-9
N-ethyl perfluorooctanesulfonamidoacetic acid	NEtFOSAA	2991-50-6
PERFLUOROETHER AND POLYETHER CARBOXYLIC ACIDS		
Perfluoro-3-methoxypropanoic acid	PFMPA	377-73-1
Perfluoro-4-methoxybutanoic acid	PFMBA	863090-89-5
Perfluoro(2-ethoxyethane)sulfonic acid	PFEESA	113507-82-7
Nonafluoro-3,6-dioxaheptanoic acid	NFDHA	151772-58-6

Table 2: Stock and Nominal Extracted Internal Standard Concentrations

Isotope Labeled Standard	Conc. of EIS Stock (ng/mL)	Nominal amount of EIS added to extracts (ng)
M4PFBA	2000	40
M5PFPeA	1000	20
M5PFHxA	500	10
M4PFHpA	500	10
M8PFOA	500	10
M9PFNA	250	5
M6PFDA	250	5
M7PFUdA	250	5
MPFDoA	250	5
M2PFTeDA	250	5
M3PFBS	466	9.32
M3PFHxS	474	9.48
M8PFOS	479	9.58
M2-4:2FTS	938	18.8
M2-6:2FTS	951	19
M2-8:2FTS	960	19.2
M8FOSA	500	10
d3-N-MeFOSA	500	10
d5-N-EtFOSA	500	10
d3-N-MeFOSAA	1000	20
d5-N-EtFOSAA	1000	20
d7-N-MeFOSE	5000	100
d9-N-EtFOSE	5000	100
M3HFPO-DA	2000	40

Table 3: Stock and Nominal Non-Extracted Internal Standard Concentrations

Isotope Labeled Standard	Conc. of EIS Stock (ng/mL)	Nominal amount of EIS added to extracts (ng)
M3PFBA	1000	40
M2PFHxA	500	10
M4PFOA	500	10
M5PFNA	250	5
M2PFDA	250	5
18O2PFHxS	474	9.48
M4PFOS	479	9.58

Table 4: Initial Calibration levels and Concentrations

Analyte	Cal A	Cal B (LOQ)	CAL C	Cal D	Cal E (CCV)	Cal F	Cal G	Cal H	Cal I
PFBA	.4	.8	2	5	10	20	50	250	500
PFPeA	.2	.4	1	2.5	5	10	25	125	250
PFHxA	.1	.2	.5	1.25	2.5	5	12.5	62.5	125
PFHpA	.1	.2	.5	1.25	2.5	5	12.5	62.5	125
PFOA	.1	.2	.5	1.25	2.5	5	12.5	62.5	125
PFNA	.1	.2	.5	1.25	2.5	5	12.5	62.5	125
PFDA	.1	.2	.5	1.25	2.5	5	12.5	62.5	125
PFUnA	.1	.2	.5	1.25	2.5	5	12.5	62.5	125
PFDoA	.1	.2	.5	1.25	2.5	5	12.5	62.5	125
PFTrDA	.1	.2	.5	1.25	2.5	5	12.5	62.5	125
PFTA	.1	.2	.5	1.25	2.5	5	12.5	62.5	125
PFBS	0.089	0.177	0.444	1.11	2.22	4.44	11.1	55.4	111
PFPeS	0.094	0.188	0.471	1.18	2.35	4.71	11.8	58.8	118
PFHxS	0.091	0.183	0.457	1.14	2.29	4.57	11.4	57.1	114
PFHpS	0.095	0.191	0.477	1.19	2.38	4.77	11.9	59.6	119
PFOS	0.093	0.186	0.464	1.16	2.32	4.64	11.6	58	116
PFNS	0.096	0.192	0.481	1.20	2.41	4.81	12	60.1	120
PFDS	0.097	0.193	0.483	1.21	2.41	4.83	12.1	60.3	121
PFDOS	0.097	0.194	0.485	1.21	2.43	4.85	12.1	60.6	121.
4:2FTS	0.375	0.75	1.88	4.69	9.38	18.8	46.9	234	469
6:2FTS	0.38	0.76	1.9	4.75	9.5	19	47.5	238	475
8:2FTS	0.384	0.768	1.92	4.8	9.6	19.2	48	240	480
PFOSA	.1	.2	.5	1.25	2.5	5	12.5	62.5	125

NMeFOSA	.1	.2	.5	1.25	2.5	5	12.5	62.5	125
NEtFOSA	.1	.2	.5	1.25	2.5	5	12.5	62.5	125
NMeFOSAA	.1	.2	.5	1.25	2.5	5	12.5	62.5	125
NEtFOSAA	.1	.2	.5	1.25	2.5	5	12.5	62.5	125
NMeFOSE	1	2	5	12.5	25	50	125	625	1250
NEtFOSE	1	2	5	12.5	25	50	125	625	1250
HFPO-DA	.4	.8	2	5	10	20	50	250	500
ADONA	0.378	0.756	1.89	4.73	9.45	18.9	47.3	236	473
9Cl-PFONS	0.374	0.748	1.87	4.68	9.35	18.7	46.8	234	468
11Cl-PFOUdS	0.378	0.756	1.89	4.73	9.45	18.9	47.3	236	473
PFMPA	.2	.4	1	2.5	5	10	25	125	250
PFMBA	.2	.4	1	2.5	5	10	25	125	250
PFEESA	0.178	0.356	0.89	2.23	4.45	8.9	22.3	111	223
NFDHA	.2	.4	1	2.5	5	10	25	125	250
3:3FTCA	.5	1	2.5	6.25	12.5	25	62.5	312	624
5:3FTCA	2.5	5	12.5	31.3	62.5	125	312	1560	3120
7:3FTCA	2.5	5	12.5	31.3	62.5	125	312	1560	3125
M4PFBA	10	10	10	10	10	10	10	10	10
M5PFPeA	5	5	5	5	5	5	5	5	5
M5PFHxA	2.5	2.5	2.5	2.5	2.5	2.5	2.5	2.5	2.5
M4PFHpA	2.5	2.5	2.5	2.5	2.5	2.5	2.5	2.5	2.5
M8PFOA	2.5	2.5	2.5	2.5	2.5	2.5	2.5	2.5	2.5
M9PFNA	1.25	1.25	1.25	1.25	1.25	1.25	1.25	1.25	1.25
M6PFDA	1.25	1.25	1.25	1.25	1.25	1.25	1.25	1.25	1.25
M7PFUdA	1.25	1.25	1.25	1.25	1.25	1.25	1.25	1.25	1.25
MPFDoA	1.25	1.25	1.25	1.25	1.25	1.25	1.25	1.25	1.25
M2PFTeDA	1.25	1.25	1.25	1.25	1.25	1.25	1.25	1.25	1.25
M3PFBS	2.33	2.33	2.33	2.33	2.33	2.33	2.33	2.33	2.33
M3PFHxS	2.37	2.37	2.37	2.37	2.37	2.37	2.37	2.37	2.37
M8PFOS	2.4	2.4	2.4	2.4	2.4	2.4	2.4	2.4	2.4
M2-4:2FTS	4.69	4.69	4.69	4.69	4.69	4.69	4.69	4.69	4.69
M2-6:2FTS	4.76	4.76	4.76	4.76	4.76	4.76	4.76	4.76	4.76
M2-8:2FTS	4.8	4.8	4.8	4.8	4.8	4.8	4.8	4.8	4.8
M8FOSA	2.5	2.5	2.5	2.5	2.5	2.5	2.5	2.5	2.5
d3-N-MeFOSA	2.5	2.5	2.5	2.5	2.5	2.5	2.5	2.5	2.5
d5-N-EtFOSA	2.5	2.5	2.5	2.5	2.5	2.5	2.5	2.5	2.5

d3-N-MeFOSAA	5	5	5	5	5	5	5	5	5
d5-N-EtFOSAA	5	5	5	5	5	5	5	5	5
d7-N-MeFOSE	25	25	25	25	25	25	25	25	25
d9-N-EtFOSE	25	25	25	25	25	25	25	25	25
M3HFPO-DA	10	10	10	10	10	10	10	10	10
M3PFBA	5	5	5	5	5	5	5	5	5
M2PFHxA	2.5	2.5	2.5	2.5	2.5	2.5	2.5	2.5	2.5
M4PFOA	2.5	2.5	2.5	2.5	2.5	2.5	2.5	2.5	2.5
M5PFNA	1.25	1.25	1.25	1.25	1.25	1.25	1.25	1.25	1.25
M2PFDA	1.25	1.25	1.25	1.25	1.25	1.25	1.25	1.25	1.25
18O2PFHxS	2.37	2.37	2.37	2.37	2.37	2.37	2.37	2.37	2.37
M4PFOS	2.4	2.4	2.4	2.4	2.4	2.4	2.4	2.4	2.4

Table 5: Expected Mass Transitions and instrument conditions.

Q1	Q2	Analyte	DP Volts	CE Volts
213.032	169.022	PFBA	-50	-14
263.039	219.03	PFPeA	-55	-12
263.039	68.9	PFPeA_2	-55	-55
313.047	269.037	PFHxA	-45	-12
313.047	119	PFHxA_2	-45	-28
363.055	319.045	PFHpA	-60	-12
363.055	169.022	PFHpA_2	-60	-24
413.063	369.053	PFOA	-65	-14
413.063	169.022	PFOA_2	-65	-23
463.071	419.061	PFNA	-70	-14
463.071	219.03	PFNA_2	-70	-24
513.078	469.069	PFDA	-80	-16
513.078	219.03	PFDA_2	-80	-30
563.086	519.076	PFUnA	-85	-18
563.086	269.037	PFUnA_2	-85	-25
613.094	569.084	PFDoA	-85	-18
613.094	319.045	PFDoA_2	-85	-28
663.102	619.092	PFTrDA	-85	-20
663.102	169.022	PFTrDA_2	-85	-36
713.11	669.1	PFTA	-70	-22
713.11	169.022	PFTA_2	-70	-38
299.092	80.062	PFBS	-100	-65

299.092	99.061	PFBS_2	-100	-40
349.1	80.062	PFPeS	-100	-75
349.1	99.061	PFPeS_2	-100	-60
399.107	80.062	PFHxS	-120	-75
399.107	99.061	PFHxS_2	-120	-80
449.115	80.062	PFHpS	-140	-95
449.115	99.061	PFHpS_2	-140	-80
499.113	80.062	PFOS	-145	-108
499.113	99.061	PFOS_2	-145	-85
549.131	80.062	PFNS	-180	-100
549.131	99.061	PFNS_2	-180	-100
599.139	80.062	PFDS	-170	-110
599.138	99.061	PFDS_2	-170	-100
699.154	80.062	PFDoS	-160	-150
699.154	99.061	PFDoS_2	-160	-130
327.146	307.139	4:2FTS	-100	-28
327.146	81.07	4:2FTS_2	-100	-50
427.161	407.155	6:2FTS	-120	-33
427.161	81.07	6:2FTS_2	-120	-65
527.177	507.17	8:2FTS	-140	-39
527.177	81.07	8:2FTS_2	-140	-85
498.146	78.07	FOSA	-150	-90
498.146	478	FOSA_2	-150	-35
512.163	219.03	NMeFOSA	-130	-35
512.163	169.022	NMeFOSA_2	-130	-40
526.192	219.03	NEtFOSA	-140	-35
526.192	169.022	NEtFOSA_2	-140	-35
570.202	419.061	NMeFOSAA	-100	-28
570.202	483	NMeFOSAA_2	-100	-22
584.229	419.061	NEtFOSAA	-100	-28
584.229	526.192	NEtFOSAA_2	-100	-38
616.1	58.9	NMeFOSE	-90	-70
630	58.9	NEtFOSE	-80	-75
285.035	169.022	HFPO-DA	-60	-12
285.035	184.9	HFPO-DA_2	-60	-18
377.06	251.028	ADONA	-65	-18
377.06	84.8	ADONA_2	-65	-48
530.8	351.05	9Cl-PFONS	-130	-38
532.8	353	9Cl-PFONS_2	-130	-38

630.9	451.031	11Cl-PFOUdS	-145	-41
632.9	452.9	11Cl-PFOUdS_2	-145	-41
241.085	177.069	3:3FTCA	-60	-12
241.085	117	3:3FTCA_2	-60	-50
341.101	237.072	5:3FTCA	-70	-20
341.101	217	5:3FTCA_2	-70	-35
441.117	316.9	7:3FTCA	-85	-30
441.117	337.088	7:3FTCA_2	-85	-20
315.093	135.013	PFEESA	-100	-35
315.093	82.9	PFEESA_2	-100	-25
229.032	85.006	PFMPA	-40	-25
279.042	85.006	PFMBA	-45	-25
295.032	201	NFDHA	-30	-15
295.032	84.9	NFDHA_2	-30	-40
217.001	171.999	MPFBA	-50	-14
268.001	222.999	M5PFPeA	-55	-12
318.009	273.007	M5PFHxA	-45	-12
367.024	322.022	M4PFHpA	-60	-12
421.002	376	M8PFOA	-65	-14
472.002	427	M9PFNA	-70	-14
519.033	474.03	M6PFDA	-80	-16
570.033	525.031	M7-PFUdA	-85	-18
615.079	570.033	MPFDoA	-85	-18
715.094	670.092	M2PFTeDA	-70	-22
302.069	80.062	M3PFBS	-100	-65
402.084	80.062	M3PFHxS	-120	-74
507.062	80.062	M8PFOS	-145	-85
329.13	81.07	M2-4:2FTS	-100	-50
429.162	81.07	M2-6:2FTS	-120	-65
529.162	81.07	M2-8:2FTS	-140	-85
506.077	78.07	M8FOSA	-150	-90
515.183	219.03	d3-NMeFOSA	-130	-35
531.222	219.03	d5-NEtFOSA	-140	-35
573.22	419.061	d3-NMeFOSAA	-75	-28
589.259	419.061	d5-NEtFOSAA	-90	-28
623.2	58.9	d7-NMeFOSE	-100	-28
639.2	58.9	d9-NEtFOSE	-100	-28
287.02	169.022	M3HFPO-DA	-60	-12
216.009	171.999	M3PFBA	-50	-14

315.032	270.03	M2PFHxA	-45	-12
417.032	372.03	M4PFOA	-65	-14
468.032	423.03	M5PFNA	-70	-14
515.063	470.061	M2PFDA	-80	-16
403.107	84.062	18O2-PFHxS	-120	-74
503.093	80.062	M4PFOS	-145	-85

Table 6: LC Method Conditions

Time (min)	2 mM Ammonium Acetate (5:95 CH/H_2O)	100% Acetonitrile	Gradient Curve
Initial	100.0	0.0	0
.2	100.0	0.0	2
4	70	30	7
7	45	55	8
9	25	80	8
10	5	95	6
10.4	98	2	10
11.8	100	0	7
12	100	0	1
Waters Aquity UPLC ® BEHC_{18} 2.1 x 50 mm packed with 1.7 µm BEH C_{18} stationary phase Flow rate of 0.4 mL/min 2 µL injection			

Table 7: ESI-MS Method Conditions

ESI Conditions	
Polarity	Negative ion
Curtain Gas	30
Collision gas	9
Ion Spray Voltage	-4500
Desolvation gas temp.	500 ºC
Ion Source Gas 1	30
Ion Source Gas 2	50
Entrance Poitential	-10
Exic Cell Potential	-11

Table 8. Reporting limits by Matrix

Compound	Aqueous (ng/L)	Solid (ng/g)	Tissue (ng/g)
PFBA	6.4	0.8	2
PFPeA	3.2	0.4	1
PFHxA	1.6	0.2	0.5
PFHpA	1.6	0.2	0.5
PFOA	1.6	0.2	0.5
PFNA	1.6	0.2	0.5
PFDA	1.6	0.2	0.5
PFUnA	1.6	0.2	0.5
PFDoA	1.6	0.2	0.5
PFTrDA	1.6	0.2	0.5
PFTA	1.6	0.2	0.5
PFBS	1.6	0.2	0.5
PFPeS	1.6	0.2	0.5
PFHxS	1.6	0.2	0.5
PFHpS	1.6	0.2	0.5
PFOS	1.6	0.2	0.5
PFNS	1.6	0.2	0.5
PFDS	1.6	0.2	0.5
PFDoS	1.6	0.2	0.5
4:2FTS	6.4	0.8	2
6:2FTS	6.4	0.8	2
8:2FTS	6.4	0.8	2
FOSA	1.6	0.2	2
NMeFOSA	1.6	0.2	0.5
NEtFOSA	1.6	0.2	0.5
NMeFOSAA	1.6	0.2	0.5
NEtFOSAA	1.6	0.2	0.5
NMeFOSE	16	2	5
NEtFOSE	16	2	5
HFPO-DA	6.4	0.8	2
ADONA	6.4	0.8	2
9Cl-PFONS	6.4	0.8	2
11Cl-PFOUdS	6.4	0.8	2
3:3FTCA	8	1	2.5
5:3FTCA	40	5	12.5

7:3FTCA	40	5	12.5
PFEESA	3.2	0.4	1
PFMPA	3.2	0.4	1
PFMBA	3.2	0.4	1
NFDHA	3.2	0.4	1

APPENDIX B

Photograph Log



Photograph 1: View of Lakewood Environmental Services Corp. advancing a soil boring in the central part of the site (7/26/2022).



Photograph 2: Soil/fill observed in soil boring SB18 between about 0 and 20 feet below grade surface (8/01/2022).



Photograph 3: View of groundwater sampling (8/01/2022).



Photograph 4: View of soil vapor sampling (8/02/2022).



Photograph 5: View of purged groundwater (8/03/2022).



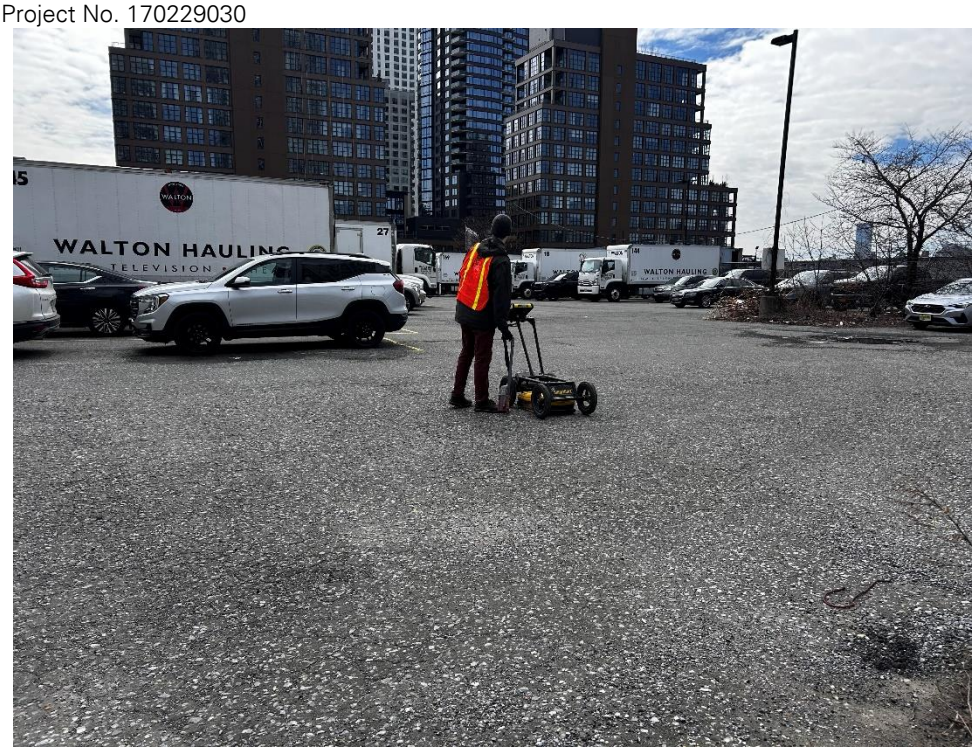
Photograph 6: View of AARCO Environmental Services Corp. (AARCO) loading non-hazardous waste drums onto a truck for off-site disposal (9/07/2022).



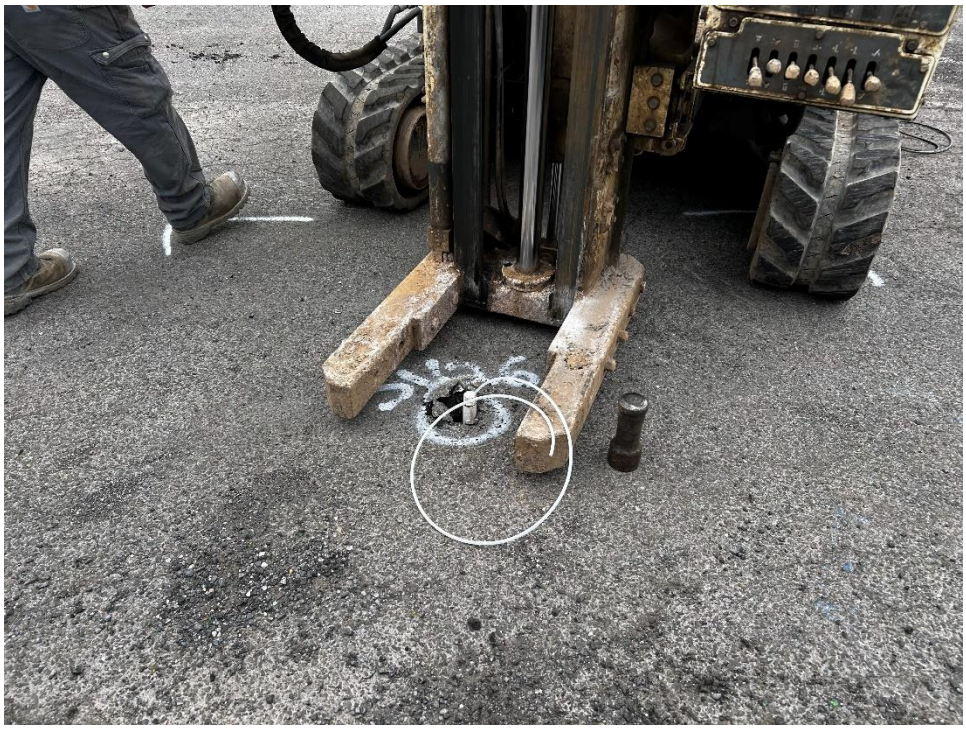
Photograph 7: View of groundwater sampling (1/13/2026).



Photograph 8: View of staged drums containing non-hazardous waste for future off-site disposal (2/12/2026).



Photograph 9: View of NOVA Geophysical Engineering conducting a geophysical survey (3/18/2026).



Photograph 10: View of AARCO installing a soil vapor point (3/19/2026).



Photograph 11: View of soil vapor sampling (3/19/2026).

APPENDIX C

Geophysical Survey Report

GEOPHYSICAL SURVEY REPORT

Greenpoint Landing - Parcel C
209 West Street,
Brooklyn, New York 11222

NOVA PROJECT NUMBER:
22-2767

DATED:
July 27, 2022

PREPARED FOR:

LANGAN

21 Penn Plaza
360 West 31st Street, 8th Floor
New York, New York 10001-2727
www.Langan.com

PREPARED BY:

NOVA
GEOPHYSICAL
ENGINEERING
Subsurface Mapping Solutions
56-01 Marathon Parkway # 765
Douglaston, New York 11362
347-556-7787 (PHONE)
718-261-1527(FAX)
www.nova-gsi.com

NOVA GEOPHYSICAL SERVICES

SUBSURFACE MAPPING SOLUTIONS

56-01 Marathon Parkway #765, Douglaston, New York 11362

Ph. 347-556-7787 Fax. 718-261-1527

www.novagsi.com

July 27, 2022

Tyler Zorn
Senior Staff Geologist
LANGAN
21 Penn Plaza
360 West 31st Street, 8th Floor
New York, New York 10001-2727
P: 212.479.5499 x5732 | E: tzorn@langan.com

Re: Geophysical Survey (GES) Report
Greenpoint Landing - Parcel C
209 West Street,
Brooklyn, New York 11222

Dear Mr. Zorn,

Nova Geophysical Services (NOVA) is pleased to provide the findings of the geophysical engineering survey (GES) at the above referenced project site: 209 West Street, Brooklyn, New York 11222 (the "Site").

INTRODUCTION TO GEOPHYSICAL ENGINEERING SURVEY (GES)

NOVA performed a geophysical survey (GES) consisting of a Ground Penetrating Radar (GPR) and Electromagnetic (EM) survey at the site. The purpose of this survey is to locate and identify utilities, underground storage tanks and other substructures on July 25th, 2022.

The equipment selected for this investigation was a Sensors and Software Noggin 250 MHz ground penetrating radar (GPR) with a shielded antenna and a Radio Detection RD7100 Electromagnetic utility locator.

A GPR system consists of a radar control unit, control cable, and transducer (antenna). The control unit transmits a trigger pulse at a normal repetition rate of 250 MHz. The trigger pulse is sent to the transmitter electronics in the transducer via the control cable. The transmitter electronics amplify the trigger pulse into

bipolar pulses that are radiated to the surface. The transformed pulses vary in shape and frequency according to the transducer used. In the subsurface, variations of the signal occur at boundaries where there is a dielectric contrast (void, steel, soil type, etc.). Signal reflections travel back to the control unit and are represented as color graphic images for interpolation.

A typical electromagnetic (EM) utility locating system consists of a transmitter unit and a receiver unit. The receiver unit can be used independently of the transmitter unit in order to detect utility lines with an inherent EM signature (electric utility lines, water lines, etc.). If needed a current at a specific frequency can also be placed on a utility that is being located. This can be done via the transmitter unit by either direct connection or induction via an EM field varying at specific frequency. The receiver unit is then set to the selected frequency and the electromagnetic field created by the current running through the utility can be located allowing the utility to be marked.

GEOPHYSICAL METHODS

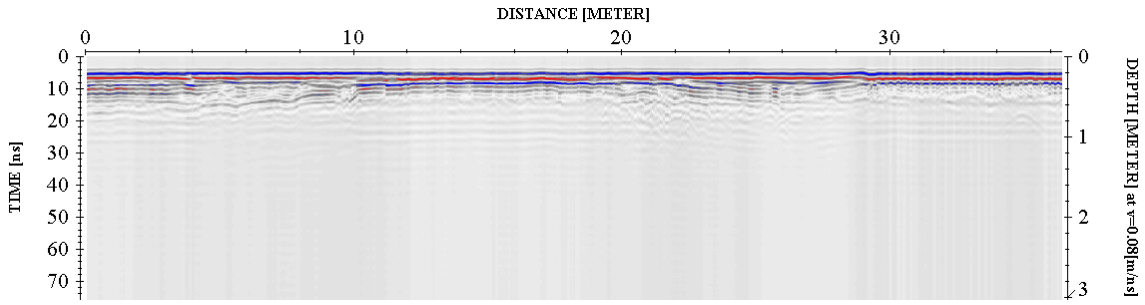
The project site was screened using GPR to search the specified area and inspected for reflections, which could be indicative of substructures and utilities within the subsurface. An EM utility locator was used to help determine the locations of utilities within the survey area.

EM data was collected and interpreted on site and suspected utilities marked as needed. GPR data profiles were collected for the areas of the Site specified by the client and processed as specified below.

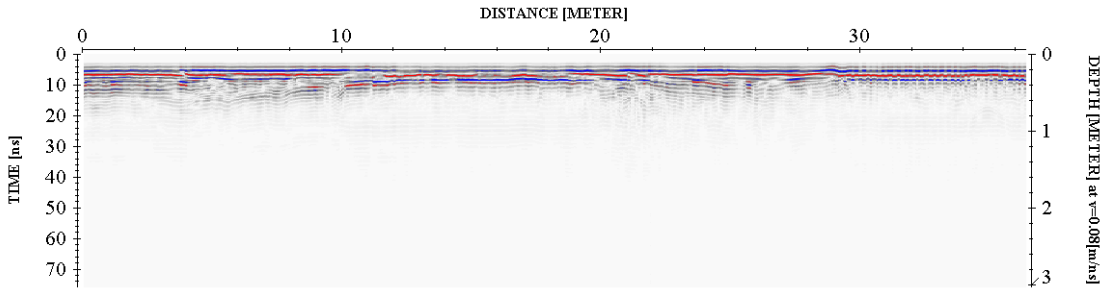
DATA PROCESSING

In order to improve the quality of the results and to better identify anomalies NOVA processed the collected data. The processing work flow is briefly described in this section.

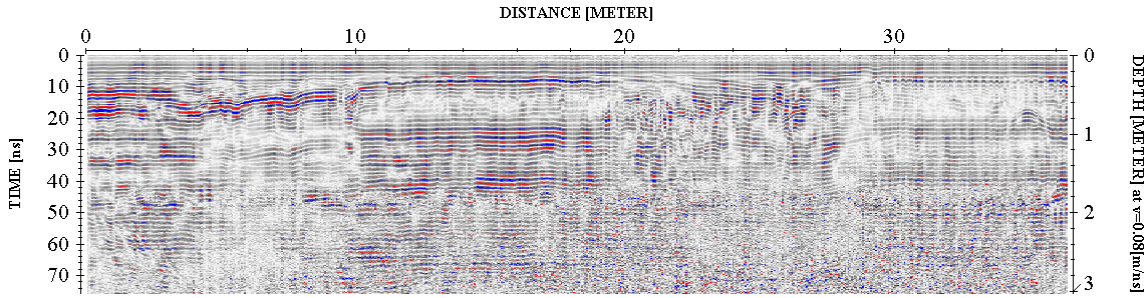
Step 1. Import Raw RAMAC data to standard processing format



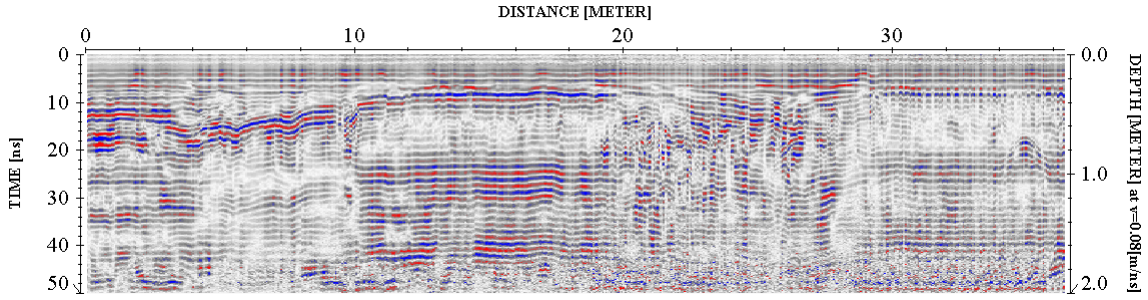
Step 2. Remove instrument noise *(dewow)*



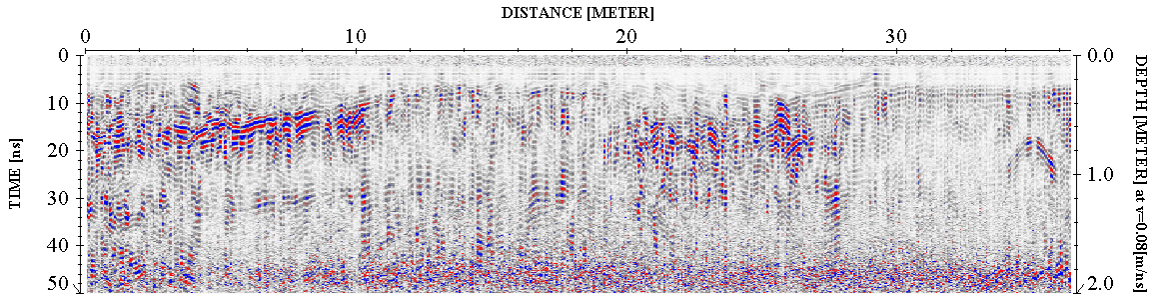
Step 3. Correct for attenuation losses *(energy decay function)*



Step 4. Remove static from bottom of profile *(time cut)*



Step 5. Mute horizontal ringing/noise *(subtracting average)*



The above example shows the significance of data processing. The last image (step 5) has higher resolution than the starting image (raw data – step 1) and represents the subsurface anomalies much more accurately.

PHYSICAL SETTINGS

NOVA observed the following physical conditions at the time of the survey.

Weather: Clear

Temperature: 90° F

Surface: Asphalt, Gravel, Concrete, Vegetation

Survey Parameters: A GPR grid scan of the survey area, as shown in the survey plan, was completed with an approximate line spacing of four to six feet. Additional traces were collected in areas identified as having features of interest and over proposed boring locations during the grid scan. An EM utility locator was used in conjunction with the GPR throughout the survey area.

Limitations: The geophysical noise level at the site was high due to being located in an urban area, reinforced concrete and multiple layers of pavement. Large portions of the site were inaccessible due to immobile construction debris and equipment.

RESULTS

The results of the geophysical engineering survey (GES) identified the following at the project site:

- Anomalies resembling potential subsurface utilities (such as electric) were identified at the site. Additional anomalies resembling suspected subsurface utilities were identified but could not be connected to known utilities. The approximate locations are shown in the survey plan.
- The approximate location of a suspected combined sewer outfall (CSO) is shown in the survey plan based on the location of related manholes on West Street. NOVA was unable to identify a related geophysical anomaly or outfall location along the waters edge at the time of the survey.
- No large geophysical anomalies resembling a potential underground storage tank (UST) were identified within the surveyed area.
- All cleared boring locations are shown in the survey plan.

If you have any questions, please do not hesitate to contact the undersigned.

Sincerely,

NOVA Geophysical Services



Levent Eskicakit, P.G., E.P.
Project Engineer

Attachments:

Location Map
Survey Plan
Geophysical Images

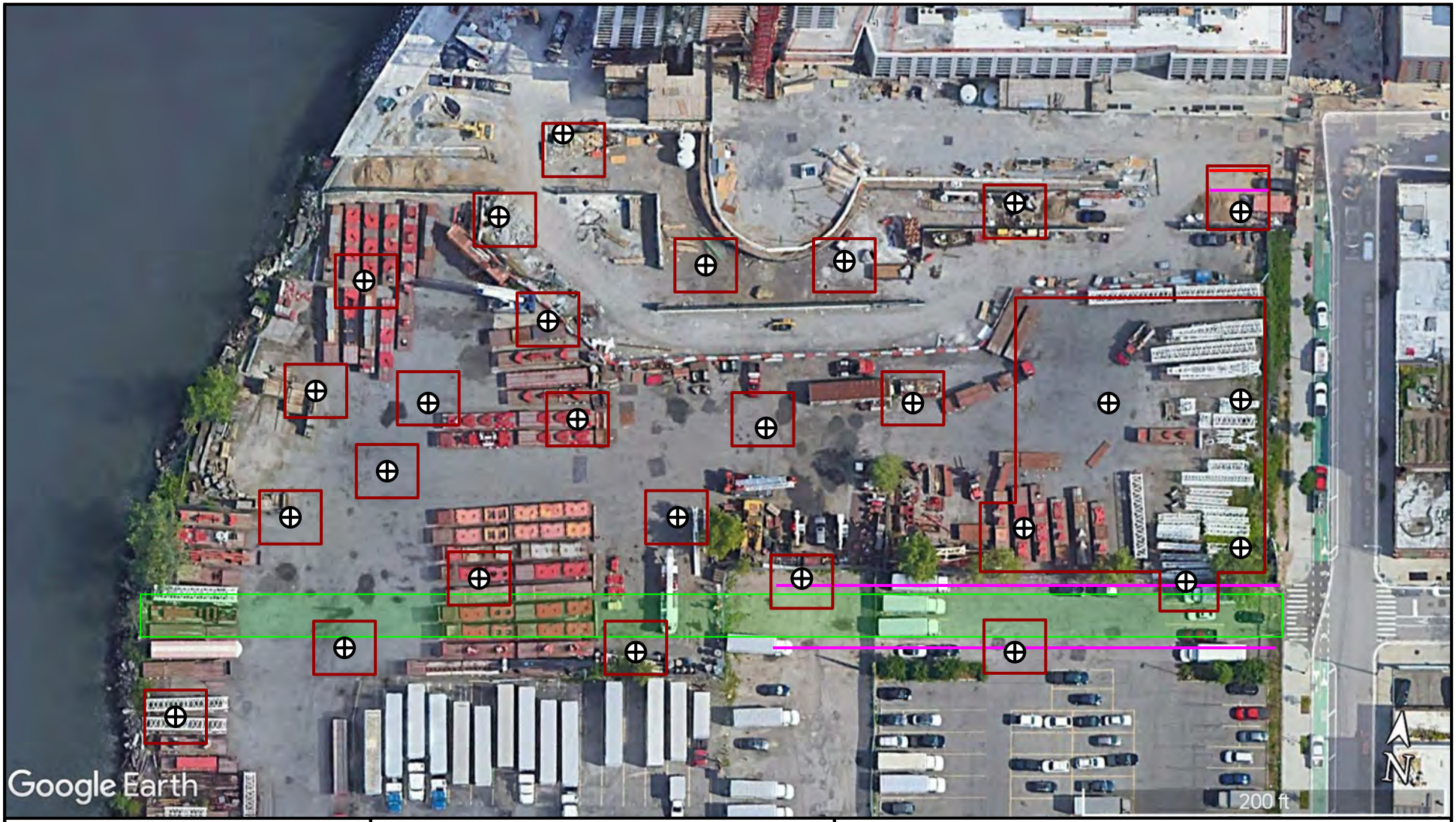


NOVA
Geophysical Services
Subsurface Mapping Solutions
56-01 Marathon Parkway, # 765
Douglaston, New York 11362
Phone (347) 556-7787 * Fax (718) 261-1527
www.novagsi.com

LOCATION MAP

SITE:	**Greenpoint Landing - Parcel C** 209 West Street, Brooklyn, New York 11222
CLIENT:	Langan
DATE:	July 25th, 2022
AUTH:	Chris Steinley

LEGEND



NOVA Geophysical Services

Subsurface Mapping Solutions
56-01 Marathon Parkway, # 765
Douglaston, New York 11362
Phone (347) 556-7787 * Fax (718) 261-1527
www.novagsi.com

SURVEY PLAN

SITE:	**Greenpoint Landing - Parcel C** 209 West Street, Brooklyn, New York 11222
CLIENT:	Langan
DATE:	July 25th, 2022
AUTH:	Chris Steinley

LEGEND

- Survey Area
- Electric
- Unknown
- Approximate Location of CSO
- Boring

GEOPHYSICAL IMAGES

Greenpoint Landing - Parcel C
209 West Street,
Brooklyn, New York 11222
July 25th, 2022





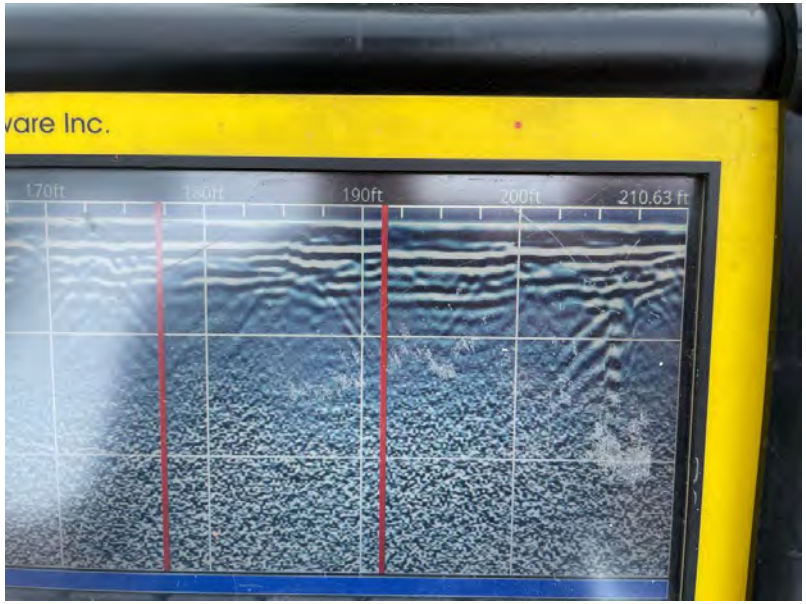


GEOPHYSICAL IMAGES

Greenpoint Landing - Parcel C
209 West Street,
Brooklyn, New York 11222
July 25th, 2022





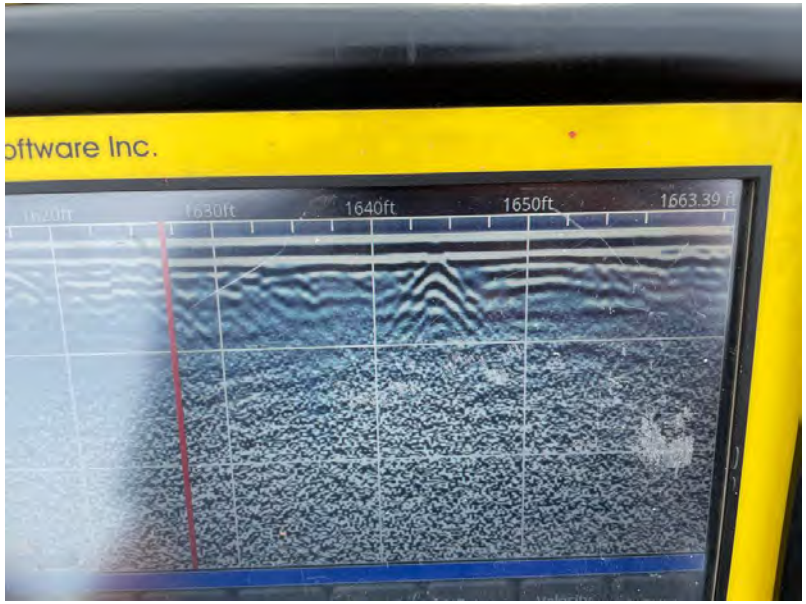




GEOPHYSICAL IMAGES

Greenpoint Landing - Parcel C
209 West Street,
Brooklyn, New York 11222
July 25th, 2022

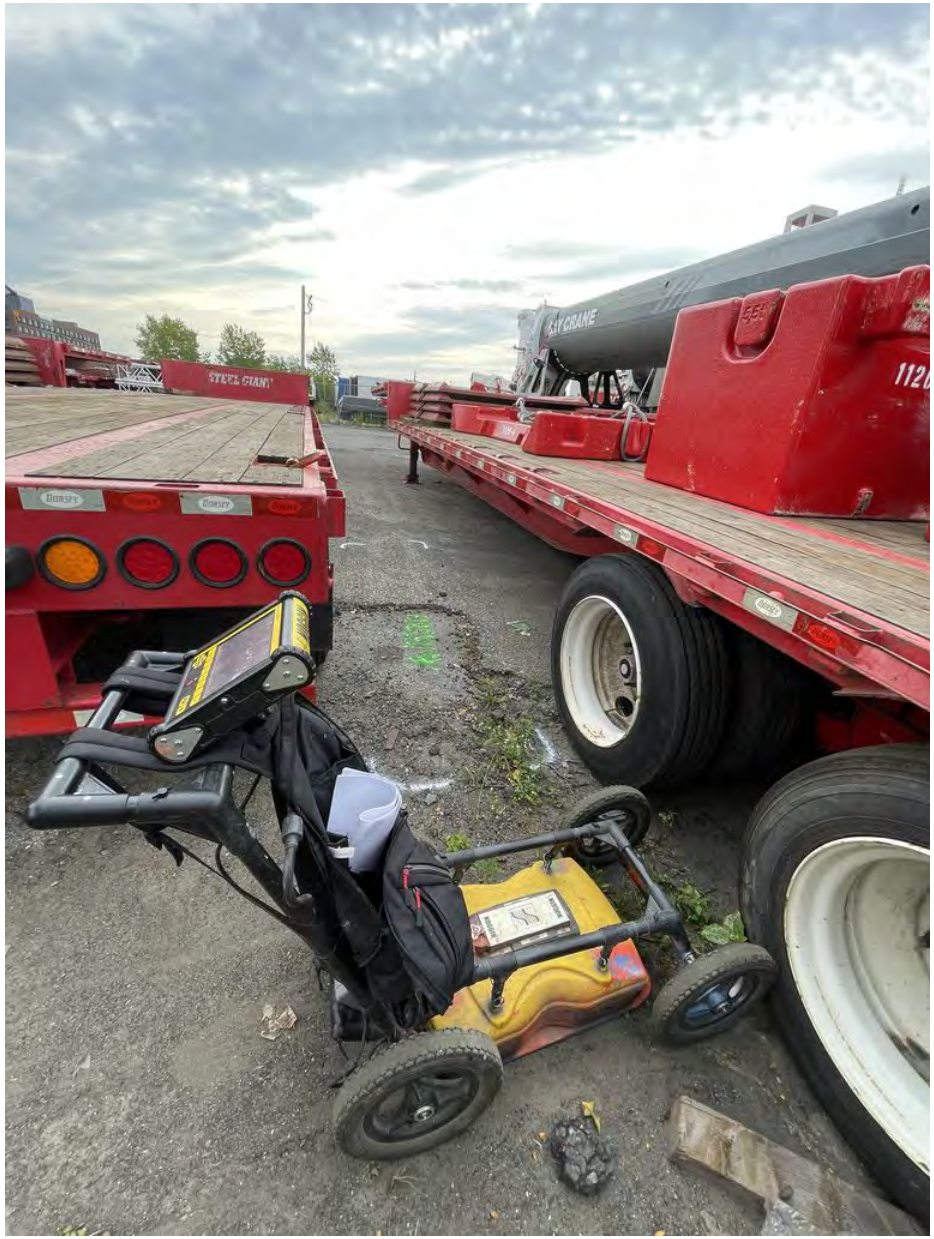


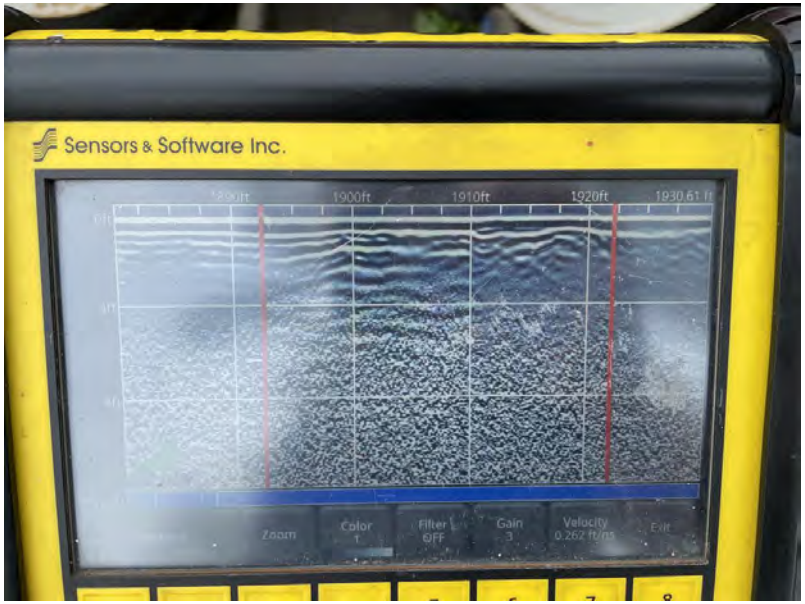




GEOPHYSICAL IMAGES

Greenpoint Landing - Parcel C
209 West Street,
Brooklyn, New York 11222
July 25th, 2022

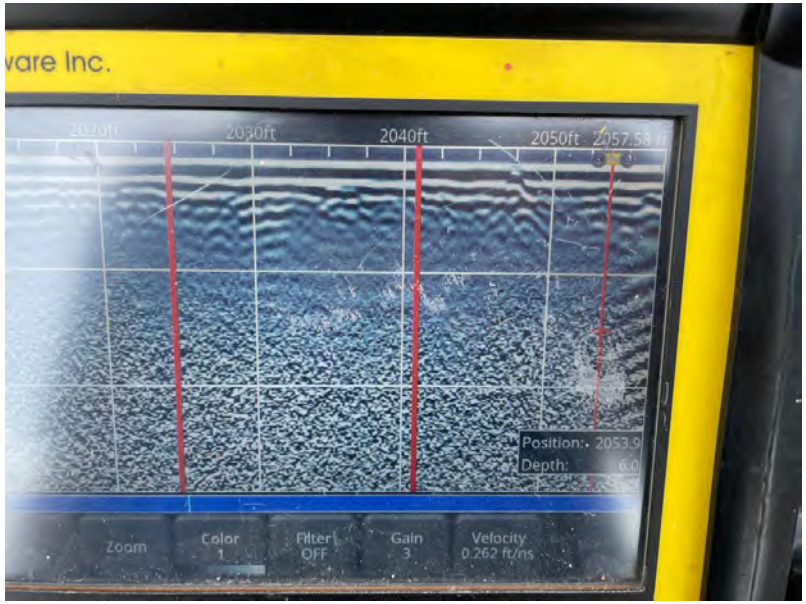






GEOPHYSICAL IMAGES

Greenpoint Landing - Parcel C
209 West Street,
Brooklyn, New York 11222
July 25th, 2022

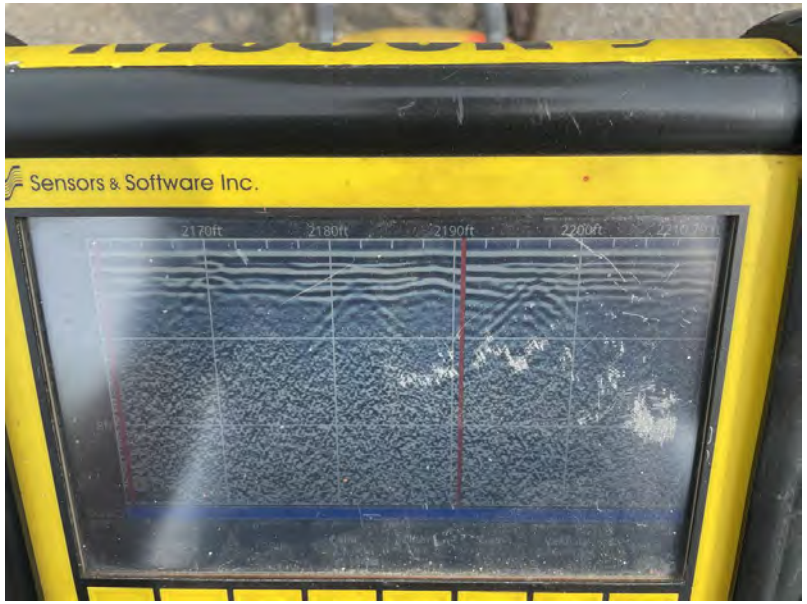


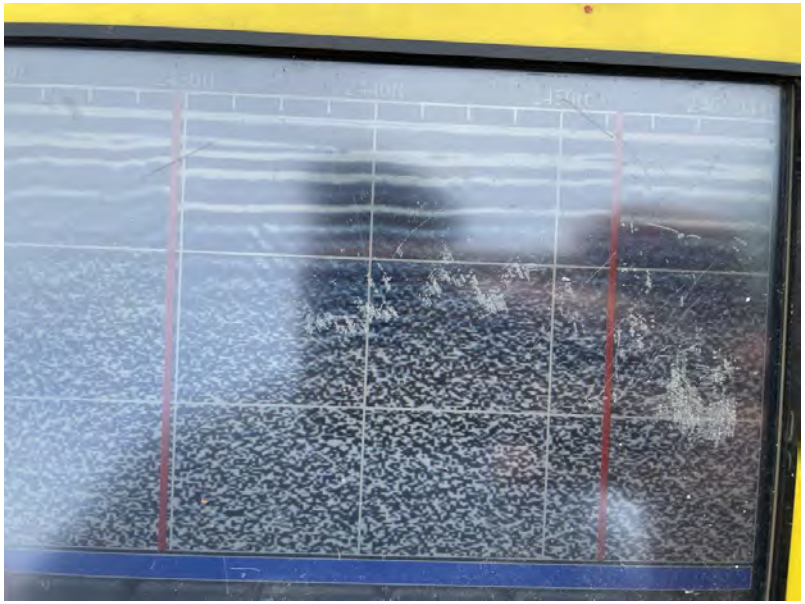




GEOPHYSICAL IMAGES

Greenpoint Landing - Parcel C
209 West Street,
Brooklyn, New York 11222
July 25th, 2022





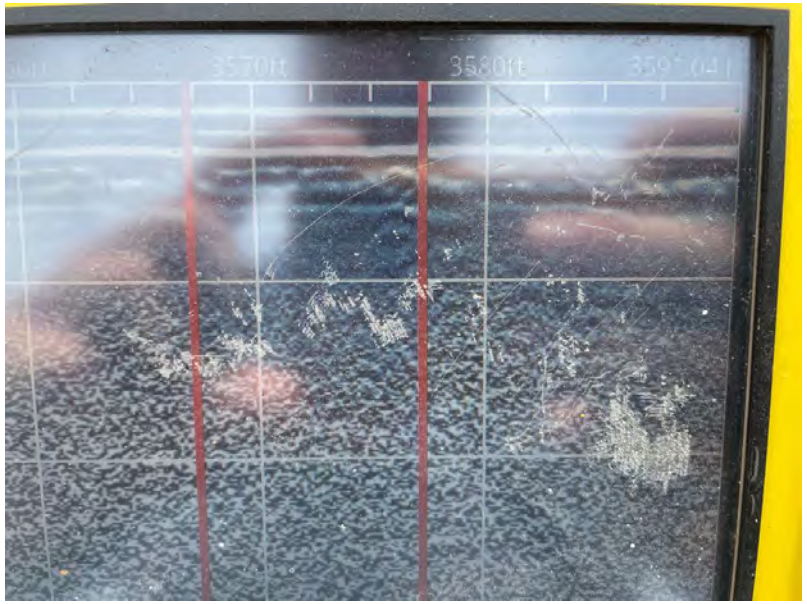




GEOPHYSICAL IMAGES

Greenpoint Landing - Parcel C
209 West Street,
Brooklyn, New York 11222
July 25th, 2022



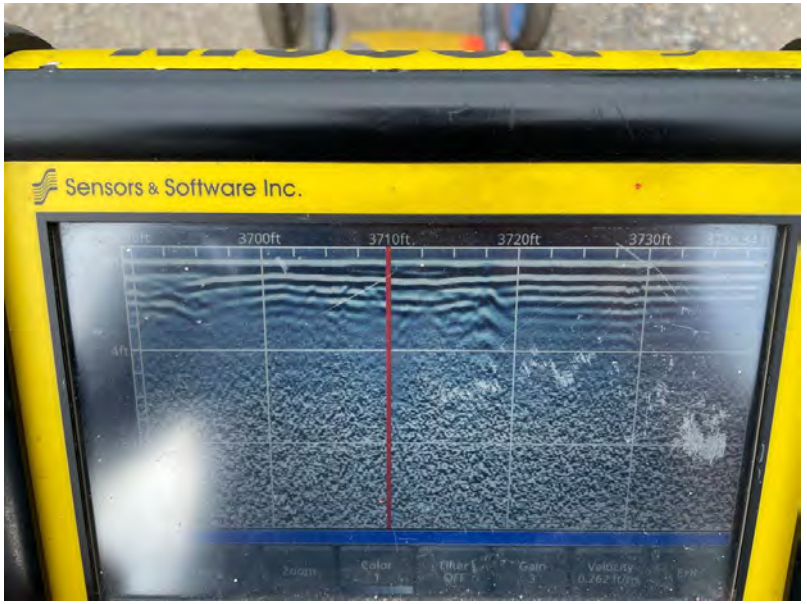




GEOPHYSICAL IMAGES

Greenpoint Landing - Parcel C
209 West Street,
Brooklyn, New York 11222
July 25th, 2022



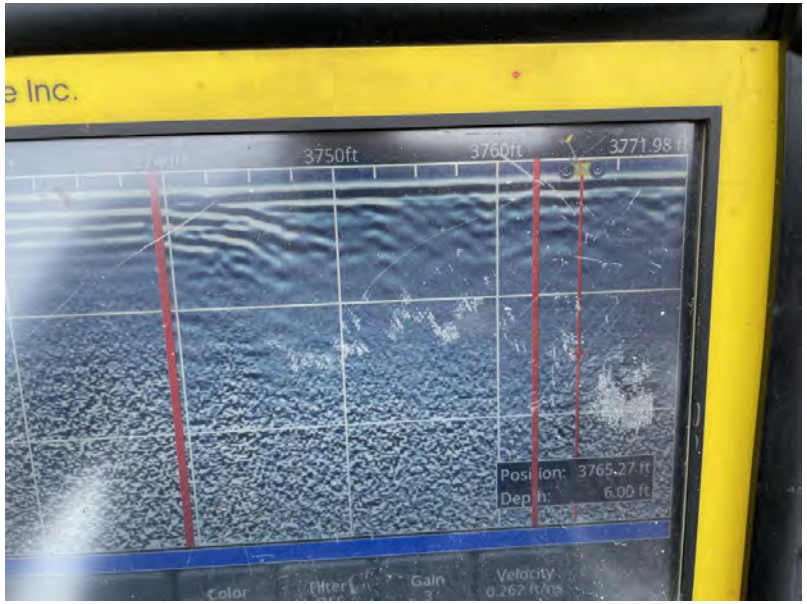






GEOPHYSICAL IMAGES

Greenpoint Landing - Parcel C
209 West Street,
Brooklyn, New York 11222
July 25th, 2022





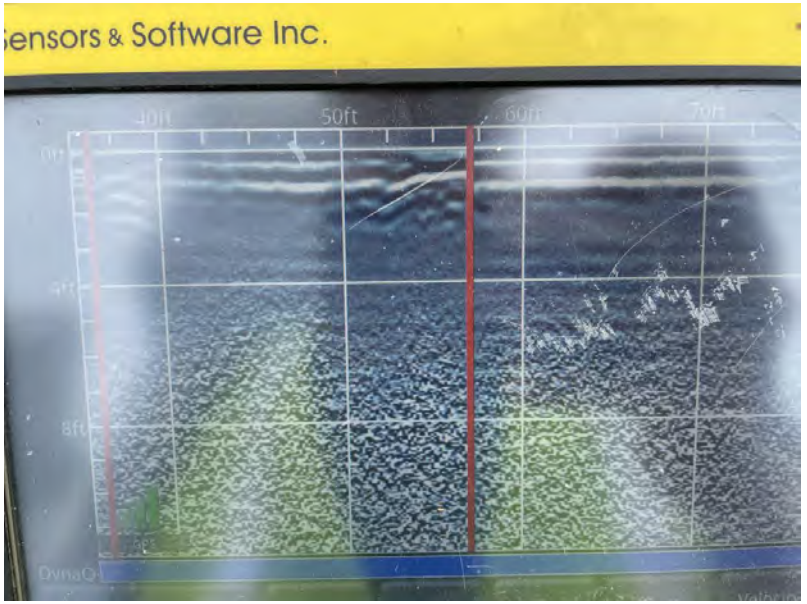




GEOPHYSICAL IMAGES

Greenpoint Landing - Parcel C
209 West Street,
Brooklyn, New York 11222
July 25th, 2022



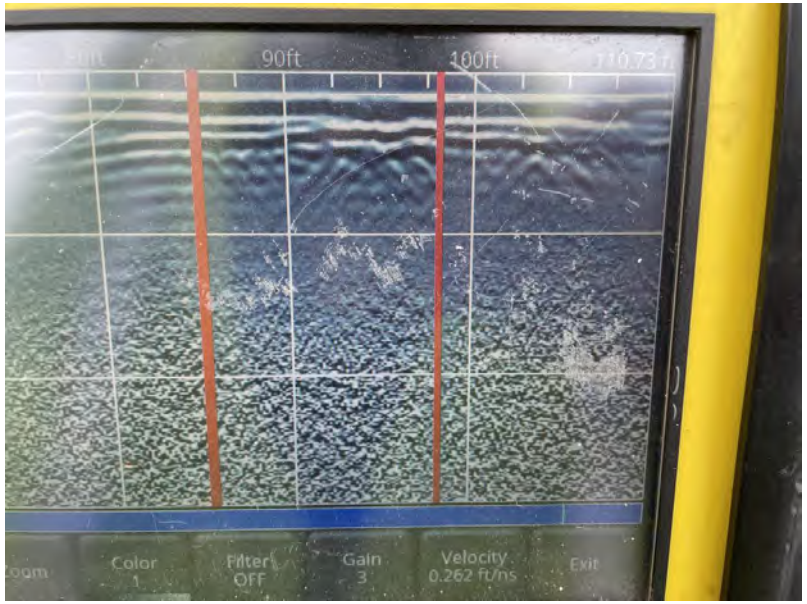






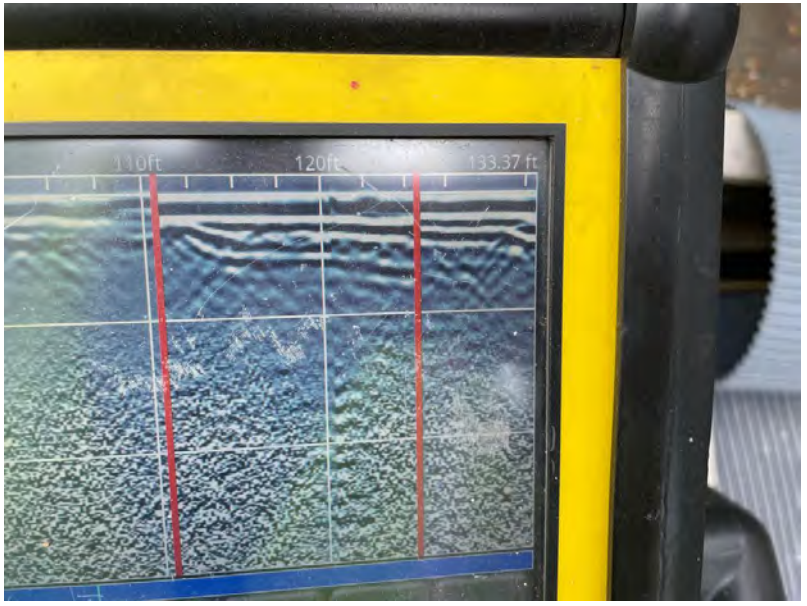
GEOPHYSICAL IMAGES

Greenpoint Landing - Parcel C
209 West Street,
Brooklyn, New York 11222
July 25th, 2022





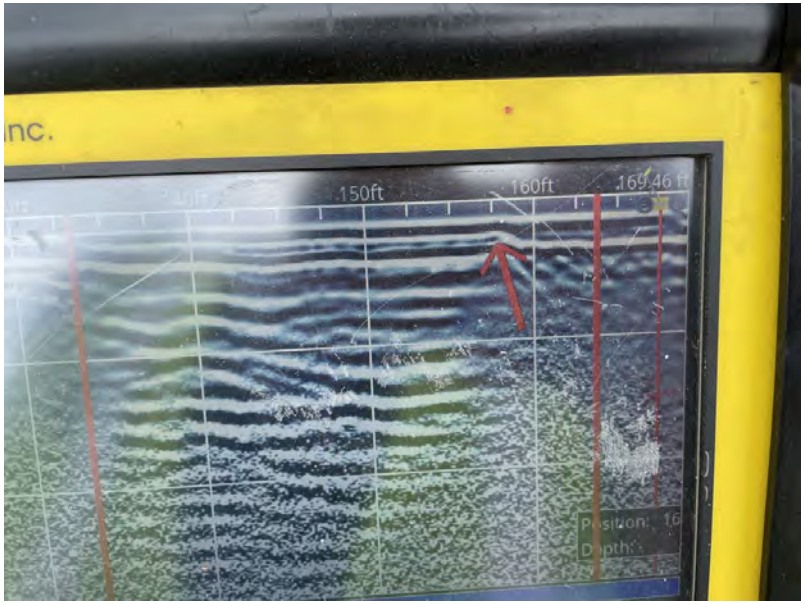




GEOPHYSICAL IMAGES

Greenpoint Landing - Parcel C
209 West Street,
Brooklyn, New York 11222
July 25th, 2022



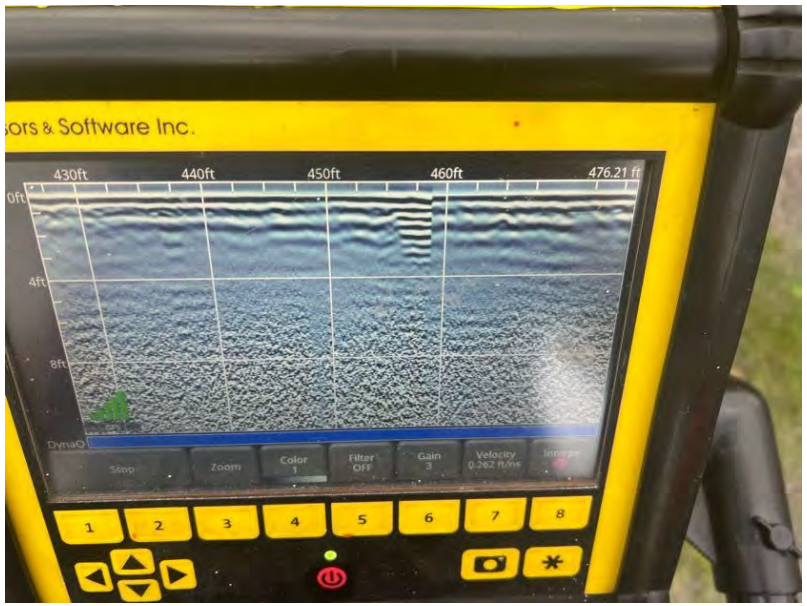




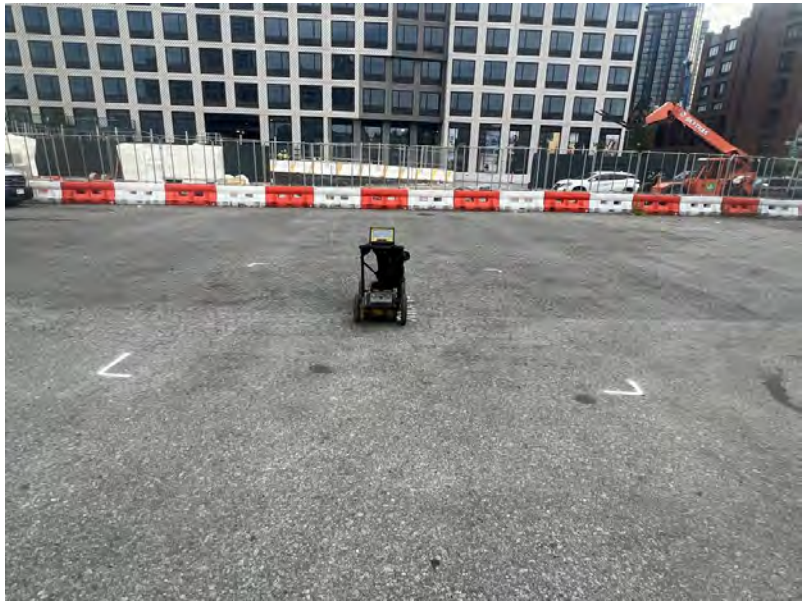


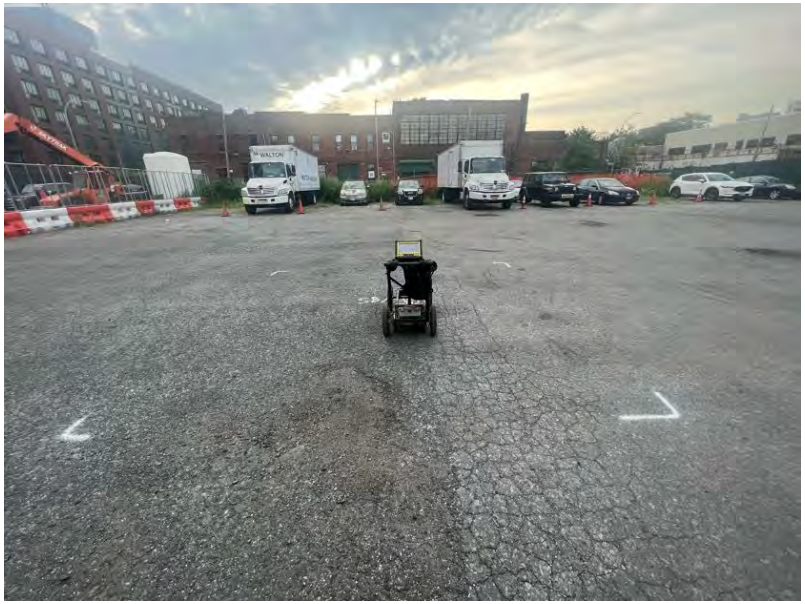
GEOPHYSICAL IMAGES

Greenpoint Landing - Parcel C
209 West Street,
Brooklyn, New York 11222
July 25th, 2022



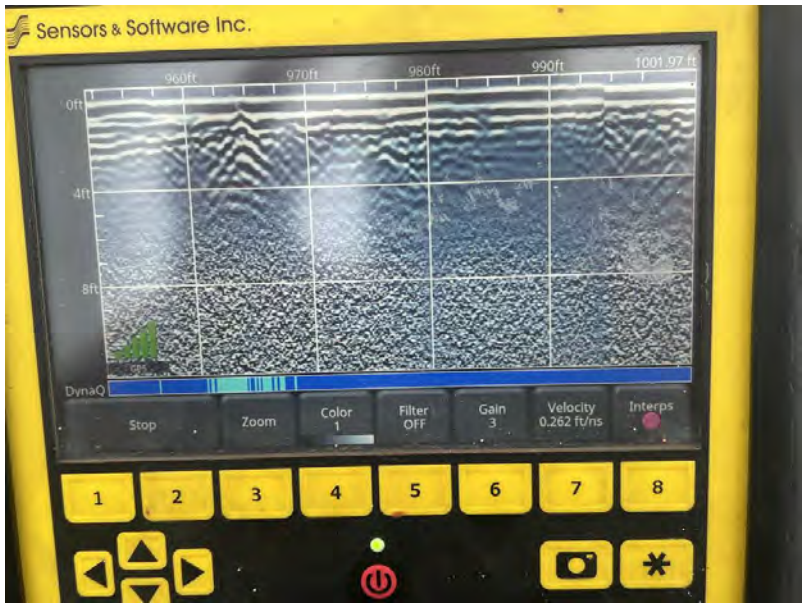


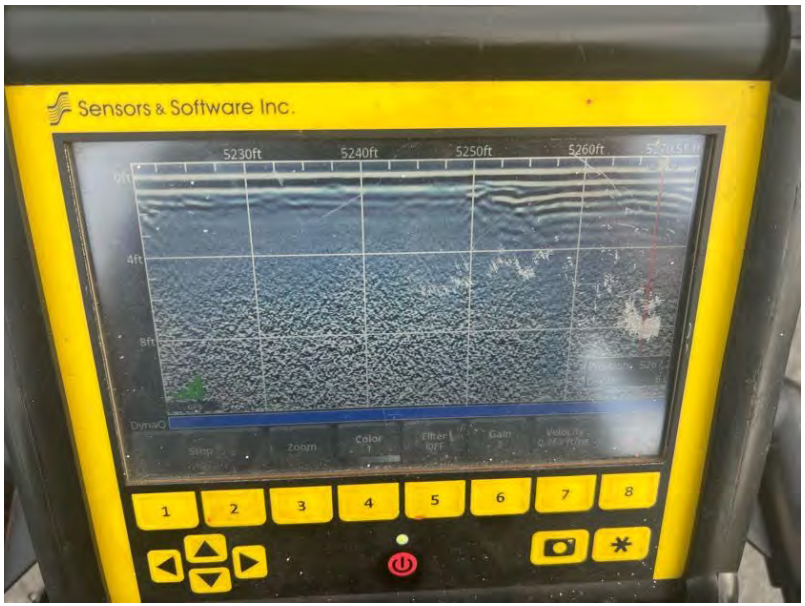




GEOPHYSICAL IMAGES

Greenpoint Landing - Parcel C
209 West Street,
Brooklyn, New York 11222
July 25th, 2022









GEOPHYSICAL IMAGES

Greenpoint Landing - Parcel C
209 West Street,
Brooklyn, New York 11222
July 25th, 2022







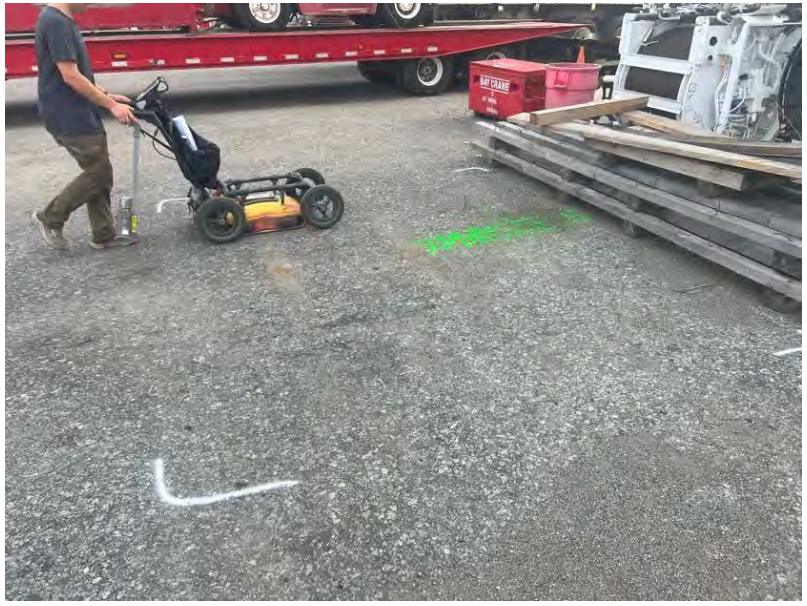


GEOPHYSICAL IMAGES

Greenpoint Landing - Parcel C
209 West Street,
Brooklyn, New York 11222
July 25th, 2022









GEOPHYSICAL IMAGES

Greenpoint Landing - Parcel C
209 West Street,
Brooklyn, New York 11222
July 25th, 2022





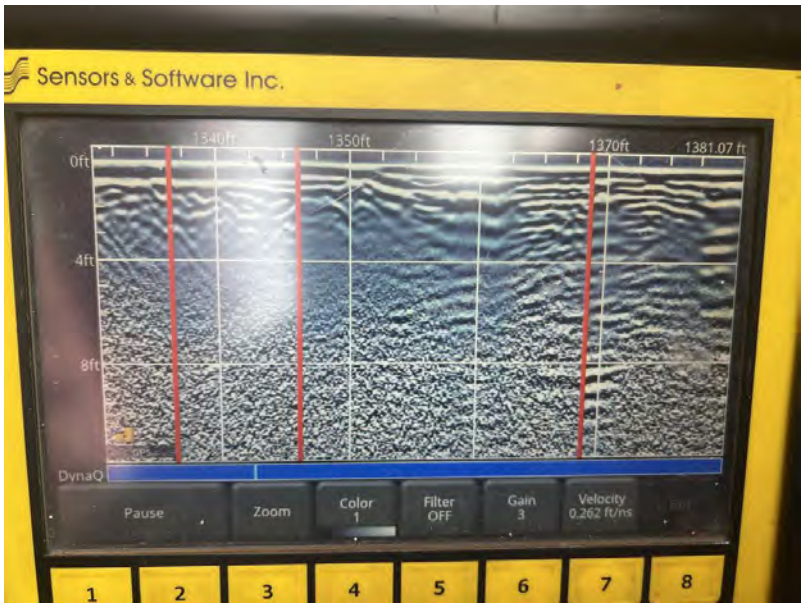




GEOPHYSICAL IMAGES

Greenpoint Landing - Parcel C
209 West Street,
Brooklyn, New York 11222
July 25th, 2022









GEOPHYSICAL IMAGES

Greenpoint Landing - Parcel C
209 West Street,
Brooklyn, New York 11222
July 25th, 2022









GEOPHYSICAL IMAGES

Greenpoint Landing - Parcel C
209 West Street,
Brooklyn, New York 11222
July 25th, 2022









GEOPHYSICAL IMAGES

Greenpoint Landing - Parcel C

209 West Street,
Brooklyn, New York 11222
July 25th, 2022



GEOPHYSICAL ENGINEERING SURVEY REPORT

Vacant Lot
21 Freeman Street,
Brooklyn, NY 11222

NOVA PROJECT NUMBER:
26-5590

DATED:
March 18, 2026

PREPARED FOR:

LANGAN

368 Ninth Avenue
8th Floor
New York, New York 10001-2727
www.langan.com

PREPARED BY:

NOVA
GEOPHYSICAL
ENGINEERING
Subsurface Mapping Solutions
56-01 Marathon Parkway # 765
Douglaston, New York 11362
347-556-7787 (PHONE)
718-261-1527(FAX)
www.nova-gsi.com

NOVA GEOPHYSICAL SERVICES

SUBSURFACE MAPPING SOLUTIONS
56-01 Marathon Parkway #765, Douglaston, New York 11362
Ph. 347-556-7787 Fax. 718-261-1527
www.novagsi.com

March 18, 2026

Seyena Simpson
Senior Staff Scientist.
Langan
368 Ninth Avenue, 8th Floor
New York, NY 10001
D: 212-479-5499 x5789 M: 646-276-0225

Re: Geophysical Engineering Survey (GES) Report
21 Freeman Street,
Brooklyn, NY 11222

Dear Ms. Simpson,

Nova Geophysical Services (NOVA) is pleased to provide the findings of the geophysical engineering survey (GES) at the above referenced project site: 21 Freeman Street, Brooklyn, NY 11222(the "Site").

INTRODUCTION TO GEOPHYSICAL ENGINEERING SURVEY (GES)

NOVA performed a geophysical engineering survey (GES) consisting of a Ground Penetrating Radar (GPR) and Electromagnetic (EM) survey at the site. The purpose of this survey is to locate and identify utilities and other substructures in the vicinity of the proposed boring location areas on March 18th, 2026.

The equipment selected for this investigation was a GSSI UtilityScan 350 MHz ground penetrating radar (GPR) with a shielded antenna Sensors and Software Noggin 250 MHz GPR with a shielded antenna and a RadioDetection RD7100 Electromagnetic utility locator. A GPR system consists of a radar control unit, control cable, and transducer (antenna). The control unit transmits a trigger pulse at a normal repetition rate of 250/350 MHz. The trigger pulse is sent to the transmitter electronics in the transducer via the control cable. The transmitter electronics amplify the trigger pulse into bipolar pulses that are radiated to the surface. The transformed pulses vary in shape and frequency according to the transducer used. In the

subsurface, variations of the signal occur at boundaries where there is a dielectric contrast (void, steel, soil type, etc.). Signal reflections travel back to the control unit and are represented as color graphic images for interpolation.

A typical electromagnetic (EM) utility locating system consists of a transmitter unit and a receiver unit. The receiver unit can be used independently of the transmitter unit in order to detect utility lines with an inherent EM signature (electric utility lines, water lines, etc.). If needed a current at a specific frequency can also be placed on a utility that is being located. This can be done via the transmitter unit by either direct connection or induction via an EM field varying at specific frequency. The receiver unit is then set to the selected frequency and the electromagnetic field created by the current running through the utility can be located allowing the utility to be marked.

GEOPHYSICAL METHODS

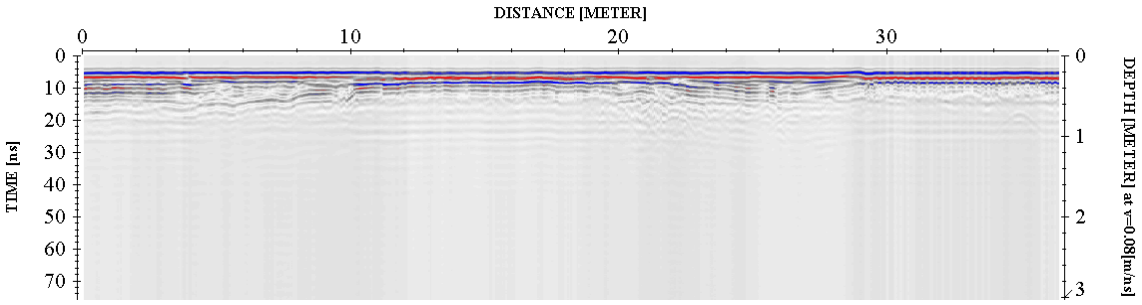
The project site was screened using GPR to search the specified area and inspected for reflections, which could be indicative of substructures and utilities within the subsurface. An EM utility locator was used to help determine the locations of utilities within the survey area.

EM data was collected and interpreted on site and suspected utilities marked as needed. GPR data profiles were collected for the areas of the Site specified by the client and processed as specified below.

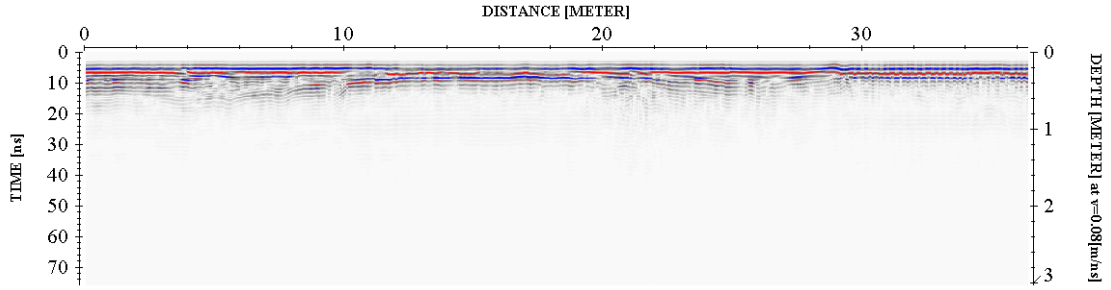
DATA PROCESSING

In order to improve the quality of the results and to better identify anomalies NOVA processed the collected data. The processing work flow is briefly described in this section.

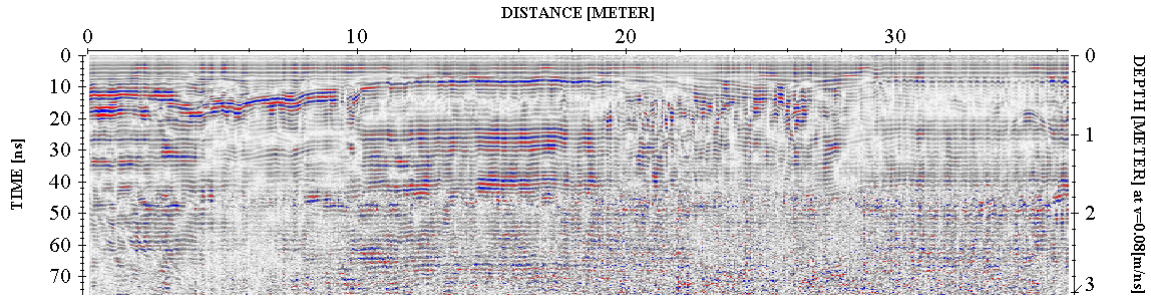
Step 1. Import Raw RAMAC data to standard processing format



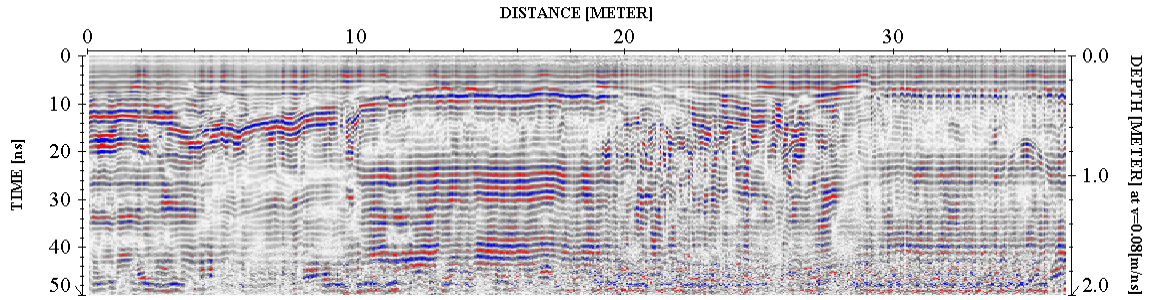
Step 2. Remove instrument noise *(dewow)*



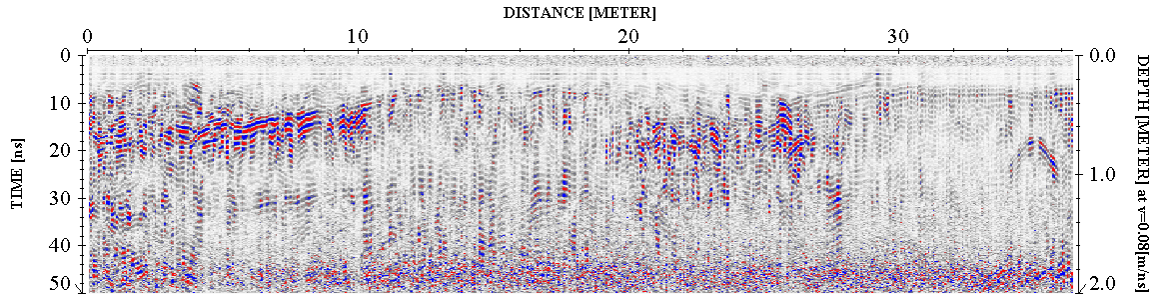
Step 3. Correct for attenuation losses *(energy decay function)*



Step 4. Remove static from bottom of profile *(time cut)*



Step 5. Mute horizontal ringing/noise *(subtracting average)*



The above example shows the significance of data processing. The last image (step 5) has higher resolution than the starting image (raw data – step 1) and represents the subsurface anomalies much more accurately.

PHYSICAL SETTINGS

NOVA observed the following physical conditions at the time of the survey.

Weather: Sunny

Temperature: 35° F

Surface: Asphalt

Survey Parameters: GPR scans were conducted within the survey area as shown on the survey plan. In tandem with the GPR, scans were conducted with an RD7100 Electromagnetic utility locator.

Limitations: The geophysical noise level (GNL) at the site was high due to being in an urban environment, and other unknown anthropogenic noise sources. Utilities at depths greater than approximately 10 feet below ground surface or with insufficient dielectric contrast may not have been located with the applied geophysical techniques.

RESULTS

The results of the geophysical engineering survey (GES) identified the following at the project site:

- Anomalies resembling potential subsurface utilities (such as electric and a combined Sewer) were identified within the surveyed areas. The approximate locations are shown in the survey plan.
- The GES identified an electric line originating from West Street, entering the site and feeding a storage building located within the parking lot (See Survey Plan (Electric)).
- The GES identified a combined sewer entering the site from Freeman Street and crossing the site at an approximate depth of 8 to 10 feet below ground surface (bgs) (See Survey Plan (Sewer)).
- The GES cleared and marked all proposed boring locations. Markings were adjusted in areas where anomalies were identified, and alternate boring locations were proposed. A total of eleven (11) boring locations were cleared and marked. The approximate locations are shown in the survey map.

If you have any questions, please do not hesitate to contact the undersigned.

Sincerely,

NOVA Geophysical Services



Levent Eskicakit, P.G., E.P.

Project Manager

Attachments:

Location Map

Survey Plan

Geophysical Images



NOVA
Geophysical Services
Subsurface Mapping Solutions
56-01 Marathon Parkway, # 765
Douglaston, New York 11362
Phone (347) 556-7787 * Fax (718) 261-1527
www.novagsi.com

Location Map

SITE: **Parking Lot**
21 Freeman Street,
Brooklyn, NY 11222

CLIENT: LANGAN

DATE: February 18th, 2026

AUTH: Daniel Ortiz

LEGEND

Survey area



NOVA
Geophysical Services
Subsurface Mapping Solutions
56-01 Marathon Parkway, # 765
Douglaston, New York 11362
Phone (347) 556-7787 * Fax (718) 261-1527
www.novagsi.com

SURVEY PLAN

SITE:	**Parking Lot** 21 Freeman Street, Brooklyn, NY 11222
CLIENT:	LANGAN
DATE:	February 18th, 2026
AUTH:	Daniel Ortiz

Legend

- Sewer
- Electric
- Gas
- Gas Cap
- Drain
- Electric Box
- Proposed Boring location
- Light Pole

Geophysical Images

Parking Lot
21 Freeman Street
Brooklyn NY, 11222
March 18th, 2026

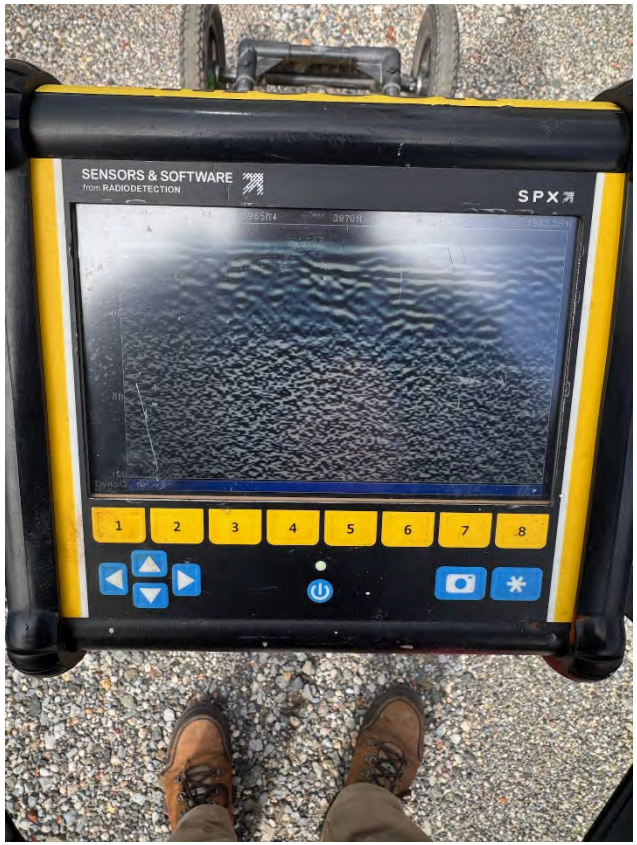






Geophysical Images

Parking Lot
21 Freeman Street
Brooklyn NY, 11222
March 18th, 2026







Geophysical Images

Parking Lot
21 Freeman Street
Brooklyn NY, 11222
March 18th, 2026







Geophysical Images

Parking Lot
21 Freeman Street
Brooklyn NY, 11222
March 18th, 2026







Geophysical Images

Parking Lot
21 Freeman Street
Brooklyn NY, 11222
March 18th, 2026

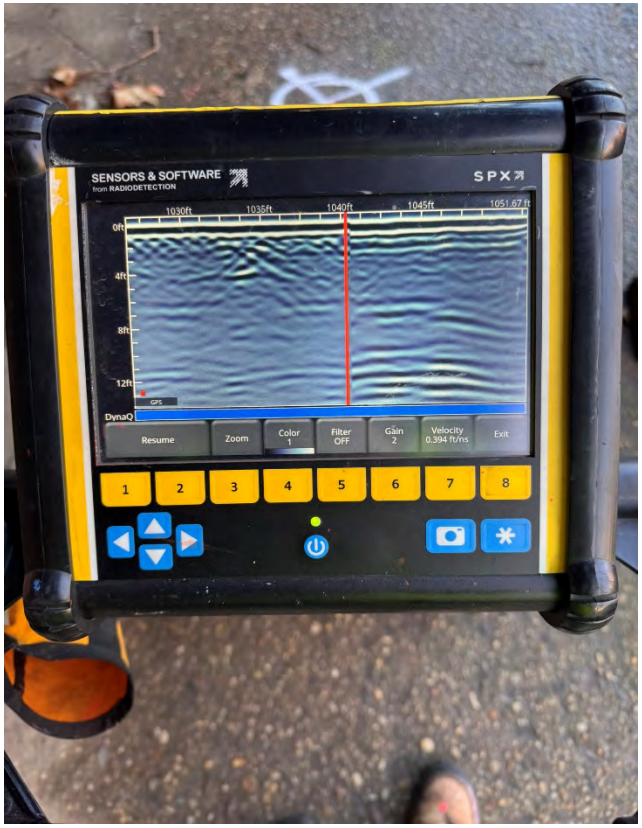






Geophysical Images

Parking Lot
21 Freeman Street
Brooklyn NY, 11222
March 18th, 2026

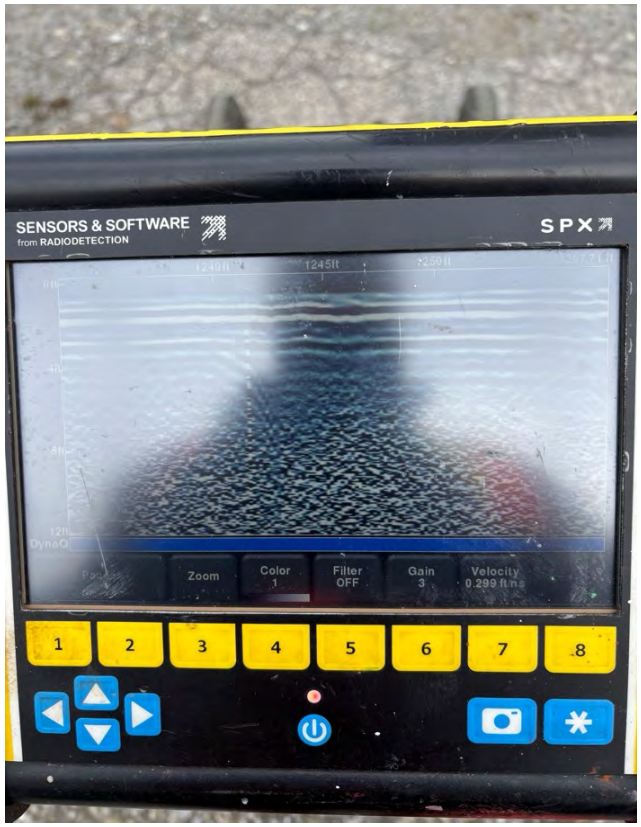






Geophysical Images

Parking Lot
21 Freeman Street
Brooklyn NY, 11222
March 18th, 2026







Geophysical Images

Parking Lot
21 Freeman Street
Brooklyn NY, 11222
March 18th, 2026

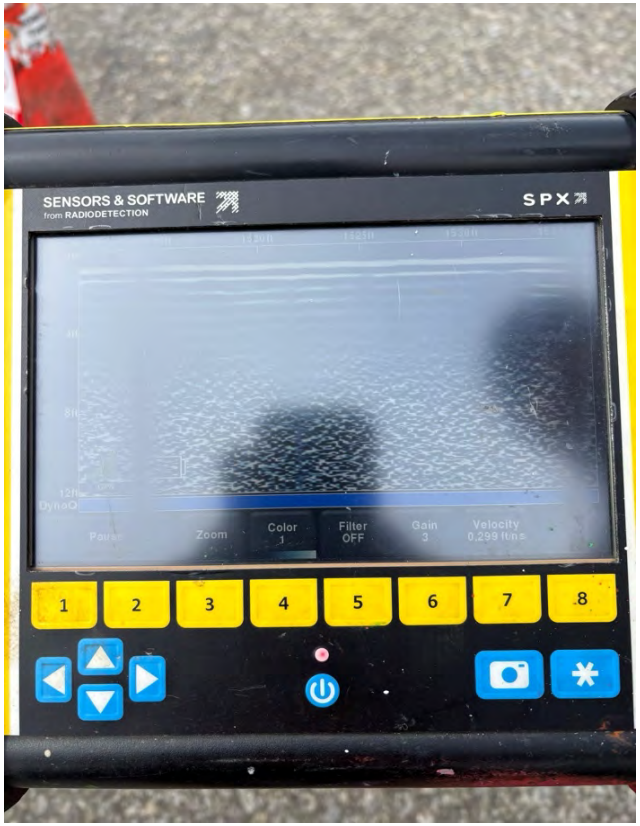






Geophysical Images

Parking Lot
21 Freeman Street
Brooklyn NY, 11222
March 18th, 2026







Geophysical Images

Parking Lot
21 Freeman Street
Brooklyn NY, 11222
March 18th, 2026







Geophysical Images

Parking Lot
21 Freeman Street
Brooklyn NY, 11222
March 18th, 2026







Geophysical Images

Parking Lot
21 Freeman Street
Brooklyn NY, 11222
March 18th, 2026



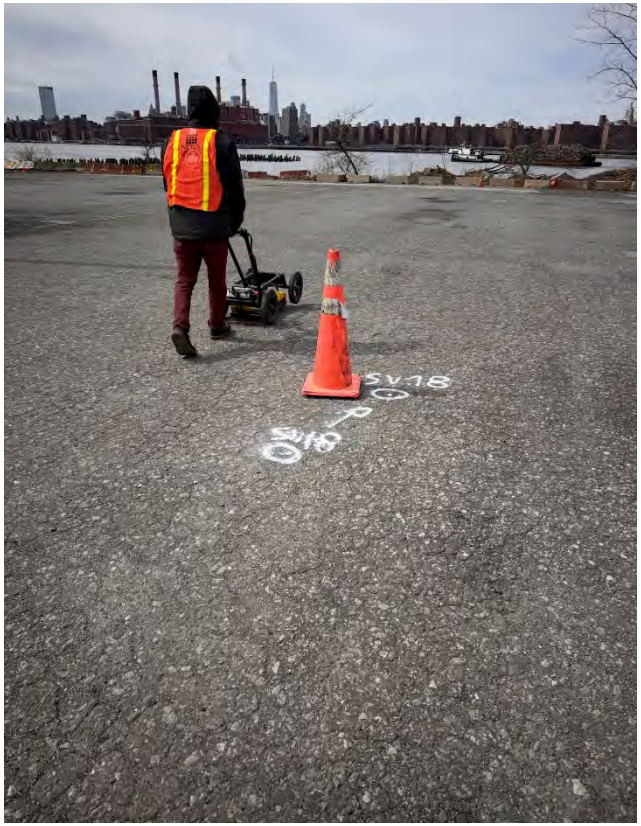


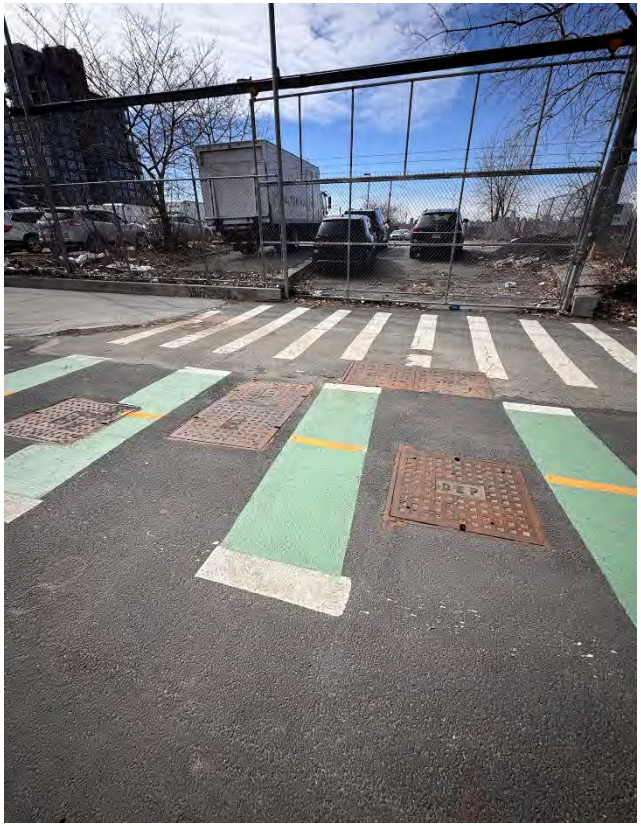


Geophysical Images

Parking Lot
21 Freeman Street
Brooklyn NY, 11222
March 18th, 2026







APPENDIX D

Soil Boring Logs

LANGAN

Log of Boring **SB01/MW01** Sheet 1 of 1

Project: C1C2C3	Project No.: 170229030
Location: Brooklyn, NY	Elevation and Datum: 9.14
Drilling Company: Lakewood Environmental Services Corp.	Date Started: 07/29/2022 — Date Finished: 07/29/2022
Drilling Equipment: Geoprobe 6610 DT	Completion Depth: 25 ft — Rock Depth: N/A
Size and Type of Bit: 2-inch-diameter steel cutting shoe	Number of Samples: Disturbed 5 — Undisturbed N/A — Core N/A
Casing Diameter (in): N/A — Casing Depth (ft): N/A	Water Level (ft.): First ▽ 8.5 — Completion ▼ 8.5 — 24 HR. ▼ 8.5
Casing Hammer: N/A — Weight (lbs): N/A — Drop (in): N/A	Drilling Foreman: Adam Hutchinson
Sampler: 2-inch by 5-foot steel macrocore with acetate liner	Field Engineer: Ali Reach, Lauren Roper
Sampler Hammer: N/A — Weight (lbs): N/A — Drop (in): N/A	

Material Symbol	Elev. (ft)	Sample Description	Depth Scale	Sample Data: Number	Type	Recov. (in)	Penetr. resist BL/6in	PID (ppm)	Remarks (Drilling Fluid, Depth of Casing, Fluid Loss, Drilling Resistance, etc.)
	+9.1	Tannish brown to gray fine SAND, trace silt, concrete, coal, coal ash, slag, wood (moist)[FILL].	0	R-1	MACROCORE	60/60"		0.0 0.0 0.0 0.0 0.0 0.0 0.0 0.0 0.0 0.0	Soil sample SB01_0-2 collected.
		Tannish brown to gray fine SAND, trace silt, concrete, coal, coal ash, slag (moist)[FILL].	6	R-2	MACROCORE	48/60"		0.0 0.0 0.0 0.0 0.0 0.0 0.0	
		Tannish brown to tan fine SAND, trace silt (moist)[FILL].	8						
		Tannish brown to gray fine SAND, trace silt, coal, coal ash, slag (wet)[FILL]. Tannish brown to gray fine SAND, trace silt, fine angular gravel, coal, coal ash, slag (wet)[FILL].	10	R-3	MACROCORE	48/60"		0.0 0.0 0.0 0.0 0.0 0.0 0.0 0.0	
		Dark gray CLAY, trace silt, glass, shell fragments (wet)[FILL]. Dark gray to tannish gray fine SAND, some gravel, trace silt, coal, slag (wet)[FILL].	14	R-4	MACROCORE	52/60"		0.0 0.0 0.0 0.0 0.0 0.0 0.0 0.0	
	-9.9	Grayish tan to light brown fine SAND, trace silt (wet)[SP]. Grayish tan to light brown fine SAND, trace silt, trace mica (wet)[SP].	20	R-5	MACROCORE	60/60"		0.0 0.0 0.0 0.0 0.0 0.0 0.0 0.0 0.0	Native. Soil sample SB01_19-21 collected.
	-15.9		24						Bottom of boring at about 25' bgs. Installed 1" monitoring well MW01 with 10ft of 0.010 slot screen from 7' to 17' bgs.
			28						

\\LANGAN.COM\DATA\NYC\DATA0\170229028\PROJECT DATA_DISCIPLINE\ENV\IRONMENTAL\GINTLOGS\170229028_ENTERPRISE.GPJ ... 5/1/2025 6:36:43 PM ... Report: Log - LANGAN

LANGAN

Log of Boring **SB02/MW02** Sheet 1 of 1

Project: C1C2C3	Project No.: 170229030
Location: Brooklyn, NY	Elevation and Datum: 9.24
Drilling Company: Lakewood Environmental Services Corp.	Date Started: 07/26/2022 — Date Finished: 07/26/2022
Drilling Equipment: Geoprobe 6610 DT	Completion Depth: 20 ft — Rock Depth: N/A
Size and Type of Bit: 2-inch-diameter steel cutting shoe	Number of Samples: Disturbed 4 — Undisturbed N/A — Core N/A
Casing Diameter (in): N/A — Casing Depth (ft): N/A	Water Level (ft.): First ▽ 9 — Completion ▼ 9 — 24 HR. ▼ 8.8
Casing Hammer: N/A — Weight (lbs): N/A — Drop (in): N/A	Drilling Foreman: Adam Hutchinson
Sampler: 2-inch by 5-foot steel macrocore with acetate liner	Field Engineer: Ali Reach, Lauren Roper
Sampler Hammer: N/A — Weight (lbs): N/A — Drop (in): N/A	

Material Symbol	Elev. (ft)	Sample Description	Depth Scale	Sample Data: Number	Type	Recov. (in)	Penetr. resist BL/6in	PID (ppm)	Remarks (Drilling Fluid, Depth of Casing, Fluid Loss, Drilling Resistance, etc.)
	+9.2	Gray medium SAND, fine gravel, concrete (moist)[FILL].	0	R-1	MACROCORE	60/60"		0.0	Soil sample SB02_0-2 collected.
		Grayish orangish black fine SAND, wood, coal ash, coal (moist)[FILL].	2					0.0	
		Light tannish brown medium SAND, gravel (moist)[FILL]. Dark gray fine SAND, trace silt, slag (moist)[FILL]. Orangish brown fine SAND, trace silt, slag (moist)[FILL].	4					0.0	Soil sample SB02_3-5 collected.
		Brownish black GRAVEL, trace fine sand, slag, (moist)[FILL].	6	R-2	MACROCORE	36/60"		0.0	
			8					0.0	
		Brownish black GRAVEL, trace fine sand, slag (wet)[FILL].	10	R-3	MACROCORE	48/60"		0.0	
		Dark gray SAND, some silt, gravel (wet)[FILL].	12					0.0	
		Dark brown fine GRAVEL, trace fine sand, slag (wet)[FILL].	14					0.0	
	-7.8		16	R-4	MACROCORE	60/60"		0.0	
		Tannish gray SAND, some silt, trace medium sand, trace medium rounded gravel, mica (wet) [SP].	18					0.0	Native
	-10.8		20					0.0	Bottom of boring at about 20' bgs. Installed 1" monitoring well MW02 with 10ft of 0.010 slot screen from 7' to 17' bgs.
			22						
			24						
			26						
			28						

\\LANGAN.COM\DATA\NYC\DATA0\170229028\PROJECT DATA_DISCIPLINE\ENV\IRONMENTAL\GINTLOGS\170229028_ENTERPRISE.GPJ ... 5/1/2025 6:36:44 PM ... Report: Log - LANGAN

LANGAN

Log of Boring **SB03/MW03** Sheet 1 of 1

Project: C1C2C3	Project No.: 170229030
Location: Brooklyn, NY	Elevation and Datum: 9.11
Drilling Company: Lakewood Environmental Services Corp.	Date Started: 07/26/2022 — Date Finished: 07/26/2022
Drilling Equipment: Geoprobe 6610 DT	Completion Depth: 20 ft — Rock Depth: N/A
Size and Type of Bit: 2-inch-diameter steel cutting shoe	Number of Samples: Disturbed 4 — Undisturbed N/A — Core N/A
Casing Diameter (in): N/A — Casing Depth (ft): N/A	Water Level (ft.): First ▽ 8.5 — Completion ▼ 8.5 — 24 HR. ▼ 8.3
Casing Hammer: N/A — Weight (lbs): N/A — Drop (in): N/A	Drilling Foreman: Adam Hutchinson
Sampler: 2-inch by 5-foot steel macrocore with acetate liner	Field Engineer: Ali Reach, Lauren Roper
Sampler Hammer: N/A — Weight (lbs): N/A — Drop (in): N/A	

Material Symbol	Elev. (ft)	Sample Description	Depth Scale	Sample Data: Number	Type	Recov. (in)	Penetr. resist BL/6in	PID (ppm)	Remarks (Drilling Fluid, Depth of Casing, Fluid Loss, Drilling Resistance, etc.)
	+9.1	Tannish brown to dark brown fine SAND, trace silt, gravel, concrete, brick, coal(moist)[FILL].	0	R-1	MACROCORE	60/60"		0.0 0.0 0.0 0.0 0.0 0.0 0.0 0.0 0.0	Soil sample SB03_0-2 collected.
		Tannish orangish brown to dark brown fine SAND, trace silt, gravel, coal, slag (moist)[FILL].	6	R-2	MACROCORE	60/60"		0.0 0.0 0.0 0.0 0.0 0.0 0.0 0.0 0.0	Soil sample SB03_6-8 collected.
		Tannish orangish brown to dark brown fine SAND, trace silt, gravel, coal, slag(wet)[FILL].	8						
		Orangish brown to dark orangish brown fine SAND, trace silt, gravel, coal, slag (wet)[FILL].	10	R-3	MACROCORE	36/60"		0.0 0.0 0.0 0.0 0.6 84.9 0.4	Slight petroleum-like odor at 14-16' bgs. Soil sample SB03_14-16 collected.
		Dark gray to black fine SAND, trace silt (wet)[FILL]. Tannish gray fine SAND, some silt (wet)[FILL]. Tannish gray fine SAND, some silt, gravel (wet)[FILL].	14						Soil sample SB03_16-18 collected.
	-9.9		16	R-4	MACROCORE	48/60"		0.0 0.0 0.0 0.0 0.0 0.0 0.0	
		Grayish tan SILT, trace clay, trace fine sand (wet)[ML].	18						
	-10.9		20						Bottom of boring at about 20' bgs. Installed 1" monitoring well MW03 with 10ft of 0.010 slot screen from 7' to 17' bgs.
			22						
			24						
			26						
			28						

\\LANGAN.COM\DATA\NYC\DATA0\170229028\PROJECT DATA_DISCIPLINE\ENV\IRONMENTAL\GINTLOGS\170229028_ENTERPRISE.GPJ ... 5/1/2025 6:36:45 PM ... Report: Log - LANGAN

LANGAN

Log of Boring **SB04/MW04** Sheet 1 of 1

Project: C1C2C3	Project No.: 170229030
Location: Brooklyn, NY	Elevation and Datum: 10.16
Drilling Company: Lakewood Environmental Services Corp.	Date Started: 07/28/2022 / Date Finished: 07/28/2022
Drilling Equipment: Geoprobe 6610 DT	Completion Depth: 20 ft / Rock Depth: N/A
Size and Type of Bit: 2-inch-diameter steel cutting shoe	Number of Samples: Disturbed 4 / Undisturbed N/A / Core N/A
Casing Diameter (in): N/A / Casing Depth (ft): N/A	Water Level (ft.): First ▽ 9 / Completion ▼ 9 / 24 HR. ▼ 8.9
Casing Hammer: N/A / Weight (lbs): N/A / Drop (in): N/A	Drilling Foreman: Adam Hutchinson
Sampler: 2-inch by 5-foot steel macrocore with acetate liner	Field Engineer: Ali Reach, Lauren Roper
Sampler Hammer: N/A / Weight (lbs): N/A / Drop (in): N/A	

Material Symbol	Elev. (ft)	Sample Description	Depth Scale	Sample Data: Number	Type	Recov. (in)	Penetr. resist BL/6in	PID (ppm)	Remarks (Drilling Fluid, Depth of Casing, Fluid Loss, Drilling Resistance, etc.)
	+10.2	Black to light gray fine SAND, trace silt, gravel, brick, coal, coal ash, wood, concrete, slag (moist)[FILL].	0	R-1	Macrocore	60/60"		0.0 0.0 0.0 0.0 0.0 0.0 0.0 0.0 0.0 0.0	Soil sample SB04_0-2 collected.
		Black to light gray fine SAND, some silt, gravel, brick, coal, coal ash, wood, concrete, slag (moist)[FILL]	6	R-2	Macrocore	55/60"		0.0 0.0 0.0 0.0 0.0 0.0 0.0 0.0 0.0 0.0	Soil sample SB04_5-7collected.
		Grayish brown to black fine SAND, some silt, gravel, coal (moist)[FILL].	8						
		Dark brown to dark gray fine SAND, some silt, wood (wet)[FILL].	10	R-3	Macrocore	39/60"		0.0 0.0 0.0 0.0 0.0 0.0 0.0 0.0 0.0 0.0	
		Gray SILT, some clay, trace fine sand, gravel, slag (wet)[FILL].	14						
	-6.8	Grayish brown to tannish brown fine SAND, some clay, trace mica (wet)[SP-SC].	16	R-4	Macrocore	60/60"		0.0 0.0 0.0 0.0 0.0 0.0 0.0 0.0 0.0 0.0	Native
	-9.8		20						Bottom of boring at about 20' bgs. Installed 1" monitoring well MW04 with 10ft of 0.010 slot screen from 7' to 17' bgs.
			22						
			24						
			26						
			28						

\\LANGAN.COM\DATA\NYC\DATA0\170229028\PROJECT DATA_DISCIPLINE\ENV\IRONMENTAL\GINTLOGS\170229028_ENTERPRISE.GPJ ... 5/1/2025 6:36:47 PM ... Report: Log - LANGAN

LANGAN

Log of Boring **SB05/MW05** Sheet 1 of 1

Project: C1C2C3	Project No.: 170229030
Location: Brooklyn, NY	Elevation and Datum: 10.65
Drilling Company: Lakewood Environmental Services Corp.	Date Started: 07/26/2022 — Date Finished: 07/26/2022
Drilling Equipment: Geoprobe 6610 DT	Completion Depth: 20 ft — Rock Depth: N/A
Size and Type of Bit: 2-inch-diameter steel cutting shoe	Number of Samples: Disturbed 4 — Undisturbed N/A — Core N/A
Casing Diameter (in): N/A — Casing Depth (ft): N/A	Water Level (ft.): First ▽ 9 — Completion ▼ 9 — 24 HR. ▼ 8.5
Casing Hammer: N/A — Weight (lbs): N/A — Drop (in): N/A	Drilling Foreman: Adam Hutchinson
Sampler: 2-inch by 5-foot steel macrocore with acetate liner	Field Engineer: Ali Reach, Lauren Roper
Sampler Hammer: N/A — Weight (lbs): N/A — Drop (in): N/A	

Material Symbol	Elev. (ft)	Sample Description	Depth Scale	Sample Data: Number	Type	Recov. (in)	Penetr. resist BL/6in	PID (ppm)	Remarks (Drilling Fluid, Depth of Casing, Fluid Loss, Drilling Resistance, etc.)
	+10.7	Grayish tan to dark black fine SAND, trace silt, brick, concrete, gravel, coal, coal ash (moist)[FILL].	0	R-1	MACROCORE	60/60"		0.0 0.0 0.0 0.0 0.0 0.0 0.0 0.0 0.0	Soil sample SB05_0-2 collected.
		Brownish black SAND, trace silt, slag, coal, coal ash, brick, gravel (moist)[FILL].	6	R-2	MACROCORE	60/60"		0.0 0.0 0.0 0.0 0.0 0.0 0.0 0.0 0.0	Soil sample SB05_5-7 collected.
		Tannish orangish brown SAND, trace silt, gravel (moist)[FILL].	8						
		Tannish grayish brown SAND, some silt, gravel (wet)[FILL].	10	R-3	MACROCORE	60/60"		0.0 0.0 0.0 0.0 0.0 0.0 0.0 0.0 0.0 0.0	
	-3.4	Tannish grayish brown SAND, some silt, trace medium sand (wet)[SP].	14					0.0 0.0	Native.
	-4.4	Grayish brown fine SAND, trace silt (wet)[SP-SM].	16	R-4	MACROCORE	60/60"		0.0 0.0 0.0 0.0 0.0 0.0 0.0 0.0 0.0	
	-9.4		20						Bottom of boring at about 20' bgs. Installed 1" monitoring well MW05 with 10ft of 0.010 slot screen from 7' to 17' bgs.
			22						
			24						
			26						
			28						

\\LANGAN.COM\DATA\NYC\DATA0\170229028\PROJECT DATA_DISCIPLINE\ENV\IRONMENTAL\GINTLOGS\170229028_ENTERPRISE.GPJ ... 5/1/2025 6:36:48 PM ... Report: Log - LANGAN

LANGAN

Log of Boring **SB06/MW06** Sheet 1 of 1

Project: C1C2C3	Project No.: 170229030
Location: Brooklyn, NY	Elevation and Datum: 11.36
Drilling Company: Lakewood Environmental Services Corp.	Date Started: 07/27/2022 — Date Finished: 07/27/2022
Drilling Equipment: Geoprobe 6610 DT	Completion Depth: 20 ft — Rock Depth: N/A
Size and Type of Bit: 2-inch-diameter steel cutting shoe	Number of Samples: Disturbed 4 — Undisturbed N/A — Core N/A
Casing Diameter (in): N/A — Casing Depth (ft): N/A	Water Level (ft.): First ▽ 8.5 — Completion ▼ 8.5 — 24 HR. ▼ 9.5
Casing Hammer: N/A — Weight (lbs): N/A — Drop (in): N/A	Drilling Foreman: Adam Hutchinson
Sampler: 2-inch by 5-foot steel macrocore with acetate liner	Field Engineer: Ali Reach, Lauren Roper
Sampler Hammer: N/A — Weight (lbs): N/A — Drop (in): N/A	

Material Symbol	Elev. (ft)	Sample Description	Depth Scale	Sample Data: Number	Type	Recov. (in)	Penetr. resist BL/6in	PID (ppm)	Remarks (Drilling Fluid, Depth of Casing, Fluid Loss, Drilling Resistance, etc.)
	+11.4	Black to grayish brown fine SAND, some medium gravel, trace silt, concrete, slag, brick, coal ash, wood (moist) [FILL].	0	R-1	Macrocore	60/60"		0.0	Soil sample SB06_0-2 collected.
			2					0.0	
			4					0.0	Soil sample SB06_4-6 collected.
		Black to grayish brown fine SAND, some medium gravel, trace silt, concrete, slag, brick, coal ash, wood (moist) [FILL].	6	R-2	Macrocore	40/60"		0.0	
		Grayish tannish brown fine SAND, some silt, brick, wood (wet) [FILL].	8					0.0	
		Dark grayish tannish brown fine SAND, some silt, brick, wood (wet) [FILL].	10	R-3	Macrocore	28/60"		0.0	
	-2.6	Grayish brown fine SAND, some silt, trace fine gravel (wet) [SP].	12					0.0	
		Grayish brown fine SAND, trace silt, trace fine gravel (wet)[SP]	14					0.0	Native.
	-5.1	Dark brown CLAY, wood, organics (wet) [OH].	16	R-4	Macrocore	60/60"		0.0	
	-7.1	Gray to orangish brown SILT, some fine sand (wet)[ML].	18					0.0	
	-8.6		20					0.0	Bottom of boring at about 20' bgs. Installed 1" monitoring well MW06 with 10ft of 0.010 slot screen from 7' to 17' bgs.
			22						
			24						
			26						
			28						

\\LANGAN.COM\DATA\NYC\DATA0\170229028\PROJECT DATA_DISCIPLINE\ENVIRONMENTAL\GINTLOGS\170229028_ENTERPRISE.GPJ ... 5/1/2025 6:36:49 PM ... Report: Log - LANGAN

LANGAN

Log of Boring **SB07/MW07** Sheet 1 of 1

Project: C1C2C3	Project No.: 170229030
Location: Brooklyn, NY	Elevation and Datum: 10.55
Drilling Company: Lakewood Environmental Services Corp.	Date Started: 07/28/2022 / Date Finished: 07/28/2022
Drilling Equipment: Geoprobe 6610 DT	Completion Depth: 20 ft / Rock Depth: N/A
Size and Type of Bit: 2-inch-diameter steel cutting shoe	Number of Samples: Disturbed 4 / Undisturbed N/A / Core N/A
Casing Diameter (in): N/A / Casing Depth (ft): N/A	Water Level (ft.): First ▽ 9 / Completion ▼ 9 / 24 HR. ▼ 8.1
Casing Hammer: N/A / Weight (lbs): N/A / Drop (in): N/A	Drilling Foreman: Adam Hutchinson
Sampler: 2-inch by 5-foot steel macrocore with acetate liner	Field Engineer: Ali Reach, Lauren Roper
Sampler Hammer: N/A / Weight (lbs): N/A / Drop (in): N/A	

Material Symbol	Elev. (ft)	Sample Description	Depth Scale	Sample Data: Number	Type	Recov. (in)	Penetr. resist BL/6in	PID (ppm)	Remarks (Drilling Fluid, Depth of Casing, Fluid Loss, Drilling Resistance, etc.)
	+10.6	Dark brown to dark gray fine SAND, gravel, concrete, brick, slag, trace silt (moist)[FILL].	0	R-1	Macrocore	60/60"		0.0	Soil sample SB07_0-2 collected.
		Dark brown to dark gray fine SAND, gravel, concrete, wood, trace silt (moist)[FILL].	6	R-2	Macrocore	48/60"		0.0	Soil sample SB07_7-9 collected.
		Tannish brown to light brown fine SAND, some silt (wet)[SP-SM].	10	R-3	Macrocore	60/60"		0.0	Native
	-1.5	Tannish brown to light brown medium-fine SAND, some silt (wet)[SP-SM]. Tannish brown to light brown fine SAND, some silt (wet)[SP-SM].	12					0.0	
		Tannish brown to light brown fine SAND, some silt, trace mica (wet)[SP-SM].	16	R-4	Macrocore	60/60"		0.0	
	-9.5		20						Bottom of boring at about 20' bgs. Installed 1" monitoring well MW07 with 10ft of 0.010 slot screen from 7' to 17' bgs.
			28						

\\LANGAN.COM\DATA\NYC\DATA0\170229028\PROJECT DATA_DISCIPLINE\ENV\IRONMENTAL\GINTLOGS\170229028_ENTERPRISE.GPJ ... 5/1/2025 6:36:51 PM ... Report: Log - LANGAN

LANGAN

Log of Boring **SB08/MW08** Sheet 1 of 1

Project: C1C2C3	Project No.: 170229030
Location: Brooklyn, NY	Elevation and Datum: 11.66
Drilling Company: Lakewood Environmental Services Corp.	Date Started: 07/28/2022 — Date Finished: 07/28/2022
Drilling Equipment: Geoprobe 6610 DT	Completion Depth: 20 ft — Rock Depth: N/A
Size and Type of Bit: 2-inch-diameter steel cutting shoe	Number of Samples: Disturbed 4 — Undisturbed N/A — Core N/A
Casing Diameter (in): N/A — Casing Depth (ft): N/A	Water Level (ft.): First ▽ 8.5 — Completion ▼ 8.5 — 24 HR. ▼ 8.4
Casing Hammer: N/A — Weight (lbs): N/A — Drop (in): N/A	Drilling Foreman: Adam Hutchinson
Sampler: 2-inch by 5-foot steel macrocore with acetate liner	Field Engineer: Ali Reach, Lauren Roper
Sampler Hammer: N/A — Weight (lbs): N/A — Drop (in): N/A	

Material Symbol	Elev. (ft)	Sample Description	Depth Scale	Sample Data: Number	Type	Recov. (in)	Penetr. resist BL/6in	PID (ppm)	Remarks (Drilling Fluid, Depth of Casing, Fluid Loss, Drilling Resistance, etc.)
	+11.7	Dark brown to gray fine SAND, gravel, concrete, slag, coal, coal ash, trace silt (moist)[FILL].	0	R-1	Macrocore	60/60"		0.0	Soil sample SB08_0-2 collected.
		Dark brown to gray fine SAND, gravel, slag, coal, coal ash, trace silt (moist)[FILL].	2					0.0	
			4					0.0	
			6	R-2	Macrocore	60/60"		0.0	
		Tannish brown to light orangish brown fine SAND, trace silt (wet)[FILL].	8					0.0	
	+2.7	Tannish brown to light brown fine SAND, trace silt, trace medium sand (wet)[SP].	10					0.0	Native. Soil sample SB08_0-9 collected.
		Tannish brown to light brown fine SAND, trace silt, trace medium sand (wet)[SP].	12	R-3	Macrocore	60/60"		0.0	
			14					0.0	
		Tannish brown to light brown fine-medium SAND, trace silt, trace coarse sand, shell fragments (wet)[SP].	16					0.0	
			18	R-4	Macrocore	60/60"		0.0	
	-8.3		20					0.0	Bottom of boring at about 20' bgs. Installed 1" monitoring well MW08 with 10ft of 0.010 slot screen from 7' to 17' bgs.
			22						
			24						
			26						
			28						

\\LANGAN.COM\DATA\NYC\DATA0\170229028\PROJECT DATA_DISCIPLINE\ENV\RONMENTAL\GINTLOGS\170229028_ENTERPRISE.GPJ ... 5/1/2025 6:36:52 PM ... Report: Log - LANGAN

LANGAN

Log of Boring **SB09/MW09** Sheet 1 of 1

Project: C1C2C3	Project No.: 170229030
Location: Brooklyn, NY	Elevation and Datum: 11
Drilling Company: Lakewood Environmental Services Corp.	Date Started: 07/25/2022 / Date Finished: 07/25/2022
Drilling Equipment: Geoprobe 6610 DT	Completion Depth: 17 ft / Rock Depth: N/A
Size and Type of Bit: 2-inch-diameter steel cutting shoe	Number of Samples: Disturbed 4 / Undisturbed N/A / Core N/A
Casing Diameter (in): N/A / Casing Depth (ft): N/A	Water Level (ft.): First ▽ 8.5 / Completion ▼ 8.5 / 24 HR. ▼ 8.7
Casing Hammer: N/A / Weight (lbs): N/A / Drop (in): N/A	Drilling Foreman: Adam Hutchinson
Sampler: 2-inch by 5-foot steel macrocore with acetate liner	Field Engineer: Ali Reach, Lauren Roper
Sampler Hammer: N/A / Weight (lbs): N/A / Drop (in): N/A	

Material Symbol	Elev. (ft)	Sample Description	Depth Scale	Sample Data: Number	Type	Recov. (in)	Penetr. resist BL/6in	PID (ppm)	Remarks (Drilling Fluid, Depth of Casing, Fluid Loss, Drilling Resistance, etc.)
	+11.0	Dark brown to black fine SAND, trace silt, coal ash, coal, brick, concrete, slag (moist)[FILL].	0	R-1	Macrocore	60/60"		0.0	Soil sample SB09_0-2 collected.
			2					0.0	
			4					0.0	Soil sample SB09_3-5 collected.
		Dark brown to black fine SAND, trace silt, coal ash, coal, brick, slag (moist)[FILL].	6	R-2	Macrocore	60/60"		0.0	
			8					0.0	
	+1.5	Tannish brown to brown silty fine SAND (wet)[SM]. Tannish brown to brown silty fine SAND, trace medium sand (wet)[SM].	10	R-3	Macrocore	60/60"		0.0	Native.
			12					0.0	
			14					0.0	
		Tannish brown to brown silty fine SAND (wet)[SM].	16	R-4	Macrocore	24/24"		0.0	
	-6.0		18						Bottom of boring at about 17' bgs. Installed 1" monitoring well MW09 with 10ft of 0.010 slot screen from 7' to 17' bgs.
			20						
			22						
			24						
			26						
			28						

\\LANGAN.COM\DATA\NYC\DATA0\170229028\PROJECT DATA_DISCIPLINE\ENVIRONMENTAL\GINTLOGS\170229028_ENTERPRISE.GPJ ... 5/1/2025 6:36:53 PM ... Report: Log - LANGAN

LANGAN

Log of Boring **SB10/MW10** Sheet 1 of 1

Project: C1C2C3	Project No.: 170229030
Location: Brooklyn, NY	Elevation and Datum: 9.33
Drilling Company: Lakewood Environmental Services Corp.	Date Started: 07/29/2022 — Date Finished: 07/29/2022
Drilling Equipment: Geoprobe 6610 DT	Completion Depth: 20 ft — Rock Depth: N/A
Size and Type of Bit: 2-inch-diameter steel cutting shoe	Number of Samples: Disturbed 4 — Undisturbed N/A — Core N/A
Casing Diameter (in): N/A — Casing Depth (ft): N/A	Water Level (ft.): First ▽ 8.5 — Completion ▼ 8.5 — 24 HR. ▼ 8.4
Casing Hammer: N/A — Weight (lbs): N/A — Drop (in): N/A	Drilling Foreman: Adam Hutchinson
Sampler: 2-inch by 5-foot steel macrocore with acetate liner	Field Engineer: Ali Reach, Lauren Roper
Sampler Hammer: N/A — Weight (lbs): N/A — Drop (in): N/A	

Material Symbol	Elev. (ft)	Sample Description	Depth Scale	Sample Data: Number	Type	Recov. (in)	Penetr. resist BL/6in	PID (ppm)	Remarks (Drilling Fluid, Depth of Casing, Fluid Loss, Drilling Resistance, etc.)
	+9.3	Dark gray to tannish brown fine SAND, concrete, slag, coal, gravel, trace silt (moist)[FILL].	0	R-1	Macrocore	60/60"		0.0	Soil sample SB10_0-2 collected.
			2					0.0	
								0.0	
								0.0	
			4					0.0	Soil samples SB10_3-5 and SODUP02_072922 collected.
								0.0	
								0.0	
		Dark brown to tannish brown fine SAND, slag, coal, gravel, trace silt (moist)[FILL].	6	R-2	Macrocore	60/60"		0.0	
								0.0	
								0.0	
			8					0.0	
								0.0	
								0.0	
		Dark brown to dark gray fine SAND, fine gravel, some silt (wet)[FILL].	10					0.0	
								0.0	
								0.0	
			12	R-3	Macrocore	60/60"		0.0	
		Reddish orange BRICK, trace sand (wet)[FILL].						0.0	6" Brick layer
		Dark gray to black CLAY, wood, trace silt, trace fine sand (wet)[FILL].						0.0	Petroleum-like odor and staining at 13-14' bgs. Soil sample SB10_13-15 collected.
	-4.7	Tannish brown to tan fine SAND, trace silt (wet)[SP].	14					0.0	Native
	-5.7	Tannish gray to gray SILT, trace clay, trace fine sand (wet)[ML].						0.0	
								0.0	
			16					0.0	
								0.0	
				R-4	Macrocore	60/60"		0.0	Soil sample SB10_17-18 collected.
	-9.2	Grayish tan fine SAND, trace clay, trace silt (wet)[SP].	18					0.0	
	-10.7							0.0	
			20						Bottom of boring at about 20' bgs. Installed 1" monitoring well MW10 with 10ft of 0.010 slot screen from 7' to 17' bgs.
			22						
			24						
			26						
			28						

\\LANGAN.COM\DATA\NYC\DATA0\170229028\PROJECT DATA_DISCIPLINE\ENVIRONMENTAL\GINTLOGS\170229028_ENTERPRISE.GPJ ... 5/1/2025 6:36:55 PM ... Report: Log - LANGAN

LANGAN

Log of Boring **SB11/MW11** Sheet 1 of 1

Project: C1C2C3	Project No.: 170229030
Location: Brooklyn, NY	Elevation and Datum: 9.59
Drilling Company: Lakewood Environmental Services Corp.	Date Started: 07/27/2022 — Date Finished: 07/27/2022
Drilling Equipment: Geoprobe 6610 DT	Completion Depth: 20 ft — Rock Depth: N/A
Size and Type of Bit: 2-inch-diameter steel cutting shoe	Number of Samples: Disturbed 4 — Undisturbed N/A — Core N/A
Casing Diameter (in): N/A — Casing Depth (ft): N/A	Water Level (ft.): First ▽ 8.5 — Completion ▼ 8.5 — 24 HR. ▼ 8.6
Casing Hammer: N/A — Weight (lbs): N/A — Drop (in): N/A	Drilling Foreman: Adam Hutchinson
Sampler: 2-inch by 5-foot steel macrocore with acetate liner	Field Engineer: Ali Reach, Lauren Roper
Sampler Hammer: N/A — Weight (lbs): N/A — Drop (in): N/A	

Material Symbol	Elev. (ft)	Sample Description	Depth Scale	Sample Data: Number	Type	Recov. (in)	Penetr. resist BL/6in	PID (ppm)	Remarks (Drilling Fluid, Depth of Casing, Fluid Loss, Drilling Resistance, etc.)
	+9.6	Tannish gray fine SAND, some fine gravel, trace silt, concrete, brick (moist)[FILL].	0	R-1	Macrocore	55/60"		0.0	Soil sample SB11_0-2 collected.
		Dark gray to black fine SAND, trace medium gravel, slag, coal ash, trace silt, (moist)[FILL].	2					0.0	
			4					0.0	
		Dark gray to black fine SAND, some medium gravel, trace silt, brick, slag, wood (moist)[FILL].	6	R-2	Macrocore	49/60"		0.0	Soil sample SB11_6-8 collected.
			8					0.0	
			10	R-3	Macrocore	24/60"		3.4	Slight creosote odor at 10' bgs.
		Dark gray to black fine GRAVEL, some medium sand, wood, glass, coal (wet)[FILL].	12					0.0	
			14					0.0	
		Dark brown fine GRAVEL, wood, coal, slag (wet)[FILL].						0.0	
	-6.4		16	R-4	Macrocore	60/60"		0.0	Native.
		Tannish brown to goldish tan fine SAND, trace silt, trace fine gravel, mica (wet)[SP].						0.0	
		Brownish tan to reddish tan medium SAND, some silt, trace medium gravel (wet)[SP].	18					0.0	
	-10.4		20					0.0	Bottom of boring at about 20' bgs. Installed 1" monitoring well MW11 with 10ft of 0.010 slot screen from 7' to 17' bgs.
			22						
			24						
			26						
			28						

\\LANGAN.COM\DATA\NYC\DATA0\170229028\PROJECT DATA_DISCIPLINE\ENV\IRONMENTAL\GINTLOGS\170229028_ENTERPRISE.GPJ ... 5/1/2025 6:36:56 PM ... Report: Log - LANGAN

LANGAN

Log of Boring **SB12/MW12** Sheet 1 of 1

Project: C1C2C3	Project No.: 170229030
Location: Brooklyn, NY	Elevation and Datum: 12.1
Drilling Company: Lakewood Environmental Services Corp.	Date Started: 07/25/2022 / Date Finished: 07/25/2022
Drilling Equipment: Geoprobe 6610 DT	Completion Depth: 20 ft / Rock Depth: N/A
Size and Type of Bit: 2-inch-diameter steel cutting shoe	Number of Samples: Disturbed 4 / Undisturbed N/A / Core N/A
Casing Diameter (in): N/A / Casing Depth (ft): N/A	Water Level (ft.): First ▽ 9.5 / Completion ▼ 9.5 / 24 HR. ▼ 9.4
Casing Hammer: N/A / Weight (lbs): N/A / Drop (in): N/A	Drilling Foreman: Adam Hutchinson
Sampler: 2-inch by 5-foot steel macrocore with acetate liner	Field Engineer: Ali Reach, Lauren Roper
Sampler Hammer: N/A / Weight (lbs): N/A / Drop (in): N/A	

Material Symbol	Elev. (ft)	Sample Description	Depth Scale	Sample Data: Number	Type	Recov. (in)	Penetr. resist BL/6in	PID (ppm)	Remarks (Drilling Fluid, Depth of Casing, Fluid Loss, Drilling Resistance, etc.)
	+12.1	Tannish gray fine SAND, fine gravel, concrete, brick(moist)[FILL]. Dark brown to reddish black fine SAND, brick, coal ash, coal, gravel, asphalt (moist)[FILL].	0	R-1	Macrocore	60/60"		0.0	Soil sample SB12_0-2 collected.
		Dark brown to reddish brown fine SAND, brick, coal ash, coal, gravel, asphalt (moist) [FILL].	4	R-2	Macrocore	60/60"		0.0	Soil sample SB12_5-7 collected.
		Tan fine SAND, trace silt, brick, mortar (moist)[FILL].	8						
		Reddish brown to dark brown fine SAND, trace silt, wood, organics (wet)[FILL].	10						
	-0.4	Tannish gray SILT, some clay (wet)[ML].	12	R-3	Macrocore	60/60"		0.0	Native.
		Tannish gray SILT, some clay, trace fine sand, mica (wet)[ML].	16	R-4	Macrocore	60/60"		0.0	
	-7.9		20						Bottom of boring at about 20' bgs. Installed 1" monitoring well MW12 with 10ft of 0.010 slot screen from 7' to 17' bgs.
			28						

\\LANGAN.COM\DATA\NYC\DATA0\170229028\PROJECT DATA_DISCIPLINE\ENV\IRONMENTAL\GINTLOGS\170229028_ENTERPRISE.GPJ ... 5/1/2025 6:36:57 PM ... Report: Log - LANGAN

LANGAN

Log of Boring **SB13/MW13** Sheet 1 of 1

Project: C1C2C3	Project No.: 170229030
Location: Brooklyn, NY	Elevation and Datum: 6.32
Drilling Company: Lakewood Environmental Services Corp.	Date Started: 07/27/2022 — Date Finished: 07/27/2022
Drilling Equipment: Geoprobe 6610 DT	Completion Depth: 20 ft — Rock Depth: N/A
Size and Type of Bit: 2-inch-diameter steel cutting shoe	Number of Samples: Disturbed 4 — Undisturbed N/A — Core N/A
Casing Diameter (in): N/A — Casing Depth (ft): N/A	Water Level (ft.): First ▽ 4.5 — Completion ▼ 4.5 — 24 HR. ▼ 5.6
Casing Hammer: N/A — Weight (lbs): N/A — Drop (in): N/A	Drilling Foreman: Adam Hutchinson
Sampler: 2-inch by 5-foot steel macrocore with acetate liner	Field Engineer: Ali Reach, Lauren Roper
Sampler Hammer: N/A — Weight (lbs): N/A — Drop (in): N/A	

Material Symbol	Elev. (ft)	Sample Description	Depth Scale	Sample Data: Number	Type	Recov. (in)	Penetr. resist BL/6in	PID (ppm)	Remarks (Drilling Fluid, Depth of Casing, Fluid Loss, Drilling Resistance, etc.)
	+6.3	Brownish black medium SAND, some fine gravel, trace silt, coal ash, slag, concrete, brick (moist)[FILL].	0	R-1	Macrocore	50/60"		0.0	Soil sample SB13_0-2 collected.
			2					0.0	
								0.0	
								0.0	
								0.0	Soil sample SB13_2-4 collected.
			4					0.0	
		Dark black medium-fine SAND, some silt, trace fine gravel, slag (wet)[FILL].						0.0	
			6	R-2	Macrocore	34/60"		0.0	
								0.0	
	-1.4	Tan fine SAND, some fine gravel, trace clay, trace silt (wet)[SP].	8					0.0	
								0.0	
								0.0	
		Tan fine SAND, trace clay, trace silt, trace medium gravel (wet)[SP].	10	R-3	Macrocore	54/60"		0.0	
								0.0	
								0.0	
			12					0.0	
								0.0	
								0.0	
	-8.2		14					0.0	
	-8.7	Gray SILT, trace medium gravel (wet)[ML].						0.0	
		Brown fine SAND, trace fine gravel (wet)[SP].						0.0	
			16	R-4	Macrocore	56/60"		0.0	
								0.0	
								0.0	
	-11.9		18					0.0	
		Dark grayish brown to tannish gray SILT, some clay, trace medium sand, trace fine gravel, mica (wet)[ML].						0.0	
	-13.7		20						Bottom of boring at about 20' bgs. Installed 1" monitoring well MW13 with 10ft of 0.010 slot screen from 3' to 13' bgs.
			22						
			24						
			26						
			28						

\\LANGAN.COM\DATA\NYC\DATA0\170229028\PROJECT DATA_DISCIPLINE\ENV\RONMENTAL\GINTLOGS\170229028_ENTERPRISE.GPJ ... 5/1/2025 6:36:58 PM ... Report: Log - LANGAN

LANGAN

Log of Boring **SB14** Sheet 1 of 1

Project: C1C2C3	Project No.: 170229030
Location: Brooklyn, NY	Elevation and Datum: N/A
Drilling Company: Lakewood Environmental Services Corp.	Date Started: 07/26/2022 — Date Finished: 07/26/2022
Drilling Equipment: Geoprobe 6610 DT	Completion Depth: 20 ft — Rock Depth: N/A
Size and Type of Bit: 2-inch-diameter steel cutting shoe	Number of Samples: Disturbed 4 — Undisturbed N/A — Core N/A
Casing Diameter (in): N/A — Casing Depth (ft): N/A	Water Level (ft.): First ▽ 8 — Completion ▼ N/A — 24 HR. ▼ N/A
Casing Hammer: N/A — Weight (lbs): N/A — Drop (in): N/A	Drilling Foreman: Adam Hutchinson
Sampler: 2-inch by 5-foot steel macrocore with acetate liner	Field Engineer: Ali Reach, Lauren Roper
Sampler Hammer: N/A — Weight (lbs): N/A — Drop (in): N/A	

Material Symbol	Elev. (ft)	Sample Description	Depth Scale	Sample Data: Number	Type	Recov. (in)	Penetr. resist BL/6in	PID (ppm)	Remarks (Drilling Fluid, Depth of Casing, Fluid Loss, Drilling Resistance, etc.)
		Grayish tan fine SAND, trace coarse sand, gravel, concrete (moist)[FILL].	0	R-1	Macrocore	42/60"		0.0	Soil sample SB14_0-2 collected.
		Dark gray to black fine SAND, slag, coal ash, wood (moist)[FILL].	2					0.0	
			4					0.0	
		Dark gray to black fine SAND, trace fine gravel, slag, coal ash, wood(moist)[FILL].	6	R-2	Macrocore	42/60"		0.0	Soil sample SB14_6-8 collected.
			8 ▽					0.0	
		Dark orangish brown fine SAND, trace silt (wet)[FILL].	10	R-3	Macrocore	48/60"		0.0	
		Dark orangish brown fine SAND, trace silt, trace fine gravel, coal ash, slag, coal (wet)[FILL].	12					0.0	
		Black fine angular GRAVEL, trace fine sand, coal, slag (wet)[FILL]. Dark gray fine SAND, trace silt (wet)[FILL].	14					0.0	
		Dark gray fine SAND, some silt, some gravel, shell fragments (wet)[SP].	16	R-4	Macrocore	60/60"		0.0	Native.
		Tannish gray CLAY, trace silt (wet)[CL].	18					0.0	
		Dark brown CLAY, wood, organics (wet)[CL]. Gray SILT, trace fine sand (wet)[ML]. Tannish gray SILT, trace silt, trace coarse sand, trace fine gravel (wet)[ML].	20					0.0	Bottom of boring at about 20' bgs. Borehole backfilled with clean soil cuttings to grade and patched with concrete.
			22						
			24						
			26						
			28						

\\LANGAN.COM\DATA\NYC\DATA0\170229028\PROJECT DATA_DISCIPLINE\ENV\IRONMENTAL\GINTLOGS\170229028_ENTERPRISE.GPJ ... 5/1/2025 6:36:59 PM ... Report: Log - LANGAN

LANGAN

Log of Boring **SB15** Sheet 1 of 1

Project: C1C2C3	Project No.: 170229030
Location: Brooklyn, NY	Elevation and Datum: N/A
Drilling Company: Lakewood Environmental Services Corp.	Date Started: 08/03/2022 — Date Finished: 08/03/2022
Drilling Equipment: Geoprobe 6610 DT	Completion Depth: 15 ft — Rock Depth: N/A
Size and Type of Bit: 2-inch-diameter steel cutting shoe	Number of Samples: Disturbed 3 — Undisturbed N/A — Core N/A
Casing Diameter (in): N/A — Casing Depth (ft): N/A	Water Level (ft.): First ▽ 8.5 — Completion ▼ N/A — 24 HR. ▼ N/A
Casing Hammer: N/A — Weight (lbs): N/A — Drop (in): N/A	Drilling Foreman: Adam Hutchinson
Sampler: 2-inch by 5-foot steel macrocore with acetate liner	Field Engineer: Ali Reach, Lauren Roper
Sampler Hammer: N/A — Weight (lbs): N/A — Drop (in): N/A	

Material Symbol	Elev. (ft)	Sample Description	Depth Scale	Sample Data: Number	Type	Recov. (in)	Penetr. resist BL/6in	PID (ppm)	Remarks (Drilling Fluid, Depth of Casing, Fluid Loss, Drilling Resistance, etc.)
		Dark brown to dark tan fine SAND, trace silt, brick, concrete, coal, coal ash (moist)[FILL].	0	R-1	Macrocore	60/60"		0.0	Soil sample SB15_0-2 collected.
			2					0.0	
								0.0	
								0.0	
			4					0.0	
								0.0	
								0.0	
								0.0	
								0.0	
		Brown to dark brown fine SAND, trace silt, coal, coal ash, slag (moist)[FILL].	6	R-2	Macrocore	60/60"		0.0	Soil sample SB15_6-8 collected.
								0.0	
								0.0	
								0.0	
			8 ▽					0.0	
								0.0	
		Dark brown to tan fine SAND, some silt (wet)[SP-SM].						0.0	Native.
		Dark brown to tan fine SAND, some silt (wet)[SP-SM].	10					0.0	
								0.0	
								0.0	
			12	R-3	Macrocore	60/60"		0.0	
								0.0	
								0.0	
		Dark brown to brown organic CLAY, trace silt, trace organics (wet)[CL].						0.0	
		Dark brown to tan fine SAND, some silt (wet)[SP-SM].	14					0.0	
									Bottom of boring at approximately 15 feet bgs. Borehole backfilled with clean soil cuttings to grade and patched with concrete.
			16						
			18						
			20						
			22						
			24						
			26						
			28						

\\LANGAN.COM\DATA\NYC\DATA0\170229028\PROJECT DATA_DISCIPLINE\ENV\IRONMENTAL\GINTLOGS\170229028_ENTERPRISE.GPJ ... 5/1/2025 6:37:01 PM ... Report: Log - LANGAN

LANGAN

Log of Boring **SB16** Sheet 1 of 1

Project: C1C2C3	Project No.: 170229030
Location: Brooklyn, NY	Elevation and Datum: N/A
Drilling Company: Lakewood Environmental Services Corp.	Date Started: 08/03/2022 — Date Finished: 08/03/2022
Drilling Equipment: Geoprobe 6610 DT	Completion Depth: 15 ft — Rock Depth: N/A
Size and Type of Bit: 2-inch-diameter steel cutting shoe	Number of Samples: Disturbed 3 — Undisturbed N/A — Core N/A
Casing Diameter (in): N/A — Casing Depth (ft): N/A	Water Level (ft.): First ▽ 8.5 — Completion ▼ N/A — 24 HR. ▼ N/A
Casing Hammer: N/A — Weight (lbs): N/A — Drop (in): N/A	Drilling Foreman: Adam Hutchinson
Sampler: 2-inch by 5-foot steel macrocore with acetate liner	Field Engineer: Ali Reach, Lauren Roper
Sampler Hammer: N/A — Weight (lbs): N/A — Drop (in): N/A	

Material Symbol	Elev. (ft)	Sample Description	Depth Scale	Sample Data: Number	Type	Recov. (in)	Penetr. resist BL/6in	PID (ppm)	Remarks (Drilling Fluid, Depth of Casing, Fluid Loss, Drilling Resistance, etc.)
		Light grayish tan to black fine SAND, trace silt, some fine gravel, brick, slag, coal ash, coal, concrete (moist)[FILL].	0	R-1	Macrocore	53/60"		0.0	Soil sample SB16_0-2 collected.
		Tannish brown to dark black fine SAND, some silt, slag, wood (moist)[FILL].	6	R-2	Macrocore	49/60"		0.0	
		Tannish brown to dark gray fine SAND, some silt (wet)[SP-SM].	8 ▽						
		Tannish brown to dark gray SAND, some silt, trace clay, trace fine gravel (wet)[SP-SM].	10	R-3	Macrocore	49/60"		0.0	Native. Soil sample SB16_12-14 collected.
			14					0.0	Bottom of boring at about 15 feet bgs. Borehole backfilled with clean soil cuttings to grade and patched with concrete.
			16						
			18						
			20						
			22						
			24						
			26						
			28						

\\LANGAN.COM\DATA\NYC\DATA0\170229028\PROJECT DATA_DISCIPLINE\ENV\IRONMENTAL\GINTLOGS\170229028_ENTERPRISE.GPJ ... 5/1/2025 6:37:02 PM ... Report: Log - LANGAN

LANGAN

Log of Boring **SB17** Sheet 1 of 1

Project: C1C2C3	Project No.: 170229030
Location: Brooklyn, NY	Elevation and Datum: N/A
Drilling Company: Lakewood Environmental Services Corp.	Date Started: 08/01/2022 — Date Finished: 08/01/2022
Drilling Equipment: Geoprobe 6610 DT	Completion Depth: 25 ft — Rock Depth: N/A
Size and Type of Bit: 2-inch-diameter steel cutting shoe	Number of Samples: Disturbed 5 — Undisturbed N/A — Core N/A
Casing Diameter (in): N/A — Casing Depth (ft): N/A	Water Level (ft.): First ▽ 7 — Completion ▼ N/A — 24 HR. ▼ N/A
Casing Hammer: N/A — Weight (lbs): N/A — Drop (in): N/A	Drilling Foreman: Adam Hutchinson
Sampler: 2-inch by 5-foot steel macrocore with acetate liner	Field Engineer: Ali Reach, Lauren Roper
Sampler Hammer: N/A — Weight (lbs): N/A — Drop (in): N/A	

Material Symbol	Elev. (ft)	Sample Description	Depth Scale	Sample Data: Number	Type	Recov. (in)	Penetr. resist BL/6in	PID (ppm)	Remarks (Drilling Fluid, Depth of Casing, Fluid Loss, Drilling Resistance, etc.)
		Dark brown to tannish brown fine SAND, trace silt, fine gravel, coal, brick, concrete, slag (mosit)[FILL].	0	R-1	Macrocore	60/60"		0.0	Soil sample SB17_0-2 collected.
			2					0.0	Soil sample SB17_2-4 collected.
			4					0.0	
		Dark brown to reddish brown fine SAND, some silt, coal, coal ash (moist)[FILL]	6	R-2	Macrocore	60/60"		0.0	
		Dark brown to reddish brown fine SAND, some silt, coal, coal ash (wet)[FILL]	8					0.0	
		Dark brown to reddish brown fine SAND, some silt, trace fine gravel, coal, coal ash (wet)[FILL]	10	R-3	Macrocore	48/60"		0.0	
		Dark brown to reddish brown fine GRAVEL, trace silt, trace fine sand, coal, coal ash, slag(wet)[FILL]	12					0.0	
		Gray to dark gray CLAY, trace silt (wet)[FILL] Tannish brown to reddish brown fine GRAVEL, slag, coal (wet)[FILL]	14					0.0	
			16	R-4	Macrocore	36/60"		0.0	
		Dark gray CLAY, trace silt (wet)[CL]	18					0.0	Native. Staining and petroleum-like odor at about 18-20' bgs. Soil sample SB17_18-20 colleted.
		Tannish gray SILT, trace clay (wet)[ML]	20					0.5	
			22	R-5	Macrocore	60/60"		0.0	
			24					0.0	Soil sample SB17_23-25 collected.
			26					0.0	Bottom of boring at about 25 feet bgs. Borehole backfilled with clean soil cuttings to grade and patched with concrete.
			28						

\\LANGAN.COM\DATA\NYC\DATA0\170229028\PROJECT DATA_DISCIPLINE\ENV\IRONMENTAL\GINTLOGS\170229028_ENTERPRISE.GPJ ... 5/1/2025 6:37:03 PM ... Report: Log - LANGAN

LANGAN

Log of Boring **SB18** Sheet 1 of 1

Project: C1C2C3	Project No.: 170229030
Location: Brooklyn, NY	Elevation and Datum: N/A
Drilling Company: Lakewood Environmental Services Corp.	Date Started: 08/01/2022 — Date Finished: 08/01/2022
Drilling Equipment: Geoprobe 6610 DT	Completion Depth: 20 ft — Rock Depth: N/A
Size and Type of Bit: 2-inch-diameter steel cutting shoe	Number of Samples: Disturbed 4 — Undisturbed N/A — Core N/A
Casing Diameter (in): N/A — Casing Depth (ft): N/A	Water Level (ft.): First ▽ 8.5 — Completion ▼ N/A — 24 HR. ▼ N/A
Casing Hammer: N/A — Weight (lbs): N/A — Drop (in): N/A	Drilling Foreman: Adam Hutchinson
Sampler: 2-inch by 5-foot steel macrocore with acetate liner	Field Engineer: Ali Reach, Lauren Roper
Sampler Hammer: N/A — Weight (lbs): N/A — Drop (in): N/A	

Material Symbol	Elev. (ft)	Sample Description	Depth Scale	Sample Data: Number	Type	Recov. (in)	Penetr. resist BL/6in	PID (ppm)	Remarks (Drilling Fluid, Depth of Casing, Fluid Loss, Drilling Resistance, etc.)
		Dark brown to grayish brown fine SAND, trace silt, gravel, concrete, wood, coal, coal ash, slag, brick (moist)[FILL]	0	R-1	Macrocore	60/60		0.0	Soil sample SB18_0-2 collected.
		Dark brown to grayish brown fine SAND, trace silt, gravel, wood, coal, coal ash, slag (moist)[FILL]	6	R-2	Macrocore	48/60		0.0	Soil sample SB18_8-10 collected.
		Dark brown to grayish brown fine SAND, trace silt, gravel, wood, coal, coal ash, slag (wet)[FILL]	10	R-3	Macrocore	60/60		0.0	Wood and staining at about 13'-15' bgs. Soil sample SB18_13-15 collected.
		Tannish gray to gray SILT, trace fine sand, wood (wet)[FILL]	14	R-4	Macrocore	60/60		0.0	Soil sample SB18_17-19 collected. Native.
		Tannish gray to gray SILT, trace fine sand, wood (wet)[FILL]	16					0.0	
		Tannish gray to gray SILT, trace clay, trace fine sand (wet)[ML]	18					0.0	
			20					0.0	Bottom of boring at about 20 feet bgs. Borehole backfilled with clean soil cuttings to grade and patched with concrete.
			22						
			24						
			26						
			28						

\\LANGAN.COM\DATA\NYC\DATA0\170229028\PROJECT DATA_DISCIPLINE\ENV\IRONMENTAL\GINTLOGS\170229028_ENTERPRISE.GPJ ... 5/1/2025 6:37:04 PM ... Report: Log - LANGAN

LANGAN

Log of Boring **SB19** Sheet 1 of 1

Project: C1C2C3	Project No.: 170229030
Location: Brooklyn, NY	Elevation and Datum: N/A
Drilling Company: Lakewood Environmental Services Corp.	Date Started: 08/01/2022 — Date Finished: 08/01/2022
Drilling Equipment: Geoprobe 6610 DT	Completion Depth: 20 ft — Rock Depth: N/A
Size and Type of Bit: 2-inch-diameter steel cutting shoe	Number of Samples: Disturbed 4 — Undisturbed N/A — Core N/A
Casing Diameter (in): N/A — Casing Depth (ft): N/A	Water Level (ft.): First ▽ 8 — Completion ▼ N/A — 24 HR. ▼ N/A
Casing Hammer: N/A — Weight (lbs): N/A — Drop (in): N/A	Drilling Foreman: Adam Hutchinson
Sampler: 2-inch by 5-foot steel macrocore with acetate liner	Field Engineer: Ali Reach, Lauren Roper
Sampler Hammer: N/A — Weight (lbs): N/A — Drop (in): N/A	

Material Symbol	Elev. (ft)	Sample Description	Depth Scale	Sample Data: Number	Type	Recov. (in)	Penetr. resist BL/6in	PID (ppm)	Remarks (Drilling Fluid, Depth of Casing, Fluid Loss, Drilling Resistance, etc.)
		Dark brown to black fine SAND, trace silt, coal, coal ash, concrete, brick, wood (moist)[FILL]	0	R-1	Macrocore	60/60"		0.0	Soil sample sample SB19_0-2 collected.
			2					0.0	
			4					0.0	Soil sample sample SB19_3-5 collected.
		Tannish brown to orangish brown fine SAND, trace silt, gravel, brick, mortar, ceramics (moist)[FILL]	6	R-2	Macrocore	60/60"		0.0	
		Tannish brown to orangish brown fine SAND, trace silt, gravel, brick, mortar, ceramics (wet)[FILL]	8 ▽					0.0	
		Tannish brown to orangish brown fine SAND, trace medium sand, trace silt, gravel, brick (wet)[FILL]	10	R-3	Macrocore	48/60"		0.0	
			12					0.0	
			14					0.0	Staining and slight petroleum-like odor at about 13-15' bgs. Soil sample SB19_13-15 collected.
		Light brown to brown fine SAND, trace silt, trace medium sand, trace fine gravel, shell fragments (wet)[SP]	16	R-4	Macrocore	36/60"		0.0	
		Tannish brown fine SAND, trace clay, trace silt (wet)[SP]	18					0.0	Native. Soil sample SB19_18-20 collected.
			20					0.0	Bottom of boring at about 20 feet bgs. Borehole backfilled with clean soil cuttings to grade and patched with concrete.
			22						
			24						
			26						
			28						

\\LANGAN.COM\DATA\NYC\DATA0\170229028\PROJECT DATA_DISCIPLINE\ENV\IRONMENTAL\GINTLOGS\170229028_ENTERPRISE.GPJ ... 5/1/2025 6:37:05 PM ... Report: Log - LANGAN

LANGAN

Log of Boring **SB20** Sheet 1 of 1

Project: C1C2C3	Project No.: 170229030
Location: Brooklyn, NY	Elevation and Datum: N/A
Drilling Company: Lakewood Environmental Services Corp.	Date Started: 08/01/2022 — Date Finished: 08/01/2022
Drilling Equipment: Geoprobe 6610 DT	Completion Depth: 20 ft — Rock Depth: N/A
Size and Type of Bit: 2-inch-diameter steel cutting shoe	Number of Samples: Disturbed 4 — Undisturbed N/A — Core N/A
Casing Diameter (in): N/A — Casing Depth (ft): N/A	Water Level (ft.): First ▽ 8.5 — Completion ▼ N/A — 24 HR. ▼ N/A
Casing Hammer: N/A — Weight (lbs): N/A — Drop (in): N/A	Drilling Foreman: Adam Hutchinson
Sampler: 2-inch by 5-foot steel macrocore with acetate liner	Field Engineer: Ali Reach, Lauren Roper
Sampler Hammer: N/A — Weight (lbs): N/A — Drop (in): N/A	

Material Symbol	Elev. (ft)	Sample Description	Depth Scale	Sample Data: Number	Type	Recov. (in)	Penetr. resist BL/6in	PID (ppm)	Remarks (Drilling Fluid, Depth of Casing, Fluid Loss, Drilling Resistance, etc.)
		Dark brown to dark gray fine SAND, trace silt, gravel, slag, coal, concrete, brick (moist)[FILL]	0	R-1	Macrocore	60/60"		0.0	Soil sample SB20_0-2 collected.
			2					0.0	
								0.0	
								0.0	
			4					0.0	
								0.0	
								0.0	
								0.0	
								0.0	
		Dark brown to dark gray fine SAND, trace silt, gravel, slag, coal, concrete, brick (moist)[FILL]	6	R-2	Macrocore	60/60"		0.0	
								0.0	
		Grayish brown to orangish brown fine SAND, trace silt, trace medium sand (moist)[SP]						0.0	Native.
			8 ▽					0.0	Soil sample SB20_8-10 collected.
								0.0	
								0.0	
		Grayish tan to orangish tan fine SAND, some silt, trace clay, trace medium sand, trace fine gravel (wet)[SP-SM]	10					0.0	
								0.0	
								0.0	
		Grayish brown to orangish brown fine SAND, some medium sand, trace silt (wet)[SP]	12	R-3	Macrocore	60/60"		0.0	
		Grayish brown to orangish brown fine SAND, some silt, trace clay, trace fine gravel (wet)[SP-SM]						0.0	
								0.0	
			14					0.0	
								90	
		Tannish brown to orangish brown fine SAND, trace medium sand (wet)[SP]						0.0	
								0.0	
			16					0.0	
								0.0	
				R-4	Macrocore	60/60"		0.0	
								0.0	
		Grayish tan to orangish tan CLAY, trace silt, trace fine sand (wet)[CL]	18					0.0	
								0.0	
								0.0	
			20						Bottom of boring at about 20 feet bgs. Borehole backfilled with clean soil cuttings to grade and patched with concrete.
			22						
			24						
			26						
			28						

\\LANGAN.COM\DATA\NYC\DATA0\170229028\PROJECT DATA_DISCIPLINE\ENV\IRONMENTAL\GINTLOGS\170229028_ENTERPRISE.GPJ ... 5/1/2025 6:37:06 PM ... Report: Log - LANGAN

LANGAN

Log of Boring **SB21** Sheet 1 of 1

Project: C1C2C3	Project No.: 170229030
Location: Brooklyn, NY	Elevation and Datum: N/A
Drilling Company: Lakewood Environmental Services Corp.	Date Started: 08/01/2022 — Date Finished: 08/01/2022
Drilling Equipment: Geoprobe 6610 DT	Completion Depth: 20 ft — Rock Depth: N/A
Size and Type of Bit: 2-inch-diameter steel cutting shoe	Number of Samples: Disturbed 4 — Undisturbed N/A — Core N/A
Casing Diameter (in): N/A — Casing Depth (ft): N/A	Water Level (ft.): First ▽ 8.5 — Completion ▼ N/A — 24 HR. ▼ N/A
Casing Hammer: N/A — Weight (lbs): N/A — Drop (in): N/A	Drilling Foreman: Adam Hutchinson
Sampler: 2-inch by 5-foot steel macrocore with acetate liner	Field Engineer: Ali Reach, Lauren Roper
Sampler Hammer: N/A — Weight (lbs): N/A — Drop (in): N/A	

Material Symbol	Elev. (ft)	Sample Description	Depth Scale	Sample Data: Number	Type	Recov. (in)	Penetr. resist BL/6in	PID (ppm)	Remarks (Drilling Fluid, Depth of Casing, Fluid Loss, Drilling Resistance, etc.)
		Dark brown to tannish brown fine SAND, trace silt, gravel, concrete, brick, coal ash, coal (moist)[FILL]	0	R-1	Macrocore	60/60"		0.0	Soil samples SB21_0-2 and SODUP03_080122 collected.
			2					0.0	
								0.0	
								0.0	
								0.0	
								0.0	
								0.0	
			4					0.0	
								0.0	
								0.0	
		Tannish brown to orangish brown fine SAND, trace silt, coal, coal ash (moist)[FILL]	6	R-2	Macrocore	50/60"			Soil sample SB21_6-8 collected.
			8 ▽					0.0	
								0.0	
								0.0	
								0.0	
								0.0	
		Tannish brown to orangish brown fine SAND, coal, coal ash, trace silt (wet)[FILL]	10					0.0	
								0.0	
								0.0	
								0.0	
		Grayish tan SAND, some silt (wet)[SP-SM]	12	R-3	Macrocore	60/60"		0.0	Native.
		Dark brown organic CLAY (wet)[OL]						0.0	
								0.0	
								0.0	
			14					0.0	
								90	
		Tannish gray fine SAND, some silt (wet)[SP-SM]						0.0	
								0.0	
			16					0.0	
								0.0	
								0.0	
				R-4	Macrocore	60/60"		0.0	
			18					0.0	
								0.0	
								0.0	
								0.0	
			20						Bottom of boring at about 20 feet bgs. Borehole backfilled with clean soil cuttings to grade and patched with concrete.
			22						
			24						
			26						
			28						

\\LANGAN.COM\DATA\NYC\DATA0\170229028\PROJECT DATA_DISCIPLINE\ENVIRONMENTAL\GINTLOGS\170229028_ENTERPRISE.GPJ ... 5/1/2025 6:37:08 PM ... Report: Log - LANGAN

LANGAN

Log of Boring **SB22** Sheet 1 of 1

Project: C1C2C3	Project No.: 170229030
Location: Brooklyn, NY	Elevation and Datum: N/A
Drilling Company: Lakewood Environmental Services Corp.	Date Started: 08/02/2022 — Date Finished: 08/02/2022
Drilling Equipment: Geoprobe 6610 DT	Completion Depth: 20 ft — Rock Depth: N/A
Size and Type of Bit: 2-inch-diameter steel cutting shoe	Number of Samples: Disturbed 4 — Undisturbed N/A — Core N/A
Casing Diameter (in): N/A — Casing Depth (ft): N/A	Water Level (ft.): First ▽ 8.5 — Completion ▼ N/A — 24 HR. ▼ N/A
Casing Hammer: N/A — Weight (lbs): N/A — Drop (in): N/A	Drilling Foreman: Adam Hutchinson
Sampler: 2-inch by 5-foot steel macrocore with acetate liner	Field Engineer: Ali Reach, Lauren Roper
Sampler Hammer: N/A — Weight (lbs): N/A — Drop (in): N/A	

Material Symbol	Elev. (ft)	Sample Description	Depth Scale	Sample Data: Number	Type	Recov. (in)	Penetr. resist BL/6in	PID (ppm)	Remarks (Drilling Fluid, Depth of Casing, Fluid Loss, Drilling Resistance, etc.)
		Tannish brown to dark gray fine SAND, trace silt, coal, coal ash, concrete, brick, slag (moist)[FILL]	0	R-1	Macrocore	54/60"		0.0 0.0 0.0 0.0 0.0 0.0	Soil sample SB22_0-2 collected.
		Tannish brown to dark gray fine SAND, trace silt, coal, coal ash, concrete, brick, slag (moist)[FILL]	6	R-2	Macrocore	60/60"		0.0 0.0 0.0 0.0 0.0 0.0 0.0 0.0 0.0 0.0	
		Tannish brown fine SAND, trace silt, coal, gravel (wet)[FILL]	▽ 8						
		Tannish gray to dark gray fine SAND, some silt, gravel (wet)[SP-SM]	10	R-3	Macrocore	48/60"		0.0 0.0 0.0 0.0 0.0 0.0 0.0 0.0 0.0 0.0 0.0 0.0 90	Native. Soil sample SB22_13-15 collected.
		Tannish gray to dark fine SAND, some silt, trace medium sand (wet)[SP-SM]	14						
		Brown to dark brown organic CLAY (wet)[OL]							
		Grayish tan fine SAND, trace silt, trace medium sand (wet)[SP]	16	R-4	Macrocore	60/60"		0.0 0.0 0.0 0.0 0.0 0.0 0.0 0.0 0.0 0.0	
		Brown to dark brown organic CLAY (wet)[OL]	18						
			20						Bottom of boring at about 20' bgs. Borehole backfilled with clean soil cuttings to grade and patched with concrete.
			22						
			24						
			26						
			28						

\\LANGAN.COM\DATA\NYC\DATA0\170229028\PROJECT DATA_DISCIPLINE\ENV\IRONMENTAL\GINTLOGS\170229028_ENTERPRISE.GPJ ... 5/1/2025 6:37:09 PM ... Report: Log - LANGAN

LANGAN

Log of Boring **SB23** Sheet 1 of 1

Project: C1C2C3	Project No.: 170229030
Location: Brooklyn, NY	Elevation and Datum: N/A
Drilling Company: Lakewood Environmental Services Corp.	Date Started: 07/25/2022 — Date Finished: 07/25/2022
Drilling Equipment: Geoprobe 6610 DT	Completion Depth: 15 ft — Rock Depth: N/A
Size and Type of Bit: 2-inch-diameter steel cutting shoe	Number of Samples: Disturbed 3 — Undisturbed N/A — Core N/A
Casing Diameter (in): N/A — Casing Depth (ft): N/A	Water Level (ft.): First ▽ 8 — Completion ▼ N/A — 24 HR. ▼ N/A
Casing Hammer: N/A — Weight (lbs): N/A — Drop (in): N/A	Drilling Foreman: Adam Hutchinson
Sampler: 2-inch by 5-foot steel macrocore with acetate liner	Field Engineer: Ali Reach, Lauren Roper
Sampler Hammer: N/A — Weight (lbs): N/A — Drop (in): N/A	

Material Symbol	Elev. (ft)	Sample Description	Depth Scale	Sample Data: Number	Type	Recov. (in)	Penetr. resist BL/6in	PID (ppm)	Remarks (Drilling Fluid, Depth of Casing, Fluid Loss, Drilling Resistance, etc.)
		Brown fine SAND, trace silt, brick, coal ash, concrete, slag, asphalt (moist)[FILL]	0	R-1	Macrocore	60/60		0.0	Soil samples SB23_0-2 and SODUP01_072522 collected.
		Gray GRAVEL, concrete (dry)[FILL]	2					0.0	
		Brown fine SAND, trace silt, brick, coal ash, concrete, slag (moist)[FILL]	4					0.0	
		Brown fine SAND, trace silt, brick, coal ash, concrete, slag (moist)[FILL]	6	R-2	Macrocore	60/60		0.0	Soil sample SB23_6-8 collected.
			▽ 8					0.0	
		Tannish brown to brown fine SAND, some silt (wet)[SP-SM]	10	R-3	Macrocore	60/60		0.0	Native.
		Tannish brown to brown fine SAND, some silt (wet)[SP-SM]	12					0.0	
			14					0.0	
			16						Bottom of boring at about 15 feet bgs. Borehole backfilled with clean soil cuttings to grade and patched with concrete.
			18						
			20						
			22						
			24						
			26						
			28						

\\LANGAN.COM\DATA\NYC\DATA0\170229028\PROJECT DATA_DISCIPLINE\ENVIRONMENTAL\GINTLOGS\170229028_ENTERPRISE.GPJ ... 5/1/2025 6:37:10 PM ... Report: Log - LANGAN

LANGAN

Log of Boring **SB24** Sheet 1 of 1

Project: C1C2C3	Project No.: 170229030
Location: Brooklyn, NY	Elevation and Datum: N/A
Drilling Company: Lakewood Environmental Services Corp.	Date Started: 07/27/2022 — Date Finished: 07/27/2022
Drilling Equipment: Geoprobe 6610 DT	Completion Depth: 20 ft — Rock Depth: N/A
Size and Type of Bit: 2-inch-diameter steel cutting shoe	Number of Samples: Disturbed 4 — Undisturbed N/A — Core N/A
Casing Diameter (in): N/A — Casing Depth (ft): N/A	Water Level (ft.): First ▽ 8.5 — Completion ▼ N/A — 24 HR. ▼ N/A
Casing Hammer: N/A — Weight (lbs): N/A — Drop (in): N/A	Drilling Foreman: Adam Hutchinson
Sampler: 2-inch by 5-foot steel macrocore with acetate liner	Field Engineer: Ali Reach, Lauren Roper
Sampler Hammer: N/A — Weight (lbs): N/A — Drop (in): N/A	

Material Symbol	Elev. (ft)	Sample Description	Depth Scale	Sample Data: Number	Type	Recov. (in)	Penetr. resist BL/6in	PID (ppm)	Remarks (Drilling Fluid, Depth of Casing, Fluid Loss, Drilling Resistance, etc.)
		Tannish brown to dark brown fine SAND, trace silt, gravel, concrete (moist)[FILL]	0					0.0	Soil sample SB24_0-2 collected.
		Dark brown to black fine SAND, silt, some gravel, coal, coal ash, slag (moist) [FILL]	2	R-1	Macrocore	60/60"		0.0	Soil sample SB24_2-4 collected.
			4					0.0	
		Dark brown to black fine SAND, silt, gravel, coal, coal ash, slag, wood (moist)[FILL]	6	R-2	Macrocore	60/60"		0.0	
		Tannish brown fine SAND, some silt, gravel (wet) [FILL] ▽	8					0.0	
		Tannish brown fine SAND, some silt, trace medium sand (wet)[SP-SM]	10	R-3	Macrocore	60/60"		0.0	
		Tannish brown fine SAND, some silt, trace medium sand (wet)[SP-SM]	12					0.0	
			14					0.0	
		Tannish brown to gray fine SAND, some silt, trace medium sand (wet) [SP-SM]	16	R-4	Macrocore	60/60"		0.0	
			18					0.0	
		Dark brown to brown organic clay (wet)[OH]	20					0.0	Bottom of boring at about 20' bgs. Borehole backfilled with clean soil cuttings to grade and patched with concrete.
			22						
			24						
			26						
			28						

\\LANGAN.COM\DATA\NYC\DATA0\170229028\PROJECT DATA_DISCIPLINE\ENV\RONMENTAL\GINTLOGS\170229028_ENTERPRISE.GPJ ... 5/1/2025 6:37:12 PM ... Report: Log - LANGAN

LANGAN

Log of Boring **SB25** Sheet 1 of 1

Project: C1C2C3	Project No.: 170229030
Location: Brooklyn, NY	Elevation and Datum: N/A
Drilling Company: Lakewood Environmental Services Corp.	Date Started: 07/28/2022 — Date Finished: 08/09/2022
Drilling Equipment: Geoprobe 6610 DT	Completion Depth: 20 ft — Rock Depth: N/A
Size and Type of Bit: 2-inch-diameter steel cutting shoe	Number of Samples: Disturbed 4 — Undisturbed N/A — Core N/A
Casing Diameter (in): N/A — Casing Depth (ft): N/A	Water Level (ft.): First ▽ 9 — Completion ▼ N/A — 24 HR. ▼ N/A
Casing Hammer: N/A — Weight (lbs): N/A — Drop (in): N/A	Drilling Foreman: Adam Hutchinson
Sampler: 2-inch by 5-foot steel macrocore with acetate liner	Field Engineer: Ali Reach, Lauren Roper
Sampler Hammer: N/A — Weight (lbs): N/A — Drop (in): N/A	

Material Symbol	Elev. (ft)	Sample Description	Depth Scale	Sample Data: Number	Type	Recov. (in)	Penetr. resist BL/6in	PID (ppm)	Remarks (Drilling Fluid, Depth of Casing, Fluid Loss, Drilling Resistance, etc.)
		Black to light tannish brown fine SAND, trace silt, some medium gravel, coal ash, brick, concrete (moist)[FILL]	0	R-1	Macrocore	60/60"		0.0	Soil sample SB25_0-2 collected.
		Black GRAVEL, some fine sand, coal, slag (moist)[FILL]	2					0.0	
			4					0.0	Soil sample SB25_4-6 collected.
		Dark brown to orangish brown fine SAND, some silt, some fine gravel, slag (moist)[FILL]	6	R-2	Macrocore	41/60"		0.0	
			8 ▽					0.0	
		Black to grayish brown fine SAND, some silt, trace fine gravel, slag, organics (wet)[FILL]	10	R-3	Macrocore	48/60"		0.0	
			12					0.0	
		Gray fine SAND, some silt (wet)[SP-SM]	14					0.0	
		Gray fine SAND, some silt, clay, organics, shells (wet)[SP-SM]	16	R-4	Macrocore	60/60"		0.0	
			18					0.0	
			20					0.0	Bottom of boring at about 20' bgs. Borehole backfilled with clean soil cuttings to grade and patched with concrete.
			22						
			24						
			26						
			28						

\\LANGAN.COM\DATA\NYC\DATA0\170229028\PROJECT DATA_DISCIPLINE\ENV\IRONMENTAL\GINTLOGS\170229028_ENTERPRISE.GPJ ... 5/1/2025 6:37:14 PM ... Report: Log - LANGAN

LANGAN

Log of Boring **SB26** Sheet 1 of 1

Project: C1C2C3	Project No.: 170229030
Location: Brooklyn, NY	Elevation and Datum: N/A
Drilling Company: Lakewood Environmental Services Corp.	Date Started: 08/03/2022 — Date Finished: 08/03/2022
Drilling Equipment: Geoprobe 6610 DT	Completion Depth: 15 ft — Rock Depth: N/A
Size and Type of Bit: 2-inch-diameter steel cutting shoe	Number of Samples: Disturbed 3 — Undisturbed N/A — Core N/A
Casing Diameter (in): N/A — Casing Depth (ft): N/A	Water Level (ft.): First ▽ 9 — Completion ▼ N/A — 24 HR. ▼ N/A
Casing Hammer: N/A — Weight (lbs): N/A — Drop (in): N/A	Drilling Foreman: Adam Hutchinson
Sampler: 2-inch by 5-foot steel macrocore with acetate liner	Field Engineer: Ali Reach, Lauren Roper
Sampler Hammer: N/A — Weight (lbs): N/A — Drop (in): N/A	

Material Symbol	Elev. (ft)	Sample Description	Depth Scale	Sample Data: Number	Type	Recov. (in)	Penetr. resist BL/6in	PID (ppm)	Remarks (Drilling Fluid, Depth of Casing, Fluid Loss, Drilling Resistance, etc.)
		Tannish brown to dark brown fine SAND, trace silt, brick, wood, concrete, slag, coal, ceramics (moist)[FILL]	0	R-1	Macrocore	44/60"		0.0 0.0 0.0 0.0 0.0 0.0 0.0 0.0 0.0 0.0 0.0	Soil sample SB26_0-2 collected.
		Grayish brown to tannish brown fine SAND, trace silt, gravel, coal, coal ash, slag (moist) [FILL]	6	R-2	Macrocore	60/60"		0.0 0.0 0.0 0.0 0.0 0.0 0.0 0.0 0.0 0.0 0.0	Soil sample SB26_6-8 collected.
		Grayish tan to tan fine SAND, some silt (wet)[SP-SM]	8 ▽						
		Grayish tan to tan fine SAND, some silt (wet)[SP-SM]	10						Native.
		Tannish brown to grayish tan fine SAND, trace silt, trace medium sand, trace fine gravel (wet) [SP]	12	R-3	Macrocore	60/60"		0.0 0.0 0.0 0.0 0.0 0.0 0.0 0.0 0.0 0.0 0.0	
			14						Bottom of boring at about 15' bgs. Borehole backfilled with clean soil cuttings to grade and patched with concrete.
			16						
			18						
			20						
			22						
			24						
			26						
			28						

\\LANGAN.COM\DATA\NYC\DATA0\170229028\PROJECT DATA_DISCIPLINE\ENV\IRONMENTAL\GINTLOGS\170229028_ENTERPRISE.GPJ ... 5/1/2025 6:37:15 PM ... Report: Log - LANGAN

LANGAN

Log of Boring **SB27** Sheet 1 of 1

Project: C1C2C3	Project No.: 170229030
Location: Brooklyn, NY	Elevation and Datum: N/A
Drilling Company: Lakewood Environmental Services Corp.	Date Started: 08/03/2022 — Date Finished: 08/03/2022
Drilling Equipment: Geoprobe 6610 DT	Completion Depth: 15 ft — Rock Depth: N/A
Size and Type of Bit: 2-inch-diameter steel cutting shoe	Number of Samples: Disturbed 3 — Undisturbed N/A — Core N/A
Casing Diameter (in): N/A — Casing Depth (ft): N/A	Water Level (ft.): First ▽ 9 — Completion ▼ N/A — 24 HR. ▼ N/A
Casing Hammer: N/A — Weight (lbs): N/A — Drop (in): N/A	Drilling Foreman: Adam Hutchinson
Sampler: 2-inch by 5-foot steel macrocore with acetate liner	Field Engineer: Ali Reach, Lauren Roper
Sampler Hammer: N/A — Weight (lbs): N/A — Drop (in): N/A	

Material Symbol	Elev. (ft)	Sample Description	Depth Scale	Sample Data: Number	Type	Recov. (in)	Penetr. resist BL/6in	PID (ppm)	Remarks (Drilling Fluid, Depth of Casing, Fluid Loss, Drilling Resistance, etc.)
		Black fine SAND, trace silt, some fine gravel, concrete, coal, coal ash, slag, brick, wood (moist)[FILL]	0	R-1	Macrocore	42/60"		0.0	Soil sample SB27_0-2 collected.
			2					0.0	
								0.0	
			4					0.0	
								0.0	
								0.0	
		Black fine SAND, trace silt, some fine gravel, concrete, coal, coal ash, slag, brick (moist)[FILL]	6	R-2	Macrocore	46/60"		0.0	
		Tannish brown fine SAND, some silt (moist)[FILL]						0.0	Soil sample SB27_7-9 collected.
			8					0.0	
			▽					0.0	
								0.0	
		Tannish brown fine SAND, some silt, gravel, coal, coal ash (wet)[FILL]	10	R-3	Macrocore	55/60"		0.0	
		Tannish brown fine SAND, some silt (wet)[SP-SM]						0.0	Native.
			12					0.0	
								0.0	
								0.0	
			14					0.0	
								0.0	
			16						Bottom of boring at about 15' bgs. Borehole backfilled with clean soil cuttings to grade and patched with concrete.
			18						
			20						
			22						
			24						
			26						
			28						

\\LANGAN.COM\DATA\NYC\DATA0\170229028\PROJECT DATA_DISCIPLINE\ENV\IRONMENTAL\GINTLOGS\170229028_ENTERPRISE.GPJ ... 5/1/2025 6:37:16 PM ... Report: Log - LANGAN

LANGAN

Log of Boring **SB28** Sheet 1 of 1

Project: C1C2C3	Project No.: 170229030
Location: Brooklyn, NY	Elevation and Datum: N/A
Drilling Company: Lakewood Environmental Services Corp.	Date Started: 08/02/2022 — Date Finished: 08/02/2022
Drilling Equipment: Geoprobe 6610 DT	Completion Depth: 25 ft — Rock Depth: N/A
Size and Type of Bit: 2-inch-diameter steel cutting shoe	Number of Samples: Disturbed 5 — Undisturbed N/A — Core N/A
Casing Diameter (in): N/A — Casing Depth (ft): N/A	Water Level (ft.): First ▽ 8.5 — Completion ▼ N/A — 24 HR. ▼ N/A
Casing Hammer: N/A — Weight (lbs): N/A — Drop (in): N/A	Drilling Foreman: Adam Hutchinson
Sampler: 2-inch by 5-foot steel macrocore with acetate liner	Field Engineer: Ali Reach, Lauren Roper
Sampler Hammer: N/A — Weight (lbs): N/A — Drop (in): N/A	

Material Symbol	Elev. (ft)	Sample Description	Depth Scale	Sample Data: Number	Type	Recov. (in)	Penetr. resist BL/6in	PID (ppm)	Remarks (Drilling Fluid, Depth of Casing, Fluid Loss, Drilling Resistance, etc.)
		Dark gray to black fine SAND, trace silt, gravel, coal, coal ash, concrete, slag, wood (moist)[FILL]	0	R-1	Macrocore	60/60"		0.0	Soil sample SB28_0-2 collected.
			2					0.0	
								0.0	
								0.0	
			4					0.0	
								0.0	
								0.0	
								0.0	
								0.0	
		Tannish brown to reddish brown fine SAND, trace silt, coal (moist)[FILL]	6	R-2	Macrocore	48/60"		0.0	
								0.0	
			8 ▽					0.0	
		Tannish brown to reddish brown fine SAND, trace silt, coal (wet)[FILL]						0.0	
								0.0	
		Gray to dark gray fine SAND, some silt, fine gravel, wood (wet)[FILL]	10	R-3	Macrocore	60/60"		0.0	
								0.0	
								0.0	
			12					0.0	
								0.0	
		Tannish brown fine SAND, some silt (wet)[SP-SM]						0.0	Soil sample SB28_13-15 collected.
			14					0.0	
								0.0	
		Tannish brown fine SAND, some silt, trace medium sand (wet)[SP-SM]		R-4	Macrocore	60/60"		0.0	
			16					0.0	
								0.0	
								0.0	
			18					0.0	
								0.0	
								0.0	
								0.0	
		Tannish brown fine SAND, some silt, trace medium sand (wet)[SP-SM]	20	R-5	Macrocore	60/60"		0.0	
								0.0	
								0.0	
			22					0.0	
								0.0	
								0.0	
								0.0	
			24					0.0	
								0.0	Bottom of boring at about 25' bgs. Borehole backfilled with clean soil cuttings to grade and patched with concrete.
			26						
			28						

\\LANGAN.COM\DATA\NYC\DATA0\170229028\PROJECT DATA_DISCIPLINE\ENV\IRONMENTAL\GINTLOGS\170229028_ENTERPRISE.GPJ ... 5/1/2025 6:37:18 PM ... Report: Log - LANGAN

APPENDIX E

Monitoring Well Construction and Groundwater Sampling Logs

WELL CONSTRUCTION AND DEVELOPMENT SUMMARY

Well No. MW01

PROJECT		PROJECT NO.	
C1C2C3		170229030	
LOCATION		**ELEVATION AND DATUM**	
Brooklyn, NY		el. 8.88 NAVD88	
DRILLING AGENCY		**DATE STARTED**	**DATE FINISHED**
Lakewood Environmental Services Corp.		7/29/2022	7/29/2022
DRILLING EQUIPMENT		**DRILLER**	
Geoprobe® 6610 DT		Adam Hutchinson	
SIZE AND TYPE OF BIT		**INSPECTOR**	
3.25-inch OD Direct Push		Ali Reach	
BOREHOLE DIAMETER		**TYPE OF WELL (OVERBURDEN / BEDROCK)**	
3.75 inches		Overburden	
RISER MATERIAL	**DIAMETER**	**TYPE OF BACKFILL MATERIAL**	
PVC	1-inch	No. 1 Sand	
TYPE OF SCREEN	**DIAMETER**	**TYPE OF WELL PACK**	**TYPE OF SEAL MATERIAL**
PVC No. 10 Slot	1-inch	No. 1 Sand	Bentonite

METHOD OF INSTALLATION

A Geoprobe 6610 DT was used to advance the boring to about 17 feet bgs. A one-inch (1") PVC monitoring well was installed which consisted of 10' of 10 slot (0.010-inch) well screen, and a solid 1" PVC riser. The well screen was installed from about 7 to 17 feet bgs with riser from about 7 feet bgs to surface grade. The borehole annulus was backfilled with No. 1 Sand to at least 2 feet above the well screen, followed by at least 1 foot of bentonite then No. 1 sand to grade. The well was sealed at grade with grout and finished with a flush mounted road box and concrete pad.

WELL DEVELOPMENT DATA

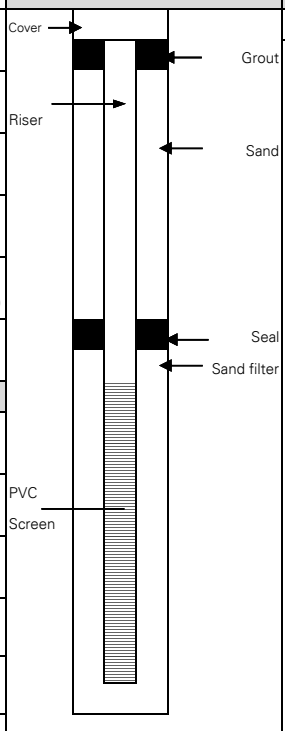
SURGE BLOCK DIAMETER	N/A	**TYPE PUMP**	Peristaltic	**DEVELOPMENT CONFIRMATION**
DRILLER OR LANGAN	Langan	**MAX PUMP RATE**	1 LPM	7/29/2022: Well developed until purged groundwater was no longer turbid.
NUMBER OF SURGE CYCLES	N/A	**TOTAL VOLUME**	5 gal	

TOP OF CASING	**ELEVATION**	**DEPTH (ft)**
	8.88	0
TOP OF SEAL	**ELEVATION**	**DEPTH (ft)**
	4.88	4
TOP OF FILTER	**ELEVATION**	**DEPTH (ft)**
	3.88	5
TOP OF SCREEN	**ELEVATION**	**DEPTH (ft)**
	1.88	7.0
BOTTOM OF BORING	**ELEVATION**	**DEPTH (ft)**
	-8.12	17
SCREEN LENGTH		10
SLOT SIZE		No. 10 Slot; 0.010 Inches

GROUNDWATER ELEVATIONS

ELEVATION	DATE	DEPTH TO WATER
0.38	7/29/2022	8.5 ft
0.43	8/5/2022	8.45 ft
N/A		
N/A		
N/A		
N/A		

WELL DETAILS



SUMMARY SOIL CLASSIFICATION	DEPTH (FT)
	0
	4
	5
	7
	17

LANGAN Engineering, Environmental, Surveying, Landscape Architecture and Geology, D.P.C.

368 9th Avenue, 8th Floor, New York

WELL CONSTRUCTION AND DEVELOPMENT SUMMARY

Well No. MW02

PROJECT		PROJECT NO.	
C1C2C3		170229030	
LOCATION		**ELEVATION AND DATUM**	
Brooklyn, NY		el. 8.98 NAVD88	
DRILLING AGENCY		**DATE STARTED**	**DATE FINISHED**
Lakewood Environmental Services Corp.		7/26/2022	7/26/2022
DRILLING EQUIPMENT		**DRILLER**	
Geoprobe® 6610 DT		Adam Hutchinson	
SIZE AND TYPE OF BIT		**INSPECTOR**	
3.25-inch OD Direct Push		Ali Reach	
BOREHOLE DIAMETER		**TYPE OF WELL (OVERBURDEN / BEDROCK)**	
3.75 inches		Overburden	
RISER MATERIAL	**DIAMETER**	**TYPE OF BACKFILL MATERIAL**	
PVC	1-inch	No. 1 Sand	
TYPE OF SCREEN	**DIAMETER**	**TYPE OF WELL PACK**	**TYPE OF SEAL MATERIAL**
PVC No. 10 Slot	1-inch	No. 1 Sand	Bentonite

METHOD OF INSTALLATION

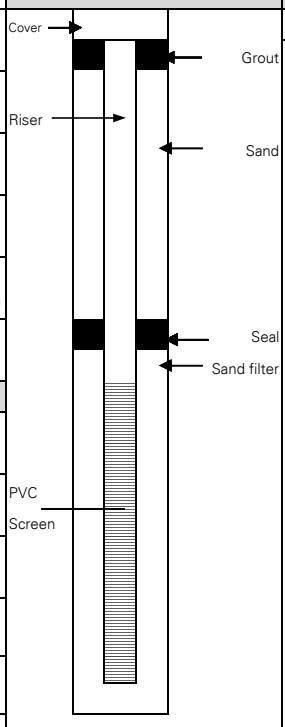
A Geoprobe 6610 DT was used to advance the boring to about 17 feet bgs. A one-inch (1") PVC monitoring well was installed which consisted of 10' of 10 slot (0.010-inch) well screen, and a solid 1" PVC riser. The well screen was installed from about 7 to 17 feet bgs with riser from about 7 feet bgs to surface grade. The borehole annulus was backfilled with No. 1 Sand to at least 2 feet above the well screen, followed by at least 1 foot of bentonite then No. 1 sand to grade. The well was sealed at grade with grout and finished with a flush mounted road box and concrete pad.

WELL DEVELOPMENT DATA

SURGE BLOCK DIAMETER	N/A	**TYPE PUMP**	Peristaltic	**DEVELOPMENT CONFIRMATION**
DRILLER OR LANGAN	Langan	**MAX PUMP RATE**	1 LPM	7/26/2022: Well developed until purged groundwater was no longer turbid.
NUMBER OF SURGE CYCLES	N/A	**TOTAL VOLUME**	5 gal	

TOP OF CASING	ELEVATION	DEPTH (ft)
	8.98	0
TOP OF SEAL	**ELEVATION**	**DEPTH (ft)**
	4.98	4
TOP OF FILTER	**ELEVATION**	**DEPTH (ft)**
	3.98	5
TOP OF SCREEN	**ELEVATION**	**DEPTH (ft)**
	1.98	7.0
BOTTOM OF BORING	**ELEVATION**	**DEPTH (ft)**
	-8.02	17
SCREEN LENGTH		10
SLOT SIZE		No. 10 Slot; 0.010 Inches

WELL DETAILS



SUMMARY SOIL CLASSIFICATION	DEPTH (FT)
	0
	4
	5
	7
	17

GROUNDWATER ELEVATIONS

ELEVATION	DATE	DEPTH TO WATER
-0.02	7/26/2022	9 ft
0.2	8/5/2022	8.78 ft
N/A		
N/A		
N/A		
N/A		

LANGAN Engineering, Environmental, Surveying, Landscape Architecture and Geology, D.P.C.
368 9th Avenue, 8th Floor, New York

WELL CONSTRUCTION AND DEVELOPMENT SUMMARY

Well No. MW03

PROJECT		PROJECT NO.	
C1C2C3		170229030	
LOCATION		**ELEVATION AND DATUM**	
Brooklyn, NY		el. 8.94 NAVD88	
DRILLING AGENCY		**DATE STARTED**	**DATE FINISHED**
Lakewood Environmental Services Corp.		7/26/2022	7/26/2022
DRILLING EQUIPMENT		**DRILLER**	
Geoprobe® 6610 DT		Adam Hutchinson	
SIZE AND TYPE OF BIT		**INSPECTOR**	
3.25-inch OD Direct Push		Ali Reach	
BOREHOLE DIAMETER		**TYPE OF WELL (OVERBURDEN / BEDROCK)**	
3.75 inches		Overburden	
RISER MATERIAL	**DIAMETER**	**TYPE OF BACKFILL MATERIAL**	
PVC	1-inch	No. 1 Sand	
TYPE OF SCREEN	**DIAMETER**	**TYPE OF WELL PACK**	**TYPE OF SEAL MATERIAL**
PVC No. 10 Slot	1-inch	No. 1 Sand	Bentonite

METHOD OF INSTALLATION

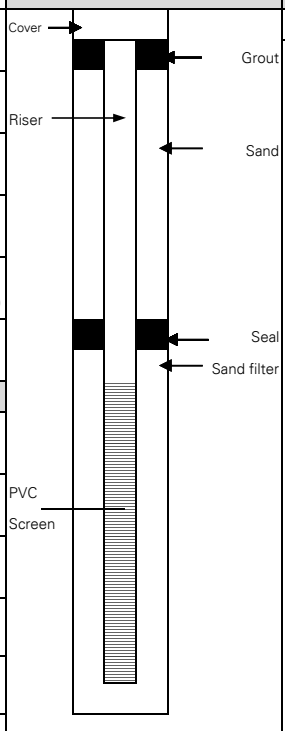
A Geoprobe 6610 DT was used to advance the boring to about 17 feet bgs. A one-inch (1") PVC monitoring well was installed which consisted of 10' of 10 slot (0.010-inch) well screen, and a solid 1" PVC riser. The well screen was installed from about 7 to 17 feet bgs with riser from about 7 feet bgs to surface grade. The borehole annulus was backfilled with No. 1 Sand to at least 2 feet above the well screen, followed by at least 1 foot of bentonite then No. 1 sand to grade. The well was sealed at grade with grout and finished with a flush mounted road box and concrete pad.

WELL DEVELOPMENT DATA

SURGE BLOCK DIAMETER	N/A	**TYPE PUMP**	Peristaltic	**DEVELOPMENT CONFIRMATION**
DRILLER OR LANGAN	Langan	**MAX PUMP RATE**	1 LPM	7/26/2022: Well developed until purged groundwater was no longer turbid.
NUMBER OF SURGE CYCLES	N/A	**TOTAL VOLUME**	5 gal	

	ELEVATION	DEPTH (ft)
TOP OF CASING	8.94	0
TOP OF SEAL	4.94	4
TOP OF FILTER	3.94	5
TOP OF SCREEN	1.94	7.0
BOTTOM OF BORING	-8.06	17
SCREEN LENGTH		10
SLOT SIZE		No. 10 Slot; 0.010 Inches

WELL DETAILS



SUMMARY SOIL CLASSIFICATION	DEPTH (FT)
	0
	4
	5
	7
	17

GROUNDWATER ELEVATIONS

ELEVATION	DATE	DEPTH TO WATER
0.44	7/26/2022	8.5 ft
0.67	8/5/2022	8.27 ft
N/A		
N/A		
N/A		
N/A		

LANGAN Engineering, Environmental, Surveying, Landscape Architecture and Geology, D.P.C.

368 9th Avenue, 8th Floor, New York

WELL CONSTRUCTION AND DEVELOPMENT SUMMARY

Well No. MW04

PROJECT		PROJECT NO.	
C1C2C3		170229030	
LOCATION		**ELEVATION AND DATUM**	
Brooklyn, NY		el. 9.89 NAVD88	
DRILLING AGENCY		**DATE STARTED**	**DATE FINISHED**
Lakewood Environmental Services Corp.		7/28/2022	7/28/2022
DRILLING EQUIPMENT		**DRILLER**	
Geoprobe® 6610 DT		Adam Hutchinson	
SIZE AND TYPE OF BIT		**INSPECTOR**	
3.25-inch OD Direct Push		Ali Reach	
BOREHOLE DIAMETER		**TYPE OF WELL (OVERBURDEN / BEDROCK)**	
3.75 inches		Overburden	
RISER MATERIAL	**DIAMETER**	**TYPE OF BACKFILL MATERIAL**	
PVC	1-inch	No. 1 Sand	
TYPE OF SCREEN	**DIAMETER**	**TYPE OF WELL PACK**	**TYPE OF SEAL MATERIAL**
PVC No. 10 Slot	1-inch	No. 1 Sand	Bentonite

METHOD OF INSTALLATION

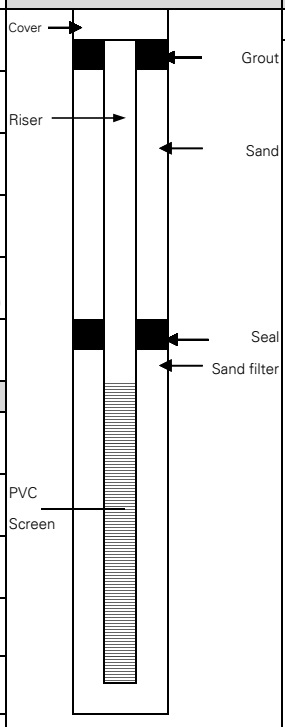
A Geoprobe 6610 DT was used to advance the boring to about 17 feet bgs. A one-inch (1") PVC monitoring well was installed which consisted of 10' of 10 slot (0.010-inch) well screen, and a solid 1" PVC riser. The well screen was installed from about 7 to 17 feet bgs with riser from about 7 feet bgs to surface grade. The borehole annulus was backfilled with No. 1 Sand to at least 2 feet above the well screen, followed by at least 1 foot of bentonite then No. 1 sand to grade. The well was sealed at grade with grout and finished with a flush mounted road box and concrete pad.

WELL DEVELOPMENT DATA

SURGE BLOCK DIAMETER	N/A	**TYPE PUMP**	Peristaltic	**DEVELOPMENT CONFIRMATION**
DRILLER OR LANGAN	Langan	**MAX PUMP RATE**	1 LPM	7/29/2022: Well developed until purged groundwater was no longer turbid.
NUMBER OF SURGE CYCLES	N/A	**TOTAL VOLUME**	5 gal	

TOP OF CASING	ELEVATION	DEPTH (ft)
	9.89	0
TOP OF SEAL	**ELEVATION**	**DEPTH (ft)**
	5.89	4
TOP OF FILTER	**ELEVATION**	**DEPTH (ft)**
	4.89	5
TOP OF SCREEN	**ELEVATION**	**DEPTH (ft)**
	2.89	7.0
BOTTOM OF BORING	**ELEVATION**	**DEPTH (ft)**
	-7.11	17
SCREEN LENGTH		10
SLOT SIZE		No. 10 Slot; 0.010 Inches

WELL DETAILS



SUMMARY SOIL CLASSIFICATION	DEPTH (FT)
	0
	4
	5
	7
	17

GROUNDWATER ELEVATIONS

ELEVATION	DATE	DEPTH TO WATER
0.89	7/28/2022	9 ft
1.01	8/5/2022	8.88 ft
N/A		
N/A		
N/A		
N/A		

LANGAN Engineering, Environmental, Surveying, Landscape Architecture and Geology, D.P.C.

368 9th Avenue, 8th Floor, New York

WELL CONSTRUCTION AND DEVELOPMENT SUMMARY

Well No. MW05

PROJECT		PROJECT NO.	
C1C2C3		170229030	
LOCATION		**ELEVATION AND DATUM**	
Brooklyn, NY		el. 10.47 NAVD88	
DRILLING AGENCY		**DATE STARTED**	**DATE FINISHED**
Lakewood Environmental Services Corp.		7/26/2022	7/26/2022
DRILLING EQUIPMENT		**DRILLER**	
Geoprobe® 6610 DT		Adam Hutchinson	
SIZE AND TYPE OF BIT		**INSPECTOR**	
3.25-inch OD Direct Push		Ali Reach	
BOREHOLE DIAMETER		**TYPE OF WELL (OVERBURDEN / BEDROCK)**	
3.75 inches		Overburden	
RISER MATERIAL	**DIAMETER**	**TYPE OF BACKFILL MATERIAL**	
PVC	1-inch	No. 1 Sand	
TYPE OF SCREEN	**DIAMETER**	**TYPE OF WELL PACK**	**TYPE OF SEAL MATERIAL**
PVC No. 10 Slot	1-inch	No. 1 Sand	Bentonite

METHOD OF INSTALLATION

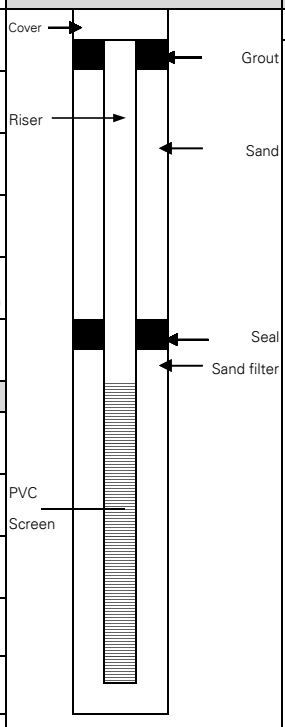
A Geoprobe 6610 DT was used to advance the boring to about 17 feet bgs. A one-inch (1") PVC monitoring well was installed which consisted of 10' of 10 slot (0.010-inch) well screen, and a solid 1" PVC riser. The well screen was installed from about 7 to 17 feet bgs with riser from about 7 feet bgs to surface grade. The borehole annulus was backfilled with No. 1 Sand to at least 2 feet above the well screen, followed by at least 1 foot of bentonite then No. 1 sand to grade. The well was sealed at grade with grout and finished with a flush mounted road box and concrete pad.

WELL DEVELOPMENT DATA

SURGE BLOCK DIAMETER	N/A	**TYPE PUMP**	Peristaltic	**DEVELOPMENT CONFIRMATION**
DRILLER OR LANGAN	Langan	**MAX PUMP RATE**	1 LPM	7/29/2022: Well developed until purged groundwater was no longer turbid.
NUMBER OF SURGE CYCLES	N/A	**TOTAL VOLUME**	5 gal	

TOP OF CASING	ELEVATION	DEPTH (ft)
	10.47	0
TOP OF SEAL	**ELEVATION**	**DEPTH (ft)**
	6.47	4
TOP OF FILTER	**ELEVATION**	**DEPTH (ft)**
	5.47	5
TOP OF SCREEN	**ELEVATION**	**DEPTH (ft)**
	3.47	7.0
BOTTOM OF BORING	**ELEVATION**	**DEPTH (ft)**
	-6.53	17
SCREEN LENGTH		10
SLOT SIZE		No. 10 Slot; 0.010 Inches

WELL DETAILS



SUMMARY SOIL CLASSIFICATION	DEPTH (FT)
	0
	4
	5
	7
	17

GROUNDWATER ELEVATIONS

ELEVATION	DATE	DEPTH TO WATER
1.47	7/26/2022	9 ft
2.01	8/5/2022	8.46 ft
N/A		
N/A		
N/A		
N/A		

LANGAN Engineering, Environmental, Surveying, Landscape Architecture and Geology, D.P.C.
368 9th Avenue, 8th Floor, New York

WELL CONSTRUCTION AND DEVELOPMENT SUMMARY

Well No. MW06

PROJECT		PROJECT NO.	
C1C2C3		170229030	
LOCATION		**ELEVATION AND DATUM**	
Brooklyn, NY		el. 11.01 NAVD88	
DRILLING AGENCY		**DATE STARTED**	**DATE FINISHED**
Lakewood Environmental Services Corp.		7/27/2022	7/27/2022
DRILLING EQUIPMENT		**DRILLER**	
Geoprobe® 6610 DT		Adam Hutchinson	
SIZE AND TYPE OF BIT		**INSPECTOR**	
3.25-inch OD Direct Push		Ali Reach	
BOREHOLE DIAMETER		**TYPE OF WELL (OVERBURDEN / BEDROCK)**	
3.75 inches		Overburden	
RISER MATERIAL	**DIAMETER**	**TYPE OF BACKFILL MATERIAL**	
PVC	1-inch	No. 1 Sand	
TYPE OF SCREEN	**DIAMETER**	**TYPE OF WELL PACK**	**TYPE OF SEAL MATERIAL**
PVC No. 10 Slot	1-inch	No. 1 Sand	Bentonite

METHOD OF INSTALLATION

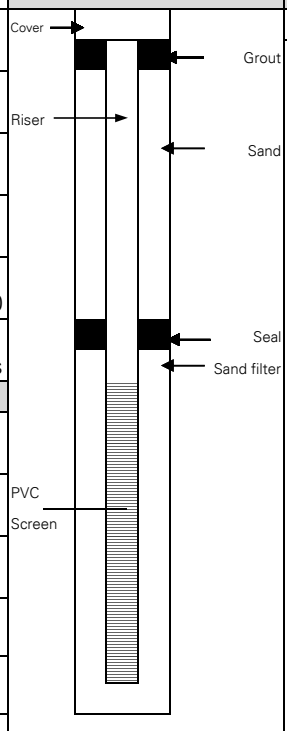
A Geoprobe 6610 DT was used to advance the boring to about 17 feet bgs. A one-inch (1") PVC monitoring well was installed which consisted of 10' of 10 slot (0.010-inch) well screen, and a solid 1" PVC riser. The well screen was installed from about 7 to 17 feet bgs with riser from about 7 feet bgs to surface grade. The borehole annulus was backfilled with No. 1 Sand to at least 2 feet above the well screen, followed by at least 1 foot of bentonite then No. 1 sand to grade. The well was sealed at grade with grout and finished with a flush mounted road box and concrete pad.

WELL DEVELOPMENT DATA

SURGE BLOCK DIAMETER	N/A	**TYPE PUMP**	Peristaltic	**DEVELOPMENT CONFIRMATION**
DRILLER OR LANGAN	Langan	**MAX PUMP RATE**	1 LPM	7/29/2022: Well developed until purged groundwater was no longer turbid.
NUMBER OF SURGE CYCLES	N/A	**TOTAL VOLUME**	5 gal	

TOP OF CASING	ELEVATION	DEPTH (ft)
	11.01	0
TOP OF SEAL	**ELEVATION**	**DEPTH (ft)**
	7.01	4
TOP OF FILTER	**ELEVATION**	**DEPTH (ft)**
	6.01	5
TOP OF SCREEN	**ELEVATION**	**DEPTH (ft)**
	4.01	7.0
BOTTOM OF BORING	**ELEVATION**	**DEPTH (ft)**
	-5.99	17
SCREEN LENGTH		10
SLOT SIZE		No. 10 Slot; 0.010 Inches

WELL DETAILS



SUMMARY SOIL CLASSIFICATION	DEPTH (FT)
	0
	4
	5
	7
	17

GROUNDWATER ELEVATIONS

ELEVATION	DATE	DEPTH TO WATER
2.51	7/27/2022	8.5 ft
1.51	8/5/2022	9.5 ft
N/A		
N/A		
N/A		
N/A		

LANGAN Engineering, Environmental, Surveying, Landscape Architecture and Geology, D.P.C.

368 9th Avenue, 8th Floor, New York

WELL CONSTRUCTION AND DEVELOPMENT SUMMARY

Well No. MW07

PROJECT		PROJECT NO.	
C1C2C3		170229030	
LOCATION		**ELEVATION AND DATUM**	
Brooklyn, NY		el. 10.32 NAVD88	
DRILLING AGENCY		**DATE STARTED**	**DATE FINISHED**
Lakewood Environmental Services Corp.		7/28/2022	7/28/2022
DRILLING EQUIPMENT		**DRILLER**	
Geoprobe® 6610 DT		Adam Hutchinson	
SIZE AND TYPE OF BIT		**INSPECTOR**	
3.25-inch OD Direct Push		Ali Reach	
BOREHOLE DIAMETER		**TYPE OF WELL (OVERBURDEN / BEDROCK)**	
3.75 inches		Overburden	
RISER MATERIAL	**DIAMETER**	**TYPE OF BACKFILL MATERIAL**	
PVC	1-inch	No. 1 Sand	
TYPE OF SCREEN	**DIAMETER**	**TYPE OF WELL PACK**	**TYPE OF SEAL MATERIAL**
PVC No. 10 Slot	1-inch	No. 1 Sand	Bentonite

METHOD OF INSTALLATION

A Geoprobe 6610 DT was used to advance the boring to about 17 feet bgs. A one-inch (1") PVC monitoring well was installed which consisted of 10' of 10 slot (0.010-inch) well screen, and a solid 1" PVC riser. The well screen was installed from about 7 to 17 feet bgs with riser from about 7 feet bgs to surface grade. The borehole annulus was backfilled with No. 1 Sand to at least 2 feet above the well screen, followed by at least 1 foot of bentonite then No. 1 sand to grade. The well was sealed at grade with grout and finished with a flush mounted road box and concrete pad.

WELL DEVELOPMENT DATA

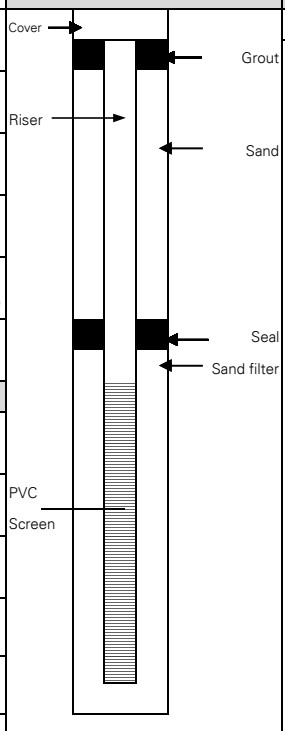
SURGE BLOCK DIAMETER	N/A	**TYPE PUMP**	Peristaltic	**DEVELOPMENT CONFIRMATION**
DRILLER OR LANGAN	Langan	**MAX PUMP RATE**	1 LPM	7/29/2022: Well developed until purged groundwater was no longer turbid.
NUMBER OF SURGE CYCLES	N/A	**TOTAL VOLUME**	5 gal	

TOP OF CASING	**ELEVATION**	**DEPTH (ft)**
	10.32	0
TOP OF SEAL	**ELEVATION**	**DEPTH (ft)**
	6.32	4
TOP OF FILTER	**ELEVATION**	**DEPTH (ft)**
	5.32	5
TOP OF SCREEN	**ELEVATION**	**DEPTH (ft)**
	3.32	7.0
BOTTOM OF BORING	**ELEVATION**	**DEPTH (ft)**
	-6.68	17
SCREEN LENGTH		10
SLOT SIZE		No. 10 Slot; 0.010 Inches

GROUNDWATER ELEVATIONS

ELEVATION	DATE	DEPTH TO WATER
1.32	7/28/2022	9 ft
2.21	8/5/2022	8.11 ft
N/A		
N/A		
N/A		
N/A		

WELL DETAILS



SUMMARY SOIL CLASSIFICATION	DEPTH (FT)
	0
	4
	5
	7
	17

LANGAN Engineering, Environmental, Surveying, Landscape Architecture and Geology, D.P.C.

368 9th Avenue, 8th Floor, New York

WELL CONSTRUCTION AND DEVELOPMENT SUMMARY

Well No. MW08

PROJECT		PROJECT NO.	
C1C2C3		170229030	
LOCATION		**ELEVATION AND DATUM**	
Brooklyn, NY		el. 11.35 NAVD88	
DRILLING AGENCY		**DATE STARTED**	**DATE FINISHED**
Lakewood Environmental Services Corp.		7/28/2022	7/28/2022
DRILLING EQUIPMENT		**DRILLER**	
Geoprobe® 6610 DT		Adam Hutchinson	
SIZE AND TYPE OF BIT		**INSPECTOR**	
3.25-inch OD Direct Push		Ali Reach	
BOREHOLE DIAMETER		**TYPE OF WELL (OVERBURDEN / BEDROCK)**	
3.75 inches		Overburden	
RISER MATERIAL	**DIAMETER**	**TYPE OF BACKFILL MATERIAL**	
PVC	1-inch	No. 1 Sand	
TYPE OF SCREEN	**DIAMETER**	**TYPE OF WELL PACK**	**TYPE OF SEAL MATERIAL**
PVC No. 10 Slot	1-inch	No. 1 Sand	Bentonite

METHOD OF INSTALLATION

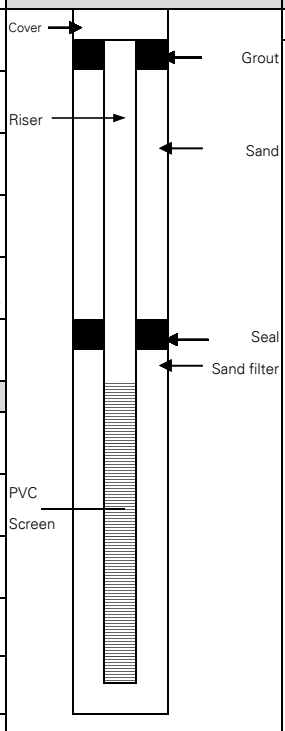
A Geoprobe 6610 DT was used to advance the boring to about 17 feet bgs. A one-inch (1") PVC monitoring well was installed which consisted of 10' of 10 slot (0.010-inch) well screen, and a solid 1" PVC riser. The well screen was installed from about 7 to 17 feet bgs with riser from about 7 feet bgs to surface grade. The borehole annulus was backfilled with No. 1 Sand to at least 2 feet above the well screen, followed by at least 1 foot of bentonite then No. 1 sand to grade. The well was sealed at grade with grout and finished with a flush mounted road box and concrete pad.

WELL DEVELOPMENT DATA

SURGE BLOCK DIAMETER	N/A	**TYPE PUMP**	Peristaltic	**DEVELOPMENT CONFIRMATION**
DRILLER OR LANGAN	Langan	**MAX PUMP RATE**	1 LPM	7/29/2022: Well developed until purged groundwater was no longer turbid.
NUMBER OF SURGE CYCLES	N/A	**TOTAL VOLUME**	5 gal	

TOP OF CASING	**ELEVATION**	**DEPTH (ft)**
	11.35	0
TOP OF SEAL	**ELEVATION**	**DEPTH (ft)**
	7.35	4
TOP OF FILTER	**ELEVATION**	**DEPTH (ft)**
	6.35	5
TOP OF SCREEN	**ELEVATION**	**DEPTH (ft)**
	4.35	7.0
BOTTOM OF BORING	**ELEVATION**	**DEPTH (ft)**
	-5.65	17
SCREEN LENGTH		
		10
SLOT SIZE		
		No. 10 Slot; 0.010 Inches

WELL DETAILS



SUMMARY SOIL CLASSIFICATION	DEPTH (FT)
	0
	4
	5
	7
	17

GROUNDWATER ELEVATIONS

ELEVATION	DATE	DEPTH TO WATER
2.85	7/28/2022	8.5 ft
2.92	8/5/2022	8.43 ft
N/A		
N/A		
N/A		
N/A		

LANGAN Engineering, Environmental, Surveying, Landscape Architecture and Geology, D.P.C.

368 9th Avenue, 8th Floor, New York

WELL CONSTRUCTION AND DEVELOPMENT SUMMARY

Well No. MW09

PROJECT		PROJECT NO.	
C1C2C3		170229030	
LOCATION		**ELEVATION AND DATUM**	
Brooklyn, NY		el. 10.8 NAVD88	
DRILLING AGENCY		**DATE STARTED**	**DATE FINISHED**
Lakewood Environmental Services Corp.		7/25/2022	7/25/2022
DRILLING EQUIPMENT		**DRILLER**	
Geoprobe® 6610 DT		Adam Hutchinson	
SIZE AND TYPE OF BIT		**INSPECTOR**	
3.25-inch OD Direct Push		Ali Reach	
BOREHOLE DIAMETER		**TYPE OF WELL (OVERBURDEN / BEDROCK)**	
3.75 inches		Overburden	
RISER MATERIAL	**DIAMETER**	**TYPE OF BACKFILL MATERIAL**	
PVC	1-inch	No. 1 Sand	
TYPE OF SCREEN	**DIAMETER**	**TYPE OF WELL PACK**	**TYPE OF SEAL MATERIAL**
PVC No. 10 Slot	1-inch	No. 1 Sand	Bentonite

METHOD OF INSTALLATION

A Geoprobe 6610 DT was used to advance the boring to about 17 feet bgs. A one-inch (1") PVC monitoring well was installed which consisted of 10' of 10 slot (0.010-inch) well screen, and a solid 1" PVC riser. The well screen was installed from about 7 to 17 feet bgs with riser from about 7 feet bgs to surface grade. The borehole annulus was backfilled with No. 1 Sand to at least 2 feet above the well screen, followed by at least 1 foot of bentonite then No. 1 sand to grade. The well was sealed at grade with grout and finished with a flush mounted road box and concrete pad.

WELL DEVELOPMENT DATA

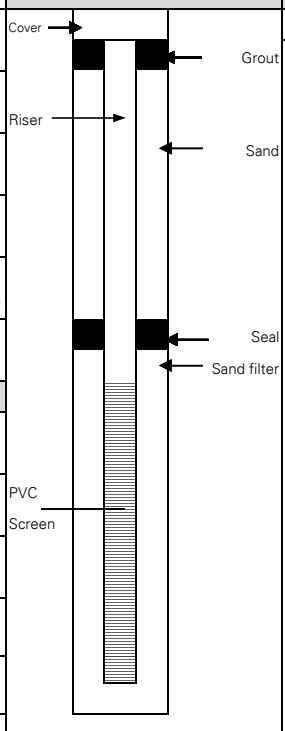
SURGE BLOCK DIAMETER	N/A	**TYPE PUMP**	Peristaltic	**DEVELOPMENT CONFIRMATION**
DRILLER OR LANGAN	Langan	**MAX PUMP RATE**	1 LPM	7/29/2022: Well developed until purged groundwater was no longer turbid.
NUMBER OF SURGE CYCLES	N/A	**TOTAL VOLUME**	5 gal	

TOP OF CASING	**ELEVATION**	**DEPTH (ft)**
	10.8	0
TOP OF SEAL	**ELEVATION**	**DEPTH (ft)**
	6.8	4
TOP OF FILTER	**ELEVATION**	**DEPTH (ft)**
	5.8	5
TOP OF SCREEN	**ELEVATION**	**DEPTH (ft)**
	3.8	7.0
BOTTOM OF BORING	**ELEVATION**	**DEPTH (ft)**
	-6.2	17
SCREEN LENGTH		10
SLOT SIZE		No. 10 Slot; 0.010 Inches

GROUNDWATER ELEVATIONS

ELEVATION	DATE	DEPTH TO WATER
2.3	7/25/2022	8.5 ft
2.15	8/5/2022	8.65 ft
N/A		
N/A		
N/A		
N/A		

WELL DETAILS



SUMMARY SOIL CLASSIFICATION	DEPTH (FT)
	0
	4
	5
	7
	17

LANGAN Engineering, Environmental, Surveying, Landscape Architecture and Geology, D.P.C.

368 9th Avenue, 8th Floor, New York

WELL CONSTRUCTION AND DEVELOPMENT SUMMARY

Well No. MW10

PROJECT		PROJECT NO.	
C1C2C3		170229030	
LOCATION		**ELEVATION AND DATUM**	
Brooklyn, NY		el. 9.05 NAVD88	
DRILLING AGENCY		**DATE STARTED**	**DATE FINISHED**
Lakewood Environmental Services Corp.		7/29/2022	7/29/2022
DRILLING EQUIPMENT		**DRILLER**	
Geoprobe® 6610 DT		Adam Hutchinson	
SIZE AND TYPE OF BIT		**INSPECTOR**	
3.25-inch OD Direct Push		Ali Reach	
BOREHOLE DIAMETER		**TYPE OF WELL (OVERBURDEN / BEDROCK)**	
3.75 inches		Overburden	
RISER MATERIAL	**DIAMETER**	**TYPE OF BACKFILL MATERIAL**	
PVC	1-inch	No. 1 Sand	
TYPE OF SCREEN	**DIAMETER**	**TYPE OF WELL PACK**	**TYPE OF SEAL MATERIAL**
PVC No. 10 Slot	1-inch	No. 1 Sand	Bentonite

METHOD OF INSTALLATION

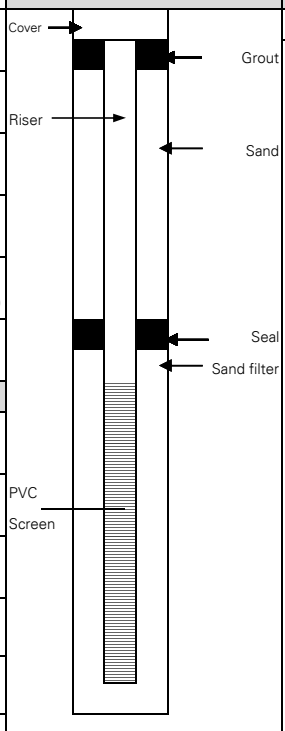
A Geoprobe 6610 DT was used to advance the boring to about 17 feet bgs. A one-inch (1") PVC monitoring well was installed which consisted of 10' of 10 slot (0.010-inch) well screen, and a solid 1" PVC riser. The well screen was installed from about 7 to 17 feet bgs with riser from about 7 feet bgs to surface grade. The borehole annulus was backfilled with No. 1 Sand to at least 2 feet above the well screen, followed by at least 1 foot of bentonite then No. 1 sand to grade. The well was sealed at grade with grout and finished with a flush mounted road box and concrete pad.

WELL DEVELOPMENT DATA

SURGE BLOCK DIAMETER	N/A	**TYPE PUMP**	Peristaltic	**DEVELOPMENT CONFIRMATION**
DRILLER OR LANGAN	Langan	**MAX PUMP RATE**	1 LPM	7/29/2022: Well developed until purged groundwater was no longer turbid.
NUMBER OF SURGE CYCLES	N/A	**TOTAL VOLUME**	5 gal	

	ELEVATION	DEPTH (ft)
TOP OF CASING	9.05	0
TOP OF SEAL	5.05	4
TOP OF FILTER	4.05	5
TOP OF SCREEN	2.05	7.0
BOTTOM OF BORING	-7.95	17
SCREEN LENGTH		10
SLOT SIZE		No. 10 Slot; 0.010 Inches

WELL DETAILS



SUMMARY SOIL CLASSIFICATION	DEPTH (FT)
	0
	4
	5
	7
	17

GROUNDWATER ELEVATIONS

ELEVATION	DATE	DEPTH TO WATER
0.55	7/29/2022	8.5 ft
0.64	8/5/2022	8.41 ft
N/A		
N/A		
N/A		
N/A		

LANGAN Engineering, Environmental, Surveying, Landscape Architecture and Geology, D.P.C.

368 9th Avenue, 8th Floor, New York

WELL CONSTRUCTION AND DEVELOPMENT SUMMARY

Well No. MW11

PROJECT		PROJECT NO.	
C1C2C3		170229030	
LOCATION		**ELEVATION AND DATUM**	
Brooklyn, NY		el. 9.31 NAVD88	
DRILLING AGENCY		**DATE STARTED**	**DATE FINISHED**
Lakewood Environmental Services Corp.		7/27/2022	7/27/2022
DRILLING EQUIPMENT		**DRILLER**	
Geoprobe® 6610 DT		Adam Hutchinson	
SIZE AND TYPE OF BIT		**INSPECTOR**	
3.25-inch OD Direct Push		Ali Reach	
BOREHOLE DIAMETER		**TYPE OF WELL (OVERBURDEN / BEDROCK)**	
3.75 inches		Overburden	
RISER MATERIAL	**DIAMETER**	**TYPE OF BACKFILL MATERIAL**	
PVC	1-inch	No. 1 Sand	
TYPE OF SCREEN	**DIAMETER**	**TYPE OF WELL PACK**	**TYPE OF SEAL MATERIAL**
PVC No. 10 Slot	1-inch	No. 1 Sand	Bentonite

METHOD OF INSTALLATION

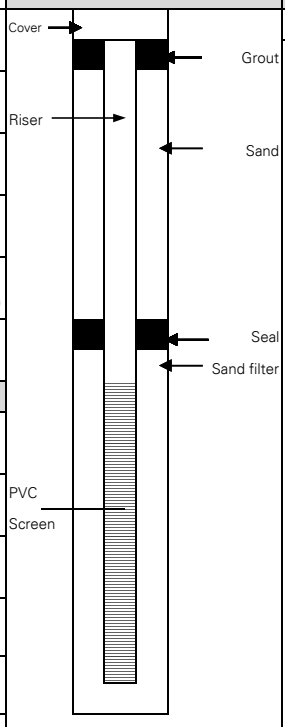
A Geoprobe 6610 DT was used to advance the boring to about 17 feet bgs. A one-inch (1") PVC monitoring well was installed which consisted of 10' of 10 slot (0.010-inch) well screen, and a solid 1" PVC riser. The well screen was installed from about 7 to 17 feet bgs with riser from about 7 feet bgs to surface grade. The borehole annulus was backfilled with No. 1 Sand to at least 2 feet above the well screen, followed by at least 1 foot of bentonite then No. 1 sand to grade. The well was sealed at grade with grout and finished with a flush mounted road box and concrete pad.

WELL DEVELOPMENT DATA

SURGE BLOCK DIAMETER	N/A	**TYPE PUMP**	Peristaltic	**DEVELOPMENT CONFIRMATION**
DRILLER OR LANGAN	Langan	**MAX PUMP RATE**	1 LPM	7/29/2022: Well developed until purged groundwater was no longer turbid.
NUMBER OF SURGE CYCLES	N/A	**TOTAL VOLUME**	5 gal	

TOP OF CASING	ELEVATION	DEPTH (ft)
	9.31	0
TOP OF SEAL	**ELEVATION**	**DEPTH (ft)**
	5.31	4
TOP OF FILTER	**ELEVATION**	**DEPTH (ft)**
	4.31	5
TOP OF SCREEN	**ELEVATION**	**DEPTH (ft)**
	2.31	7.0
BOTTOM OF BORING	**ELEVATION**	**DEPTH (ft)**
	-7.69	17
SCREEN LENGTH		10
SLOT SIZE		No. 10 Slot; 0.010 Inches

WELL DETAILS



SUMMARY SOIL CLASSIFICATION	DEPTH (FT)
	0
	4
	5
	7
	17

GROUNDWATER ELEVATIONS

ELEVATION	DATE	DEPTH TO WATER
0.81	7/27/2022	8.5 ft
0.69	8/5/2022	8.62 ft
N/A		
N/A		
N/A		
N/A		

LANGAN Engineering, Environmental, Surveying, Landscape Architecture and Geology, D.P.C.

368 9th Avenue, 8th Floor, New York

WELL CONSTRUCTION AND DEVELOPMENT SUMMARY

Well No. MW12

PROJECT		PROJECT NO.	
C1C2C3		170229030	
LOCATION		**ELEVATION AND DATUM**	
Brooklyn, NY		el. 11.87 NAVD88	
DRILLING AGENCY		**DATE STARTED**	**DATE FINISHED**
Lakewood Environmental Services Corp.		7/25/2022	7/25/2022
DRILLING EQUIPMENT		**DRILLER**	
Geoprobe® 6610 DT		Adam Hutchinson	
SIZE AND TYPE OF BIT		**INSPECTOR**	
3.25-inch OD Direct Push		Ali Reach	
BOREHOLE DIAMETER		**TYPE OF WELL (OVERBURDEN / BEDROCK)**	
3.75 inches		Overburden	
RISER MATERIAL	**DIAMETER**	**TYPE OF BACKFILL MATERIAL**	
PVC	1-inch	No. 1 Sand	
TYPE OF SCREEN	**DIAMETER**	**TYPE OF WELL PACK**	**TYPE OF SEAL MATERIAL**
PVC No. 10 Slot	1-inch	No. 1 Sand	Bentonite

METHOD OF INSTALLATION

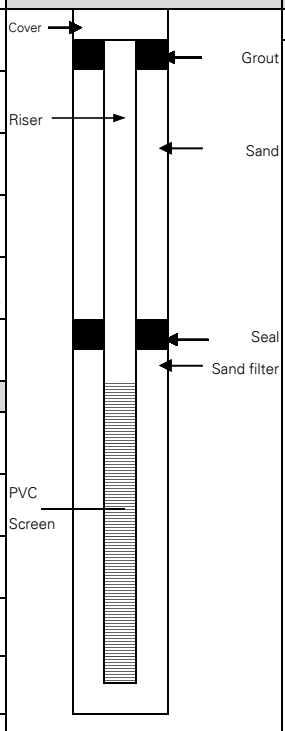
A Geoprobe 6610 DT was used to advance the boring to about 17 feet bgs. A one-inch (1") PVC monitoring well was installed which consisted of 10' of 10 slot (0.010-inch) well screen, and a solid 1" PVC riser. The well screen was installed from about 7 to 17 feet bgs with riser from about 7 feet bgs to surface grade. The borehole annulus was backfilled with No. 1 Sand to at least 2 feet above the well screen, followed by at least 1 foot of bentonite then No. 1 sand to grade. The well was sealed at grade with grout and finished with a flush mounted road box and concrete pad.

WELL DEVELOPMENT DATA

SURGE BLOCK DIAMETER	N/A	**TYPE PUMP**	Peristaltic	**DEVELOPMENT CONFIRMATION**
DRILLER OR LANGAN	Langan	**MAX PUMP RATE**	1 LPM	7/29/2022: Well developed until purged groundwater was no longer turbid.
NUMBER OF SURGE CYCLES	N/A	**TOTAL VOLUME**	5 gal	

TOP OF CASING	ELEVATION	DEPTH (ft)
	11.87	0
TOP OF SEAL	**ELEVATION**	**DEPTH (ft)**
	7.87	4
TOP OF FILTER	**ELEVATION**	**DEPTH (ft)**
	6.87	5
TOP OF SCREEN	**ELEVATION**	**DEPTH (ft)**
	4.87	7.0
BOTTOM OF BORING	**ELEVATION**	**DEPTH (ft)**
	-5.13	17
SCREEN LENGTH		10
SLOT SIZE		No. 10 Slot; 0.010 Inches

WELL DETAILS



SUMMARY SOIL CLASSIFICATION	DEPTH (FT)
	0
	4
	5
	7
	17

GROUNDWATER ELEVATIONS

ELEVATION	DATE	DEPTH TO WATER
2.37	7/25/2022	9.5 ft
2.48	8/5/2022	9.39 ft
N/A		
N/A		
N/A		
N/A		

LANGAN Engineering, Environmental, Surveying, Landscape Architecture and Geology, D.P.C.

368 9th Avenue, 8th Floor, New York

WELL CONSTRUCTION AND DEVELOPMENT SUMMARY

Well No. MW13

PROJECT		PROJECT NO.	
C1C2C3		170229030	
LOCATION		**ELEVATION AND DATUM**	
Brooklyn, NY		el. 5.84 NAVD88	
DRILLING AGENCY		**DATE STARTED**	**DATE FINISHED**
Lakewood Environmental Services Corp.		7/27/2022	7/27/2022
DRILLING EQUIPMENT		**DRILLER**	
Geoprobe® 6610 DT		Adam Hutchinson	
SIZE AND TYPE OF BIT		**INSPECTOR**	
3.25-inch OD Direct Push		Ali Reach	
BOREHOLE DIAMETER		**TYPE OF WELL (OVERBURDEN / BEDROCK)**	
3.75 inches		Overburden	
RISER MATERIAL	**DIAMETER**	**TYPE OF BACKFILL MATERIAL**	
PVC	1-inch	No. 1 Sand	
TYPE OF SCREEN	**DIAMETER**	**TYPE OF WELL PACK**	**TYPE OF SEAL MATERIAL**
PVC No. 10 Slot	1-inch	No. 1 Sand	Bentonite

METHOD OF INSTALLATION

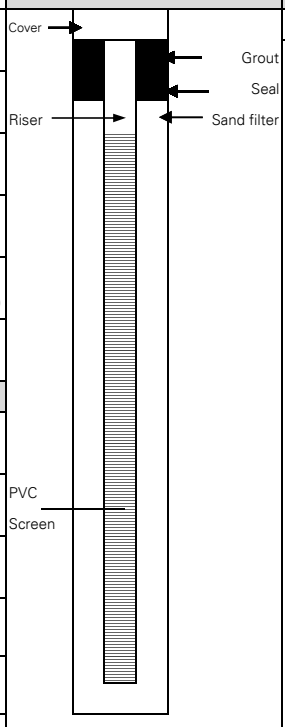
A Geoprobe 6610 DT was used to advance the boring to about 13 feet bgs. A one-inch (1") PVC monitoring well was installed which consisted of 10' of 10 slot (0.010-inch) well screen, and a solid 1" PVC riser. The well screen was installed from about 3 to 13 feet bgs with riser from about 3 feet bgs to surface grade. The borehole annulus was backfilled with No. 1 Sand to at least 2 feet above the well screen, followed by at least 6 inches of bentonite. The well was sealed at grade with grout and finished with a flush mounted road box and concrete pad.

WELL DEVELOPMENT DATA

SURGE BLOCK DIAMETER	N/A	**TYPE PUMP**	Peristaltic	**DEVELOPMENT CONFIRMATION**
DRILLER OR LANGAN	Langan	**MAX PUMP RATE**	1 LPM	7/27/2022: Well developed until purged groundwater was no longer turbid.
NUMBER OF SURGE CYCLES	N/A	**TOTAL VOLUME**	5 gal	

TOP OF CASING	**ELEVATION**	**DEPTH (ft)**
	5.84	0
TOP OF SEAL	**ELEVATION**	**DEPTH (ft)**
	5.34	0.5
TOP OF FILTER	**ELEVATION**	**DEPTH (ft)**
	4.84	1
TOP OF SCREEN	**ELEVATION**	**DEPTH (ft)**
	2.84	3.0
BOTTOM OF BORING	**ELEVATION**	**DEPTH (ft)**
	-7.16	13
SCREEN LENGTH		10
SLOT SIZE		No. 10 Slot; 0.010 Inches

WELL DETAILS



SUMMARY SOIL CLASSIFICATION	DEPTH (FT)
	0
	0.5
	1
	3
	13

GROUNDWATER ELEVATIONS

ELEVATION	DATE	DEPTH TO WATER
1.34	7/27/2022	4.5 ft
0.2	8/5/2022	5.64 ft
N/A		
N/A		
N/A		
N/A		

LANGAN Engineering, Environmental, Surveying, Landscape Architecture and Geology, D.P.C.

368 9th Avenue, 8th Floor, New York

GROUND WATER SAMPLE FIELD INFORMATION FORM

Project Information		Well Information		Equipment Information		Sampling Conditions		Sampling Information	
Project Name:	**C1C2C3**	**Well No:**	1	**Water Quality Device Model:**	**Horiba U-50**	**Weather:**	Sunny 78-83		MW01_080522
Project Number:	**170229030**	**Well Depth:**	17' bgs	**Pine Number:**	**FA05170**	**Background PID (ppm):**	0.0	**Sample(s):**	MW01_080522_ FILTERED
Site Location:	**Brooklyn, NY**	**Well Diameter:**	1	**Pump Make and Model:**	**Peristaltic**	**PID Beneath Inner Cap (ppm):**	0.0		
Sampling Personnel:	**Ali Reach**	**Well Screen Interval:**	7'-17'	**Pine Number:**	**FA00139**	**Pump Intake Depth:**	15.00	**Sample Date:**	8/5/2022
				Tubing Diameter:	**HDPE**	**Depth to Water After Purge:**	8.55	**Sample Time:**	12:45

TIME	TEMP °Celsius (+/- 3%)	PH (+/- 0.1)	ORP mV (+/- 10mV)	CONDUCTIVITY mS/cm (+/- 3%)	TURBIDITY ntu (+/- 10%) above 5 NTU	DO mg/l (+/- 10%) above 0.5 mg/l	DTW ft Drawdown < 0.33 ft	Flow Rate (Lpm) <0.13 gpm)	Cumulative Discharge Volume (gal)	NOTES color, odor etc.	Stabilized?
BEGIN PURGING											
11:35	18.55	7.20	-85	10.80	162.0	4.52	-	N/A	0.5	sulfur odor	**N/A**
11:40	17.69	7.07	-79	10.80	102.00	2.01	-	0.05	0.75		**N/A**
11:45	17.47	7.05	-80	10.60	81.10	1.25	-	0.05	1		**N**
11:50	17.29	7.04	-81	10.50	40.20	1.06	-	0.05	1.25		**N**
11:55	17.24	7.04	-81	10.50	29.30	0.97	-	0.05	1.5		**N**
12:00	17.16	7.04	-82	10.50	27.60	0.89	-	0.05	1.75		**N**
12:05	17.22	7.04	-83	10.50	27.50	0.84	-	0.05	2		**N**
12:10	17.15	7.04	-83	10.50	26.00	0.81	-	0.05	2.25		**Y**
											N
											N
											N
											N
											N
											N
											N
											N
											N
											N
											N
											N
											N
											N
											N
											N
											N
											N
											N
											N

Notes:

1. Well depths and groundwater depths were measured in feet below the top of well casing.
2. Well and tubing diameters are measured in inches.
3. PID = Photoionization Detector
4. PPM = Parts per million
5. pH = Hydrogen ion concentration
6. ORP = Oxidation-reduction potential, measured in millivolts (mV)
7. DO = Dissolved Oxygen, measured in milligrams per liter (mg/L)
8. DTW = Depth to water
9. mS/cm = milli-Siemans per centimeter
10. NTU = Nephelometric Turbidity Unit

GROUND WATER SAMPLE FIELD INFORMATION FORM

Project Information		Well Information		Equipment Information		Sampling Conditions		Sampling Information	
Project Name:	**C1C2C3**	**Well No:**	2	**Water Quality Device Model:**	**Horiba U-50**	**Weather:**	Sunny 77F	**Sample(s):**	MW02_080222
Project Number:	**170229030**	**Well Depth:**	17'	**Pine Number:**	**FA05170**	**Background PID (ppm):**	0.0		MW02_080222_FILTERED
Site Location:	**Brooklyn, NY**	**Well Diameter:**	1	**Pump Make and Model:**	**Peristaltic**	**PID Beneath Inner Cap (ppm):**	0.0		
Sampling Personnel:	**Seyena Simpson**	**Well Screen Interval:**	7'-17'	**Pine Number:**	**FA00139**	**Pump Intake Depth:**	15.50	**Sample Date:**	8/2/2022
				Tubing Diameter:	**HDPE**	**Depth to Water After Purge:**	8.00	**Sample Time:**	14:45

TIME	TEMP °Celsius (+/- 3%)	PH (+/- 0.1)	ORP mV (+/- 10mV)	CONDUCTIVITY mS/cm (+/- 3%)	TURBIDITY ntu (+/- 10%) above 5 NTU	DO mg/l (+/- 10%) above 0.5 mg/l	DTW ft Drawdown < 0.33 ft	Flow Rate (Lpm) <0.13 gpm)	Cumulative Discharge Volume (gal)	NOTES color, odor etc.	Stabilized?
BEGIN PURGING											
1:40	24.71	6.68	-79	11.60	233.0	3.44	-	N/A	0.25		**N/A**
1:45	22.53	6.65	-73	10.60	52.90	1.81	-	0.05	0.5		**N/A**
1:50	21.56	6.67	-72	11.00	81.00	1.41	-	0.05	0.75		**N**
1:55	21.33	6.69	-74	11.40	23.60	1.09	-	0.05	1		**N**
2:00	21.02	6.68	-80	11.20	18.00	1.02	-	0.05	1.25		**N**
2:05	21.02	6.67	-84	10.90	10.90	0.90	-	0.05	1.5		**N**
2:10	21.01	6.67	-84	10.60	9.70	0.80	-	0.05	1.75		**N**
2:15	20.91	6.68	-82	10.80	16.90	1.33	-	0.05	2		**N**
2:20	20.69	6.66	-78	10.30	15.5	0.72	-	0.05	2.25		**N**
2:25	20.55	6.67	-81	10.80	131.0	0.70	-	0.05	2.5		**N**
2:30	20.57	6.68	-83	10.80	122.0	0.58	-	0.05	2.75		**N**
2:35	20.42	6.68	-82	10.60	24.0	0.56	-	0.05	3		**N**
2:40	20.54	6.69	-83	10.50	298.0	0.53	-	0.05	3.25		**N**
											N
											N
											N
											N
											N
											N
											N
											N
											N
											N
											N
											N
											N
											N

Notes:

1. Well depths and groundwater depths were measured in feet below the top of well casing.
2. Well and tubing diameters are measured in inches.
3. PID = Photoionization Detector
4. PPM = Parts per million
5. pH = Hydrogen ion concentration
6. ORP = Oxidation-reduction potential, measured in millivolts (mV)
7. DO = Dissolved Oxygen, measured in milligrams per liter (mg/L)
8. DTW = Depth to water
9. mS/cm = milli-Siemans per centimeter
10. NTU = Nephelometric Turbidity Unit

GROUND WATER SAMPLE FIELD INFORMATION FORM

Project Information		Well Information		Equipment Information		Sampling Conditions		Sampling Information	
Project Name:	**C1C2C3**	**Well No:**	3	**Water Quality Device Model:**	**Horiba U-50**	**Weather:**	Sunny 77F	**Sample(s):**	MW03_080222
Project Number:	**170229030**	**Well Depth:**	17' bgs	**Pine Number:**	**FA05170**	**Background PID (ppm):**	0.0		MW03_080222_FILTERED
Site Location:	**Brooklyn, NY**	**Well Diameter:**	1	**Pump Make and Model:**	**Peristaltic**	**PID Beneath Inner Cap (ppm):**	0.0		GWDUP01_0802
Sampling Personnel:	**Seyena Simpson**	**Well Screen Interval:**	7'-17'	**Pine Number:**	**FA00139**	**Pump Intake Depth:**	15.50	**Sample Date:**	8/2/2022
				Tubing Diameter:	**HDPE**	**Depth to Water After Purge:**	8.00	**Sample Time:**	11:40

TIME	TEMP °Celsius (+/- 3%)	PH (+/- 0.1)	ORP mV (+/- 10mV)	CONDUCTIVITY mS/cm (+/- 3%)	TURBIDITY ntu (+/- 10%) above 5 NTU	DO mg/l (+/- 10%) above 0.5 mg/l	DTW ft Drawdown < 0.33 ft	Flow Rate (Lpm) <0.13 gpm)	Cumulative Discharge Volume (gal)	NOTES color, odor etc.	Stabilized?
BEGIN PURGING											
11:01	26.71	6.61	-136	22.40	385.0	2.10	-	N/A	0.25	odor	**N/A**
11:06	23.41	6.44	-126	22.90	179.00	1.29	-	0.05	0.5		**N/A**
11:11	22.43	6.42	-127	23.20	58.70	0.98	-	0.05	0.75		**N**
11:16	21.63	6.43	-128	23.50	16.40	0.90	-	0.05	1		**N**
11:21	21.58	6.42	-129	23.50	20.40	0.83	-	0.05	1.25		**N**
11:26	21.45	6.42	-128	23.50	9.10	0.80	-	0.05	1.5		**N**
11:31	21.45	6.42	-130	23.60	9.60	0.75	-	0.05	1.75		**N**
11:36	21.42	6.42	-131	23.50	9.10	0.69	-	0.05	2		**N**
11:41	21.45	6.41	-131	23.50	7.1	0.68	-	0.05	2.25		**N**
11:46	21.47	6.41	-132	23.50	7.5	0.64	-	0.05	2.5		**N**
11:51	21.57	6.41	-132	23.50	7.9	0.61	-	0.05	2.75		**N**
11:56	21.67	6.41	-133	23.50	8.4	0.59	-	0.05	3		**N**
12:01	22.52	6.41	-132	23.50	8.1	0.59	-	0.05	3.25	faint sheen	**N**
											N
											N
											N
											N
											N
											N
											N
											N
											N
											N
											N
											N
											N
											N
											N
											N

Notes:

1. Well depths and groundwater depths were measured in feet below the top of well casing.
2. Well and tubing diameters are measured in inches.
3. PID = Photoionization Detector
4. PPM = Parts per million
5. pH = Hydrogen ion concentration
6. ORP = Oxidation-reduction potential, measured in millivolts (mV)
7. DO = Dissolved Oxygen, measured in milligrams per liter (mg/L)
8. DTW = Depth to water
9. mS/cm = milli-Siemans per centimeter
10. NTU = Nephelometric Turbidity Unit

LANGAN Engineering, Environmental, Surveying, Landscape Architecture and Geology, D.P.C.
368 9th Avenue, 8th Floor, New York

GROUND WATER SAMPLE FIELD INFORMATION FORM

Project Information		Well Information		Equipment Information		Sampling Conditions		Sampling Information	
Project Name:	**C1C2C3**	**Well No:**	4	**Water Quality Device Model:**	**Horiba U-50**	**Weather:**	Sunny 79-92		MW04_080422
Project Number:	**170229030**	**Well Depth:**	17' bgs	**Pine Number:**	**FA05170**	**Background PID (ppm):**	0.0	**Sample(s):**	MW04_080422_FILTERED
Site Location:	**Brooklyn, NY**	**Well Diameter:**	1	**Pump Make and Model:**	**Peristaltic**	**PID Beneath Inner Cap (ppm):**	0.0		
Sampling Personnel:	**Ali Reach**	**Well Screen Interval:**	7'-17'	**Pine Number:**	**FA00139**	**Pump Intake Depth:**	15.00	**Sample Date:**	8/4/2022
				Tubing Diameter:	**HDPE**	**Depth to Water After Purge:**	9.55	**Sample Time:**	13:15

TIME	TEMP °Celsius (+/- 3%)	PH (+/- 0.1)	ORP mV (+/- 10mV)	CONDUCTIVITY mS/cm (+/- 3%)	TURBIDITY ntu (+/- 10%) above 5 NTU	DO mg/l (+/- 10%) above 0.5 mg/l	DTW ft Drawdown < 0.33 ft	Flow Rate (Lpm) <0.13 gpm)	Cumulative Discharge Volume (gal)	NOTES color, odor etc.	Stabilized?
12:00	31.56	6.81	-145	2.46	405.0	3.15	-	N/A	0		**N/A**
12:05	27.91	6.85	-146	2.65	475.00	1.40	-	0.05	0.25		**N/A**
12:10	28.07	6.85	-148	2.65	477.00	1.30	-	0.05	0.5		**N**
12:15	27.01	6.85	-141	2.62	463.00	1.26	-	0.05	0.75		**N**
12:20	26.82	6.86	-141	2.80	460.00	1.21	-	0.05	1		**N**
12:25	26.85	6.86	-140	2.81	439.00	1.05	-	0.05	1.25		**N**
12:30	26.89	6.88	-148	2.65	278.00	0.70	-	0.05	1.5		**N**
12:35	26.88	6.87	-149	2.62	231.00	0.68	-	0.05	1.75		**N**
12:40	26.38	6.98	-149	2.61	215.0	0.72	-	0.05	2		**N**
12:45	25.68	6.89	-149	2.62	208.0	0.59	-	0.05	2.25		**N**
12:50	25.24	6.91	-150	2.63	201.0	0.56	-	0.05	2.5		**N**
12:55	24.90	6.92	-150	2.63	189.0	0.53	-	0.05	2.75		**N**
13:00	24.13	6.92	-150	2.68	190.0	0.54	-	0.05	3		**N**
											N
											N
											N
											N
											N
											N
											N
											N
											N
											N
											N
											N
											N
											N

Notes:

1. Well depths and groundwater depths were measured in feet below the top of well casing.
2. Well and tubing diameters are measured in inches.
3. PID = Photoionization Detector
4. PPM = Parts per million
5. pH = Hydrogen ion concentration
6. ORP = Oxidation-reduction potential, measured in millivolts (mV)
7. DO = Dissolved Oxygen, measured in milligrams per liter (mg/L)
8. DTW = Depth to water
9. mS/cm = milli-Siemans per centimeter
10. NTU = Nephelometric Turbidity Unit

LANGAN Engineering, Environmental, Surveying, Landscape Architecture and Geology, D.P.C.
368 9th Avenue, 8th Floor, New York

GROUND WATER SAMPLE FIELD INFORMATION FORM

Project Information		Well Information		Equipment Information		Sampling Conditions		Sampling Information	
Project Name:	**C1C2C3**	**Well No:**	5	**Water Quality Device Model:**	**Horiba U-50**	**Weather:**	Sunny 77F	**Sample(s):**	MW05_080222
Project Number:	**170229030**	**Well Depth:**	17' bgs	**Pine Number:**	**FA05170**	**Background PID (ppm):**	0.0		MW05_080222_FILTERED
Site Location:	**Brooklyn, NY**	**Well Diameter:**	1	**Pump Make and Model:**	**Peristaltic**	**PID Beneath Inner Cap (ppm):**	0.0		MS/MSD
Sampling Personnel:	**Seyena Simpson**	**Well Screen Interval:**	7'-17'	**Pine Number:**	**FA00139**	**Pump Intake Depth:**	15.50	**Sample Date:**	8/2/2022
				Tubing Diameter:	**HDPE**	**Depth to Water After Purge:**	10.40	**Sample Time:**	9:10

TIME	TEMP °Celsius (+/- 3%)	PH (+/- 0.1)	ORP mV (+/- 10mV)	CONDUCTIVITY mS/cm (+/- 3%)	TURBIDITY ntu (+/- 10%) above 5 NTU	DO mg/l (+/- 10%) above 0.5 mg/l	DTW ft Drawdown < 0.33 ft	Flow Rate (Lpm) <0.13 gpm)	Cumulative Discharge Volume (gal)	NOTES color, odor etc.	Stabilized?
BEGIN PURGING											
8:07	24.45	6.90	-133	1.59	919.0	4.30	-	N/A	0.25		**N/A**
8:12	22.47	6.52	-400	1.57	827.00	2.27	-	0.05	0.5		**N/A**
8:17	20.59	6.49	-307	1.62	204.00	1.75	-	0.05	0.75		**N**
8:22	19.88	6.50	-297	1.64	129.00	1.40	-	0.05	1		**N**
8:27	19.67	6.51	-264	1.65	86.80	1.18	-	0.05	1.25		**N**
8:32	19.62	6.52	-256	1.65	73.40	1.09	-	0.05	1.5		**N**
8:37	19.73	6.54	-242	1.64	62.80	1.08	-	0.05	1.75		**N**
8:42	19.31	6.58	-214	1.66	62.00	1.42	-	0.05	2		**N**
8:47	19.60	6.57	-225	1.65	53.7	0.98	-	0.05	2.25		**N**
8:52	19.68	6.57	-219	1.64	41.8	0.88	-	0.05	2.5		**N**
8:57	19.57	6.58	-215	1.64	37.8	0.81	-	0.05	2.75		**N**
9:02	19.33	6.59	-199	1.65	38.1	0.83	-	0.05	3		**N**
9:07	19.44	6.59	-207	1.65	35.7	0.77	-	0.05	3.25		**N**
											N
											N
											N
											N
											N
											N
											N
											N
											N
											N
											N
											N
											N
											N
											N

Notes:

1. Well depths and groundwater depths were measured in feet below the top of well casing.
2. Well and tubing diameters are measured in inches.
3. PID = Photoionization Detector
4. PPM = Parts per million
5. pH = Hydrogen ion concentration
6. ORP = Oxidation-reduction potential, measured in millivolts (mV)
7. DO = Dissolved Oxygen, measured in milligrams per liter (mg/L)
8. DTW = Depth to water
9. mS/cm = milli-Siemans per centimeter
10. NTU = Nephelometric Turbidity Unit

GROUND WATER SAMPLE FIELD INFORMATION FORM

Project Information		Well Information		Equipment Information		Sampling Conditions		Sampling Information	
Project Name:	**C1C2C3**	**Well No:**	6	**Water Quality Device Model:**	**Horiba U-50**	**Weather:**	Sunny 73-89		MW06_080322
Project Number:	**170229030**	**Well Depth:**	17' bgs	**Pine Number:**	**FA05170**	**Background PID (ppm):**	0.0	**Sample(s):**	MW06_080322_FILTERED
Site Location:	**Brooklyn, NY**	**Well Diameter:**	1	**Pump Make and Model:**	**Peristaltic**	**PID Beneath Inner Cap (ppm):**	0.0		
Sampling Personnel:	**Seyena Simpson**	**Well Screen Interval:**	7'-17'	**Pine Number:**	**FA00139**	**Pump Intake Depth:**	15.50	**Sample Date:**	8/3/2022
				Tubing Diameter:	**HDPE**	**Depth to Water After Purge:**	9.00	**Sample Time:**	13:35

TIME	TEMP °Celsius (+/- 3%)	PH (+/- 0.1)	ORP mV (+/- 10mV)	CONDUCTIVITY mS/cm (+/- 3%)	TURBIDITY ntu (+/- 10%) above 5 NTU	DO mg/l (+/- 10%) above 0.5 mg/l	DTW ft Drawdown < 0.33 ft	Flow Rate (Lpm) <0.13 gpm)	Cumulative Discharge Volume (gal)	NOTES color, odor etc.	Stabilized?
BEGIN PURGING											
12:35	25.36	6.59	-73	1.77	1000.0	9.44	-	N/A	0.25		**N/A**
12:40	23.44	6.43	-71	1.63	1000.00	2.65	-	0.05	0.5		**N/A**
12:45	22.36	6.31	-74	1.59	308.00	1.40	-	0.05	0.75		**N**
12:50	22.02	6.31	-78	1.59	176.00	1.18	-	0.05	1		**N**
12:55	21.72	6.32	-81	1.59	91.00	0.98	-	0.05	1.25		**N**
13:00	21.46	6.33	-83	1.58	73.20	0.87	-	0.05	1.5		**N**
13:05	21.47	6.32	-84	1.58	71.30	0.80	-	0.05	1.75	sheen on water	**N**
13:10	21.44	6.35	-86	1.58	64.50	1.76	-	0.05	2	horiba shut off	**N**
13:15	21.42	6.36	-87	1.58	62.2	0.75	-	0.05	2.25		**N**
13:20	21.30	6.39	-88	1.57	68.6	1.30	-	0.05	2.5		**N**
13:25	21.22	6.39	-89	1.57	68.5	0.73	-	0.05	2.75		**N**
13:30	21.17	6.39	-89	1.56	83.1	0.65	-	0.05	3		**N**
13:35	21.10	6.40	-90	1.56	92.1	0.63	-	0.05	3.25		**N**
											N
											N
											N
											N
											N
											N
											N
											N
											N
											N
											N
											N
											N
											N
											N

Notes:

1. Well depths and groundwater depths were measured in feet below the top of well casing.
2. Well and tubing diameters are measured in inches.
3. PID = Photoionization Detector
4. PPM = Parts per million
5. pH = Hydrogen ion concentration
6. ORP = Oxidation-reduction potential, measured in millivolts (mV)
7. DO = Dissolved Oxygen, measured in milligrams per liter (mg/L)
8. DTW = Depth to water
9. mS/cm = milli-Siemans per centimeter
10. NTU = Nephelometric Turbidity Unit

GROUND WATER SAMPLE FIELD INFORMATION FORM

Project Information		Well Information		Equipment Information		Sampling Conditions		Sampling Information	
Project Name:	**C1C2C3**	**Well No:**	7	**Water Quality Device Model:**	**Horiba U-50**	**Weather:**	Sunny 79-92		MW07_080422
Project Number:	**170229030**	**Well Depth:**	17' bgs	**Pine Number:**	**FA05170**	**Background PID (ppm):**	0.0	**Sample(s):**	MW07_080422_ FILTERED
Site Location:	**Brooklyn, NY**	**Well Diameter:**	1	**Pump Make and Model:**	**Peristaltic**	**PID Beneath Inner Cap (ppm):**	0.0		
Sampling Personnel:	**Ali Reach**	**Well Screen Interval:**	7'-17'	**Pine Number:**	**FA00139**	**Pump Intake Depth:**	15.00	**Sample Date:**	8/4/2022
				Tubing Diameter:	**HDPE**	**Depth to Water After Purge:**	8.75	**Sample Time:**	9:10

TIME	TEMP °Celsius (+/- 3%)	PH (+/- 0.1)	ORP mV (+/- 10mV)	CONDUCTIVITY mS/cm (+/- 3%)	TURBIDITY ntu (+/- 10%) above 5 NTU	DO mg/l (+/- 10%) above 0.5 mg/l	DTW ft Drawdown < 0.33 ft	Flow Rate (Lpm) <0.13 gpm)	Cumulative Discharge Volume (gal)	NOTES color, odor etc.	Stabilized?
8:00	27.00	6.32	-19	0.73	364.0	3.01	-	N/A	0		**N/A**
8:05	24.80	6.10	-3	0.66	315.00	1.52	-	0.05	0.25	clear	**N/A**
8:10	23.04	6.11	-1	0.69	288.00	1.25	-	0.05	0.5		**N**
8:15	22.65	6.12	-3	0.69	280.00	1.18	-	0.05	0.75		**N**
8:20	22.94	6.15	-7	0.71	219.00	1.17	-	0.05	1		**N**
8:25	22.98	6.22	-11	0.71	200.00	1.69	-	0.05	1.25		**N**
8:30	22.99	6.19	-15	0.72	191.00	1.00	-	0.05	1.5		**N**
8:35	23.04	6.21	-18	0.73	182.00	0.95	-	0.05	1.75		**N**
8:40	22.96	6.22	-21	0.75	188.0	0.92	-	0.05	2		**N**
8:45	23.05	6.24	-24	0.76	175.0	0.90	-	0.05	2.25		**N**
8:50	22.97	6.26	-28	0.79	168.0	0.83	-	0.05	2.5		**N**
8:55	23.00	6.27	-30	0.79	168.0	0.81	-	0.05	2.75		**N**
9:00	23.21	6.28	-31	0.80	154.0	0.70	-	0.05	3		**N**
											N
											N
											N
											N
											N
											N
											N
											N
											N
											N
											N
											N
											N
											N

Notes:

1. Well depths and groundwater depths were measured in feet below the top of well casing.
2. Well and tubing diameters are measured in inches.
3. PID = Photoionization Detector
4. PPM = Parts per million
5. pH = Hydrogen ion concentration
6. ORP = Oxidation-reduction potential, measured in millivolts (mV)
7. DO = Dissolved Oxygen, measured in milligrams per liter (mg/L)
8. DTW = Depth to water
9. mS/cm = milli-Siemans per centimeter
10. NTU = Nephelometric Turbidity Unit

GROUND WATER SAMPLE FIELD INFORMATION FORM

Project Information		Well Information		Equipment Information		Sampling Conditions		Sampling Information	
Project Name:	**C1C2C3**	**Well No:**	8	**Water Quality Device Model:**	**Horiba U-50**	**Weather:**	Sunny 79-92		MW08_080422
Project Number:	**170229030**	**Well Depth:**	17' bgs	**Pine Number:**	**FA05170**	**Background PID (ppm):**	0.0	**Sample(s):**	MW08_080422_FILTERED
Site Location:	**Brooklyn, NY**	**Well Diameter:**	1	**Pump Make and Model:**	**Peristaltic**	**PID Beneath Inner Cap (ppm):**	0.0		
Sampling Personnel:	**Ali Reach**	**Well Screen Interval:**	7'-17'	**Pine Number:**	**FA00139**	**Pump Intake Depth:**	15.00	**Sample Date:**	8/4/2022
				Tubing Diameter:	**HDPE**	**Depth to Water After Purge:**	9.10	**Sample Time:**	11:08

TIME	TEMP °Celsius (+/- 3%)	PH (+/- 0.1)	ORP mV (+/- 10mV)	CONDUCTIVITY mS/cm (+/- 3%)	TURBIDITY ntu (+/- 10%) above 5 NTU	DO mg/l (+/- 10%) above 0.5 mg/l	DTW ft Drawdown < 0.33 ft	Flow Rate (Lpm) <0.13 gpm)	Cumulative Discharge Volume (gal)	NOTES color, odor etc.	Stabilized?
10:00	30.63	6.38	172	0.29	136.0	5.18	-	N/A	0		**N/A**
10:05	29.67	6.36	173	0.29	125.00	4.93	-	0.05	0.25		**N/A**
10:10	28.28	6.35	172	0.29	120.00	4.88	-	0.05	0.5		**N**
10:15	25.91	6.33	121	0.29	120.00	4.59	-	0.05	0.75		**N**
10:20	25.24	6.34	97	0.29	88.40	4.33	-	0.05	1		**N**
10:25	24.99	6.34	87	0.30	82.50	4.26	-	0.05	1.25		**N**
10:30	24.72	6.35	74	0.30	74.60	4.06	-	0.05	1.5		**N**
10:35	24.65	6.35	67	0.31	71.10	3.93	-	0.05	1.75		**N**
10:40	24.64	6.35	66	0.31	71.0	3.89	-	0.05	2		**N**
10:45	24.48	6.37	61	0.34	68.0	3.77	-	0.05	2.25		**N**
10:50	24.50	6.38	57	0.37	67.2	3.61	-	0.05	2.5		**N**
10:55	24.47	6.40	55	0.38	66.7	3.56	-	0.05	2.75		**N**
11:00	24.51	6.41	55	0.39	65.6	3.47	-	0.05	3		**N**
											N
											N
											N
											N
											N
											N
											N
											N
											N
											N
											N
											N
											N
											N

Notes:

1. Well depths and groundwater depths were measured in feet below the top of well casing.
2. Well and tubing diameters are measured in inches.
3. PID = Photoionization Detector
4. PPM = Parts per million
5. pH = Hydrogen ion concentration
6. ORP = Oxidation-reduction potential, measured in millivolts (mV)
7. DO = Dissolved Oxygen, measured in milligrams per liter (mg/L)
8. DTW = Depth to water
9. mS/cm = milli-Siemans per centimeter
10. NTU = Nephelometric Turbidity Unit

GROUND WATER SAMPLE FIELD INFORMATION FORM

Project Information		Well Information		Equipment Information		Sampling Conditions		Sampling Information	
Project Name:	**C1C2C3**	**Well No:**	9	**Water Quality Device Model:**	**Horiba U-50**	**Weather:**	Cloudy 68-80		MW09_080122
Project Number:	**170229030**	**Well Depth:**	17' bgs	**Pine Number:**	**FA05170**	**Background PID (ppm):**	0.0	**Sample(s):**	MW09_080122_FILTERED
Site Location:	**Brooklyn, NY**	**Well Diameter:**	1	**Pump Make and Model:**	**Peristaltic**	**PID Beneath Inner Cap (ppm):**	0.3		
Sampling Personnel:	**Seyena Simpson**	**Well Screen Interval:**	7'-17'	**Pine Number:**	**FA00139**	**Pump Intake Depth:**	15.50	**Sample Date:**	8/1/2022
				Tubing Diameter:	**HDPE**	**Depth to Water After Purge:**	8.70	**Sample Time:**	12:35

TIME	TEMP °Celsius (+/- 3%)	PH (+/- 0.1)	ORP mV (+/- 10mV)	CONDUCTIVITY mS/cm (+/- 3%)	TURBIDITY ntu (+/- 10%) above 5 NTU	DO mg/l (+/- 10%) above 0.5 mg/l	DTW ft Drawdown < 0.33 ft	Flow Rate (Lpm) <0.13 gpm)	Cumulative Discharge Volume (gal)	NOTES color, odor etc.	Stabilized?
BEGIN PURGING											
11:30	19.71	6.67	-27	1.76	1000.0	8.71	-	N/A	0.25	brownish	**N/A**
11:35	19.47	6.55	-192	1.39	1000.00	2.95	-	0.05	0.5		**N/A**
11:40	19.33	6.58	-199	1.26	689.00	2.55	-	0.05	0.75		**N**
11:45	19.21	6.60	-252	1.11	329.00	1.86	-	0.05	1		**N**
11:50	19.26	6.61	-370	0.99	134.00	1.53	-	0.05	1.25		**N**
11:55	19.27	6.60	-406	0.95	86.00	1.36	-	0.05	1.5		**N**
12:00	19.24	6.60	-411	0.91	39.20	1.43	-	0.1	2		**N**
12:05	19.29	6.60	-392	0.90	22.90	1.21	-	0.05	2.25		**N**
12:10	19.28	6.60	-392	0.88	16.0	1.13	-	0.05	2.5		**N**
12:15	19.28	6.60	-388	0.85	13.9	1.07	-	0.05	2.75		**N**
12:20	19.33	6.60	-375	0.84	12.3	1.03	-	0.05	3		**N**
12:25	19.44	6.61	-382	0.83	11.1	1.03	-	0.05	3.25		**N**
12:30	19.43	6.61	-384	0.83	11.2	1.00	-	0.65			**Y**
											N
											N
											N
											N
											N
											N
											N
											N
											N
											N
											N
											N
											N
											N

Notes:

1. Well depths and groundwater depths were measured in feet below the top of well casing.
2. Well and tubing diameters are measured in inches.
3. PID = Photoionization Detector
4. PPM = Parts per million
5. pH = Hydrogen ion concentration
6. ORP = Oxidation-reduction potential, measured in millivolts (mV)
7. DO = Dissolved Oxygen, measured in milligrams per liter (mg/L)
8. DTW = Depth to water
9. mS/cm = milli-Siemans per centimeter
10. NTU = Nephelometric Turbidity Unit

GROUND WATER SAMPLE FIELD INFORMATION FORM

Project Information		Well Information		Equipment Information		Sampling Conditions		Sampling Information	
Project Name:	**C1C2C3**	**Well No:**	10	**Water Quality Device Model:**	**Horiba U-50**	**Weather:**	Sunny 78-83		MW10_080522
Project Number:	**170229030**	**Well Depth:**	17' bgs	**Pine Number:**	**FA05170**	**Background PID (ppm):**	0.0	**Sample(s):**	MW10_080522_FILTERED
Site Location:	**Brooklyn, NY**	**Well Diameter:**	1	**Pump Make and Model:**	**Peristaltic**	**PID Beneath Inner Cap (ppm):**	0.0		
Sampling Personnel:	**Ali Reach**	**Well Screen Interval:**	7'-17'	**Pine Number:**	**FA00139**	**Pump Intake Depth:**	15.00	**Sample Date:**	8/5/2022
				Tubing Diameter:	**HDPE**	**Depth to Water After Purge:**	8.45	**Sample Time:**	11:15

TIME	TEMP °Celsius (+/- 3%)	PH (+/- 0.1)	ORP mV (+/- 10mV)	CONDUCTIVITY mS/cm (+/- 3%)	TURBIDITY ntu (+/- 10%) above 5 NTU	DO mg/l (+/- 10%) above 0.5 mg/l	DTW ft Drawdown < 0.33 ft	Flow Rate (Lpm) <0.13 gpm)	Cumulative Discharge Volume (gal)	NOTES color, odor etc.	Stabilized?
BEGIN PURGING											
10:00	22.14	6.75	-90	1.43	82.3	4.00	-	N/A	0.5	Turbid water	**N/A**
10:05	21.78	6.74	-90	1.44	70.00	3.57	-	0.05	0.75	clear	**N/A**
10:10	21.60	6.74	-90	1.43	64.60	3.12	-	0.05	1		**N**
10:15	20.77	6.73	-92	1.42	56.30	1.93	-	0.05	1.25		**N**
10:20	20.33	6.73	-94	1.42	47.70	1.48	-	0.05	1.5		**N**
10:25	20.45	6.73	-96	1.42	31.10	1.30	-	0.05	1.75		**N**
10:30	20.26	6.68	-94	1.42	20.00	1.20	-	0.05	2		**N**
10:35	20.30	6.71	-97	1.42	19.60	1.07	-	0.05	2.25		**N**
10:40	20.30	6.74	-99	1.42	19.0	1.06	-	0.05	2.5		**N**
10:45	20.55	6.77	-101	1.42	18.6	0.94	-	0.05	2.75		**N**
10:50	20.53	6.80	-103	1.43	17.5	0.93	-	0.05	3		**N**
10:55	20.71	6.82	-105	1.42	16.9	0.91	-	0.05	3.25		**Y**
											N
											N
											N
											N
											N
											N
											N
											N
											N
											N
											N
											N
											N
											N
											N
											N
											N

Notes:
1. Well depths and groundwater depths were measured in feet below the top of well casing.
2. Well and tubing diameters are measured in inches.
3. PID = Photoionization Detector
4. PPM = Parts per million
5. pH = Hydrogen ion concentration
6. ORP = Oxidation-reduction potential, measured in millivolts (mV)
7. DO = Dissolved Oxygen, measured in milligrams per liter (mg/L)
8. DTW = Depth to water
9. mS/cm = milli-Siemans per centimeter
10. NTU = Nephelometric Turbidity Unit

LANGAN Engineering, Environmental, Surveying, Landscape Architecture and Geology, D.P.C.
368 9th Avenue, 8th Floor, New York

GROUND WATER SAMPLE FIELD INFORMATION FORM

Project Information		Well Information		Equipment Information		Sampling Conditions		Sampling Information	
Project Name:	**C1C2C3**	**Well No:**	11	**Water Quality Device Model:**	**Horiba U-50**	**Weather:**	Sunny 73-89	**Sample(s):**	MW11_080322
Project Number:	**170229030**	**Well Depth:**	17'	**Pine Number:**	**FA05170**	**Background PID (ppm):**	0.0		MW11_080322_FILTERED
Site Location:	**Brooklyn, NY**	**Well Diameter:**	1	**Pump Make and Model:**	**Peristaltic**	**PID Beneath Inner Cap (ppm):**	0.0		
Sampling Personnel:	**Seyena Simpson**	**Well Screen Interval:**	7'-17'	**Pine Number:**	**FA00139**	**Pump Intake Depth:**	15.50	**Sample Date:**	8/3/2022
				Tubing Diameter:	**HDPE**	**Depth to Water After Purge:**	9.25	**Sample Time:**	11:35

TIME	TEMP °Celsius (+/- 3%)	PH (+/- 0.1)	ORP mV (+/- 10mV)	CONDUCTIVITY mS/cm (+/- 3%)	TURBIDITY ntu (+/- 10%) above 5 NTU	DO mg/l (+/- 10%) above 0.5 mg/l	DTW ft Drawdown < 0.33 ft	Flow Rate (Lpm) <0.13 gpm)	Cumulative Discharge Volume (gal)	NOTES color, odor etc.	Stabilized?
BEGIN PURGING											
10:35	24.22	6.47	-8	15.00	1000.0	2.25	-	N/A	0	turbid water	**N/A**
10:40	20.69	6.27	-9	16.10	1000.00	1.46	-	0.05	0.25		**N/A**
10:45	21.82	6.32	-15	15.70	1000.00	1.06	-	0.05	0.5		**N**
10:50	22.82	6.34	-18	15.60	794.00	1.19	-	0.05	0.75		**N**
10:55	21.52	6.38	-18	15.30	364.00	0.89	-	0.05	1		**N**
11:00	20.35	6.39	-17	15.90	266.00	0.82	-	0.05	1.25		**N**
11:05	20.20	6.40	-15	16.20	278.00	0.81	-	0.05	1.5	horiba shut off	**N**
11:10	19.98	6.39	-13	16.70	480.00	0.75	-	0.05	1.75		**N**
11:15	19.98	6.39	-12	16.90	240.0	0.77	-	0.05	2		**N**
11:20	19.84	6.39	-12	17.00	184.0	0.71	-	0.05	2.25		**N**
11:25	20.00	6.40	-12	17.00	132.0	0.78	-	0.05	2.5		**N**
11:30	20.24	6.40	-12	17.00	121.0	0.79	-	0.05	2.75		**N**
11:35	20.26	6.41	-10	16.90	112.0	1.50	-	0.05	3		**N**
											N
											N
											N
											N
											N
											N
											N
											N
											N
											N
											N
											N
											N
											N

Notes:

1. Well depths and groundwater depths were measured in feet below the top of well casing.
2. Well and tubing diameters are measured in inches.
3. PID = Photoionization Detector
4. PPM = Parts per million
5. pH = Hydrogen ion concentration
6. ORP = Oxidation-reduction potential, measured in millivolts (mV)
7. DO = Dissolved Oxygen, measured in milligrams per liter (mg/L)
8. DTW = Depth to water
9. mS/cm = milli-Siemans per centimeter
10. NTU = Nephelometric Turbidity Unit

LANGAN Engineering, Environmental, Surveying, Landscape Architecture and Geology, D.P.C.
368 9th Avenue, 8th Floor, New York

GROUND WATER SAMPLE FIELD INFORMATION FORM

Project Information		Well Information		Equipment Information		Sampling Conditions		Sampling Information	
Project Name:	**C1C2C3**	**Well No:**	12	**Water Quality Device Model:**	**Horiba U-50**	**Weather:**	Cloudy 68-80		MW12_080122
Project Number:	**170229030**	**Well Depth:**	17' bgs	**Pine Number:**	**FA05170**	**Background PID (ppm):**	0.0	**Sample(s):**	MW12_080122_ FILTERED
Site Location:	**Brooklyn, NY**	**Well Diameter:**	1	**Pump Make and Model:**	**Peristaltic**	**PID Beneath Inner Cap (ppm):**	0.3		
Sampling Personnel:	**Seyena Simpson**	**Well Screen Interval:**	7'-17'	**Pine Number:**	**FA00139**	**Pump Intake Depth:**	15.50	**Sample Date:**	8/1/2022
				Tubing Diameter:	**HDPE**	**Depth to Water After Purge:**	9.49	**Sample Time:**	10:15

TIME	TEMP °Celsius (+/- 3%)	PH (+/- 0.1)	ORP mV (+/- 10mV)	CONDUCTIVITY mS/cm (+/- 3%)	TURBIDITY ntu (+/- 10%) above 5 NTU	DO mg/l (+/- 10%) above 0.5 mg/l	DTW ft Drawdown < 0.33 ft	Flow Rate (Lpm) <0.13 gpm)	Cumulative Discharge Volume (gal)	NOTES color, odor etc.	Stabilized?
BEGIN PURGING											
9:25	22.77	6.70	13	1.74	214.0	1.43	-	N/A	0.25	slight gray tinge	**N/A**
9:30	21.26	6.76	-27	1.73	199.00	1.13	-	0.05	0.5	horiba shut off	**N/A**
9:35	21.09	6.77	-41	1.69	103.00	0.86	-	0.05	0.75		**N**
9:40	21.04	6.79	-46	1.68	63.00	0.77	-	0.05	1		**N**
9:45	21.05	6.81	-50	1.67	35.70	0.79	-	0.05	1.25		**N**
9:50	21.04	6.82	-53	1.67	37.90	0.73	-	0.05	1.5		**N**
9:55	21.02	6.84	-61	1.66	3.90	0.71	-	0.05	1.75		**N**
10:00	21.02	6.89	-68	1.67	0.00	0.68	-	0.05	2		**N**
10:05	21.01	6.87	-69	1.67	0.0	0.65	-	0.05	2.25		**Y**
											N
											N
											N
											N
											N
											N
											N
											N
											N
											N
											N
											N
											N
											N
											N
											N
											N
											N
											N

Notes:

1. Well depths and groundwater depths were measured in feet below the top of well casing.
2. Well and tubing diameters are measured in inches.
3. PID = Photoionization Detector
4. PPM = Parts per million
5. pH = Hydrogen ion concentration
6. ORP = Oxidation-reduction potential, measured in millivolts (mV)
7. DO = Dissolved Oxygen, measured in milligrams per liter (mg/L)
8. DTW = Depth to water
9. mS/cm = milli-Siemans per centimeter
10. NTU = Nephelometric Turbidity Unit

LANGAN Engineering, Environmental, Surveying, Landscape Architecture and Geology, D.P.C.
368 9th Avenue, 8th Floor, New York

GROUND WATER SAMPLE FIELD INFORMATION FORM

Project Information		Well Information		Equipment Information		Sampling Conditions		Sampling Information	
Project Name:	**C1C2C3**	**Well No:**	13	**Water Quality Device Model:**	**Horiba U-50**	**Weather:**	Sunny 73-89	**Sample(s):**	MW13_080322
Project Number:	**170229030**	**Well Depth:**	13' bgs	**Pine Number:**	**FA05170**	**Background PID (ppm):**	0.0		MW13_080322_FILTERED
Site Location:	**Brooklyn, NY**	**Well Diameter:**	1	**Pump Make and Model:**	**Peristaltic**	**PID Beneath Inner Cap (ppm):**	0.0		
Sampling Personnel:	**Seyena Simpson**	**Well Screen Interval:**	3'-13'	**Pine Number:**	**FA00139**	**Pump Intake Depth:**	11.50	**Sample Date:**	8/3/2022
				Tubing Diameter:	**HDPE**	**Depth to Water After Purge:**	5.75	**Sample Time:**	9:00

TIME	TEMP °Celsius (+/- 3%)	PH (+/- 0.1)	ORP mV (+/- 10mV)	CONDUCTIVITY mS/cm (+/- 3%)	TURBIDITY ntu (+/- 10%) above 5 NTU	DO mg/l (+/- 10%) above 0.5 mg/l	DTW ft Drawdown < 0.33 ft	Flow Rate (Lpm) <0.13 gpm)	Cumulative Discharge Volume (gal)	NOTES color, odor etc.	Stabilized?
BEGIN PURGING											
8:00	24.33	7.01	146	31.00	1000.0	8.76	-	N/A	0.5	Turbid water	**N/A**
8:05	21.39	6.88	164	33.20	649.00	7.29	-	0.05	0.75		**N/A**
8:10	20.41	6.86	168	33.80	373.00	6.89	-	0.05	1		**N**
8:15	18.85	6.84	169	35.00	360.00	8.11	-	0.05	1.25		**N**
8:20	20.00	6.84	168	34.20	225.00	7.78	-	0.05	1.5		**N**
8:25	19.45	6.82	168	35.00	251.00	6.77	-	0.05	1.75		**N**
8:30	19.87	6.81	166	35.50	205.00	6.72	-	0.05	2		**N**
8:35	20.60	6.80	167	34.90	183.00	4.59	-	0.05	2.25		**N**
8:40	20.88	6.79	167	34.80	186.0	4.33	-	0.05	2.5		**N**
8:45	21.26	6.78	167	34.20	227.0	4.26	-	0.05	2.75		**N**
8:50	20.28	6.77	170	35.00	513.0	4.85	-	0.05	3		**N**
8:55	20.39	6.77	172	35.10	393.0	4.14	-	0.05	3.25		**N**
9:00	20.46	6.77	172	35.00	350.0	3.99	-	0.05	3.5		**N**
											N
											N
											N
											N
											N
											N
											N
											N
											N
											N
											N
											N
											N
											N
											N
											N

Notes:

1. Well depths and groundwater depths were measured in feet below the top of well casing.
2. Well and tubing diameters are measured in inches.
3. PID = Photoionization Detector
4. PPM = Parts per million
5. pH = Hydrogen ion concentration
6. ORP = Oxidation-reduction potential, measured in millivolts (mV)
7. DO = Dissolved Oxygen, measured in milligrams per liter (mg/L)
8. DTW = Depth to water
9. mS/cm = milli-Siemans per centimeter
10. NTU = Nephelometric Turbidity Unit

Project Information		Well Information		Equipment Information		Sampling Conditions		Sampling Information	
Project Name:	C Block	**Well No:**	MW01	**Water Quality Device Model:**	Horiba U-52	**Weather:**	35F, Sunny		
Project Number:	170229030	**Well Depth:**	17 feet bgs	**Pine Number:**	21352	**Background PID (ppm):**	0.0	**Sample(s):**	MW01_011226
Site Location:	Brooklyn, NY	**Well Diameter:**	1-inch	**Pump Make and Model:**	Peristaltic	**PID Beneath Inner Cap (ppm):**	0.0		
Sampling	Olivia O'Donnell	**Well Screen**	7 feet bgs	**Pine Number:**	46454	**Pump Intake Depth:**	14 feet bgs	**Sample Date:**	1/12/2026
Personnel:		**Interval:**	17 feet bgs	**Tubing Diameter:**	0.17" ID X 0.25" OD	**Depth to Water After Purge:**	8.76 feet bgs	**Sample Time:**	13:50

STABILIZATION = 3 successive readings within limits

MILLITARY TIME	TEMP °Celsius (+/- 3%)	PH (+/- 0.1)	ORP mV (+/- 10mV)	CONDUCTIVITY mS/cm (+/- 3%)	TURBIDITY NTU (+/- 10% when above 5 NTU)	DO mg/L (+/- 10% when above 0.5 mg/L)	DTW ft Drawdown < 0.33 ft	Flow Rate (L/min) (<0.5 L/min)	Cumulative Discharge Volume (Liters)	NOTES color, odor etc.	Stabilized?
BEGIN PURGING											
13:40	15.06	7.43	-122	11.700	16	0.30	N/A		1.00	Clear, no odor	**N/A**
13:45	15.02	7.43	-126	11.600	16	0.00	N/A	-	1.25	-	**N/A**
13:50	15.23	7.44	-130	11.400	15	0.00	N/A	-	1.50	-	**Y**

Notes:

1. Well depths and groundwater depths were measured in feet below the top of well casing, northern most point.
2. Well and tubing diameters are measured in inches.
3. PID = Photoionization Detector
4. PPM = Parts per million
5. pH = Hydrogen ion concentration
6. ORP = Oxidation-reduction potential, measured in millivolts (mV)
7. DO = Dissolved Oxygen, measured in milligrams per liter (mg/L)
8. DTW = Depth to water
9. mS/cm = milli-Siemens per centimeter
10. NTU = Nephelometric Turbidity Unit
11. mg/L = milligrams per liter
12. L/min = liters per minute

LANGAN Engineering, Environmental, Surveying, Landscape Architecture and Geology, D.P.C.
368 Ninth Avenue, 8th Floor, New York, NY 10001

Project Information		Well Information		Equipment Information		Sampling Conditions		Sampling Information	
Project Name:	C Block	**Well No:**	MW02	**Water Quality Device Model:**	Horiba U-52	**Weather:**	39F, Sunny		
Project Number:	170229030	**Well Depth:**	17 feet bgs	**Pine Number:**	21352	**Background PID (ppm):**	0.0	**Sample(s):**	MW02_011326
Site Location:	Brooklyn, NY	**Well Diameter:**	1-inch	**Pump Make and Model:**	Peristaltic	**PID Beneath Inner Cap (ppm):**	0.0		
Sampling	Olivia O'Donnell	**Well Screen**	7 feet bgs	**Pine Number:**	46454	**Pump Intake Depth:**	14 feet bgs	**Sample Date:**	1/13/2026
Personnel:		**Interval:**	17 feet bgs	**Tubing Diameter:**	0.17" ID X 0.25" OD	**Depth to Water After Purge:**	9.31 feet bgs	**Sample Time:**	10:00

STABILIZATION = 3 successive readings within limits

MILLITARY TIME	TEMP °Celsius (+/- 3%)	PH (+/- 0.1)	ORP mV (+/- 10mV)	CONDUCTIVITY mS/cm (+/- 3%)	TURBIDITY NTU (+/- 10% when above 5 NTU)	DO mg/L (+/- 10% when above 0.5 mg/L)	DTW ft Drawdown < 0.33 ft	Flow Rate (L/min) (<0.5 L/min)	Cumulative Discharge Volume (Liters)	NOTES color, odor etc.	Stabilized?
BEGIN PURGING											
9:10	16.09	7.31	-20	19.100	91	9.14	N/A		0.80	Sulfur-like odor, turbid, brown color	**N/A**
9:15	16.65	7.26	-55	18.700	71	6.05	N/A	-	1.05	-	**N/A**
9:20	17.04	7.24	-65	18.100	56	5.50	N/A	-	1.35	-	**N**
9:25	16.94	7.23	-70	17.800	37	5.13	N/A	-	1.75	-	**N**
9:30	16.60	7.22	-74	17.900	34	5.01	N/A	-	2.95	-	**N**
9:35	16.26	7.22	-76	17.900	32	4.83	N/A	-	2.15	-	**N**
9:40	15.85	7.21	-77	18.000	29	4.89	N/A	-	2.35	-	**N**
9:45	16.28	7.22	-79	17.900	16	4.37	N/A	-	2.55	-	**N**
9:50	16.20	7.20	-78	17.700	14	4.32	N/A	-	2.75	-	**N**
9:55	16.16	7.19	-79	17.600	14	4.16	N/A	-	3.00	-	**Y**

Notes:

1. Well depths, well screen intervals, and groundwater depths measured in feet below the top of well casing, from the northern most point.
2. Well and tubing diameters are measured in inches.
3. PID = Photoionization Detector
4. PPM = Parts per million
5. pH = Hydrogen ion concentration
6. ORP = Oxidation-reduction potential, measured in millivolts (mV)
7. DO = Dissolved Oxygen, measured in milligrams per liter (mg/L)
8. DTW = Depth to water
9. mS/cm = milli-Siemens per centimeter
10. NTU = Nephelometric Turbidity Unit
11. mg/L = milligrams per liter
12. L/min = liters per minute

Project Information		Well Information		Equipment Information		Sampling Conditions		Sampling Information	
Project Name:	C Block	**Well No:**	MW03	**Water Quality Device Model:**	Horiba U-52	**Weather:**	39F, Sunny		
Project Number:	170229030	**Well Depth:**	17 feet bgs	**Pine Number:**	21352	**Background PID (ppm):**	0.0	**Sample(s):**	MW03_011326
Site Location:	Brooklyn, NY	**Well Diameter:**	1-inch	**Pump Make and Model:**	Peristaltic	**PID Beneath Inner Cap (ppm):**	0.0		MS/MSD
Sampling	Olivia O'Donnell	**Well Screen**	7 feet bgs	**Pine Number:**	46454	**Pump Intake Depth:**	12 feet bgs	**Sample Date:**	1/13/2026
Personnel:		**Interval:**	17 feet bgs	**Tubing Diameter:**	0.17" ID X 0.25" OD	**Depth to Water After Purge:**	8.9 feet bgs	**Sample Time:**	10:55

STABILIZATION = 3 successive readings within limits

MILLITARY TIME	TEMP °Celsius (+/- 3%)	PH (+/- 0.1)	ORP mV (+/- 10mV)	CONDUCTIVITY mS/cm (+/- 3%)	TURBIDITY NTU (+/- 10% when above 5 NTU)	DO mg/L (+/- 10% when above 0.5 mg/L)	DTW ft Drawdown < 0.33 ft	Flow Rate (L/min) (<0.5 L/min)	Cumulative Discharge Volume (Liters)	NOTES color, odor etc.	Stabilized?
BEGIN PURGING											
10:30	16.72	7.00	-32	31.100	5	8.65	N/A		0.75	-	**N/A**
10:35	16.81	6.88	-33	31.100	4	5.66	N/A	-	1.00	-	**N/A**
10:40	16.97	6.83	-37	31.100	3	5.06	N/A	-	1.25	-	**N**
10:45	16.52	6.80	-40	31.300	3	4.83	N/A	-	1.50	-	**N**
10:50	16.49	6.79	-41	31.500	3	4.67	N/A	-	1.75	-	**Y**

Notes:

1. Well depths and groundwater depths were measured in feet below the top of well casing, northern most point.
2. Well and tubing diameters are measured in inches.
3. PID = Photoionization Detector
4. PPM = Parts per million
5. pH = Hydrogen ion concentration
6. ORP = Oxidation-reduction potential, measured in millivolts (mV)
7. DO = Dissolved Oxygen, measured in milligrams per liter (mg/L)
8. DTW = Depth to water
9. mS/cm = milli-Siemens per centimeter
10. NTU = Nephelometric Turbidity Unit
11. mg/L = milligrams per liter
12. L/min = liters per minute

Project Information		Well Information		Equipment Information		Sampling Conditions		Sampling Information	
Project Name:	C Block	**Well No:**	MW04	**Water Quality Device Model:**	Horiba U-52	**Weather:**	44F, Cloudy		
Project Number:	170229030	**Well Depth:**	17 feet bgs	**Pine Number:**	21352	**Background PID (ppm):**	0.0	**Sample(s):**	MW04_011426
Site Location:	Brooklyn, NY	**Well Diameter:**	1-inch	**Pump Make and Model:**	Peristaltic	**PID Beneath Inner Cap (ppm):**	0.0		
Sampling	Olivia O'Donnell	**Well Screen**	7 feet bgs	**Pine Number:**	46454	**Pump Intake Depth:**	13 feet bgs	**Sample Date:**	1/14/2026
Personnel:		**Interval:**	17 feet bgs	**Tubing Diameter:**	0.17" ID X 0.25" OD	**Depth to Water After Purge:**	9.9 feet bgs	**Sample Time:**	9:25

STABILIZATION = 3 successive readings within limits

MILLITARY TIME	**TEMP °Celsius (+/- 3%)**	**PH (+/- 0.1)**	**ORP mV (+/- 10mV)**	**CONDUCTIVITY mS/cm (+/- 3%)**	**TURBIDITY NTU (+/- 10% when above 5 NTU)**	**DO mg/L (+/- 10% when above 0.5 mg/L)**	**DTW ft Drawdown < 0.33 ft**	**Flow Rate (L/min) (<0.5 L/min)**	**Cumulative Discharge Volume (Liters)**	**NOTES color, odor etc.**	**Stabilized?**
BEGIN PURGING											
9:00	14.75	7.57	-101	2.850	18	3.92	N/A		0.50	Sulfur-like odor, green in bucket, horiba leaky	**N/A**
9:05	15.00	7.31	-107	2.840	18	0.70	N/A	-	0.75	-	**N/A**
9:10	15.29	7.20	-113	2.820	15	0.00	N/A	-	1.00	-	**N**
9:15	15.48	7.20	-121	2.820	15	0.00	N/A	-	1.25	-	**N**
9:20	15.60	7.20	-126	2.830	16	0.00	N/A	-	1.50	-	**N**
9:25	15.58	7.20	-128	2.820	15	0.00	N/A	-	1.75	-	**Y**

Notes:

1. Well depths and groundwater depths were measured in feet below the top of well casing, northern most point.
2. Well and tubing diameters are measured in inches.
3. PID = Photoionization Detector
4. PPM = Parts per million
5. pH = Hydrogen ion concentration
6. ORP = Oxidation-reduction potential, measured in millivolts (mV)
7. DO = Dissolved Oxygen, measured in milligrams per liter (mg/L)
8. DTW = Depth to water
9. mS/cm = milli-Siemens per centimeter
10. NTU = Nephelometric Turbidity Unit
11. mg/L = milligrams per liter
12. L/min = liters per minute

Project Information		Well Information		Equipment Information		Sampling Conditions		Sampling Information	
Project Name:	C Block	**Well No:**	MW05	**Water Quality Device Model:**	Horiba U-52	**Weather:**	35F, Sunny		
Project Number:	170229030	**Well Depth:**	17 feet bgs	**Pine Number:**	21352	**Background PID (ppm):**	0.0	**Sample(s):**	MW05_011226
Site Location:	Brooklyn, NY	**Well Diameter:**	1-inch	**Pump Make and Model:**	Peristaltic	**PID Beneath Inner Cap (ppm):**	0.0		
Sampling	Olivia O'Donnell	**Well Screen**	7 feet bgs	**Pine Number:**	46454	**Pump Intake Depth:**	14 feet bgs	**Sample Date:**	1/12/2026
Personnel:		**Interval:**	17 feet bgs	**Tubing Diameter:**	0.17" ID X 0.25" OD	**Depth to Water After Purge:**	9.24 feet bgs	**Sample Time:**	15:00

STABILIZATION = 3 successive readings within limits

MILLITARY TIME	TEMP °Celsius (+/- 3%)	PH (+/- 0.1)	ORP mV (+/- 10mV)	CONDUCTIVITY mS/cm (+/- 3%)	TURBIDITY NTU (+/- 10% when above 5 NTU)	DO mg/L (+/- 10% when above 0.5 mg/L)	DTW ft Drawdown < 0.33 ft	Flow Rate (L/min) (<0.5 L/min)	Cumulative Discharge Volume (Liters)	NOTES color, odor etc.	Stabilized?
BEGIN PURGING											
14:40	14.88	7.40	-66	2.120	37	4.97	N/A		0.50	Clear, Odorless	**N/A**
14:45	15.30	7.17	-81	2.030	9	0.11	N/A	-	0.75	-	**N/A**
14:50	15.26	7.14	-87	2.040	8	0.00	N/A	-	1.00	-	**N**
14:55	15.39	7.12	-94	2.060	8	0.00	N/A	-	1.25	-	**N**
15:00	15.62	7.11	-97	2.060	8	0.00	N/A	-	1.50	-	**Y**

Notes:

1. Well depths and groundwater depths were measured in feet below the top of well casing, northern most point.
2. Well and tubing diameters are measured in inches.
3. PID = Photoionization Detector
4. PPM = Parts per million
5. pH = Hydrogen ion concentration
6. ORP = Oxidation-reduction potential, measured in millivolts (mV)
7. DO = Dissolved Oxygen, measured in milligrams per liter (mg/L)
8. DTW = Depth to water
9. mS/cm = milli-Siemens per centimeter
10. NTU = Nephelometric Turbidity Unit
11. mg/L = milligrams per liter
12. L/min = liters per minute

Project Information		Well Information		Equipment Information		Sampling Conditions		Sampling Information	
Project Name:	C Block	**Well No:**	MW06	**Water Quality Device Model:**	Horiba U-52	**Weather:**	44F, Cloudy		
Project Number:	170229030	**Well Depth:**	17 feet bgs	**Pine Number:**	21352	**Background PID (ppm):**	0.0	**Sample(s):**	MW06_011426
Site Location:	Brooklyn, NY	**Well Diameter:**	1-inch	**Pump Make and Model:**	Peristaltic	**PID Beneath Inner Cap (ppm):**	0.0		
Sampling	Olivia O'Donnell	**Well Screen**	7 feet bgs	**Pine Number:**	46454	**Pump Intake Depth:**	13 feet bgs	**Sample Date:**	1/14/2026
Personnel:		**Interval:**	17 feet bgs	**Tubing Diameter:**	0.17" ID X 0.25" OD	**Depth to Water After Purge:**	9.87 feet bgs	**Sample Time:**	10:30

STABILIZATION = 3 successive readings within limits

MILLITARY TIME	TEMP °Celsius (+/- 3%)	PH (+/- 0.1)	ORP mV (+/- 10mV)	CONDUCTIVITY mS/cm (+/- 3%)	TURBIDITY NTU (+/- 10% when above 5 NTU)	DO mg/L (+/- 10% when above 0.5 mg/L)	DTW ft Drawdown < 0.33 ft	Flow Rate (L/min) (<0.5 L/min)	Cumulative Discharge Volume (Liters)	NOTES color, odor etc.	Stabilized?
BEGIN PURGING											
10:05	15.01	7.17	-18	1.330	13	0.20	N/A		1.00	-	**N/A**
10:10	15.63	6.99	-29	1.320	10	0.00	N/A	-	1.25	-	**N/A**
10:15	15.83	6.95	-39	1.330	8	0.00	N/A	-	1.50	-	**N**
10:20	15.86	6.95	-47	1.340	8	0.00	N/A	-	1.75	-	**N**
10:25	15.87	6.93	-49	1.340	8	0.00	N/A	-	2.00	-	**Y**

Notes:

1. Well depths and groundwater depths were measured in feet below the top of well casing, northern most point.
2. Well and tubing diameters are measured in inches.
3. PID = Photoionization Detector
4. PPM = Parts per million
5. pH = Hydrogen ion concentration
6. ORP = Oxidation-reduction potential, measured in millivolts (mV)
7. DO = Dissolved Oxygen, measured in milligrams per liter (mg/L)
8. DTW = Depth to water
9. mS/cm = milli-Siemens per centimeter
10. NTU = Nephelometric Turbidity Unit
11. mg/L = milligrams per liter
12. L/min = liters per minute

Project Information		Well Information		Equipment Information		Sampling Conditions		Sampling Information	
Project Name:	C Block	**Well No:**	MW08	**Water Quality Device Model:**	Horiba U-52	**Weather:**	44F, Cloudy		
Project Number:	170229030	**Well Depth:**	17 feet bgs	**Pine Number:**	21352	**Background PID (ppm):**	0.0	**Sample(s):**	MW08_011426
Site Location:	Brooklyn, NY	**Well Diameter:**	1-inch	**Pump Make and Model:**	Peristaltic	**PID Beneath Inner Cap (ppm):**	0.0		
Sampling	Olivia O'Donnell	**Well Screen**	7 feet bgs	**Pine Number:**	46454	**Pump Intake Depth:**	13 feet bgs	**Sample Date:**	1/14/2026
Personnel:		**Interval:**	17 feet bgs	**Tubing Diameter:**	0.17" ID X 0.25" OD	**Depth to Water After Purge:**	9.71 feet bgs	**Sample Time:**	11:45

STABILIZATION = 3 successive readings within limits

MILLITARY TIME	TEMP °Celsius (+/- 3%)	PH (+/- 0.1)	ORP mV (+/- 10mV)	CONDUCTIVITY mS/cm (+/- 3%)	TURBIDITY NTU (+/- 10% when above 5 NTU)	DO mg/L (+/- 10% when above 0.5 mg/L)	DTW ft Drawdown < 0.33 ft	Flow Rate (L/min) (<0.5 L/min)	Cumulative Discharge Volume (Liters)	NOTES color, odor etc.	Stabilized?
BEGIN PURGING											
11:10	15.26	6.78	30	0.416	18	5.62	N/A		1.00	Clear, odorless	**N/A**
11:15	15.44	6.65	46	0.414	13	0.44	N/A	-	1.25	-	**N/A**
11:20	15.55	6.55	58	0.415	12	0.16	N/A	-	1.50	-	**N**
11:25	15.57	6.51	66	0.415	20	0.07	N/A	-	1.75	-	**N**
11:30	15.62	6.52	73	0.415	19	0.01	N/A	-	2.00	-	**N**
11:35	15.63	6.50	79	0.417	19	0.00	N/A	-	2.25	-	**N**
11:40	15.40	6.58	80	0.419	17	0.00	N/A	-	2.50	-	**Y**

Notes:

1. Well depths and groundwater depths were measured in feet below the top of well casing, northern most point.
2. Well and tubing diameters are measured in inches.
3. PID = Photoionization Detector
4. PPM = Parts per million
5. pH = Hydrogen ion concentration
6. ORP = Oxidation-reduction potential, measured in millivolts (mV)
7. DO = Dissolved Oxygen, measured in milligrams per liter (mg/L)
8. DTW = Depth to water
9. mS/cm = milli-Siemens per centimeter
10. NTU = Nephelometric Turbidity Unit
11. mg/L = milligrams per liter
12. L/min = liters per minute

Project Information		Well Information		Equipment Information		Sampling Conditions		Sampling Information	
Project Name:	C Block	**Well No:**	MW09	**Water Quality Device Model:**	Horiba U-52	**Weather:**	35F, Sunny	**Sample(s):**	MW09_011226
Project Number:	170229030	**Well Depth:**	17 feet bgs	**Pine Number:**	21352	**Background PID (ppm):**	0.0		GWDUP01_011226
Site Location:	Brooklyn, NY	**Well Diameter:**	1-inch	**Pump Make and Model:**	Peristaltic	**PID Beneath Inner Cap (ppm):**	0.0		
Sampling	Olivia O'Donnell	**Well Screen**	7 feet bgs	**Pine Number:**	46454	**Pump Intake Depth:**	15 feet bgs	**Sample Date:**	1/12/2026
Personnel:		**Interval:**	17 feet bgs	**Tubing Diameter:**	0.17" ID X 0.25" OD	**Depth to Water After Purge:**	N/A	**Sample Time:**	11:30

STABILIZATION = 3 successive readings within limits

MILLITARY TIME	TEMP °Celsius (+/- 3%)	PH (+/- 0.1)	ORP mV (+/- 10mV)	CONDUCTIVITY mS/cm (+/- 3%)	TURBIDITY NTU (+/- 10% when above 5 NTU)	DO mg/L (+/- 10% when above 0.5 mg/L)	DTW ft Drawdown < 0.33 ft	Flow Rate (L/min) (<0.5 L/min)	Cumulative Discharge Volume (Liters)	NOTES color, odor etc.	Stabilized?
BEGIN PURGING											
10:30	13.95	7.12	148	1.030	38	2.73	N/A		0.75	Turbid, brown, no odor	**N/A**
10:35	13.91	7.09	156	0.982	9	0.87	N/A	-	1.00	-	**N/A**
10:40	13.85	7.09	158	0.964	8	0.47	N/A	-	1.25	-	**N**
10:45	13.76	7.09	158	0.951	5	0.24	N/A	-	1.50	-	**N**
10:50	13.70	7.10	158	0.924	5	0.00	N/A	-	1.75	-	**N**
10:55	13.63	7.09	158	0.903	4	0.00	N/A	-	2.00	-	**N**
11:00	13.55	7.10	159	0.878	5	0.00	N/A	-	2.25	-	**N**
11:05	13.69	7.10	161	0.845	4	0.00	N/A	-	2.50	-	**N**
11:10	13.65	7.09	164	0.822	3	0.30	N/A	-	2.75	-	**N**
11:15	13.66	7.08	166	0.791	3	0.00	N/A	-	3.00	-	**N**
11:20	14.12	7.10	167	0.763	5	0.00	N/A	-	3.25	-	**N**
11:25	14.22	7.10	170	0.731	2	0.00	N/A	-	3.50	-	**N**
11:30	14.33	7.11	171	0.718	2	0.00	N/A	-	3.75	-	**N**

Notes:

1. Well depths and groundwater depths were measured in feet below the top of well casing, northern most point.
2. Well and tubing diameters are measured in inches.
3. PID = Photoionization Detector
4. PPM = Parts per million
5. pH = Hydrogen ion concentration
6. ORP = Oxidation-reduction potential, measured in millivolts (mV)
7. DO = Dissolved Oxygen, measured in milligrams per liter (mg/L)
8. DTW = Depth to water
9. mS/cm = milli-Siemens per centimeter
10. NTU = Nephelometric Turbidity Unit
11. mg/L = milligrams per liter
12. L/min = liters per minute

LANGAN Engineering, Environmental, Surveying, Landscape Architecture and Geology, D.P.C.
368 Ninth Avenue, 8th Floor, New York, NY 10001

Project Information		Well Information		Equipment Information		Sampling Conditions		Sampling Information	
Project Name:	C Block	**Well No:**	MW10	**Water Quality Device Model:**	Horiba U-52	**Weather:**	35F, Sunny		
Project Number:	170229030	**Well Depth:**	17 feet bgs	**Pine Number:**	21352	**Background PID (ppm):**	0.0	**Sample(s):**	MW10_011226
Site Location:	Brooklyn, NY	**Well Diameter:**	1-inch	**Pump Make and Model:**	Peristaltic	**PID Beneath Inner Cap (ppm):**	0.0		
Sampling	Olivia O'Donnell	**Well Screen**	7 feet bgs	**Pine Number:**	46454	**Pump Intake Depth:**	15 feet bgs	**Sample Date:**	1/12/2026
Personnel:		**Interval:**	17 feet bgs	**Tubing Diameter:**	0.17" ID X 0.25" OD	**Depth to Water After Purge:**	8.8 feet bgs	**Sample Time:**	13:05

STABILIZATION = 3 successive readings within limits

MILLITARY TIME	TEMP °Celsius (+/- 3%)	PH (+/- 0.1)	ORP mV (+/- 10mV)	CONDUCTIVITY mS/cm (+/- 3%)	TURBIDITY NTU (+/- 10% when above 5 NTU)	DO mg/L (+/- 10% when above 0.5 mg/L)	DTW ft Drawdown < 0.33 ft	Flow Rate (L/min) (<0.5 L/min)	Cumulative Discharge Volume (Liters)	NOTES color, odor etc.	Stabilized?
BEGIN PURGING											
12:15	14.97	7.25	-79	1.530	28	0.85	N/A		0.50	-	**N/A**
12:20	15.49	7.27	-92	1.350	2	0.00	N/A	-	1.00	-	**N/A**
12:25	15.40	7.23	-92	1.290	1	0.00	N/A	-	2.00	-	**N**
12:30	15.42	7.21	-94	1.250	30	0.00	N/A	-	3.50	-	**N**
12:35	15.59	7.21	-96	1.250	23	0.00	N/A	-	4.50	-	**N**
12:40	15.89	7.20	-98	1.230	9	0.00	N/A	-	5.50	-	**N**
12:45	16.17	7.19	-98	1.220	6	0.00	N/A	-	6.50	-	**N**
12:50	16.23	7.19	-99	1.200	5	0.00	N/A	-	8.50	-	**N**
12:55	16.17	7.22	-100	1.210	5	0.00	N/A	-	9.50	-	**N**
13:00	16.10	7.19	-100	1.220	4	0.00	N/A	-	9.50	-	**Y**

Notes:

1. Well depths and groundwater depths were measured in feet below the top of well casing, northern most point.
2. Well and tubing diameters are measured in inches.
3. PID = Photoionization Detector
4. PPM = Parts per million
5. pH = Hydrogen ion concentration
6. ORP = Oxidation-reduction potential, measured in millivolts (mV)
7. DO = Dissolved Oxygen, measured in milligrams per liter (mg/L)
8. DTW = Depth to water
9. mS/cm = milli-Siemens per centimeter
10. NTU = Nephelometric Turbidity Unit
11. mg/L = milligrams per liter
12. L/min = liters per minute

Project Information		Well Information		Equipment Information		Sampling Conditions		Sampling Information	
Project Name:	C Block	**Well No:**	MW11	**Water Quality Device Model:**	Horiba U-52	**Weather:**	39F, Sunny		
Project Number:	170229030	**Well Depth:**	17 feet bgs	**Pine Number:**	21352	**Background PID (ppm):**	0.0	**Sample(s):**	MW11_011326
Site Location:	Brooklyn, NY	**Well Diameter:**	1-inch	**Pump Make and Model:**	Peristaltic	**PID Beneath Inner Cap (ppm):**	0.0		
Sampling	Olivia O'Donnell	**Well Screen**	7 feet bgs	**Pine Number:**	46454	**Pump Intake Depth:**	12 feet bgs	**Sample Date:**	1/13/2026
Personnel:		**Interval:**	17 feet bgs	**Tubing Diameter:**	0.17" ID X 0.25" OD	**Depth to Water After Purge:**	8.1 feet bgs	**Sample Time:**	15:10

STABILIZATION = 3 successive readings within limits

MILLITARY TIME	TEMP °Celsius (+/- 3%)	PH (+/- 0.1)	ORP mV (+/- 10mV)	CONDUCTIVITY mS/cm (+/- 3%)	TURBIDITY NTU (+/- 10% when above 5 NTU)	DO mg/L (+/- 10% when above 0.5 mg/L)	DTW ft Drawdown < 0.33 ft	Flow Rate (L/min) (<0.5 L/min)	Cumulative Discharge Volume (Liters)	NOTES color, odor etc.	Stabilized?
BEGIN PURGING											
14:35	17.03	6.53	79	26.800	192	3.19	N/A		0.50	-	**N/A**
14:40	17.22	6.35	60	26.800	43	0.03	N/A	-	0.75	-	**N/A**
14:45	17.27	6.33	53	26.800	10	0.00	N/A	-	1.00	-	**N**
14:50	17.14	6.33	51	26.900	8	0.00	N/A	-	1.25	-	**N**
14:55	16.34	6.33	48	27.000	8	0.00	N/A	-	1.50	-	**N**
15:00	16.14	6.33	45	27.300	8	0.00	N/A	-	1.75	-	**N**
15:05	16.07	6.34	44	27.300	7	0.00	N/A	-	2.00	-	**Y**

Notes:

1. Well depths and groundwater depths were measured in feet below the top of well casing, northern most point.
2. Well and tubing diameters are measured in inches.
3. PID = Photoionization Detector
4. PPM = Parts per million
5. pH = Hydrogen ion concentration
6. ORP = Oxidation-reduction potential, measured in millivolts (mV)
7. DO = Dissolved Oxygen, measured in milligrams per liter (mg/L)
8. DTW = Depth to water
9. mS/cm = milli-Siemens per centimeter
10. NTU = Nephelometric Turbidity Unit
11. mg/L = milligrams per liter
12. L/min = liters per minute

Project Information		Well Information		Equipment Information		Sampling Conditions		Sampling Information	
Project Name:	C Block	**Well No:**	MW12	**Water Quality Device Model:**	Horiba U-52	**Weather:**	35F, Sunny		
Project Number:	170229030	**Well Depth:**	17 feet bgs	**Pine Number:**	21352	**Background PID (ppm):**	0.0	**Sample(s):**	MW12_011226
Site Location:	Brooklyn, NY	**Well Diameter:**	1-inch	**Pump Make and Model:**	Peristaltic	**PID Beneath Inner Cap (ppm):**	0.0		
Sampling	Olivia O'Donnell	**Well Screen**	7 feet bgs	**Pine Number:**	46454	**Pump Intake Depth:**	15 feet bgs	**Sample Date:**	1/12/2026
Personnel:		**Interval:**	17 feet bgs	**Tubing Diameter:**	0.17" ID X 0.25" OD	**Depth to Water After Purge:**	9.59 feet bgs	**Sample Time:**	9:20

STABILIZATION = 3 successive readings within limits

MILLITARY TIME	TEMP °Celsius (+/- 3%)	PH (+/- 0.1)	ORP mV (+/- 10mV)	CONDUCTIVITY mS/cm (+/- 3%)	TURBIDITY NTU (+/- 10% when above 5 NTU)	DO mg/L (+/- 10% when above 0.5 mg/L)	DTW ft Drawdown < 0.33 ft	Flow Rate (L/min) (<0.5 L/min)	Cumulative Discharge Volume (Liters)	NOTES color, odor etc.	Stabilized?
BEGIN PURGING											
8:30	15.57	7.06	45	1.490	17	0.63	N/A		0.50	-	**N/A**
8:35	15.51	7.11	-1	1.490	28	0.00	N/A	-	0.75	-	**N/A**
8:40	15.43	7.11	-14	1.480	25	0.00	N/A	-	1.00	-	**N**
8:45	15.47	7.12	-23	1.480	20	0.00	N/A	-	1.25	-	**N**
8:50	15.43	7.13	-27	1.480	17	0.00	N/A	-	1.50	-	**N**
8:55	15.36	7.13	-32	1.490	19	0.00	N/A	-	1.75	-	**N**
9:00	15.35	7.13	-35	1.500	12	0.00	N/A	-	2.00	-	**N**
9:05	15.38	7.13	-37	1.500	12	0.00	N/A	-	2.25	-	**N**
9:10	15.56	7.12	-40	1.500	12	0.00	N/A	-	2.50	-	**Y**

Notes:

1. Well depths and groundwater depths were measured in feet below the top of well casing, northern most point.
2. Well and tubing diameters are measured in inches.
3. PID = Photoionization Detector
4. PPM = Parts per million
5. pH = Hydrogen ion concentration
6. ORP = Oxidation-reduction potential, measured in millivolts (mV)
7. DO = Dissolved Oxygen, measured in milligrams per liter (mg/L)
8. DTW = Depth to water
9. mS/cm = milli-Siemens per centimeter
10. NTU = Nephelometric Turbidity Unit
11. mg/L = milligrams per liter
12. L/min = liters per minute

Project Information		Well Information		Equipment Information		Sampling Conditions		Sampling Information	
Project Name:	C Block	**Well No:**	MW13	**Water Quality Device Model:**	Horiba U-52	**Weather:**	39F, Sunny		
Project Number:	170229030	**Well Depth:**	17 feet bgs	**Pine Number:**	21352	**Background PID (ppm):**	0.0	**Sample(s):**	MW13_011326
Site Location:	Brooklyn, NY	**Well Diameter:**	1-inch	**Pump Make and Model:**	Peristaltic	**PID Beneath Inner Cap (ppm):**	0.0		
Sampling	Olivia O'Donnell	**Well Screen**	7 feet bgs	**Pine Number:**	46454	**Pump Intake Depth:**	12 feet bgs	**Sample Date:**	1/13/2026
Personnel:		**Interval:**	17 feet bgs	**Tubing Diameter:**	0.17" ID X 0.25" OD	**Depth to Water After Purge:**	7.75 feet bgs	**Sample Time:**	13:45

STABILIZATION = 3 successive readings within limits

MILLITARY TIME	TEMP °Celsius (+/- 3%)	PH (+/- 0.1)	ORP mV (+/- 10mV)	CONDUCTIVITY mS/cm (+/- 3%)	TURBIDITY NTU (+/- 10% when above 5 NTU)	DO mg/L (+/- 10% when above 0.5 mg/L)	DTW ft Drawdown < 0.33 ft	Flow Rate (L/min) (<0.5 L/min)	Cumulative Discharge Volume (Liters)	NOTES color, odor etc.	Stabilized?
BEGIN PURGING											
13:15	13.81	7.42	86	31.500	0	3.79	N/A		0.50	Turbid, brown, salt-like odor	**N/A**
13:20	13.61	7.40	97	32.000	831	3.75	N/A	-	0.75	-	**N/A**
13:25	13.79	7.40	103	32.200	383	3.84	N/A	-	1.00	-	**N**
13:30	13.86	7.37	107	32.400	385	3.78	N/A	-	1.25	-	**N**
13:35	13.96	7.36	110	32.500	373	3.85	N/A	-	1.50	Poor recovery, well rested before sampling	**Y**

Notes:

1. Well depths and groundwater depths were measured in feet below the top of well casing, northern most point.
2. Well and tubing diameters are measured in inches.
3. PID = Photoionization Detector
4. PPM = Parts per million
5. pH = Hydrogen ion concentration
6. ORP = Oxidation-reduction potential, measured in millivolts (mV)
7. DO = Dissolved Oxygen, measured in milligrams per liter (mg/L)
8. DTW = Depth to water
9. mS/cm = milli-Siemens per centimeter
10. NTU = Nephelometric Turbidity Unit
11. mg/L = milligrams per liter
12. L/min = liters per minute

APPENDIX F

Soil Vapor Construction and Sampling Logs

SOIL VAPOR SAMPLING LOG SHEET

Sample Number: SV01_072922

PROJECT: C Block		**PROJECT NO.:** 170229030	
LOCATION: Brooklyn, New York		**SURFACE ELEVATION AND DATUM:** N/A	
DRILLING FIRM OR LANGAN INSTALLER: Lakewood Environmental Services Corp.		**INSTALLATION DATE STARTED:** 7/29/2022	**DATE FINISHED:** 7/29/2022
INSTALLATION FOREMAN: Adam Hutchinson		**SAMPLE DATE STARTED:** 7/29/2022	**DATE FINISHED:** 7/29/2022
INSTALLATION EQUIPMENT: Geoprobe® 6610 DT		**TYPE OF SAMPLING DEVICE:** 6-Liter Summa Canister	
INSPECTOR: Ali Reach		**SAMPLER:** Ali Reach	
POTENTIAL SAMPLE INTERFERENCES: N/A		**WEATHER CONDITIONS (PRECIP., TEMP., PRESS., WIND SPEED AND DIR.):** Temp: 84 degrees F; Wind: 7 mph; Precipitation: 0 in; Pressure: 29.92 inHg	

METHOD OF INSTALLATION AND PURGING:

Lakewood Environmental Services Corp. (Lakewood) advanced and installed the soil vapor point to 5 feet below grade surface (bgs). A small amount of No. 2 sand was backfilled into the borehole to set the soil vapor tubing. No. 2 sand was backfilled around the tubing to 3 feet bgs, and the remainder of the borehole was sealed with bentonite to grade. A MultiRAE photoionization detector (PID) was used to purge the soil vapor point. The sample and flow controller were checked every 30 minutes during sampling to ensure proper operation.

TUBING TYPE/DIAMETER: 3/16-inch ID, 1/4-inch OD Teflon-Lined Polyethylene Tubing		**TYPE OF MATERIAL ABOVE SEAL:** Sand	
IMPLANT SCREEN TYPE/LENGTH/DIAMETER: 2-Inch Polyethylene Probe		**SEAL MATERIAL (Bentonite, Beeswax, Modeling Clay, etc.):** Bentonite	
BOREHOLE DIAMETER: 2 inches		**FILTER PACK MATERIAL (Sand or Glass Beads):** No. 2 Sand	
PURGE VOLUME (L):	1.00		
PURGE FLOW RATE (ML/MIN):	200		
PID AFTER PURGE (PPM):	0.0		
HELIUM TESTS	Pre-sampling	Post-sampling	
HELIUM TEST IN BUCKET(%):	15.6	15	
HELIUM TEST IN TUBE (PPM):	0.0	0.0	
SAMPLE START TIME:	13:05		
SAMPLE STOP TIME:	15:05		
TOTAL SAMPLE TIME (MIN):	120		
REGULATOR FLOW RATE (L/MIN):	0.04		
VOLUME OF SAMPLE (LITERS):	6		
PID AFTER SAMPLE (PPM):	0.0		
SAMPLE MOISTURE CONTENT:	N/A		
CAN SERIAL NUMBER:	1992		
REGULATOR SERIAL NUMBER:	2135		
CAN START VACUUM PRESS. (" HG):	-30.12		
CAN STOP VACUUM PRESS. (" HG):	-9.74		

IMPLANT/PROBE DETAILS (SEAL, FILTER, ETC.)	**DEPTH (FEET FROM SURFACE)**	**NOTES**
SURFACE / SURFACE		
Top of Seal	0.00	
Top of Pack	3.00	
Probe Depth	5.00	

SAMPLE LOCATION SKETCH

See Sample Location Plan

NOTES

N/A

Langan Engineering, Environmental, Surveying, Landscape Architecture, and Geology D.P.C.
368 9th Ave, 8th Floor, New York, New York 10001-2727

SOIL VAPOR SAMPLING LOG SHEET

Sample Number: SV02_080322

PROJECT: C Block		**PROJECT NO.:** 170229030	
LOCATION: Brooklyn, New York		**SURFACE ELEVATION AND DATUM:** N/A	
DRILLING FIRM OR LANGAN INSTALLER: Lakewood Environmental Services Corp.		**INSTALLATION DATE STARTED:** 8/3/2022	**DATE FINISHED:** 8/3/2022
INSTALLATION FOREMAN: Adam Hutchinson		**SAMPLE DATE STARTED:** 8/3/2022	**DATE FINISHED:** 8/3/2022
INSTALLATION EQUIPMENT: Geoprobe® 6610 DT		**TYPE OF SAMPLING DEVICE:** 6-Liter Summa Canister	
INSPECTOR: Ali Reach		**SAMPLER:** Ali Reach	
POTENTIAL SAMPLE INTERFERENCES: N/A		**WEATHER CONDITIONS (PRECIP., TEMP., PRESS., WIND SPEED AND DIR.):** Temp: 84 degrees F; Wind: 5 mph; Precipitation: 0 in; Pressure: 29.92 inHg	

METHOD OF INSTALLATION AND PURGING:

Lakewood Environmental Services Corp. (Lakewood) advanced and installed the soil vapor point to 5 feet below grade surface (bgs). A small amount of No. 2 sand was backfilled into the borehole to set the soil vapor tubing. No. 2 sand was backfilled around the tubing to 3 feet bgs, and the remainder of the borehole was sealed with bentonite to grade. A MultiRAE photoionization detector (PID) was used to purge the soil vapor point. The sample and flow controller were checked every 30 minutes during sampling to ensure proper operation.

TUBING TYPE/DIAMETER: 3/16-inch ID, 1/4-inch OD Teflon-Lined Polyethylene Tubing		**TYPE OF MATERIAL ABOVE SEAL:** Sand	
IMPLANT SCREEN TYPE/LENGTH/DIAMETER: 2-Inch Polyethylene Probe		**SEAL MATERIAL (Bentonite, Beeswax, Modeling Clay, etc.):** Bentonite	
BOREHOLE DIAMETER: 2 inches		**FILTER PACK MATERIAL (Sand or Glass Beads):** No. 2 Sand	
PURGE VOLUME (L):	1.00		
PURGE FLOW RATE (ML/MIN):	200		
PID AFTER PURGE (PPM):	0.0		
HELIUM TESTS	Pre-sampling	Post-sampling	
HELIUM TEST IN BUCKET(%):	16.7	13.1	
HELIUM TEST IN TUBE (PPM):	0.0	0.0	
SAMPLE START TIME:	13:18		
SAMPLE STOP TIME:	15:18		
TOTAL SAMPLE TIME (MIN):	120		
REGULATOR FLOW RATE (L/MIN):	0.04		
VOLUME OF SAMPLE (LITERS):	6		
PID AFTER SAMPLE (PPM):	0.0		
SAMPLE MOISTURE CONTENT:	N/A		
CAN SERIAL NUMBER:	2322		
REGULATOR SERIAL NUMBER:	01717		
CAN START VACUUM PRESS. (" HG):	-30.12		
CAN STOP VACUUM PRESS. (" HG):	-8.82		

IMPLANT/PROBE DETAILS (SEAL, FILTER, ETC.)	**DEPTH (FEET FROM SURFACE)**	**NOTES**
SURFACE / SURFACE		
Top of Seal	0.00	
Top of Pack	3.00	
Probe Depth	5.00	

SAMPLE LOCATION SKETCH

See Sample Location Plan

NOTES

N/A

Langan Engineering, Environmental, Surveying, Landscape Architecture, and Geology D.P.C.
368 9th Ave, 8th Floor, New York, New York 10001-2727

SOIL VAPOR SAMPLING LOG SHEET

Sample Number: SV03_080222

PROJECT: C Block		**PROJECT NO.:** 170229030	
LOCATION: Brooklyn, New York		**SURFACE ELEVATION AND DATUM:** N/A	
DRILLING FIRM OR LANGAN INSTALLER: Lakewood Environmental Services Corp.		**INSTALLATION DATE STARTED:** 8/2/2022	**DATE FINISHED:** 8/2/2022
INSTALLATION FOREMAN: Adam Hutchinson		**SAMPLE DATE STARTED:** 8/2/2022	**DATE FINISHED:** 8/2/2022
INSTALLATION EQUIPMENT: Geoprobe® 6610 DT		**TYPE OF SAMPLING DEVICE:** 6-Liter Summa Canister	
INSPECTOR: Ali Reach		**SAMPLER:** Ali Reach	
POTENTIAL SAMPLE INTERFERENCES: N/A		**WEATHER CONDITIONS (PRECIP., TEMP., PRESS., WIND SPEED AND DIR.):** Temp: 84 degrees F; Wind: 3 mph; Precipitation: 0 in; Pressure: 29.92 inHg	

METHOD OF INSTALLATION AND PURGING:

Lakewood Environmental Services Corp. (Lakewood) advanced and installed the soil vapor point to 5 feet below grade surface (bgs). A small amount of No. 2 sand was backfilled into the borehole to set the soil vapor tubing. No. 2 sand was backfilled around the tubing to 3 feet bgs, and the remainder of the borehole was sealed with bentonite to grade. A MultiRAE photoionization detector (PID) was used to purge the soil vapor point. The sample and flow controller were checked every 30 minutes during sampling to ensure proper operation.

TUBING TYPE/DIAMETER: 3/16-inch ID, 1/4-inch OD Teflon-Lined Polyethylene Tubing		**TYPE OF MATERIAL ABOVE SEAL:** Sand	
IMPLANT SCREEN TYPE/LENGTH/DIAMETER: 2-Inch Polyethylene Probe		**SEAL MATERIAL (Bentonite, Beeswax, Modeling Clay, etc.):** Bentonite	
BOREHOLE DIAMETER: 2 inches		**FILTER PACK MATERIAL (Sand or Glass Beads):** No. 2 Sand	
PURGE VOLUME (L):	1.00		
PURGE FLOW RATE (ML/MIN):	200		
PID AFTER PURGE (PPM):	0.0		
HELIUM TESTS	Pre-sampling	Post-sampling	
HELIUM TEST IN BUCKET(%):	14.8	11.2	
HELIUM TEST IN TUBE (PPM):	0.0	0.0	
SAMPLE START TIME:	12:10		
SAMPLE STOP TIME:	14:10		
TOTAL SAMPLE TIME (MIN):	120		
REGULATOR FLOW RATE (L/MIN):	0.04		
VOLUME OF SAMPLE (LITERS):	6		
PID AFTER SAMPLE (PPM):	0.0		
SAMPLE MOISTURE CONTENT:	N/A		
CAN SERIAL NUMBER:	3352		
REGULATOR SERIAL NUMBER:	01534		
CAN START VACUUM PRESS. (" HG):	-30.77		
CAN STOP VACUUM PRESS. (" HG):	-5.87		

IMPLANT/PROBE DETAILS (SEAL, FILTER, ETC.)	**DEPTH (FEET FROM SURFACE)**	**NOTES**
SURFACE / SURFACE		
Top of Seal	0.00	
Top of Pack	3.00	
Probe Depth	5.00	

SAMPLE LOCATION SKETCH

See Sample Location Plan

NOTES

N/A

Langan Engineering, Environmental, Surveying, Landscape Architecture, and Geology D.P.C.
368 9th Ave, 8th Floor, New York, New York 10001-2727

SOIL VAPOR SAMPLING LOG SHEET

Sample Number: SV04_072922

PROJECT: C Block		**PROJECT NO.:** 170229030	
LOCATION: Brooklyn, New York		**SURFACE ELEVATION AND DATUM:** N/A	
DRILLING FIRM OR LANGAN INSTALLER: Lakewood Environmental Services Corp.		**INSTALLATION DATE STARTED:** 7/29/2022	**DATE FINISHED:** 7/29/2022
INSTALLATION FOREMAN: Adam Hutchinson		**SAMPLE DATE STARTED:** 7/29/2022	**DATE FINISHED:** 7/29/2022
INSTALLATION EQUIPMENT: Geoprobe® 6610 DT		**TYPE OF SAMPLING DEVICE:** 6-Liter Summa Canister	
INSPECTOR: Ali Reach		**SAMPLER:** Ali Reach	
POTENTIAL SAMPLE INTERFERENCES: N/A		**WEATHER CONDITIONS (PRECIP., TEMP., PRESS., WIND SPEED AND DIR.):** Temp: 84 degrees F; Wind: 7 mph; Precipitation: 0 in; Pressure: 29.92 inHg	

METHOD OF INSTALLATION AND PURGING:

Lakewood Environmental Services Corp. (Lakewood) advanced and installed the soil vapor point to 5 feet below grade surface (bgs). A small amount of No. 2 sand was backfilled into the borehole to set the soil vapor tubing. No. 2 sand was backfilled around the tubing to 3 feet bgs, and the remainder of the borehole was sealed with bentonite to grade. A MultiRAE photoionization detector (PID) was used to purge the soil vapor point. The sample and flow controller were checked every 30 minutes during sampling to ensure proper operation.

TUBING TYPE/DIAMETER: 3/16-inch ID, 1/4-inch OD Teflon-Lined Polyethylene Tubing		**TYPE OF MATERIAL ABOVE SEAL:** Sand	
IMPLANT SCREEN TYPE/LENGTH/DIAMETER: 2-Inch Polyethylene Probe		**SEAL MATERIAL (Bentonite, Beeswax, Modeling Clay, etc.):** Bentonite	
BOREHOLE DIAMETER: 2 inches		**FILTER PACK MATERIAL (Sand or Glass Beads):** No. 2 Sand	
PURGE VOLUME (L):	1.00		
PURGE FLOW RATE (ML/MIN):	200		
PID AFTER PURGE (PPM):	0.0		
HELIUM TESTS	Pre-sampling	Post-sampling	
HELIUM TEST IN BUCKET(%):	16.3	15.7	
HELIUM TEST IN TUBE (PPM):	0.0	0.0	
SAMPLE START TIME:	13:07		
SAMPLE STOP TIME:	15:07		
TOTAL SAMPLE TIME (MIN):	120		
REGULATOR FLOW RATE (L/MIN):	0.04		
VOLUME OF SAMPLE (LITERS):	6		
PID AFTER SAMPLE (PPM):	0.0		
SAMPLE MOISTURE CONTENT:	N/A		
CAN SERIAL NUMBER:	2695		
REGULATOR SERIAL NUMBER:	1130		
CAN START VACUUM PRESS. (" HG):	-30.11		
CAN STOP VACUUM PRESS. (" HG):	-8.49		

IMPLANT/PROBE DETAILS (SEAL, FILTER, ETC.)	**DEPTH (FEET FROM SURFACE)**	**NOTES**
SURFACE / SURFACE		
Top of Seal	0.00	
Top of Pack	3.00	
Probe Depth	5.00	

SAMPLE LOCATION SKETCH

See Sample Location Plan

NOTES

N/A

Langan Engineering, Environmental, Surveying, Landscape Architecture, and Geology D.P.C.
368 9th Ave, 8th Floor, New York, New York 10001-2727

SOIL VAPOR SAMPLING LOG SHEET

Sample Number: SV05_080222

PROJECT: C Block		**PROJECT NO.:** 170229030	
LOCATION: Brooklyn, New York		**SURFACE ELEVATION AND DATUM:** N/A	
DRILLING FIRM OR LANGAN INSTALLER: Lakewood Environmental Services Corp.		**INSTALLATION DATE STARTED:** 8/2/2022	**DATE FINISHED:** 8/2/2022
INSTALLATION FOREMAN: Adam Hutchinson		**SAMPLE DATE STARTED:** 8/2/2022	**DATE FINISHED:** 8/2/2022
INSTALLATION EQUIPMENT: Geoprobe® 6610 DT		**TYPE OF SAMPLING DEVICE:** 6-Liter Summa Canister	
INSPECTOR: Ali Reach		**SAMPLER:** Ali Reach	
POTENTIAL SAMPLE INTERFERENCES: N/A		**WEATHER CONDITIONS (PRECIP., TEMP., PRESS., WIND SPEED AND DIR.):** Temp: 84 degrees F; Wind: 3 mph; Precipitation: 0 in; Pressure: 29.92 inHg	

METHOD OF INSTALLATION AND PURGING:

Lakewood Environmental Services Corp. (Lakewood) advanced and installed the soil vapor point to 5 feet below grade surface (bgs). A small amount of No. 2 sand was backfilled into the borehole to set the soil vapor tubing. No. 2 sand was backfilled around the tubing to 3 feet bgs, and the remainder of the borehole was sealed with bentonite to grade. A MultiRAE photoionization detector (PID) was used to purge the soil vapor point. The sample and flow controller were checked every 30 minutes during sampling to ensure proper operation.

TUBING TYPE/DIAMETER: 3/16-inch ID, 1/4-inch OD Teflon-Lined Polyethylene Tubing		**TYPE OF MATERIAL ABOVE SEAL:** Sand	
IMPLANT SCREEN TYPE/LENGTH/DIAMETER: 2-Inch Polyethylene Probe		**SEAL MATERIAL (Bentonite, Beeswax, Modeling Clay, etc.):** Bentonite	
BOREHOLE DIAMETER: 2 inches		**FILTER PACK MATERIAL (Sand or Glass Beads):** No. 2 Sand	
PURGE VOLUME (L):	1.00		
PURGE FLOW RATE (ML/MIN):	200		
PID AFTER PURGE (PPM):	0.0		
HELIUM TESTS	Pre-sampling	Post-sampling	
HELIUM TEST IN BUCKET(%):	15.3	10.6	
HELIUM TEST IN TUBE (PPM):	0.0	0.0	
SAMPLE START TIME:	12:03		
SAMPLE STOP TIME:	14:03		
TOTAL SAMPLE TIME (MIN):	120		
REGULATOR FLOW RATE (L/MIN):	0.04		
VOLUME OF SAMPLE (LITERS):	6		
PID AFTER SAMPLE (PPM):	0.0		
SAMPLE MOISTURE CONTENT:	N/A		
CAN SERIAL NUMBER:	574		
REGULATOR SERIAL NUMBER:	01448		
CAN START VACUUM PRESS. (" HG):	-28.01		
CAN STOP VACUUM PRESS. (" HG):	-5.64		

IMPLANT/PROBE DETAILS (SEAL, FILTER, ETC.)	**DEPTH (FEET FROM SURFACE)**	**NOTES**
SURFACE / SURFACE		
Top of Seal	0.00	
Top of Pack	3.00	
Probe Depth	5.00	

SAMPLE LOCATION SKETCH

See Sample Location Plan

NOTES

N/A

Langan Engineering, Environmental, Surveying, Landscape Architecture, and Geology D.P.C.
368 9th Ave, 8th Floor, New York, New York 10001-2727

SOIL VAPOR SAMPLING LOG SHEET

Sample Number: SV06_080322

PROJECT: C Block		**PROJECT NO.:** 170229030	
LOCATION: Brooklyn, New York		**SURFACE ELEVATION AND DATUM:** N/A	
DRILLING FIRM OR LANGAN INSTALLER: Lakewood Environmental Services Corp.		**INSTALLATION DATE STARTED:** 8/3/2022	**DATE FINISHED:** 8/3/2022
INSTALLATION FOREMAN: Adam Hutchinson		**SAMPLE DATE STARTED:** 8/3/2022	**DATE FINISHED:** 8/3/2022
INSTALLATION EQUIPMENT: Geoprobe® 6610 DT		**TYPE OF SAMPLING DEVICE:** 6-Liter Summa Canister	
INSPECTOR: Ali Reach		**SAMPLER:** Ali Reach	
POTENTIAL SAMPLE INTERFERENCES: N/A		**WEATHER CONDITIONS (PRECIP., TEMP., PRESS., WIND SPEED AND DIR.):** Temp: 84 degrees F; Wind: 5 mph; Precipitation: 0 in; Pressure: 29.92 inHg	

METHOD OF INSTALLATION AND PURGING:

Lakewood Environmental Services Corp. (Lakewood) advanced and installed the soil vapor point to 5 feet below grade surface (bgs). A small amount of No. 2 sand was backfilled into the borehole to set the soil vapor tubing. No. 2 sand was backfilled around the tubing to 3 feet bgs, and the remainder of the borehole was sealed with bentonite to grade. A MultiRAE photoionization detector (PID) was used to purge the soil vapor point. The sample and flow controller were checked every 30 minutes during sampling to ensure proper operation.

TUBING TYPE/DIAMETER: 3/16-inch ID, 1/4-inch OD Teflon-Lined Polyethylene Tubing		**TYPE OF MATERIAL ABOVE SEAL:** Sand	
IMPLANT SCREEN TYPE/LENGTH/DIAMETER: 2-Inch Polyethylene Probe		**SEAL MATERIAL (Bentonite, Beeswax, Modeling Clay, etc.):** Bentonite	
BOREHOLE DIAMETER: 2 inches		**FILTER PACK MATERIAL (Sand or Glass Beads):** No. 2 Sand	
PURGE VOLUME (L):	1.00		
PURGE FLOW RATE (ML/MIN):	200		
PID AFTER PURGE (PPM):	0.0		
HELIUM TESTS	Pre-sampling	Post-sampling	
HELIUM TEST IN BUCKET(%):	16.6	14.3	
HELIUM TEST IN TUBE (PPM):	0.0	0.0	
SAMPLE START TIME:	12:10		
SAMPLE STOP TIME:	14:10		
TOTAL SAMPLE TIME (MIN):	120		
REGULATOR FLOW RATE (L/MIN):	0.04		
VOLUME OF SAMPLE (LITERS):	6		
PID AFTER SAMPLE (PPM):	0.0		
SAMPLE MOISTURE CONTENT:	N/A		
CAN SERIAL NUMBER:	3348		
REGULATOR SERIAL NUMBER:	01919		
CAN START VACUUM PRESS. (" HG):	-30.07		
CAN STOP VACUUM PRESS. (" HG):	-5.55		

IMPLANT/PROBE DETAILS (SEAL, FILTER, ETC.)	**DEPTH (FEET FROM SURFACE)**	**NOTES**
SURFACE / SURFACE		
Top of Seal	0.00	
Top of Pack	3.00	
Probe Depth	5.00	

SAMPLE LOCATION SKETCH

See Sample Location Plan

NOTES

N/A

Langan Engineering, Environmental, Surveying, Landscape Architecture, and Geology D.P.C.
368 9th Ave, 8th Floor, New York, New York 10001-2727

SOIL VAPOR SAMPLING LOG SHEET

Sample Number: SV07_072922

PROJECT: C Block		**PROJECT NO.:** 170229030	
LOCATION: Brooklyn, New York		**SURFACE ELEVATION AND DATUM:** N/A	
DRILLING FIRM OR LANGAN INSTALLER: Lakewood Environmental Services Corp.		**INSTALLATION DATE STARTED:** 7/29/2022	**DATE FINISHED:** 7/29/2022
INSTALLATION FOREMAN: Adam Hutchinson		**SAMPLE DATE STARTED:** 7/29/2022	**DATE FINISHED:** 7/29/2022
INSTALLATION EQUIPMENT: Geoprobe® 6610 DT		**TYPE OF SAMPLING DEVICE:** 6-Liter Summa Canister	
INSPECTOR: Ali Reach		**SAMPLER:** Ali Reach	
POTENTIAL SAMPLE INTERFERENCES: N/A		**WEATHER CONDITIONS (PRECIP., TEMP., PRESS., WIND SPEED AND DIR.):** Temp: 84 degrees F; Wind: 7 mph; Precipitation: 0 in; Pressure: 29.92 inHg	

METHOD OF INSTALLATION AND PURGING:

Lakewood Environmental Services Corp. (Lakewood) advanced and installed the soil vapor point to 5 feet below grade surface (bgs). A small amount of No. 2 sand was backfilled into the borehole to set the soil vapor tubing. No. 2 sand was backfilled around the tubing to 3 feet bgs, and the remainder of the borehole was sealed with bentonite to grade. A MultiRAE photoionization detector (PID) was used to purge the soil vapor point. The sample and flow controller were checked every 30 minutes during sampling to ensure proper operation.

TUBING TYPE/DIAMETER: 3/16-inch ID, 1/4-inch OD Teflon-Lined Polyethylene Tubing		**TYPE OF MATERIAL ABOVE SEAL:** Sand	
IMPLANT SCREEN TYPE/LENGTH/DIAMETER: 2-Inch Polyethylene Probe		**SEAL MATERIAL (Bentonite, Beeswax, Modeling Clay, etc.):** Bentonite	
BOREHOLE DIAMETER: 2 inches		**FILTER PACK MATERIAL (Sand or Glass Beads):** No. 2 Sand	
PURGE VOLUME (L):	1.00		
PURGE FLOW RATE (ML/MIN):	200		
PID AFTER PURGE (PPM):	0.0		
HELIUM TESTS	Pre-sampling	Post-sampling	
HELIUM TEST IN BUCKET(%):	15.6	15	
HELIUM TEST IN TUBE (PPM):	0.0	0.0	
SAMPLE START TIME:	13:32		
SAMPLE STOP TIME:	15:32		
TOTAL SAMPLE TIME (MIN):	120		
REGULATOR FLOW RATE (L/MIN):	0.04		
VOLUME OF SAMPLE (LITERS):	6		
PID AFTER SAMPLE (PPM):	0.0		
SAMPLE MOISTURE CONTENT:	N/A		
CAN SERIAL NUMBER:	32317		
REGULATOR SERIAL NUMBER:	1161		
CAN START VACUUM PRESS. (" HG):	-30.01		
CAN STOP VACUUM PRESS. (" HG):	-9.03		

IMPLANT/PROBE DETAILS (SEAL, FILTER, ETC.)	**DEPTH (FEET FROM SURFACE)**	**NOTES**
SURFACE / SURFACE		
Top of Seal	0.00	
Top of Pack	3.00	
Probe Depth	5.00	

SAMPLE LOCATION SKETCH

See Sample Location Plan

NOTES

N/A

Langan Engineering, Environmental, Surveying, Landscape Architecture, and Geology D.P.C.
368 9th Ave, 8th Floor, New York, New York 10001-2727

SOIL VAPOR SAMPLING LOG SHEET

Sample Number: SV08_072922

PROJECT: C Block		**PROJECT NO.:** 170229030	
LOCATION: Brooklyn, New York		**SURFACE ELEVATION AND DATUM:** N/A	
DRILLING FIRM OR LANGAN INSTALLER: Lakewood Environmental Services Corp.		**INSTALLATION DATE STARTED:** 7/29/2022	**DATE FINISHED:** 7/29/2022
INSTALLATION FOREMAN: Adam Hutchinson		**SAMPLE DATE STARTED:** 7/29/2022	**DATE FINISHED:** 7/29/2022
INSTALLATION EQUIPMENT: Geoprobe® 6610 DT		**TYPE OF SAMPLING DEVICE:** 6-Liter Summa Canister	
INSPECTOR: Ali Reach		**SAMPLER:** Ali Reach	
POTENTIAL SAMPLE INTERFERENCES: N/A		**WEATHER CONDITIONS (PRECIP., TEMP., PRESS., WIND SPEED AND DIR.):** Temp: 84 degrees F; Wind: 7 mph; Precipitation: 0 in; Pressure: 29.92 inHg	

METHOD OF INSTALLATION AND PURGING:

Lakewood Environmental Services Corp. (Lakewood) advanced and installed the soil vapor point to 5 feet below grade surface (bgs). A small amount of No. 2 sand was backfilled into the borehole to set the soil vapor tubing. No. 2 sand was backfilled around the tubing to 3 feet bgs, and the remainder of the borehole was sealed with bentonite to grade. A MultiRAE photoionization detector (PID) was used to purge the soil vapor point. The sample and flow controller were checked every 30 minutes during sampling to ensure proper operation.

TUBING TYPE/DIAMETER: 3/16-inch ID, 1/4-inch OD Teflon-Lined Polyethylene Tubing		**TYPE OF MATERIAL ABOVE SEAL:** Sand	
IMPLANT SCREEN TYPE/LENGTH/DIAMETER: 2-Inch Polyethylene Probe		**SEAL MATERIAL (Bentonite, Beeswax, Modeling Clay, etc.):** Bentonite	
BOREHOLE DIAMETER: 2 inches		**FILTER PACK MATERIAL (Sand or Glass Beads):** No. 2 Sand	
PURGE VOLUME (L):	1.00		
PURGE FLOW RATE (ML/MIN):	200		
PID AFTER PURGE (PPM):	0.0		
HELIUM TESTS	Pre-sampling	Post-sampling	
HELIUM TEST IN BUCKET(%):	16.9	15.2	
HELIUM TEST IN TUBE (PPM):	0.0	0.0	
SAMPLE START TIME:	13:34		
SAMPLE STOP TIME:	15:34		
TOTAL SAMPLE TIME (MIN):	120		
REGULATOR FLOW RATE (L/MIN):	0.04		
VOLUME OF SAMPLE (LITERS):	6		
PID AFTER SAMPLE (PPM):	0.0		
SAMPLE MOISTURE CONTENT:	N/A		
CAN SERIAL NUMBER:	32316		
REGULATOR SERIAL NUMBER:	2140		
CAN START VACUUM PRESS. (" HG):	-29.88		
CAN STOP VACUUM PRESS. (" HG):	-7.92		

IMPLANT/PROBE DETAILS (SEAL, FILTER, ETC.)	**DEPTH (FEET FROM SURFACE)**	**NOTES**
SURFACE / SURFACE		
Top of Seal	0.00	
Top of Pack	3.00	
Probe Depth	5.00	

SAMPLE LOCATION SKETCH

See Sample Location Plan

NOTES

N/A

Langan Engineering, Environmental, Surveying, Landscape Architecture, and Geology D.P.C.
368 9th Ave, 8th Floor, New York, New York 10001-2727

SOIL VAPOR SAMPLING LOG SHEET

Sample Number: SV09_080222

PROJECT: C Block		**PROJECT NO.:** 170229030	
LOCATION: Brooklyn, New York		**SURFACE ELEVATION AND DATUM:** N/A	
DRILLING FIRM OR LANGAN INSTALLER: Lakewood Environmental Services Corp.		**INSTALLATION DATE STARTED:** 8/2/2022	**DATE FINISHED:** 8/2/2022
INSTALLATION FOREMAN: Adam Hutchinson		**SAMPLE DATE STARTED:** 8/2/2022	**DATE FINISHED:** 8/2/2022
INSTALLATION EQUIPMENT: Geoprobe® 6610 DT		**TYPE OF SAMPLING DEVICE:** 6-Liter Summa Canister	
INSPECTOR: Ali Reach		**SAMPLER:** Ali Reach	
POTENTIAL SAMPLE INTERFERENCES: N/A		**WEATHER CONDITIONS (PRECIP., TEMP., PRESS., WIND SPEED AND DIR.):** Temp: 84 degrees F; Wind: 3 mph; Precipitation: 0 in; Pressure: 29.92 inHg	

METHOD OF INSTALLATION AND PURGING:

Lakewood Environmental Services Corp. (Lakewood) advanced and installed the soil vapor point to 5 feet below grade surface (bgs). A small amount of No. 2 sand was backfilled into the borehole to set the soil vapor tubing. No. 2 sand was backfilled around the tubing to 3 feet bgs, and the remainder of the borehole was sealed with bentonite to grade. A MultiRAE photoionization detector (PID) was used to purge the soil vapor point. The sample and flow controller were checked every 30 minutes during sampling to ensure proper operation.

TUBING TYPE/DIAMETER: 3/16-inch ID, 1/4-inch OD Teflon-Lined Polyethylene Tubing		**TYPE OF MATERIAL ABOVE SEAL:** Sand	
IMPLANT SCREEN TYPE/LENGTH/DIAMETER: 2-Inch Polyethylene Probe		**SEAL MATERIAL (Bentonite, Beeswax, Modeling Clay, etc.):** Bentonite	
BOREHOLE DIAMETER: 2 inches		**FILTER PACK MATERIAL (Sand or Glass Beads):** No. 2 Sand	
PURGE VOLUME (L):	1.00		
PURGE FLOW RATE (ML/MIN):	200		
PID AFTER PURGE (PPM):	0.0		
HELIUM TESTS	Pre-sampling	Post-sampling	
HELIUM TEST IN BUCKET(%):	12.1	15.6	
HELIUM TEST IN TUBE (PPM):	0.0	0.0	
SAMPLE START TIME:	13:32		
SAMPLE STOP TIME:	15:32		
TOTAL SAMPLE TIME (MIN):	120		
REGULATOR FLOW RATE (L/MIN):	0.04		
VOLUME OF SAMPLE (LITERS):	6		
PID AFTER SAMPLE (PPM):	0.0		
SAMPLE MOISTURE CONTENT:	N/A		
CAN SERIAL NUMBER:	1939		
REGULATOR SERIAL NUMBER:	02169		
CAN START VACUUM PRESS. (" HG):	-29.78		
CAN STOP VACUUM PRESS. (" HG):	-6.39		

IMPLANT/PROBE DETAILS (SEAL, FILTER, ETC.)	**DEPTH (FEET FROM SURFACE)**	**NOTES**
SURFACE / SURFACE		
Top of Seal	0.00	
Top of Pack	3.00	
Probe Depth	5.00	

SAMPLE LOCATION SKETCH

See Sample Location Plan

NOTES

N/A

Langan Engineering, Environmental, Surveying, Landscape Architecture, and Geology D.P.C.
368 9th Ave, 8th Floor, New York, New York 10001-2727

SOIL VAPOR SAMPLING LOG SHEET

Sample Number: SV14_080222

PROJECT: C Block	**PROJECT NO.:** 170229030	
LOCATION: Brooklyn, New York	**SURFACE ELEVATION AND DATUM:** N/A	
DRILLING FIRM OR LANGAN INSTALLER: Lakewood Environmental Services Corp.	**INSTALLATION DATE STARTED:** 8/2/2022	**DATE FINISHED:** 8/2/2022
INSTALLATION FOREMAN: Adam Hutchinson	**SAMPLE DATE STARTED:** 8/2/2022	**DATE FINISHED:** 8/2/2022
INSTALLATION EQUIPMENT: Geoprobe® 6610 DT	**TYPE OF SAMPLING DEVICE:** 6-Liter Summa Canister	
INSPECTOR: Ali Reach	**SAMPLER:** Ali Reach	
POTENTIAL SAMPLE INTERFERENCES: N/A	**WEATHER CONDITIONS (PRECIP., TEMP., PRESS., WIND SPEED AND DIR.):** Temp: 84 degrees F; Wind: 3 mph; Precipitation: 0 in; Pressure: 29.92 inHg	

METHOD OF INSTALLATION AND PURGING:

Lakewood Environmental Services Corp. (Lakewood) advanced and installed the soil vapor point to 5 feet below grade surface (bgs). A small amount of No. 2 sand was backfilled into the borehole to set the soil vapor tubing. No. 2 sand was backfilled around the tubing to 3 feet bgs, and the remainder of the borehole was sealed with bentonite to grade. A MultiRAE photoionization detector (PID) was used to purge the soil vapor point. The sample and flow controller were checked every 30 minutes during sampling to ensure proper operation.

TUBING TYPE/DIAMETER: 3/16-inch ID, 1/4-inch OD Teflon-Lined Polyethylene Tubing	**TYPE OF MATERIAL ABOVE SEAL:** Sand
IMPLANT SCREEN TYPE/LENGTH/DIAMETER: 2-Inch Polyethylene Probe	**SEAL MATERIAL (Bentonite, Beeswax, Modeling Clay, etc.):** Bentonite
BOREHOLE DIAMETER: 2 inches	**FILTER PACK MATERIAL (Sand or Glass Beads):** No. 2 Sand

PURGE VOLUME (L):	1.00	
PURGE FLOW RATE (ML/MIN):	200	
PID AFTER PURGE (PPM):	0.0	
HELIUM TESTS	Pre-sampling	Post-sampling
HELIUM TEST IN BUCKET(%):	17	13.4
HELIUM TEST IN TUBE (PPM):	0.0	0.0
SAMPLE START TIME:	12:06	
SAMPLE STOP TIME:	14:06	
TOTAL SAMPLE TIME (MIN):	120	
REGULATOR FLOW RATE (L/MIN):	0.04	
VOLUME OF SAMPLE (LITERS):	6	
PID AFTER SAMPLE (PPM):	0.0	
SAMPLE MOISTURE CONTENT:	N/A	
CAN SERIAL NUMBER:	01506	
REGULATOR SERIAL NUMBER:	2318	
CAN START VACUUM PRESS. (" HG):	-30.89	
CAN STOP VACUUM PRESS. (" HG):	-6.56	

IMPLANT/PROBE DETAILS (SEAL, FILTER, ETC.)	**DEPTH (FEET FROM SURFACE)**	**NOTES**
SURFACE / SURFACE		
Top of Seal	0.00	
Top of Pack	3.00	
Probe Depth	5.00	

SAMPLE LOCATION SKETCH

See Sample Location Plan

NOTES

N/A

SOIL VAPOR SAMPLING LOG SHEET

Sample Number: SV15_080322

PROJECT: C Block		**PROJECT NO.:** 170229030	
LOCATION: Brooklyn, New York		**SURFACE ELEVATION AND DATUM:** N/A	
DRILLING FIRM OR LANGAN INSTALLER: Lakewood Environmental Services Corp.		**INSTALLATION DATE STARTED:** 8/3/2022	**DATE FINISHED:** 8/3/2022
INSTALLATION FOREMAN: Adam Hutchinson		**SAMPLE DATE STARTED:** 8/3/2022	**DATE FINISHED:** 8/3/2022
INSTALLATION EQUIPMENT: Geoprobe® 6610 DT		**TYPE OF SAMPLING DEVICE:** 6-Liter Summa Canister	
INSPECTOR: Ali Reach		**SAMPLER:** Ali Reach	
POTENTIAL SAMPLE INTERFERENCES: N/A		**WEATHER CONDITIONS (PRECIP., TEMP., PRESS., WIND SPEED AND DIR.):** Temp: 84 degrees F; Wind: 5 mph; Precipitation: 0 in; Pressure: 29.92 inHg	

METHOD OF INSTALLATION AND PURGING:

Lakewood Environmental Services Corp. (Lakewood) advanced and installed the soil vapor point to 5 feet below grade surface (bgs). A small amount of No. 2 sand was backfilled into the borehole to set the soil vapor tubing. No. 2 sand was backfilled around the tubing to 3 feet bgs, and the remainder of the borehole was sealed with bentonite to grade. A MultiRAE photoionization detector (PID) was used to purge the soil vapor point. The sample and flow controller were checked every 30 minutes during sampling to ensure proper operation.

TUBING TYPE/DIAMETER: 3/16-inch ID, 1/4-inch OD Teflon-Lined Polyethylene Tubing		**TYPE OF MATERIAL ABOVE SEAL:** Sand	
IMPLANT SCREEN TYPE/LENGTH/DIAMETER: 2-Inch Polyethylene Probe		**SEAL MATERIAL (Bentonite, Beeswax, Modeling Clay, etc.):** Bentonite	
BOREHOLE DIAMETER: 2 inches		**FILTER PACK MATERIAL (Sand or Glass Beads):** No. 2 Sand	
PURGE VOLUME (L):	1.00		
PURGE FLOW RATE (ML/MIN):	200		
PID AFTER PURGE (PPM):	0.0		
HELIUM TESTS	Pre-sampling	Post-sampling	
HELIUM TEST IN BUCKET(%):	14.7	12.2	
HELIUM TEST IN TUBE (PPM):	0.0	0.0	
SAMPLE START TIME:	10:40		
SAMPLE STOP TIME:	13:10		
TOTAL SAMPLE TIME (MIN):	150		
REGULATOR FLOW RATE (L/MIN):	0.04		
VOLUME OF SAMPLE (LITERS):	6		
PID AFTER SAMPLE (PPM):	0.0		
SAMPLE MOISTURE CONTENT:	N/A		
CAN SERIAL NUMBER:	964		
REGULATOR SERIAL NUMBER:	02131		
CAN START VACUUM PRESS. (" HG):	-30.3		
CAN STOP VACUUM PRESS. (" HG):	-11.76		

IMPLANT/PROBE DETAILS (SEAL, FILTER, ETC.)	DEPTH (FEET FROM SURFACE)	NOTES
SURFACE / SURFACE		
Top of Seal	0.00	
Top of Pack	3.00	
Probe Depth	5.00	

SAMPLE LOCATION SKETCH

See Sample Location Plan

NOTES

N/A

Langan Engineering, Environmental, Surveying, Landscape Architecture, and Geology D.P.C.
368 9th Ave, 8th Floor, New York, New York 10001-2727

SOIL VAPOR SAMPLING LOG SHEET

Sample Number: SV16_080322

PROJECT: C Block		**PROJECT NO.:** 170229030	
LOCATION: Brooklyn, New York		**SURFACE ELEVATION AND DATUM:** N/A	
DRILLING FIRM OR LANGAN INSTALLER: Lakewood Environmental Services Corp.		**INSTALLATION DATE STARTED:** 8/3/2022	**DATE FINISHED:** 8/3/2022
INSTALLATION FOREMAN: Adam Hutchinson		**SAMPLE DATE STARTED:** 8/3/2022	**DATE FINISHED:** 8/3/2022
INSTALLATION EQUIPMENT: Geoprobe® 6610 DT		**TYPE OF SAMPLING DEVICE:** 6-Liter Summa Canister	
INSPECTOR: Ali Reach		**SAMPLER:** Ali Reach	
POTENTIAL SAMPLE INTERFERENCES: N/A		**WEATHER CONDITIONS (PRECIP., TEMP., PRESS., WIND SPEED AND DIR.):** Temp: 84 degrees F; Wind: 5 mph; Precipitation: 0 in; Pressure: 29.92 inHg	

METHOD OF INSTALLATION AND PURGING:

Lakewood Environmental Services Corp. (Lakewood) advanced and installed the soil vapor point to 5 feet below grade surface (bgs). A small amount of No. 2 sand was backfilled into the borehole to set the soil vapor tubing. No. 2 sand was backfilled around the tubing to 3 feet bgs, and the remainder of the borehole was sealed with bentonite to grade. A MultiRAE photoionization detector (PID) was used to purge the soil vapor point. The sample and flow controller were checked every 30 minutes during sampling to ensure proper operation.

TUBING TYPE/DIAMETER: 3/16-inch ID, 1/4-inch OD Teflon-Lined Polyethylene Tubing		**TYPE OF MATERIAL ABOVE SEAL:** Sand	
IMPLANT SCREEN TYPE/LENGTH/DIAMETER: 2-Inch Polyethylene Probe		**SEAL MATERIAL (Bentonite, Beeswax, Modeling Clay, etc.):** Bentonite	
BOREHOLE DIAMETER: 2 inches		**FILTER PACK MATERIAL (Sand or Glass Beads):** No. 2 Sand	
PURGE VOLUME (L):	1.00		
PURGE FLOW RATE (ML/MIN):	200		
PID AFTER PURGE (PPM):	0.0		
HELIUM TESTS	Pre-sampling	Post-sampling	
HELIUM TEST IN BUCKET(%):	15.9	10.1	
HELIUM TEST IN TUBE (PPM):	0.0	0.0	
SAMPLE START TIME:	10:55		
SAMPLE STOP TIME:	12:55		
TOTAL SAMPLE TIME (MIN):	120		
REGULATOR FLOW RATE (L/MIN):	0.04		
VOLUME OF SAMPLE (LITERS):	6		
PID AFTER SAMPLE (PPM):	0.0		
SAMPLE MOISTURE CONTENT:	N/A		
CAN SERIAL NUMBER:	3060		
REGULATOR SERIAL NUMBER:	0976		
CAN START VACUUM PRESS. (" HG):	-30.5		
CAN STOP VACUUM PRESS. (" HG):	-7.25		

IMPLANT/PROBE DETAILS (SEAL, FILTER, ETC.)	**DEPTH (FEET FROM SURFACE)**	**NOTES**
SURFACE / SURFACE		
Top of Seal	0.00	
Top of Pack	3.00	
Probe Depth	5.00	

SAMPLE LOCATION SKETCH

See Sample Location Plan

NOTES

N/A

Langan Engineering, Environmental, Surveying, Landscape Architecture, and Geology D.P.C.
368 9th Ave, 8th Floor, New York, New York 10001-2727

AIR SAMPLING LOG SHEET

Sample Number: AA01_080222

PROJECT: C Block		**PROJECT NO.:** 170229030	
LOCATION: Brooklyn, New York		**SURFACE ELEVATION AND DATUM:** N/A	
SAMPLER: Lakewood Environmental Services Corp.		**SAMPLE DATE STARTED:** 8/2/2022	**DATE FINISHED:** 8/2/2022
INSPECTOR: Ali Reach		**TYPE OF SAMPLING DEVICE:** 6-Liter Summa Canister	
POTENTIAL SAMPLE INTERFERENCES: N/A		**WEATHER CONDITIONS (PRECIP., TEMP., PRESS., WIND SPEED AND DIR.):**	
		Temp:	84 degrees F
		Wind:	5 mph
		Precipitation:	0 in
		Pressure:	29.92 inHg

METHOD OF INSTALLATION AND PURGING:

Langan field screened the sample location with a MiniRae 3000 photoionized detector prior to sampling. The sample consisted of a 6L summa canister fitted with a 2-hour flow control valve. The flow controller was zeroed and the valve opened to initiate the 2-hour sample collection. The sample and flow controller were checked every 30 minutes during sampling to ensure proper operation.

SAMPLE DETAILS	
HEIGHT ABOVE GROUND (FT):	3
PID BEFORE SAMPLE (PPM):	0.0
SAMPLE START TIME:	12:08
SAMPLE STOP TIME:	14:08
TOTAL SAMPLE TIME (MIN):	120
REGULATOR FLOW RATE (L/MIN):	0.04
VOLUME OF SAMPLE (LITERS):	6
PID AFTER SAMPLE (PPM):	0.0
SAMPLE MOISTURE CONTENT:	N/A
CAN SERIAL NUMBER:	685
REGULATOR SERIAL NUMBER:	02102
CAN START VACUUM PRESS. (" HG):	-30.03
CAN STOP VACUUM PRESS. (" HG):	-7.77

SAMPLE LOCATION SKETCH

See Sample Location Plan

NOTES

N/A

Langan Engineering, Environmental, Surveying, Landscape Architecture, and Geology D.P.C.
368 9th Avenue, 8th Floor, New York, New York 10001-2727

SOIL VAPOR SAMPLING LOG SHEET

Sample Number: SV17_031926

PROJECT: C Block		**PROJECT NO.:** 170229030	
LOCATION: Brooklyn, New York		**SURFACE ELEVATION AND DATUM:** N/A	
DRILLING FIRM OR LANGAN INSTALLER: AARCO Environmental Services Corp.		**INSTALLATION DATE STARTED:** 3/19/2026	**DATE FINISHED:** 3/19/2026
INSTALLATION FOREMAN: Dave Johnson		**SAMPLE DATE STARTED:** 3/19/2026	**DATE FINISHED:** 3/19/2026
INSTALLATION EQUIPMENT: Geoprobe® 7822 DT		**TYPE OF SAMPLING DEVICE:** 6-Liter Summa Canister	
INSPECTOR: Olivia O'Donnell, Carli Piretra, Emma Bitar		**SAMPLER:** Olivia O'Donnell	
POTENTIAL SAMPLE INTERFERENCES: N/A		**WEATHER CONDITIONS (PRECIP., TEMP., PRESS., WIND SPEED AND DIR.):**	
		Temp:	33-45 degrees F
		Wind:	5mph SSE
		Precipitation:	0 in
		Pressure:	30.34 inHg

METHOD OF INSTALLATION AND PURGING:

AARCO Environmental Services Corp. (AARCO) advanced and installed the soil vapor point to 5 feet below grade surface (bgs). A small amount of No. 2 sand was backfilled into the borehole to set the soil vapor tubing. No. 2 sand was backfilled around the tubing to 3 feet bgs, and the remainder of the borehole was sealed with bentonite to grade. A MultiRAE photoionization detector (PID) was used to purge the soil vapor point. The sample and flow controller were checked every 30 minutes during sampling to ensure proper operation.

TUBING TYPE/DIAMETER: 3/16-inch ID, 1/4-inch OD Teflon-Lined Polyethylene Tubing		**TYPE OF MATERIAL ABOVE SEAL:** Sand	
IMPLANT SCREEN TYPE/LENGTH/DIAMETER: 1.875-Inch Polyethylene Probe		**SEAL MATERIAL (Bentonite, Beeswax, Modeling Clay, etc.):** Bentonite	
BOREHOLE DIAMETER: 4 inches		**FILTER PACK MATERIAL (Sand or Glass Beads):** No. 2 Sand	
PURGE VOLUME (L):	0.60		
PURGE FLOW RATE (ML/MIN):	200		
PID AFTER PURGE (PPM):	0.60		
HELIUM TESTS	Pre-sampling	Post-sampling	
HELIUM TEST IN BUCKET(%):	17.2	10.3	
HELIUM TEST IN TUBE (PPM):	0.0	0.0	
SAMPLE START TIME:	11:10		
SAMPLE STOP TIME:	13:00		
TOTAL SAMPLE TIME (MIN):	110		
REGULATOR FLOW RATE (L/MIN):	0.042		
VOLUME OF SAMPLE (LITERS):	4.62		
PID AFTER SAMPLE (PPM):	0.40		
SAMPLE MOISTURE CONTENT:	N/A		
CAN SERIAL NUMBER:	A1816		
REGULATOR SERIAL NUMBER:	FC884		
CAN START VACUUM PRESS. (" HG):	-30		
CAN STOP VACUUM PRESS. (" HG):	-4		

IMPLANT/PROBE DETAILS (SEAL, FILTER, ETC.)	DEPTH (FEET FROM SURFACE)	NOTES
SURFACE / SURFACE		
Top of Seal	0.00	
Top of Pack	3.00	
Probe Depth	5.00	

SAMPLE LOCATION SKETCH

See Sample Location Plan

NOTES

N/A

Langan Engineering, Environmental, Surveying, Landscape Architecture, and Geology D.P.C.
368 Ninth Avenue, 8th Floor, New York, New York 10001-2727

SOIL VAPOR SAMPLING LOG SHEET

Sample Number: SV18_031926

PROJECT: C Block	**PROJECT NO.:** 170229030	
LOCATION: Brooklyn, New York	**SURFACE ELEVATION AND DATUM:** N/A	
DRILLING FIRM OR LANGAN INSTALLER: AARCO Environmental Services Corp.	**INSTALLATION DATE STARTED:** 3/19/2026	**DATE FINISHED:** 3/19/2026
INSTALLATION FOREMAN: Dave Johnson	**SAMPLE DATE STARTED:** 3/19/2026	**DATE FINISHED:** 3/19/2026
INSTALLATION EQUIPMENT: Geoprobe® 7822 DT	**TYPE OF SAMPLING DEVICE:** 6-Liter Summa Canister	
INSPECTOR: Olivia O'Donnell, Carli Piretra, Emma Bitar	**SAMPLER:** Olivia O'Donnell	
POTENTIAL SAMPLE INTERFERENCES: N/A	**WEATHER CONDITIONS (PRECIP., TEMP., PRESS., WIND SPEED AND DIR.):** Temp: 33-45 degrees F; Wind: 5mph SSE; Precipitation: 0 in; Pressure: 30.34 inHg	

METHOD OF INSTALLATION AND PURGING:

AARCO Environmental Services Corp. (AARCO) advanced and installed the soil vapor point to 5 feet below grade surface (bgs). A small amount of No. 2 sand was backfilled into the borehole to set the soil vapor tubing. No. 2 sand was backfilled around the tubing to 3 feet bgs, and the remainder of the borehole was sealed with bentonite to grade. A MultiRAE photoionization detector (PID) was used to purge the soil vapor point. The sample and flow controller were checked every 30 minutes during sampling to ensure proper operation.

TUBING TYPE/DIAMETER: 3/16-inch ID, 1/4-inch OD Teflon-Lined Polyethylene Tubing	**TYPE OF MATERIAL ABOVE SEAL:** Sand
IMPLANT SCREEN TYPE/LENGTH/DIAMETER: 1.875-Inch Polyethylene Probe	**SEAL MATERIAL (Bentonite, Beeswax, Modeling Clay, etc.):** Bentonite
BOREHOLE DIAMETER: 4 inches	**FILTER PACK MATERIAL (Sand or Glass Beads):** No. 2 Sand

PURGE VOLUME (L):	0.60	
PURGE FLOW RATE (ML/MIN):	200	
PID AFTER PURGE (PPM):	0.40	
HELIUM TESTS	Pre-sampling	Post-sampling
HELIUM TEST IN BUCKET(%):	31.2	23.0
HELIUM TEST IN TUBE (PPM):	0.0	0.0
SAMPLE START TIME:	11:15	
SAMPLE STOP TIME:	13:10	
TOTAL SAMPLE TIME (MIN):	115	
REGULATOR FLOW RATE (L/MIN):	0.04	
VOLUME OF SAMPLE (LITERS):	4.83	
PID AFTER SAMPLE (PPM):	0.20	
SAMPLE MOISTURE CONTENT:	N/A	
CAN SERIAL NUMBER:	A1204	
REGULATOR SERIAL NUMBER:	FC631	
CAN START VACUUM PRESS. (" HG):	-29	
CAN STOP VACUUM PRESS. (" HG):	-4	

IMPLANT/PROBE DETAILS (SEAL, FILTER, ETC.)	**DEPTH (FEET FROM SURFACE)**	**NOTES**
SURFACE / SURFACE		
Top of Seal	0.00	
Top of Pack	3.00	
Probe Depth	5.00	

SAMPLE LOCATION SKETCH

See Sample Location Plan

NOTES

N/A

Langan Engineering, Environmental, Surveying, Landscape Architecture, and Geology D.P.C.
368 Ninth Avenue, 8th Floor, New York, New York 10001-2727

SOIL VAPOR SAMPLING LOG SHEET

Sample Number: SV19A_031926

PROJECT: C Block		**PROJECT NO.:** 170229030	
LOCATION: Brooklyn, New York		**SURFACE ELEVATION AND DATUM:** N/A	
DRILLING FIRM OR LANGAN INSTALLER: AARCO Environmental Services Corp.		**INSTALLATION DATE STARTED:** 3/19/2026	**DATE FINISHED:** 3/19/2026
INSTALLATION FOREMAN: Dave Johnson		**SAMPLE DATE STARTED:** 3/19/2026	**DATE FINISHED:** 3/19/2026
INSTALLATION EQUIPMENT: Geoprobe® 7822 DT		**TYPE OF SAMPLING DEVICE:** 6-Liter Summa Canister	
INSPECTOR: Olivia O'Donnell, Carli Piretra, Emma Bitar		**SAMPLER:** Carli Piretra	
POTENTIAL SAMPLE INTERFERENCES: N/A		**WEATHER CONDITIONS (PRECIP., TEMP., PRESS., WIND SPEED AND DIR.):**	
		Temp:	33-45 degrees F
		Wind:	5mph SSE
		Precipitation:	0 in
		Pressure:	30.34 inHg

METHOD OF INSTALLATION AND PURGING:

AARCO Environmental Services Corp. (AARCO) advanced and installed the soil vapor point to 5 feet below grade surface (bgs). A small amount of No. 2 sand was backfilled into the borehole to set the soil vapor tubing. No. 2 sand was backfilled around the tubing to 3 feet bgs, and the remainder of the borehole was sealed with bentonite to grade. A MultiRAE photoionization detector (PID) was used to purge the soil vapor point. The sample and flow controller were checked every 30 minutes during sampling to ensure proper operation.

TUBING TYPE/DIAMETER: 3/16-inch ID, 1/4-inch OD Teflon-Lined Polyethylene Tubing	**TYPE OF MATERIAL ABOVE SEAL:** Sand
IMPLANT SCREEN TYPE/LENGTH/DIAMETER: 1.875-Inch Polyethylene Probe	**SEAL MATERIAL (Bentonite, Beeswax, Modeling Clay, etc.):** Bentonite
BOREHOLE DIAMETER: 4 inches	**FILTER PACK MATERIAL (Sand or Glass Beads):** No. 2 Sand

PURGE VOLUME (L):	0.60	
PURGE FLOW RATE (ML/MIN):	200	
PID AFTER PURGE (PPM):	0.20	
HELIUM TESTS	Pre-sampling	Post-sampling
HELIUM TEST IN BUCKET(%):	23.0	25.0
HELIUM TEST IN TUBE (PPM):	0.0	0.0
SAMPLE START TIME:	14:20	
SAMPLE STOP TIME:	16:10	
TOTAL SAMPLE TIME (MIN):	110	
REGULATOR FLOW RATE (L/MIN):	0.04	
VOLUME OF SAMPLE (LITERS):	4.62	
PID AFTER SAMPLE (PPM):	0.10	
SAMPLE MOISTURE CONTENT:	N/A	
CAN SERIAL NUMBER:	A2170	
REGULATOR SERIAL NUMBER:	FC1434	
CAN START VACUUM PRESS. (" HG):	-29	
CAN STOP VACUUM PRESS. (" HG):	-2	

IMPLANT/PROBE DETAILS (SEAL, FILTER, ETC.)	**DEPTH (FEET FROM SURFACE)**	**NOTES**
SURFACE / SURFACE		
Top of Seal	0.00	
Top of Pack	3.00	
Probe Depth	5.00	

SAMPLE LOCATION SKETCH

See Sample Location Plan

NOTES

N/A

SOIL VAPOR SAMPLING LOG SHEET

Sample Number: SV19B_031926

PROJECT: C Block		**PROJECT NO.:** 170229030	
LOCATION: Brooklyn, New York		**SURFACE ELEVATION AND DATUM:** N/A	
DRILLING FIRM OR LANGAN INSTALLER: AARCO Environmental Services Corp.		**INSTALLATION DATE STARTED:** 3/19/2026	**DATE FINISHED:** 3/19/2026
INSTALLATION FOREMAN: Dave Johnson		**SAMPLE DATE STARTED:** 3/19/2026	**DATE FINISHED:** 3/19/2026
INSTALLATION EQUIPMENT: Geoprobe® 7822 DT		**TYPE OF SAMPLING DEVICE:** 6-Liter Summa Canister	
INSPECTOR: Olivia O'Donnell, Carli Piretra, Emma Bitar		**SAMPLER:** Carli Piretra	
POTENTIAL SAMPLE INTERFERENCES: N/A		**WEATHER CONDITIONS (PRECIP., TEMP., PRESS., WIND SPEED AND DIR.):**	
		Temp:	33-45 degrees F
		Wind:	5mph SSE
		Precipitation:	0 in
		Pressure:	30.34 inHg

METHOD OF INSTALLATION AND PURGING:

AARCO Environmental Services Corp. (AARCO) advanced and installed the soil vapor point to 5 feet below grade surface (bgs). A small amount of No. 2 sand was backfilled into the borehole to set the soil vapor tubing. No. 2 sand was backfilled around the tubing to 3 feet bgs, and the remainder of the borehole was sealed with bentonite to grade. A MultiRAE photoionization detector (PID) was used to purge the soil vapor point. The sample and flow controller were checked every 30 minutes during sampling to ensure proper operation.

TUBING TYPE/DIAMETER: 3/16-inch ID, 1/4-inch OD Teflon-Lined Polyethylene Tubing		**TYPE OF MATERIAL ABOVE SEAL:** Sand	
IMPLANT SCREEN TYPE/LENGTH/DIAMETER: 1.875-Inch Polyethylene Probe		**SEAL MATERIAL (Bentonite, Beeswax, Modeling Clay, etc.):** Bentonite	
BOREHOLE DIAMETER: 4 inches		**FILTER PACK MATERIAL (Sand or Glass Beads):** No. 2 Sand	
PURGE VOLUME (L):	0.60		
PURGE FLOW RATE (ML/MIN):	200		
PID AFTER PURGE (PPM):	0.30		
HELIUM TESTS	Pre-sampling	Post-sampling	
HELIUM TEST IN BUCKET(%):	30.0	32.0	
HELIUM TEST IN TUBE (PPM):	0.0	0.0	
SAMPLE START TIME:	14:26		
SAMPLE STOP TIME:	16:20		
TOTAL SAMPLE TIME (MIN):	114		
REGULATOR FLOW RATE (L/MIN):	0.04		
VOLUME OF SAMPLE (LITERS):	4.79		
PID AFTER SAMPLE (PPM):	0.10		
SAMPLE MOISTURE CONTENT:	N/A		
CAN SERIAL NUMBER:	A1281		
REGULATOR SERIAL NUMBER:	FC1323		
CAN START VACUUM PRESS. (" HG):	-28		
CAN STOP VACUUM PRESS. (" HG):	-5		

IMPLANT/PROBE DETAILS (SEAL, FILTER, ETC.)	**DEPTH (FEET FROM SURFACE)**	**NOTES**
SURFACE / SURFACE		
Top of Seal	0.00	
Top of Pack	3.00	
Probe Depth	5.00	

SAMPLE LOCATION SKETCH

See Sample Location Plan

NOTES

N/A

Langan Engineering, Environmental, Surveying, Landscape Architecture, and Geology D.P.C.
368 Ninth Avenue, 8th Floor, New York, New York 10001-2727

SOIL VAPOR SAMPLING LOG SHEET

Sample Number: SV20_031926

PROJECT: C Block		**PROJECT NO.:** 170229030	
LOCATION: Brooklyn, New York		**SURFACE ELEVATION AND DATUM:** N/A	
DRILLING FIRM OR LANGAN INSTALLER: AARCO Environmental Services Corp.		**INSTALLATION DATE STARTED:** 3/19/2026	**DATE FINISHED:** 3/19/2026
INSTALLATION FOREMAN: Dave Johnson		**SAMPLE DATE STARTED:** 3/19/2026	**DATE FINISHED:** 3/19/2026
INSTALLATION EQUIPMENT: Geoprobe® 7822 DT		**TYPE OF SAMPLING DEVICE:** 6-Liter Summa Canister	
INSPECTOR: Olivia O'Donnell, Carli Piretra, Emma Bitar		**SAMPLER:** Carli Piretra	
POTENTIAL SAMPLE INTERFERENCES: N/A		**WEATHER CONDITIONS (PRECIP., TEMP., PRESS., WIND SPEED AND DIR.):**	
		Temp:	33-45 degrees F
		Wind:	5mph SSE
		Precipitation:	0 in
		Pressure:	30.34 inHg

METHOD OF INSTALLATION AND PURGING:

AARCO Environmental Services Corp. (AARCO) advanced and installed the soil vapor point to 5 feet below grade surface (bgs). A small amount of No. 2 sand was backfilled into the borehole to set the soil vapor tubing. No. 2 sand was backfilled around the tubing to 3 feet bgs, and the remainder of the borehole was sealed with bentonite to grade. A MultiRAE photoionization detector (PID) was used to purge the soil vapor point. The sample and flow controller were checked every 30 minutes during sampling to ensure proper operation.

TUBING TYPE/DIAMETER: 3/16-inch ID, 1/4-inch OD Teflon-Lined Polyethylene Tubing		**TYPE OF MATERIAL ABOVE SEAL:** Sand	
IMPLANT SCREEN TYPE/LENGTH/DIAMETER: 1.875-Inch Polyethylene Probe		**SEAL MATERIAL (Bentonite, Beeswax, Modeling Clay, etc.):** Bentonite	
BOREHOLE DIAMETER: 4 inches		**FILTER PACK MATERIAL (Sand or Glass Beads):** No. 2 Sand	
PURGE VOLUME (L):	0.60		
PURGE FLOW RATE (ML/MIN):	200		
PID AFTER PURGE (PPM):	0.90		
HELIUM TESTS	Pre-sampling	Post-sampling	
HELIUM TEST IN BUCKET(%):	29.3	8.4	
HELIUM TEST IN TUBE (PPM):	0.0	0.0	
SAMPLE START TIME:	12:15		
SAMPLE STOP TIME:	14:00		
TOTAL SAMPLE TIME (MIN):	105		
REGULATOR FLOW RATE (L/MIN):	0.04		
VOLUME OF SAMPLE (LITERS):	4.41		
PID AFTER SAMPLE (PPM):	0.02		
SAMPLE MOISTURE CONTENT:	N/A		
CAN SERIAL NUMBER:	A2143		
REGULATOR SERIAL NUMBER:	FC631		
CAN START VACUUM PRESS. (" HG):	-32		
CAN STOP VACUUM PRESS. (" HG):	-5		

IMPLANT/PROBE DETAILS (SEAL, FILTER, ETC.)	**DEPTH (FEET FROM SURFACE)**	**NOTES**
SURFACE / SURFACE		
Top of Seal	0.00	
Top of Pack	3.00	
Probe Depth	5.00	

SAMPLE LOCATION SKETCH

See Sample Location Plan

NOTES

N/A

Langan Engineering, Environmental, Surveying, Landscape Architecture, and Geology D.P.C.
368 Ninth Avenue, 8th Floor, New York, New York 10001-2727

SOIL VAPOR SAMPLING LOG SHEET

Sample Number: SV21_031926

PROJECT: C Block		**PROJECT NO.:** 170229030	
LOCATION: Brooklyn, New York		**SURFACE ELEVATION AND DATUM:** N/A	
DRILLING FIRM OR LANGAN INSTALLER: AARCO Environmental Services Corp.		**INSTALLATION DATE STARTED:** 3/19/2026	**DATE FINISHED:** 3/19/2026
INSTALLATION FOREMAN: Dave Johnson		**SAMPLE DATE STARTED:** 3/19/2026	**DATE FINISHED:** 3/19/2026
INSTALLATION EQUIPMENT: Geoprobe® 7822 DT		**TYPE OF SAMPLING DEVICE:** 6-Liter Summa Canister	
INSPECTOR: Olivia O'Donnell, Carli Piretra, Emma Bitar		**SAMPLER:** Olivia O'Donnell	
POTENTIAL SAMPLE INTERFERENCES: N/A		**WEATHER CONDITIONS (PRECIP., TEMP., PRESS., WIND SPEED AND DIR.):**	
		Temp:	33-45 degrees F
		Wind:	5mph SSE
		Precipitation:	0 in
		Pressure:	30.34 inHg

METHOD OF INSTALLATION AND PURGING:

AARCO Environmental Services Corp. (AARCO) advanced and installed the soil vapor point to 5 feet below grade surface (bgs). A small amount of No. 2 sand was backfilled into the borehole to set the soil vapor tubing. No. 2 sand was backfilled around the tubing to 3 feet bgs, and the remainder of the borehole was sealed with bentonite to grade. A MultiRAE photoionization detector (PID) was used to purge the soil vapor point. The sample and flow controller were checked every 30 minutes during sampling to ensure proper operation.

TUBING TYPE/DIAMETER: 3/16-inch ID, 1/4-inch OD Teflon-Lined Polyethylene Tubing		**TYPE OF MATERIAL ABOVE SEAL:** Sand	
IMPLANT SCREEN TYPE/LENGTH/DIAMETER: 1.875-Inch Polyethylene Probe		**SEAL MATERIAL (Bentonite, Beeswax, Modeling Clay, etc.):** Bentonite	
BOREHOLE DIAMETER: 4 inches		**FILTER PACK MATERIAL (Sand or Glass Beads):** No. 2 Sand	
PURGE VOLUME (L):	0.60		
PURGE FLOW RATE (ML/MIN):	200		
PID AFTER PURGE (PPM):	0.50		
HELIUM TESTS	Pre-sampling	Post-sampling	
HELIUM TEST IN BUCKET(%):	27.6	14.1	
HELIUM TEST IN TUBE (PPM):	0.0	0.0	
SAMPLE START TIME:	13:15		
SAMPLE STOP TIME:	15:00		
TOTAL SAMPLE TIME (MIN):	105		
REGULATOR FLOW RATE (L/MIN):	0.04		
VOLUME OF SAMPLE (LITERS):	4.41		
PID AFTER SAMPLE (PPM):	0.20		
SAMPLE MOISTURE CONTENT:	N/A		
CAN SERIAL NUMBER:	A845		
REGULATOR SERIAL NUMBER:	FC1412		
CAN START VACUUM PRESS. (" HG):	-30		
CAN STOP VACUUM PRESS. (" HG):	-4		

IMPLANT/PROBE DETAILS (SEAL, FILTER, ETC.)		DEPTH (FEET FROM SURFACE)	NOTES
SURFACE / SURFACE	**Top of Seal**	0.00	
	Top of Pack	3.00	
	Probe Depth	5.00	

SAMPLE LOCATION SKETCH

See Sample Location Plan

NOTES

N/A

Langan Engineering, Environmental, Surveying, Landscape Architecture, and Geology D.P.C.
368 Ninth Avenue, 8th Floor, New York, New York 10001-2727

SOIL VAPOR SAMPLING LOG SHEET

Sample Number: SV22_031926

PROJECT: C Block		**PROJECT NO.:** 170229030	
LOCATION: Brooklyn, New York		**SURFACE ELEVATION AND DATUM:** N/A	
DRILLING FIRM OR LANGAN INSTALLER: AARCO Environmental Services Corp.		**INSTALLATION DATE STARTED:** 3/19/2026	**DATE FINISHED:** 3/19/2026
INSTALLATION FOREMAN: Dave Johnson		**SAMPLE DATE STARTED:** 3/19/2026	**DATE FINISHED:** 3/19/2026
INSTALLATION EQUIPMENT: Geoprobe® 7822 DT		**TYPE OF SAMPLING DEVICE:** 6-Liter Summa Canister	
INSPECTOR: Olivia O'Donnell, Carli Piretra, Emma Bitar		**SAMPLER:** Olivia O'Donnell	
POTENTIAL SAMPLE INTERFERENCES: N/A		**WEATHER CONDITIONS (PRECIP., TEMP., PRESS., WIND SPEED AND DIR.):**	
		Temp:	33-45 degrees F
		Wind:	5mph SSE
		Precipitation:	0 in
		Pressure:	30.34 inHg

METHOD OF INSTALLATION AND PURGING:

AARCO Environmental Services Corp. (AARCO) advanced and installed the soil vapor point to 5 feet below grade surface (bgs). A small amount of No. 2 sand was backfilled into the borehole to set the soil vapor tubing. No. 2 sand was backfilled around the tubing to 3 feet bgs, and the remainder of the borehole was sealed with bentonite to grade. A MultiRAE photoionization detector (PID) was used to purge the soil vapor point. The sample and flow controller were checked every 30 minutes during sampling to ensure proper operation.

TUBING TYPE/DIAMETER: 3/16-inch ID, 1/4-inch OD Teflon-Lined Polyethylene Tubing		**TYPE OF MATERIAL ABOVE SEAL:** Sand	
IMPLANT SCREEN TYPE/LENGTH/DIAMETER: 1.875-Inch Polyethylene Probe		**SEAL MATERIAL (Bentonite, Beeswax, Modeling Clay, etc.):** Bentonite	
BOREHOLE DIAMETER: 4 inches		**FILTER PACK MATERIAL (Sand or Glass Beads):** No. 2 Sand	
PURGE VOLUME (L):	0.60		
PURGE FLOW RATE (ML/MIN):	200		
PID AFTER PURGE (PPM):	0.00		
HELIUM TESTS	Pre-sampling	Post-sampling	
HELIUM TEST IN BUCKET(%):	20.0	21.0	
HELIUM TEST IN TUBE (PPM):	0.0	0.0	
SAMPLE START TIME:	11:35		
SAMPLE STOP TIME:	13:19		
TOTAL SAMPLE TIME (MIN):	104		
REGULATOR FLOW RATE (L/MIN):	0.04		
VOLUME OF SAMPLE (LITERS):	4.37		
PID AFTER SAMPLE (PPM):	0.00		
SAMPLE MOISTURE CONTENT:	N/A		
CAN SERIAL NUMBER:	M226		
REGULATOR SERIAL NUMBER:	FC1291		
CAN START VACUUM PRESS. (" HG):	-30		
CAN STOP VACUUM PRESS. (" HG):	-5		

IMPLANT/PROBE DETAILS (SEAL, FILTER, ETC.)		**DEPTH (FEET FROM SURFACE)**	**NOTES**
SURFACE / SURFACE	**Top of Seal**	0.00	
	Top of Pack	3.00	
	Probe Depth	5.00	

SAMPLE LOCATION SKETCH

See Sample Location Plan

NOTES

N/A

Langan Engineering, Environmental, Surveying, Landscape Architecture, and Geology D.P.C.
368 Ninth Avenue, 8th Floor, New York, New York 10001-2727

SOIL VAPOR SAMPLING LOG SHEET

Sample Number: SV23_031926

PROJECT: C Block		**PROJECT NO.:** 170229030	
LOCATION: Brooklyn, New York		**SURFACE ELEVATION AND DATUM:** N/A	
DRILLING FIRM OR LANGAN INSTALLER: AARCO Environmental Services Corp.		**INSTALLATION DATE STARTED:** 3/19/2026	**DATE FINISHED:** 3/19/2026
INSTALLATION FOREMAN: Dave Johnson		**SAMPLE DATE STARTED:** 3/19/2026	**DATE FINISHED:** 3/19/2026
INSTALLATION EQUIPMENT: Geoprobe® 7822 DT		**TYPE OF SAMPLING DEVICE:** 6-Liter Summa Canister	
INSPECTOR: Olivia O'Donnell, Carli Piretra, Emma Bitar		**SAMPLER:** Carli Piretra	
POTENTIAL SAMPLE INTERFERENCES: N/A		**WEATHER CONDITIONS (PRECIP., TEMP., PRESS., WIND SPEED AND DIR.):**	
		Temp:	33-45 degrees F
		Wind:	5mph SSE
		Precipitation:	0 in
		Pressure:	30.34 inHg

METHOD OF INSTALLATION AND PURGING:

AARCO Environmental Services Corp. (AARCO) advanced and installed the soil vapor point to 5 feet below grade surface (bgs). A small amount of No. 2 sand was backfilled into the borehole to set the soil vapor tubing. No. 2 sand was backfilled around the tubing to 3 feet bgs, and the remainder of the borehole was sealed with bentonite to grade. A MultiRAE photoionization detector (PID) was used to purge the soil vapor point. The sample and flow controller were checked every 30 minutes during sampling to ensure proper operation.

TUBING TYPE/DIAMETER: 3/16-inch ID, 1/4-inch OD Teflon-Lined Polyethylene Tubing		**TYPE OF MATERIAL ABOVE SEAL:** Sand	
IMPLANT SCREEN TYPE/LENGTH/DIAMETER: 1.875-Inch Polyethylene Probe		**SEAL MATERIAL (Bentonite, Beeswax, Modeling Clay, etc.):** Bentonite	
BOREHOLE DIAMETER: 4 inches		**FILTER PACK MATERIAL (Sand or Glass Beads):** No. 2 Sand	
PURGE VOLUME (L):	0.60		
PURGE FLOW RATE (ML/MIN):	200		
PID AFTER PURGE (PPM):	0.40		
HELIUM TESTS	Pre-sampling	Post-sampling	
HELIUM TEST IN BUCKET(%):	15.1	12.6	
HELIUM TEST IN TUBE (PPM):	0.0	0.0	
SAMPLE START TIME:	12:32		
SAMPLE STOP TIME:	14:00		
TOTAL SAMPLE TIME (MIN):	88		
REGULATOR FLOW RATE (L/MIN):	0.04		
VOLUME OF SAMPLE (LITERS):	3.70		
PID AFTER SAMPLE (PPM):	0.40		
SAMPLE MOISTURE CONTENT:	N/A		
CAN SERIAL NUMBER:	A883		
REGULATOR SERIAL NUMBER:	FC1389		
CAN START VACUUM PRESS. (" HG):	-27		
CAN STOP VACUUM PRESS. (" HG):	-2		

IMPLANT/PROBE DETAILS (SEAL, FILTER, ETC.)	**DEPTH (FEET FROM SURFACE)**	**NOTES**
SURFACE / SURFACE		
Top of Seal	0.00	
Top of Pack	3.00	
Probe Depth	5.00	

SAMPLE LOCATION SKETCH

See Sample Location Plan

NOTES

N/A

Langan Engineering, Environmental, Surveying, Landscape Architecture, and Geology D.P.C.
368 Ninth Avenue, 8th Floor, New York, New York 10001-2727

SOIL VAPOR SAMPLING LOG SHEET

Sample Number: SV24_031926

PROJECT: C Block		**PROJECT NO.:** 170229030	
LOCATION: Brooklyn, New York		**SURFACE ELEVATION AND DATUM:** N/A	
DRILLING FIRM OR LANGAN INSTALLER: AARCO Environmental Services Corp.		**INSTALLATION DATE STARTED:** 3/19/2026	**DATE FINISHED:** 3/19/2026
INSTALLATION FOREMAN: Dave Johnson		**SAMPLE DATE STARTED:** 3/19/2026	**DATE FINISHED:** 3/19/2026
INSTALLATION EQUIPMENT: Geoprobe® 7822 DT		**TYPE OF SAMPLING DEVICE:** 6-Liter Summa Canister	
INSPECTOR: Olivia O'Donnell, Carli Piretra, Emma Bitar		**SAMPLER:** Carli Piretra	
POTENTIAL SAMPLE INTERFERENCES: N/A		**WEATHER CONDITIONS (PRECIP., TEMP., PRESS., WIND SPEED AND DIR.):**	
		Temp:	33-45 degrees F
		Wind:	5 mph SSE
		Precipitation:	0 in
		Pressure:	30.34 inHg

METHOD OF INSTALLATION AND PURGING:

AARCO Environmental Services Corp. (AARCO) advanced and installed the soil vapor point to 5 feet below grade surface (bgs). A small amount of No. 2 sand was backfilled into the borehole to set the soil vapor tubing. No. 2 sand was backfilled around the tubing to 3 feet bgs, and the remainder of the borehole was sealed with bentonite to grade. A MultiRAE photoionization detector (PID) was used to purge the soil vapor point. The sample and flow controller were checked every 30 minutes during sampling to ensure proper operation.

TUBING TYPE/DIAMETER: 3/16-inch ID, 1/4-inch OD Teflon-Lined Polyethylene Tubing		**TYPE OF MATERIAL ABOVE SEAL:** Sand	
IMPLANT SCREEN TYPE/LENGTH/DIAMETER: 1.875-Inch Polyethylene Probe		**SEAL MATERIAL (Bentonite, Beeswax, Modeling Clay, etc.):** Bentonite	
BOREHOLE DIAMETER: 4 inches		**FILTER PACK MATERIAL (Sand or Glass Beads):** No. 2 Sand	
PURGE VOLUME (L):	0.60		
PURGE FLOW RATE (ML/MIN):	200		
PID AFTER PURGE (PPM):	0.70		
HELIUM TESTS	Pre-sampling	Post-sampling	
HELIUM TEST IN BUCKET(%):	2.1	13.8	
HELIUM TEST IN TUBE (PPM):	0.0	0.0	
SAMPLE START TIME:	13:05		
SAMPLE STOP TIME:	15:05		
TOTAL SAMPLE TIME (MIN):	120		
REGULATOR FLOW RATE (L/MIN):	0.042		
VOLUME OF SAMPLE (LITERS):	5.04		
PID AFTER SAMPLE (PPM):	0.70		
SAMPLE MOISTURE CONTENT:	N/A		
CAN SERIAL NUMBER:	A250		
REGULATOR SERIAL NUMBER:	FC1383		
CAN START VACUUM PRESS. (" HG):	-32		
CAN STOP VACUUM PRESS. (" HG):	-4		

IMPLANT/PROBE DETAILS (SEAL, FILTER, ETC.)	**DEPTH (FEET FROM SURFACE)**	**NOTES**
SURFACE / SURFACE		
Top of Seal	0.00	
Top of Pack	3.00	
Probe Depth	5.00	

SAMPLE LOCATION SKETCH

See Sample Location Plan

NOTES

N/A

Langan Engineering, Environmental, Surveying, Landscape Architecture, and Geology D.P.C.
368 Ninth Avenue, 8th Floor, New York, New York 10001-2727

SOIL VAPOR SAMPLING LOG SHEET

Sample Number: SV25_031926

PROJECT: C Block		**PROJECT NO.:** 170229030	
LOCATION: Brooklyn, New York		**SURFACE ELEVATION AND DATUM:** N/A	
DRILLING FIRM OR LANGAN INSTALLER: AARCO Environmental Services Corp.		**INSTALLATION DATE STARTED:** 3/19/2026	**DATE FINISHED:** 3/19/2026
INSTALLATION FOREMAN: Dave Johnson		**SAMPLE DATE STARTED:** 3/19/2026	**DATE FINISHED:** 3/19/2026
INSTALLATION EQUIPMENT: Geoprobe® 7822 DT		**TYPE OF SAMPLING DEVICE:** 6-Liter Summa Canister	
INSPECTOR: Olivia O'Donnell, Carli Piretra, Emma Bitar		**SAMPLER:** Olivia O'Donnell	
POTENTIAL SAMPLE INTERFERENCES: N/A		**WEATHER CONDITIONS (PRECIP., TEMP., PRESS., WIND SPEED AND DIR.):**	
		Temp:	33-45 degrees F
		Wind:	5mph SSE
		Precipitation:	0 in
		Pressure:	30.34 inHg

METHOD OF INSTALLATION AND PURGING:

AARCO Environmental Services Corp. (AARCO) advanced and installed the soil vapor point to 5 feet below grade surface (bgs). A small amount of No. 2 sand was backfilled into the borehole to set the soil vapor tubing. No. 2 sand was backfilled around the tubing to 3 feet bgs, and the remainder of the borehole was sealed with bentonite to grade. A MultiRAE photoionization detector (PID) was used to purge the soil vapor point. The sample and flow controller were checked every 30 minutes during sampling to ensure proper operation.

TUBING TYPE/DIAMETER: 3/16-inch ID, 1/4-inch OD Teflon-Lined Polyethylene Tubing		**TYPE OF MATERIAL ABOVE SEAL:** Sand	
IMPLANT SCREEN TYPE/LENGTH/DIAMETER: 1.875-Inch Polyethylene Probe		**SEAL MATERIAL (Bentonite, Beeswax, Modeling Clay, etc.):** Bentonite	
BOREHOLE DIAMETER: 4 inches		**FILTER PACK MATERIAL (Sand or Glass Beads):** No. 2 Sand	
PURGE VOLUME (L):	0.60		
PURGE FLOW RATE (ML/MIN):	200		
PID AFTER PURGE (PPM):	0.00		
HELIUM TESTS	Pre-sampling	Post-sampling	
HELIUM TEST IN BUCKET(%):	30.5	21.4	
HELIUM TEST IN TUBE (PPM):	0.0	0.0	
SAMPLE START TIME:	13:35		
SAMPLE STOP TIME:	15:35		
TOTAL SAMPLE TIME (MIN):	120		
REGULATOR FLOW RATE (L/MIN):	0.042		
VOLUME OF SAMPLE (LITERS):	5.04		
PID AFTER SAMPLE (PPM):	0.00		
SAMPLE MOISTURE CONTENT:	N/A		
CAN SERIAL NUMBER:	A1687		
REGULATOR SERIAL NUMBER:	FC1202		
CAN START VACUUM PRESS. (" HG):	-31		
CAN STOP VACUUM PRESS. (" HG):	-5		

IMPLANT/PROBE DETAILS (SEAL, FILTER, ETC.)	**DEPTH (FEET FROM SURFACE)**	**NOTES**
SURFACE / SURFACE		
Top of Seal	0.00	
Top of Pack	3.00	
Probe Depth	5.00	

SAMPLE LOCATION SKETCH

See Sample Location Plan

NOTES

N/A

Langan Engineering, Environmental, Surveying, Landscape Architecture, and Geology D.P.C.
368 Ninth Avenue, 8th Floor, New York, New York 10001-2727

SOIL VAPOR SAMPLING LOG SHEET

Sample Number: SV26_031926

PROJECT: C Block	**PROJECT NO.:** 170229030	
LOCATION: Brooklyn, New York	**SURFACE ELEVATION AND DATUM:** N/A	
DRILLING FIRM OR LANGAN INSTALLER: AARCO Environmental Services Corp.	**INSTALLATION DATE STARTED:** 3/19/2026	**DATE FINISHED:** 3/19/2026
INSTALLATION FOREMAN: Dave Johnson	**SAMPLE DATE STARTED:** 3/19/2026	**DATE FINISHED:** 3/19/2026
INSTALLATION EQUIPMENT: Geoprobe® 7822 DT	**TYPE OF SAMPLING DEVICE:** 6-Liter Summa Canister	
INSPECTOR: Olivia O'Donnell, Carli Piretra, Emma Bitar	**SAMPLER:** Olivia O'Donnell	
POTENTIAL SAMPLE INTERFERENCES: N/A	**WEATHER CONDITIONS (PRECIP., TEMP., PRESS., WIND SPEED AND DIR.):** Temp: 33-45 degrees F; Wind: 5mph SSE; Precipitation: 0 in; Pressure: 30.34 inHg	

METHOD OF INSTALLATION AND PURGING:

AARCO Environmental Services Corp. (AARCO) advanced and installed the soil vapor point to 5 feet below grade surface (bgs). A small amount of No. 2 sand was backfilled into the borehole to set the soil vapor tubing. No. 2 sand was backfilled around the tubing to 3 feet bgs, and the remainder of the borehole was sealed with bentonite to grade. A MultiRAE photoionization detector (PID) was used to purge the soil vapor point. The sample and flow controller were checked every 30 minutes during sampling to ensure proper operation.

TUBING TYPE/DIAMETER: 3/16-inch ID, 1/4-inch OD Teflon-Lined Polyethylene Tubing	**TYPE OF MATERIAL ABOVE SEAL:** Sand
IMPLANT SCREEN TYPE/LENGTH/DIAMETER: 1.875-Inch Polyethylene Probe	**SEAL MATERIAL (Bentonite, Beeswax, Modeling Clay, etc.):** Bentonite
BOREHOLE DIAMETER: 4 inches	**FILTER PACK MATERIAL (Sand or Glass Beads):** No. 2 Sand

PURGE VOLUME (L):	0.60	
PURGE FLOW RATE (ML/MIN):	200	
PID AFTER PURGE (PPM):	0.00	
HELIUM TESTS	Pre-sampling	Post-sampling
HELIUM TEST IN BUCKET(%):	25.0	27.0
HELIUM TEST IN TUBE (PPM):	0.0	0.0
SAMPLE START TIME:	12:00	
SAMPLE STOP TIME:	14:00	
TOTAL SAMPLE TIME (MIN):	120	
REGULATOR FLOW RATE (L/MIN):	0.042	
VOLUME OF SAMPLE (LITERS):	5.04	
PID AFTER SAMPLE (PPM):	0.00	
SAMPLE MOISTURE CONTENT:	N/A	
CAN SERIAL NUMBER:	A2029	
REGULATOR SERIAL NUMBER:	FC988	
CAN START VACUUM PRESS. (" HG):	-32	
CAN STOP VACUUM PRESS. (" HG):	-4	

IMPLANT/PROBE DETAILS (SEAL, FILTER, ETC.)	**DEPTH (FEET FROM SURFACE)**	**NOTES**
SURFACE / SURFACE		
Top of Seal	0.00	
Top of Pack	3.00	
Probe Depth	5.00	

SAMPLE LOCATION SKETCH

See Sample Location Plan

NOTES

N/A

Langan Engineering, Environmental, Surveying, Landscape Architecture, and Geology D.P.C.
368 Ninth Avenue, 8th Floor, New York, New York 10001-2727

SOIL VAPOR SAMPLING LOG SHEET

Sample Number: SV27_031926

PROJECT: C Block	**PROJECT NO.:** 170229030	
LOCATION: Brooklyn, New York	**SURFACE ELEVATION AND DATUM:** N/A	
DRILLING FIRM OR LANGAN INSTALLER: AARCO Environmental Services Corp.	**INSTALLATION DATE STARTED:** 3/19/2026	**DATE FINISHED:** 3/19/2026
INSTALLATION FOREMAN: Dave Johnson	**SAMPLE DATE STARTED:** 3/19/2026	**DATE FINISHED:** 3/19/2026
INSTALLATION EQUIPMENT: Geoprobe® 7822 DT	**TYPE OF SAMPLING DEVICE:** 6-Liter Summa Canister	
INSPECTOR: Olivia O'Donnell, Carli Piretra, Emma Bitar	**SAMPLER:** Carli Piretra	
POTENTIAL SAMPLE INTERFERENCES: N/A	**WEATHER CONDITIONS (PRECIP., TEMP., PRESS., WIND SPEED AND DIR.):**	
	Temp:	33-45 degrees F
	Wind:	5mph SSE
	Precipitation:	0 in
	Pressure:	30.34 inHg

METHOD OF INSTALLATION AND PURGING:

AARCO Environmental Services Corp. (AARCO) advanced and installed the soil vapor point to 5 feet below grade surface (bgs). A small amount of No. 2 sand was backfilled into the borehole to set the soil vapor tubing. No. 2 sand was backfilled around the tubing to 3 feet bgs, and the remainder of the borehole was sealed with bentonite to grade. A MultiRAE photoionization detector (PID) was used to purge the soil vapor point. The sample and flow controller were checked every 30 minutes during sampling to ensure proper operation.

TUBING TYPE/DIAMETER: 3/16-inch ID, 1/4-inch OD Teflon-Lined Polyethylene Tubing	**TYPE OF MATERIAL ABOVE SEAL:** Sand
IMPLANT SCREEN TYPE/LENGTH/DIAMETER: 1.875-Inch Polyethylene Probe	**SEAL MATERIAL (Bentonite, Beeswax, Modeling Clay, etc.):** Bentonite
BOREHOLE DIAMETER: 4 inches	**FILTER PACK MATERIAL (Sand or Glass Beads):** No. 2 Sand

PURGE VOLUME (L):	0.60	
PURGE FLOW RATE (ML/MIN):	200	
PID AFTER PURGE (PPM):	0.30	
HELIUM TESTS	Pre-sampling	Post-sampling
HELIUM TEST IN BUCKET(%):	21.0	22.0
HELIUM TEST IN TUBE (PPM):	0.0	0.0
SAMPLE START TIME:	12:25	
SAMPLE STOP TIME:	14:20	
TOTAL SAMPLE TIME (MIN):	115	
REGULATOR FLOW RATE (L/MIN):	0.04	
VOLUME OF SAMPLE (LITERS):	4.83	
PID AFTER SAMPLE (PPM):	0.10	
SAMPLE MOISTURE CONTENT:	N/A	
CAN SERIAL NUMBER:	A1874	
REGULATOR SERIAL NUMBER:	FC1381	
CAN START VACUUM PRESS. (" HG):	-30	
CAN STOP VACUUM PRESS. (" HG):	-5	

IMPLANT/PROBE DETAILS (SEAL, FILTER, ETC.)	**DEPTH (FEET FROM SURFACE)**	**NOTES**
SURFACE / SURFACE		
Top of Seal	0.00	
Top of Pack	3.00	
Probe Depth	5.00	

SAMPLE LOCATION SKETCH

See Sample Location Plan

NOTES

N/A

Langan Engineering, Environmental, Surveying, Landscape Architecture, and Geology D.P.C.
368 Ninth Avenue, 8th Floor, New York, New York 10001-2727

APPENDIX G

Community Air Monitoring Summary Data

LANGAN

C Block - Supplemental Remedial Investigation No. 2
170229030
CAMP Data Summary

Date: 3/19/2026
Start: 8:32
End: 15:27
Weather: Cloudy, 40F, 5mph SSE
Observer: Olivia O'Donnell

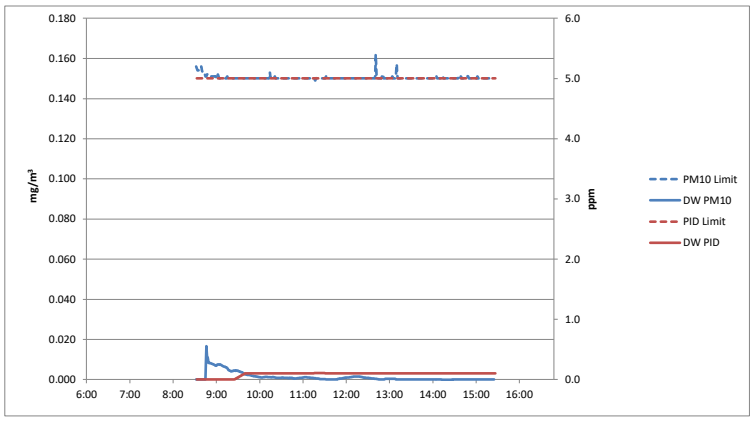
UPWIND - UW
DOWNWIND - DW

Particulate Monitoring		
	UW	**DW**
Daily Average	0.001	0.000
Minimum 15min Average	0.000	0.000
Maximum 15min Reading	0.010	0.017
High Intervals "exceedances" (15min > 1.5 + Upwind level)	NA	0.0
Minimum 1min Reading	-0.001	-0.001
Maximum 1min Reading	0.066	0.003

NA - Not applicable, upwind unit used for background concentrations
All reported units are mg/m^3 or milligrams per cubic meter unless specified otherwise

Organic Vapor Monitoring		
	UW	**DW**
Daily Average	0.0	0.1
Minimum 15min Average	0.0	0.0
Maximum 15min Average	0.2	0.1
High Intervals "exceedances" (15min > 5 + Upwind level)	NA	0.0
Minimum 1min Reading	0.0	0.0
Maximum 1min Reading	0.2	0.2

NA - Not applicable, upwind unit used for background concentrations
All reported units are ppm or parts per million unless specified otherwise



Thursday, March 19, 2026						
Number of Instances Where Downwind Particulates Exceeds Upwind Particulate + 150 =						0
Number of Comparable Data Points =						396
Start Time:						8:32
End Time:						15:25
PARTICULATE DATA						
Upwind			Downwind			Exceeds Particulate Alarm Limits
Time	Concentration (mg/m^3)	15-Minute Average	Time	Concentration (mg/m^3)	15-Minute Average	
8:32	-	-	8:32	0.084	-	-
8:33	-	-	8:33	0.013	-	-
8:34	-	-	8:34	0.047	-	-
8:35	-	-	8:35	0.009	-	-
8:36	0.066	-	8:36	0.009	-	-
8:37	0.008	-	8:37	0.009	-	-
8:38	0.007	-	8:38	0.009	-	-
8:39	0.007	-	8:39	0.010	-	-
8:40	0.006	-	8:40	0.009	-	-
8:41	0.007	-	8:41	0.008	-	-
8:42	0.006	-	8:42	0.008	-	-
8:43	0.006	-	8:43	0.009	-	-
8:44	0.006	-	8:44	0.009	-	-
8:45	0.006	-	8:45	0.008	-	-
8:46	0.005	-	8:46	0.007	0.017	-
8:47	0.004	-	8:47	0.007	0.011	-
8:48	0.004	-	8:48	0.007	0.011	-
8:49	0.004	-	8:49	0.007	0.008	-
8:50	0.004	0.010	8:50	0.008	0.008	-
8:51	0.005	0.006	8:51	0.007	0.008	-
8:52	0.006	0.006	8:52	0.008	0.008	-
8:53	0.004	0.005	8:53	0.007	0.008	-
8:54	0.003	0.005	8:54	0.008	0.008	-
8:55	0.003	0.005	8:55	0.006	0.008	-
8:56	0.002	0.005	8:56	0.006	0.007	-
8:57	0.002	0.004	8:57	0.006	0.007	-
8:58	0.001	0.004	8:58	0.005	0.007	-
8:59	0.001	0.004	8:59	0.006	0.007	-
9:00	0.002	0.003	9:00	0.007	0.007	-
9:01	0.002	0.003	9:01	0.014	0.007	-
9:02	0.002	0.003	9:02	0.011	0.008	-
9:03	0.001	0.003	9:03	0.006	0.007	-
9:04	0.001	0.003	9:04	0.008	0.008	-
9:05	0.001	0.002	9:05	0.006	0.007	-
9:06	0.001	0.002	9:06	0.006	0.007	-
9:07	0.001	0.002	9:07	0.005	0.007	-
9:08	0.001	0.002	9:08	0.004	0.007	-
9:09	0.001	0.001	9:09	0.004	0.007	-
9:10	0.001	0.001	9:10	0.004	0.007	-
9:11	0.001	0.001	9:11	0.004	0.006	-
9:12	0.001	0.001	9:12	0.004	0.006	-
9:13	0.000	0.001	9:13	0.003	0.006	-
9:14	0.001	0.001	9:14	0.003	0.006	-
9:15	0.002	0.001	9:15	0.004	0.006	-
9:16	0.001	0.001	9:16	0.004	0.005	-
9:17	0.000	0.001	9:17	0.005	0.005	-
9:18	0.000	0.001	9:18	0.004	0.005	-
9:19	0.000	0.001	9:19	0.005	0.004	-
9:20	0.000	0.001	9:20	0.004	0.004	-
9:21	0.000	0.001	9:21	0.004	0.004	-
9:22	0.000	0.001	9:22	0.006	0.004	-
9:23	0.000	0.001	9:23	0.005	0.004	-
9:24	0.000	0.000	9:24	0.007	0.004	-
9:25	0.000	0.000	9:25	0.004	0.004	-
9:26	0.000	0.000	9:26	0.004	0.004	-
9:27	0.000	0.000	9:27	0.003	0.004	-
9:28	0.001	0.000	9:28	0.004	0.004	-
9:29	0.000	0.000	9:29	0.003	0.004	-
9:30	0.000	0.000	9:30	0.002	0.004	-
9:31	0.000	0.000	9:31	0.002	0.004	-
9:32	0.000	0.000	9:32	0.003	0.004	-
9:33	0.000	0.000	9:33	0.002	0.004	-
9:34	0.000	0.000	9:34	0.002	0.004	-
9:35	0.000	0.000	9:35	0.003	0.004	-
9:36	0.000	0.000	9:36	0.002	0.003	-
9:37	0.000	0.000	9:37	0.002	0.003	-
9:38	0.000	0.000	9:38	0.002	0.003	-
9:39	0.000	0.000	9:39	0.002	0.003	-
9:40	0.000	0.000	9:40	0.002	0.003	-
9:41	0.000	0.000	9:41	0.002	0.002	-
9:42	0.000	0.000	9:42	0.003	0.002	-
9:43	0.000	0.000	9:43	0.002	0.002	-
9:44	0.000	0.000	9:44	0.002	0.002	-
9:45	0.000	0.000	9:45	0.002	0.002	-
9:46	0.000	0.000	9:46	0.002	0.002	-
9:47	0.000	0.000	9:47	0.001	0.002	-
9:48	0.000	0.000	9:48	0.001	0.002	-
9:49	0.000	0.000	9:49	0.001	0.002	-
9:50	0.000	0.000	9:50	0.001	0.002	-
9:51	0.000	0.000	9:51	0.001	0.002	-
9:52	0.000	0.000	9:52	0.001	0.002	-
9:53	0.000	0.000	9:53	0.001	0.002	-
9:54	0.000	0.000	9:54	0.001	0.002	-
9:55	0.000	0.000	9:55	0.001	0.001	-
9:56	0.000	0.000	9:56	0.002	0.001	-
9:57	0.000	0.000	9:57	0.001	0.001	-
9:58	0.000	0.000	9:58	0.001	0.001	-
9:59	0.000	0.000	9:59	0.001	0.001	-
10:00	0.000	0.000	10:00	0.001	0.001	-
10:01	0.000	0.000	10:01	0.001	0.001	-
10:02	0.000	0.000	10:02	0.000	0.001	-
10:03	0.000	0.000	10:03	0.001	0.001	-
10:04	0.000	0.000	10:04	0.001	0.001	-
10:05	0.000	0.000	10:05	0.002	0.001	-
10:06	0.000	0.000	10:06	0.002	0.001	-
10:07	0.000	0.000	10:07	0.002	0.001	-
10:08	0.000	0.000	10:08	0.003	0.001	-
10:09	0.000	0.000	10:09	0.001	0.001	-
10:10	0.000	0.000	10:10	0.001	0.001	-
10:11	0.000	0.000	10:11	0.000	0.001	-
10:12	0.000	0.000	10:12	0.000	0.001	-
10:13	0.000	0.000	10:13	0.001	0.001	-
10:14	0.000	0.000	10:14	0.001	0.001	-
10:15	0.000	0.000	10:15	0.000	0.001	-
10:16	0.000	0.000	10:16	0.000	0.001	-
10:17	0.000	0.000	10:17	0.002	0.001	-
10:18	0.000	0.000	10:18	0.002	0.001	-
10:19	0.000	0.000	10:19	0.001	0.001	-
10:20	0.000	0.000	10:20	0.001	0.001	-
10:21	0.000	0.000	10:21	0.000	0.001	-
10:22	0.000	0.000	10:22	0.001	0.001	-
10:23	0.000	0.000	10:23	0.001	0.001	-
10:24	0.000	0.000	10:24	0.001	0.001	-

PARTICULATE DATA						
Upwind			Downwind			Exceeds Particulate Alarm Limits
Time	Concentration (mg/m^3)	15-Minute Average	Time	Concentration (mg/m^3)	15-Minute Average	
10:25	0.000	0.000	10:25	0.001	0.001	-
10:26	0.000	0.000	10:26	0.000	0.001	-
10:27	0.003	0.000	10:27	0.000	0.001	-
10:28	0.001	0.000	10:28	0.001	0.001	-
10:29	0.000	0.000	10:29	0.000	0.001	-
10:30	0.000	0.000	10:30	0.001	0.001	-
10:31	0.000	0.000	10:31	0.002	0.001	-
10:32	0.000	0.000	10:32	0.002	0.001	-
10:33	0.000	0.000	10:33	0.001	0.001	-
10:34	0.001	0.000	10:34	0.000	0.001	-
10:35	0.000	0.000	10:35	0.000	0.001	-
10:36	0.000	0.000	10:36	0.001	0.001	-
10:37	0.000	0.000	10:37	0.001	0.001	-
10:38	0.000	0.000	10:38	0.001	0.001	-
10:39	0.000	0.000	10:39	0.000	0.001	-
10:40	0.000	0.000	10:40	0.000	0.001	-
10:41	0.000	0.000	10:41	0.001	0.001	-
10:42	0.000	0.000	10:42	0.000	0.001	-
10:43	0.000	0.000	10:43	0.002	0.001	-
10:44	0.000	0.000	10:44	0.000	0.001	-
10:45	0.000	0.000	10:45	0.000	0.001	-
10:46	0.000	0.000	10:46	0.000	0.001	-
10:47	0.000	0.000	10:47	0.000	0.000	-
10:48	0.000	0.000	10:48	0.000	0.000	-
10:49	0.000	0.000	10:49	0.001	0.000	-
10:50	0.000	0.000	10:50	0.001	0.001	-
10:51	0.000	0.000	10:51	0.001	0.001	-
10:52	0.000	0.000	10:52	0.002	0.001	-
10:53	0.000	0.000	10:53	0.001	0.001	-
10:54	0.000	0.000	10:54	0.001	0.001	-
10:55	0.000	0.000	10:55	0.002	0.001	-
10:56	0.000	0.000	10:56	0.001	0.001	-
10:57	0.000	0.000	10:57	0.001	0.001	-
10:58	0.000	0.000	10:58	0.001	0.001	-
10:59	0.000	0.000	10:59	0.001	0.001	-
11:00	0.000	0.000	11:00	0.001	0.001	-
11:01	0.000	0.000	11:01	0.001	0.001	-
11:02	0.000	0.000	11:02	0.001	0.001	-
11:03	0.000	0.000	11:03	0.001	0.001	-
11:04	0.000	0.000	11:04	0.001	0.001	-
11:05	0.000	0.000	11:05	0.000	0.001	-
11:06	0.000	0.000	11:06	0.000	0.001	-
11:07	0.000	0.000	11:07	0.001	0.001	-
11:08	0.000	0.000	11:08	0.002	0.001	-
11:09	0.000	0.000	11:09	0.001	0.001	-
11:10	0.000	0.000	11:10	0.000	0.001	-
11:11	0.000	0.000	11:11	0.001	0.001	-
11:12	0.000	0.000	11:12	0.000	0.001	-
11:13	0.000	0.000	11:13	0.001	0.001	-
11:14	0.000	0.000	11:14	0.000	0.001	-
11:15	0.000	0.000	11:15	0.000	0.001	-
11:16	0.000	0.000	11:16	0.000	0.001	-
11:17	0.000	0.000	11:17	0.001	0.001	-
11:18	0.000	0.000	11:18	0.000	0.001	-
11:19	0.000	0.000	11:19	0.000	0.000	-
11:20	0.000	0.000	11:20	0.000	0.000	-
11:21	0.000	0.000	11:21	0.000	0.000	-
11:22	0.000	0.000	11:22	0.000	0.000	-
11:23	0.000	0.000	11:23	0.000	0.000	-
11:24	0.000	0.000	11:24	0.000	0.000	-
11:25	0.000	0.000	11:25	0.000	0.000	-
11:26	0.000	0.000	11:26	0.001	0.000	-
11:27	0.000	0.000	11:27	0.000	0.000	-
11:28	0.000	0.000	11:28	0.000	0.000	-
11:29	0.000	0.000	11:29	0.000	0.000	-
11:30	-0.001	0.000	11:30	0.000	0.000	-
11:31	0.000	0.000	11:31	0.000	0.000	-
11:32	0.000	0.000	11:32	0.000	0.000	-
11:33	0.000	0.000	11:33	0.000	0.000	-
11:34	0.000	0.000	11:34	0.000	0.000	-
11:35	0.000	0.000	11:35	0.000	0.000	-
11:36	0.000	0.000	11:36	0.000	0.000	-
11:37	0.000	0.000	11:37	0.000	0.000	-
11:38	0.000	0.000	11:38	0.000	0.000	-
11:39	0.000	0.000	11:39	0.000	0.000	-
11:40	0.000	0.000	11:40	0.000	0.000	-
11:41	0.000	0.000	11:41	0.000	0.000	-
11:42	0.000	0.000	11:42	0.000	0.000	-
11:43	0.000	0.000	11:43	0.000	0.000	-
11:44	0.000	0.000	11:44	0.000	0.000	-
11:45	0.001	0.000	11:45	0.000	0.000	-
11:46	0.001	0.000	11:46	0.000	0.000	-
11:47	0.000	0.000	11:47	0.001	0.000	-
11:48	0.000	0.000	11:48	0.002	0.000	-
11:49	0.000	0.000	11:49	0.001	0.000	-
11:50	0.000	0.000	11:50	0.001	0.000	-
11:51	0.000	0.000	11:51	0.001	0.000	-
11:52	0.000	0.000	11:52	0.001	0.000	-
11:53	0.000	0.000	11:53	0.000	0.000	-
11:54	0.000	0.000	11:54	0.001	0.001	-
11:55	0.000	0.000	11:55	0.001	0.001	-
11:56	0.000	0.000	11:56	0.001	0.001	-
11:57	0.000	0.000	11:57	0.001	0.001	-
11:58	0.000	0.000	11:58	0.001	0.001	-
11:59	0.000	0.000	11:59	0.001	0.001	-
12:00	0.000	0.000	12:00	0.001	0.001	-
12:01	0.000	0.000	12:01	0.001	0.001	-
12:02	0.000	0.000	12:02	0.001	0.001	-
12:03	0.000	0.000	12:03	0.001	0.001	-
12:04	0.000	0.000	12:04	0.002	0.001	-
12:05	0.000	0.000	12:05	0.002	0.001	-
12:06	0.000	0.000	12:06	0.001	0.001	-
12:07	0.000	0.000	12:07	0.002	0.001	-
12:08	0.000	0.000	12:08	0.002	0.001	-
12:09	0.000	0.000	12:09	0.002	0.001	-
12:10	0.000	0.000	12:10	0.002	0.001	-
12:11	0.000	0.000	12:11	0.002	0.001	-
12:12	0.000	0.000	12:12	0.001	0.001	-
12:13	0.000	0.000	12:13	0.001	0.001	-
12:14	0.000	0.000	12:14	0.001	0.001	-
12:15	0.000	0.000	12:15	0.001	0.001	-
12:16	0.000	0.000	12:16	0.001	0.001	-
12:17	0.000	0.000	12:17	0.001	0.001	-

PARTICULATE DATA						
Upwind			Downwind			Exceeds Particulate Alarm Limits
Time	Concentration (mg/m^3)	15-Minute Average	Time	Concentration (mg/m^3)	15-Minute Average	
12:18	0.000	0.000	12:18	0.001	0.001	-
12:19	0.000	0.000	12:19	0.001	0.001	-
12:20	0.000	0.000	12:20	0.001	0.001	-
12:21	0.000	0.000	12:21	0.000	0.001	-
12:22	0.000	0.000	12:22	0.000	0.001	-
12:23	0.000	0.000	12:23	0.001	0.001	-
12:24	0.000	0.000	12:24	0.001	0.001	-
12:25	0.000	0.000	12:25	0.001	0.001	-
12:26	0.000	0.000	12:26	0.001	0.001	-
12:27	0.000	0.000	12:27	0.000	0.001	-
12:28	0.000	0.000	12:28	0.001	0.001	-
12:29	0.000	0.000	12:29	0.001	0.001	-
12:30	0.000	0.000	12:30	0.001	0.001	-
12:31	0.000	0.000	12:31	0.000	0.001	-
12:32	0.000	0.000	12:32	0.000	0.001	-
12:33	0.000	0.000	12:33	0.001	0.001	-
12:34	0.000	0.000	12:34	0.000	0.001	-
12:35	0.000	0.000	12:35	0.000	0.001	-
12:36	0.000	0.000	12:36	0.000	0.001	-
12:37	0.000	0.000	12:37	0.000	0.001	-
12:38	0.000	0.000	12:38	0.000	0.000	-
12:39	0.000	0.000	12:39	0.000	0.000	-
12:40	0.000	0.000	12:40	0.000	0.000	-
12:41	0.000	0.000	12:41	0.000	0.000	-
12:42	0.000	0.000	12:42	0.000	0.000	-
12:43	0.000	0.000	12:43	0.000	0.000	-
12:44	0.000	0.000	12:44	0.000	0.000	-
12:45	0.000	0.000	12:45	0.000	0.000	-
12:46	0.000	0.000	12:46	0.000	0.000	-
12:47	0.000	0.000	12:47	0.000	0.000	-
12:48	0.000	0.000	12:48	0.000	0.000	-
12:49	0.000	0.000	12:49	0.000	0.000	-
12:50	0.000	0.000	12:50	0.000	0.000	-
12:51	0.000	0.000	12:51	0.000	0.000	-
12:52	0.000	0.000	12:52	0.000	0.000	-
12:53	0.000	0.000	12:53	0.001	0.000	-
12:54	0.012	0.001	12:54	0.003	0.000	-
12:55	0.000	0.001	12:55	0.001	0.000	-
12:56	0.000	0.001	12:56	0.000	0.000	-
12:57	0.000	0.001	12:57	0.000	0.000	-
12:58	0.000	0.001	12:58	0.000	0.000	-
12:59	0.000	0.001	12:59	0.000	0.000	-
13:00	0.000	0.001	13:00	0.000	0.000	-
13:01	0.000	0.001	13:01	0.000	0.000	-
13:02	0.000	0.001	13:02	0.000	0.000	-
13:03	0.002	0.001	13:03	0.000	0.000	-
13:04	0.002	0.001	13:04	0.000	0.000	-
13:05	0.000	0.001	13:05	0.000	0.000	-
13:06	0.000	0.001	13:06	0.000	0.000	-
13:07	0.000	0.001	13:07	0.000	0.000	-
13:08	0.000	0.001	13:08	0.000	0.000	-
13:09	0.000	0.000	13:09	0.000	0.000	-
13:10	0.000	0.000	13:10	0.000	0.000	-
13:11	0.000	0.000	13:11	0.000	0.000	-
13:12	0.000	0.000	13:12	0.000	0.000	-
13:13	0.000	0.000	13:13	0.000	0.000	-
13:14	0.000	0.000	13:14	0.000	0.000	-
13:15	0.000	0.000	13:15	0.000	0.000	-
13:16	0.000	0.000	13:16	0.000	0.000	-
13:17	0.001	0.000	13:17	0.000	0.000	-
13:18	0.000	0.000	13:18	0.000	0.000	-
13:19	0.000	0.000	13:19	0.000	0.000	-
13:20	0.000	0.000	13:20	0.000	0.000	-
13:21	0.000	0.000	13:21	0.000	0.000	-
13:22	0.001	0.000	13:22	0.000	0.000	-
13:23	0.007	0.001	13:23	0.000	0.000	-
13:24	0.001	0.001	13:24	0.000	0.000	-
13:25	0.000	0.001	13:25	0.000	0.000	-
13:26	0.000	0.001	13:26	0.000	0.000	-
13:27	0.000	0.001	13:27	0.000	0.000	-
13:28	0.000	0.001	13:28	0.000	0.000	-
13:29	0.000	0.001	13:29	0.000	0.000	-
13:30	0.000	0.001	13:30	0.000	0.000	-
13:31	0.000	0.001	13:31	0.000	0.000	-
13:32	0.000	0.001	13:32	0.000	0.000	-
13:33	0.000	0.001	13:33	0.000	0.000	-
13:34	0.000	0.001	13:34	0.000	0.000	-
13:35	0.000	0.001	13:35	0.000	0.000	-
13:36	0.000	0.001	13:36	0.000	0.000	-
13:37	0.000	0.001	13:37	0.000	0.000	-
13:38	0.000	0.000	13:38	0.000	0.000	-
13:39	0.000	0.000	13:39	0.000	0.000	-
13:40	0.000	0.000	13:40	0.000	0.000	-
13:41	0.000	0.000	13:41	0.000	0.000	-
13:42	0.000	0.000	13:42	0.000	0.000	-
13:43	0.000	0.000	13:43	0.000	0.000	-
13:44	0.000	0.000	13:44	0.000	0.000	-
13:45	0.000	0.000	13:45	0.000	0.000	-
13:46	0.000	0.000	13:46	0.000	0.000	-
13:47	0.000	0.000	13:47	0.000	0.000	-
13:48	0.000	0.000	13:48	0.000	0.000	-
13:49	0.000	0.000	13:49	0.000	0.000	-
13:50	0.000	0.000	13:50	0.000	0.000	-
13:51	0.000	0.000	13:51	0.000	0.000	-
13:52	0.000	0.000	13:52	0.000	0.000	-
13:53	0.000	0.000	13:53	0.000	0.000	-
13:54	0.000	0.000	13:54	0.000	0.000	-
13:55	0.000	0.000	13:55	0.000	0.000	-
13:56	0.000	0.000	13:56	0.000	0.000	-
13:57	0.000	0.000	13:57	0.000	0.000	-
13:58	0.000	0.000	13:58	0.000	0.000	-
13:59	0.000	0.000	13:59	0.000	0.000	-
14:00	0.000	0.000	14:00	0.000	0.000	-
14:01	0.000	0.000	14:01	0.000	0.000	-
14:02	0.000	0.000	14:02	0.000	0.000	-
14:03	0.000	0.000	14:03	0.000	0.000	-
14:04	0.000	0.000	14:04	-0.001	0.000	-
14:05	0.000	0.000	14:05	0.000	0.000	-
14:06	0.000	0.000	14:06	0.000	0.000	-
14:07	0.000	0.000	14:07	0.000	0.000	-
14:08	0.000	0.000	14:08	0.000	0.000	-
14:09	0.000	0.000	14:09	0.000	0.000	-
14:10	0.000	0.000	14:10	0.000	0.000	-

PARTICULATE DATA						
Upwind			Downwind			Exceeds Particulate Alarm Limits
Time	Concentration (mg/m^3)	15-Minute Average	Time	Concentration (mg/m^3)	15-Minute Average	
14:11	0.000	0.000	14:11	0.000	0.000	-
14:12	0.000	0.000	14:12	0.000	0.000	-
14:13	0.000	0.000	14:13	-0.001	0.000	-
14:14	0.000	0.000	14:14	-0.001	0.000	-
14:15	0.000	0.000	14:15	0.000	0.000	-
14:16	0.000	0.000	14:16	0.000	0.000	-
14:17	0.000	0.000	14:17	0.000	0.000	-
14:18	0.001	0.000	14:18	0.000	0.000	-
14:19	0.000	0.000	14:19	0.000	0.000	-
14:20	0.000	0.000	14:20	0.000	0.000	-
14:21	0.000	0.000	14:21	0.000	0.000	-
14:22	0.000	0.000	14:22	0.000	0.000	-
14:23	0.000	0.000	14:23	0.000	0.000	-
14:24	0.000	0.000	14:24	0.000	0.000	-
14:25	0.000	0.000	14:25	0.000	0.000	-
14:26	0.001	0.000	14:26	0.000	0.000	-
14:27	0.001	0.000	14:27	0.000	0.000	-
14:28	0.000	0.000	14:28	0.000	0.000	-
14:29	0.000	0.000	14:29	0.000	0.000	-
14:30	0.000	0.000	14:30	0.000	0.000	-
14:31	0.000	0.000	14:31	0.000	0.000	-
14:32	0.000	0.000	14:32	0.000	0.000	-
14:33	0.000	0.000	14:33	0.000	0.000	-
14:34	0.000	0.000	14:34	0.000	0.000	-
14:35	0.000	0.000	14:35	0.000	0.000	-
14:36	0.000	0.000	14:36	0.000	0.000	-
14:37	0.000	0.000	14:37	0.000	0.000	-
14:38	0.000	0.000	14:38	0.000	0.000	-
14:39	0.000	0.000	14:39	0.000	0.000	-
14:40	0.000	0.000	14:40	0.000	0.000	-
14:41	0.000	0.000	14:41	0.000	0.000	-
14:42	0.000	0.000	14:42	0.000	0.000	-
14:43	0.000	0.000	14:43	0.000	0.000	-
14:44	0.000	0.000	14:44	0.000	0.000	-
14:45	0.000	0.000	14:45	0.000	0.000	-
14:46	0.000	0.000	14:46	0.001	0.000	-
14:47	0.000	0.000	14:47	0.000	0.000	-
14:48	0.000	0.000	14:48	0.000	0.000	-
14:49	0.001	0.000	14:49	0.000	0.000	-
14:50	0.000	0.000	14:50	0.000	0.000	-
14:51	0.000	0.000	14:51	0.000	0.000	-
14:52	0.001	0.000	14:52	0.000	0.000	-
14:53	0.000	0.000	14:53	0.000	0.000	-
14:54	0.000	0.000	14:54	0.000	0.000	-
14:55	0.000	0.000	14:55	0.000	0.000	-
14:56	0.000	0.000	14:56	0.000	0.000	-
14:57	0.000	0.000	14:57	0.000	0.000	-
14:58	0.000	0.000	14:58	0.000	0.000	-
14:59	0.000	0.000	14:59	0.000	0.000	-
15:00	0.000	0.000	15:00	0.000	0.000	-
15:01	0.001	0.000	15:01	0.000	0.000	-
15:02	0.001	0.000	15:02	0.000	0.000	-
15:03	0.000	0.000	15:03	0.000	0.000	-
15:04	0.000	0.000	15:04	0.000	0.000	-
15:05	0.000	0.000	15:05	0.000	0.000	-
15:06	0.000	0.000	15:06	0.000	0.000	-
15:07	0.000	0.000	15:07	0.000	0.000	-
15:08	0.000	0.000	15:08	0.000	0.000	-
15:09	0.000	0.000	15:09	0.000	0.000	-
15:10	0.000	0.000	15:10	0.000	0.000	-
15:11	0.000	0.000	15:11	0.000	0.000	-
15:12	0.000	0.000	15:12	0.000	0.000	-
15:13	0.000	0.000	15:13	0.000	0.000	-
15:14	0.000	0.000	15:14	0.000	0.000	-
15:15	0.001	0.000	15:15	0.000	0.000	-
15:16	0.000	0.000	15:16	0.000	0.000	-
15:17	0.000	0.000	15:17	0.000	0.000	-
15:18	0.000	0.000	15:18	0.000	0.000	-
15:19	0.000	0.000	15:19	0.000	0.000	-
15:20	0.000	0.000	15:20	0.000	0.000	-
15:21	0.000	0.000	15:21	0.000	0.000	-
15:22	0.000	0.000	15:22	0.000	0.000	-
15:23	0.000	0.000	15:23	0.000	0.000	-
15:24	0.000	0.000	15:24	0.000	0.000	-
15:25	0.000	0.000	15:25	0.000	0.000	-

Thursday, March 19, 2026						
Number of Instances Where Downwind VOCs Exceeds Upwind VOCs + 5 =						0
Number of Comparable Data Points =						399
Start Time:						8:33
End Time:						15:27
PID DATA						
Upwind			Downwind			Exceeds VOCs Alarm Limits
Time	VOC (ppm)	15-Minute Average	Time	VOC (ppm)	15-Minute Average	
8:33	-	-	8:33	0	-	-
8:34	-	-	8:34	0	-	-
8:35	0.1	-	8:35	0	-	-
8:36	0.1	-	8:36	0	-	-
8:37	0.0	-	8:37	0	-	-
8:38	0.0	-	8:38	0	-	-
8:39	0.0	-	8:39	0	-	-
8:40	0.0	-	8:40	0	-	-
8:41	0.0	-	8:41	0	-	-
8:42	0.0	-	8:42	0	-	-
8:43	0.0	-	8:43	0	-	-
8:44	0.0	-	8:44	0	-	-
8:45	0.0	-	8:45	0	-	-
8:46	0.0	-	8:46	0	-	-
8:47	0.0	-	8:47	0	0.0	-
8:48	0.0	-	8:48	0	0.0	-
8:49	0.0	0.0	8:49	0	0.0	-
8:50	0.0	0.0	8:50	0	0.0	-
8:51	0.0	0.0	8:51	0	0.0	-
8:52	0.0	0.0	8:52	0	0.0	-
8:53	0.0	0.0	8:53	0	0.0	-
8:54	0.0	0.0	8:54	0	0.0	-
8:55	0.0	0.0	8:55	0	0.0	-
8:56	0.0	0.0	8:56	0	0.0	-
8:57	0.0	0.0	8:57	0	0.0	-
8:58	0.0	0.0	8:58	0	0.0	-
8:59	0.0	0.0	8:59	0	0.0	-
9:00	0.0	0.0	9:00	0	0.0	-
9:01	0.0	0.0	9:01	0	0.0	-
9:02	0.0	0.0	9:02	0	0.0	-
9:03	0.0	0.0	9:03	0	0.0	-
9:04	0.0	0.0	9:04	0	0.0	-
9:05	0.0	0.0	9:05	0	0.0	-
9:06	0.0	0.0	9:06	0	0.0	-
9:07	0.0	0.0	9:07	0	0.0	-
9:08	0.0	0.0	9:08	0	0.0	-
9:09	0.0	0.0	9:09	0	0.0	-
9:10	0.0	0.0	9:10	0	0.0	-
9:11	0.0	0.0	9:11	0	0.0	-
9:12	0.0	0.0	9:12	0	0.0	-
9:13	0.0	0.0	9:13	0	0.0	-
9:14	0.0	0.0	9:14	0	0.0	-
9:15	0.0	0.0	9:15	0	0.0	-
9:16	0.0	0.0	9:16	0	0.0	-
9:17	0.0	0.0	9:17	0	0.0	-
9:18	0.0	0.0	9:18	0	0.0	-
9:19	0.0	0.0	9:19	0	0.0	-
9:20	0.0	0.0	9:20	0	0.0	-
9:21	0.0	0.0	9:21	0	0.0	-
9:22	0.0	0.0	9:22	0	0.0	-
9:23	0.0	0.0	9:23	0	0.0	-
9:24	0.0	0.0	9:24	0	0.0	-
9:25	0.0	0.0	9:25	0	0.0	-
9:26	0.0	0.0	9:26	0	0.0	-
9:27	0.0	0.0	9:27	0	0.0	-
9:28	0.0	0.0	9:28	0	0.0	-
9:29	0.0	0.0	9:29	0.1	0.0	-
9:30	0.0	0.0	9:30	0.1	0.0	-
9:31	0.0	0.0	9:31	0.1	0.0	-
9:32	0.0	0.0	9:32	0.1	0.0	-
9:33	0.0	0.0	9:33	0.1	0.1	-
9:34	0.0	0.0	9:34	0.1	0.1	-
9:35	0.0	0.0	9:35	0.1	0.1	-
9:36	0.0	0.0	9:36	0.1	0.1	-
9:37	0.0	0.0	9:37	0.1	0.1	-
9:38	0.0	0.0	9:38	0.1	0.1	-
9:39	0.0	0.0	9:39	0.1	0.1	-
9:40	0.0	0.0	9:40	0.1	0.1	-
9:41	0.0	0.0	9:41	0.1	0.1	-
9:42	0.0	0.0	9:42	0.1	0.1	-
9:43	0.0	0.0	9:43	0.1	0.1	-
9:44	0.0	0.0	9:44	0.1	0.1	-
9:45	0.0	0.0	9:45	0.1	0.1	-
9:46	0.0	0.0	9:46	0.1	0.1	-
9:47	0.0	0.0	9:47	0.1	0.1	-
9:48	0.0	0.0	9:48	0.1	0.1	-
9:49	0.0	0.0	9:49	0.1	0.1	-
9:50	0.0	0.0	9:50	0.1	0.1	-
9:51	0.0	0.0	9:51	0.1	0.1	-
9:52	0.0	0.0	9:52	0.1	0.1	-
9:53	0.0	0.0	9:53	0.1	0.1	-
9:54	0.0	0.0	9:54	0.1	0.1	-
9:55	0.0	0.0	9:55	0.1	0.1	-
9:56	0.0	0.0	9:56	0.1	0.1	-
9:57	0.0	0.0	9:57	0.1	0.1	-
9:58	0.0	0.0	9:58	0.1	0.1	-
9:59	0.0	0.0	9:59	0.1	0.1	-
10:00	0.0	0.0	10:00	0.1	0.1	-
10:01	0.0	0.0	10:01	0.1	0.1	-
10:02	0.0	0.0	10:02	0.1	0.1	-
10:03	0.0	0.0	10:03	0.1	0.1	-
10:04	0.0	0.0	10:04	0.1	0.1	-
10:05	0.0	0.0	10:05	0.1	0.1	-
10:06	0.0	0.0	10:06	0.1	0.1	-
10:07	0.0	0.0	10:07	0.1	0.1	-
10:08	0.0	0.0	10:08	0.1	0.1	-
10:09	0.0	0.0	10:09	0.1	0.1	-
10:10	0.0	0.0	10:10	0.1	0.1	-
10:11	0.0	0.0	10:11	0.1	0.1	-
10:12	0.0	0.0	10:12	0.1	0.1	-
10:13	0.0	0.0	10:13	0.1	0.1	-
10:14	0.0	0.0	10:14	0.1	0.1	-
10:15	0.0	0.0	10:15	0.1	0.1	-
10:16	0.0	0.0	10:16	0.1	0.1	-
10:17	0.0	0.0	10:17	0.1	0.1	-
10:18	0.0	0.0	10:18	0.1	0.1	-
10:19	0.0	0.0	10:19	0.1	0.1	-
10:20	0.0	0.0	10:20	0.1	0.1	-
10:21	0.0	0.0	10:21	0.1	0.1	-
10:22	0.0	0.0	10:22	0.1	0.1	-
10:23	0.0	0.0	10:23	0.1	0.1	-
10:24	0.0	0.0	10:24	0.1	0.1	-
10:25	0.0	0.0	10:25	0.1	0.1	-

PID DATA						
Upwind			Downwind			Exceeds VOCs Alarm Limits
Time	VOC (ppm)	15-Minute Average	Time	VOC (ppm)	15-Minute Average	
10:26	0.0	0.0	10:26	0.1	0.1	-
10:27	0.0	0.0	10:27	0.1	0.1	-
10:28	0.0	0.0	10:28	0.1	0.1	-
10:29	0.0	0.0	10:29	0.1	0.1	-
10:30	0.0	0.0	10:30	0.1	0.1	-
10:31	0.0	0.0	10:31	0.1	0.1	-
10:32	0.0	0.0	10:32	0.1	0.1	-
10:33	0.0	0.0	10:33	0.1	0.1	-
10:34	0.0	0.0	10:34	0.1	0.1	-
10:35	0.0	0.0	10:35	0.1	0.1	-
10:36	0.0	0.0	10:36	0.1	0.1	-
10:37	0.0	0.0	10:37	0.1	0.1	-
10:38	0.0	0.0	10:38	0.1	0.1	-
10:39	0.0	0.0	10:39	0.1	0.1	-
10:40	0.0	0.0	10:40	0.1	0.1	-
10:41	0.0	0.0	10:41	0.1	0.1	-
10:42	0.0	0.0	10:42	0.1	0.1	-
10:43	0.0	0.0	10:43	0.1	0.1	-
10:44	0.0	0.0	10:44	0.1	0.1	-
10:45	0.0	0.0	10:45	0.1	0.1	-
10:46	0.0	0.0	10:46	0.1	0.1	-
10:47	0.0	0.0	10:47	0.1	0.1	-
10:48	0.0	0.0	10:48	0.1	0.1	-
10:49	0.0	0.0	10:49	0.1	0.1	-
10:50	0.0	0.0	10:50	0.1	0.1	-
10:51	0.0	0.0	10:51	0.1	0.1	-
10:52	0.0	0.0	10:52	0.1	0.1	-
10:53	0.0	0.0	10:53	0.1	0.1	-
10:54	0.0	0.0	10:54	0.1	0.1	-
10:55	0.0	0.0	10:55	0.1	0.1	-
10:56	0.0	0.0	10:56	0.1	0.1	-
10:57	0.0	0.0	10:57	0.1	0.1	-
10:58	0.0	0.0	10:58	0.1	0.1	-
10:59	0.0	0.0	10:59	0.1	0.1	-
11:00	0.0	0.0	11:00	0.1	0.1	-
11:01	0.0	0.0	11:01	0.1	0.1	-
11:02	0.0	0.0	11:02	0.1	0.1	-
11:03	0.0	0.0	11:03	0.1	0.1	-
11:04	0.0	0.0	11:04	0.1	0.1	-
11:05	0.0	0.0	11:05	0.1	0.1	-
11:06	0.0	0.0	11:06	0.1	0.1	-
11:07	0.0	0.0	11:07	0.1	0.1	-
11:08	0.0	0.0	11:08	0.1	0.1	-
11:09	0.0	0.0	11:09	0.1	0.1	-
11:10	0.0	0.0	11:10	0.1	0.1	-
11:11	0.0	0.0	11:11	0.1	0.1	-
11:12	0.0	0.0	11:12	0.1	0.1	-
11:13	0.0	0.0	11:13	0.1	0.1	-
11:14	0.0	0.0	11:14	0.1	0.1	-
11:15	0.0	0.0	11:15	0.1	0.1	-
11:16	0.0	0.0	11:16	0.1	0.1	-
11:17	0.0	0.0	11:17	0.1	0.1	-
11:18	0.0	0.0	11:18	0.1	0.1	-
11:19	0.0	0.0	11:19	0.2	0.1	-
11:20	0.0	0.0	11:20	0.1	0.1	-
11:21	0.0	0.0	11:21	0.1	0.1	-
11:22	0.0	0.0	11:22	0.1	0.1	-
11:23	0.0	0.0	11:23	0.1	0.1	-
11:24	0.0	0.0	11:24	0.1	0.1	-
11:25	0.0	0.0	11:25	0.1	0.1	-
11:26	0.0	0.0	11:26	0.1	0.1	-
11:27	0.0	0.0	11:27	0.1	0.1	-
11:28	0.0	0.0	11:28	0.1	0.1	-
11:29	0.0	0.0	11:29	0.1	0.1	-
11:30	0.0	0.0	11:30	0.1	0.1	-
11:31	0.0	0.0	11:31	0.1	0.1	-
11:32	0.0	0.0	11:32	0.1	0.1	-
11:33	0.0	0.0	11:33	0.1	0.1	-
11:34	0.0	0.0	11:34	0.1	0.1	-
11:35	0.0	0.0	11:35	0.1	0.1	-
11:36	0.0	0.0	11:36	0.1	0.1	-
11:37	0.0	0.0	11:37	0.1	0.1	-
11:38	0.0	0.0	11:38	0.1	0.1	-
11:39	0.0	0.0	11:39	0.1	0.1	-
11:40	0.0	0.0	11:40	0.1	0.1	-
11:41	0.0	0.0	11:41	0.1	0.1	-
11:42	0.0	0.0	11:42	0.1	0.1	-
11:43	0.0	0.0	11:43	0.1	0.1	-
11:44	0.0	0.0	11:44	0.1	0.1	-
11:45	0.0	0.0	11:45	0.1	0.1	-
11:46	0.0	0.0	11:46	0.1	0.1	-
11:47	0.0	0.0	11:47	0.1	0.1	-
11:48	0.0	0.0	11:48	0.1	0.1	-
11:49	0.0	0.0	11:49	0.1	0.1	-
11:50	0.0	0.0	11:50	0.1	0.1	-
11:51	0.0	0.0	11:51	0.1	0.1	-
11:52	0.0	0.0	11:52	0.1	0.1	-
11:53	0.0	0.0	11:53	0.1	0.1	-
11:54	0.0	0.0	11:54	0.1	0.1	-
11:55	0.0	0.0	11:55	0.1	0.1	-
11:56	0.0	0.0	11:56	0.1	0.1	-
11:57	0.0	0.0	11:57	0.1	0.1	-
11:58	0.0	0.0	11:58	0.1	0.1	-
11:59	0.0	0.0	11:59	0.1	0.1	-
12:00	0.0	0.0	12:00	0.1	0.1	-
12:01	0.0	0.0	12:01	0.1	0.1	-
12:02	0.0	0.0	12:02	0.1	0.1	-
12:03	0.0	0.0	12:03	0.1	0.1	-
12:04	0.0	0.0	12:04	0.1	0.1	-
12:05	0.0	0.0	12:05	0.1	0.1	-
12:06	0.0	0.0	12:06	0.1	0.1	-
12:07	0.0	0.0	12:07	0.1	0.1	-
12:08	0.0	0.0	12:08	0.1	0.1	-
12:09	0.0	0.0	12:09	0.1	0.1	-
12:10	0.0	0.0	12:10	0.1	0.1	-
12:11	0.0	0.0	12:11	0.1	0.1	-
12:12	0.0	0.0	12:12	0.1	0.1	-
12:13	0.0	0.0	12:13	0.1	0.1	-
12:14	0.0	0.0	12:14	0.1	0.1	-
12:15	0.0	0.0	12:15	0.1	0.1	-
12:16	0.0	0.0	12:16	0.1	0.1	-
12:17	0.0	0.0	12:17	0.1	0.1	-
12:18	0.0	0.0	12:18	0.1	0.1	-

PID DATA						
Upwind			Downwind			Exceeds VOCs Alarm Limits
Time	VOC (ppm)	15-Minute Average	Time	VOC (ppm)	15-Minute Average	
12:19	0.0	0.0	12:19	0.1	0.1	-
12:20	0.0	0.0	12:20	0.1	0.1	-
12:21	0.0	0.0	12:21	0.1	0.1	-
12:22	0.0	0.0	12:22	0.1	0.1	-
12:23	0.0	0.0	12:23	0.1	0.1	-
12:24	0.0	0.0	12:24	0.1	0.1	-
12:25	0.0	0.0	12:25	0.1	0.1	-
12:26	0.0	0.0	12:26	0.1	0.1	-
12:27	0.0	0.0	12:27	0.1	0.1	-
12:28	0.0	0.0	12:28	0.1	0.1	-
12:29	0.0	0.0	12:29	0.1	0.1	-
12:30	0.0	0.0	12:30	0.1	0.1	-
12:31	0.0	0.0	12:31	0.1	0.1	-
12:32	0.0	0.0	12:32	0.1	0.1	-
12:33	0.0	0.0	12:33	0.1	0.1	-
12:34	0.0	0.0	12:34	0.1	0.1	-
12:35	0.0	0.0	12:35	0.1	0.1	-
12:36	0.0	0.0	12:36	0.1	0.1	-
12:37	0.0	0.0	12:37	0.1	0.1	-
12:38	0.0	0.0	12:38	0.1	0.1	-
12:39	0.0	0.0	12:39	0.1	0.1	-
12:40	0.0	0.0	12:40	0.1	0.1	-
12:41	0.0	0.0	12:41	0.1	0.1	-
12:42	0.0	0.0	12:42	0.1	0.1	-
12:43	0.0	0.0	12:43	0.1	0.1	-
12:44	0.0	0.0	12:44	0.1	0.1	-
12:45	0.0	0.0	12:45	0.1	0.1	-
12:46	0.0	0.0	12:46	0.1	0.1	-
12:47	0.0	0.0	12:47	0.1	0.1	-
12:48	0.0	0.0	12:48	0.1	0.1	-
12:49	0.0	0.0	12:49	0.1	0.1	-
12:50	0.0	0.0	12:50	0.1	0.1	-
12:51	0.0	0.0	12:51	0.1	0.1	-
12:52	0.0	0.0	12:52	0.1	0.1	-
12:53	0.0	0.0	12:53	0.1	0.1	-
12:54	0.0	0.0	12:54	0.1	0.1	-
12:55	0.0	0.0	12:55	0.1	0.1	-
12:56	0.0	0.0	12:56	0.1	0.1	-
12:57	0.0	0.0	12:57	0.1	0.1	-
12:58	0.0	0.0	12:58	0.1	0.1	-
12:59	0.0	0.0	12:59	0.1	0.1	-
13:00	0.0	0.0	13:00	0.1	0.1	-
13:01	0.0	0.0	13:01	0.1	0.1	-
13:02	0.0	0.0	13:02	0.1	0.1	-
13:03	0.0	0.0	13:03	0.1	0.1	-
13:04	0.0	0.0	13:04	0.1	0.1	-
13:05	0.0	0.0	13:05	0.1	0.1	-
13:06	0.0	0.0	13:06	0.1	0.1	-
13:07	0.0	0.0	13:07	0.1	0.1	-
13:08	0.0	0.0	13:08	0.1	0.1	-
13:09	0.0	0.0	13:09	0.1	0.1	-
13:10	0.0	0.0	13:10	0.1	0.1	-
13:11	0.0	0.0	13:11	0.1	0.1	-
13:12	0.0	0.0	13:12	0.1	0.1	-
13:13	0.0	0.0	13:13	0.1	0.1	-
13:14	0.0	0.0	13:14	0.1	0.1	-
13:15	0.0	0.0	13:15	0.1	0.1	-
13:16	0.0	0.0	13:16	0.1	0.1	-
13:17	0.0	0.0	13:17	0.1	0.1	-
13:18	0.0	0.0	13:18	0.1	0.1	-
13:19	0.0	0.0	13:19	0.1	0.1	-
13:20	0.0	0.0	13:20	0.1	0.1	-
13:21	0.0	0.0	13:21	0.1	0.1	-
13:22	0.0	0.0	13:22	0.1	0.1	-
13:23	0.0	0.0	13:23	0.1	0.1	-
13:24	0.0	0.0	13:24	0.1	0.1	-
13:25	0.0	0.0	13:25	0.1	0.1	-
13:26	0.0	0.0	13:26	0.1	0.1	-
13:27	0.0	0.0	13:27	0.1	0.1	-
13:28	0.0	0.0	13:28	0.1	0.1	-
13:29	0.0	0.0	13:29	0.1	0.1	-
13:30	0.0	0.0	13:30	0.1	0.1	-
13:31	0.0	0.0	13:31	0.1	0.1	-
13:32	0.0	0.0	13:32	0.1	0.1	-
13:33	0.0	0.0	13:33	0.1	0.1	-
13:34	0.0	0.0	13:34	0.1	0.1	-
13:35	0.0	0.0	13:35	0.1	0.1	-
13:36	0.0	0.0	13:36	0.1	0.1	-
13:37	0.0	0.0	13:37	0.1	0.1	-
13:38	0.0	0.0	13:38	0.1	0.1	-
13:39	0.0	0.0	13:39	0.1	0.1	-
13:40	0.0	0.0	13:40	0.1	0.1	-
13:41	0.0	0.0	13:41	0.1	0.1	-
13:42	0.0	0.0	13:42	0.1	0.1	-
13:43	0.0	0.0	13:43	0.1	0.1	-
13:44	0.0	0.0	13:44	0.1	0.1	-
13:45	0.0	0.0	13:45	0.1	0.1	-
13:46	0.0	0.0	13:46	0.1	0.1	-
13:47	0.0	0.0	13:47	0.1	0.1	-
13:48	0.0	0.0	13:48	0.1	0.1	-
13:49	0.0	0.0	13:49	0.1	0.1	-
13:50	0.0	0.0	13:50	0.1	0.1	-
13:51	0.0	0.0	13:51	0.1	0.1	-
13:52	0.0	0.0	13:52	0.1	0.1	-
13:53	0.0	0.0	13:53	0.1	0.1	-
13:54	0.0	0.0	13:54	0.1	0.1	-
13:55	0.0	0.0	13:55	0.1	0.1	-
13:56	0.0	0.0	13:56	0.1	0.1	-
13:57	0.0	0.0	13:57	0.1	0.1	-
13:58	0.0	0.0	13:58	0.1	0.1	-
13:59	0.0	0.0	13:59	0.1	0.1	-
14:00	0.0	0.0	14:00	0.1	0.1	-
14:01	0.0	0.0	14:01	0.1	0.1	-
14:02	0.0	0.0	14:02	0.1	0.1	-
14:03	0.0	0.0	14:03	0.1	0.1	-
14:04	0.0	0.0	14:04	0.1	0.1	-
14:05	0.0	0.0	14:05	0.1	0.1	-
14:06	0.0	0.0	14:06	0.1	0.1	-
14:07	0.0	0.0	14:07	0.1	0.1	-
14:08	0.0	0.0	14:08	0.1	0.1	-
14:09	0.0	0.0	14:09	0.1	0.1	-
14:10	0.0	0.0	14:10	0.1	0.1	-
14:11	0.0	0.0	14:11	0.1	0.1	-

PID DATA						
Upwind			Downwind			Exceeds VOCs Alarm Limits
Time	VOC (ppm)	15-Minute Average	Time	VOC (ppm)	15-Minute Average	
14:12	0.0	0.0	14:12	0.1	0.1	-
14:13	0.0	0.0	14:13	0.1	0.1	-
14:14	0.0	0.0	14:14	0.1	0.1	-
14:15	0.0	0.0	14:15	0.1	0.1	-
14:16	0.0	0.0	14:16	0.1	0.1	-
14:17	0.0	0.0	14:17	0.1	0.1	-
14:18	0.0	0.0	14:18	0.1	0.1	-
14:19	0.0	0.0	14:19	0.1	0.1	-
14:20	0.0	0.0	14:20	0.1	0.1	-
14:21	0.0	0.0	14:21	0.1	0.1	-
14:22	0.0	0.0	14:22	0.1	0.1	-
14:23	0.0	0.0	14:23	0.1	0.1	-
14:24	0.0	0.0	14:24	0.1	0.1	-
14:25	0.0	0.0	14:25	0.1	0.1	-
14:26	0.0	0.0	14:26	0.1	0.1	-
14:27	0.0	0.0	14:27	0.1	0.1	-
14:28	0.0	0.0	14:28	0.1	0.1	-
14:29	0.0	0.0	14:29	0.1	0.1	-
14:30	0.0	0.0	14:30	0.1	0.1	-
14:31	0.0	0.0	14:31	0.1	0.1	-
14:32	0.0	0.0	14:32	0.1	0.1	-
14:33	0.0	0.0	14:33	0.1	0.1	-
14:34	0.0	0.0	14:34	0.1	0.1	-
14:35	0.0	0.0	14:35	0.1	0.1	-
14:36	0.0	0.0	14:36	0.1	0.1	-
14:37	0.0	0.0	14:37	0.1	0.1	-
14:38	0.0	0.0	14:38	0.1	0.1	-
14:39	0.0	0.0	14:39	0.1	0.1	-
14:40	0.0	0.0	14:40	0.1	0.1	-
14:41	0.0	0.0	14:41	0.1	0.1	-
14:42	0.0	0.0	14:42	0.1	0.1	-
14:43	0.0	0.0	14:43	0.1	0.1	-
14:44	0.0	0.0	14:44	0.1	0.1	-
14:45	0.0	0.0	14:45	0.1	0.1	-
14:46	0.0	0.0	14:46	0.1	0.1	-
14:47	0.0	0.0	14:47	0.1	0.1	-
14:48	0.0	0.0	14:48	0.1	0.1	-
14:49	0.0	0.0	14:49	0.1	0.1	-
14:50	0.0	0.0	14:50	0.1	0.1	-
14:51	0.0	0.0	14:51	0.1	0.1	-
14:52	0.0	0.0	14:52	0.1	0.1	-
14:53	0.0	0.0	14:53	0.1	0.1	-
14:54	0.0	0.0	14:54	0.1	0.1	-
14:55	0.0	0.0	14:55	0.1	0.1	-
14:56	0.0	0.0	14:56	0.1	0.1	-
14:57	0.0	0.0	14:57	0.1	0.1	-
14:58	0.0	0.0	14:58	0.1	0.1	-
14:59	0.0	0.0	14:59	0.1	0.1	-
15:00	0.0	0.0	15:00	0.1	0.1	-
15:01	0.0	0.0	15:01	0.1	0.1	-
15:02	0.0	0.0	15:02	0.1	0.1	-
15:03	0.0	0.0	15:03	0.1	0.1	-
15:04	0.0	0.0	15:04	0.1	0.1	-
15:05	0.0	0.0	15:05	0.1	0.1	-
15:06	0.2	0.0	15:06	0.1	0.1	-
15:07	0.2	0.0	15:07	0.1	0.1	-
15:08	0.2	0.0	15:08	0.1	0.1	-
15:09	0.2	0.1	15:09	0.1	0.1	-
15:10	0.2	0.1	15:10	0.1	0.1	-
15:11	0.2	0.1	15:11	0.1	0.1	-
15:12	0.2	0.1	15:12	0.1	0.1	-
15:13	0.2	0.1	15:13	0.1	0.1	-
15:14	0.2	0.1	15:14	0.1	0.1	-
15:15	0.2	0.1	15:15	0.1	0.1	-
15:16	0.1	0.1	15:16	0.1	0.1	-
15:17	0.1	0.1	15:17	0.1	0.1	-
15:18	0.1	0.2	15:18	0.1	0.1	-
15:19	0.1	0.2	15:19	0.1	0.1	-
15:20	0.1	0.2	15:20	0.1	0.1	-
15:21	0.1	0.2	15:21	0.1	0.1	-
15:22	0.1	0.2	15:22	0.1	0.1	-
15:23	0.1	0.1	15:23	0.1	0.1	-
15:24	0.1	0.1	15:24	0.1	0.1	-
15:25	0.1	0.1	15:25	0.1	0.1	-
15:26	0.1	0.1	15:26	0.1	0.1	-
15:27	0.1	0.1	15:27	0.1	0.1	-

APPENDIX H

Data Usability Summary Report

LANGAN
ENGINEERING & ENVIRONMENTAL SERVICES

Technical Memorandum

1 University Square Drive Princeton, NJ 08540 T: 609.282.8000
Mailing Address: 1 University Square Drive Princeton, NJ 08540

To: Elizabeth Burgess, Langan Project Engineer

From: Joe Conboy, Langan Senior Staff Chemist

Date: April 11, 2025

Re: Data Usability Summary Report
For Greenpoint Landing - Parcel C
July and August 2022 Soil Samples
Langan Project No.: 170229030

This memorandum presents the findings of an analytical data validation from the analysis of soil samples collected in July and August 2022 by Langan Engineering and Environmental Services at the Greenpoint Landing - Parcel C site. The samples were analyzed by Alpha Analytical Laboratories, Inc. (NYSDOH NELAP registration # 11148) for volatile organic compounds (VOCs), semivolatile organic compounds (SVOCs), per- and polyfluoroalkyl substances (PFAS), herbicides, polychlorinated biphenyls (PCBs), pesticides, total and TCLP metals, cyanide (CN), hexavalent chromium (CrVI), and trivalent chromium (CrIII) by the methods specified below.

- VOCs by SW-846 Method 8260C
- SVOCs by SW-846 Method 8270D / 8270D/E-SIM
- PFAS by USEPA Method 537M
- Pesticides by SW-846 Method 8081B
- PCBs by SW-846 Method 8082A
- Herbicides by SW-846 Method 8151A
- Metals by SW-846 Method 6010D / 7471B
- TCLP Metals by SW-846 Method 6020B
- Cyanide by SW-846 Method 9012B
- Hexavalent Chromium by SW-846 Method 7196A
- Trivalent Chromium (calculated)

Table 1, attached, summarizes the laboratory and client sample identification numbers, sample collection dates, level of data validation, and analytical parameters subject to review.

Validation Overview

This data validation was performed in accordance with the following guidelines, where applicable:

- USEPA Region II Standard Operating Procedures (SOPs) for Data Validation
- USEPA Contract Laboratory Program "National Functional Guidelines for Organic Superfund Methods Data Review" (EPA 540- R-20-005, November 2020)
- USEPA Contract Laboratory Program "National Functional Guidelines for Inorganic Superfund Methods Data Review" (EPA 540- R-20-005, November 2020), and
- published analytical methodologies.

The following acronyms may be used in the discussion of data-quality issues:

%D	Percent Difference	MB	Method Blank
CCV	Continuing Calibration Verification	MDL	Method Detection Limit
FB	Field Blank	MS	Matrix Spike
FD	Field Duplicate	MSD	Matrix Spike Duplicate
ICAL	Initial Calibration	RF	Response Factor
ICV	Initial Calibration Verification	RL	Reporting Limit
ISTD	Internal Standard	RPD	Relative Percent Difference
LCL	Lower Control Limit	RSD	Relative Standard Deviation
LCS	Laboratory Control Sample	TB	Trip Blank
LCSD	Laboratory Control Sample Duplicate	UCL	Upper Control Limit

Tier 1 data validation is based on completeness and compliance checks of sample-related QC results including: sample receipt documentation; analytical holding times; sample preservation; blank results (method, field, and trip); surrogate recoveries; MS/MSD recoveries and RPDs values; field duplicate RPDs, laboratory duplicate RPDs, and LCS/LCSD recoveries and RPDs. Eight (8) Sample Delivery Groups (SDGs) underwent Tier 1 validation review.

As a result of the review process, the following qualifiers may be assigned to the data in accordance with the USEPA guidelines and our best professional judgment:

R – The sample results are unusable because certain criteria were not met when generating the data. The analyte may or may not be present in the sample.

J – The analyte was positively identified, and the associated numerical value is the approximate concentration of the analyte in the sample.

UJ – The analyte was not detected at a level greater than or equal to the reporting limit; however, the reported reporting limit is approximate and may be inaccurate or imprecise.

U – The analyte was analyzed for but was not detected at a level greater than or equal to the level of the RL or the sample concentration for results impacted by blank contamination.

NJ – The analysis indicates the presence of an analyte that has been "tentatively identified" and the associated numerical value represents its approximate concentration.

If any validation qualifiers are assigned, these qualifiers should supersede any laboratory-applied qualifiers. Data that is not qualified because of this data validation is considered acceptable on the basis of the items specified for review. Data that is qualified as "R" are considered invalid and are not technically usable for data interpretation. Data that is otherwise qualified because of minor data-quality anomalies are usable, as qualified in Table 2 (attached).

MAJOR DEFICIENCIES:

Major deficiencies include those that grossly impact data quality and necessitate the rejection of results. No major deficiencies were identified.

MINOR DEFICIENCIES:

Minor deficiencies include anomalies that directly impact data quality and necessitate qualification, but do not result in unusable data. The section below describes the minor deficiencies that were identified.

VOCs by SW-846 Method 8260C

L2239619

The case narrative noted that sample SODUP-01_072522 exhibited low internal standard recovery confirmed by re-analysis. Original results have been reported. Based on professional judgement all associated results are qualified J or UJ because of potential indeterminate bias.

L2239864

The case narrative noted that samples SB02_0-2 and SB14_0-2 exhibited low internal standard recovery confirmed by re-analysis. Original results have been reported. Based on professional judgement all associated results are qualified J or UJ because of potential indeterminate bias.

The LCS/LCSD for batch WG1669622 exhibited a percent recovery above the UCL for acetone (147%, 173%). The associated detect results in samples SB03_0-2, SB05_0-2, and SB05_5-7 are qualified as J because of potential high bias.

L2240174

The case narrative noted that sample SB06_4-6 exhibited low internal standard recovery confirmed by re-analysis. Original results have been reported. Based on professional judgement all associated results are qualified J or UJ because of potential indeterminate bias.

The TB (SOTB03_072722) exhibited a detection of acetone (1.7 ug/L). The associated trace detected results in samples SB11_0-2, SB11_6-8, SB13_0-2, SB13_2-4, SB06_0-2, SB06_4-6, SB24_0-2, and SB24_2-4 are qualified as U at the reporting limit because of potential blank contamination.

The MB for batch WG1669615 exhibited detections of acetone (9.9 ug/kg), methylene chloride (2.7 ug/kg), styrene (0.55 ug/kg), and toluene (0.58 ug/kg). The associated trace detect results in sample SB24_0-2 are qualified as U at the reporting limit because of potential blank contamination.

The LCS/LCSD for batch WG1669622 exhibited a percent recovery above the UCL for acetone (147%, 173%). The associated detect results in samples SB13_2-4 and SB24_2-4 are qualified as J because of potential high bias.

The LCS/LCSD for batch WG1669978 exhibited a percent recovery below the LCL for vinyl acetate (63%, 55%). The associated results in samples SB06_0-2, SB06_4-6, SB11_0-2, SB11_6-8, and SB13_0-2 are qualified as UJ because of potential low bias.

The sample SB06_4-6 exhibited a percent recovery above the UCL for the surrogate 4-bromofluorobenzene (143%). The associated results are qualified as J because of potential high bias.

L2240432

The case narrative noted that samples SB07_0-2, SB08_0-2, SB25_0-2, and SB25_4-6 exhibited low internal standard recoveries confirmed by re-analysis. Original results have been reported. Based on professional judgement, all associated results are qualified J or UJ because of potential indeterminate bias.

L2240885

The case narrative noted that samples SB01_0-2 and SODUP02_072922 exhibited low internal standard recoveries confirmed by re-analysis. Original results have been reported. Based on professional judgement, all associated results are qualified J or UJ because of potential indeterminate bias.

The LCSD for batch WG1670707 exhibited percent recoveries below the LCL for 1,4-dioxane (63%) and vinyl acetate (67%). The associated results in samples SB01_19-21, SB10_13-15, SB10_17-19, and SODUP02_072922 are qualified as UJ because of potential low bias.

The LCS/LCSD for batch WG1671146 exhibited a percent recovery below the LCL for vinyl acetate (62%, 53%). The associated results in samples SB01_0-2, SB10_0-2, and SB10_3-5 are qualified as UJ because of potential low bias.

The LCS and/or LCSD for batch WG1671146 exhibited a percent recovery above the UCL and a RPD above the control limit for 2-butanone (149%, RPD=46%). The associated detect results in samples SB01_0-2, SB10_0-2, and SB10_3-5 are qualified as J because of potential high bias.

L2241024

The case narrative noted that samples SB17_0-2, SB18_0-2, SB21_0-2, and SODUP03_080122 exhibited low internal standard recovery confirmed by re-analysis. Original results have been reported. Based on professional judgement all associated results are qualified J or UJ because of potential indeterminate bias.

The LCS/LCSD for batch WG1670636 exhibited a percent recovery below the LCL for vinyl acetate (61%, 51%). The associated results in samples SB19_0-2, SB19_13-15, SB19_3-5, SB20_0-2, and SB20_8-10 are qualified as UJ because of potential low bias.

L2241386

The case narrative noted that sample SB22_0-2 exhibited low internal standard recovery confirmed by re-analysis. Original results have been reported. Based on professional judgement all associated results are qualified J or UJ because of potential indeterminate bias.

L2241727

The case narrative noted that sample SB16_0-2 exhibited low internal standard recovery confirmed by re-analysis. Original results have been reported. Based on professional judgement all associated results are qualified J or UJ because of potential indeterminate bias.

SVOCs by SW-846 Method 8270D / 8270D/E-SIM

L2239864

The LCS for batch WG1668222 exhibited a percent recovery below the LCL for hexachlorocyclopentadiene (38%). The associated results in samples SB14_0-2 [10X], SB14_6-8

[10X], SB02_0-2, SB02_3-5, SB03_0-2, SB03_6-8, SB03_14-16, SB03_16-18, SB05_0-2 [10X], and SB05_5-7 [10X] are qualified as UJ because of potential low bias.

L2240174

The LCS and/or LCSD for batch WG1668432 exhibited percent recoveries above the UCL for 4-nitrophenol (LCS=115%), p-chloro-m-cresol (113%, 106%), pentachlorophenol (118%, 112%), and phenol (96%, 95%). The associated detect results in samples SB06_0-2, SB06_4-6, SB11_0-2, SB11_6-8, SB13_0-2, SB13_2-4, SB24_0-2, and SB24_2-4 are qualified as J because of potential high bias.

L2240885

The case narrative noted samples SB10_13-15 and SB10_17-19 were collected in incorrect sample containers for organic analysis SW8270D. The associated results are qualified as J/UJ because of potential indeterminate bias.

L2241024

The LCS or LCSD for batch WG1670212 exhibited percent recoveries below the LCL for 4-chloroaniline (LCS=35%), 1,4-dioxane (p-dioxane) (LCSD=35%), carbazole (LCSD=48%), and hexachlorocyclopentadiene (LCSD=39%). The associated results in samples SB17_0-2, SB17_18-20, SB17_23-25, SB17_2-4, SB18_0-2, SB18_13-15, SB18_17-19, SB18_8-10, SB19_18-20, SB21_0-2, SB21_6-8, and SODUP03_080122 are qualified as J or UJ because of potential low bias.

The LCS/LCSD for batch WG1670387 exhibited percent recoveries below the LCL for 4,6-dinitro-2-methylphenol (7%, 6%) and hexachlorocyclopentadiene (20%, 18%). The associated results in samples SB19_0-2, SB19_3-5, SB20_0-2, and SB20_8-10 are qualified as UJ because of potential low bias.

L2241386

The LCS/LCSD for batch WG1670387 exhibited percent recoveries below the LCL for 4,6-dinitro-2-methylphenol (7%, 6%) and hexachlorocyclopentadiene (20%, 18%). The associated results in samples SB22_0-2, SB22_13-15, SB28_0-2, and SB28_13-15 are qualified as UJ because of potential low bias.

L2241727

The LCS/LCSD for batch WG1671427 exhibited percent recoveries below the LCL and/or an RPD exceeding the control limit for benzoic acid (0%, 0%) and 2,4-dinitrophenol (LCSD=19%,

RPD=75%). The associated results in samples SB15_0-2, SB15_6-8, SB15_6-8 [D1], SB16_0-2, SB16_12-14, SB26_0-2, SB26_6-8, SB27_0-2, and SB27_7-9 are qualified as UJ because of potential low bias.

PFAS by USEPA Method 537(M)

L2239864

The ion ratio observed in sample SB02_0-2 exhibited poor responses for perfluorooctanoic acid (PFOA). The associated results are qualified as J because of potential indeterminate bias.

The ion ratio observed in sample SB14_0-2 exhibited poor responses for perfluorooctanoic acid (PFOA). The associated results are qualified as J because of potential indeterminate bias.

L2240174

The sample SB13_2-4 exhibited percent recoveries below (10%) the LCL for the isotope dilution standard n-deuterioethylperfluoro-1-octanesulfonamidoacetic acid (d5-NEtFOSAA) (2%) and n-deuteriomethylperfluoro-1-octanesulfonamidoacetic acid (d3-NMeFOSAA) (2%). The associated results are qualified as UJ because of potential indeterminate bias.

The ion ratio observed in sample SB11_0-2 exhibited poor responses for perfluorooctanoic acid (PFOA). The associated result is qualified as J because of potential indeterminate bias.

The ion ratio observed in sample SB11_6-8 exhibited poor responses for perfluorooctanoic acid (PFOA). The associated result is qualified as J because of potential indeterminate bias.

The ion ratio observed in sample SB13_0-2 exhibited poor responses for perfluorodecanoic acid (PFDA), perfluorononanoic acid (PFNA), perfluorooctanesulfonic acid (PFOS), and perfluorooctanoic acid (PFOA). The associated results are qualified as J because of potential indeterminate bias.

The ion ratio observed in sample SB24_0-2 exhibited poor responses for perfluorooctanoic acid (PFOA). The associated result is qualified as J because of potential indeterminate bias.

L2240432

The sample SB08_9-11 exhibited percent recoveries below the LCL for the isotope dilution standard 13C2-perfluorododecanoic acid (52%), 13C2-perfluorotetradecanoic acid (8%), 13C3-perfluorohexanesulfonic acid (60%), 13C4-perfluoroheptanoic acid (66%), 13C6-perfluorodecanoic acid (66%), 13C8-perfluorooctane sulfonic acid (70%), 13C8-perfluorooctanoic acid (70%), 13C9-perfluorononanoic acid (70%), n-deuterioethylperfluoro-1-

octanesulfonamidoacetic acid (19%), n-deuteriomethylperfluoro-1-octanesulfonamidoacetic acid (25%), and perfluoro[2,3,4-13C3]butanesulfonic acid (M3PFBS) (63%). The associated detect results are qualified as J because of potential high bias.

L2241024

The sample SB17_2-4 exhibited percent recoveries below the LCL for the isotope dilution standard n-deuterioethylperfluoro-1-octanesulfonamidoacetic acid (5%) and n-deuteriomethylperfluoro-1-octanesulfonamidoacetic acid (2%) with confirmatory reanalyses. The associated results are qualified as UJ because of potential indeterminate bias.

The sample SB19_3-5 exhibited percent recoveries below the LCL for the isotope dilution standard 13C4-perfluoroheptanoic acid (66%), 13C5-perfluorohexanoic acid (62%), 13C6-perfluorodecanoic acid (65%), 13C8-perfluorooctane sulfonic acid (77%), 13C8-perfluorooctanoic acid (64%), 13C9-perfluorononanoic acid (65%), n-deuterioethylperfluoro-1-octanesulfonamidoacetic acid (14%), n-deuteriomethylperfluoro-1-octanesulfonamidoacetic acid (21%), and perfluoro[2,3,4-13C3]butanesulfonic acid (M3PFBS) (72%). The associated detect results are qualified as J becuase of potential high bias.

The ion ratio observed in sample SB19_0-2 exhibited poor responses for perfluorooctanoic acid (PFOA). The associated results are qualified as J because of potential indeterminate bias.

The ion ratio observed in sample SB19_3-5 exhibited poor responses for perfluorooctanoic acid (PFOA). The associated results are qualified as J because of potential indeterminate bias.

The ion ratio observed in sample SB20_0-2 exhibited poor responses for perfluorooctanoic acid (PFOA). The associated results are qualified as J because of potential indeterminate bias.

L2241386

The ion ratio observed in sample SB28_0-2 exhibited poor responses for perfluorooctanoic acid (PFOA). The associated results are qualified as J because of potential indeterminate bias.

L2241727

The sample SB27_7-9 exhibited percent recoveries below the LCL for the isotope dilution standard 13C3-perfluorohexanesulfonic acid (55%), 13C4-perfluoroheptanoic acid (62%), 13C5-perfluorohexanoic acid (62%), 13C6-perfluorodecanoic acid (37%), 13C7-perfluoroundecanoic acid (29%), 13C8-perfluorooctane sulfonic acid (45%), 13C8-perfluorooctanoic acid (60%), 13C9-perfluorononanoic acid (48%), and perfluoro[2,3,4-13C3]butanesulfonic acid (M3PFBS) (60%). The associated detect results are qualified as J because of potential high bias.

The ion ratio observed in sample SB16_0-2 exhibited poor responses for perfluorooctanoic acid (PFOA). The associated results are qualified as J because of potential indeterminate bias.

The ion ratio observed in sample SB26_0-2 exhibited poor responses for perfluorooctanoic acid (PFOA). The associated results are qualified as J because of potential indeterminate bias.

The ion ratio observed in sample SB27_0-2 exhibited poor responses for perfluorooctanesulfonic acid (PFOS). The associated results are qualified as J because of potential indeterminate bias.

Pesticides by SW-846 Method 8081B

L2239619

The sample SB23_0-2 exhibited a percent recovery above the UCL for the surrogate decachlorobiphenyl (PCB 209) [1C] (194%). The associated results are qualified as J because of potential high bias.

The sample SB09_0-2 exhibited a RPD above the control limit between the primary and secondary GC columns for 4,4'-DDD. The associated results are qualified as J because of potential indeterminate bias.

The sample SB09_3-5 exhibited a RPD above the control limit between the primary and secondary GC columns for alpha-HCH (1,2,3,4,5,6-hexachlorocyclohexane). The associated results are qualified as J because of potential indeterminate bias.

The sample SB23_6-8 exhibited a RPD above the control limit between the primary and secondary GC columns for 4,4'-DDD. The associated results are qualified as J because of potential indeterminate bias.

The sample SODUP01_072522 exhibited a RPD above the control limit between the primary and secondary GC columns for 4,4'-DDT. The associated results are qualified as J because of potential indeterminate bias.

L2239864

The sample SB02_0-2 exhibited RPDs above the control limit between the primary and secondary GC columns for 4,4'-DDD and 4,4'-DDE. The associated results are qualified as J because of potential indeterminate bias.

The sample SB03_0-2 exhibited RPDs above the control limit between the primary and secondary GC columns for 4,4'-DDD and 4,4'-DDE. The associated results are qualified as J because of potential indeterminate bias.

The sample SB03_6-8 exhibited RPDs above the control limit between the primary and secondary GC columns for 4,4'-DDD and 4,4'-DDE. The associated results are qualified as J because of potential indeterminate bias.

L2240174

The sample SB06_0-2 exhibited a RPD above the control limit between the primary and secondary GC columns for 4,4'-DDE. The associated result is qualified as J because of potential indeterminate bias.

The sample SB06_4-6 exhibited a RPD above the control limit between the primary and secondary GC columns for 4,4'-DDE. The associated result is qualified as J because of potential indeterminate bias.

The sample SB11_0-2 exhibited RPDs above the control limit between the primary and secondary GC columns for 4,4'-DDD, 4,4'-DDE, and 4,4'-DDT. The associated results are qualified as J because of potential indeterminate bias.

The sample SB13_0-2 exhibited RPDs above the control limit between the primary and secondary GC columns for 4,4'-DDD and 4,4'-DDE. The associated results are qualified as J because of potential indeterminate bias.

The sample SB24_0-2 exhibited RPDs above the control limit between the primary and secondary GC columns for 4,4'-DDD, 4,4'-DDE, 4,4'-DDT, and cis-chlordane. The associated results are qualified as J because of potential indeterminate bias.

The sample SB24_0-2 exhibited a RPD above the control limit between the primary and secondary GC columns for trans-chlordane. The associated result is qualified as J because of potential indeterminate bias.

L2240432

The sample SB08_0-2 exhibited a percent recovery above the UCL for the surrogate decachlorobiphenyl (PCB 209) [2C] (443%). The associated results are qualified as J because of potential high bias.

The sample SB04_5-7 exhibited RPDs above the control limit between the primary and secondary GC columns for 4,4'-DDD, 4,4'-DDE, and 4,4'-DDT. The associated results are qualified as J because of potential indeterminate bias.

The sample SB07_0-2 exhibited a RPD above the control limit between the primary and secondary GC columns for cis-chlordane. The associated result is qualified as J because of potential indeterminate bias.

The sample SB25_4-6 exhibited a RPD above the control limit between the primary and secondary GC columns for 4,4'-DDD. The associated result is qualified as J because of potential indeterminate bias.

L2241024

The sample SB17_0-2 exhibited a percent recovery above the UCL for the surrogate 2,4,5,6-tetrachloro-meta-xylene [1C] (180%). The associated results are qualified as J because of potential high bias.

The sample SB20_0-2 exhibited a RPD above the control limit between the primary and secondary GC columns for 4,4'-DDE. The associated results are qualified as J because of potential indeterminate bias.

The sample SB21_0-2 exhibited a RPD above the control limit between the primary and secondary GC columns for 4,4'-DDE. The associated results are qualified as J because of potential indeterminate bias.

L2241386

The sample SB22_0-2 exhibited a percent recovery above the UCL for the surrogate 2,4,5,6-tetrachloro-meta-xylene [1C] (185%). The associated detect results are qualified as J because of potential high bias.

The sample SB22_0-2 exhibited RPDs above the control limit between the primary and secondary GC columns for 4,4'-DDE and 4,4'-DDT. The associated results are qualified as J because of potential indeterminate bias.

L2241727

The sample SB15_0-2 exhibited a RPD above the control limit between the primary and secondary GC columns for 4,4'-DDT. The associated results are qualified as J because of potential indeterminate bias.

Metals by SW-846 Method 6010D / 7471B

L2240174

The MS performed on sample SB24_0-2 exhibited percent recoveries below the LCL for total manganese (51%) and total zinc (41%). The associated results in sample SB24_0-2 are qualified as J because of potential low bias.

L2240885

The MS/MSD performed on sample SB01_0-2 exhibited percent recoveries below the LCL for antimony (MS=64%), arsenic (MSD=56%), total chromium (MSD=7%), thallium (53%, 68%), and zinc (MSD=0%). The associated results in are qualified as J because of potential low bias.

The MS/MSD performed on sample SB01_0-2 exhibited percent recoveries and an RPD outside of control limits for potassium (MS=172%, MSD=57%, & RPD=26%). The associated result is qualified as J because of potential indeterminate bias.

The MS performed on sample SB01_0-2 exhibited a percent recovery above the UCL for sodium (129%). The associated result is qualified as J because of potential high bias.

The MS/MSD performed on sample SB01_0-2 exhibited a percent recovery below the LCL for mercury (18%, 28%). The associated result is qualified as J because of potential low bias.

L2241024

The MS performed on sample SB21_6-8 exhibited a percent recovery below the LCL for antimony (73%). The associated result is qualified as UJ because of potential low bias.

The MS or MSD performed on sample SB21_6-8 exhibited percent recoveries above the UCL for arsenic (MS=132%), lead (MS=159%), and manganese (MSD=140%). RPDs were also above the control limit for lead (28%) and manganese (27%). The associated results are qualified as J because of potential high bias.

L2241727

The MS performed on sample SB15_0-2 exhibited percent recoveries above the UCL for copper (221%), sodium (127%), and mercury (134%). The associated results are qualified as J because of potential high bias.

The MS performed on sample SB15_0-2 exhibited percent recoveries below the LCL for manganese (56%), thallium (61%), and zinc (0%). The associated results are qualified as J or UJ because of potential low bias.

The laboratory duplicate and parent sample (SB15_0-2) exhibited RPDs above the control limit for calcium (46%) and magnesium (52%). The associated results are qualified as J because of potential indeterminate bias.

Cyanide by SW-846 Method 9012B

L2239864

The LCS/LCSD for batch WG1667986 exhibited a percent recovery below the LCL for total cyanide (78%, 65%). The associated results in samples SB14_0-2, SB14_6-8, SB02_0-2, SB02_3-5, SB03_0-2, SB03_6-8, and SB05_0-2 are qualified as J or UJ because of potential low bias.

The LCS/LCSD for batch WG1668302 exhibited a percent recovery below the LCL for total cyanide (79%, 77%). The associated results in sample SB05_5-7 is qualified as J because of potential low bias.

L2240174

The LCS/LCSD for batch WG1668304 exhibited a percent recovery below the LCL for total cyanide (79%, 77%). The associated results in samples SB11_0-2, SB11_6-8, SB13_0-2, and SB13_2-4 are qualified as J or UJ because of potential low bias.

The LCS/LCSD for batch WG1668943 exhibited a percent recovery below the LCL for total cyanide (62%, 78%). The associated results in samples SB06_0-2, SB06_4-6, SB24_0-2, and SB24_2-4 are qualified as J or UJ because of potential low bias.

L2240432

The LCS/LCSD for batch WG1668943 exhibited a percent recovery below the LCL for cyanide (62%, 78%). The associated results in samples SB04_0-2, SB04_5-7, SB07_0-2, SB07_7-9, SB08_0-2, and SB08_9-11 are qualified as J or UJ because of potential low bias.

The LCS/LCSD for batch WG1668948 exhibited a percent recovery below the LCL for cyanide (62%, 78%). The associated results in samples SB25_0-2 and SB25_4-6 are qualified as UJ because of potential low bias.

L2240885

The LCS/LCSD for batch WG1669944 exhibited a percent recovery below the LCL for cyanide (73%, 79%). The associated results in samples SB01_0-2, SB01_19-21, SB10_0-2, SB10_3-5, and SODUP02_072922 are qualified as UJ because of potential low bias.

L2241024

The LCSD for batch WG1670131 exhibited a percent recovery below the LCL for cyanide (66%). The associated results in samples SB17_0-2, SB17_2-4, SB18_0-2, SB18_8-10, SB19_0-2, SB19_3-5, SB20_0-2, SB20_8-10, and SB21_0-2, SB21_6-8 are qualified as J or UJ because of potential low bias.

The LCSD for batch WG1670133 exhibited a percent recovery below the LCL for cyanide (66%). The associated result in sample SODUP03_080122 is qualified as UJ because of potential low bias.

L2241386

The LCSD for batch WG1670638 exhibited a percent recovery below the LCL for cyanide (%, 75%). The associated results in sample SB28_0-2, SB28_13-15, SB22_0-2, and SB22_13-15 are qualified as J or UJ because of potential low bias.

L2241727

The LCS and/or LCSD for batch WG1671160 exhibited a percent recovery below the LCL and an RPD exceeding the control limit for cyanide (LCSD=79%, RPD=41%). The associated results in samples SB15_0-2, SB15_6-8, SB16_0-2, SB16_12-14, SB27_0-2, and SB27_7-9 are qualified as J or UJ because of potential low bias.

The LCS for batch WG1672463 exhibited a percent recovery below the LCL for cyanide (71%). The associated results in samples SB26_0-2 and SB26_6-8 are qualified as UJ because of potential low bias.

Hexavalent Chromium by SW-846 Method 7196A

L2240174

The MS/MSD performed on sample SB24_0-2 exhibited a RPD above the control limit for hexavalent chromium (39%). The associated results in sample SB24_0-2 are qualified as UJ because of potential indeterminate bias.

L2240885

The MS/MSD performed on sample SB01_0-2 exhibited a percent recovery below the LCL for hexavalent chromium (50%, 31%). The associated result is qualified as UJ because of potential low bias.

OTHER DEFICIENCIES:

Other deficiencies include anomalies that do not directly impact data quality and do not necessitate qualification. The section below describes the other deficiencies that were identified.

VOCs by SW-846 Method 8260C

L2239619

The MB for batch WG1668872 exhibited a detection of methylene chloride (110 ug/kg). The associated results are non-detect. No qualification is necessary.

L2239864

The MB for batch WG1668872 exhibited a detection of methylene chloride (110 ug/kg). The associated results are non-detect. No qualification is necessary.

The sample SB02_0-2 exhibited a percent recovery above the UCL for the surrogate 4-bromofluorobenzene (140%). The associated results were previously qualified. No further action is necessary.

L2240174

The MB for batch WG1669978 exhibited a detection of styrene (0.67 ug/kg). The associated results are non-detect. No qualification is necessary.

The MS/MSD performed on sample SB24_0-2 exhibited percent recoveries and/or RPDs outside of control limits. Organic results are not qualified based on MS/MSD recoveries alone. No qualification is necessary.

L2240432

The MB for batch WG1670171 exhibited a detection of styrene (0.66 ug/kg). The associated results are non-detect. No qualification is necessary.

The MB for batch WG1670535 exhibited a detection of styrene (33 ug/kg). The associated result is non-detect. No qualification is necessary.

The LCS/LCSD for batch WG1670171 exhibited a percent recovery above the UCL for dichlorodifluoromethane (155%, 148%). The associated results are non-detect. No qualification is necessary.

The LCS/LCSD for batch WG1670535 exhibited a percent recovery above the UCL for dichlorodifluoromethane (155%, 148%). The associated results are non-detect. No qualification is necessary.

L2240885

The MS/MSD performed on sample SB01_0-2 exhibited percent recoveries outside of control limits for multiple compounds. Organic results are not qualified based on MS/MSD recoveries alone. No qualification is necessary.

The sample SB01_0-2 exhibited percent recoveries above the UCL for the surrogates p-bromofluorobenzene (153%) and toluene-d8 (154%). The associated results were previously qualified. No further action is necessary.

The sample SODUP02_072922 exhibited percent recoveries above the UCL for the surrogates p-bromofluorobenzene (140%) and toluene-d8 (138%). The associated results were previously qualified. No further action is necessary.

L2241024

The FB (SOTB06_080122) exhibited a detection of acetone (1.5 ug/L). The associated results are >10X the contamination or non-detect. No qualification is necessary.

The MB for batch WG1671158 exhibited a detection of styrene (0.43 ug/kg). The associated results are non-detect. No qualification is necessary.

The MS/MSD performed on sample SB21_6-8 exhibited percent recoveries and/or RPDs outside of control limits for multiple compounds. Organic results are not qualified on the basis of MS/MSD recoveries alone. No qualification is necessary.

The sample SB17_0-2 exhibited percent recoveries above the UCL for the surrogates p-bromofluorobenzene (135%) and toluene-d8 (143%). The associated results were previously qualified. No further action is necessary.

The sample SB18_0-2 exhibited percent recoveries above the UCL for the surrogates p-bromofluorobenzene (141%) and toluene-d8 (131%). The associated results were previously qualified. No further action is necessary.

The sample SB21_0-2 exhibited percent recoveries above the UCL for the surrogates p-bromofluorobenzene (142%) and toluene-d8 (132%). The associated results were previously qualified. No further action is necessary.

L2241386

The LCS and/or LCSD for batch WG1672491 exhibited a percent recovery below the LCL for vinyl acetate (65%, 63%) and percent recovery above the UCL and RPD above the control limit for acetone (LCSD=154%, RPD=40%). The associated results were previously qualified. No further action is necessary.

The sample SB22_0-2 exhibited a percent recovery above the UCL for the surrogate toluene-d8 (133%). The associated results were previously qualified. No further action is necessary.

SVOCs by SW-846 Method 8270D / 8270D/E-SIM

L2239619

The FB (SOFB01_072522) exhibited a detection of bis(2-ethylhexyl) phthalate (2.1 ug/L). The associated results are >10X the contamination or non-detect. No qualification is necessary.

L2239864

The FB (SOFB02_072622) exhibited a detection of total sodium (0.0548 mg/L). The associated results are >10X the contamination. No qualification is necessary.

The FB (SOFB02_072622) exhibited detections of benzo(a)anthracene (0.02 ug/L) and phenanthrene (0.03 ug/L). The associated results are >10X the contamination. No qualification is necessary.

L2240174

The MS/MSD performed on sample SB24_0-2 exhibited percent recoveries and/or RPDs outside of control limits. Organic results are not qualified based on MS/MSD recoveries alone. No qualification is necessary.

L2240885

The MS/MSD performed on sample SB01_0-2 exhibited percent recoveries and/or RPDs outside of control limits for multiple compounds. Organic results are not qualified based on MS/MSD recoveries alone. No qualification is necessary.

L2241024

The MS/MSD performed on sample SB21_6-8 exhibited percent recoveries and/or RPDs outside of control limits for multiple compounds. Organic results are not qualified based on MS/MSD recoveries alone. No qualification is necessary.

The sample SB19_13-15 [20X] exhibited percent recoveries below the LCL for the surrogates 2,4,6-tribromophenol (0%), 2-fluorobiphenyl (0%), 2-fluorophenol (0%), nitrobenzene-d5 (0%), phenol-d6 (0%), and p-terphenyl-d14 (0%). The sample was diluted >10X. No qualification is necessary.

L2241386

The sample SB22_0-2 exhibited percent recoveries above the UCL for the surrogates 2,4,6-tribromophenol (151%) and nitrobenzene-d5 (130%). Only one surrogate from each fraction was outside of the recovery control limits. No qualification is necessary.

The sample SB22_13-15 exhibited percent recoveries above the UCL for the surrogates 2,4,6-tribromophenol (150%) and p-terphenyl-d14 (122%). Only one surrogate from each fraction was outside of the recovery control limits. No qualification is necessary.

PFAS by USEPA Method 537(M)

L2239619

The sample SB09_0-2 exhibited a percent recovery above the UCL for the isotope dilution standard 13C8-perfluorooctanesulfonamide (138%). No more than one third of isotope dilution standards were outside of the recovery control limits. No further action is required.

The sample SB09_3-5 exhibited a percent recovery above the UCL for the isotope dilution standard 13C8-perfluorooctanesulfonamide (128%) and percent recoveries below the LCL for the isotope dilution standards 13C2-perfluorotetradecanoic acid (22%) and n-deuterioethylperfluoro-1-octanesulfonamidoacetic acid (26%). No more than one third of isotope dilution standards were outside of the recovery control limits. No further action is required.

The sample SB12_0-2 exhibited a percent recovery above the UCL for the isotope dilution standard 13C8-perfluorooctanesulfonamide (135%). No more than one third of isotope dilution standards were outside of the recovery control limits. No further action is required.

The sample SB12_5-7 exhibited percent recoveries below the LCL for the isotope dilution standards 13C4-perfluoroheptanoic acid (70%), 13C8-perfluorooctanoic acid (74%), n-deuterioethylperfluoro-1-octanesulfonamidoacetic acid (29%), and n-deuteriomethylperfluoro-1-octanesulfonamidoacetic acid (21%). No more than one third of isotope dilution standards were outside of the recovery control limits. No further action is required.

The sample SB23_6-8 exhibited a percent recovery above the UCL for the isotope dilution standard 13C8-perfluorooctanesulfonamide (136%). No more than one third of isotope dilution standards were outside of the recovery control limits. No further action is required.

L2240174

The sample SB06_0-2 exhibited a percent recovery above the UCL for the isotope dilution standard 1H,1H,2H,2H-perfluoro[1,2-13C2]decanesulfonic acid (M2-8:2FTS) (182%). No more than one third of isotope dilution standard were outside of the recovery control limits. No further action is required.

The sample SB06_4-6 exhibited a percent recovery above the UCL for the isotope dilution standard 1H,1H,2H,2H-perfluoro[1,2-13C2]decanesulfonic acid (M2-8:2FTS) (194%). No more than one third of isotope dilution standard were outside of the recovery control limits. No further action is required.

The sample SB13_0-2 exhibited a percent recovery above the UCL for the isotope dilution standard 1H,1H,2H,2H-perfluoro[1,2-13C2]decanesulfonic acid (M2-8:2FTS) (201%). No more than one third of isotope dilution standards were outside of the recovery control limits. No further action is required.

L2240432

The sample SB07_7-9 exhibited a percent recovery below the LCL for the isotope dilution standard 13C3-perfluorohexanesulfonic acid (74%). No more than one third of isotope dilution standard were outside of the recovery control limits. No further action is required.

The sample SB08_0-2 exhibited a percent recovery below the LCL for the isotope dilution standard 13C3-perfluorohexanesulfonic acid (77%). No more than one third of isotope dilution standard were outside of the recovery control limits. No further action is required.

L2240885

The sample SB10_3-5 exhibited a percent recovery above the UCL for the isotope dilution standard 13C8-perfluorooctanesulfonamide (134%). No more than one third of isotope dilution standard were outside of the recovery control limits. No further action is required.

The sample SB10_3-5 exhibited percent recoveries below the LCL for the isotope dilution standard n-deuterioethylperfluoro-1-octanesulfonamidoacetic acid (21%) and n-deuteriomethylperfluoro-1-octanesulfonamidoacetic acid (15%). No more than one third of isotope dilution standard were outside of the recovery control limits. No further action is required.

The sample SODUP02_072922 exhibited percent recoveries below the LCL for the isotope dilution standard 13C4-perfluorobutanoic acid (60%), 13C4-perfluoroheptanoic acid (69%), 13C6-perfluorodecanoic acid (73%), 13C8-perfluorooctanoic acid (72%), n-deuterioethylperfluoro-1-octanesulfonamidoacetic acid (21%), and n-deuteriomethylperfluoro-1-octanesulfonamidoacetic acid (14%). No more than one third of isotope dilution standard were outside of the recovery control limits. No further action is required.

L2241024

The sample SB17_0-2 exhibited a percent recovery above the UCL for the isotope dilution standard 13C8-perfluorooctanesulfonamide (124%). No more than one third of isotope dilution standards were outside of the recovery control limits. No further action is required.

The sample SB19_0-2 exhibited percent recoveries below the LCL for the isotope dilution standard 13C3-perfluorohexanesulfonic acid (77%), 13C8-perfluorooctanoic acid (73%), 13C9-perfluorononanoic acid (70%), n-deuterioethylperfluoro-1-octanesulfonamidoacetic acid (23%), and n-deuteriomethylperfluoro-1-octanesulfonamidoacetic acid (22%). No more than one third of isotope dilution standards were outside of the recovery control limits. No further action is required.

The sample SB19_0-2 exhibited a percent recovery above the UCL for the isotope dilution standard 13C8-perfluorooctanesulfonamide (129%). No more than one third of isotope dilution standards were outside of the recovery control limits. No further action is required.

The sample SB19_3-5 exhibited a percent recovery above the UCL for the isotope dilution standard 13C8-perfluorooctanesulfonamide (134%). No more than one third of isotope dilution standards were outside of the recovery control limits. No further action is required.

The sample SB20_0-2 exhibited a percent recovery above the UCL for the isotope dilution standard 13C8-perfluorooctanesulfonamide (130%). No more than one third of isotope dilution standards were outside of the recovery control limits. No further action is required.

The sample SB21_6-8 exhibited percent recoveries below the LCL for the isotope dilution standard 13C3-perfluorohexanesulfonic acid (75%), 13C4-perfluoroheptanoic acid (69%), 13C6-perfluorodecanoic acid (68%), 13C8-perfluorooctane sulfonic acid (75%), 13C8-perfluorooctanoic acid (70%), 13C9-perfluorononanoic acid (70%), n-deuterioethylperfluoro-1-octanesulfonamidoacetic acid (30%), and n-deuteriomethylperfluoro-1-octanesulfonamidoacetic acid (26%). The associated results are non-detect. No qualification is necessary.

The sample SB21_6-8 exhibited a percent recovery above the UCL for the isotope dilution standard 13C8-perfluorooctanesulfonamide (126%). No more than one third of isotope dilution standards were outside of the recovery control limits. No further action is required.

The sample SODUP03_080122 exhibited a percent recovery above the UCL for the isotope dilution standard 1H,1H,2H,2H-perfluoro[1,2-13C2]decanesulfonic acid (M2-8:2FTS) (178%). No more than one third of isotope dilution standards were outside of the recovery control limits. No further action is required.

L2241386

The FB (SOFB04_080222) exhibited a detection of 1h,1h, 2h, 2h-perfluorooctane sulfonic acid (1.16 ng/L). The associated results are non-detect. No qualification is necessary.

The sample SB22_0-2 exhibited a percent recovery above the UCL for the isotope dilution standard 13C8-perfluorooctanesulfonamide (130%). No more than one third of isotope dilution standard were outside of the recovery control limits. No further action is required.

The sample SB28_0-2 exhibited a percent recovery above the UCL for the isotope dilution standard 13C8-perfluorooctanesulfonamide (135%). No more than one third of isotope dilution standard were outside of the recovery control limits. No further action is required.

L2241727

The LCSD for batch WG1672659 exhibited a percent recovery above the UCL for n-ethyl perfluorooctanesulfonamidoacetic acid (NEtFOSAA) (148%). The associated results are non-detect. No qualification is necessary.

The sample SB15_6-8 exhibited a percent recovery below the LCL for the isotope dilution standard 13C6-perfluorodecanoic acid (71%). No more than one third of isotope dilution standard were outside of the recovery control limits. No further action is required.

The sample SB15_6-8 exhibited a percent recovery above the UCL for the isotope dilution standard 13C8-perfluorooctanesulfonamide (135%). No more than one third of isotope dilution standard were outside of the recovery control limits. No further action is required.

The sample SB16_0-2 exhibited a percent recovery above the UCL for the isotope dilution standard 13C8-perfluorooctanesulfonamide (139%). No more than one third of isotope dilution standard were outside of the recovery control limits. No further action is required.

The sample SB16_12-14 exhibited percent recoveries below the LCL for the isotope dilution standards 13C2-perfluorotetradecanoic acid (10%), 13C6-perfluorodecanoic acid (69%), and n-

deuterioethylperfluoro-1-octanesulfonamidoacetic acid (29%). No more than one third of isotope dilution standard were outside of the recovery control limits. No further action is required.

The sample SB16_12-14 exhibited a percent recovery above the UCL for the isotope dilution standard 13C8-perfluorooctanesulfonamide (127%). No more than one third of isotope dilution standard were outside of the recovery control limits. No further action is required.

The sample SB26_0-2 exhibited a percent recovery above the UCL for the isotope dilution standard 13C8-perfluorooctanesulfonamide (144%). No more than one third of isotope dilution standard were outside of the recovery control limits. No further action is required.

The sample SB26_6-8 exhibited percent recoveries below the LCL for the isotope dilution standards 13C2-perfluorododecanoic acid (42%), 13C2-perfluorotetradecanoic acid (3%), 13C3-perfluorohexanesulfonic acid (75%), 13C6-perfluorodecanoic acid (63%), 13C7-perfluoroundecanoic acid (59%), 13C8-perfluorooctane sulfonic acid (71%), 13C8-perfluorooctanoic acid (68%), 13C9-perfluorononanoic acid (66%), n-deuterioethylperfluoro-1-octanesulfonamidoacetic acid (18%), and n-deuteriomethylperfluoro-1-octanesulfonamidoacetic acid (23%). The associated results are non-detect. No qualification is necessary.

The sample SB26_6-8 exhibited a percent recovery above the UCL for the isotope dilution standard 13C8-perfluorooctanesulfonamide (133%). No more than one third of isotope dilution standard were outside of the recovery control limits. No further action is required.

The sample SB27_0-2 exhibited a percent recovery above the UCL for the isotope dilution standard 13C8-perfluorooctanesulfonamide (129%). No more than one third of isotope dilution standard were outside of the recovery control limits. No further action is required.

The sample SB27_7-9 exhibited percent recoveries below the LCL for the isotope dilution standard 13C2-perfluorododecanoic acid (12%), 13C2-perfluorotetradecanoic acid (0%), n-deuterioethylperfluoro-1-octanesulfonamidoacetic acid (1%), and n-deuteriomethylperfluoro-1-octanesulfonamidoacetic acid (3%). No associated results are reported from the corresponding analysis. No qualification is necessary.

The sample SB27_7-9 [RE] exhibited percent recoveries below the LCL for the isotope dilution standard 13C2-perfluorododecanoic acid (31%), 13C2-perfluorotetradecanoic acid (4%), n-deuterioethylperfluoro-1-octanesulfonamidoacetic acid (11%), and n-deuteriomethylperfluoro-1-octanesulfonamidoacetic acid (18%). The associated results are non-detect. No qualification is necessary.

Pesticides by SW-846 Method 8081B

L2239619

The sample SB12_0-2 exhibited a percent recovery above the UCL for the surrogate decachlorobiphenyl (PCB 209) [2C] (1630%). No associated results are reported from the corresponding column. No qualification is necessary.

The sample SB12_0-2 exhibited a percent recovery above the UCL for the surrogate decachlorobiphenyl (PCB 209) [1C] (323%). The associated results are non-detect. No qualification is necessary.

The sample SB12_5-7 exhibited a percent recovery above the UCL for the surrogate decachlorobiphenyl (PCB 209) [2C] (1150%). No associated results are reported from the corresponding column. No qualification is necessary.

The sample SB12_5-7 exhibited a percent recovery above the UCL for the surrogate decachlorobiphenyl (PCB 209) [1C] (311%). The associated results are non-detect. No qualification is necessary.

The sample SB23_0-2 exhibited RPDs above the control limit between the primary and secondary GC columns for 4,4'-DDD and 4,4'-DDE. The associated results were previously qualified. No further action is necessary.

L2239864

The sample SB02_0-2 exhibited percent recoveries below the LCL for the surrogates 2,4,5,6-tetrachloro-m-xylene [1C] (14%) and decachlorobiphenyl [1C] (17%). No associated results are reported from the corresponding column. No qualification is necessary.

The sample SB03_0-2 exhibited percent recoveries below the LCL for the surrogates 2,4,5,6-tetrachloro-m-xylene [1C] (14%) and decachlorobiphenyl [1C] (17%). No associated results are reported from the corresponding column. No qualification is necessary.

The sample SB03_6-8 exhibited percent recoveries below the LCL for the surrogates decachlorobiphenyl [1C] (12%) and 2,4,5,6-tetrachloro-m-xylene [1C] (23%). No associated results are reported from the corresponding column. No qualification is necessary.

The sample SB05_0-2 exhibited percent recoveries below the LCL for the surrogates 2,4,5,6-tetrachloro-m-xylene [1C] (19%) and decachlorobiphenyl [1C] (28%). No associated results are reported from the corresponding column. No qualification is necessary.

The sample SB05_5-7 exhibited a percent recovery above the UCL for the surrogate decachlorobiphenyl [2C] (504%). No associated results are reported from the corresponding column. No qualification is necessary.

The sample SB14_0-2 exhibited percent recoveries below the LCL for the surrogates 2,4,5,6-tetrachloro-m-xylene [1C] (13%) and decachlorobiphenyl [1C] (23%). No associated results are reported from the corresponding column. No qualification is necessary.

The sample SB14_0-2 exhibited a percent recovery above the UCL for the surrogate decachlorobiphenyl [2C] (352%). The associated detect results are qualified as J because of potential high bias.

The sample SB14_6-8 exhibited percent recoveries above the UCL for the surrogates 2,4,5,6-tetrachloro-m-xylene [2C] (171%) and decachlorobiphenyl [2C] (2200%). No associated results are reported from the corresponding column. No qualification is necessary.

The sample SB14_0-2 exhibited RPDs above the control limit between the primary and secondary GC columns for 4,4'-DDD and 4,4'-DDE. The associated results were previously qualified. No further action is necessary.

L2240174

The sample SB06_0-2 exhibited a percent recovery above the UCL for the surrogate decachlorobiphenyl [2C] (185%). No associated results are reported from the corresponding column. No qualification is necessary.

The sample SB24_0-2 exhibited percent recoveries below the LCL for the surrogates 2,4,5,6-tetrachloro-m-xylene [1C] (1%) and decachlorobiphenyl [1C] (1%). No associated results are reported from the corresponding column. No qualification is necessary.

L2240432

The sample SB04_0-2 exhibited percent recoveries below the LCL for the surrogates 2,4,5,6-tetrachloro-meta-xylene [1C] (12%) and decachlorobiphenyl (PCB 209) [1C] (9%). No associated results are reported from the corresponding column. No qualification is necessary.

The sample SB04_5-7 exhibited percent recoveries below the LCL for the surrogates 2,4,5,6-tetrachloro-meta-xylene [1C] (15%) and decachlorobiphenyl (PCB 209) [1C] (4%). No associated results are reported from the corresponding column. No qualification is necessary.

The sample SB07_7-9 exhibited a percent recovery below the LCL for the surrogate decachlorobiphenyl (PCB 209) [1C] (2%). No associated results are reported from the corresponding column. No qualification is necessary.

L2241024

The sample SB17_0-2 exhibited a percent recovery above the UCL for the surrogate decachlorobiphenyl (PCB 209) [2C] (201%). No associated results are reported from the corresponding column. No qualification is necessary.

The sample SB17_2-4 exhibited a percent recovery above the UCL for the surrogate 2,4,5,6-tetrachloro-meta-xylene [1C] (180%). The associated results are non-detect. No qualification is necessary.

L2241386

The sample SB22_13-15 exhibited a percent recovery above the UCL for the surrogate 2,4,5,6-tetrachloro-meta-xylene [1C] (6960%). The associated results are non-detect. No qualification is necessary.

L2241727

The sample SB15_6-8 exhibited percent recoveries below the LCL for the surrogates 2,4,5,6-tetrachloro-meta-xylene [1C] (17%) and decachlorobiphenyl (PCB 209) [1C] (10%). No associated results are reported from the corresponding column. No qualification is necessary.

The sample SB15_6-8 exhibited a percent recovery above the UCL for the surrogate decachlorobiphenyl (PCB 209) [2C] (178%). The associated results are non-detect. No qualification is necessary.

Herbicides by SW-846 Method 8151A

L2240885

The sample SB10_0-2 exhibited a percent recovery above the UCL for the surrogate 2,4-dichlorophenylacetic acid [2C] (166%). No associated results are reported from the corresponding column. No qualification is necessary.

L2241386

The sample SB22_13-15 exhibited a percent recovery above the UCL for the surrogate 2,4-dichlorophenylacetic acid [1C] (152%). The associated results are non-detect. No qualification is necessary.

Metals by SW-846 Method 6010D / 7471B

L2239864

The MB for batch WG1667874 exhibited detections of total aluminum (5.97 mg/kg), total iron (11.7 mg/kg), and total magnesium (4.68 mg/kg). The associated results are >10X the contamination. No qualification is necessary.

L2240174

The MS/MSD performed on sample SB24_0-2 exhibited percent recoveries above the UCL for total aluminum (278%, 547%), total calcium (1810%, 243%), total iron (0%), total lead (0%), and total magnesium (943%). The associated results in the parent sample are >4X the spiked amount. No qualification is necessary.

L2240885

The MS and/or MSD performed on sample SB01_0-2 exhibited percent recoveries outside of control limits for aluminum (1260%, 0%), copper (MS=62%), calcium (MSD=0%), iron (7590%, 1430%), lead (815%, 0%), magnesium (0%, 1%), and manganese (228%, 531%). The associated results in the parent sample are >4X the spiked amount. No qualification is necessary.

The MS/MSD performed on sample SB01_0-2 exhibited RPDs above the control limit for lead (68%) and manganese (28%). The associated results in the parent sample are >4X the spiked amount. No qualification is necessary.

The MS/MSD performed on sample SB01_0-2 exhibited RPDs above the control limit for total chromium (28%) and thallium (24%). The associated results were previously qualified. No further action is necessary.

L2241024

The MB for batch WG1670064 exhibited detections of aluminum (1.28 mg/kg), iron (1.18 mg/kg), manganese (0.248 mg/kg), sodium (3.39 mg/kg), and zinc (0.3 mg/kg). The associated results are >10X the contamination or non-detect. No qualification is necessary.

The MS/MSD performed on sample SB21_6-8 exhibited percent recoveries and/or an RPD outside of control limits for aluminum (179%, 359%), calcium (MSD-223%, RPD=33%), and iron (0%, 2500%). The associated results in the parent sample are >4X the spiked amount. No qualification is necessary.

L2241386

The FB (SOFB04_080222) exhibited detections of aluminum (0.00641 mg/L), calcium (0.0613 mg/L), sodium (0.0555 mg/L), and thallium (0.00017 mg/L). The associated results are >10X the contamination or non-detect. No qualification is necessary.

L2241727

The MB for batch WG1671247 exhibited a detection of iron (0.368 mg/kg). The associated results are >10X the contamination. No qualification is necessary.

The MS performed on sample SB15_0-2 exhibited percent recoveries below the LCL for calcium (0%), iron (0%), lead (0%), and magnesium (0%). The associated results in the parent sample are >4X the spiked amount. No qualification is necessary.

FIELD DUPLICATES:

Two field duplicate and parent sample pairs were collected and analyzed for all parameters. For results less than 5X the RL, analytes meet the precision criteria if the absolute difference is less than ±2X the RL. For results greater than 5X the RL, analytes meet the precision criteria if the RPD is less than or equal to 50% for soil. The following field duplicate and parent sample pairs were compared to precision criteria:

- SODUP01_072522 and SB23_0-2
- SODUP02_072922 and SB10_3-5
- SODUP03_080122 & SB21_0-2

The field duplicate and parent sample (SODUP01_072522 and SB23_0-2) exhibited RPDs above the control limit for calcium (128%), magnesium (155%), zinc (64%), benzo(a)anthracene (73%), benzo(a)pyrene (72%), benzo(b)fluoranthene (73%), b0729enzo(g,h,i)perylene (68%), benzo(k)fluoranthene (52%), chrysene (68%), fluoranthene (69%), indeno(1,2,3-c,d)pyrene (66%), and pyrene (72%). The associated results are qualified as J because of potential indeterminate bias.

The field duplicate and parent sample (SODUP01_072522 and SB23_0-2) exhibited absolute differences above the RL for cobalt (8.05 mg/kg), PCB-1254 [Aroclor 1254] (193.9 ug/kg), PCB-1260 [Aroclor 1260] (261.9 ug/kg), polychlorinated biphenyl [PCBs] (495.6 ug/kg), toluene (147.5 ug/kg), xylenes (237.5 ug/kg), acenaphthene (800 ug/kg), and dibenz(a,h)anthracene (490 ug/kg). The associated results are qualified as J or UJ because of potential indeterminate bias.

The field duplicate and parent sample (SODUP03_080122 & SB21_0-2) exhibited a RPD above the control limit for magnesium (59%). The associated results are qualified as J because of potential indeterminate bias.

The field duplicate and parent sample (SODUP03_080122 & SB21_0-2) exhibited absolute differences above the RL for 4,4'-DDE (19.49 ug/kg) and PCB-1248 (Aroclor 1248) (554 ug/kg). The associated results are qualified as J or UJ because of potential indeterminate bias.

CONCLUSION:

Based on this evaluation, the laboratory appears to have followed the specified analytical methods except for errors discussed above. If a given fraction is not mentioned above, that means that all specified criteria were met for that parameter. All the data packages met ASP Category B requirements.

All data are considered usable, as qualified. In addition, completeness, defined as the percentage of analytical results that are judged to be valid, is 100%.

Signed:



Krys Trafalski
Senior Staff Chemist

LANGAN
ENGINEERING & ENVIRONMENTAL SERVICES

Technical Memorandum

989 Lenox Drive Lawrenceville, NJ 08648 T: 609.282.8000
Mailing Address: 989 Lenox Drive Lawrenceville, NJ 08648

To: Greg Wyka, Langan Senior Geologist

From: Joe Conboy, Langan Senior Staff Chemist

Date: August 18, 2022

Re: Data Usability Summary Report
For Greenpoint Landing Parcel C
August 2022 Groundwater Samples
Langan Project No.: 170229028

This memorandum presents the findings of an analytical data validation from the analysis of groundwater samples collected in August 2022 by Langan Engineering and Environmental Services at the Greenpoint Landing Parcel C site. The samples were analyzed by Alpha Analytical Laboratories, Inc. (NYSDOH NELAP registration # 11148) for volatile organic compounds (VOCs), semivolatile organic compounds (SVOCs), per- and polyfluoroalkyl substances (PFAS), herbicides, polychlorinated biphenyls (PCBs), pesticides, total and dissolved metals, cyanide (CN), hexavalent chromium (CrVI), and trivalent chromium (CrIII) by the methods specified below.

- VOCs by SW-846 Method 8260C
- SVOCs by SW-846 Method 8270D, 8270D SIM, and 8270E SIM
- PFAS by USEPA Method 537M
- Herbicides by SW-846 Method 8151A
- PCBs by SW-846 Method 8082A
- Pesticides by SW-846 Method 8081B
- Total and Dissolved Metals by SW-846 Methods 6020B/7470A
- Cyanide by Method 4500CN-C-E
- Hexavalent Chromium by SW-846 Method 7196A
- Trivalent Chromium (calculated)

Table 1, attached, summarizes the laboratory and client sample identification numbers, sample collection dates, level of data validation, and analytical parameters subject to review.

Validation Overview

This data validation was performed in accordance with the following guidelines, where applicable:

- USEPA Region II Standard Operating Procedures (SOPs) for Data Validation

- USEPA Contract Laboratory Program "National Functional Guidelines for Organic Superfund Methods Data Review" (EPA 540- R-20-005, November 2020)
- USEPA Contract Laboratory Program "National Functional Guidelines for Inorganic Superfund Methods Data Review" (EPA 540- R-20-006, November 2020), and
- published analytical methodologies.

USEPA Method 537 was developed and validated for the analysis of finished drinking water from surface water and groundwater sources. Laboratories have modified Method 537 to enable the analysis of groundwater and soil, and to incorporate PFAS analytes not currently addressed by the promulgated method. NYSDOH offers certification for PFOA and PFOS in the drinking water category. Non-potable water and soil certification is not available; however, the method describes acceptable modifications. USEPA recommends that modified methods be assessed relative to project goals and data quality objectives.

The following acronyms may be used in the discussion of data-quality issues:

%D	Percent Difference	MB	Method Blank
CCV	Continuing Calibration Verification	MDL	Method Detection Limit
FB	Field Blank	MS	Matrix Spike
FD	Field Duplicate	MSD	Matrix Spike Duplicate
ICAL	Initial Calibration	RF	Response Factor
ICV	Initial Calibration Verification	RL	Reporting Limit
ISTD	Internal Standard	RPD	Relative Percent Difference
LCL	Lower Control Limit	RSD	Relative Standard Deviation
LCS	Laboratory Control Sample	TB	Trip Blank
LCSD	Laboratory Control Sample Duplicate	UCL	Upper Control Limit

Tier 1 data validation is based on completeness and compliance checks of sample-related QC results including: sample receipt documentation; analytical holding times; sample preservation; blank results (method, field, and trip); surrogate recoveries; MS/MSD recoveries and RPDs values; field duplicate RPDs, laboratory duplicate RPDs, and LCS/LCSD recoveries and RPDs. All laboratory reports underwent Tier 1 validation.

As a result of the review process, the following qualifiers may be assigned to the data in accordance with the USEPA guidelines and our best professional judgment:

R – The sample results are unusable because certain criteria were not met when generating the data. The analyte may or may not be present in the sample.

J – The analyte was positively identified and the associated numerical value is the approximate concentration of the analyte in the sample.

UJ – The analyte was not detected at a level greater than or equal to the reporting limit; however, the reported reporting limit is approximate and may be inaccurate or imprecise.

U – The analyte was analyzed for, but was not detected at a level greater than or equal to the level of the RL or the sample concentration for results impacted by blank contamination.

NJ – The analysis indicates the presence of an analyte that has been "tentatively identified" and the associated numerical value represents its approximate concentration.

If any validation qualifiers are assigned, these qualifiers should supersede any laboratory-applied qualifiers. Data that is not qualified as a result of this data validation is considered acceptable on the basis of the items specified for review. Data that is qualified as "R" are considered invalid and are not technically usable for data interpretation. Data that is otherwise qualified because of minor data-quality anomalies are usable, as qualified in Table 2 (attached).

MAJOR DEFICIENCIES:

Major deficiencies include those that grossly impact data quality and necessitate the rejection of results. The section below describes the major deficiencies that were identified.

MINOR DEFICIENCIES:

Minor deficiencies include anomalies that directly impact data quality and necessitate qualification, but do not result in unusable data. The section below describes the minor deficiencies that were identified.

VOCs by SW-846 Method 8260C

L2241023

The MB for batch WG1670951 exhibited a detection of acetone (1.9 ug/l). The associated detected results in samples MW12_080122 and MW09_080122 are qualified as U at the reporting limit because of potential blank contamination.

The LCS/LCSD for batch WG1670951 exhibited a RPD above the control limit for 1,4-diethyl benzene (21%). The associated results in samples MW12_080122 and MW09_080122 are qualified as UJ because of potential indeterminate bias.

L2241728

The LCS/LCSD for batch WG1672342 exhibited a percent recovery below the LCL for 2-butanone (60%, 60%). The associated results in samples MW13_080322, MW11_080322, and MW06_080322 are qualified as UJ because of potential low bias.

L2241945

The TB (GWTB04_080422) exhibited a detection of acetone (2.4 ug/l). The associated result in sample MW07_080422 is qualified as U at the reporting limit because of potential blank contamination.

The LCS/LCSD for batch WG1672498 exhibited a RPD above the control limit for acetone (26%). The associated results in samples MW07_080422, MW08_080422, and MW04_080422 are qualified as J or UJ because of potential indeterminate bias.

L2242309

The LCS/LCSD for batch WG1672824 exhibited a RPD above the control limit for acetone (26%). The associated results in samples MW10_080522 and MW01_080522 are qualified as UJ because of potential indeterminate bias.

SVOCs by SW-846 Method 8270D, 8270D SIM, and 8270E SIM

L2241023

The LCS for batch WG1670128 exhibited a percent recovery below the LCL for benzoic acid (0%). The associated results in samples MW12_080122 and MW09_080122 are qualified as UJ because of potential low bias.

The LCS/LCSD for batch WG1670129 exhibited a RPD above the control limit for pentachlorophenol (53%). The associated results in samples MW12_080122, MW09_080122, MW12_080122_FILTERED, and MW09_080122_FILTERED are qualified as UJ because of potential indeterminate bias.

L2241378

The MB for batch WG1671638 exhibited detections of benzo(a)anthracene (0.02 ug/l), fluoranthene (0.03 ug/l), fluorene (0.01 ug/l), hexachlorobenzene (0.02 ug/l), phenanthrene (0.04 ug/l), and pyrene (0.02 ug/l). The associated detected results in samples MW05_080222, MW05_080222_FILTERED, MW03_080222, MW03_080222_FILTERED, MW02_080222, MW02_080222_FILTERED, GWDUP01_080222, and GWDUP01_080222_FILTERED are

qualified as U at the reporting limit because of potential blank contamination. Sample results greater than 10x the blank result do not require qualification.

L2241728

The FB (GWFB03_080322) exhibited detections of acenaphthene (0.02 ug/l), anthracene (0.04 ug/l), benzo(a)anthracene (0.06 ug/l), benzo(a)pyrene (0.02 ug/l), benzo(b)fluoranthene (0.03 ug/l), benzo(k)fluoranthene (0.01 ug/l), chrysene (0.04 ug/l), fluoranthene (0.11 ug/l), fluorene (0.02 ug/l), phenanthrene (0.16 ug/l), pyrene (0.09 ug/l), and 1,4-dioxane (37.2 ng/l). The associated detected results in samples MW13_080322, MW13_080322_FILTERED, MW11_080322, MW11_080322_FILTERED, MW06_080322, and MW06_080322_FILTERED are qualified as U at the reporting limit because of potential blank contamination.

The MB for batch WG1673034 exhibited detections of 2-methylnaphthalene (0.02 ug/l), benzo(a)anthracene (0.03 ug/l), benzo(b)fluoranthene (0.02 ug/l), benzo(g,h,i)perylene (0.01 ug/l), benzo(k)fluoranthene (0.01 ug/l), chrysene (0.02 ug/l), fluoranthene (0.04 ug/l), indeno(1,2,3-cd)pyrene (0.02 ug/l), phenanthrene (0.04 ug/l), and pyrene (0.03 ug/l). The associated detected results in samples MW13_080322, MW13_080322_FILTERED, MW11_080322, MW11_080322_FILTERED, MW06_080322, and MW06_080322_FILTERED are qualified as U at the reporting limit because of potential blank contamination.

The LCS/LCSD for batch WG1672694 exhibited percent recoveries below the LCL for 3,3'-dichlorobenzidine (38%, 36%), 4-nitroaniline (44%, 44%), bis(2-chloroisopropyl) ether (34%, 33%), bis(2-ethylhexyl) phthalate (38%), dibutyl phthalate (37%), and carbazole (46%, 44%). The associated results in samples MW13_080322, MW13_080322_FILTERED, MW11_080322, MW11_080322_FILTERED, MW06_080322, and MW06_080322_FILTERED are qualified as UJ because of potential low bias.

The LCS/LCSD for batch WG1673034 exhibited a percent recovery below the LCL for pentachlorophenol (30%, 27%). The associated results in samples MW13_080322, MW13_080322_FILTERED, MW11_080322, MW11_080322_FILTERED, MW06_080322, and MW06_080322_FILTERED are qualified as UJ because of potential low bias.

L2241945

The MB for batch WG1672438 exhibited detections of benzo(a)anthracene (0.02 ug/l), benzo(b)fluoranthene (0.01 ug/l), and hexachlorobenzene (0.01 ug/l). The associated detected results in samples MW07_080422, MW07_080422_FILTERED, MW08_080422,

MW08_080422_FILTERED, MW04_080422, and MW04_080422_FILTERED are qualified as U at the reporting limit because of potential blank contamination.

The LCSD for batch WG1672437 exhibited a percent recovery below the LCL for benzoic acid (0%). This LCS/LCSD also exhibited RPDs above the control limit for 2,4-dinitrophenol (56%), 4,6-dinitro-2-methylphenol (62%), and pentachlorophenol (120%). The associated results in samples MW07_080422, MW07_080422_FILTERED, MW08_080422, MW08_080422_FILTERED, MW04_080422, and MW04_080422_FILTERED are qualified as J or UJ because of potential bias.

L2242309

The MB for batch WG1673456 exhibited detections of benzo(a)anthracene (0.03 ug/l), benzo(b)fluoranthene (0.02 ug/l), and phenanthrene (0.03 ug/l). The associated results in samples MW10_080522, MW10_080522_FILTERED, MW01_080522, and MW01_080522_FILTERED are qualified as U at the higher of the sample concentration and the reporting limit because of potential blank contamination.

The LCS/LCSD for batch WG1673455 exhibited RPDs above the control limit for 2,4-dimethylphenol (42%), 4-chloroaniline (50%), and benzoic acid (35%). The associated results in samples MW10_080522, MW10_080522_FILTERED, MW01_080522, and MW01_080522_FILTERED are qualified as UJ because of potential indeterminate bias.

The LCS/LCSD for batch WG1673456 exhibited RPDs above the control limit for anthracene (41%), benzo(a)anthracene (42%), benzo(a)pyrene (43%), benzo(g,h,i)perylene (43%), benzo(k)fluoranthene (43%), chrysene (41%), dibenz(a,h)anthracene (41%), fluoranthene (43%), hexachlorobenzene (41%), indeno(1,2,3-cd)pyrene (43%), pentachlorophenol (56%), and pyrene (43%). The associated results in samples MW10_080522, MW10_080522_FILTERED, MW01_080522, and MW01_080522_FILTERED are qualified as J or UJ because of potential indeterminate bias.

PFAS by USEPA Method 537M

L2241023

Sample MW12_080122 exhibited a percent recovery above the UCL for the isotope dilution standard M2-6:2 FTS (178%). The associated result is qualified as UJ because of potential high bias.

Sample MW09_080122 exhibited a percent recovery above the UCL for the isotope dilution standard M2-6:2 FTS (181%). The associated result is qualified as J because of potential high bias.

The ion ratio observed in sample MW12_080122 exhibited poor responses for PFHxS. The associated result is qualified as J because of potential indeterminate bias.

The ion ratio observed in sample MW09_080122 exhibited poor responses for PFDA. The associated result is qualified as J because of potential indeterminate bias.

L2241378

Sample MW05_080222 exhibited percent recoveries above the UCL for the isotope dilution standards M2-8:2 FTS (194%) and M2-6:2 FTS (272%). The associated results are qualified as UJ because of potential high bias.

The ion ratio observed in sample MW03_080222 exhibited poor responses for PFOA. The associated results are qualified as J because of potential indeterminate bias.

The ion ratio observed in sample MW02_080222 exhibited poor responses for PFNA. The associated results are qualified as J because of potential indeterminate bias.

The ion ratio observed in sample GWDUP01_080222 exhibited poor responses for PFHxS and PFNA. The associated results are qualified as J because of potential indeterminate bias.

L2241728

Sample MW06_080322 exhibited percent recoveries above the UCL for the isotope dilution standards M2-8:2 FTS (182%) and M2-6:2 FTS (198%). The associated results are qualified as UJ because of potential high bias.

Sample MW06_080322 exhibited percent recoveries below the LCL for the isotope dilution standards 13C6PFDA (61%) and 13C5PFPEA (60%). The associated results are qualified as J because of potential low bias.

The ion ratio observed in sample MW13_080322 exhibited poor responses for PFNA, PFOA, and PFUnA. The associated results are qualified as J because of potential indeterminate bias.

The ion ratio observed in sample MW06_080322 exhibited poor responses for PFDA. The associated results are qualified as J because of potential indeterminate bias.

L2241945

Sample MW07_080422 exhibited a percent recovery above the UCL for the isotope dilution standard M2-6:2 FTS (216%). The associated results are qualified as J because of potential high bias.

Sample MW08_080422 exhibited a percent recovery above the UCL for the isotope dilution standard M2-6:2 FTS (220%). The associated results are qualified as J because of potential high bias.

Sample MW04_080422 exhibited a percent recovery above the UCL for the isotope dilution standard M2-6:2 FTS (226%). The associated results are qualified as J because of potential high bias.

The MB for batch WG1671865 exhibited detections of NMeFOSAA (2.47 ng/L) and NEtFOSAA (2.03 ng/L). The associated detected results in samples MW07_080422, MW08_080422, and MW04_080422 are qualified as U at the higher of the reporting limit or sample concentration because of potential blank contamination.

L2242309

Sample MW10_080522 exhibited percent recoveries outside of control limits for the isotope dilution standards M2-6:2 FTS (197%), 13c6-PFDA (61.0%), and 13c2-PFDoA (44.0%). The associated results are qualified as J or UJ because of potential bias.

Sample MW01_080522 exhibited a percent recovery above the UCL for the isotope dilution standard M2-6:2 FTS (180%). The associated results are qualified as UJ because of potential high bias.

Total and Dissolved Metals by SW-846 Methods 6020B/7470A

L2241023

The MB for batch WG1670409 exhibited detections of dissolved arsenic (0.00020 mg/l), dissolved selenium (0.00279 mg/l), and dissolved thallium (0.00022 mg/l). The associated detected results in samples MW12_080122 and MW09_080122 are qualified as either J or U at the reporting limit because of potential blank contamination.

The MB for batch WG1670310 exhibited a detection of total thallium (0.00016 mg/l). The associated detected results in samples MW12_080122 and MW09_080122 are qualified as U at the reporting limit because of potential blank contamination.

The laboratory duplicate and parent sample (MW12_080122) exhibited a RPD above the control limit for dissolved iron (21%). The associated results are qualified as J because of potential indeterminate bias.

The serial dilution performed on sample MW12_080122 exhibited percent differences above the control limit for total iron (23%). The associated result is qualified as J because of potential indeterminate bias.

L2241378

The MB for batch WG1670639 exhibited detections of total arsenic (0.00019 mg/l), total potassium (0.0350 mg/l), and total thallium (0.00015 mg/l). The associated detected results in samples MW05_080222, MW03_080222, MW02_080222, and GWDUP01_080222 are qualified as U at the reporting limit because of potential blank contamination. Other associated results that are >10x blank contamination or non-detect did not require qualification.

The MB for batch WG1670765 exhibited detections of dissolved sodium (0.0488 mg/l) and dissolved thallium (0.00032 mg/l). The associated detected results in samples MW05_080222, MW03_080222, MW02_080222, and GWDUP01_080222 are qualified as U at the reporting limit because of potential blank contamination. Sample results greater than 10x the blank result or non-detects do not require qualification.

The MS performed on sample MW05_080222 exhibited a percent recovery above the UCL for total magnesium (145%). The associated results in sample MW05_080222 are qualified as J because of potential high bias.

The MS/MSD performed on sample MW05_080222 exhibited a percent recovery below the LCL for dissolved potassium (64%, 74%). The associated results in sample MW05_080222 are qualified as J because of potential low bias.

L2241728

The FB (GWFB03_080322) exhibited detections of total barium (0.00018 mg/l), total nickel (0.00110 mg/l), and total sodium (0.218 mg/l). The associated detected results in samples MW13_080322, MW11_080322, and MW06_080322 are qualified as U at the reporting limit because of potential blank contamination. Sample results greater than 10x the blank result do not require qualification.

The MB for batch WG1671182 exhibited a detection of total nickel (0.00110 mg/l). The associated detected results in samples MW13_080322, MW11_080322, and MW06_080322 are qualified as J or U at the reporting limit because of potential blank contamination.

L2241945

The serial dilution performed on sample MW07_080422 exhibited percent differences above the control limit for dissolved sodium (22%). The associated results are qualified as J because of potential indeterminate bias.

L2242309

The MB for batch WG1672169 exhibited a detection of total thallium (0.00019 mg/l). The associated detected results in samples MW10_080522 and MW01_080522 are qualified as U at the reporting limit because of potential blank contamination.

The MB for batch WG1672213 exhibited a detection of dissolved thallium (0.00022 mg/l). The associated detected results in samples MW10_080522 and MW01_080522 are qualified as U at the reporting limit because of potential blank contamination.

The MS performed on sample MW01_080522 exhibited a percent recovery above the UCL for manganese (135%). The associated results in sample MW01_080522 are qualified as J because of potential high bias.

OTHER DEFICIENCIES:

Other deficiencies include anomalies that do not directly impact data quality and do not necessitate qualification. The section below describes the other deficiencies that were identified.

VOCs by SW-846 Method 8260C

L2241378

The LCS/LCSD for batch WG1671578 exhibited percent recoveries above the UCL for chloromethane (140%, 140%) and dichlorodifluoromethane (190%, 200%). The associated results are non-detect. No qualification is necessary.

The MS/MSD performed on sample MW05_080222 exhibited percent recoveries above the UCL for several analytes (140 - 210%). Organic results are not qualified on the basis of MS/MSD recoveries alone. No qualification is necessary.

L2241728

The LCS/LCSD for batch WG1672342 exhibited a percent recovery above the UCL for chloroethane (210%, 220%). The associated results are non-detect. No qualification is necessary.

L2241945

The LCS/LCSD for batch WG1672498 exhibited a percent recovery above the UCL for dichlorodifluoromethane (180%, 180%). The associated results are non-detect. No qualification is necessary.

L2242309

The LCS/LCSD for batch WG1672824 exhibited a percent recovery above the UCL for dichlorodifluoromethane (180%, 170%). The associated results are non-detect. No qualification is necessary.

SVOCs by SW-846 Method 8270D, 8270D SIM, and 8270E SIM

L2241023

The MB for batch WG1670129 exhibited a detection of benzo(b)fluoranthene (0.01 ug/l). The associated results are either greater than 10x the blank contamination or non-detect. No qualification is necessary.

Sample MW09_080122_FILTERED exhibited a percent recovery above the UCL for the surrogate 2,4,6-tribromophenol (138%). No more than one surrogate from a single fraction was recovered outside of the control limits. No qualification is necessary.

L2241378

Sample MW05_080222_FILTERED exhibited a percent recovery above the UCL for the surrogate 2,4,6-tribromophenol (153%). No more than one surrogate from a single fraction was recovered outside of the control limits. No qualification is necessary.

The MS/MSD performed on sample MW05_080222 exhibited percent recoveries outside of control limits for 3,3'-dichlorobenzidine (15%) and 4-nitrophenol (83%). Organic results are not qualified on the basis of MS/MSD recoveries alone. No qualification is necessary.

The MS/MSD performed on sample MW05_080222_Filtered exhibited percent recoveries below the LCL for 3,3'-dichlorobenzidine (0%) and 4-chloroaniline (33%, 39%). This MS/MSD also exhibited a RPD above the control limit for 2,4-dimethylphenol (41%). Organic results are not qualified on the basis of MS/MSD recoveries or RPDs alone. No qualification is necessary.

L2241728

Sample MW06_080322_FILTERED exhibited a percent recovery below the LCL for the surrogate p-terphenyl-d14 (39%). No more than one surrogate from a single fraction was recovered outside of the control limits. No qualification is necessary.

L2241945

Sample MW08_080422_FILTERED exhibited a percent recovery above the UCL for the surrogate 2,4,6-tribromophenol (130%). No more than one surrogate from a single fraction was recovered outside of the control limits. No qualification is necessary.

The LCS for batch WG1672437 exhibited a percent recovery above the UCL for 4-nitrophenol (81%). The associated results are non-detect. No qualification is necessary.

PFAS by USEPA Method 537M

L2241378

The MS/MSD performed on sample MW05_080222 exhibited a RPD above the control limit for PFDS (32%). Organic results are not qualified on the basis of MS/MSD recoveries alone. No qualification is necessary.

L2241728

The MS performed on sample MW13_080322 exhibited a percent recovery above the UCL for PFUnA (154%). Organic results are not qualified on the basis of MS recoveries alone. No qualification is necessary.

Total and Dissolved Metals by SW-846 Methods 6020B/7470A

L2241023

The MS performed on sample MW12_080122 exhibited percent recoveries outside of control limits for total calcium (160%), total magnesium (145%), and total sodium (70%). The associated results in the parent sample are >4X the spiked amount. No qualification is necessary.

The MS performed on sample MW12_080122 exhibited percent recoveries outside of control limits for dissolved calcium (130%) and dissolved sodium (40%). The associated results in the parent sample are >4X the spiked amount. No qualification is necessary.

L2241378

The MS/MSD performed on sample MW05_080222 exhibited percent recoveries outside of control limits for total calcium (310%, 260%), total iron (180%, 140%), total sodium (161%,

131%), dissolved calcium (0%, 0%), dissolved iron (20%, 70%), and dissolved sodium (48%, 60%). The associated results in the parent sample are >4X the spiked amount. No qualification is necessary.

L2241728

The FB (GWFB03_080322) exhibited a detection of dissolved barium (0.00019 mg/l). The associated results are >10X the contamination. No qualification is necessary.

L2241945

The MB for batch WG1671756 exhibited a detection of dissolved thallium (0.00018 mg/l). The associated results are non-detect. No qualification is necessary.

The MB for batch WG1671961 exhibited a detection of total thallium (0.00027 mg/l). The associated results are non-detect. No qualification is necessary.

The MS performed on sample MW07_080422 exhibited percent recoveries outside of control limits for dissolved iron (130%), dissolved manganese (62%), and dissolved sodium (0%). The associated results in the parent sample are >4X the spiked amount. No qualification is necessary.

L2242309

The MS performed on sample MW01_080522 exhibited percent recoveries above the UCL for calcium (0%), iron (174%), magnesium (150%), sodium (800%), and potassium (0%). The associated results in the parent sample are >4X the spiked amount. No qualification is necessary.

The MS performed on sample MW10_080522 exhibited percent recoveries above the UCL for dissolved calcium (170%), dissolved iron (163%), dissolved manganese (136%), and dissolved sodium (0%). The associated results in the parent sample are >4X the spiked amount. No qualification is necessary.

FIELD DUPLICATE:

Two field duplicate and parent sample pairs were collected and analyzed for all parameters. For results less than 5X the RL, analytes meet the precision criteria if the absolute difference is less than ±1X the RL. For results greater than 5X the RL, analytes meet the precision criteria if the RPD is less than or equal to 30% for groundwater. The following field duplicate and parent sample pairs were compared to the precision criteria:

- GWDUP01_080222 and MW03_080222
- GWDUP01_080222_FILTERED and MW03_080222_FILTERED

The field duplicate and parent sample (MW03_080222 and GWDUP01_080222) exhibited RPDs above the control limit for total aluminum (68.1%), naphthalene (154.7%), dissolved potassium (36.8%), and 6:2FTS (184.5%). The associated results are qualified as J or UJ because of potential indeterminate bias.

CONCLUSION:

On the basis of this evaluation, the laboratory appears to have followed the specified analytical methods with the exception of errors discussed above. If a given fraction is not mentioned above, that means that all specified criteria were met for that parameter. All of the data packages met ASP Category B requirements.

All data are considered usable, as qualified. In addition, completeness, defined as the percentage of analytical results that are judged to be valid, is 100%.

Signed:



Joe Conboy
Senior Staff Chemist

LANGAN
ENGINEERING & ENVIRONMENTAL SERVICES

Technical Memorandum

989 Lenox Drive Lawrenceville, NJ 08648 T: 609.282.8000
Mailing Address: 989 Lenox Drive Lawrenceville, NJ 08648

To: Greg Wyka, Langan Senior Project Geologist

From: Joe Conboy, Langan Senior Staff Chemist

Date: August 12, 2022

Re: Data Usability Summary Report
For Greenpoint Landing Parcel C
July – August 2022 Soil Vapor and Ambient Air Samples
Langan Project No.: 170229028

This memorandum presents the findings of an analytical data validation from the analysis of air samples collected in July through August 2022 by Langan Engineering and Environmental Services at the Greenpoint Landing Parcel C site. The samples were analyzed by Alpha Analytical Laboratories, Inc. (NYSDOH NELAP registration # 11148) for volatile organic compounds (VOCs) by the methods specified below.

- VOCs by USEPA Method TO-15 and TO-15 SIM

Table 1, attached, summarizes the laboratory and client sample identification numbers, sample collection dates, level of data validation, and analytical parameters subject to review.

Validation Overview

This data validation was performed in accordance with the following guidelines, where applicable:

- USEPA Region II Standard Operating Procedure (SOP) #HW-31, "Analysis of Volatile Organic Compounds in Air Contained in Canisters by Method TO-15" (September 2016, Revision 6),
- USEPA Contract Laboratory Program "National Functional Guidelines for Organic Superfund Methods Data Review" (EPA 540- R-20-005, November 2020), and
- published analytical methodologies.

Validation includes review of the analytical data to verify that data are easily traceable and sufficiently complete to permit logical reconstruction by a qualified individual other than the originator.

The following acronyms may be used in the discussion of data-quality issues:

%D	Percent Difference	MB	Method Blank
CCV	Continuing Calibration Verification	MDL	Method Detection Limit

FB	Field Blank	MS	Matrix Spike
FD	Field Duplicate	MSD	Matrix Spike Duplicate
ICAL	Initial Calibration	RF	Response Factor
ICV	Initial Calibration Verification	RL	Reporting Limit
ISTD	Internal Standard	RPD	Relative Percent Difference
LCL	Lower Control Limit	RSD	Relative Standard Deviation
LCS	Laboratory Control Sample	TB	Trip Blank
LCSD	Laboratory Control Sample Duplicate	UCL	Upper Control Limit

Tier 1 data validation is based on completeness and compliance checks of sample-related QC results including: sample receipt documentation; analytical holding times; sample preservation; blank results (method, field, and trip); surrogate recoveries; MS/MSD recoveries and RPDs values; field duplicate RPDs, laboratory duplicate RPDs, and LCS/LCSD recoveries and RPDs. All laboratory reports underwent Tier 1 validation.

As a result of the review process, the following qualifiers may be assigned to the data in accordance with the USEPA's guidelines and best professional judgment:

- **R –** The sample results are unusable because certain criteria were not met when generating the data. The analyte may or may not be present in the sample.
- **J –** The analyte was positively identified and the associated numerical value is the approximate concentration of the analyte in the sample.
- **UJ –** The analyte was not detected at a level greater than or equal to the reporting limit; however, the reported reporting limit is approximate and may be inaccurate or imprecise.
- **U –** The analyte was analyzed for, but was not detected at a level greater than or equal to the level of the RL or the sample concentration for results impacted by blank contamination.
- **NJ –** The analysis indicates the presence of an analyte that has been "tentatively identified" and the associated numerical value represents its approximate concentration.

If any validation qualifiers are assigned these qualifiers should supersede any laboratory-applied qualifiers. Data that is not qualified as a result of this data validation is considered acceptable on the basis of the items specified for review. Data that is qualified as "R" are considered invalid and are not technically usable for data interpretation. Data that is otherwise qualified due to minor data quality anomalies are usable, as qualified in Table 2 (attached).

MAJOR DEFICIENCIES:

Major deficiencies include those that grossly impact data quality and necessitate the rejection of results. No major deficiencies were identified in this data set.

MINOR DEFICIENCIES:

Minor deficiencies include anomalies that directly impact data quality and necessitate qualification, but do not result in unusable data. No minor deficiencies were identified in this data set.

OTHER DEFICIENCIES:

Other deficiencies include anomalies that do not directly impact data quality and do not necessitate qualification. No other deficiencies were identified in this data set.

CONCLUSION:

On the basis of this evaluation, the laboratory appears to have followed the specified analytical methods with the exception of errors discussed above. If a given fraction is not mentioned above, that means that all specified criteria were met for that parameter. All of the data packages met ASP Category B requirements.

All data are considered usable, as qualified. In addition, completeness, defined as the percentage of analytical results that are judged to be valid, is 100%.

Signed:



Joe Conboy
Senior Staff Chemist

LANGAN
ENGINEERING & ENVIRONMENTAL SERVICES

Technical Memorandum

1 University Square Drive Princeton, NJ 08540 T: 609.282.8000
Mailing Address: 1 University Square Drive Princeton, NJ 08540

To: Camille Quick, Langan Senior Staff Engineer

From: Joe Conboy, Langan Project Chemist

Date: January 26, 2026

Re: Data Usability Summary Report
For Greenpoint Landing - Parcel C
January 2026 Groundwater Samples
Langan Project No.: 170229030

This memorandum presents the findings of an analytical data validation from the analysis of groundwater samples collected in January 2026 by Langan Engineering, Environmental, Surveying, Landscape Architecture and Geology, D.P.C at Greenpoint Landing - Parcel C. The samples were analyzed by York Analytical Laboratories, Inc. (NYSDOH NELAP registration #10854 and 12058) for per- and polyfluoroalkyl substances (PFAS) by the methods specified below.

- PFAS by USEPA Method 1633

Table 1, attached, summarizes the laboratory and client sample identification numbers, sample collection dates, level of data validation, and analytical parameters subject to review.

Validation Overview

This data validation was performed in accordance with the following guidelines, where applicable:

- USEPA Region II Standard Operating Procedures (SOPs) for Data Validation
- USEPA Contract Laboratory Program "National Functional Guidelines for Organic Superfund Methods Data Review" (EPA 540- R-20-005, November 2020)
- USEPA Contract Laboratory Program "National Functional Guidelines for Inorganic Superfund Methods Data Review" (EPA 540- R-20-005, November 2020), and
- published analytical methodologies.

Tier 1 data validation is based on completeness and compliance checks of sample-related QC results including: sample receipt documentation; analytical holding times; sample preservation; blank results (method, field, and trip); surrogate recoveries; MS/MSD recoveries and RPDs values; field duplicate RPDs, laboratory duplicate RPDs, and LCS/LCSD recoveries and RPDs. Three sample delivery groups underwent Tier 1 validation review.

As a result of the review process, the following qualifiers may be assigned to the data in accordance with the USEPA guidelines and our best professional judgment:

R – The sample results are unusable. The results are rejected because of serious deficiencies in meeting quality control criteria in accordance with the applicable validation guidelines. The analyte may or may not be present in the sample.

J – The analyte was positively identified above the quantitation limit, and the associated numerical value is the approximate concentration of the analyte in the sample.

UJ – The analyte was not detected at or above the quantitation limit. The reported quantitation limit may be imprecise because of potential low or indeterminate bias.

U – The analyte was not detected at or above the quantitation limit, or the analyte detection is impacted by blank contamination and qualified as non-detect in accordance with the applicable validation guidelines.

If any validation qualifiers are assigned, these qualifiers should supersede any laboratory-applied qualifiers. Data that is not qualified as a result of this data validation is considered acceptable on the basis of the items specified for review. Data that is qualified as "R" are considered invalid and are not technically usable for data interpretation. Data that is otherwise qualified because of minor data-quality anomalies are usable, as qualified in Table 2 (attached).

The following acronyms may be used in the discussion of data-quality issues:

%D	Percent Difference	MB	Method Blank
CCV	Continuing Calibration Verification	MDL	Method Detection Limit
FB	Field Blank	MS	Matrix Spike
FD	Field Duplicate	MSD	Matrix Spike Duplicate
ICAL	Initial Calibration	RF	Response Factor
ICV	Initial Calibration Verification	RL	Reporting Limit
ISTD	Internal Standard	RPD	Relative Percent Difference
LCL	Lower Control Limit	RSD	Relative Standard Deviation
LCS	Laboratory Control Sample	TB	Trip Blank
LCSD	Laboratory Control Sample Duplicate	UCL	Upper Control Limit

MAJOR DEFICIENCIES:

Major deficiencies include those that grossly impact data quality and necessitate the rejection of results. No major deficiencies were identified.

MINOR DEFICIENCIES:

Minor deficiencies include anomalies that directly impact data quality and necessitate qualification, but do not result in unusable data. The section below describes the minor deficiencies that were identified.

PFAS by USEPA Method 1633

26A0685

The LCS for batch BA60788 exhibited a percent recovery below the LCL for 11-chloroeicosafluoro-3-oxaundecane-1-sulfonic acid (11Cl-PF3OUdS) (53.4%). The associated results in samples MW04_011426, MW06_011426, and MW08_011426 are qualified as UJ because of potential low bias.

OTHER DEFICIENCIES:

Other deficiencies include anomalies that do not directly impact data quality and do not necessitate qualification. The section below describes the other deficiencies that were identified.

PFAS by USEPA Method 1633

26A0545

The sample MW03_011326 exhibited percent recoveries below the LCL for the isotope dilution standard n-methyl-d3-perfluoro-1-octanesulfonamidoacetic acid (39.5%) and 1H,1H,2H,2H-perfluoro-1-[1,2-13C2]-decane sulfonic acid (8:2) (31.8%). The associated results are non-detect. No qualifications required.

The sample MW13_011326 exhibited a percent recovery below the LCL for the isotope dilution standard 1H,1H,2H,2H-perfluoro-1-[1,2-13C2]-decane sulfonic acid (8:2) (34.6%). The associated results are non-detect. No qualifications required.

The sample MW11_011326 exhibited a percent recovery below the LCL for the isotope dilution standard 1H,1H,2H,2H-perfluoro-1-[1,2-13C2]-decane sulfonic acid (8:2) (35.3%). The associated results are non-detect. No qualifications required.

The MSD performed on sample MW03_011326 exhibited a percent recovery below the LCL for 11-chloroeicosafluoro-3-oxaundecane-1-sulfonic acid (11Cl-PF3OUdS) (49.9%). Organic results are not qualified on the basis of MSD recoveries alone. No qualification is necessary.

FIELD DUPLICATES:

One field duplicate and parent sample pair was collected and analyzed for all parameters. For results less than 5X the RL, analytes meet the precision criteria if the absolute difference is less than ±X the RL. For results greater than 5X the RL, analytes meet the precision criteria if the RPD is less than or equal to 30% for soil/groundwater. The following field duplicate and parent sample pair was compared to and met the precision criteria:

- GWDUP01_011226 and MW09_011226

CONCLUSION:

On the basis of this evaluation, the laboratory appears to have followed the specified analytical methods with the exception of errors discussed above.If a given fraction is not mentioned above, that means that all specified criteria were met for that parameter. All of the data packages met ASP Category B requirements.

All data are considered usable, as qualified. In addition, completeness, defined as the percentage of analytical results that are judged to be valid, is 100%.

Signed:



Joe Conboy
Project Chemist

LANGAN
ENGINEERING & ENVIRONMENTAL SERVICES

Technical Memorandum

1 University Square Drive Princeton, NJ 08540 T: 609.282.8000
Mailing Address: 1 University Square Drive Princeton, NJ 08540

To: Camille Quick, Langan Senior Staff Engineer

From: Joe Conboy, Langan Project Chemist

Date: March 30, 2026

Re: Data Usability Summary Report
For Greenpoint Landing - Parcel C
March 2026 Soil Vapor Samples
Langan Project No.: 170229030

This memorandum presents the findings of an analytical data validation from the analysis of soil vapor samples collected in March 2026 by Langan Engineering, Environmental, Surveying, Landscape Architecture and Geology, D.P.C at Greenpoint Landing - Parcel C. The samples were analyzed by SGS of Dayton, NJ (NYSDEC NELAP Certification # 10983) for volatile organic compounds (VOCs) by the method specified below.

- VOCs by USEPA Method TO-15

Table 1, attached, summarizes the laboratory and client sample identification numbers, sample collection dates, level of data validation, and analytical parameters subject to review.

Validation Overview

This data validation was performed in accordance with the following guidelines, where applicable:

- USEPA Region II Standard Operating Procedure (SOP) #HW-31, "Analysis of Volatile Organic Compounds in Air Contained in Canisters by Method TO-15" (September 2016, Revision 6),
- USEPA Contract Laboratory Program "National Functional Guidelines for Organic Superfund Methods Data Review" (EPA 540- R-20-005, November 2020), and
- published analytical methodologies.

Validation includes review of the analytical data to verify that data are easily traceable and sufficiently complete to permit logical reconstruction by a qualified individual other than the originator.

Tier 1 data validation is based on completeness and compliance checks of sample-related QC results including: sample receipt documentation; analytical holding times; sample preservation; blank results (method, field, and trip); surrogate recoveries; MS/MSD recoveries and RPDs

values; field duplicate RPDs, laboratory duplicate RPDs, and LCS/LCSD recoveries and RPDs. All Sample Delivery Groups underwent Tier 1 validation review.

As a result of the review process, the following qualifiers may be assigned to the data in accordance with the USEPA guidelines and our best professional judgment:

- **R –** The sample results are unusable. The results are rejected because of serious deficiencies in meeting quality control criteria in accordance with the applicable validation guidelines. The analyte may or may not be present in the sample.
- **J –** The analyte was positively identified above the quantitation limit, and the associated numerical value is the approximate concentration of the analyte in the sample.
- **UJ –** The analyte was not detected at or above the quantitation limit. The reported quantitation limit may be imprecise because of potential low or indeterminate bias.
- **U –** The analyte was not detected at or above the quantitation limit, or the analyte detection is impacted by blank contamination and qualified as non-detect in accordance with the applicable validation guidelines.

If any validation qualifiers are assigned, these qualifiers should supersede any laboratory-applied qualifiers. Data that is not qualified as a result of this data validation is considered acceptable on the basis of the items specified for review. Data that is qualified as "R" are considered invalid and are not technically usable for data interpretation. Data that is otherwise qualified because of minor data-quality anomalies are usable, as qualified in Table 2 (attached).

The following acronyms may be used in the discussion of data-quality issues:

%D	Percent Difference	MB	Method Blank
CCV	Continuing Calibration Verification	MDL	Method Detection Limit
FB	Field Blank	MS	Matrix Spike
FD	Field Duplicate	MSD	Matrix Spike Duplicate
ICAL	Initial Calibration	RF	Response Factor
ICV	Initial Calibration Verification	RL	Reporting Limit
ISTD	Internal Standard	RPD	Relative Percent Difference
LCL	Lower Control Limit	RSD	Relative Standard Deviation
LCS	Laboratory Control Sample	TB	Trip Blank
LCSD	Laboratory Control Sample Duplicate	UCL	Upper Control Limit

MAJOR DEFICIENCIES:

Major deficiencies include those that grossly impact data quality and necessitate the rejection of results. No major deficiencies were identified.

MINOR DEFICIENCIES:

Minor deficiencies include anomalies that directly impact data quality and necessitate qualification, but do not result in unusable data. The section below describes the minor deficiencies that were identified.

VOCs by USEPA Method TO-15

JE30487

The samples SV23_031926 and SV25_031926 exhibited a laboratory-measured receipt pressure above -2 in. Hg (-1.5 in. Hg). The associated results are qualified as J or UJ because of potential indeterminate bias.

The samples SV24_031926 and SV26_031926 exhibited a laboratory-measured receipt pressure above -2 in. Hg (-1 in. Hg). The associated results are qualified as J or UJ because of potential indeterminate bias.

OTHER DEFICIENCIES:

Other deficiencies include anomalies that do not directly impact data quality and do not necessitate qualification. No other deficiencies were identified.

FIELD DUPLICATES:

A field duplicate was not collected as part of this data set.

CONCLUSION:

On the basis of this evaluation, the laboratory appears to have followed the specified analytical methods with the exception of errors discussed above. If a given fraction is not mentioned above, that means that all specified criteria were met for that parameter. All of the data packages met ASP Category B requirements.

All data are considered usable, as qualified. In addition, completeness, defined as the percentage of analytical results that are judged to be valid, is 100%.

Signed:

Joe Conboy
Project Chemist

APPENDIX J

Fish and Wildlife Resources Impact Analysis

APPENDIX J

FISH AND WILDLIFE RESOURCE IMPACT ANALYSIS (FWRIA)

Langan conducted a Fish and Wildlife Resource Impact Analysis (FWRIA) on behalf of GPLC HoldCo LLC, GPLC Member LLC and GPLC Owner LLC (the Participant) for the property located at 21 Freeman Street, 37 Freeman Street, and 209 West Street in Brooklyn, New York (the site). The FWRIA for the site was completed in accordance with regulations set forth in the New York State Department of Environmental Conservation (NYSDEC) Division of Environmental Remediation Technical Guidance for Site Investigation and Remediation (DER-10) and the guidelines set forth in the NYSDEC Fish and Wildlife Impact Analysis (FWIA) for Inactive Hazardous Waste Sites Handbook (October, 1994). The FWRIA was prepared as part of a Remedial Investigation (RI) completed at the site and includes an assessment of on- and off-site resources. Additional information on sampling data and locations discussed in this FWRIA are provided in the Remedial Investigation Report (RIR).

1.1 Environmental Setting

The site is about 163,000 square feet (±3.737 acres) in area and is located at 21 Freeman Street (Building C1), 37 Freeman Street (Building C2), and 209 West Street (Building C3) in the Greenpoint neighborhood of Brooklyn, New York. The site is identified on the Brooklyn Borough Tax Map as Block 2502, part of (p/o) Lot 1 and p/o Lot 5, and Block 2510, p/o Lot 1 and p/o Lot 100. The site is currently a paved and vacant parcel of land.

The site is under the regulatory jurisdiction of the New York City Office of Environmental Remediation (NYCOER) pursuant to the Greenpoint-Williamsburg Rezoning dated May 11, 2005 (CEQR No. 04DCP003K), which placed E-Designations for Hazardous Materials and Noise (E-138) on the tax lots comprising the site. The E-Designation includes environmental restrictions during development for hazardous materials and noise (i.e., window wall attenuation and alternate means of ventilation requirements).

The site is bound by Greenpoint Landing Parcel D (Block 2472, Lots 2, 3, 4, 21 and 23, Block 2502, Lot 2 and part of Lot 5) to the north, West Street to the east, a parking lot to the south, and the East River to the west. The northern-adjoining property (Greenpoint Landing Parcel D) was enrolled in the NYCOER Voluntary Cleanup Program (VCP) as Site No. 19CVCP053K. The Greenpoint Landing Parcel D site received its Certificate of Completion in February 2023.

The East River was identified as a sensitive natural resource adjacent to the site. The East River is a saline estuary water system classified as a Category I waterway (i.e., impaired segment) by the NYSDEC. The East River is connected to the Upper New York Bay and is located adjoining to the west of the site less than a mile away southwest of the site. Additionally, the portion of East

River in the area surrounding the site is identified as being in the vicinity of a "Diadromous Fishes Important Areas (IA)" (see Figure 1). Site groundwater flows to the west towards the East River. Further, the site grade slopes to the west towards the East River.

Soil impacts on site may pose a risk to the nearby ecological receptors (East River);however, the site is currently paved and is proposed for redevelopment. The redevelopment includes the construction of three residential buildings named Building C1, Building C2, and Building C3. Buildings C2 and C3 cellar levels will be connected and used as a parking garage. The residential units in Building C1, Building C2, and Building C3 will be a mix of market-rate and affordable units. There will be new public access sidewalks and roadways along Freeman Street and a private internal connector road that will transect the site in a north-south direction to the adjoining cul-de-sac at the western end of Eagle Street. The sidewalks and roadways will include street lighting, trees, and plantings. The shoreline along the East River will be stabilized and the waterfront will be developed into a public park/esplanade, including 52,240-square-feet of public waterfront, shore public walkway, upland connection, and view corridor, that will be transferred to the City of New York upon completion. Therefore, groundwater is the only media associated with the site that requires additional evaluation since it may pose a potential ecological risk via groundwater to surface water discharge.

1.2 Identification of Applicable Screening Criteria and Regulatory Rules

Groundwater collected from the site was evaluated to determine if groundwater to surface water migration and exposure pathways may be complete. A brief description of the selection of the screening criteria for groundwater is provided below. Additionally, sample locations evaluated as part of the FWRIA are provided in Figure 7 of the RIR.

1.2.1 Groundwater

Surface water samples were not collected as part of the RI, the first SRI (herein referred to as No. 1), or the second SRI (herein referred to as SRI No. 2). Therefore, groundwater samples from the site were screened to assess the potential groundwater to surface water migration pathway. Groundwater samples were collected during the RI between July 25 to August 5, 2022 and SRI No. 1 between January 12 to January 14, 2026 to investigate and characterize the nature and extent of groundwater contamination. Ecological regulatory criteria were selected to screen groundwater analytical data. Saline criteria were selected because the East River is a saline environment. These criteria were selected from the New York State Ambient Water Quality Standards (AWQS) and Guidance Values and Groundwater Effluent Limits. Aquatic chronic (A[C]) and aquatic acute (A[A]) surface water benchmarks were used in this analysis to provide a range

of conservative screening values. These benchmarks also helped to identify the range of potential risk of specific contaminants. It is important to note that in many cases, values for fish propagation (A[C]) and fish survival (A[A]) are higher than values that are protective of drinking water or fish consumption for humans. Therefore, analytes that may have been identified as being a potential human health risk driver may not have been identified as an ecological risk driver. Additionally, in cases where A(C) and A(A) values have not been promulgated by New York State, the USEPA Region 4's 2018 Ecological Risk Assessment Supplemental Guidance was consulted for additional screening values.

1.3 Contaminant-Specific Impact Analysis

A contaminant-specific impact analysis was completed to evaluate the possible groundwater to surface water migration pathway to the East River. Groundwater analytical data from the site was screened against the ecological criteria outlined above.

1.3.1 Migration and Exposure Pathways

An analysis of topographic features and groundwater level measurement data from the RI and SRI No. 1 demonstrates that groundwater is migrating west towards the East River. The migration and potential discharge of groundwater to the East River represents a potential risk to ecological receptors. This risk is associated with the site-related impacts detected in shallow groundwater that may be migrating to surface water.

1.3.2 Criteria-Specific Analysis

The criteria-specific analysis evaluates the potential migration pathways between the site and ecological resources. As discussed above, the East River was found to be an ecological resource of concern that may be impacted by groundwater to surface water discharge. Therefore, site-specific shallow groundwater data were screened using the applicable screening criteria. A summary of the screening results is provided below.

1.3.3 2026 Remedial Investigation Report

During the RI, groundwater samples were collected from 13 on-site monitoring wells between July 25 and August 5, 2022. During SRI No. 1, groundwater samples were collected from 12 on-site monitoring wells between January 12 and 14, 2026. The groundwater data from these shallow downgradient monitoring wells (MW01 through MW13) were considered in the criteria-specific analysis. The location of the wells are shown on Figure 5 of the RIR.

These monitoring wells were sampled and analyzed in accordance with in accordance with the May 2010 NYSDEC Final DER-10 Technical Guidance for Site Investigation and Remediation and the NYSDEC-approved Supplemental Remedial Investigation Work Plan No. 1 (SRIWP No. 1) dated January 8, 2026 for some or all of the following criteria: Target Compound List (TCL) volatile organic compounds (VOC), semi-volatile organic compounds (SVOC), polychlorinated biphenyls (PCB), Target Analyte List (TAL) metals (total and dissolved), cyanide, pesticides, herbicides, and NYSDEC list of per and polyfluoroalkyl substances (PFAS).

The results were screened against the NYSDEC Technical and Operational Guidance Series (TOGS) Fish Propagation and Fish Survival (saline waters) screening values. Surface water screening values from USEPA Region 4 Ecological Risk Assessment Supplemental Guidance (March, 2018) were used to supplement the screening criteria as noted on Table 1 of this appendix. Select total and dissolved metals were detected above their applicable screening values (Table 1).

An analyte was considered a contaminant of potential ecological concern (COPEC) if it exceeded either the fish propagation or fish survival screening values.

The following parameters exceeded their respective fish propagation screening criteria:

- Select metals/non-metals(barium (dissolved), beryllium (dissolved), copper (total), cyanide (total), iron (dissolved), manganese (dissolved), nickel (total and dissolved), lead (total), and zinc (total and dissolved).

The following parameters were detected above their respective fish survival screening criteria:

- Select metals (barium (dissolved), copper (total), cyanide (total), and zinc (total and dissolved)

However, groundwater contamination is attributed to non-native historical fill quality, historical (i.e., pre-2005) industrial uses, including coal storage, and regional conditions which are further discussed in the RIR. A summary of groundwater sampling locations and screening results is provided in Table 1. Additionally, groundwater monitoring well analytical results are provided on Figure 10 of the RIR.

1.4 Conclusions

The preliminary FWRIA identified the East River as a sensitive natural resource in the area surrounding the site. Any potential soil impacts at the site are not expected to impact the East River because of the proposed remediation and site redevelopment.

Based on a review of groundwater data, constituents in groundwater related to historical site operations are not migrating to the East River. Metals identified in groundwater at the site are attributed to entrained non-native historic fill/sediment and are not indicative of a release related to the site. Further discussion of site groundwater conditions is provided in the RIR.

Based on the lack of complete migration pathways to the East River, and entrained non-native historic fill/sediment in unfiltered groundwater samples, further ecological impact assessment is not warranted at this time. Remediation of the site will include excavating non-native historic fill at the site and stabilizing the East River shoreline. Additionally, the proposed redevelopment will encompass the entire site footprint. Upon completion of the new development, the site will be stabilized and covered by concrete building slabs, paved roads, and landscaped areas (capped with soil that meets the Title 6 of the New York Codes, Rules, and Regulations Part 375 [6 NYCRR Part 375] Restricted Use Restricted-Residential [RURR] Soil Cleanup Objectives [SCOs] or the NYSDEC Part 375-6.8(b) Protection of Groundwater [PGW] SCOs, whichever is more stringent).

FIGURE



Legend

- Approximate Site Boundary
- Approximate NYSDEC Diadromous Fish Concentration Boundary

Notes:
1. World aerial imagery basemap is provided through Langan's Esri and ArcGIS software licensing and ArcGIS online.
2. Diadromous Fishes areas data provided by New York State Department of Environmental Conservation.

300 0 300
SCALE IN FEET

LANGAN
Langan Engineering, Environmental, Surveying, Landscape Architecture and Geology, D.P.C.
368 Ninth Avenue, 8th Floor
New York, NY 10001-2727
T: 212.479.5400 F: 212.479.5444 www.langan.com

Project
C BLOCK
BLOCK NO. 2502 p/o LOT NOs. 1&5, AND BLOCK NO. 2510, p/o LOT NOs. 1 & 100
BROOKLYN NEW YORK

Figure Title
ENVIRONMENTAL RESOURCE MAP

Project No. 170229030	Figure No. 1
Date 3/23/2026	
Scale 1"=300'	
Drawn By NPD	

© 2026 Langan

Path: \\langan.com\data\NYC\data0\170229030\Project Data\ArcGIS\APRX\170229030\170229030.aprx Date: 3/23/2026 User: ndorsey Time: 2:00 PM

TABLE

Table 1
Remedial Investigation Report - Fish and Wildlife Resource Impact Analysis
Groundwater Sample Analytical Results

C Block
Brooklyn, New York
Langan Project No.: 170229030

Analyte	CAS Number	Fish Propagation (saline waters)		Fish Survival (saline waters)		Location	MW01		MW01		MW01		MW02		MW02		MW02		MW03		MW03		MW03	
						Sample Name	MW01_011226		MW01_080522		MW01_080522_FILTERED		MW02_011326		MW02_080222		MW02_080222_FILTERED		MW03_011326		MW03_080222		MW03_080222_FILTERED		GWDUP01_080222	
						Sample Date	01/12/2026		08/05/2022		08/05/2022		01/13/2026		08/02/2022		08/02/2022		01/13/2026		08/02/2022		08/02/2022		08/02/2022	
						Unit	Result	Q	Result	Q	Result	Q	Result	Q	Result	Q	Result	Q	Result	Q	Result	Q	Result	Q	Result	Q
Volatile Organic Compounds																										
1,1,1,2-Tetrachloroethane	630-20-6	NS		NS		ug/l	NA		<2.5	U	NA		NA		<2.5	U	NA		NA		<2.5	U	NA		<2.5	U
1,1,1-Trichloroethane	71-55-6	NS		NS		ug/l	NA		<2.5	U	NA		NA		<2.5	U	NA		NA		<2.5	U	NA		<2.5	U
1,1,2,2-Tetrachloroethane	79-34-5	NS		NS		ug/l	NA		<0.5	U	NA		NA		<0.5	U	NA		NA		<0.5	U	NA		<0.5	U
1,1,2-Trichloroethane	79-00-5	NS		NS		ug/l	NA		<1.5	U	NA		NA		<1.5	U	NA		NA		<1.5	U	NA		<1.5	U
1,1-Dichloroethane	75-34-3	NS		NS		ug/l	NA		<2.5	U	NA		NA		<2.5	U	NA		NA		<2.5	U	NA		<2.5	U
1,1-Dichloroethene	75-35-4	NS		NS		ug/l	NA		<0.5	U	NA		NA		<0.5	U	NA		NA		<0.5	U	NA		<0.5	U
1,1-Dichloropropene	563-58-6	NS		NS		ug/l	NA		<2.5	U	NA		NA		<2.5	U	NA		NA		<2.5	U	NA		<2.5	U
1,2,3-Trichlorobenzene	87-61-6	5	a	NS		ug/l	NA		<2.5	U	NA		NA		<2.5	U	NA		NA		<2.5	U	NA		<2.5	U
1,2,3-Trichloropropane	96-18-4	NS		NS		ug/l	NA		<2.5	U	NA		NA		<2.5	U	NA		NA		<2.5	U	NA		<2.5	U
1,2,4,5-Tetramethylbenzene	95-93-2	NS		NS		ug/l	NA		<2	U	NA		NA		<2	U	NA		NA		<2	U	NA		<2	U
1,2,4-Trichlorobenzene	120-82-1	5	a	NS		ug/l	NA		<2.5	U	NA		NA		<2.5	U	NA		NA		<2.5	U	NA		<2.5	U
1,2,4-Trimethylbenzene	95-63-6	19	a	170	a	ug/l	NA		<2.5	U	NA		NA		<2.5	U	NA		NA		<2.5	U	NA		<2.5	U
1,2-Dibromo-3-Chloropropane	96-12-8	NS		NS		ug/l	NA		<2.5	U	NA		NA		<2.5	U	NA		NA		<2.5	U	NA		<2.5	U
1,2-Dibromoethane (Ethylene Dibromide)	106-93-4	NS		NS		ug/l	NA		<2	U	NA		NA		<2	U	NA		NA		<2	U	NA		<2	U
1,2-Dichlorobenzene	95-50-1	5	a	NS		ug/l	NA		<2.5	U	NA		NA		<2.5	U	NA		NA		<2.5	U	NA		<2.5	U
1,2-Dichloroethane	107-06-2	NS		NS		ug/l	NA		<0.5	U	NA		NA		<0.5	U	NA		NA		<0.5	U	NA		<0.5	U
1,2-Dichloropropane	78-87-5	NS		NS		ug/l	NA		<1	U	NA		NA		<1	U	NA		NA		<1	U	NA		<1	U
1,3,5-Trimethylbenzene (Mesitylene)	108-67-8	56	b	366	b	ug/l	NA		<2.5	U	NA		NA		<2.5	U	NA		NA		<2.5	U	NA		<2.5	U
1,3-Dichlorobenzene	541-73-1	5	a	NS		ug/l	NA		<2.5	U	NA		NA		<2.5	U	NA		NA		<2.5	U	NA		<2.5	U
1,3-Dichloropropane	142-28-9	NS		NS		ug/l	NA		<2.5	U	NA		NA		<2.5	U	NA		NA		<2.5	U	NA		<2.5	U
1,4-Dichlorobenzene	106-46-7	5	a	NS		ug/l	NA		<2.5	U	NA		NA		<2.5	U	NA		NA		<2.5	U	NA		<2.5	U
1,4-Diethyl Benzene	105-05-5	NS		NS		ug/l	NA		<2	U	NA		NA		<2	U	NA		NA		<2	U	NA		<2	U
1,4-Dioxane (P-Dioxane)	123-91-1	NS		NS		ug/l	NA		NA		NA		NA		<250	U	NA		NA		NA		NA		NA	
2,2-Dichloropropane	594-20-7	NS		NS		ug/l	NA		<2.5	U	NA		NA		<2.5	U	NA		NA		<2.5	U	NA		<2.5	U
2-Chlorotoluene	95-49-8	NS		NS		ug/l	NA		<2.5	U	NA		NA		<2.5	U	NA		NA		<2.5	U	NA		<2.5	U
2-Hexanone (MBK)	591-78-6	NS		NS		ug/l	NA		<5	U	NA		NA		<5	U	NA		NA		<5	U	NA		<5	U
4-Chlorotoluene	106-43-4	NS		NS		ug/l	NA		<2.5	U	NA		NA		<2.5	U	NA		NA		<2.5	U	NA		<2.5	U
4-Ethyltoluene	622-96-8	NS		NS		ug/l	NA		<2	U	NA		NA		<2	U	NA		NA		<2	U	NA		<2	U
Acetone	67-64-1	117629	b	355606	b	ug/l	NA		<5	UJ	NA		NA		<5	U	NA		NA		<5	U	NA		<5	U
Acrylonitrile	107-13-1	NS		NS		ug/l	NA		<5	U	NA		NA		<5	U	NA		NA		<5	U	NA		<5	U
Benzene	71-43-2	190	a	670	a	ug/l	NA		<0.5	U	NA		NA		<0.5	U	NA		NA		<0.5	U	NA		<0.5	U
Bromobenzene	108-86-1	NS		NS		ug/l	NA		<2.5	U	NA		NA		<2.5	U	NA		NA		<2.5	U	NA		<2.5	U
Bromochloromethane	74-97-5	NS		NS		ug/l	NA		<2.5	U	NA		NA		<2.5	U	NA		NA		<2.5	U	NA		<2.5	U
Bromodichloromethane	75-27-4	NS		NS		ug/l	NA		<0.5	U	NA		NA		<0.5	U	NA		NA		<0.5	U	NA		<0.5	U
Bromoform	75-25-2	NS		NS		ug/l	NA		<2	U	NA		NA		<2	U	NA		NA		<2	U	NA		<2	U
Bromomethane	74-83-9	NS		NS		ug/l	NA		<2.5	U	NA		NA		<2.5	U	NA		NA		<2.5	U	NA		<2.5	U
Carbon Disulfide	75-15-0	NS		NS		ug/l	NA		<5	U	NA		NA		<5	U	NA		NA		<5	U	NA		<5	U
Carbon Tetrachloride	56-23-5	NS		NS		ug/l	NA		<0.5	U	NA		NA		<0.5	U	NA		NA		<0.5	U	NA		<0.5	U
Chlorobenzene	108-90-7	5	a	NS		ug/l	NA		<2.5	U	NA		NA		<2.5	U	NA		NA		<2.5	U	NA		<2.5	U
Chloroethane	75-00-3	NS		NS		ug/l	NA		<2.5	U	NA		NA		<2.5	U	NA		NA		<2.5	U	NA		<2.5	U
Chloroform	67-66-3	NS		NS		ug/l	NA		<2.5	U	NA		NA		<2.5	U	NA		NA		<2.5	U	NA		<2.5	U
Chloromethane	74-87-3	NS		NS		ug/l	NA		<2.5	U	NA		NA		<2.5	U	NA		NA		<2.5	U	NA		<2.5	U
Cis-1,2-Dichloroethene	156-59-2	5	a	NS		ug/l	NA		<2.5	U	NA		NA		<2.5	U	NA		NA		<2.5	U	NA		<2.5	U
Cis-1,3-Dichloropropene	10061-01-5	NS		NS		ug/l	NA		<0.5	U	NA		NA		<0.5	U	NA		NA		<0.5	U	NA		<0.5	U
Cymene	99-87-6	21	b	187	b	ug/l	NA		<2.5	U	NA		NA		<2.5	U	NA		NA		<2.5	U	NA		<2.5	U
Dibromochloromethane	124-48-1	NS		NS		ug/l	NA		<0.5	U	NA		NA		<0.5	U	NA		NA		<0.5	U	NA		<0.5	U
Dibromomethane	74-95-3	NS		NS		ug/l	NA		<5	U	NA		NA		<5	U	NA		NA		<5	U	NA		<5	U
Dichlorodifluoromethane	75-71-8	NS		NS		ug/l	NA		<5	U	NA		NA		<5	U	NA		NA		<5	U	NA		<5	U
Diethyl Ether (Ethyl Ether)	60-29-7	NS		NS		ug/l	NA		<2.5	U	NA		NA		<2.5	U	NA		NA		<2.5	U	NA		<2.5	U
Ethylbenzene	100-41-4	4.5	a	41	a	ug/l	NA		<2.5	U	NA		NA		<2.5	U	NA		NA		<2.5	U	NA		<2.5	U
Isopropylbenzene (Cumene)	98-82-8	NS		NS		ug/l	NA		<2.5	U	NA		NA		<2.5	U	NA		NA		<2.5	U	NA		<2.5	U
M,P-Xylene	179601-23-1	NS		NS		ug/l	NA		<2.5	U	NA		NA		<2.5	U	NA		NA		<2.5	U	NA		<2.5	U
Methyl Ethyl Ketone (2-Butanone)	78-93-3	NS		NS		ug/l	NA		<5	U	NA		NA		<5	U	NA		NA		<5	U	NA		<5	U
Methyl Isobutyl Ketone (4-Methyl-2-Pentanone)	108-10-1	NS		NS		ug/l	NA		<5	U	NA		NA		<5	U	NA		NA		<5	U	NA		<5	U
Methylene Chloride	75-09-2	NS		NS		ug/l	NA		<2.5	U	NA		NA		<2.5	U	NA		NA		<2.5	U	NA		<2.5	U
n-Butylbenzene	104-51-8	NS		NS		ug/l	NA		<2.5	U	NA		NA		<2.5	U	NA		NA		<2.5	U	NA		<2.5	U
n-Propylbenzene	103-65-1	NS		NS		ug/l	NA		<2.5	U	NA		NA		<2.5	U	NA		NA		<2.5	U	NA		<2.5	U
o-Xylene (1,2-Dimethylbenzene)	95-47-6	19	a	170	a	ug/l	NA		<2.5	U	NA		NA		<2.5	U	NA		NA		<2.5	U	NA		<2.5	U
Sec-Butylbenzene	135-98-8	NS		NS		ug/l	NA		<2.5	U	NA		NA		<2.5	U	NA		NA		<2.5	U	NA		<2.5	U
Styrene	100-42-5	NS		NS		ug/l	NA		<2.5	U	NA		NA		<2.5	U	NA		NA		<2.5	U	NA		<2.5	U
T-Butylbenzene	98-06-6	NS		NS		ug/l	NA		<2.5	U	NA		NA		<2.5	U	NA		NA		<2.5	U	NA		<2.5	U
Tert-Butyl Methyl Ether (MTBE)	1634-04-4	5000	b	38037	b	ug/l	NA		<2.5	U	NA		NA		<2.5	U	NA		NA		<2.5	U	NA		<2.5	U
Tetrachloroethene (PCE)	127-18-4	NS		NS		ug/l	NA		<0.5	U	NA		NA		<0.5	U	NA		NA		<0.5	U	NA		<0.5	U
Toluene	108-88-3	92	a	430	a	ug/l	NA		<2.5	U	NA		NA		<2.5	U	NA		NA		<2.5	U	NA		<2.5	U
Total 1,2-Dichloroethene (Cis and Trans)	540-59-0	NS		NS		ug/l	NA		<2.5	U	NA		NA		<2.5	U	NA		NA		<2.5	U	NA		<2.5	U
Volatile Organic Compounds																										
Total Xylenes	1330-20-7	19	a	NS		ug/l	NA		<2.5	U	NA		NA		<2.5	U	NA		NA		<2.5	U	NA		<2.5	U
Total, 1,3-Dichloropropene (Cis And Trans)	542-75-6	NS		NS		ug/l	NA		<0.5	U	NA		NA		<0.5	U	NA		NA		<0.5	U	NA		<0.5	U
Trans-1,2-Dichloroethene	156-60-5	NS		NS		ug/l	NA		<2.5	U	NA		NA		<2.5	U	NA		NA		<2.5	U	NA		<2.5	U
Trans-1,3-Dichloropropene	10061-02-6	NS		NS		ug/l	NA		<0.5	U	NA		NA		<0.5	U	NA		NA		<0.5	U	NA		<0.5	U
Trans-1,4-Dichloro-2-Butene	110-57-6	NS		NS		ug/l	NA		<2.5	U	NA		NA		<2.5	U	NA		NA		<2.5	U	NA		<2.5	U
Trichloroethene (TCE)	79-01-6	NS		NS		ug/l	NA		<0.5	U	NA		NA		<0.5	U	NA		NA		<0.5	U	NA		<0.5	U
Trichlorofluoromethane	75-69-4	NS		NS		ug/l	NA		<2.5	U	NA		NA		<2.5	U	NA		NA		<2.5	U	NA		<2.5	U
Vinyl Acetate	108-05-4	NS		NS		ug/l	NA		<5	U	NA		NA		<5	U	NA		NA		<5	U	NA		<5	U
Vinyl Chloride	75-01-4	NS		NS		ug/l	NA		<1	U	NA		NA		<1	U	NA		NA		<1	U	NA		<1	U

Table 1
Remedial Investigation Report - Fish and Wildlife Resource Impact Analysis
Groundwater Sample Analytical Results

C Block
Brooklyn, New York
Langan Project No.: 170229030

Analyte	CAS Number	Fish Propagation (saline waters)		Fish Survival (saline waters)		Location	MW01		MW01		MW01		MW02		MW02		MW02		MW03		MW03		MW03		MW03	
						Sample Name	MW01_011226		MW01_080522		MW01_080522_FILTERED		MW02_011326		MW02_080222		MW02_080222_FILTERED		MW03_011326		MW03_080222		MW03_080222_FILTERED		GWDUP01_080222	
						Sample Date	01/12/2026		08/05/2022		08/05/2022		01/13/2026		08/02/2022		08/02/2022		01/13/2026		08/02/2022		08/02/2022		08/02/2022	
						Unit	Result	Q	Result	Q	Result	Q	Result	Q	Result	Q	Result	Q	Result	Q	Result	Q	Result	Q	Result	Q
Semi-Volatile Organic Compounds - Dissolved																										
1,2,4,5-Tetrachlorobenzene	95-94-3	NS		NS		ug/l	NA		NA		<10	U	NA		NA		<10	U	NA		NA		<10	U	NA	
1,2,4-Trichlorobenzene	120-82-1	5	a	NS		ug/l	NA		NA		<5	U	NA		NA		<5	U	NA		NA		<5	U	NA	
1,2-Dichlorobenzene	95-50-1	5	a	NS		ug/l	NA		NA		<2	U	NA		NA		<2	U	NA		NA		<2	U	NA	
1,3-Dichlorobenzene	541-73-1	5	a	NS		ug/l	NA		NA		<2	U	NA		NA		<2	U	NA		NA		<2	U	NA	
1,4-Dichlorobenzene	106-46-7	5	a	NS		ug/l	NA		NA		<2	U	NA		NA		<2	U	NA		NA		<2	U	NA	
2,4,5-Trichlorophenol	95-95-4	NS		NS		ug/l	NA		NA		<5	U	NA		NA		<5	U	NA		NA		<5	U	NA	
2,4,6-Trichlorophenol	88-06-2	NS		NS		ug/l	NA		NA		<5	U	NA		NA		<5	U	NA		NA		<5	U	NA	
2,4-Dichlorophenol	120-83-2	NS		NS		ug/l	NA		NA		<5	U	NA		NA		<5	U	NA		NA		<5	U	NA	
2,4-Dimethylphenol	105-67-9	NS		NS		ug/l	NA		NA		<5	UJ	NA		NA		<5	U	NA		NA		<5	U	NA	
2,4-Dinitrophenol	51-28-5	NS		NS		ug/l	NA		NA		<20	U	NA		NA		<20	U	NA		NA		<20	U	NA	
2,4-Dinitrotoluene	121-14-2	NS		NS		ug/l	NA		NA		<5	U	NA		NA		<5	U	NA		NA		<5	U	NA	
2,6-Dinitrotoluene	606-20-2	NS		NS		ug/l	NA		NA		<5	U	NA		NA		<5	U	NA		NA		<5	U	NA	
2-Chloronaphthalene	91-58-7	NS		NS		ug/l	NA		NA		<0.2	U	NA		NA		<0.2	U	NA		NA		<0.2	U	NA	
2-Chlorophenol	95-57-8	NS		NS		ug/l	NA		NA		<2	U	NA		NA		<2	U	NA		NA		<2	U	NA	
2-Methylnaphthalene	91-57-6	4.2	a	38	a	ug/l	NA		NA		<0.1	U	NA		NA		0.06	J	NA		NA		<0.1	U	NA	
2-Methylphenol (o-Cresol)	95-48-7	NS		NS		ug/l	NA		NA		<5	U	NA		NA		<5	U	NA		NA		<5	U	NA	
2-Nitroaniline	88-74-4	NS		NS		ug/l	NA		NA		<5	U	NA		NA		<5	U	NA		NA		<5	U	NA	
2-Nitrophenol	88-75-5	NS		NS		ug/l	NA		NA		<10	U	NA		NA		<10	U	NA		NA		<10	U	NA	
3 & 4 Methylphenol (m&p Cresol)	65794-96-9	NS		NS		ug/l	NA		NA		<5	U	NA		NA		<5	U	NA		NA		<5	U	NA	
3,3'-Dichlorobenzidine	91-94-1	NS		NS		ug/l	NA		NA		<5	U	NA		NA		<5	U	NA		NA		<5	U	NA	
3-Nitroaniline	99-09-2	NS		NS		ug/l	NA		NA		<5	U	NA		NA		<5	U	NA		NA		<5	U	NA	
4,6-Dinitro-2-Methylphenol	534-52-1	NS		NS		ug/l	NA		NA		<10	U	NA		NA		<10	U	NA		NA		<10	U	NA	
4-Bromophenyl Phenyl Ether	101-55-3	NS		NS		ug/l	NA		NA		<2	U	NA		NA		<2	U	NA		NA		<2	U	NA	
4-Chloro-3-Methylphenol	59-50-7	NS		NS		ug/l	NA		NA		<2	U	NA		NA		<2	U	NA		NA		<2	U	NA	
4-Chloroaniline	106-47-8	NS		NS		ug/l	NA		NA		<5	UJ	NA		NA		<5	U	NA		NA		<5	U	NA	
4-Chlorophenyl Phenyl Ether	7005-72-3	NS		NS		ug/l	NA		NA		<2	U	NA		NA		<2	U	NA		NA		<2	U	NA	
4-Nitroaniline	100-01-6	NS		NS		ug/l	NA		NA		<5	U	NA		NA		<5	U	NA		NA		<5	U	NA	
4-Nitrophenol	100-02-7	NS		NS		ug/l	NA		NA		<10	U	NA		NA		<10	U	NA		NA		<10	U	NA	
Acenaphthene	83-32-9	6.6	a	60	a	ug/l	NA		NA		<0.1	U	NA		NA		<0.1	U	NA		NA		<0.1	U	NA	
Acenaphthylene	208-96-8	28	b	291	b	ug/l	NA		NA		<0.1	U	NA		NA		<0.1	U	NA		NA		<0.1	U	NA	
Acetophenone	98-86-2	NS		NS		ug/l	NA		NA		<5	U	NA		NA		<5	U	NA		NA		<5	U	NA	
Anthracene	120-12-7	0.43	b	1.8	b	ug/l	NA		NA		<0.1	UJ	NA		NA		<0.1	U	NA		NA		<0.1	U	NA	
Benzo(a)anthracene	56-55-3	0.35	b	4.6	b	ug/l	NA		NA		<0.1	U	NA		NA		<0.1	U	NA		NA		<0.1	U	NA	
Benzo(a)pyrene	50-32-8	0.02	b	0.64	b	ug/l	NA		NA		<0.1	UJ	NA		NA		<0.1	U	NA		NA		<0.1	U	NA	
Benzo(b)fluoranthene	205-99-2	0.06	b	1.4	b	ug/l	NA		NA		<0.1	U	NA		NA		<0.1	U	NA		NA		<0.1	U	NA	
Benzo(g,h,i)Perylene	191-24-2	0.012	b	0.19	b	ug/l	NA		NA		<0.1	UJ	NA		NA		<0.1	U	NA		NA		<0.1	U	NA	
Benzo(k)fluoranthene	207-08-9	0.06	b	1.3	b	ug/l	NA		NA		<0.1	UJ	NA		NA		<0.1	U	NA		NA		<0.1	U	NA	
Benzoic Acid	65-85-0	NS		NS		ug/l	NA		NA		<50	UJ	NA		NA		<50	U	NA		NA		<50	U	NA	
Benzyl Alcohol	100-51-6	NS		NS		ug/l	NA		NA		<2	U	NA		NA		<2	U	NA		NA		<2	U	NA	
Benzyl Butyl Phthalate	85-68-7	NS		NS		ug/l	NA		NA		<5	U	NA		NA		<5	U	NA		NA		<5	U	NA	
Biphenyl (Diphenyl)	92-52-4	NS		NS		ug/l	NA		NA		<2	U	NA		NA		<2	U	NA		NA		<2	U	NA	
Bis(2-chloroethoxy) methane	111-91-1	NS		NS		ug/l	NA		NA		<5	U	NA		NA		<5	U	NA		NA		<5	U	NA	
Bis(2-chloroethyl) ether (2-chloroethyl ether)	111-44-4	NS		NS		ug/l	NA		NA		<2	U	NA		NA		<2	U	NA		NA		<2	U	NA	
Bis(2-chloroisopropyl) ether	108-60-1	NS		NS		ug/l	NA		NA		<2	U	NA		NA		<2	U	NA		NA		<2	U	NA	
Bis(2-ethylhexyl) phthalate	117-81-7	NS		NS		ug/l	NA		NA		<3	U	NA		NA		<3	U	NA		NA		<3	U	NA	
Carbazole	86-74-8	NS		NS		ug/l	NA		NA		<2	U	NA		NA		<2	U	NA		NA		<2	U	NA	
Chrysene	218-01-9	0.35	b	4.2	b	ug/l	NA		NA		<0.1	UJ	NA		NA		<0.1	U	NA		NA		<0.1	U	NA	
Dibenz(a,h)anthracene	53-70-3	NS		NS		ug/l	NA		NA		<0.1	UJ	NA		NA		<0.1	U	NA		NA		<0.1	U	NA	
Dibenzofuran	132-64-9	61	b	242	b	ug/l	NA		NA		<2	U	NA		NA		<2	U	NA		NA		<2	U	NA	
Dibutyl phthalate	84-74-2	NS		NS		ug/l	NA		NA		<5	U	NA		NA		<5	U	NA		NA		<5	U	NA	
Diethyl phthalate	84-66-2	NS		NS		ug/l	NA		NA		<5	U	NA		NA		<5	U	NA		NA		<5	U	NA	
Dimethyl phthalate	131-11-3	NS		NS		ug/l	NA		NA		<5	U	NA		NA		<5	U	NA		NA		<5	U	NA	
Dioctyl phthalate	117-84-0	NS		NS		ug/l	NA		NA		<5	U	NA		NA		<5	U	NA		NA		<5	U	NA	
Fluoranthene	206-44-0	0.82	b	3.4	b	ug/l	NA		NA		<0.1	UJ	NA		NA		<0.1	U	NA		NA		<0.1	U	NA	
Fluorene	86-73-7	2.5	a	23	a	ug/l	NA		NA		<0.1	U	NA		NA		<0.1	U	NA		NA		<0.1	U	NA	
Hexachlorobenzene	118-74-1	NS		NS		ug/l	NA		NA		<0.8	UJ	NA		NA		<0.8	U	NA		NA		<0.8	U	NA	
Hexachlorobutadiene	87-68-3	0.3	a	3	a	ug/l	NA		NA		<0.5	U	NA		NA		<0.5	U	NA		NA		<0.5	U	NA	
Semi-Volatile Organic Compounds - Dissolved																										
Hexachlorocyclopentadiene	77-47-4	0.07	a	0.7	a	ug/l	NA		NA		<20	U	NA		NA		<20	U	NA		NA		<20	U	NA	
Hexachloroethane	67-72-1	NS		NS		ug/l	NA		NA		<0.8	U	NA		NA		<0.8	U	NA		NA		<0.8	U	NA	
Indeno(1,2,3-cd)pyrene	193-39-5	0.012	b	0.27	b	ug/l	NA		NA		<0.1	UJ	NA		NA		<0.1	U	NA		NA		<0.1	U	NA	
Isophorone	78-59-1	NS		NS		ug/l	NA		NA		<5	U	NA		NA		<5	U	NA		NA		<5	U	NA	
Naphthalene	91-20-3	16	a	140	a	ug/l	NA		NA		<0.1	U	NA		NA		0.26		NA		NA		<0.1	U	NA	
Nitrobenzene	98-95-3	NS		NS		ug/l	NA		NA		<2	U	NA		NA		<2	U	NA		NA		<2	U	NA	
n-Nitrosodi-N-Propylamine	621-64-7	NS		NS		ug/l	NA		NA		<5	U	NA		NA		<5	U	NA		NA		<5	U	NA	
n-Nitrosodiphenylamine	86-30-6	NS		NS		ug/l	NA		NA		<2	U	NA		NA		<2	U	NA		NA		<2	U	NA	
Pentachlorophenol	87-86-5	NS		NS		ug/l	NA		NA		<0.8	UJ	NA		NA		<0.8	U	NA		NA		<0.8	U	NA	
Phenanthrene	85-01-8	1.5	a	14	a	ug/l	NA		NA		<0.1	U	NA		NA		<0.1	U	NA		NA		<0.1	U	NA	
Phenol	108-95-2	NS		NS		ug/l	NA		NA		<5	U	NA		NA		6		NA		NA		4.5	J	NA	
Pyrene	129-00-0	0.11	b	0.45	b	ug/l	NA		NA		<0.1	UJ	NA		NA		<0.1	U	NA		NA		<0.1	U	NA	

Table 1
Remedial Investigation Report - Fish and Wildlife Resource Impact Analysis
Groundwater Sample Analytical Results

C Block
Brooklyn, New York
Langan Project No.: 170229030

Analyte	CAS Number	Fish Propagation (saline waters)		Fish Survival (saline waters)		Location	MW01		MW01		MW01		MW02		MW02		MW02		MW03		MW03		MW03	
						Sample Name	MW01_011226		MW01_080522		MW01_080522_FILTERED		MW02_011326		MW02_080222		MW02_080222_FILTERED		MW03_011326		MW03_080222		MW03_080222_FILTERED		GWDUP01_080222	
						Sample Date	01/12/2026		08/05/2022		08/05/2022		01/13/2026		08/02/2022		08/02/2022		01/13/2026		08/02/2022		08/02/2022		08/02/2022	
						Unit	Result	Q	Result	Q	Result	Q	Result	Q	Result	Q	Result	Q	Result	Q	Result	Q	Result	Q	Result	Q
Semi-Volatile Organic Compounds - Total																										
1,2,4,5-Tetrachlorobenzene	95-94-3	NS		NS		ug/l	NA		<10	U	NA		NA		<10	U	NA		NA		<10	U	NA		<10	U
1,2,4-Trichlorobenzene	120-82-1	5	a	NS		ug/l	NA		<5	U	NA		NA		NA		NA		NA		NA		NA		<5	U
1,2-Dichlorobenzene	95-50-1	5	a	NS		ug/l	NA		<2	U	NA		NA		<2	U	NA		NA		<2	U	NA		<2	U
1,3-Dichlorobenzene	541-73-1	5	a	NS		ug/l	NA		<2	U	NA		NA		<2	U	NA		NA		<2	U	NA		<2	U
1,4-Dichlorobenzene	106-46-7	5	a	NS		ug/l	NA		<2	U	NA		NA		<2	U	NA		NA		<2	U	NA		<2	U
1,4-Dioxane (P-Dioxane)	123-91-1	NS		NS		ug/l	NA		<0.144	U	NA		NA		0.043	J	NA		NA		0.0982	J	NA		0.0965	J
2,4,5-Trichlorophenol	95-95-4	NS		NS		ug/l	NA		<5	U	NA		NA		<5	U	NA		NA		<5	U	NA		<5	U
2,4,6-Trichlorophenol	88-06-2	NS		NS		ug/l	NA		<5	U	NA		NA		<5	U	NA		NA		<5	U	NA		<5	U
2,4-Dichlorophenol	120-83-2	NS		NS		ug/l	NA		<5	U	NA		NA		<5	U	NA		NA		<5	U	NA		<5	U
2,4-Dimethylphenol	105-67-9	NS		NS		ug/l	NA		<5	UJ	NA		NA		<5	U	NA		NA		<5	U	NA		<5	U
2,4-Dinitrophenol	51-28-5	NS		NS		ug/l	NA		<20	U	NA		NA		<20	U	NA		NA		<20	U	NA		<20	U
2,4-Dinitrotoluene	121-14-2	NS		NS		ug/l	NA		<5	U	NA		NA		<5	U	NA		NA		<5	U	NA		<5	U
2,6-Dinitrotoluene	606-20-2	NS		NS		ug/l	NA		<5	U	NA		NA		<5	U	NA		NA		<5	U	NA		<5	U
2-Chloronaphthalene	91-58-7	NS		NS		ug/l	NA		<0.2	U	NA		NA		<0.2	U	NA		NA		<0.2	U	NA		<0.2	U
2-Chlorophenol	95-57-8	NS		NS		ug/l	NA		<2	U	NA		NA		<2	U	NA		NA		<2	U	NA		<2	U
2-Methylnaphthalene	91-57-6	4.2	a	38	a	ug/l	NA		<0.1	U	NA		NA		0.04	J	NA		NA		<0.1	U	NA		0.17	
2-Methylphenol (o-Cresol)	95-48-7	NS		NS		ug/l	NA		<5	U	NA		NA		<5	U	NA		NA		<5	U	NA		<5	U
2-Nitroaniline	88-74-4	NS		NS		ug/l	NA		<5	U	NA		NA		<5	U	NA		NA		<5	U	NA		<5	U
2-Nitrophenol	88-75-5	NS		NS		ug/l	NA		<10	U	NA		NA		<10	U	NA		NA		<10	U	NA		<10	U
3 & 4 Methylphenol (m&p Cresol)	65794-96-9	NS		NS		ug/l	NA		<5	U	NA		NA		<5	U	NA		NA		<5	U	NA		<5	U
3,3'-Dichlorobenzidine	91-94-1	NS		NS		ug/l	NA		<5	U	NA		NA		<5	U	NA		NA		<5	U	NA		<5	U
3-Nitroaniline	99-09-2	NS		NS		ug/l	NA		<5	U	NA		NA		<5	U	NA		NA		<5	U	NA		<5	U
4,6-Dinitro-2-Methylphenol	534-52-1	NS		NS		ug/l	NA		<10	U	NA		NA		<10	U	NA		NA		<10	U	NA		<10	U
4-Bromophenyl Phenyl Ether	101-55-3	NS		NS		ug/l	NA		<2	U	NA		NA		<2	U	NA		NA		<2	U	NA		<2	U
4-Chloro-3-Methylphenol	59-50-7	NS		NS		ug/l	NA		<2	U	NA		NA		<2	U	NA		NA		<2	U	NA		<2	U
4-Chloroaniline	106-47-8	NS		NS		ug/l	NA		<5	UJ	NA		NA		<5	U	NA		NA		<5	U	NA		<5	U
4-Chlorophenyl Phenyl Ether	7005-72-3	NS		NS		ug/l	NA		<2	U	NA		NA		<2	U	NA		NA		<2	U	NA		<2	U
4-Nitroaniline	100-01-6	NS		NS		ug/l	NA		<5	U	NA		NA		<5	U	NA		NA		<5	U	NA		<5	U
4-Nitrophenol	100-02-7	NS		NS		ug/l	NA		<10	U	NA		NA		<10	U	NA		NA		<10	U	NA		<10	U
Acenaphthene	83-32-9	6.6	a	60	a	ug/l	NA		<0.1	U	NA		NA		<0.1	U	NA		NA		<0.1	U	NA		0.02	J
Acenaphthylene	208-96-8	28	b	291	b	ug/l	NA		<0.1	U	NA		NA		<0.1	U	NA		NA		<0.1	U	NA		0.02	J
Acetophenone	98-86-2	NS		NS		ug/l	NA		<5	U	NA		NA		<5	U	NA		NA		<5	U	NA		<5	U
Anthracene	120-12-7	0.43	b	1.8	b	ug/l	NA		<0.1	UJ	NA		NA		<0.1	U	NA		NA		<0.1	U	NA		0.02	J
Benzo(a)anthracene	56-55-3	0.35	b	4.6	b	ug/l	NA		<0.1	U	NA		NA		<0.1	U	NA		NA		<0.1	U	NA		<0.1	U
Benzo(a)pyrene	50-32-8	0.02	b	0.64	b	ug/l	NA		0.02	J	NA		NA		<0.1	U	NA		NA		<0.1	U	NA		<0.1	U
Benzo(b)fluoranthene	205-99-2	0.06	b	1.4	b	ug/l	NA		<0.1	U	NA		NA		<0.1	U	NA		NA		0.02	J	NA		<0.1	U
Benzo(g,h,i)Perylene	191-24-2	0.012	b	0.19	b	ug/l	NA		**0.02**	J	NA		NA		<0.1	U	NA		NA		<0.1	U	NA		<0.1	U
Benzo(k)fluoranthene	207-08-9	0.06	b	1.3	b	ug/l	NA		0.01	J	NA		NA		<0.1	U	NA		NA		<0.1	U	NA		<0.1	U
Benzoic Acid	65-85-0	NS		NS		ug/l	NA		<50	UJ	NA		NA		<50	U	NA		NA		<50	U	NA		<50	U
Benzyl Alcohol	100-51-6	NS		NS		ug/l	NA		<2	U	NA		NA		<2	U	NA		NA		<2	U	NA		<2	U
Benzyl Butyl Phthalate	85-68-7	NS		NS		ug/l	NA		<5	U	NA		NA		<5	U	NA		NA		<5	U	NA		<5	U
Biphenyl (Diphenyl)	92-52-4	NS		NS		ug/l	NA		<2	U	NA		NA		<2	U	NA		NA		<2	U	NA		<2	U
Bis(2-chloroethoxy) methane	111-91-1	NS		NS		ug/l	NA		<5	U	NA		NA		<5	U	NA		NA		<5	U	NA		<5	U
Bis(2-chloroethyl) ether (2-chloroethyl ether)	111-44-4	NS		NS		ug/l	NA		<2	U	NA		NA		<2	U	NA		NA		<2	U	NA		<2	U
Bis(2-chloroisopropyl) ether	108-60-1	NS		NS		ug/l	NA		<2	U	NA		NA		<2	U	NA		NA		<2	U	NA		<2	U
Bis(2-ethylhexyl) phthalate	117-81-7	NS		NS		ug/l	NA		<3	U	NA		NA		<3	U	NA		NA		<3	U	NA		<3	U
Carbazole	86-74-8	NS		NS		ug/l	NA		<2	U	NA		NA		<2	U	NA		NA		<2	U	NA		<2	U
Chrysene	218-01-9	0.35	b	4.2	b	ug/l	NA		0.02	J	NA		NA		<0.1	U	NA		NA		0.02	J	NA		<0.1	U
Dibenz(a,h)anthracene	53-70-3	NS		NS		ug/l	NA		<0.1	UJ	NA		NA		<0.1	U	NA		NA		<0.1	U	NA		<0.1	U
Dibenzofuran	132-64-9	61	b	242	b	ug/l	NA		<2	U	NA		NA		<2	U	NA		NA		<2	U	NA		<2	U
Dibutyl phthalate	84-74-2	NS		NS		ug/l	NA		<5	U	NA		NA		<5	U	NA		NA		<5	U	NA		<5	U
Diethyl phthalate	84-66-2	NS		NS		ug/l	NA		<5	U	NA		NA		<5	U	NA		NA		<5	U	NA		<5	U
Dimethyl phthalate	131-11-3	NS		NS		ug/l	NA		<5	U	NA		NA		<5	U	NA		NA		<5	U	NA		<5	U
Dioctyl phthalate	117-84-0	NS		NS		ug/l	NA		<5	U	NA		NA		<5	U	NA		NA		<5	U	NA		<5	U
Fluoranthene	206-44-0	0.82	b	3.4	b	ug/l	NA		<0.1	UJ	NA		NA		<0.1	U	NA		NA		<0.1	U	NA		<0.1	U
Fluorene	86-73-7	2.5	a	23	a	ug/l	NA		<0.1	U	NA		NA		<0.1	U	NA		NA		<0.1	U	NA		<0.1	U
Hexachlorobenzene	118-74-1	NS		NS		ug/l	NA		<0.8	UJ	NA		NA		<0.8	U	NA		NA		<0.8	U	NA		<0.8	U
Hexachlorobutadiene	87-68-3	0.3	a	3	a	ug/l	NA		<0.5	U	NA		NA		<0.5	U	NA		NA		<0.5	U	NA		<0.5	U
Semi-Volatile Organic Compounds - Total																										
Hexachlorocyclopentadiene	77-47-4	0.07	a	0.7	a	ug/l	NA		<20	U	NA		NA		<20	U	NA		NA		<20	U	NA		<20	U
Hexachloroethane	67-72-1	NS		NS		ug/l	NA		<0.8	U	NA		NA		<0.8	U	NA		NA		<0.8	U	NA		<0.8	U
Indeno(1,2,3-cd)pyrene	193-39-5	0.012	b	0.27	b	ug/l	NA		**0.02**	J	NA		NA		<0.1	U	NA		NA		<0.1	U	NA		<0.1	U
Isophorone	78-59-1	NS		NS		ug/l	NA		<5	U	NA		NA		<5	U	NA		NA		<5	U	NA		<5	U
Naphthalene	91-20-3	16	a	140	a	ug/l	NA		<0.1	U	NA		NA		0.13		NA		NA		0.06	J	NA		0.47	J
Nitrobenzene	98-95-3	NS		NS		ug/l	NA		<2	U	NA		NA		<2	U	NA		NA		<2	U	NA		<2	U
n-Nitrosodi-N-Propylamine	621-64-7	NS		NS		ug/l	NA		<5	U	NA		NA		<5	U	NA		NA		<5	U	NA		<5	U
n-Nitrosodiphenylamine	86-30-6	NS		NS		ug/l	NA		<2	U	NA		NA		<2	U	NA		NA		<2	U	NA		<2	U
Pentachlorophenol	87-86-5	NS		NS		ug/l	NA		<0.8	UJ	NA		NA		<0.8	U	NA		NA		<0.8	U	NA		<0.8	U
Phenanthrene	85-01-8	1.5	a	14	a	ug/l	NA		<0.1	U	NA		NA		<0.1	U	NA		NA		<0.1	U	NA		<0.1	U
Phenol	108-95-2	NS		NS		ug/l	NA		<5	U	NA		NA		<5	U	NA		NA		<5	U	NA		<5	U
Pyrene	129-00-0	0.11	b	0.45	b	ug/l	NA		0.03	J	NA		NA		<0.1	U	NA		NA		<0.1	U	NA		<0.1	U

Table 1
Remedial Investigation Report - Fish and Wildlife Resource Impact Analysis
Groundwater Sample Analytical Results

C Block
Brooklyn, New York
Langan Project No.: 170229030

Analyte	CAS Number	Fish Propagation (saline waters)		Fish Survival (saline waters)		Location	MW01		MW01		MW01		MW02		MW02		MW02		MW03		MW03		MW03	
						Sample Name	MW01_011226		MW01_080522		MW01_080522_FILTERED		MW02_011326		MW02_080222		MW02_080222_FILTERED		MW03_011326		MW03_080222		MW03_080222_FILTERED		MW03_080222_FILTERED	
						Sample Date	01/12/2026		08/05/2022		08/05/2022		01/13/2026		08/02/2022		08/02/2022		01/13/2026		08/02/2022		08/02/2022		08/02/2022	
						Unit	Result	Q	Result	Q	Result	Q	Result	Q	Result	Q	Result	Q	Result	Q	Result	Q	Result	Q	Result	Q
Pesticides																										
4,4'-DDD	72-54-8	NS		NS		ug/l	NA		<0.029	U	NA		NA		<0.029	U	NA		NA		<0.029	U	NA		<0.029	U
4,4'-DDE	72-55-9	NS		NS		ug/l	NA		<0.029	U	NA		NA		<0.029	U	NA		NA		<0.029	U	NA		<0.029	U
4,4'-DDT	50-29-3	NS		NS		ug/l	NA		<0.029	U	NA		NA		<0.029	U	NA		NA		<0.029	U	NA		<0.029	U
Aldrin	309-00-2	NS		NS		ug/l	NA		<0.014	U	NA		NA		<0.014	U	NA		NA		<0.014	U	NA		<0.014	U
Alpha BHC (Alpha Hexachlorocyclohexane)	319-84-6	NS		NS		ug/l	NA		<0.014	U	NA		NA		<0.014	U	NA		NA		<0.014	U	NA		<0.014	U
Alpha Chlordane	5103-71-9	NS		NS		ug/l	NA		<0.014	U	NA		NA		<0.014	U	NA		NA		<0.014	U	NA		<0.014	U
Alpha Endosulfan	959-98-8	NS		NS		ug/l	NA		<0.014	U	NA		NA		<0.014	U	NA		NA		<0.014	U	NA		<0.014	U
Beta Bhc (Beta Hexachlorocyclohexane)	319-85-7	NS		NS		ug/l	NA		<0.014	U	NA		NA		<0.014	U	NA		NA		<0.014	U	NA		<0.014	U
Beta Endosulfan	33213-65-9	NS		NS		ug/l	NA		<0.029	U	NA		NA		<0.029	U	NA		NA		<0.029	U	NA		<0.029	U
Chlordane (alpha and gamma)	57-74-9	NS		NS		ug/l	NA		<0.143	U	NA		NA		<0.143	U	NA		NA		<0.143	U	NA		<0.143	U
Delta Bhc (Delta Hexachlorocyclohexane)	319-86-8	NS		NS		ug/l	NA		<0.014	U	NA		NA		<0.014	U	NA		NA		<0.014	U	NA		<0.014	U
Dieldrin	60-57-1	NS		NS		ug/l	NA		<0.029	U	NA		NA		<0.029	U	NA		NA		<0.029	U	NA		<0.029	U
Endosulfan Sulfate	1031-07-8	NS		NS		ug/l	NA		<0.029	U	NA		NA		<0.029	U	NA		NA		<0.029	U	NA		<0.029	U
Endrin	72-20-8	NS		NS		ug/l	NA		<0.029	U	NA		NA		<0.029	U	NA		NA		<0.029	U	NA		<0.029	U
Endrin Aldehyde	7421-93-4	NS		NS		ug/l	NA		<0.029	U	NA		NA		<0.029	U	NA		NA		<0.029	U	NA		<0.029	U
Endrin Ketone	53494-70-5	NS		NS		ug/l	NA		<0.029	U	NA		NA		<0.029	U	NA		NA		<0.029	U	NA		<0.029	U
Gamma Bhc (Lindane)	58-89-9	NS		NS		ug/l	NA		<0.014	U	NA		NA		<0.014	U	NA		NA		<0.014	U	NA		<0.014	U
Gamma Chlordane (Trans)	5103-74-2	NS		NS		ug/l	NA		<0.014	U	NA		NA		<0.014	U	NA		NA		<0.014	U	NA		<0.014	U
Heptachlor	76-44-8	NS		NS		ug/l	NA		<0.014	U	NA		NA		<0.014	U	NA		NA		<0.014	U	NA		<0.014	U
Heptachlor Epoxide	1024-57-3	NS		NS		ug/l	NA		<0.014	U	NA		NA		<0.014	U	NA		NA		<0.014	U	NA		<0.014	U
Methoxychlor	72-43-5	0.03	a	NS		ug/l	NA		<0.143	U	NA		NA		<0.143	U	NA		NA		<0.143	U	NA		<0.143	U
Toxaphene	8001-35-2	0.005	a	0.07	a	ug/l	NA		<0.143	U	NA		NA		<0.143	U	NA		NA		<0.143	U	NA		<0.143	U
Herbicides																										
2,4,5-T (Trichlorophenoxyacetic Acid)	93-76-5	NS		NS		ug/l	NA		<2	U	NA		NA		<2	U	NA		NA		<2	U	NA		<2	U
2,4-D (Dichlorophenoxyacetic Acid)	94-75-7	NS		NS		ug/l	NA		<10	U	NA		NA		<10	U	NA		NA		<10	U	NA		<10	U
Silvex (2,4,5-Tp)	93-72-1	NS		NS		ug/l	NA		<2	U	NA		NA		<2	U	NA		NA		<2	U	NA		<2	U
Polychlorinated Biphenyl																										
PCB-1016 (Aroclor 1016)	12674-11-2	NS		NS		ug/l	NA		<0.071	U	NA		NA		<0.071	U	NA		NA		<0.071	U	NA		<0.071	U
PCB-1221 (Aroclor 1221)	11104-28-2	NS		NS		ug/l	NA		<0.071	U	NA		NA		<0.071	U	NA		NA		<0.071	U	NA		<0.071	U
PCB-1232 (Aroclor 1232)	11141-16-5	NS		NS		ug/l	NA		<0.071	U	NA		NA		<0.071	U	NA		NA		<0.071	U	NA		<0.071	U
PCB-1242 (Aroclor 1242)	53469-21-9	NS		NS		ug/l	NA		<0.071	U	NA		NA		<0.071	U	NA		NA		<0.071	U	NA		<0.071	U
PCB-1248 (Aroclor 1248)	12672-29-6	NS		NS		ug/l	NA		<0.071	U	NA		NA		<0.071	U	NA		NA		<0.071	U	NA		<0.071	U
PCB-1254 (Aroclor 1254)	11097-69-1	NS		NS		ug/l	NA		<0.071	U	NA		NA		<0.071	U	NA		NA		<0.071	U	NA		<0.071	U
PCB-1260 (Aroclor 1260)	11096-82-5	NS		NS		ug/l	NA		<0.071	U	NA		NA		<0.071	U	NA		NA		<0.071	U	NA		<0.071	U
PCB-1262 (Aroclor 1262)	37324-23-5	NS		NS		ug/l	NA		<0.071	U	NA		NA		<0.071	U	NA		NA		<0.071	U	NA		<0.071	U
PCB-1268 (Aroclor 1268)	11100-14-4	NS		NS		ug/l	NA		<0.071	U	NA		NA		<0.071	U	NA		NA		<0.071	U	NA		<0.071	U
Total PCBs	1336-36-3	NS		NS		ug/l	NA		<0.071	U	NA		NA		<0.071	U	NA		NA		<0.071	U	NA		<0.071	U
Metals - Dissolved																										
Aluminum	7429-90-5	1500	b	NS		ug/l	NA		3.86	J	NA		NA		6.33	J	NA		NA		6.58	J	NA		<200	U
Antimony	7440-36-0	4300	b	NS		ug/l	NA		<4	U	NA		NA		<4	U	NA		NA		<4	U	NA		<4	U
Arsenic	7440-38-2	36	a	120	a	ug/l	NA		2.59		NA		NA		0.5		NA		NA		0.58		NA		0.59	
Barium	7440-39-3	4	b	110	b	ug/l	NA		**114.8**		NA		NA		**138.2**		NA		NA		**87**		NA		**88.73**	
Beryllium	7440-41-7	0.13	b	NS		ug/l	NA		<0.5	U	NA		NA		<0.5	U	NA		NA		0.11	J	NA		**0.14**	J
Cadmium	7440-43-9	7.7	a	21	a	ug/l	NA		<0.2	U	NA		NA		<0.2	U	NA		NA		<0.2	U	NA		<0.2	U
Calcium	7440-70-2	NS		NS		ug/l	NA		227,000		NA		NA		335,000		NA		NA		175,000		NA		178,000	
Chromium, Total	7440-47-3	50	b	1100	b	ug/l	NA		<1	U	NA		NA		<1	U	NA		NA		<1	U	NA		<1	U
Cobalt	7440-48-4	NS		NS		ug/l	NA		1.08		NA		NA		0.74		NA		NA		1.47		NA		1.54	
Copper	7440-50-8	5.6	a	7.9	a	ug/l	NA		1.06		NA		NA		<1	U	NA		NA		<1	U	NA		<1	U
Iron	7439-89-6	300	b	NS		ug/l	NA		**4,570**		NA		NA		**5,950**		NA		NA		**16,500**		NA		**17,000**	
Lead	7439-92-1	8	a	204	a	ug/l	NA		<1	U	NA		NA		<20	U	NA		NA		<20	U	NA		<20	U
Magnesium	7439-95-4	NS		NS		ug/l	NA		222,000		NA		NA		263,000		NA		NA		662,000		NA		615,000	
Manganese	7439-96-5	100	b	NS		ug/l	NA		**1,835**		NA		NA		**1,101**		NA		NA		**1,389**		NA		**1,474**	
Mercury	7439-97-6	0.94	a,b	1.8	a,b	ug/l	NA		<0.2	U	NA		NA		<0.2	U	NA		NA		<0.2	U	NA		<0.2	U
Nickel	7440-02-0	8.2	a	74	a	ug/l	NA		1.77	J	NA		NA		2.45		NA		NA		1.53	J	NA		1.87	J
Potassium	7440-09-7	NS		NS		ug/l	NA		95,300		NA		NA		78,300		NA		NA		124,000	J	NA		180,000	J
Selenium	7782-49-2	71	b	290	b	ug/l	NA		<5	U	NA		NA		<5	U	NA		NA		<5	U	NA		<5	U
Silver	7440-22-4	NS		2.3	a	ug/l	NA		<0.4	U	NA		NA		<0.4	U	NA		NA		<0.4	U	NA		<0.4	U
Sodium	7440-23-5	NS		NS		ug/l	NA		2,180,000		NA		NA		1,910,000		NA		NA		5,810,000		NA		5,400,000	
Thallium	7440-28-0	NS		NS		ug/l	NA		<1	U	NA		NA		<20	U	NA		NA		<20	U	NA		<20	U
Vanadium	7440-62-2	NS		NS		ug/l	NA		<5	U	NA		NA		<5	U	NA		NA		<5	U	NA		<5	U
Zinc	7440-66-6	66	a	95	a	ug/l	NA		4.9	J	NA		NA		4.92	J	NA		NA		8.67	J	NA		11	

Table 1
Remedial Investigation Report - Fish and Wildlife Resource Impact Analysis
Groundwater Sample Analytical Results

C Block
Brooklyn, New York
Langan Project No.: 170229030

Analyte	CAS Number	Fish Propagation (saline waters)		Fish Survival (saline waters)		Location	MW01		MW01		MW01		MW02		MW02		MW02		MW03		MW03		MW03	
						Sample Name	MW01_011226		MW01_080522		MW01_080522_FILTERED		MW02_011326		MW02_080222		MW02_080222_FILTERED		MW03_011326		MW03_080222		MW03_080222_FILTERED		GWDUP01_080222	
						Sample Date	01/12/2026		08/05/2022		08/05/2022		01/13/2026		08/02/2022		08/02/2022		01/13/2026		08/02/2022		08/02/2022		08/02/2022	
						Unit	Result	Q	Result	Q	Result	Q	Result	Q	Result	Q	Result	Q	Result	Q	Result	Q	Result	Q	Result	Q
Metals - Total																										
Aluminum	7429-90-5	NS		NS		ug/l	NA		10.7		NA		NA		18.6		NA		NA		12.2	J	NA		24.8	J
Antimony	7440-36-0	NS		NS		ug/l	NA		0.8	J	NA		NA		<4	U	NA		NA		1.28	J	NA		<4	U
Arsenic	7440-38-2	36	a	120	a	ug/l	NA		2.46		NA		NA		<0.5	U	NA		NA		<0.5	U	NA		<0.5	U
Barium	7440-39-3	NS		NS		ug/l	NA		115.5		NA		NA		117.2		NA		NA		79.67		NA		79.48	
Beryllium	7440-41-7	NS		NS		ug/l	NA		<0.5	U	NA		NA		<0.5	U	NA		NA		<0.5	U	NA		<0.5	U
Cadmium	7440-43-9	7.7	a	21	a	ug/l	NA		<0.2	U	NA		NA		<0.2	U	NA		NA		<0.2	U	NA		<0.2	U
Calcium	7440-70-2	NS		NS		ug/l	NA		233,000		NA		NA		324,000		NA		NA		275,000		NA		290,000	
Chromium, Hexavalent	18540-29-9	50	a	1200	a	ug/l	NA		<10	U	NA		NA		<10	U	NA		NA		<10	U	NA		<10	U
Chromium, Total	7440-47-3	NS		NS		ug/l	NA		<1	U	NA		NA		<1	U	NA		NA		<1	U	NA		<1	U
Chromium, Trivalent	16065-83-1	NS		NS		ug/l	NA		<10	U	NA		NA		<10	U	NA		NA		<10	U	NA		<10	U
Cobalt	7440-48-4	NS		NS		ug/l	NA		1.12		NA		NA		0.68		NA		NA		1.69		NA		1.4	
Copper	7440-50-8	5.6	a	7.9	a	ug/l	NA		<1	U	NA		NA		<1	U	NA		NA		<1	U	NA		0.46	J
Cyanide	57-12-5	1	a	1	a	ug/l	NA		**47**		NA		NA		<5	U	NA		NA		**6**		NA		**4**	J
Iron	7439-89-6	NS		NS		ug/l	NA		4,690		NA		NA		5,320		NA		NA		14,900		NA		14,700	
Lead	7439-92-1	8	a	204	a	ug/l	NA		<1	U	NA		NA		0.38	J	NA		NA		0.4	J	NA		0.58	J
Magnesium	7439-95-4	NS		NS		ug/l	NA		222,000		NA		NA		210,000		NA		NA		476,000		NA		514,000	
Manganese	7439-96-5	NS		NS		ug/l	NA		1,907	J	NA		NA		884.5		NA		NA		1,135		NA		1,108	
Mercury	7439-97-6	NS		NS		ug/l	NA		<0.2	U	NA		NA		<0.2	U	NA		NA		<0.2	U	NA		<0.2	U
Nickel	7440-02-0	8.2	a	74	a	ug/l	NA		2.16		NA		NA		2.59		NA		NA		1.86	J	NA		1.64	J
Potassium	7440-09-7	NS		NS		ug/l	NA		95,100		NA		NA		72,200		NA		NA		163,000		NA		164,000	
Selenium	7782-49-2	NS		NS		ug/l	NA		<5	U	NA		NA		<5	U	NA		NA		<5	U	NA		<5	U
Silver	7440-22-4	NS		2.3	a	ug/l	NA		<0.4	U	NA		NA		<0.4	U	NA		NA		<0.4	U	NA		<0.4	U
Sodium	7440-23-5	NS		NS		ug/l	NA		2,170,000		NA		NA		1,450,000		NA		NA		5,570,000		NA		4,180,000	
Thallium	7440-28-0	NS		NS		ug/l	NA		<1	U	NA		NA		<1	U	NA		NA		<1	U	NA		<1	U
Vanadium	7440-62-2	NS		NS		ug/l	NA		<5	U	NA		NA		<5	U	NA		NA		<5	U	NA		<5	U
Zinc	7440-66-6	66	a	95	a	ug/l	NA		6.57	J	NA		NA		6.67	J	NA		NA		11.79		NA		12.44	
Per- and Polyfluoroalkyl Substances																										
11-Chloroeicosafluoro-3-Oxaundecane-1-Sulfonic Acid (11Cl-PF3OUdS)	763051-92-9	NS		NS		ug/l	<0.00801	U	NA		NA		<0.00768	U	NA		NA		<0.00776	U	NA		NA		NA	
1H,1H,2H,2H-Perfluorodecane Sulfonic Acid (8:2 FTS)	39108-34-4	NS		NS		ug/l	<0.00814	U	<0.00185	U	NA		<0.0078	U	<0.00184	U	NA		<0.00789	U	<0.0018	U	NA		<0.00174	U
1H,1H,2H,2H-Perfluorohexane Sulfonic Acid (4:2 FTS)	757124-72-4	NS		NS		ug/l	<0.00794	U	NA		NA		<0.00762	U	NA		NA		<0.0077	U	NA		NA		NA	
1H,1H,2H,2H-Perfluorooctane Sulfonic Acid (6:2 FTS)	27619-97-2	NS		NS		ug/l	<0.00805	U	<0.00185	UJ	NA		<0.00772	U	<0.00184	U	NA		<0.0078	U	0.0432	J	NA		<0.00174	UJ
2H,2H,3H,3H-Perfluorooctanoic Acid (5:3 FTCA)	914637-49-3	NS		NS		ug/l	<0.053	U	NA		NA		<0.0508	U	NA		NA		<0.0513	U	NA		NA		NA	
3-Perfluoroheptyl Propanoic Acid (7:3 FTCA)	812-70-4	NS		NS		ug/l	<0.053	U	NA		NA		<0.0508	U	NA		NA		<0.0513	U	NA		NA		NA	
3-Perfluoropropyl Propanoic Acid (3:3 FTCA)	356-02-5	NS		NS		ug/l	<0.0106	U	NA		NA		<0.0102	U	NA		NA		<0.0103	U	NA		NA		NA	
4,8-Dioxa-3H-perfluorononanoic Acid (ADONA)	919005-14-4	NS		NS		ug/l	<0.00801	U	NA		NA		<0.00768	U	NA		NA		<0.00776	U	NA		NA		NA	
9-Chlorohexadecafluoro-3-Oxanonane-1-Sulfonic Acid (9Cl-PF3ONS)	756426-58-1	NS		NS		ug/l	<0.00792	U	NA		NA		<0.0076	U	NA		NA		<0.00768	U	NA		NA		NA	
Hexafluoropropylene Oxide Dimer Acid (HFPO-DA)	13252-13-6	NS		NS		ug/l	<0.00847	U	NA		NA		<0.00813	U	NA		NA		<0.00821	U	NA		NA		NA	
N-ethyl Perfluorooctanesulfonamide (NEtFOSA)	4151-50-2	NS		NS		ug/l	<0.00212	U	NA		NA		<0.00203	U	NA		NA		<0.00205	U	NA		NA		NA	
N-ethyl Perfluorooctanesulfonamidoacetic Acid (NEtFOSAA)	2991-50-6	NS		NS		ug/l	<0.00212	U	<0.00185	U	NA		<0.00203	U	<0.00184	U	NA		<0.00205	U	<0.0018	U	NA		<0.00174	U
N-ethyl Perfluorooctanesulfonamidoethanol (NEtFOSE)	1691-99-2	NS		NS		ug/l	<0.0212	U	NA		NA		<0.0203	U	NA		NA		<0.0205	U	NA		NA		NA	
N-methyl Perfluorooctanesulfonamide (NMeFOSA)	31506-32-8	NS		NS		ug/l	<0.00212	U	NA		NA		<0.00203	U	NA		NA		<0.00205	U	NA		NA		NA	
N-methyl Perfluorooctanesulfonamidoacetic Acid (NMeFOSAA)	2355-31-9	NS		NS		ug/l	<0.00212	U	<0.00185	U	NA		<0.00203	U	<0.00184	U	NA		<0.00205	U	<0.0018	U	NA		<0.00174	U
N-methyl Perfluorooctanesulfonamidoethanol (NMeFOSE)	24448-09-7	NS		NS		ug/l	<0.0212	U	NA		NA		<0.0203	U	NA		NA		<0.0205	U	NA		NA		NA	
Nonafluoro-3,6-dioxaheptanoic Acid (NFDHA)	151772-58-6	NS		NS		ug/l	<0.00424	U	NA		NA		<0.00407	U	NA		NA		<0.00411	U	NA		NA		NA	
Perfluoro(2-ethoxyethane)sulfonic Acid (PFEESA)	113507-82-7	NS		NS		ug/l	<0.00377	U	NA		NA		<0.00362	U	NA		NA		<0.00366	U	NA		NA		NA	
Perfluoro-3-methoxypropanoic Acid (PFMPA)	377-73-1	NS		NS		ug/l	<0.00424	U	NA		NA		<0.00407	U	NA		NA		<0.00411	U	NA		NA		NA	
Perfluoro-4-methoxybutanoic Acid (PFMBA)	863090-89-5	NS		NS		ug/l	<0.00424	U	NA		NA		<0.00407	U	NA		NA		<0.00411	U	NA		NA		NA	
Perfluorobutanesulfonic Acid (PFBS)	375-73-5	NS		NS		ug/l	0.00468		0.0126		NA		0.00227		0.00264		NA		0.00194		0.00102	J	NA		0.00113	J
Perfluorobutanoic Acid (PFBA)	375-22-4	NS		NS		ug/l	0.0203		0.0198		NA		0.00499	J	0.0117		NA		0.00351	J	0.00415		NA		0.00413	
Perfluorodecanesulfonic Acid (PFDS)	335-77-3	NS		NS		ug/l	<0.00204	U	<0.00185	U	NA		<0.00196	U	<0.00184	U	NA		<0.00198	U	<0.0018	U	NA		<0.00174	U
Perfluorodecanoic Acid (PFDA)	335-76-2	NS		NS		ug/l	<0.00212	U	<0.00185	U	NA		<0.00203	U	<0.00184	U	NA		<0.00205	U	<0.0018	U	NA		<0.00174	U
Perfluorododecanesulfonic Acid (PFDoS)	79780-39-5	NS		NS		ug/l	<0.00206	U	NA		NA		<0.00197	U	NA		NA		<0.00199	U	NA		NA		NA	
Perfluorododecanoic Acid (PFDoA)	307-55-1	NS		NS		ug/l	<0.00212	U	<0.00185	U	NA		<0.00203	U	<0.00184	U	NA		<0.00205	U	<0.0018	U	NA		<0.00174	U
Perfluoroheptanesulfonic Acid (PFHpS)	375-92-8	NS		NS		ug/l	0.000521	J	<0.00185	U	NA		<0.00194	U	<0.00184	U	NA		<0.00196	U	<0.0018	U	NA		<0.00174	U
Perfluoroheptanoic Acid (PFHpA)	375-85-9	NS		NS		ug/l	0.00522		0.00958		NA		0.00223		0.00458		NA		0.00105	J	0.00125	J	NA		0.00137	J
Perfluorohexanesulfonic Acid (PFHxS)	355-46-4	NS		NS		ug/l	0.00369		0.00629		NA		<0.00186	U	0.00127	J	NA		<0.00188	U	0.00087	J	NA		0.000934	J
Perfluorohexanoic Acid (PFHxA)	307-24-4	NS		NS		ug/l	0.0582		0.0198		NA		0.00342		0.00614		NA		0.00149	J	0.00187		NA		0.00172	J
Perfluorononanesulfonic Acid (PFNS)	68259-12-1	NS		NS		ug/l	<0.00203	U	NA		NA		<0.00195	U	NA		NA		<0.00197	U	NA		NA		NA	
Perfluorononanoic Acid (PFNA)	375-95-1	NS		NS		ug/l	0.00111	J	0.00128	J	NA		<0.00203	U	0.000432	J	NA		<0.00205	U	<0.0018	U	NA		0.000296	J
Perfluorooctanesulfonamide (PFOSA)	754-91-6	NS		NS		ug/l	<0.00212	U	<0.00185	U	NA		<0.00203	U	<0.00184	U	NA		<0.00205	U	<0.0018	U	NA		<0.00174	U
Perfluorooctanesulfonic Acid (PFOS)	1763-23-1	160	a	190	a	ug/l	0.00809		0.0107		NA		0.00238		0.0029		NA		0.00286		0.00273		NA		0.003	
Perfluorooctanoic Acid (PFOA)	335-67-1	NS		NS		ug/l	0.0219		0.0452		NA		0.0145		0.0277		NA		0.00414		0.00574	J	NA		0.00517	
Perfluoropentanesulfonic Acid (PFPeS)	2706-91-4	NS		NS		ug/l	<0.00199	U	NA		NA		<0.00191	U	NA		NA		<0.00193	U	NA		NA		NA	
Perfluoropentanoic Acid (PFPeA)	2706-90-3	NS		NS		ug/l	0.0528		0.021		NA		0.00388	J	0.00821		NA		0.00271	J	0.00253		NA		0.00283	
Perfluorotetradecanoic Acid (PFTeDA)	376-06-7	NS		NS		ug/l	<0.00212	U	<0.00185	U	NA		<0.00203	U	<0.00184	U	NA		<0.00205	U	<0.0018	U	NA		<0.00174	U
Perfluorotridecanoic Acid (PFTrDA)	72629-94-8	NS		NS		ug/l	<0.00212	U	<0.00185	U	NA		<0.00203	U	<0.00184	U	NA		<0.00205	U	<0.0018	U	NA		<0.00174	U
Perfluoroundecanoic Acid (PFUnA)	2058-94-8	NS		NS		ug/l	<0.00212	U	<0.00185	U	NA		<0.00203	U	<0.00184	U	NA		<0.00205	U	<0.0018	U	NA		<0.00174	U
Total PFOA and PFOS	TOTPFOAPFOS	NS		NS		ug/l	NA		0.0559		NA		NA		0.0306		NA		NA		0.00847		NA		0.00817	

Table 1
Remedial Investigation Report - Fish and Wildlife Resource Impact Analysis
Groundwater Sample Analytical Results

C Block
Brooklyn, New York
Langan Project No.: 170229030

Analyte	CAS Number	Fish Propagation (saline waters)		Fish Survival (saline waters)		Location	MW03		MW04		MW04		MW04		MW05		MW05		MW05		MW06		MW06		MW06		MW07	
						Sample Name	WDUP01_080222_FILTERED		MW04_011426		MW04_080422		MW04_080422_FILTERED		MW05_011226		MW05_080222		MW05_080222_FILTERED		MW06_011426		MW06_080322		MW06_080322_FILTERED		MW07_080422	
						Sample Date	08/02/2022		01/14/2026		08/04/2022		08/04/2022		01/12/2026		08/02/2022		08/02/2022		01/14/2026		08/03/2022		08/03/2022		08/04/2022	
						Unit	Result	Q	Result	Q	Result	Q	Result	Q	Result	Q	Result	Q	Result	Q	Result	Q	Result	Q	Result	Q	Result	Q
Volatile Organic Compounds																												
1,1,1,2-Tetrachloroethane	630-20-6	NS		NS		ug/l	NA		NA		<2.5	U	NA		NA		<2.5	U	NA		NA		<2.5	U	NA		<2.5	U
1,1,1-Trichloroethane	71-55-6	NS		NS		ug/l	NA		NA		<2.5	U	NA		NA		<2.5	U	NA		NA		<2.5	U	NA		<2.5	U
1,1,2,2-Tetrachloroethane	79-34-5	NS		NS		ug/l	NA		NA		<0.5	U	NA		NA		<0.5	U	NA		NA		<0.5	U	NA		<0.5	U
1,1,2-Trichloroethane	79-00-5	NS		NS		ug/l	NA		NA		<1.5	U	NA		NA		<1.5	U	NA		NA		<1.5	U	NA		<1.5	U
1,1-Dichloroethane	75-34-3	NS		NS		ug/l	NA		NA		<2.5	U	NA		NA		<2.5	U	NA		NA		<2.5	U	NA		<2.5	U
1,1-Dichloroethene	75-35-4	NS		NS		ug/l	NA		NA		<0.5	U	NA		NA		<0.5	U	NA		NA		<0.5	U	NA		<0.5	U
1,1-Dichloropropene	563-58-6	NS		NS		ug/l	NA		NA		<2.5	U	NA		NA		<2.5	U	NA		NA		<2.5	U	NA		<2.5	U
1,2,3-Trichlorobenzene	87-61-6	5	a	NS		ug/l	NA		NA		<2.5	U	NA		NA		<2.5	U	NA		NA		<2.5	U	NA		<2.5	U
1,2,3-Trichloropropane	96-18-4	NS		NS		ug/l	NA		NA		<2.5	U	NA		NA		<2.5	U	NA		NA		<2.5	U	NA		<2.5	U
1,2,4,5-Tetramethylbenzene	95-93-2	NS		NS		ug/l	NA		NA		<2	U	NA		NA		<2	U	NA		NA		<2	U	NA		<2	U
1,2,4-Trichlorobenzene	120-82-1	5	a	NS		ug/l	NA		NA		<2.5	U	NA		NA		<2.5	U	NA		NA		<2.5	U	NA		<2.5	U
1,2,4-Trimethylbenzene	95-63-6	19	a	170	a	ug/l	NA		NA		<2.5	U	NA		NA		<2.5	U	NA		NA		<2.5	U	NA		<2.5	U
1,2-Dibromo-3-Chloropropane	96-12-8	NS		NS		ug/l	NA		NA		<2.5	U	NA		NA		<2.5	U	NA		NA		<2.5	U	NA		<2.5	U
1,2-Dibromoethane (Ethylene Dibromide)	106-93-4	NS		NS		ug/l	NA		NA		<2	U	NA		NA		<2	U	NA		NA		<2	U	NA		<2	U
1,2-Dichlorobenzene	95-50-1	5	a	NS		ug/l	NA		NA		<2.5	U	NA		NA		<2.5	U	NA		NA		<2.5	U	NA		<2.5	U
1,2-Dichloroethane	107-06-2	NS		NS		ug/l	NA		NA		<0.5	U	NA		NA		<0.5	U	NA		NA		<0.5	U	NA		<0.5	U
1,2-Dichloropropane	78-87-5	NS		NS		ug/l	NA		NA		<1	U	NA		NA		<1	U	NA		NA		<1	U	NA		<1	U
1,3,5-Trimethylbenzene (Mesitylene)	108-67-8	56	b	366	b	ug/l	NA		NA		<2.5	U	NA		NA		<2.5	U	NA		NA		<2.5	U	NA		<2.5	U
1,3-Dichlorobenzene	541-73-1	5	a	NS		ug/l	NA		NA		<2.5	U	NA		NA		<2.5	U	NA		NA		<2.5	U	NA		<2.5	U
1,3-Dichloropropane	142-28-9	NS		NS		ug/l	NA		NA		<2.5	U	NA		NA		<2.5	U	NA		NA		<2.5	U	NA		<2.5	U
1,4-Dichlorobenzene	106-46-7	5	a	NS		ug/l	NA		NA		<2.5	U	NA		NA		<2.5	U	NA		NA		<2.5	U	NA		<2.5	U
1,4-Diethyl Benzene	105-05-5	NS		NS		ug/l	NA		NA		<2	U	NA		NA		<2	U	NA		NA		<2	U	NA		<2	U
1,4-Dioxane (P-Dioxane)	123-91-1	NS		NS		ug/l	NA		NA		NA		NA		NA		NA		NA		NA		NA		NA		NA	
2,2-Dichloropropane	594-20-7	NS		NS		ug/l	NA		NA		<2.5	U	NA		NA		<2.5	U	NA		NA		<2.5	U	NA		<2.5	U
2-Chlorotoluene	95-49-8	NS		NS		ug/l	NA		NA		<2.5	U	NA		NA		<2.5	U	NA		NA		<2.5	U	NA		<2.5	U
2-Hexanone (MBK)	591-78-6	NS		NS		ug/l	NA		NA		<5	U	NA		NA		<5	U	NA		NA		<5	U	NA		<5	U
4-Chlorotoluene	106-43-4	NS		NS		ug/l	NA		NA		<2.5	U	NA		NA		<2.5	U	NA		NA		<2.5	U	NA		<2.5	U
4-Ethyltoluene	622-96-8	NS		NS		ug/l	NA		NA		<2	U	NA		NA		<2	U	NA		NA		<2	U	NA		<2	U
Acetone	67-64-1	117629	b	355606	b	ug/l	NA		NA		<5	U	NA		NA		<5	U	NA		NA		<5	U	NA		<5	U
Acrylonitrile	107-13-1	NS		NS		ug/l	NA		NA		<5	U	NA		NA		<5	U	NA		NA		<5	U	NA		<5	U
Benzene	71-43-2	190	a	670	a	ug/l	NA		NA		<0.5	U	NA		NA		<0.5	U	NA		NA		<0.5	U	NA		<0.5	U
Bromobenzene	108-86-1	NS		NS		ug/l	NA		NA		<2.5	U	NA		NA		<2.5	U	NA		NA		<2.5	U	NA		<2.5	U
Bromochloromethane	74-97-5	NS		NS		ug/l	NA		NA		<2.5	U	NA		NA		<2.5	U	NA		NA		<2.5	U	NA		<2.5	U
Bromodichloromethane	75-27-4	NS		NS		ug/l	NA		NA		<0.5	U	NA		NA		<0.5	U	NA		NA		<0.5	U	NA		<0.5	U
Bromoform	75-25-2	NS		NS		ug/l	NA		NA		<2	U	NA		NA		<2	U	NA		NA		<2	U	NA		<2	U
Bromomethane	74-83-9	NS		NS		ug/l	NA		NA		<2.5	U	NA		NA		<2.5	U	NA		NA		<2.5	U	NA		<2.5	U
Carbon Disulfide	75-15-0	NS		NS		ug/l	NA		NA		<5	U	NA		NA		<5	U	NA		NA		<5	U	NA		<5	U
Carbon Tetrachloride	56-23-5	NS		NS		ug/l	NA		NA		<0.5	U	NA		NA		<0.5	U	NA		NA		<0.5	U	NA		<0.5	U
Chlorobenzene	108-90-7	5	a	NS		ug/l	NA		NA		<2.5	U	NA		NA		<2.5	U	NA		NA		<2.5	U	NA		<2.5	U
Chloroethane	75-00-3	NS		NS		ug/l	NA		NA		<2.5	U	NA		NA		<2.5	U	NA		NA		<2.5	U	NA		<2.5	U
Chloroform	67-66-3	NS		NS		ug/l	NA		NA		<2.5	U	NA		NA		<2.5	U	NA		NA		<2.5	U	NA		<2.5	U
Chloromethane	74-87-3	NS		NS		ug/l	NA		NA		<2.5	U	NA		NA		<2.5	U	NA		NA		<2.5	U	NA		<2.5	U
Cis-1,2-Dichloroethene	156-59-2	5	a	NS		ug/l	NA		NA		<2.5	U	NA		NA		<2.5	U	NA		NA		0.96	J	NA		<2.5	U
Cis-1,3-Dichloropropene	10061-01-5	NS		NS		ug/l	NA		NA		<0.5	U	NA		NA		<0.5	U	NA		NA		<0.5	U	NA		<0.5	U
Cymene	99-87-6	21	b	187	b	ug/l	NA		NA		<2.5	U	NA		NA		<2.5	U	NA		NA		<2.5	U	NA		<2.5	U
Dibromochloromethane	124-48-1	NS		NS		ug/l	NA		NA		<0.5	U	NA		NA		<0.5	U	NA		NA		<0.5	U	NA		<0.5	U
Dibromomethane	74-95-3	NS		NS		ug/l	NA		NA		<5	U	NA		NA		<5	U	NA		NA		<5	U	NA		<5	U
Dichlorodifluoromethane	75-71-8	NS		NS		ug/l	NA		NA		<5	U	NA		NA		<5	U	NA		NA		<5	U	NA		<5	U
Diethyl Ether (Ethyl Ether)	60-29-7	NS		NS		ug/l	NA		NA		<2.5	U	NA		NA		<2.5	U	NA		NA		<2.5	U	NA		<2.5	U
Ethylbenzene	100-41-4	4.5	a	41	a	ug/l	NA		NA		<2.5	U	NA		NA		<2.5	U	NA		NA		<2.5	U	NA		<2.5	U
Isopropylbenzene (Cumene)	98-82-8	NS		NS		ug/l	NA		NA		<2.5	U	NA		NA		<2.5	U	NA		NA		<2.5	U	NA		<2.5	U
M,P-Xylene	179601-23-1	NS		NS		ug/l	NA		NA		<2.5	U	NA		NA		<2.5	U	NA		NA		<2.5	U	NA		<2.5	U
Methyl Ethyl Ketone (2-Butanone)	78-93-3	NS		NS		ug/l	NA		NA		<5	U	NA		NA		<5	U	NA		NA		<5	UJ	NA		<5	U
Methyl Isobutyl Ketone (4-Methyl-2-Pentanone)	108-10-1	NS		NS		ug/l	NA		NA		<5	U	NA		NA		<5	U	NA		NA		<5	U	NA		<5	U
Methylene Chloride	75-09-2	NS		NS		ug/l	NA		NA		<2.5	U	NA		NA		<2.5	U	NA		NA		<2.5	U	NA		<2.5	U
n-Butylbenzene	104-51-8	NS		NS		ug/l	NA		NA		<2.5	U	NA		NA		<2.5	U	NA		NA		<2.5	U	NA		<2.5	U
n-Propylbenzene	103-65-1	NS		NS		ug/l	NA		NA		<2.5	U	NA		NA		<2.5	U	NA		NA		<2.5	U	NA		<2.5	U
o-Xylene (1,2-Dimethylbenzene)	95-47-6	19	a	170	a	ug/l	NA		NA		<2.5	U	NA		NA		<2.5	U	NA		NA		<2.5	U	NA		<2.5	U
Sec-Butylbenzene	135-98-8	NS		NS		ug/l	NA		NA		<2.5	U	NA		NA		<2.5	U	NA		NA		<2.5	U	NA		<2.5	U
Styrene	100-42-5	NS		NS		ug/l	NA		NA		<2.5	U	NA		NA		<2.5	U	NA		NA		<2.5	U	NA		<2.5	U
T-Butylbenzene	98-06-6	NS		NS		ug/l	NA		NA		<2.5	U	NA		NA		<2.5	U	NA		NA		<2.5	U	NA		<2.5	U
Tert-Butyl Methyl Ether (MTBE)	1634-04-4	5000	b	38037	b	ug/l	NA		NA		<2.5	U	NA		NA		<2.5	U	NA		NA		<2.5	U	NA		<2.5	U
Tetrachloroethene (PCE)	127-18-4	NS		NS		ug/l	NA		NA		<0.5	U	NA		NA		<0.5	U	NA		NA		<0.5	U	NA		<0.5	U
Toluene	108-88-3	92	a	430	a	ug/l	NA		NA		<2.5	U	NA		NA		<2.5	U	NA		NA		<2.5	U	NA		<2.5	U
Total 1,2-Dichloroethene (Cis and Trans)	540-59-0	NS		NS		ug/l	NA		NA		<2.5	U	NA		NA		<2.5	U	NA		NA		0.96	J	NA		<2.5	U
Volatile Organic Compounds																												
Total Xylenes	1330-20-7	19	a	NS		ug/l	NA		NA		<2.5	U	NA		NA		<2.5	U	NA		NA		<2.5	U	NA		<2.5	U
Total, 1,3-Dichloropropene (Cis And Trans)	542-75-6	NS		NS		ug/l	NA		NA		<0.5	U	NA		NA		<0.5	U	NA		NA		<0.5	U	NA		<0.5	U
Trans-1,2-Dichloroethene	156-60-5	NS		NS		ug/l	NA		NA		<2.5	U	NA		NA		<2.5	U	NA		NA		<2.5	U	NA		<2.5	U
Trans-1,3-Dichloropropene	10061-02-6	NS		NS		ug/l	NA		NA		<0.5	U	NA		NA		<0.5	U	NA		NA		<0.5	U	NA		<0.5	U
Trans-1,4-Dichloro-2-Butene	110-57-6	NS		NS		ug/l	NA		NA		<2.5	U	NA		NA		<2.5	U	NA		NA		<2.5	U	NA		<2.5	U
Trichloroethene (TCE)	79-01-6	NS		NS		ug/l	NA		NA		<0.5	U	NA		NA		<0.5	U	NA		NA		<0.5	U	NA		0.34	J
Trichlorofluoromethane	75-69-4	NS		NS		ug/l	NA		NA		<2.5	U	NA		NA		<2.5	U	NA		NA		<2.5	U	NA		<2.5	U
Vinyl Acetate	108-05-4	NS		NS		ug/l	NA		NA		<5	U	NA		NA		<5	U	NA		NA		<5	U	NA		<5	U
Vinyl Chloride	75-01-4	NS		NS		ug/l	NA		NA		<1	U	NA		NA		<1	U	NA		NA		<1	U	NA		<1	U

Table 1
Remedial Investigation Report - Fish and Wildlife Resource Impact Analysis
Groundwater Sample Analytical Results

C Block
Brooklyn, New York
Langan Project No.: 170229030

Analyte	CAS Number	Fish Propagation (saline waters)		Fish Survival (saline waters)		Location	MW03		MW04		MW04		MW04		MW05		MW05		MW05		MW06		MW06		MW06		MW07	
						Sample Name	SWDUP01_080222_FILTERED		MW04_011426		MW04_080422		MW04_080422_FILTERED		MW05_011226		MW05_080222		MW05_080222_FILTERED		MW06_011426		MW06_080322		MW06_080322_FILTERED		MW07_080422	
						Sample Date	08/02/2022		01/14/2026		08/04/2022		08/04/2022		01/12/2026		08/02/2022		08/02/2022		01/14/2026		08/03/2022		08/03/2022		08/04/2022	
						Unit	Result	Q	Result	Q	Result	Q	Result	Q	Result	Q	Result	Q	Result	Q	Result	Q	Result	Q	Result	Q	Result	Q
Semi-Volatile Organic Compounds - Dissolved																												
1,2,4,5-Tetrachlorobenzene	95-94-3	NS		NS		ug/l	<10	U	NA		NA		<5	U	NA		NA		<10	U	NA		NA		<10	U	NA	
1,2,4-Trichlorobenzene	120-82-1	5	a	NS		ug/l	<5	U	NA		NA		<5	U	NA		NA		<5	U	NA		NA		<5	U	NA	
1,2-Dichlorobenzene	95-50-1	5	a	NS		ug/l	<2	U	NA		NA		<2	U	NA		NA		<2	U	NA		NA		<2	U	NA	
1,3-Dichlorobenzene	541-73-1	5	a	NS		ug/l	<2	U	NA		NA		<2	U	NA		NA		<2	U	NA		NA		<2	U	NA	
1,4-Dichlorobenzene	106-46-7	5	a	NS		ug/l	<2	U	NA		NA		<2	U	NA		NA		<2	U	NA		NA		<2	U	NA	
2,4,5-Trichlorophenol	95-95-4	NS		NS		ug/l	<5	U	NA		NA		<5	U	NA		NA		<5	U	NA		NA		<5	U	NA	
2,4,6-Trichlorophenol	88-06-2	NS		NS		ug/l	<5	U	NA		NA		<5	U	NA		NA		<5	U	NA		NA		<5	U	NA	
2,4-Dichlorophenol	120-83-2	NS		NS		ug/l	<5	U	NA		NA		<5	U	NA		NA		<5	U	NA		NA		<5	U	NA	
2,4-Dimethylphenol	105-67-9	NS		NS		ug/l	<5	U	NA		NA		<5	U	NA		NA		<5	U	NA		NA		<5	U	NA	
2,4-Dinitrophenol	51-28-5	NS		NS		ug/l	<20	U	NA		NA		<20	UJ	NA		NA		<20	U	NA		NA		<20	U	NA	
2,4-Dinitrotoluene	121-14-2	NS		NS		ug/l	<5	U	NA		NA		<5	U	NA		NA		<5	U	NA		NA		<5	U	NA	
2,6-Dinitrotoluene	606-20-2	NS		NS		ug/l	<5	U	NA		NA		<5	U	NA		NA		<5	U	NA		NA		<5	U	NA	
2-Chloronaphthalene	91-58-7	NS		NS		ug/l	<0.2	U	NA		NA		<0.2	U	NA		NA		<0.2	U	NA		NA		<0.2	U	NA	
2-Chlorophenol	95-57-8	NS		NS		ug/l	<2	U	NA		NA		<2	U	NA		NA		<2	U	NA		NA		<2	U	NA	
2-Methylnaphthalene	91-57-6	4.2	a	38	a	ug/l	0.04	J	NA		NA		0.03	J	NA		NA		0.03	J	NA		NA		<0.1	U	NA	
2-Methylphenol (o-Cresol)	95-48-7	NS		NS		ug/l	<5	U	NA		NA		<5	U	NA		NA		<5	U	NA		NA		<5	U	NA	
2-Nitroaniline	88-74-4	NS		NS		ug/l	<5	U	NA		NA		<5	U	NA		NA		<5	U	NA		NA		<5	U	NA	
2-Nitrophenol	88-75-5	NS		NS		ug/l	<10	U	NA		NA		<10	U	NA		NA		<10	U	NA		NA		<10	U	NA	
3 & 4 Methylphenol (m&p Cresol)	65794-96-9	NS		NS		ug/l	<5	U	NA		NA		<5	U	NA		NA		<5	U	NA		NA		<5	U	NA	
3,3'-Dichlorobenzidine	91-94-1	NS		NS		ug/l	<5	U	NA		NA		<5	U	NA		NA		<5	U	NA		NA		<5	UJ	NA	
3-Nitroaniline	99-09-2	NS		NS		ug/l	<5	U	NA		NA		<5	U	NA		NA		<5	U	NA		NA		<5	U	NA	
4,6-Dinitro-2-Methylphenol	534-52-1	NS		NS		ug/l	<10	U	NA		NA		<10	UJ	NA		NA		<10	U	NA		NA		<10	U	NA	
4-Bromophenyl Phenyl Ether	101-55-3	NS		NS		ug/l	<2	U	NA		NA		<2	U	NA		NA		<2	U	NA		NA		<2	U	NA	
4-Chloro-3-Methylphenol	59-50-7	NS		NS		ug/l	<2	U	NA		NA		<2	U	NA		NA		<2	U	NA		NA		<2	U	NA	
4-Chloroaniline	106-47-8	NS		NS		ug/l	<5	U	NA		NA		<5	U	NA		NA		<5	U	NA		NA		<5	U	NA	
4-Chlorophenyl Phenyl Ether	7005-72-3	NS		NS		ug/l	<2	U	NA		NA		<2	U	NA		NA		<2	U	NA		NA		<2	U	NA	
4-Nitroaniline	100-01-6	NS		NS		ug/l	<5	U	NA		NA		<5	U	NA		NA		<5	U	NA		NA		<5	UJ	NA	
4-Nitrophenol	100-02-7	NS		NS		ug/l	<10	U	NA		NA		<10	U	NA		NA		<10	U	NA		NA		<10	U	NA	
Acenaphthene	83-32-9	6.6	a	60	a	ug/l	0.02	J	NA		NA		<0.1	U	NA		NA		<0.1	U	NA		NA		<0.1	U	NA	
Acenaphthylene	208-96-8	28	b	291	b	ug/l	0.01	J	NA		NA		<0.1	U	NA		NA		<0.1	U	NA		NA		<0.1	U	NA	
Acetophenone	98-86-2	NS		NS		ug/l	<5	U	NA		NA		<5	U	NA		NA		<5	U	NA		NA		<5	U	NA	
Anthracene	120-12-7	0.43	b	1.8	b	ug/l	0.02	J	NA		NA		0.02	J	NA		NA		0.02	J	NA		NA		<0.1	U	NA	
Benzo(a)anthracene	56-55-3	0.35	b	4.6	b	ug/l	<0.1	U	NA		NA		<0.1	U	NA		NA		<0.1	U	NA		NA		<0.1	U	NA	
Benzo(a)pyrene	50-32-8	0.02	b	0.64	b	ug/l	<0.1	U	NA		NA		<0.1	U	NA		NA		<0.1	U	NA		NA		<0.1	U	NA	
Benzo(b)fluoranthene	205-99-2	0.06	b	1.4	b	ug/l	<0.1	U	NA		NA		<0.1	U	NA		NA		0.02	J	NA		NA		<0.1	U	NA	
Benzo(g,h,i)Perylene	191-24-2	0.012	b	0.19	b	ug/l	<0.1	U	NA		NA		<0.1	U	NA		NA		<0.1	U	NA		NA		<0.1	U	NA	
Benzo(k)fluoranthene	207-08-9	0.06	b	1.3	b	ug/l	<0.1	U	NA		NA		<0.1	U	NA		NA		<0.1	U	NA		NA		<0.1	U	NA	
Benzoic Acid	65-85-0	NS		NS		ug/l	<50	U	NA		NA		21	J	NA		NA		<50	U	NA		NA		15	J	NA	
Benzyl Alcohol	100-51-6	NS		NS		ug/l	<2	U	NA		NA		<2	U	NA		NA		<2	U	NA		NA		<2	U	NA	
Benzyl Butyl Phthalate	85-68-7	NS		NS		ug/l	<5	U	NA		NA		<5	U	NA		NA		<5	U	NA		NA		<5	U	NA	
Biphenyl (Diphenyl)	92-52-4	NS		NS		ug/l	<2	U	NA		NA		<2	U	NA		NA		<2	U	NA		NA		<2	U	NA	
Bis(2-chloroethoxy) methane	111-91-1	NS		NS		ug/l	<5	U	NA		NA		<5	U	NA		NA		<5	U	NA		NA		<5	U	NA	
Bis(2-chloroethyl) ether (2-chloroethyl ether)	111-44-4	NS		NS		ug/l	<2	U	NA		NA		<2	U	NA		NA		<2	U	NA		NA		<2	U	NA	
Bis(2-chloroisopropyl) ether	108-60-1	NS		NS		ug/l	0.7	J	NA		NA		<2	U	NA		NA		<2	U	NA		NA		<2	UJ	NA	
Bis(2-ethylhexyl) phthalate	117-81-7	NS		NS		ug/l	3		NA		NA		<3	U	NA		NA		<3	U	NA		NA		<3	UJ	NA	
Carbazole	86-74-8	NS		NS		ug/l	<2	U	NA		NA		<2	U	NA		NA		<2	U	NA		NA		<2	UJ	NA	
Chrysene	218-01-9	0.35	b	4.2	b	ug/l	<0.1	U	NA		NA		<0.1	U	NA		NA		0.02	J	NA		NA		<0.1	U	NA	
Dibenz(a,h)anthracene	53-70-3	NS		NS		ug/l	<0.1	U	NA		NA		<0.1	U	NA		NA		<0.1	U	NA		NA		<0.1	U	NA	
Dibenzofuran	132-64-9	61	b	242	b	ug/l	<2	U	NA		NA		<2	U	NA		NA		<2	U	NA		NA		<2	U	NA	
Dibutyl phthalate	84-74-2	NS		NS		ug/l	<5	U	NA		NA		<5	U	NA		NA		<5	U	NA		NA		<5	UJ	NA	
Diethyl phthalate	84-66-2	NS		NS		ug/l	<5	U	NA		NA		<5	U	NA		NA		<5	U	NA		NA		<5	U	NA	
Dimethyl phthalate	131-11-3	NS		NS		ug/l	<5	U	NA		NA		<5	U	NA		NA		<5	U	NA		NA		<5	U	NA	
Dioctyl phthalate	117-84-0	NS		NS		ug/l	<5	U	NA		NA		<5	U	NA		NA		<5	U	NA		NA		<5	U	NA	
Fluoranthene	206-44-0	0.82	b	3.4	b	ug/l	<0.1	U	NA		NA		<0.1	U	NA		NA		<0.1	U	NA		NA		<0.1	U	NA	
Fluorene	86-73-7	2.5	a	23	a	ug/l	<0.1	U	NA		NA		0.02	J	NA		NA		<0.1	U	NA		NA		<0.1	U	NA	
Hexachlorobenzene	118-74-1	NS		NS		ug/l	<0.8	U	NA		NA		<0.8	U	NA		NA		<0.8	U	NA		NA		0.03	J	NA	
Hexachlorobutadiene	87-68-3	0.3	a	3	a	ug/l	<0.5	U	NA		NA		<0.5	U	NA		NA		<0.5	U	NA		NA		<0.5	U	NA	
Semi-Volatile Organic Compounds - Dissolved																												
Hexachlorocyclopentadiene	77-47-4	0.07	a	0.7	a	ug/l	<20	U	NA		NA		<20	U	NA		NA		<20	U	NA		NA		<20	U	NA	
Hexachloroethane	67-72-1	NS		NS		ug/l	<0.8	U	NA		NA		<0.8	U	NA		NA		<0.8	U	NA		NA		<0.8	U	NA	
Indeno(1,2,3-cd)pyrene	193-39-5	0.012	b	0.27	b	ug/l	<0.1	U	NA		NA		<0.1	U	NA		NA		<0.1	U	NA		NA		<0.1	U	NA	
Isophorone	78-59-1	NS		NS		ug/l	<5	U	NA		NA		<5	U	NA		NA		<5	U	NA		NA		<5	U	NA	
Naphthalene	91-20-3	16	a	140	a	ug/l	<0.1	U	NA		NA		<0.1	U	NA		NA		0.14		NA		NA		<0.1	U	NA	
Nitrobenzene	98-95-3	NS		NS		ug/l	<2	U	NA		NA		<2	U	NA		NA		<2	U	NA		NA		<2	U	NA	
n-Nitrosodi-N-Propylamine	621-64-7	NS		NS		ug/l	1.3	J	NA		NA		<5	U	NA		NA		<5	U	NA		NA		<5	U	NA	
n-Nitrosodiphenylamine	86-30-6	NS		NS		ug/l	<2	U	NA		NA		<2	U	NA		NA		<2	U	NA		NA		<2	U	NA	
Pentachlorophenol	87-86-5	NS		NS		ug/l	<0.8	U	NA		NA		<0.8	U	NA		NA		<0.8	U	NA		NA		<0.8	UJ	NA	
Phenanthrene	85-01-8	1.5	a	14	a	ug/l	<0.1	U	NA		NA		0.03	J	NA		NA		<0.1	U	NA		NA		<0.1	U	NA	
Phenol	108-95-2	NS		NS		ug/l	5.9		NA		NA		46		NA		NA		1.5	J	NA		NA		1.2	J	NA	
Pyrene	129-00-0	0.11	b	0.45	b	ug/l	<0.1	U	NA		NA		<0.1	U	NA		NA		<0.1	U	NA		NA		<0.1	U	NA	

Table 1
Remedial Investigation Report - Fish and Wildlife Resource Impact Analysis
Groundwater Sample Analytical Results

C Block
Brooklyn, New York
Langan Project No.: 170229030

Analyte	CAS Number	Fish Propagation (saline waters)		Fish Survival (saline waters)		Location	MW03		MW04		MW04		MW04		MW05		MW05		MW05		MW06		MW06		MW06		MW07	
						Sample Name	WDUP01_080222_FILTERED		MW04_011426		MW04_080422		MW04_080422_FILTERED		MW05_011226		MW05_080222		MW05_080222_FILTERED		MW06_011426		MW06_080322		MW06_080322_FILTERED		MW07_080422	
						Sample Date	08/02/2022		01/14/2026		08/04/2022		08/04/2022		01/12/2026		08/02/2022		08/02/2022		01/14/2026		08/03/2022		08/03/2022		08/04/2022	
						Unit	Result	Q	Result	Q	Result	Q	Result	Q	Result	Q	Result	Q	Result	Q	Result	Q	Result	Q	Result	Q	Result	Q
Semi-Volatile Organic Compounds - Total																												
1,2,4,5-Tetrachlorobenzene	95-94-3	NS		NS		ug/l	NA		NA		<12	U	NA		NA		<10	U	NA		NA		<10	U	NA		<10	U
1,2,4-Trichlorobenzene	120-82-1	5	a	NS		ug/l	NA		NA		<6	U	NA		NA		<5	U	NA		NA		<5	U	NA		<5	U
1,2-Dichlorobenzene	95-50-1	5	a	NS		ug/l	NA		NA		<2.4	U	NA		NA		<2	U	NA		NA		<2	U	NA		<2	U
1,3-Dichlorobenzene	541-73-1	5	a	NS		ug/l	NA		NA		<2.4	U	NA		NA		<2	U	NA		NA		<2	U	NA		<2	U
1,4-Dichlorobenzene	106-46-7	5	a	NS		ug/l	NA		NA		<2.4	U	NA		NA		<2	U	NA		NA		<2	U	NA		<2	U
1,4-Dioxane (P-Dioxane)	123-91-1	NS		NS		ug/l	NA		NA		<0.153	U	NA		NA		<0.15	U	NA		NA		<0.144	U	NA		<0.144	U
2,4,5-Trichlorophenol	95-95-4	NS		NS		ug/l	NA		NA		<6	U	NA		NA		<5	U	NA		NA		<5	U	NA		<5	U
2,4,6-Trichlorophenol	88-06-2	NS		NS		ug/l	NA		NA		<6	U	NA		NA		<5	U	NA		NA		<5	U	NA		<5	U
2,4-Dichlorophenol	120-83-2	NS		NS		ug/l	NA		NA		<6	U	NA		NA		<5	U	NA		NA		<5	U	NA		<5	U
2,4-Dimethylphenol	105-67-9	NS		NS		ug/l	NA		NA		<6	U	NA		NA		<5	U	NA		NA		<5	U	NA		<5	U
2,4-Dinitrophenol	51-28-5	NS		NS		ug/l	NA		NA		<24	UJ	NA		NA		<20	U	NA		NA		<20	U	NA		<20	UJ
2,4-Dinitrotoluene	121-14-2	NS		NS		ug/l	NA		NA		<6	U	NA		NA		<5	U	NA		NA		<5	U	NA		<5	U
2,6-Dinitrotoluene	606-20-2	NS		NS		ug/l	NA		NA		<6	U	NA		NA		<5	U	NA		NA		<5	U	NA		<5	U
2-Chloronaphthalene	91-58-7	NS		NS		ug/l	NA		NA		<0.24	U	NA		NA		<0.2	U	NA		NA		<0.2	U	NA		<0.2	U
2-Chlorophenol	95-57-8	NS		NS		ug/l	NA		NA		<2.4	U	NA		NA		<2	U	NA		NA		<2	U	NA		<2	U
2-Methylnaphthalene	91-57-6	4.2	a	38	a	ug/l	NA		NA		0.03	J	NA		NA		0.06	J	NA		NA		<0.1	U	NA		<0.1	U
2-Methylphenol (o-Cresol)	95-48-7	NS		NS		ug/l	NA		NA		<6	U	NA		NA		<5	U	NA		NA		<5	U	NA		<5	U
2-Nitroaniline	88-74-4	NS		NS		ug/l	NA		NA		<6	U	NA		NA		<5	U	NA		NA		<5	U	NA		<5	U
2-Nitrophenol	88-75-5	NS		NS		ug/l	NA		NA		<12	U	NA		NA		<10	U	NA		NA		<10	U	NA		<10	U
3 & 4 Methylphenol (m&p Cresol)	65794-96-9	NS		NS		ug/l	NA		NA		<6	U	NA		NA		<5	U	NA		NA		<5	U	NA		<5	U
3,3'-Dichlorobenzidine	91-94-1	NS		NS		ug/l	NA		NA		<6	U	NA		NA		<5	U	NA		NA		<5	UJ	NA		<5	U
3-Nitroaniline	99-09-2	NS		NS		ug/l	NA		NA		<6	U	NA		NA		<5	U	NA		NA		<5	U	NA		<5	U
4,6-Dinitro-2-Methylphenol	534-52-1	NS		NS		ug/l	NA		NA		<12	UJ	NA		NA		<10	U	NA		NA		<10	U	NA		<10	UJ
4-Bromophenyl Phenyl Ether	101-55-3	NS		NS		ug/l	NA		NA		<2.4	U	NA		NA		<2	U	NA		NA		<2	U	NA		<2	U
4-Chloro-3-Methylphenol	59-50-7	NS		NS		ug/l	NA		NA		<2.4	U	NA		NA		<2	U	NA		NA		<2	U	NA		<2	U
4-Chloroaniline	106-47-8	NS		NS		ug/l	NA		NA		<6	U	NA		NA		<5	U	NA		NA		<5	U	NA		<5	U
4-Chlorophenyl Phenyl Ether	7005-72-3	NS		NS		ug/l	NA		NA		<2.4	U	NA		NA		<2	U	NA		NA		<2	U	NA		<2	U
4-Nitroaniline	100-01-6	NS		NS		ug/l	NA		NA		<6	U	NA		NA		<5	U	NA		NA		<5	UJ	NA		<5	U
4-Nitrophenol	100-02-7	NS		NS		ug/l	NA		NA		<12	U	NA		NA		<10	U	NA		NA		<10	U	NA		<10	U
Acenaphthene	83-32-9	6.6	a	60	a	ug/l	NA		NA		0.06	J	NA		NA		0.09	J	NA		NA		<0.1	U	NA		<0.1	U
Acenaphthylene	208-96-8	28	b	291	b	ug/l	NA		NA		<0.12	U	NA		NA		0.26		NA		NA		<0.1	U	NA		<0.1	U
Acetophenone	98-86-2	NS		NS		ug/l	NA		NA		<6	U	NA		NA		<5	U	NA		NA		<5	U	NA		<5	U
Anthracene	120-12-7	0.43	b	1.8	b	ug/l	NA		NA		0.03	J	NA		NA		0.24		NA		NA		<0.1	U	NA		<0.1	U
Benzo(a)anthracene	56-55-3	0.35	b	4.6	b	ug/l	NA		NA		<0.12	U	NA		NA		**1.4**		NA		NA		<0.1	U	NA		<0.1	U
Benzo(a)pyrene	50-32-8	0.02	b	0.64	b	ug/l	NA		NA		**0.03**	J	NA		NA		**1.2**		NA		NA		<0.1	U	NA		<0.1	U
Benzo(b)fluoranthene	205-99-2	0.06	b	1.4	b	ug/l	NA		NA		<0.12	U	NA		NA		**2**		NA		NA		<0.1	U	NA		<0.1	U
Benzo(g,h,i)Perylene	191-24-2	0.012	b	0.19	b	ug/l	NA		NA		**0.02**	J	NA		NA		**1.2**		NA		NA		<0.1	U	NA		<0.1	U
Benzo(k)fluoranthene	207-08-9	0.06	b	1.3	b	ug/l	NA		NA		0.02	J	NA		NA		**0.67**		NA		NA		<0.1	U	NA		0.01	J
Benzoic Acid	65-85-0	NS		NS		ug/l	NA		NA		<60	UJ	NA		NA		<60	U	NA		NA		<50	U	NA		<50	UJ
Benzyl Alcohol	100-51-6	NS		NS		ug/l	NA		NA		<2.4	U	NA		NA		<2	U	NA		NA		<2	U	NA		<2	U
Benzyl Butyl Phthalate	85-68-7	NS		NS		ug/l	NA		NA		<6	U	NA		NA		<5	U	NA		NA		<5	U	NA		<5	U
Biphenyl (Diphenyl)	92-52-4	NS		NS		ug/l	NA		NA		<2.4	U	NA		NA		<2	U	NA		NA		<2	U	NA		<2	U
Bis(2-chloroethoxy) methane	111-91-1	NS		NS		ug/l	NA		NA		<6	U	NA		NA		<5	U	NA		NA		<5	U	NA		<5	U
Bis(2-chloroethyl) ether (2-chloroethyl ether)	111-44-4	NS		NS		ug/l	NA		NA		<2.4	U	NA		NA		<2	U	NA		NA		<2	U	NA		<2	U
Bis(2-chloroisopropyl) ether	108-60-1	NS		NS		ug/l	NA		NA		<2.4	U	NA		NA		<2	U	NA		NA		<2	UJ	NA		<2	U
Bis(2-ethylhexyl) phthalate	117-81-7	NS		NS		ug/l	NA		NA		<3.6	U	NA		NA		<3	U	NA		NA		<3	UJ	NA		<3	U
Carbazole	86-74-8	NS		NS		ug/l	NA		NA		<2.4	U	NA		NA		<2	U	NA		NA		<2	UJ	NA		<2	U
Chrysene	218-01-9	0.35	b	4.2	b	ug/l	NA		NA		0.03	J	NA		NA		**1.4**		NA		NA		<0.1	U	NA		0.02	J
Dibenz(a,h)anthracene	53-70-3	NS		NS		ug/l	NA		NA		<0.12	U	NA		NA		0.25		NA		NA		<0.1	U	NA		<0.1	U
Dibenzofuran	132-64-9	61	b	242	b	ug/l	NA		NA		<2.4	U	NA		NA		<2	U	NA		NA		<2	U	NA		<2	U
Dibutyl phthalate	84-74-2	NS		NS		ug/l	NA		NA		<6	U	NA		NA		<5	U	NA		NA		<5	UJ	NA		<5	U
Diethyl phthalate	84-66-2	NS		NS		ug/l	NA		NA		<6	U	NA		NA		<5	U	NA		NA		<5	U	NA		<5	U
Dimethyl phthalate	131-11-3	NS		NS		ug/l	NA		NA		<6	U	NA		NA		<5	U	NA		NA		<5	U	NA		<5	U
Dioctyl phthalate	117-84-0	NS		NS		ug/l	NA		NA		<6	U	NA		NA		<5	U	NA		NA		<5	U	NA		<5	U
Fluoranthene	206-44-0	0.82	b	3.4	b	ug/l	NA		NA		0.06	J	NA		NA		**1.8**		NA		NA		<0.1	U	NA		0.03	J
Fluorene	86-73-7	2.5	a	23	a	ug/l	NA		NA		0.03	J	NA		NA		0.11		NA		NA		<0.1	U	NA		0.02	J
Hexachlorobenzene	118-74-1	NS		NS		ug/l	NA		NA		<0.96	U	NA		NA		<0.8	U	NA		NA		<0.8	U	NA		<0.8	U
Hexachlorobutadiene	87-68-3	0.3	a	3	a	ug/l	NA		NA		<0.6	U	NA		NA		<0.5	U	NA		NA		<0.5	U	NA		<0.5	U
Semi-Volatile Organic Compounds - Total																												
Hexachlorocyclopentadiene	77-47-4	0.07	a	0.7	a	ug/l	NA		NA		<24	U	NA		NA		<20	U	NA		NA		<20	U	NA		<20	U
Hexachloroethane	67-72-1	NS		NS		ug/l	NA		NA		<0.96	U	NA		NA		<0.8	U	NA		NA		<0.8	U	NA		<0.8	U
Indeno(1,2,3-cd)pyrene	193-39-5	0.012	b	0.27	b	ug/l	NA		NA		**0.02**	J	NA		NA		**1.3**		NA		NA		<0.1	U	NA		0.01	J
Isophorone	78-59-1	NS		NS		ug/l	NA		NA		<6	U	NA		NA		<5	U	NA		NA		<5	U	NA		<5	U
Naphthalene	91-20-3	16	a	140	a	ug/l	NA		NA		0.07	J	NA		NA		0.12		NA		NA		<0.1	U	NA		<0.1	U
Nitrobenzene	98-95-3	NS		NS		ug/l	NA		NA		<2.4	U	NA		NA		<2	U	NA		NA		<2	U	NA		<2	U
n-Nitrosodi-N-Propylamine	621-64-7	NS		NS		ug/l	NA		NA		<6	U	NA		NA		<5	U	NA		NA		<5	U	NA		<5	U
n-Nitrosodiphenylamine	86-30-6	NS		NS		ug/l	NA		NA		<2.4	U	NA		NA		<2	U	NA		NA		<2	U	NA		<2	U
Pentachlorophenol	87-86-5	NS		NS		ug/l	NA		NA		<0.96	U	NA		NA		<0.8	U	NA		NA		<0.8	UJ	NA		<0.8	U
Phenanthrene	85-01-8	1.5	a	14	a	ug/l	NA		NA		0.09	J	NA		NA		0.61		NA		NA		<0.1	U	NA		0.03	J
Phenol	108-95-2	NS		NS		ug/l	NA		NA		<6	U	NA		NA		<5	U	NA		NA		<5	U	NA		<5	U
Pyrene	129-00-0	0.11	b	0.45	b	ug/l	NA		NA		0.05	J	NA		NA		**1.7**		NA		NA		<0.1	U	NA		0.02	J

Table 1
Remedial Investigation Report - Fish and Wildlife Resource Impact Analysis
Groundwater Sample Analytical Results

C Block
Brooklyn, New York
Langan Project No.: 170229030

Analyte	CAS Number	Fish Propagation (saline waters)		Fish Survival (saline waters)		Location	MW03		MW04		MW04		MW04		MW05		MW05		MW05		MW06		MW06		MW06		MW07	
						Sample Name	WDUP01_080222_FILTERED		MW04_011426		MW04_080422		MW04_080422_FILTERED		MW05_011226		MW05_080222		MW05_080222_FILTERED		MW06_011426		MW06_080322		MW06_080322_FILTERED		MW07_080422	
						Sample Date	08/02/2022		01/14/2026		08/04/2022		08/04/2022		01/12/2026		08/02/2022		08/02/2022		01/14/2026		08/03/2022		08/03/2022		08/04/2022	
						Unit	Result	Q	Result	Q	Result	Q	Result	Q	Result	Q	Result	Q	Result	Q	Result	Q	Result	Q	Result	Q	Result	Q
Pesticides																												
4,4'-DDD	72-54-8	NS		NS		ug/l	NA		NA		<0.029	U	NA		NA		<0.029	U	NA		NA		<0.029	U	NA		<0.029	U
4,4'-DDE	72-55-9	NS		NS		ug/l	NA		NA		<0.029	U	NA		NA		<0.029	U	NA		NA		<0.029	U	NA		<0.029	U
4,4'-DDT	50-29-3	NS		NS		ug/l	NA		NA		<0.029	U	NA		NA		<0.029	U	NA		NA		<0.029	U	NA		<0.029	U
Aldrin	309-00-2	NS		NS		ug/l	NA		NA		<0.014	U	NA		NA		<0.014	U	NA		NA		<0.014	U	NA		<0.014	U
Alpha BHC (Alpha Hexachlorocyclohexane)	319-84-6	NS		NS		ug/l	NA		NA		<0.014	U	NA		NA		<0.014	U	NA		NA		<0.014	U	NA		<0.014	U
Alpha Chlordane	5103-71-9	NS		NS		ug/l	NA		NA		<0.014	U	NA		NA		<0.014	U	NA		NA		<0.014	U	NA		<0.014	U
Alpha Endosulfan	959-98-8	NS		NS		ug/l	NA		NA		<0.014	U	NA		NA		<0.014	U	NA		NA		<0.014	U	NA		<0.014	U
Beta Bhc (Beta Hexachlorocyclohexane)	319-85-7	NS		NS		ug/l	NA		NA		<0.014	U	NA		NA		<0.014	U	NA		NA		<0.014	U	NA		<0.014	U
Beta Endosulfan	33213-65-9	NS		NS		ug/l	NA		NA		<0.029	U	NA		NA		<0.029	U	NA		NA		<0.029	U	NA		<0.029	U
Chlordane (alpha and gamma)	57-74-9	NS		NS		ug/l	NA		NA		<0.143	U	NA		NA		<0.143	U	NA		NA		<0.143	U	NA		<0.143	U
Delta Bhc (Delta Hexachlorocyclohexane)	319-86-8	NS		NS		ug/l	NA		NA		<0.014	U	NA		NA		<0.014	U	NA		NA		<0.014	U	NA		<0.014	U
Dieldrin	60-57-1	NS		NS		ug/l	NA		NA		<0.029	U	NA		NA		<0.029	U	NA		NA		<0.029	U	NA		<0.029	U
Endosulfan Sulfate	1031-07-8	NS		NS		ug/l	NA		NA		<0.029	U	NA		NA		<0.029	U	NA		NA		<0.029	U	NA		<0.029	U
Endrin	72-20-8	NS		NS		ug/l	NA		NA		<0.029	U	NA		NA		<0.029	U	NA		NA		<0.029	U	NA		<0.029	U
Endrin Aldehyde	7421-93-4	NS		NS		ug/l	NA		NA		<0.029	U	NA		NA		<0.029	U	NA		NA		<0.029	U	NA		<0.029	U
Endrin Ketone	53494-70-5	NS		NS		ug/l	NA		NA		<0.029	U	NA		NA		<0.029	U	NA		NA		<0.029	U	NA		<0.029	U
Gamma Bhc (Lindane)	58-89-9	NS		NS		ug/l	NA		NA		<0.014	U	NA		NA		<0.014	U	NA		NA		<0.014	U	NA		<0.014	U
Gamma Chlordane (Trans)	5103-74-2	NS		NS		ug/l	NA		NA		<0.014	U	NA		NA		<0.014	U	NA		NA		<0.014	U	NA		<0.014	U
Heptachlor	76-44-8	NS		NS		ug/l	NA		NA		<0.014	U	NA		NA		<0.014	U	NA		NA		<0.014	U	NA		<0.014	U
Heptachlor Epoxide	1024-57-3	NS		NS		ug/l	NA		NA		<0.014	U	NA		NA		<0.014	U	NA		NA		<0.014	U	NA		<0.014	U
Methoxychlor	72-43-5	0.03	a	NS		ug/l	NA		NA		<0.143	U	NA		NA		<0.143	U	NA		NA		<0.143	U	NA		<0.143	U
Toxaphene	8001-35-2	0.005	a	0.07	a	ug/l	NA		NA		<0.143	U	NA		NA		<0.143	U	NA		NA		<0.143	U	NA		<0.143	U
Herbicides																												
2,4,5-T (Trichlorophenoxyacetic Acid)	93-76-5	NS		NS		ug/l	NA		NA		<2	U	NA		NA		<2	U	NA		NA		<2	U	NA		<2	U
2,4-D (Dichlorophenoxyacetic Acid)	94-75-7	NS		NS		ug/l	NA		NA		<10	U	NA		NA		<10	U	NA		NA		<10	U	NA		<10	U
Silvex (2,4,5-Tp)	93-72-1	NS		NS		ug/l	NA		NA		<2	U	NA		NA		<2	U	NA		NA		<2	U	NA		<2	U
Polychlorinated Biphenyl																												
PCB-1016 (Aroclor 1016)	12674-11-2	NS		NS		ug/l	NA		NA		<0.071	U	NA		NA		<0.071	U	NA		NA		<0.071	U	NA		<0.071	U
PCB-1221 (Aroclor 1221)	11104-28-2	NS		NS		ug/l	NA		NA		<0.071	U	NA		NA		<0.071	U	NA		NA		<0.071	U	NA		<0.071	U
PCB-1232 (Aroclor 1232)	11141-16-5	NS		NS		ug/l	NA		NA		<0.071	U	NA		NA		<0.071	U	NA		NA		<0.071	U	NA		<0.071	U
PCB-1242 (Aroclor 1242)	53469-21-9	NS		NS		ug/l	NA		NA		<0.071	U	NA		NA		<0.071	U	NA		NA		<0.071	U	NA		<0.071	U
PCB-1248 (Aroclor 1248)	12672-29-6	NS		NS		ug/l	NA		NA		<0.071	U	NA		NA		<0.071	U	NA		NA		<0.071	U	NA		<0.071	U
PCB-1254 (Aroclor 1254)	11097-69-1	NS		NS		ug/l	NA		NA		<0.071	U	NA		NA		<0.071	U	NA		NA		<0.071	U	NA		<0.071	U
PCB-1260 (Aroclor 1260)	11096-82-5	NS		NS		ug/l	NA		NA		<0.071	U	NA		NA		<0.071	U	NA		NA		<0.071	U	NA		<0.071	U
PCB-1262 (Aroclor 1262)	37324-23-5	NS		NS		ug/l	NA		NA		<0.071	U	NA		NA		<0.071	U	NA		NA		<0.071	U	NA		<0.071	U
PCB-1268 (Aroclor 1268)	11100-14-4	NS		NS		ug/l	NA		NA		<0.071	U	NA		NA		<0.071	U	NA		NA		<0.071	U	NA		<0.071	U
Total PCBs	1336-36-3	NS		NS		ug/l	NA		NA		<0.071	U	NA		NA		<0.071	U	NA		NA		<0.071	U	NA		<0.071	U
Metals - Dissolved																												
Aluminum	7429-90-5	1500	b	NS		ug/l	NA		NA		3.64	J	NA		NA		4.06	J	NA		NA		7.86	J	NA		4.46	J
Antimony	7440-36-0	4300	b	NS		ug/l	NA		NA		<4	U	NA		NA		<4	U	NA		NA		<4	U	NA		0.51	J
Arsenic	7440-38-2	36	a	120	a	ug/l	NA		NA		0.52		NA		NA		2		NA		NA		12.93		NA		4.16	
Barium	7440-39-3	4	b	110	b	ug/l	NA		NA		**125.7**		NA		NA		**79.03**		NA		NA		**85.88**		NA		**107.2**	
Beryllium	7440-41-7	0.13	b	NS		ug/l	NA		NA		<0.5	U	NA		NA		<0.5	U	NA		NA		<0.5	U	NA		<0.5	U
Cadmium	7440-43-9	7.7	a	21	a	ug/l	NA		NA		<0.2	U	NA		NA		<0.2	U	NA		NA		<0.2	U	NA		<0.2	U
Calcium	7440-70-2	NS		NS		ug/l	NA		NA		147,000		NA		NA		330,000		NA		NA		270,000		NA		102,000	
Chromium, Total	7440-47-3	50	b	1100	b	ug/l	NA		NA		0.74	J	NA		NA		0.27	J	NA		NA		0.52	J	NA		0.2	J
Cobalt	7440-48-4	NS		NS		ug/l	NA		NA		0.36	J	NA		NA		3.26		NA		NA		<0.5	U	NA		3.14	
Copper	7440-50-8	5.6	a	7.9	a	ug/l	NA		NA		<1	U	NA		NA		<1	U	NA		NA		<1	U	NA		<1	U
Iron	7439-89-6	300	b	NS		ug/l	NA		NA		**16,600**		NA		NA		**15,700**		NA		NA		**44,000**		NA		**12,100**	
Lead	7439-92-1	8	a	204	a	ug/l	NA		NA		<1	U	NA		NA		<1	U	NA		NA		<1	U	NA		<1	U
Magnesium	7439-95-4	NS		NS		ug/l	NA		NA		85,400		NA		NA		34,100		NA		NA		31,700		NA		16,500	
Manganese	7439-96-5	100	b	NS		ug/l	NA		NA		**1,200**		NA		NA		**1,533**		NA		NA		**2,667**		NA		**4,470**	
Mercury	7439-97-6	0.94	a,b	1.8	a,b	ug/l	NA		NA		<0.2	U	NA		NA		0.09	J	NA		NA		<0.2	U	NA		<0.2	U
Nickel	7440-02-0	8.2	a	74	a	ug/l	NA		NA		<2	U	NA		NA		1.4	J	NA		NA		0.6	J	NA		1.97	J
Potassium	7440-09-7	NS		NS		ug/l	NA		NA		45,100		NA		NA		23,700	J	NA		NA		30,800		NA		10,400	
Selenium	7782-49-2	71	b	290	b	ug/l	NA		NA		<5	U	NA		NA		<5	U	NA		NA		<5	U	NA		<5	U
Silver	7440-22-4	NS		2.3	a	ug/l	NA		NA		<0.4	U	NA		NA		<0.4	U	NA		NA		<0.4	U	NA		<0.4	U
Sodium	7440-23-5	NS		NS		ug/l	NA		NA		416,000		NA		NA		60,000		NA		NA		42,100		NA		76,300	J
Thallium	7440-28-0	NS		NS		ug/l	NA		NA		<1	U	NA		NA		<1	U	NA		NA		<1	U	NA		<1	U
Vanadium	7440-62-2	NS		NS		ug/l	NA		NA		<5	U	NA		NA		<5	U	NA		NA		<5	U	NA		<5	U
Zinc	7440-66-6	66	a	95	a	ug/l	NA		NA		<10	U	NA		NA		<10	U	NA		NA		<10	U	NA		7.61	J

Table 1
Remedial Investigation Report - Fish and Wildlife Resource Impact Analysis
Groundwater Sample Analytical Results

C Block
Brooklyn, New York
Langan Project No.: 170229030

Analyte	CAS Number	Fish Propagation (saline waters)		Fish Survival (saline waters)		Location	MW03		MW04		MW04		MW04		MW05		MW05		MW05		MW06		MW06		MW06		MW07	
						Sample Name	GWDUP01_080222_FILTERED		MW04_011426		MW04_080422		MW04_080422_FILTERED		MW05_011226		MW05_080222		MW05_080222_FILTERED		MW06_011426		MW06_080322		MW06_080322_FILTERED		MW07_080422	
						Sample Date	08/02/2022		01/14/2026		08/04/2022		08/04/2022		01/12/2026		08/02/2022		08/02/2022		01/14/2026		08/03/2022		08/03/2022		08/04/2022	
						Unit	Result	Q	Result	Q	Result	Q	Result	Q	Result	Q	Result	Q	Result	Q	Result	Q	Result	Q	Result	Q	Result	Q
Metals - Total																												
Aluminum	7429-90-5	NS		NS		ug/l	NA		NA		732		NA		NA		807		NA		NA		32.3		NA		77.1	
Antimony	7440-36-0	NS		NS		ug/l	NA		NA		<4	U	NA		NA		1.55	J	NA		NA		<4	U	NA		<4	U
Arsenic	7440-38-2	36	a	120	a	ug/l	NA		NA		0.89		NA		NA		2.83		NA		NA		15.66		NA		4.29	
Barium	7440-39-3	NS		NS		ug/l	NA		NA		125.3		NA		NA		88.54		NA		NA		87.98		NA		103.3	
Beryllium	7440-41-7	NS		NS		ug/l	NA		NA		<0.5	U	NA		NA		<0.5	U	NA		NA		<0.5	U	NA		<0.5	U
Cadmium	7440-43-9	7.7	a	21	a	ug/l	NA		NA		<0.2	U	NA		NA		0.06	J	NA		NA		<0.2	U	NA		<0.2	U
Calcium	7440-70-2	NS		NS		ug/l	NA		NA		141,000		NA		NA		292,000		NA		NA		283,000		NA		102,000	
Chromium, Hexavalent	18540-29-9	50	a	1200	a	ug/l	NA		NA		<10	U	NA		NA		<10	U	NA		NA		<10	U	NA		<10	U
Chromium, Total	7440-47-3	NS		NS		ug/l	NA		NA		2.44		NA		NA		2.37		NA		NA		0.63	J	NA		0.46	J
Chromium, Trivalent	16065-83-1	NS		NS		ug/l	NA		NA		<10	U	NA		NA		<10	U	NA		NA		<10	U	NA		<10	U
Cobalt	7440-48-4	NS		NS		ug/l	NA		NA		0.87		NA		NA		7.14		NA		NA		0.17	J	NA		3.16	
Copper	7440-50-8	5.6	a	7.9	a	ug/l	NA		NA		4.57		NA		NA		**6.53**		NA		NA		<2	U	NA		0.67	J
Cyanide	57-12-5	1	a	1	a	ug/l	NA		NA		**71**		NA		NA		<5	U	NA		NA		**3**	J	NA		<5	U
Iron	7439-89-6	NS		NS		ug/l	NA		NA		18,200		NA		NA		16,700		NA		NA		48,200		NA		11,500	
Lead	7439-92-1	8	a	204	a	ug/l	NA		NA		**16.79**		NA		NA		**11.67**		NA		NA		1.08		NA		2.46	
Magnesium	7439-95-4	NS		NS		ug/l	NA		NA		80,300		NA		NA		30,900	J	NA		NA		31,400		NA		16,600	
Manganese	7439-96-5	NS		NS		ug/l	NA		NA		1,230		NA		NA		1,541		NA		NA		2,638		NA		4,344	
Mercury	7439-97-6	NS		NS		ug/l	NA		NA		<0.2	U	NA		NA		<0.2	U	NA		NA		<0.2	U	NA		<0.2	U
Nickel	7440-02-0	8.2	a	74	a	ug/l	NA		NA		1.4	J	NA		NA		3.64		NA		NA		<2	U	NA		1.97	J
Potassium	7440-09-7	NS		NS		ug/l	NA		NA		44,400		NA		NA		23,800		NA		NA		34,100		NA		10,000	
Selenium	7782-49-2	NS		NS		ug/l	NA		NA		<5	U	NA		NA		<5	U	NA		NA		<5	U	NA		<5	U
Silver	7440-22-4	NS		2.3	a	ug/l	NA		NA		<0.4	U	NA		NA		<0.4	U	NA		NA		<0.4	U	NA		<0.4	U
Sodium	7440-23-5	NS		NS		ug/l	NA		NA		438,000		NA		NA		47,900		NA		NA		42,900		NA		76,700	
Thallium	7440-28-0	NS		NS		ug/l	NA		NA		<1	U	NA		NA		<1	U	NA		NA		<1	U	NA		<1	U
Vanadium	7440-62-2	NS		NS		ug/l	NA		NA		3.46	J	NA		NA		2.05	J	NA		NA		<5	U	NA		<5	U
Zinc	7440-66-6	66	a	95	a	ug/l	NA		NA		28.83		NA		NA		12.16		NA		NA		3.48	J	NA		8.59	J
Per- and Polyfluoroalkyl Substances																												
11-Chloroeicosafluoro-3-Oxaundecane-1-Sulfonic Acid (11Cl-PF3OUdS)	763051-92-9	NS		NS		ug/l	NA		<0.00738	UJ	NA		NA		<0.00768	U	NA		NA		<0.0075	UJ	NA		NA		NA	
1H,1H,2H,2H-Perfluorodecane Sulfonic Acid (8:2 FTS)	39108-34-4	NS		NS		ug/l	NA		<0.0075	U	<0.00193	U	NA		<0.0078	U	<0.00172	UJ	NA		<0.00762	U	<0.00205	UJ	NA		<0.00185	U
1H,1H,2H,2H-Perfluorohexane Sulfonic Acid (4:2 FTS)	757124-72-4	NS		NS		ug/l	NA		<0.00732	U	NA		NA		<0.00762	U	NA		NA		<0.00744	U	NA		NA		NA	
1H,1H,2H,2H-Perfluorooctane Sulfonic Acid (6:2 FTS)	27619-97-2	NS		NS		ug/l	NA		<0.00742	U	0.00204	J	NA		<0.00772	U	<0.00172	UJ	NA		<0.00754	U	<0.00205	UJ	NA		0.00221	J
2H,2H,3H,3H-Perfluorooctanoic Acid (5:3 FTCA)	914637-49-3	NS		NS		ug/l	NA		<0.0488	U	NA		NA		<0.0508	U	NA		NA		<0.0496	U	NA		NA		NA	
3-Perfluoroheptyl Propanoic Acid (7:3 FTCA)	812-70-4	NS		NS		ug/l	NA		<0.0488	U	NA		NA		<0.0508	U	NA		NA		<0.0496	U	NA		NA		NA	
3-Perfluoropropyl Propanoic Acid (3:3 FTCA)	356-02-5	NS		NS		ug/l	NA		<0.00977	U	NA		NA		<0.0102	U	NA		NA		<0.00992	U	NA		NA		NA	
4,8-Dioxa-3H-perfluorononanoic Acid (ADONA)	919005-14-4	NS		NS		ug/l	NA		<0.00738	U	NA		NA		<0.00768	U	NA		NA		<0.0075	U	NA		NA		NA	
9-Chlorohexadecafluoro-3-Oxanonane-1-Sulfonic Acid (9Cl-PF3ONS)	756426-58-1	NS		NS		ug/l	NA		<0.0073	U	NA		NA		<0.0076	U	NA		NA		<0.0742	U	NA		NA		NA	
Hexafluoropropylene Oxide Dimer Acid (HFPO-DA)	13252-13-6	NS		NS		ug/l	NA		<0.00781	U	NA		NA		<0.00813	U	NA		NA		<0.00794	U	NA		NA		NA	
N-ethyl Perfluorooctanesulfonamide (NEtFOSA)	4151-50-2	NS		NS		ug/l	NA		<0.00195	U	NA		NA		<0.00203	U	NA		NA		<0.00198	U	NA		NA		NA	
N-ethyl Perfluorooctanesulfonamidoacetic Acid (NEtFOSAA)	2991-50-6	NS		NS		ug/l	NA		<0.00195	U	<0.00193	U	NA		<0.00203	U	<0.00172	U	NA		<0.00198	U	<0.00205	U	NA		<0.00189	U
N-ethyl Perfluorooctanesulfonamidoethanol (NEtFOSE)	1691-99-2	NS		NS		ug/l	NA		<0.0195	U	NA		NA		<0.0203	U	NA		NA		<0.0198	U	NA		NA		NA	
N-methyl Perfluorooctanesulfonamide (NMeFOSA)	31506-32-8	NS		NS		ug/l	NA		<0.00195	U	NA		NA		<0.00203	U	NA		NA		<0.00198	U	NA		NA		NA	
N-methyl Perfluorooctanesulfonamidoacetic Acid (NMeFOSAA)	2355-31-9	NS		NS		ug/l	NA		<0.00195	U	<0.00193	U	NA		<0.00203	U	<0.00172	U	NA		<0.00198	U	<0.00205	U	NA		<0.00185	U
N-methyl Perfluorooctanesulfonamidoethanol (NMeFOSE)	24448-09-7	NS		NS		ug/l	NA		<0.0195	U	NA		NA		<0.0203	U	NA		NA		<0.0198	U	NA		NA		NA	
Nonafluoro-3,6-dioxaheptanoic Acid (NFDHA)	151772-58-6	NS		NS		ug/l	NA		<0.00391	U	NA		NA		<0.00407	U	NA		NA		<0.00397	U	NA		NA		NA	
Perfluoro(2-ethoxyethane)sulfonic Acid (PFEESA)	113507-82-7	NS		NS		ug/l	NA		<0.00348	U	NA		NA		<0.00362	U	NA		NA		<0.00353	U	NA		NA		NA	
Perfluoro-3-methoxypropanoic Acid (PFMPA)	377-73-1	NS		NS		ug/l	NA		<0.00391	U	NA		NA		<0.00407	U	NA		NA		<0.00397	U	NA		NA		NA	
Perfluoro-4-methoxybutanoic Acid (PFMBA)	863090-89-5	NS		NS		ug/l	NA		<0.00391	U	NA		NA		<0.00407	U	NA		NA		<0.00397	U	NA		NA		NA	
Perfluorobutanesulfonic Acid (PFBS)	375-73-5	NS		NS		ug/l	NA		<0.00173	U	0.00112	J	NA		0.0022		0.00277		NA		0.00195		0.00324		NA		0.0023	
Perfluorobutanoic Acid (PFBA)	375-22-4	NS		NS		ug/l	NA		0.00642	J	0.00833		NA		0.0098		0.0113		NA		0.012		0.0135		NA		0.0108	
Perfluorodecanesulfonic Acid (PFDS)	335-77-3	NS		NS		ug/l	NA		<0.00188	U	<0.00193	U	NA		<0.00196	U	<0.00172	U	NA		<0.00191	U	<0.00205	U	NA		<0.00185	U
Perfluorodecanoic Acid (PFDA)	335-76-2	NS		NS		ug/l	NA		<0.00195	U	<0.00193	U	NA		<0.00203	U	<0.00172	U	NA		0.000798	J	0.000681	J	NA		<0.00185	U
Perfluorododecanesulfonic Acid (PFDoS)	79780-39-5	NS		NS		ug/l	NA		<0.00189	U	NA		NA		<0.00197	U	NA		NA		<0.00192	U	NA		NA		NA	
Perfluorododecanoic Acid (PFDoA)	307-55-1	NS		NS		ug/l	NA		<0.00195	U	<0.00193	U	NA		<0.00203	U	<0.00172	U	NA		<0.00198	U	<0.00205	U	NA		<0.00185	U
Perfluoroheptanesulfonic Acid (PFHpS)	375-92-8	NS		NS		ug/l	NA		<0.00187	U	<0.00193	U	NA		<0.00194	U	<0.00172	U	NA		<0.00189	U	<0.00205	U	NA		<0.00185	U
Perfluoroheptanoic Acid (PFHpA)	375-85-9	NS		NS		ug/l	NA		0.00373		0.00481		NA		0.00666		0.00646		NA		0.00535		0.0107		NA		0.00646	
Perfluorohexanesulfonic Acid (PFHxS)	355-46-4	NS		NS		ug/l	NA		<0.00179	U	0.000656	J	NA		0.000951	J	0.000675	J	NA		<0.00182	U	0.00118	J	NA		0.00161	J
Perfluorohexanoic Acid (PFHxA)	307-24-4	NS		NS		ug/l	NA		0.00502		0.00656		NA		0.00651		0.00768		NA		0.0163		0.0126		NA		0.00753	
Perfluorononanesulfonic Acid (PFNS)	68259-12-1	NS		NS		ug/l	NA		<0.00188	U	NA		NA		<0.00195	U	NA		NA		<0.0019	U	NA		NA		NA	
Perfluorononanoic Acid (PFNA)	375-95-1	NS		NS		ug/l	NA		<0.00195	U	<0.00193	U	NA		<0.00203	U	<0.00172	U	NA		<0.00198	U	0.00195	J	NA		0.003	
Perfluorooctanesulfonamide (PFOSA)	754-91-6	NS		NS		ug/l	NA		<0.00195	U	<0.00193	U	NA		<0.00203	U	<0.00172	U	NA		<0.00198	U	<0.00205	U	NA		<0.00185	U
Perfluorooctanesulfonic Acid (PFOS)	1763-23-1	160	a	190	a	ug/l	NA		<0.00182	U	<0.00193	U	NA		<0.00189	U	<0.00172	U	NA		0.00438		0.00453		NA		0.0217	
Perfluorooctanoic Acid (PFOA)	335-67-1	NS		NS		ug/l	NA		0.0075		0.0177		NA		0.0354		0.0488		NA		0.0277		0.0675		NA		0.0479	
Perfluoropentanesulfonic Acid (PFPeS)	2706-91-4	NS		NS		ug/l	NA		<0.00184	U	NA		NA		<0.00191	U	NA		NA		<0.00187	U	NA		NA		NA	
Perfluoropentanoic Acid (PFPeA)	2706-90-3	NS		NS		ug/l	NA		0.00625		0.00786		NA		0.00768		0.0113		NA		0.018		0.0137	J	NA		0.00812	
Perfluorotetradecanoic Acid (PFTeDA)	376-06-7	NS		NS		ug/l	NA		<0.00195	U	<0.00193	U	NA		<0.00203	U	<0.00172	U	NA		<0.00198	U	<0.00205	U	NA		<0.00185	U
Perfluorotridecanoic Acid (PFTrDA)	72629-94-8	NS		NS		ug/l	NA		<0.00195	U	<0.00193	U	NA		<0.00203	U	<0.00172	U	NA		<0.00198	U	<0.00205	U	NA		<0.00185	U
Perfluoroundecanoic Acid (PFUnA)	2058-94-8	NS		NS		ug/l	NA		<0.00195	U	<0.00193	U	NA		<0.00203	U	<0.00172	U	NA		<0.00198	U	<0.00205	U	NA		<0.00185	U
Total PFOA and PFOS	TOTPFOAPFOS	NS		NS		ug/l	NA		NA		0.0177		NA		NA		0.0488		NA		NA		0.072		NA		0.0696	

Table 1
Remedial Investigation Report - Fish and Wildlife Resource Impact Analysis
Groundwater Sample Analytical Results

C Block
Brooklyn, New York
Langan Project No.: 170229030

Analyte	CAS Number	Fish Propagation (saline waters)		Fish Survival (saline waters)		Location	MW07		MW08		MW08		MW08		MW09		MW09		MW09		MW10		MW10	
						Sample Name	MW07_080422_FILTERED		MW08_011426		MW08_080422		MW08_080422_FILTERED		MW09_011226		MW09_080122		MW09_080122_FILTERED		GWDUP01_011226		MW10_011226		MW10_080522	
						Sample Date	08/04/2022		01/14/2026		08/04/2022		08/04/2022		01/12/2026		08/01/2022		08/01/2022		01/12/2026		01/12/2026		08/05/2022	
						Unit	Result	Q	Result	Q	Result	Q	Result	Q	Result	Q	Result	Q	Result	Q	Result	Q	Result	Q	Result	Q
Volatile Organic Compounds																										
1,1,1,2-Tetrachloroethane	630-20-6	NS		NS		ug/l	NA		NA		<2.5	U	NA		NA		<2.5	U	NA		NA		NA		<2.5	U
1,1,1-Trichloroethane	71-55-6	NS		NS		ug/l	NA		NA		<2.5	U	NA		NA		<2.5	U	NA		NA		NA		<2.5	U
1,1,2,2-Tetrachloroethane	79-34-5	NS		NS		ug/l	NA		NA		<0.5	U	NA		NA		<0.5	U	NA		NA		NA		<0.5	U
1,1,2-Trichloroethane	79-00-5	NS		NS		ug/l	NA		NA		<1.5	U	NA		NA		<1.5	U	NA		NA		NA		<1.5	U
1,1-Dichloroethane	75-34-3	NS		NS		ug/l	NA		NA		<2.5	U	NA		NA		<2.5	U	NA		NA		NA		<2.5	U
1,1-Dichloroethene	75-35-4	NS		NS		ug/l	NA		NA		<0.5	U	NA		NA		<0.5	U	NA		NA		NA		<0.5	U
1,1-Dichloropropene	563-58-6	NS		NS		ug/l	NA		NA		<2.5	U	NA		NA		<2.5	U	NA		NA		NA		<2.5	U
1,2,3-Trichlorobenzene	87-61-6	5	a	NS		ug/l	NA		NA		<2.5	U	NA		NA		<2.5	U	NA		NA		NA		<2.5	U
1,2,3-Trichloropropane	96-18-4	NS		NS		ug/l	NA		NA		<2.5	U	NA		NA		<2.5	U	NA		NA		NA		<2.5	U
1,2,4,5-Tetramethylbenzene	95-93-2	NS		NS		ug/l	NA		NA		<2	U	NA		NA		<2	U	NA		NA		NA		<2	U
1,2,4-Trichlorobenzene	120-82-1	5	a	NS		ug/l	NA		NA		<2.5	U	NA		NA		<2.5	U	NA		NA		NA		<2.5	U
1,2,4-Trimethylbenzene	95-63-6	19	a	170	a	ug/l	NA		NA		<2.5	U	NA		NA		<2.5	U	NA		NA		NA		<2.5	U
1,2-Dibromo-3-Chloropropane	96-12-8	NS		NS		ug/l	NA		NA		<2.5	U	NA		NA		<2.5	U	NA		NA		NA		<2.5	U
1,2-Dibromoethane (Ethylene Dibromide)	106-93-4	NS		NS		ug/l	NA		NA		<2	U	NA		NA		<2	U	NA		NA		NA		<2	U
1,2-Dichlorobenzene	95-50-1	5	a	NS		ug/l	NA		NA		<2.5	U	NA		NA		<2.5	U	NA		NA		NA		<2.5	U
1,2-Dichloroethane	107-06-2	NS		NS		ug/l	NA		NA		<0.5	U	NA		NA		<0.5	U	NA		NA		NA		<0.5	U
1,2-Dichloropropane	78-87-5	NS		NS		ug/l	NA		NA		<1	U	NA		NA		<1	U	NA		NA		NA		<1	U
1,3,5-Trimethylbenzene (Mesitylene)	108-67-8	56	b	366	b	ug/l	NA		NA		<2.5	U	NA		NA		<2.5	U	NA		NA		NA		<2.5	U
1,3-Dichlorobenzene	541-73-1	5	a	NS		ug/l	NA		NA		<2.5	U	NA		NA		<2.5	U	NA		NA		NA		<2.5	U
1,3-Dichloropropane	142-28-9	NS		NS		ug/l	NA		NA		<2.5	U	NA		NA		<2.5	U	NA		NA		NA		<2.5	U
1,4-Dichlorobenzene	106-46-7	5	a	NS		ug/l	NA		NA		<2.5	U	NA		NA		<2.5	U	NA		NA		NA		<2.5	U
1,4-Diethyl Benzene	105-05-5	NS		NS		ug/l	NA		NA		<2	U	NA		NA		<2	UJ	NA		NA		NA		<2	U
1,4-Dioxane (P-Dioxane)	123-91-1	NS		NS		ug/l	NA		NA		NA		NA		NA		NA		NA		NA		NA		NA	
2,2-Dichloropropane	594-20-7	NS		NS		ug/l	NA		NA		<2.5	U	NA		NA		<2.5	U	NA		NA		NA		<2.5	U
2-Chlorotoluene	95-49-8	NS		NS		ug/l	NA		NA		<2.5	U	NA		NA		<2.5	U	NA		NA		NA		<2.5	U
2-Hexanone (MBK)	591-78-6	NS		NS		ug/l	NA		NA		<5	U	NA		NA		<5	U	NA		NA		NA		<5	U
4-Chlorotoluene	106-43-4	NS		NS		ug/l	NA		NA		<2.5	U	NA		NA		<2.5	U	NA		NA		NA		<2.5	U
4-Ethyltoluene	622-96-8	NS		NS		ug/l	NA		NA		<2	U	NA		NA		<2	U	NA		NA		NA		<2	U
Acetone	67-64-1	117629	b	355606	b	ug/l	NA		NA		<5	U	NA		NA		<5	U	NA		NA		NA		<5	UJ
Acrylonitrile	107-13-1	NS		NS		ug/l	NA		NA		<5	U	NA		NA		<5	U	NA		NA		NA		<5	U
Benzene	71-43-2	190	a	670	a	ug/l	NA		NA		<0.5	U	NA		NA		<0.5	U	NA		NA		NA		<0.5	U
Bromobenzene	108-86-1	NS		NS		ug/l	NA		NA		<2.5	U	NA		NA		<2.5	U	NA		NA		NA		<2.5	U
Bromochloromethane	74-97-5	NS		NS		ug/l	NA		NA		<2.5	U	NA		NA		<2.5	U	NA		NA		NA		<2.5	U
Bromodichloromethane	75-27-4	NS		NS		ug/l	NA		NA		<0.5	U	NA		NA		<0.5	U	NA		NA		NA		<0.5	U
Bromoform	75-25-2	NS		NS		ug/l	NA		NA		<2	U	NA		NA		<2	U	NA		NA		NA		<2	U
Bromomethane	74-83-9	NS		NS		ug/l	NA		NA		<2.5	U	NA		NA		<2.5	U	NA		NA		NA		<2.5	U
Carbon Disulfide	75-15-0	NS		NS		ug/l	NA		NA		<5	U	NA		NA		<5	U	NA		NA		NA		<5	U
Carbon Tetrachloride	56-23-5	NS		NS		ug/l	NA		NA		<0.5	U	NA		NA		<0.5	U	NA		NA		NA		<0.5	U
Chlorobenzene	108-90-7	5	a	NS		ug/l	NA		NA		<2.5	U	NA		NA		<2.5	U	NA		NA		NA		<2.5	U
Chloroethane	75-00-3	NS		NS		ug/l	NA		NA		<2.5	U	NA		NA		<2.5	U	NA		NA		NA		<2.5	U
Chloroform	67-66-3	NS		NS		ug/l	NA		NA		<2.5	U	NA		NA		<2.5	U	NA		NA		NA		<2.5	U
Chloromethane	74-87-3	NS		NS		ug/l	NA		NA		<2.5	U	NA		NA		<2.5	U	NA		NA		NA		<2.5	U
Cis-1,2-Dichloroethene	156-59-2	5	a	NS		ug/l	NA		NA		<2.5	U	NA		NA		<2.5	U	NA		NA		NA		<2.5	U
Cis-1,3-Dichloropropene	10061-01-5	NS		NS		ug/l	NA		NA		<0.5	U	NA		NA		<0.5	U	NA		NA		NA		<0.5	U
Cymene	99-87-6	21	b	187	b	ug/l	NA		NA		<2.5	U	NA		NA		<2.5	U	NA		NA		NA		<2.5	U
Dibromochloromethane	124-48-1	NS		NS		ug/l	NA		NA		<0.5	U	NA		NA		<0.5	U	NA		NA		NA		<0.5	U
Dibromomethane	74-95-3	NS		NS		ug/l	NA		NA		<5	U	NA		NA		<5	U	NA		NA		NA		<5	U
Dichlorodifluoromethane	75-71-8	NS		NS		ug/l	NA		NA		<5	U	NA		NA		<5	U	NA		NA		NA		<5	U
Diethyl Ether (Ethyl Ether)	60-29-7	NS		NS		ug/l	NA		NA		<2.5	U	NA		NA		<2.5	U	NA		NA		NA		<2.5	U
Ethylbenzene	100-41-4	4.5	a	41	a	ug/l	NA		NA		<2.5	U	NA		NA		<2.5	U	NA		NA		NA		<2.5	U
Isopropylbenzene (Cumene)	98-82-8	NS		NS		ug/l	NA		NA		<2.5	U	NA		NA		<2.5	U	NA		NA		NA		<2.5	U
M,P-Xylene	179601-23-1	NS		NS		ug/l	NA		NA		<2.5	U	NA		NA		<2.5	U	NA		NA		NA		<2.5	U
Methyl Ethyl Ketone (2-Butanone)	78-93-3	NS		NS		ug/l	NA		NA		<5	U	NA		NA		<5	U	NA		NA		NA		<5	U
Methyl Isobutyl Ketone (4-Methyl-2-Pentanone)	108-10-1	NS		NS		ug/l	NA		NA		<5	U	NA		NA		<5	U	NA		NA		NA		<5	U
Methylene Chloride	75-09-2	NS		NS		ug/l	NA		NA		<2.5	U	NA		NA		<2.5	U	NA		NA		NA		<2.5	U
n-Butylbenzene	104-51-8	NS		NS		ug/l	NA		NA		<2.5	U	NA		NA		<2.5	U	NA		NA		NA		<2.5	U
n-Propylbenzene	103-65-1	NS		NS		ug/l	NA		NA		<2.5	U	NA		NA		<2.5	U	NA		NA		NA		<2.5	U
o-Xylene (1,2-Dimethylbenzene)	95-47-6	19	a	170	a	ug/l	NA		NA		<2.5	U	NA		NA		<2.5	U	NA		NA		NA		<2.5	U
Sec-Butylbenzene	135-98-8	NS		NS		ug/l	NA		NA		<2.5	U	NA		NA		<2.5	U	NA		NA		NA		<2.5	U
Styrene	100-42-5	NS		NS		ug/l	NA		NA		<2.5	U	NA		NA		<2.5	U	NA		NA		NA		<2.5	U
T-Butylbenzene	98-06-6	NS		NS		ug/l	NA		NA		<2.5	U	NA		NA		<2.5	U	NA		NA		NA		<2.5	U
Tert-Butyl Methyl Ether (MTBE)	1634-04-4	5000	b	38037	b	ug/l	NA		NA		<2.5	U	NA		NA		<2.5	U	NA		NA		NA		<2.5	U
Tetrachloroethene (PCE)	127-18-4	NS		NS		ug/l	NA		NA		<0.5	U	NA		NA		<0.5	U	NA		NA		NA		<0.5	U
Toluene	108-88-3	92	a	430	a	ug/l	NA		NA		<2.5	U	NA		NA		<2.5	U	NA		NA		NA		<2.5	U
Total 1,2-Dichloroethene (Cis and Trans)	540-59-0	NS		NS		ug/l	NA		NA		<2.5	U	NA		NA		<2.5	U	NA		NA		NA		<2.5	U
Volatile Organic Compounds																										
Total Xylenes	1330-20-7	19	a	NS		ug/l	NA		NA		<2.5	U	NA		NA		<2.5	U	NA		NA		NA		<2.5	U
Total, 1,3-Dichloropropene (Cis And Trans)	542-75-6	NS		NS		ug/l	NA		NA		<0.5	U	NA		NA		<0.5	U	NA		NA		NA		<0.5	U
Trans-1,2-Dichloroethene	156-60-5	NS		NS		ug/l	NA		NA		<2.5	U	NA		NA		<2.5	U	NA		NA		NA		<2.5	U
Trans-1,3-Dichloropropene	10061-02-6	NS		NS		ug/l	NA		NA		<0.5	U	NA		NA		<0.5	U	NA		NA		NA		<0.5	U
Trans-1,4-Dichloro-2-Butene	110-57-6	NS		NS		ug/l	NA		NA		<2.5	U	NA		NA		<2.5	U	NA		NA		NA		<2.5	U
Trichloroethene (TCE)	79-01-6	NS		NS		ug/l	NA		NA		<0.5	U	NA		NA		<0.5	U	NA		NA		NA		<0.5	U
Trichlorofluoromethane	75-69-4	NS		NS		ug/l	NA		NA		<2.5	U	NA		NA		<2.5	U	NA		NA		NA		<2.5	U
Vinyl Acetate	108-05-4	NS		NS		ug/l	NA		NA		<5	U	NA		NA		<5	U	NA		NA		NA		<5	U
Vinyl Chloride	75-01-4	NS		NS		ug/l	NA		NA		<1	U	NA		NA		<1	U	NA		NA		NA		<1	U

Table 1
Remedial Investigation Report - Fish and Wildlife Resource Impact Analysis
Groundwater Sample Analytical Results

C Block
Brooklyn, New York
Langan Project No.: 170229030

Analyte	CAS Number	Fish Propagation (saline waters)		Fish Survival (saline waters)		Location	MW07		MW08		MW08		MW08		MW09		MW09		MW09		MW10		MW10	
						Sample Name	MW07_080422_FILTERED		MW08_011426		MW08_080422		MW08_080422_FILTERED		MW09_011226		MW09_080122		MW09_080122_FILTERED		GWDUP01_011226		MW10_011226		MW10_080522	
						Sample Date	08/04/2022		01/14/2026		08/04/2022		08/04/2022		01/12/2026		08/01/2022		08/01/2022		01/12/2026		01/12/2026		08/05/2022	
						Unit	Result	Q	Result	Q	Result	Q	Result	Q	Result	Q	Result	Q	Result	Q	Result	Q	Result	Q	Result	Q
Semi-Volatile Organic Compounds - Dissolved																									
1,2,4,5-Tetrachlorobenzene	95-94-3	NS		NS		ug/l	<10	U	NA		NA		<10	U	NA		NA		<10	U	NA		NA		NA	
1,2,4-Trichlorobenzene	120-82-1	5	a	NS		ug/l	<5	U	NA		NA		<5	U	NA		NA		<5	U	NA		NA		NA	
1,2-Dichlorobenzene	95-50-1	5	a	NS		ug/l	<2	U	NA		NA		<2	U	NA		NA		<2	U	NA		NA		NA	
1,3-Dichlorobenzene	541-73-1	5	a	NS		ug/l	<2	U	NA		NA		<2	U	NA		NA		<2	U	NA		NA		NA	
1,4-Dichlorobenzene	106-46-7	5	a	NS		ug/l	<2	U	NA		NA		<2	U	NA		NA		<2	U	NA		NA		NA	
2,4,5-Trichlorophenol	95-95-4	NS		NS		ug/l	<5	U	NA		NA		<5	U	NA		NA		<5	U	NA		NA		NA	
2,4,6-Trichlorophenol	88-06-2	NS		NS		ug/l	<5	U	NA		NA		<5	U	NA		NA		<5	U	NA		NA		NA	
2,4-Dichlorophenol	120-83-2	NS		NS		ug/l	<5	U	NA		NA		<5	U	NA		NA		<5	U	NA		NA		NA	
2,4-Dimethylphenol	105-67-9	NS		NS		ug/l	<5	U	NA		NA		<5	U	NA		NA		<5	U	NA		NA		NA	
2,4-Dinitrophenol	51-28-5	NS		NS		ug/l	<20	UJ	NA		NA		<20	UJ	NA		NA		<20	U	NA		NA		NA	
2,4-Dinitrotoluene	121-14-2	NS		NS		ug/l	<5	U	NA		NA		<5	U	NA		NA		<5	U	NA		NA		NA	
2,6-Dinitrotoluene	606-20-2	NS		NS		ug/l	<5	U	NA		NA		<5	U	NA		NA		<5	U	NA		NA		NA	
2-Chloronaphthalene	91-58-7	NS		NS		ug/l	<0.2	U	NA		NA		<0.2	U	NA		NA		<0.2	U	NA		NA		NA	
2-Chlorophenol	95-57-8	NS		NS		ug/l	<2	U	NA		NA		<2	U	NA		NA		<2	U	NA		NA		NA	
2-Methylnaphthalene	91-57-6	4.2	a	38	a	ug/l	<0.1	U	NA		NA		<0.1	U	NA		NA		0.03	J	NA		NA		NA	
2-Methylphenol (o-Cresol)	95-48-7	NS		NS		ug/l	<5	U	NA		NA		<5	U	NA		NA		<5	U	NA		NA		NA	
2-Nitroaniline	88-74-4	NS		NS		ug/l	<5	U	NA		NA		<5	U	NA		NA		<5	U	NA		NA		NA	
2-Nitrophenol	88-75-5	NS		NS		ug/l	<10	U	NA		NA		<10	U	NA		NA		<10	U	NA		NA		NA	
3 & 4 Methylphenol (m&p Cresol)	65794-96-9	NS		NS		ug/l	<5	U	NA		NA		<5	U	NA		NA		<5	U	NA		NA		NA	
3,3'-Dichlorobenzidine	91-94-1	NS		NS		ug/l	<5	U	NA		NA		<5	U	NA		NA		<5	U	NA		NA		NA	
3-Nitroaniline	99-09-2	NS		NS		ug/l	<5	U	NA		NA		<5	U	NA		NA		<5	U	NA		NA		NA	
4,6-Dinitro-2-Methylphenol	534-52-1	NS		NS		ug/l	<10	UJ	NA		NA		<10	UJ	NA		NA		<10	U	NA		NA		NA	
4-Bromophenyl Phenyl Ether	101-55-3	NS		NS		ug/l	<2	U	NA		NA		<2	U	NA		NA		<2	U	NA		NA		NA	
4-Chloro-3-Methylphenol	59-50-7	NS		NS		ug/l	<2	U	NA		NA		<2	U	NA		NA		<2	U	NA		NA		NA	
4-Chloroaniline	106-47-8	NS		NS		ug/l	<5	U	NA		NA		<5	U	NA		NA		<5	U	NA		NA		NA	
4-Chlorophenyl Phenyl Ether	7005-72-3	NS		NS		ug/l	<2	U	NA		NA		<2	U	NA		NA		<2	U	NA		NA		NA	
4-Nitroaniline	100-01-6	NS		NS		ug/l	<5	U	NA		NA		<5	U	NA		NA		<5	U	NA		NA		NA	
4-Nitrophenol	100-02-7	NS		NS		ug/l	<10	U	NA		NA		<10	U	NA		NA		<10	U	NA		NA		NA	
Acenaphthene	83-32-9	6.6	a	60	a	ug/l	<0.1	U	NA		NA		<0.1	U	NA		NA		<0.1	U	NA		NA		NA	
Acenaphthylene	208-96-8	28	b	291	b	ug/l	<0.1	U	NA		NA		<0.1	U	NA		NA		<0.1	U	NA		NA		NA	
Acetophenone	98-86-2	NS		NS		ug/l	<5	U	NA		NA		<5	U	NA		NA		<5	U	NA		NA		NA	
Anthracene	120-12-7	0.43	b	1.8	b	ug/l	<0.1	U	NA		NA		<0.1	U	NA		NA		0.02	J	NA		NA		NA	
Benzo(a)anthracene	56-55-3	0.35	b	4.6	b	ug/l	<0.1	U	NA		NA		<0.1	U	NA		NA		<0.1	U	NA		NA		NA	
Benzo(a)pyrene	50-32-8	0.02	b	0.64	b	ug/l	<0.1	U	NA		NA		<0.1	U	NA		NA		<0.1	U	NA		NA		NA	
Benzo(b)fluoranthene	205-99-2	0.06	b	1.4	b	ug/l	<0.1	U	NA		NA		<0.1	U	NA		NA		<0.1	U	NA		NA		NA	
Benzo(g,h,i)Perylene	191-24-2	0.012	b	0.19	b	ug/l	<0.1	U	NA		NA		**0.02**	J	NA		NA		<0.1	U	NA		NA		NA	
Benzo(k)fluoranthene	207-08-9	0.06	b	1.3	b	ug/l	<0.1	U	NA		NA		0.01	J	NA		NA		<0.1	U	NA		NA		NA	
Benzoic Acid	65-85-0	NS		NS		ug/l	19	J	NA		NA		<50	UJ	NA		NA		10	J	NA		NA		NA	
Benzyl Alcohol	100-51-6	NS		NS		ug/l	<2	U	NA		NA		<2	U	NA		NA		<2	U	NA		NA		NA	
Benzyl Butyl Phthalate	85-68-7	NS		NS		ug/l	<5	U	NA		NA		<5	U	NA		NA		<5	U	NA		NA		NA	
Biphenyl (Diphenyl)	92-52-4	NS		NS		ug/l	<2	U	NA		NA		<2	U	NA		NA		<2	U	NA		NA		NA	
Bis(2-chloroethoxy) methane	111-91-1	NS		NS		ug/l	<5	U	NA		NA		<5	U	NA		NA		<5	U	NA		NA		NA	
Bis(2-chloroethyl) ether (2-chloroethyl ether)	111-44-4	NS		NS		ug/l	<2	U	NA		NA		<2	U	NA		NA		<2	U	NA		NA		NA	
Bis(2-chloroisopropyl) ether	108-60-1	NS		NS		ug/l	<2	U	NA		NA		<2	U	NA		NA		<2	U	NA		NA		NA	
Bis(2-ethylhexyl) phthalate	117-81-7	NS		NS		ug/l	<3	U	NA		NA		<3	U	NA		NA		<3	U	NA		NA		NA	
Carbazole	86-74-8	NS		NS		ug/l	<2	U	NA		NA		<2	U	NA		NA		<2	U	NA		NA		NA	
Chrysene	218-01-9	0.35	b	4.2	b	ug/l	<0.1	U	NA		NA		<0.1	U	NA		NA		<0.1	U	NA		NA		NA	
Dibenz(a,h)anthracene	53-70-3	NS		NS		ug/l	<0.1	U	NA		NA		<0.1	U	NA		NA		<0.1	U	NA		NA		NA	
Dibenzofuran	132-64-9	61	b	242	b	ug/l	<2	U	NA		NA		<2	U	NA		NA		<2	U	NA		NA		NA	
Dibutyl phthalate	84-74-2	NS		NS		ug/l	<5	U	NA		NA		<5	U	NA		NA		<5	U	NA		NA		NA	
Diethyl phthalate	84-66-2	NS		NS		ug/l	<5	U	NA		NA		<5	U	NA		NA		<5	U	NA		NA		NA	
Dimethyl phthalate	131-11-3	NS		NS		ug/l	<5	U	NA		NA		<5	U	NA		NA		<5	U	NA		NA		NA	
Dioctyl phthalate	117-84-0	NS		NS		ug/l	<5	U	NA		NA		<5	U	NA		NA		<5	U	NA		NA		NA	
Fluoranthene	206-44-0	0.82	b	3.4	b	ug/l	<0.1	U	NA		NA		<0.1	U	NA		NA		0.02	J	NA		NA		NA	
Fluorene	86-73-7	2.5	a	23	a	ug/l	<0.1	U	NA		NA		0.01	J	NA		NA		<0.1	U	NA		NA		NA	
Hexachlorobenzene	118-74-1	NS		NS		ug/l	<0.8	U	NA		NA		<0.8	U	NA		NA		<0.8	U	NA		NA		NA	
Hexachlorobutadiene	87-68-3	0.3	a	3	a	ug/l	<0.5	U	NA		NA		<0.5	U	NA		NA		<0.5	U	NA		NA		NA	
Semi-Volatile Organic Compounds - Dissolved																										
Hexachlorocyclopentadiene	77-47-4	0.07	a	0.7	a	ug/l	<20	U	NA		NA		<20	U	NA		NA		<20	U	NA		NA		NA	
Hexachloroethane	67-72-1	NS		NS		ug/l	<0.8	U	NA		NA		<0.8	U	NA		NA		<0.8	U	NA		NA		NA	
Indeno(1,2,3-cd)pyrene	193-39-5	0.012	b	0.27	b	ug/l	<0.1	U	NA		NA		<0.1	U	NA		NA		<0.1	U	NA		NA		NA	
Isophorone	78-59-1	NS		NS		ug/l	<5	U	NA		NA		<5	U	NA		NA		<5	U	NA		NA		NA	
Naphthalene	91-20-3	16	a	140	a	ug/l	<0.1	U	NA		NA		<0.1	U	NA		NA		<0.1	U	NA		NA		NA	
Nitrobenzene	98-95-3	NS		NS		ug/l	<2	U	NA		NA		<2	U	NA		NA		<2	U	NA		NA		NA	
n-Nitrosodi-N-Propylamine	621-64-7	NS		NS		ug/l	<5	U	NA		NA		<5	U	NA		NA		<5	U	NA		NA		NA	
n-Nitrosodiphenylamine	86-30-6	NS		NS		ug/l	<2	U	NA		NA		<2	U	NA		NA		<2	U	NA		NA		NA	
Pentachlorophenol	87-86-5	NS		NS		ug/l	<0.8	U	NA		NA		<0.8	U	NA		NA		<0.8	UJ	NA		NA		NA	
Phenanthrene	85-01-8	1.5	a	14	a	ug/l	<0.1	U	NA		NA		<0.1	U	NA		NA		0.04	J	NA		NA		NA	
Phenol	108-95-2	NS		NS		ug/l	34		NA		NA		9.1		NA		NA		11		NA		NA		NA	
Pyrene	129-00-0	0.11	b	0.45	b	ug/l	<0.1	U	NA		NA		<0.1	U	NA		NA		<0.1	U	NA		NA		NA	

Table 1
Remedial Investigation Report - Fish and Wildlife Resource Impact Analysis
Groundwater Sample Analytical Results

C Block
Brooklyn, New York
Langan Project No.: 170229030

Analyte	CAS Number	Fish Propagation (saline waters)		Fish Survival (saline waters)		Location	MW07		MW08		MW08		MW08		MW09		MW09		MW09		MW09		MW10		MW10	
						Sample Name	MW07_080422_FILTERED		MW08_011426		MW08_080422		MW08_080422_FILTERED		MW09_011226		MW09_080122		MW09_080122_FILTERED		GWDUP01_011226		MW10_011226		MW10_080522	
						Sample Date	08/04/2022		01/14/2026		08/04/2022		08/04/2022		01/12/2026		08/01/2022		08/01/2022		01/12/2026		01/12/2026		08/05/2022	
						Unit	Result	Q	Result	Q	Result	Q	Result	Q	Result	Q	Result	Q	Result	Q	Result	Q	Result	Q	Result	Q
Semi-Volatile Organic Compounds - Total																										
1,2,4,5-Tetrachlorobenzene	95-94-3	NS		NS		ug/l	NA		NA		<10	U	NA		NA		<10	U	NA		NA		NA		<10	U
1,2,4-Trichlorobenzene	120-82-1	5	a	NS		ug/l	NA		NA		<5	U	NA		NA		NA		NA		NA		NA		<5	U
1,2-Dichlorobenzene	95-50-1	5	a	NS		ug/l	NA		NA		<2	U	NA		NA		<2	U	NA		NA		NA		<2	U
1,3-Dichlorobenzene	541-73-1	5	a	NS		ug/l	NA		NA		<2	U	NA		NA		<2	U	NA		NA		NA		<2	U
1,4-Dichlorobenzene	106-46-7	5	a	NS		ug/l	NA		NA		<2	U	NA		NA		<2	U	NA		NA		NA		<2	U
1,4-Dioxane (P-Dioxane)	123-91-1	NS		NS		ug/l	NA		NA		0.0541	J	NA		NA		0.0733	J	NA		NA		NA		<0.144	U
2,4,5-Trichlorophenol	95-95-4	NS		NS		ug/l	NA		NA		<5	U	NA		NA		<5	U	NA		NA		NA		<5	U
2,4,6-Trichlorophenol	88-06-2	NS		NS		ug/l	NA		NA		<5	U	NA		NA		<5	U	NA		NA		NA		<5	U
2,4-Dichlorophenol	120-83-2	NS		NS		ug/l	NA		NA		<5	U	NA		NA		<5	U	NA		NA		NA		<5	U
2,4-Dimethylphenol	105-67-9	NS		NS		ug/l	NA		NA		<5	U	NA		NA		<5	U	NA		NA		NA		<5	UJ
2,4-Dinitrophenol	51-28-5	NS		NS		ug/l	NA		NA		<20	UJ	NA		NA		<20	U	NA		NA		NA		<20	U
2,4-Dinitrotoluene	121-14-2	NS		NS		ug/l	NA		NA		<5	U	NA		NA		<5	U	NA		NA		NA		<5	U
2,6-Dinitrotoluene	606-20-2	NS		NS		ug/l	NA		NA		<5	U	NA		NA		<5	U	NA		NA		NA		<5	U
2-Chloronaphthalene	91-58-7	NS		NS		ug/l	NA		NA		<0.2	U	NA		NA		0.02	J	NA		NA		NA		<0.2	U
2-Chlorophenol	95-57-8	NS		NS		ug/l	NA		NA		<2	U	NA		NA		<2	U	NA		NA		NA		<2	U
2-Methylnaphthalene	91-57-6	4.2	a	38	a	ug/l	NA		NA		<0.1	U	NA		NA		0.04	J	NA		NA		NA		<0.1	U
2-Methylphenol (o-Cresol)	95-48-7	NS		NS		ug/l	NA		NA		<5	U	NA		NA		<5	U	NA		NA		NA		<5	U
2-Nitroaniline	88-74-4	NS		NS		ug/l	NA		NA		<5	U	NA		NA		<5	U	NA		NA		NA		<5	U
2-Nitrophenol	88-75-5	NS		NS		ug/l	NA		NA		<10	U	NA		NA		<10	U	NA		NA		NA		<10	U
3 & 4 Methylphenol (m&p Cresol)	65794-96-9	NS		NS		ug/l	NA		NA		<5	U	NA		NA		<5	U	NA		NA		NA		<5	U
3,3'-Dichlorobenzidine	91-94-1	NS		NS		ug/l	NA		NA		<5	U	NA		NA		<5	U	NA		NA		NA		<5	U
3-Nitroaniline	99-09-2	NS		NS		ug/l	NA		NA		<5	U	NA		NA		<5	U	NA		NA		NA		<5	U
4,6-Dinitro-2-Methylphenol	534-52-1	NS		NS		ug/l	NA		NA		<10	UJ	NA		NA		<10	U	NA		NA		NA		<10	U
4-Bromophenyl Phenyl Ether	101-55-3	NS		NS		ug/l	NA		NA		<2	U	NA		NA		<2	U	NA		NA		NA		<2	U
4-Chloro-3-Methylphenol	59-50-7	NS		NS		ug/l	NA		NA		<2	U	NA		NA		<2	U	NA		NA		NA		<2	U
4-Chloroaniline	106-47-8	NS		NS		ug/l	NA		NA		<5	U	NA		NA		<5	U	NA		NA		NA		<5	UJ
4-Chlorophenyl Phenyl Ether	7005-72-3	NS		NS		ug/l	NA		NA		<2	U	NA		NA		<2	U	NA		NA		NA		<2	U
4-Nitroaniline	100-01-6	NS		NS		ug/l	NA		NA		<5	U	NA		NA		<5	U	NA		NA		NA		<5	U
4-Nitrophenol	100-02-7	NS		NS		ug/l	NA		NA		<10	U	NA		NA		<10	U	NA		NA		NA		<10	U
Acenaphthene	83-32-9	6.6	a	60	a	ug/l	NA		NA		**0.01**	J	NA		NA		0.03	J	NA		NA		NA		0.02	J
Acenaphthylene	208-96-8	28	b	291	b	ug/l	NA		NA		<0.1	U	NA		NA		0.02	J	NA		NA		NA		<0.1	U
Acetophenone	98-86-2	NS		NS		ug/l	NA		NA		<5	U	NA		NA		<5	U	NA		NA		NA		<5	U
Anthracene	120-12-7	0.43	b	1.8	b	ug/l	NA		NA		<0.1	U	NA		NA		0.04	J	NA		NA		NA		0.03	J
Benzo(a)anthracene	56-55-3	0.35	b	4.6	b	ug/l	NA		NA		<0.1	U	NA		NA		0.12		NA		NA		NA		<0.1	U
Benzo(a)pyrene	50-32-8	0.02	b	0.64	b	ug/l	NA		NA		<0.1	U	NA		NA		**0.1**	J	NA		NA		NA		**0.09**	J
Benzo(b)fluoranthene	205-99-2	0.06	b	1.4	b	ug/l	NA		NA		<0.1	U	NA		NA		**0.14**		NA		NA		NA		<0.11	U
Benzo(g,h,i)Perylene	191-24-2	0.012	b	0.19	b	ug/l	NA		NA		<0.1	U	NA		NA		**0.07**	J	NA		NA		NA		**0.07**	J
Benzo(k)fluoranthene	207-08-9	0.06	b	1.3	b	ug/l	NA		NA		<0.1	U	NA		NA		0.05	J	NA		NA		NA		0.04	J
Benzoic Acid	65-85-0	NS		NS		ug/l	NA		NA		<50	UJ	NA		NA		<50	UJ	NA		NA		NA		<50	UJ
Benzyl Alcohol	100-51-6	NS		NS		ug/l	NA		NA		<2	U	NA		NA		<2	U	NA		NA		NA		<2	U
Benzyl Butyl Phthalate	85-68-7	NS		NS		ug/l	NA		NA		<5	U	NA		NA		<5	U	NA		NA		NA		<5	U
Biphenyl (Diphenyl)	92-52-4	NS		NS		ug/l	NA		NA		<2	U	NA		NA		<2	U	NA		NA		NA		<2	U
Bis(2-chloroethoxy) methane	111-91-1	NS		NS		ug/l	NA		NA		<5	U	NA		NA		<5	U	NA		NA		NA		<5	U
Bis(2-chloroethyl) ether (2-chloroethyl ether)	111-44-4	NS		NS		ug/l	NA		NA		<2	U	NA		NA		<2	U	NA		NA		NA		<2	U
Bis(2-chloroisopropyl) ether	108-60-1	NS		NS		ug/l	NA		NA		<2	U	NA		NA		<2	U	NA		NA		NA		<2	U
Bis(2-ethylhexyl) phthalate	117-81-7	NS		NS		ug/l	NA		NA		<3	U	NA		NA		<3	U	NA		NA		NA		<3	U
Carbazole	86-74-8	NS		NS		ug/l	NA		NA		<2	U	NA		NA		<2	U	NA		NA		NA		<2	U
Chrysene	218-01-9	0.35	b	4.2	b	ug/l	NA		NA		<0.1	U	NA		NA		0.12		NA		NA		NA		0.09	J
Dibenz(a,h)anthracene	53-70-3	NS		NS		ug/l	NA		NA		<0.1	U	NA		NA		0.02	J	NA		NA		NA		0.01	J
Dibenzofuran	132-64-9	61	b	242	b	ug/l	NA		NA		<2	U	NA		NA		<2	U	NA		NA		NA		<2	U
Dibutyl phthalate	84-74-2	NS		NS		ug/l	NA		NA		<5	U	NA		NA		<5	U	NA		NA		NA		<5	U
Diethyl phthalate	84-66-2	NS		NS		ug/l	NA		NA		<5	U	NA		NA		<5	U	NA		NA		NA		<5	U
Dimethyl phthalate	131-11-3	NS		NS		ug/l	NA		NA		<5	U	NA		NA		<5	U	NA		NA		NA		<5	U
Dioctyl phthalate	117-84-0	NS		NS		ug/l	NA		NA		<5	U	NA		NA		<5	U	NA		NA		NA		<5	U
Fluoranthene	206-44-0	0.82	b	3.4	b	ug/l	NA		NA		<0.1	U	NA		NA		0.21		NA		NA		NA		0.16	J
Fluorene	86-73-7	2.5	a	23	a	ug/l	NA		NA		0.02	J	NA		NA		0.03	J	NA		NA		NA		0.02	J
Hexachlorobenzene	118-74-1	NS		NS		ug/l	NA		NA		<0.8	U	NA		NA		0.02	J	NA		NA		NA		<0.8	UJ
Hexachlorobutadiene	87-68-3	0.3	a	3	a	ug/l	NA		NA		<0.5	U	NA		NA		<0.5	U	NA		NA		NA		<0.5	U
Semi-Volatile Organic Compounds - Total																										
Hexachlorocyclopentadiene	77-47-4	0.07	a	0.7	a	ug/l	NA		NA		<20	U	NA		NA		<20	U	NA		NA		NA		<20	U
Hexachloroethane	67-72-1	NS		NS		ug/l	NA		NA		<0.8	U	NA		NA		<0.8	U	NA		NA		NA		<0.8	U
Indeno(1,2,3-cd)pyrene	193-39-5	0.012	b	0.27	b	ug/l	NA		NA		<0.1	U	NA		NA		**0.08**	J	NA		NA		NA		**0.07**	J
Isophorone	78-59-1	NS		NS		ug/l	NA		NA		<5	U	NA		NA		<5	U	NA		NA		NA		<5	U
Naphthalene	91-20-3	16	a	140	a	ug/l	NA		NA		<0.1	U	NA		NA		<0.1	U	NA		NA		NA		<0.1	U
Nitrobenzene	98-95-3	NS		NS		ug/l	NA		NA		<2	U	NA		NA		<2	U	NA		NA		NA		<2	U
n-Nitrosodi-N-Propylamine	621-64-7	NS		NS		ug/l	NA		NA		<5	U	NA		NA		<5	U	NA		NA		NA		<5	U
n-Nitrosodiphenylamine	86-30-6	NS		NS		ug/l	NA		NA		<2	U	NA		NA		<2	U	NA		NA		NA		<2	U
Pentachlorophenol	87-86-5	NS		NS		ug/l	NA		NA		<0.8	U	NA		NA		<0.8	UJ	NA		NA		NA		<0.8	UJ
Phenanthrene	85-01-8	1.5	a	14	a	ug/l	NA		NA		0.02	J	NA		NA		0.17		NA		NA		NA		<0.1	U
Phenol	108-95-2	NS		NS		ug/l	NA		NA		<5	U	NA		NA		<5	U	NA		NA		NA		<5	U
Pyrene	129-00-0	0.11	b	0.45	b	ug/l	NA		NA		<0.1	U	NA		NA		**0.18**		NA		NA		NA		**0.15**	J

Table 1
Remedial Investigation Report - Fish and Wildlife Resource Impact Analysis
Groundwater Sample Analytical Results

C Block
Brooklyn, New York
Langan Project No.: 170229030

Analyte	CAS Number	Fish Propagation (saline waters)		Fish Survival (saline waters)		Location	MW07		MW08		MW08		MW08		MW09		MW09		MW09		MW09		MW10		MW10	
						Sample Name	MW07_080422_FILTERED		MW08_011426		MW08_080422		MW08_080422_FILTERED		MW09_011226		MW09_080122		MW09_080122_FILTERED		GWDUP01_011226		MW10_011226		MW10_080522	
						Sample Date	08/04/2022		01/14/2026		08/04/2022		08/04/2022		01/12/2026		08/01/2022		08/01/2022		01/12/2026		01/12/2026		08/05/2022	
						Unit	Result	Q	Result	Q	Result	Q	Result	Q	Result	Q	Result	Q	Result	Q	Result	Q	Result	Q	Result	Q
Pesticides																										
4,4'-DDD	72-54-8	NS		NS		ug/l	NA		NA		<0.029	U	NA		NA		<0.029	U	NA		NA		NA		<0.029	U
4,4'-DDE	72-55-9	NS		NS		ug/l	NA		NA		<0.029	U	NA		NA		<0.029	U	NA		NA		NA		<0.029	U
4,4'-DDT	50-29-3	NS		NS		ug/l	NA		NA		<0.029	U	NA		NA		<0.029	U	NA		NA		NA		<0.029	U
Aldrin	309-00-2	NS		NS		ug/l	NA		NA		<0.014	U	NA		NA		<0.014	U	NA		NA		NA		<0.014	U
Alpha BHC (Alpha Hexachlorocyclohexane)	319-84-6	NS		NS		ug/l	NA		NA		<0.014	U	NA		NA		<0.014	U	NA		NA		NA		<0.014	U
Alpha Chlordane	5103-71-9	NS		NS		ug/l	NA		NA		<0.014	U	NA		NA		<0.014	U	NA		NA		NA		<0.014	U
Alpha Endosulfan	959-98-8	NS		NS		ug/l	NA		NA		<0.014	U	NA		NA		<0.014	U	NA		NA		NA		<0.014	U
Beta Bhc (Beta Hexachlorocyclohexane)	319-85-7	NS		NS		ug/l	NA		NA		<0.014	U	NA		NA		<0.014	U	NA		NA		NA		<0.014	U
Beta Endosulfan	33213-65-9	NS		NS		ug/l	NA		NA		<0.029	U	NA		NA		<0.029	U	NA		NA		NA		<0.029	U
Chlordane (alpha and gamma)	57-74-9	NS		NS		ug/l	NA		NA		<0.143	U	NA		NA		<0.143	U	NA		NA		NA		<0.143	U
Delta Bhc (Delta Hexachlorocyclohexane)	319-86-8	NS		NS		ug/l	NA		NA		<0.014	U	NA		NA		<0.014	U	NA		NA		NA		<0.014	U
Dieldrin	60-57-1	NS		NS		ug/l	NA		NA		<0.029	U	NA		NA		<0.029	U	NA		NA		NA		<0.029	U
Endosulfan Sulfate	1031-07-8	NS		NS		ug/l	NA		NA		<0.029	U	NA		NA		<0.029	U	NA		NA		NA		<0.029	U
Endrin	72-20-8	NS		NS		ug/l	NA		NA		<0.029	U	NA		NA		<0.029	U	NA		NA		NA		<0.029	U
Endrin Aldehyde	7421-93-4	NS		NS		ug/l	NA		NA		<0.029	U	NA		NA		<0.029	U	NA		NA		NA		<0.029	U
Endrin Ketone	53494-70-5	NS		NS		ug/l	NA		NA		<0.029	U	NA		NA		<0.029	U	NA		NA		NA		<0.029	U
Gamma Bhc (Lindane)	58-89-9	NS		NS		ug/l	NA		NA		<0.014	U	NA		NA		<0.014	U	NA		NA		NA		<0.014	U
Gamma Chlordane (Trans)	5103-74-2	NS		NS		ug/l	NA		NA		<0.014	U	NA		NA		<0.014	U	NA		NA		NA		<0.014	U
Heptachlor	76-44-8	NS		NS		ug/l	NA		NA		<0.014	U	NA		NA		<0.014	U	NA		NA		NA		<0.014	U
Heptachlor Epoxide	1024-57-3	NS		NS		ug/l	NA		NA		<0.014	U	NA		NA		<0.014	U	NA		NA		NA		<0.014	U
Methoxychlor	72-43-5	0.03	a	NS		ug/l	NA		NA		<0.143	U	NA		NA		<0.143	U	NA		NA		NA		<0.143	U
Toxaphene	8001-35-2	0.005	a	0.07	a	ug/l	NA		NA		<0.143	U	NA		NA		<0.143	U	NA		NA		NA		<0.143	U
Herbicides																										
2,4,5-T (Trichlorophenoxyacetic Acid)	93-76-5	NS		NS		ug/l	NA		NA		<2	U	NA		NA		<2	U	NA		NA		NA		<2	U
2,4-D (Dichlorophenoxyacetic Acid)	94-75-7	NS		NS		ug/l	NA		NA		<10	U	NA		NA		<10	U	NA		NA		NA		<10	U
Silvex (2,4,5-Tp)	93-72-1	NS		NS		ug/l	NA		NA		<2	U	NA		NA		<2	U	NA		NA		NA		<2	U
Polychlorinated Biphenyl																										
PCB-1016 (Aroclor 1016)	12674-11-2	NS		NS		ug/l	NA		NA		<0.071	U	NA		NA		<0.071	U	NA		NA		NA		<0.071	U
PCB-1221 (Aroclor 1221)	11104-28-2	NS		NS		ug/l	NA		NA		<0.071	U	NA		NA		<0.071	U	NA		NA		NA		<0.071	U
PCB-1232 (Aroclor 1232)	11141-16-5	NS		NS		ug/l	NA		NA		<0.071	U	NA		NA		<0.071	U	NA		NA		NA		<0.071	U
PCB-1242 (Aroclor 1242)	53469-21-9	NS		NS		ug/l	NA		NA		<0.071	U	NA		NA		<0.071	U	NA		NA		NA		<0.071	U
PCB-1248 (Aroclor 1248)	12672-29-6	NS		NS		ug/l	NA		NA		<0.071	U	NA		NA		<0.071	U	NA		NA		NA		<0.071	U
PCB-1254 (Aroclor 1254)	11097-69-1	NS		NS		ug/l	NA		NA		<0.071	U	NA		NA		<0.071	U	NA		NA		NA		<0.071	U
PCB-1260 (Aroclor 1260)	11096-82-5	NS		NS		ug/l	NA		NA		<0.071	U	NA		NA		<0.071	U	NA		NA		NA		<0.071	U
PCB-1262 (Aroclor 1262)	37324-23-5	NS		NS		ug/l	NA		NA		<0.071	U	NA		NA		<0.071	U	NA		NA		NA		<0.071	U
PCB-1268 (Aroclor 1268)	11100-14-4	NS		NS		ug/l	NA		NA		<0.071	U	NA		NA		<0.071	U	NA		NA		NA		<0.071	U
Total PCBs	1336-36-3	NS		NS		ug/l	NA		NA		<0.071	U	NA		NA		<0.071	U	NA		NA		NA		<0.071	U
Metals - Dissolved																										
Aluminum	7429-90-5	1500	b	NS		ug/l	NA		NA		<10	U	NA		NA		13.2		NA		NA		NA		<10	U
Antimony	7440-36-0	4300	b	NS		ug/l	NA		NA		0.49	J	NA		NA		0.49	J	NA		NA		NA		<4	U
Arsenic	7440-38-2	36	a	120	a	ug/l	NA		NA		0.17	J	NA		NA		1.8	J	NA		NA		NA		0.36	J
Barium	7440-39-3	4	b	110	b	ug/l	NA		NA		**100.8**		NA		NA		**73.82**		NA		NA		NA		**159.7**	
Beryllium	7440-41-7	0.13	b	NS		ug/l	NA		NA		<0.5	U	NA		NA		<0.5	U	NA		NA		NA		<0.5	U
Cadmium	7440-43-9	7.7	a	21	a	ug/l	NA		NA		0.09	J	NA		NA		0.2		NA		NA		NA		<0.2	U
Calcium	7440-70-2	NS		NS		ug/l	NA		NA		42,800		NA		NA		141,000		NA		NA		NA		141,000	
Chromium, Total	7440-47-3	50	b	1100	b	ug/l	NA		NA		1.95		NA		NA		<1	U	NA		NA		NA		<1	U
Cobalt	7440-48-4	NS		NS		ug/l	NA		NA		0.9		NA		NA		1.6		NA		NA		NA		<0.5	U
Copper	7440-50-8	5.6	a	7.9	a	ug/l	NA		NA		0.55	J	NA		NA		0.4	J	NA		NA		NA		<1	U
Iron	7439-89-6	300	b	NS		ug/l	NA		NA		128		NA		NA		128		NA		NA		NA		**8,870**	
Lead	7439-92-1	8	a	204	a	ug/l	NA		NA		<1	U	NA		NA		0.44	J	NA		NA		NA		<1	U
Magnesium	7439-95-4	NS		NS		ug/l	NA		NA		6,910		NA		NA		10,200		NA		NA		NA		21,600	
Manganese	7439-96-5	100	b	NS		ug/l	NA		NA		**852.9**		NA		NA		**393.6**		NA		NA		NA		**2,242**	
Mercury	7439-97-6	0.94	a,b	1.8	a,b	ug/l	NA		NA		<0.2	U	NA		NA		<0.2	U	NA		NA		NA		<0.2	U
Nickel	7440-02-0	8.2	a	74	a	ug/l	NA		NA		3.28		NA		NA		1.52	J	NA		NA		NA		<2	U
Potassium	7440-09-7	NS		NS		ug/l	NA		NA		8,460		NA		NA		4,080		NA		NA		NA		22,900	
Selenium	7782-49-2	71	b	290	b	ug/l	NA		NA		5.47		NA		NA		<5	U	NA		NA		NA		<5	U
Silver	7440-22-4	NS		2.3	a	ug/l	NA		NA		<0.4	U	NA		NA		<0.4	U	NA		NA		NA		<0.4	U
Sodium	7440-23-5	NS		NS		ug/l	NA		NA		62,200		NA		NA		12,900		NA		NA		NA		132,000	
Thallium	7440-28-0	NS		NS		ug/l	NA		NA		<1	U	NA		NA		<1	U	NA		NA		NA		<1	U
Vanadium	7440-62-2	NS		NS		ug/l	NA		NA		<5	U	NA		NA		<5	U	NA		NA		NA		<5	U
Zinc	7440-66-6	66	a	95	a	ug/l	NA		NA		5.62	J	NA		NA		**348.5**		NA		NA		NA		<10	U

Table 1
Remedial Investigation Report - Fish and Wildlife Resource Impact Analysis
Groundwater Sample Analytical Results

C Block
Brooklyn, New York
Langan Project No.: 170229030

Analyte	CAS Number	Fish Propagation (saline waters)		Fish Survival (saline waters)		Location	MW07		MW08		MW08		MW08		MW09		MW09		MW09		MW09		MW10		MW10	
						Sample Name	MW07_080422_FILTERED		MW08_011426		MW08_080422		MW08_080422_FILTERED		MW09_011226		MW09_080122		MW09_080122_FILTERED		GWDUP01_011226		MW10_011226		MW10_080522	
						Sample Date	08/04/2022		01/14/2026		08/04/2022		08/04/2022		01/12/2026		08/01/2022		08/01/2022		01/12/2026		01/12/2026		08/05/2022	
						Unit	Result	Q	Result	Q	Result	Q	Result	Q	Result	Q	Result	Q	Result	Q	Result	Q	Result	Q	Result	Q
Metals - Total																										
Aluminum	7429-90-5	NS		NS		ug/l	NA		NA		7.93	J	NA		NA		420		NA		NA		NA		309	
Antimony	7440-36-0	NS		NS		ug/l	NA		NA		<4	U	NA		NA		0.43	J	NA		NA		NA		<4	U
Arsenic	7440-38-2	36	a	120	a	ug/l	NA		NA		<0.5	U	NA		NA		2.39		NA		NA		NA		0.84	
Barium	7440-39-3	NS		NS		ug/l	NA		NA		104.4		NA		NA		85.74		NA		NA		NA		172.9	
Beryllium	7440-41-7	NS		NS		ug/l	NA		NA		<0.5	U	NA		NA		<0.5	U	NA		NA		NA		<0.5	U
Cadmium	7440-43-9	7.7	a	21	a	ug/l	NA		NA		0.08	J	NA		NA		0.26		NA		NA		NA		<0.2	U
Calcium	7440-70-2	NS		NS		ug/l	NA		NA		43,500		NA		NA		126,000		NA		NA		NA		142,000	
Chromium, Hexavalent	18540-29-9	50	a	1200	a	ug/l	NA		NA		<10	U	NA		NA		<10	U	NA		NA		NA		<10	U
Chromium, Total	7440-47-3	NS		NS		ug/l	NA		NA		1.98		NA		NA		1.1		NA		NA		NA		0.84	J
Chromium, Trivalent	16065-83-1	NS		NS		ug/l	NA		NA		<10	U	NA		NA		<10	U	NA		NA		NA		<10	U
Cobalt	7440-48-4	NS		NS		ug/l	NA		NA		0.94		NA		NA		1.87		NA		NA		NA		0.47	J
Copper	7440-50-8	5.6	a	7.9	a	ug/l	NA		NA		0.57	J	NA		NA		2.51		NA		NA		NA		**12.65**	
Cyanide	57-12-5	1	a	1	a	ug/l	NA		NA		<5	U	NA		NA		<5	U	NA		NA		NA		**117**	
Iron	7439-89-6	NS		NS		ug/l	NA		NA		184		NA		NA		1,330		NA		NA		NA		10,100	
Lead	7439-92-1	8	a	204	a	ug/l	NA		NA		<1	U	NA		NA		**12**		NA		NA		NA		**32.89**	
Magnesium	7439-95-4	NS		NS		ug/l	NA		NA		7,120		NA		NA		10,000		NA		NA		NA		21,900	
Manganese	7439-96-5	NS		NS		ug/l	NA		NA		837.2		NA		NA		410.6		NA		NA		NA		2,296	
Mercury	7439-97-6	NS		NS		ug/l	NA		NA		<0.2	U	NA		NA		<0.2	U	NA		NA		NA		<0.2	U
Nickel	7440-02-0	8.2	a	74	a	ug/l	NA		NA		3.27		NA		NA		1.86	J	NA		NA		NA		1.13	J
Potassium	7440-09-7	NS		NS		ug/l	NA		NA		8,700		NA		NA		3,650		NA		NA		NA		23,000	
Selenium	7782-49-2	NS		NS		ug/l	NA		NA		6.26		NA		NA		<5	U	NA		NA		NA		<5	U
Silver	7440-22-4	NS		2.3	a	ug/l	NA		NA		<0.4	U	NA		NA		<0.4	U	NA		NA		NA		<0.4	U
Sodium	7440-23-5	NS		NS		ug/l	NA		NA		61,700		NA		NA		12,300		NA		NA		NA		130,000	
Thallium	7440-28-0	NS		NS		ug/l	NA		NA		<1	U	NA		NA		<1	U	NA		NA		NA		<1	U
Vanadium	7440-62-2	NS		NS		ug/l	NA		NA		<5	U	NA		NA		<5	U	NA		NA		NA		<5	U
Zinc	7440-66-6	66	a	95	a	ug/l	NA		NA		5.4	J	NA		NA		**449.9**		NA		NA		NA		14.68	
Per- and Polyfluoroalkyl Substances																										
11-Chloroeicosafluoro-3-Oxaundecane-1-Sulfonic Acid (11Cl-PF3OUdS)	763051-92-9	NS		NS		ug/l	NA		<0.00744	UJ	NA		NA		<0.00776	U	NA		NA		<0.00799	U	<0.00883	U	NA	
1H,1H,2H,2H-Perfluorodecane Sulfonic Acid (8:2 FTS)	39108-34-4	NS		NS		ug/l	NA		<0.00756	U	<0.00198	U	NA		<0.00789	U	<0.00186	U	NA		<0.00812	U	<0.00897	U	<0.00188	U
1H,1H,2H,2H-Perfluorohexane Sulfonic Acid (4:2 FTS)	757124-72-4	NS		NS		ug/l	NA		<0.00738	U	NA		NA		<0.0077	U	NA		NA		<0.00793	U	<0.00876	U	NA	
1H,1H,2H,2H-Perfluorooctane Sulfonic Acid (6:2 FTS)	27619-97-2	NS		NS		ug/l	NA		<0.00748	U	0.00192	J	NA		<0.0078	U	0.00515	J	NA		<0.00803	U	<0.00888	U	0.00226	J
2H,2H,3H,3H-Perfluorooctanoic Acid (5:3 FTCA)	914637-49-3	NS		NS		ug/l	NA		<0.0492	U	NA		NA		<0.0513	U	NA		NA		<0.0529	U	<0.0584	U	NA	
3-Perfluoroheptyl Propanoic Acid (7:3 FTCA)	812-70-4	NS		NS		ug/l	NA		<0.0492	U	NA		NA		<0.0513	U	NA		NA		<0.0529	U	<0.0584	U	NA	
3-Perfluoropropyl Propanoic Acid (3:3 FTCA)	356-02-5	NS		NS		ug/l	NA		<0.00984	U	NA		NA		<0.0103	U	NA		NA		<0.0106	U	<0.0117	U	NA	
4,8-Dioxa-3H-perfluorononanoic Acid (ADONA)	919005-14-4	NS		NS		ug/l	NA		<0.00744	U	NA		NA		<0.00776	U	NA		NA		<0.00799	U	<0.00883	U	NA	
9-Chlorohexadecafluoro-3-Oxanonane-1-Sulfonic Acid (9Cl-PF3ONS)	756426-58-1	NS		NS		ug/l	NA		<0.00736	U	NA		NA		<0.00768	U	NA		NA		<0.00791	U	<0.00874	U	NA	
Hexafluoropropylene Oxide Dimer Acid (HFPO-DA)	13252-13-6	NS		NS		ug/l	NA		<0.00787	U	NA		NA		<0.0821	U	NA		NA		<0.00846	U	<0.00935	U	NA	
N-ethyl Perfluorooctanesulfonamide (NEtFOSA)	4151-50-2	NS		NS		ug/l	NA		<0.00197	U	NA		NA		<0.00205	U	NA		NA		<0.00211	U	<0.00234	U	NA	
N-ethyl Perfluorooctanesulfonamidoacetic Acid (NEtFOSAA)	2991-50-6	NS		NS		ug/l	NA		<0.00197	U	<0.00198	U	NA		<0.00205	U	<0.00186	U	NA		<0.00211	U	<0.00234	U	<0.00188	U
N-ethyl Perfluorooctanesulfonamidoethanol (NEtFOSE)	1691-99-2	NS		NS		ug/l	NA		<0.0197	U	NA		NA		<0.0205	U	NA		NA		<0.0211	U	<0.0234	U	NA	
N-methyl Perfluorooctanesulfonamide (NMeFOSA)	31506-32-8	NS		NS		ug/l	NA		<0.00197	U	NA		NA		<0.00205	U	NA		NA		<0.00211	U	<0.00234	U	NA	
N-methyl Perfluorooctanesulfonamidoacetic Acid (NMeFOSAA)	2355-31-9	NS		NS		ug/l	NA		<0.00197	U	<0.00198	U	NA		<0.00205	U	<0.00186	U	NA		<0.00211	U	<0.00234	U	<0.00188	U
N-methyl Perfluorooctanesulfonamidoethanol (NMeFOSE)	24448-09-7	NS		NS		ug/l	NA		<0.0197	U	NA		NA		<0.0205	U	NA		NA		<0.0211	U	<0.0234	U	NA	
Nonafluoro-3,6-dioxaheptanoic Acid (NFDHA)	151772-58-6	NS		NS		ug/l	NA		<0.00394	U	NA		NA		<0.00411	U	NA		NA		<0.00423	U	<0.00467	U	NA	
Perfluoro(2-ethoxyethane)sulfonic Acid (PFEESA)	113507-82-7	NS		NS		ug/l	NA		<0.0035	U	NA		NA		<0.00366	U	NA		NA		<0.00376	U	<0.00416	U	NA	
Perfluoro-3-methoxypropanoic Acid (PFMPA)	377-73-1	NS		NS		ug/l	NA		<0.00394	U	NA		NA		<0.00411	U	NA		NA		<0.00423	U	<0.00467	U	NA	
Perfluoro-4-methoxybutanoic Acid (PFMBA)	863090-89-5	NS		NS		ug/l	NA		<0.00394	U	NA		NA		<0.00411	U	NA		NA		<0.00423	U	<0.00467	U	NA	
Perfluorobutanesulfonic Acid (PFBS)	375-73-5	NS		NS		ug/l	NA		0.00389		0.00565		NA		0.00229		0.00257		NA		0.00221		0.00362		0.00484	
Perfluorobutanoic Acid (PFBA)	375-22-4	NS		NS		ug/l	NA		0.0106		0.00649		NA		0.00691	J	0.00615		NA		0.00625	J	0.00882	J	0.0221	
Perfluorodecanesulfonic Acid (PFDS)	335-77-3	NS		NS		ug/l	NA		<0.0019	U	<0.00198	U	NA		<0.00198	U	<0.00186	U	NA		<0.00204	U	<0.00225	U	<0.00188	U
Perfluorodecanoic Acid (PFDA)	335-76-2	NS		NS		ug/l	NA		<0.00197	U	<0.00198	U	NA		0.000721	J	0.000772	J	NA		0.000779	J	<0.00234	U	<0.00188	UJ
Perfluorododecanesulfonic Acid (PFDoS)	79780-39-5	NS		NS		ug/l	NA		<0.00191	U	NA		NA		<0.00199	U	NA		NA		<0.00205	U	<0.00227	U	NA	
Perfluorododecanoic Acid (PFDoA)	307-55-1	NS		NS		ug/l	NA		<0.00197	U	<0.00198	U	NA		<0.00205	U	<0.00186	U	NA		<0.00211	U	<0.00234	U	<0.00188	UJ
Perfluoroheptanesulfonic Acid (PFHpS)	375-92-8	NS		NS		ug/l	NA		<0.00188	U	<0.00198	U	NA		<0.00196	U	<0.00186	U	NA		<0.00202	U	<0.00223	U	<0.00188	U
Perfluoroheptanoic Acid (PFHpA)	375-85-9	NS		NS		ug/l	NA		0.00473		0.00665		NA		0.00366		0.00272		NA		0.00422		0.00609		0.0138	
Perfluorohexanesulfonic Acid (PFHxS)	355-46-4	NS		NS		ug/l	NA		<0.0018	U	0.00253		NA		<0.00188	U	0.000713	J	NA		<0.00193	U	0.00332		0.0057	
Perfluorohexanoic Acid (PFHxA)	307-24-4	NS		NS		ug/l	NA		0.00698		0.0067		NA		0.00567		0.00368		NA		0.00602		0.0154		0.0342	
Perfluorononanesulfonic Acid (PFNS)	68259-12-1	NS		NS		ug/l	NA		<0.00189	U	NA		NA		<0.00197	U	NA		NA		<0.00203	U	<0.00224	U	NA	
Perfluorononanoic Acid (PFNA)	375-95-1	NS		NS		ug/l	NA		0.00407		0.00512		NA		0.00148	J	0.0015	J	NA		0.00155	J	0.0013	J	0.00301	
Perfluorooctanesulfonamide (PFOSA)	754-91-6	NS		NS		ug/l	NA		<0.00197	U	<0.00198	U	NA		<0.00205	U	<0.00186	U	NA		<0.00211	U	<0.00234	U	<0.00188	U
Perfluorooctanesulfonic Acid (PFOS)	1763-23-1	160	a	190	a	ug/l	NA		0.0207		0.037		NA		0.00565		0.0119		NA		0.00599		0.013		0.0225	
Perfluorooctanoic Acid (PFOA)	335-67-1	NS		NS		ug/l	NA		0.0276		0.0226		NA		0.00757		0.00732		NA		0.00801		0.0198		0.0445	
Perfluoropentanesulfonic Acid (PFPeS)	2706-91-4	NS		NS		ug/l	NA		<0.00185	U	NA		NA		<0.00193	U	NA		NA		<0.00199	U	<0.0022	U	NA	
Perfluoropentanoic Acid (PFPeA)	2706-90-3	NS		NS		ug/l	NA		0.00797		0.00677		NA		0.00521		0.00517		NA		0.00582		0.0148		0.0316	
Perfluorotetradecanoic Acid (PFTeDA)	376-06-7	NS		NS		ug/l	NA		<0.00197	U	<0.00198	U	NA		<0.00205	U	<0.00186	U	NA		<0.00211	U	<0.00234	U	<0.00188	U
Perfluorotridecanoic Acid (PFTrDA)	72629-94-8	NS		NS		ug/l	NA		<0.00197	U	<0.00198	U	NA		<0.00205	U	<0.00186	U	NA		<0.00211	U	<0.00234	U	<0.00188	U
Perfluoroundecanoic Acid (PFUnA)	2058-94-8	NS		NS		ug/l	NA		<0.00197	U	<0.00198	U	NA		<0.00205	U	<0.00186	U	NA		<0.00211	U	<0.00234	U	<0.00188	U
Total PFOA and PFOS	TOTPFOAPFOS	NS		NS		ug/l	NA		NA		0.0596		NA		NA		0.0192		NA		NA		NA		0.067	

Table 1
Remedial Investigation Report - Fish and Wildlife Resource Impact Analysis
Groundwater Sample Analytical Results

C Block
Brooklyn, New York
Langan Project No.: 170229030

Analyte	CAS Number	Fish Propagation (saline waters)		Fish Survival (saline waters)		Location	MW10		MW11		MW11		MW11		MW12		MW12		MW12		MW13		MW13		MW13	
						Sample Name	MW10_080522_FILTERED		MW11_011326		MW11_080322		MW11_080322_FILTERED		MW12_011226		MW12_080122		MW12_080122_FILTERED		MW13_011326		MW13_080322		MW13_080322_FILTERED	
						Sample Date	08/05/2022		01/13/2026		08/03/2022		08/03/2022		01/12/2026		08/01/2022		08/01/2022		01/13/2026		08/03/2022		08/03/2022	
						Unit	Result	Q	Result	Q	Result	Q	Result	Q	Result	Q	Result	Q	Result	Q	Result	Q	Result	Q	Result	Q
Volatile Organic Compounds																										
1,1,1,2-Tetrachloroethane	630-20-6	NS		NS		ug/l	NA		NA		<2.5	U	NA		NA		<2.5	U	NA		NA		<2.5	U	NA	
1,1,1-Trichloroethane	71-55-6	NS		NS		ug/l	NA		NA		<2.5	U	NA		NA		<2.5	U	NA		NA		<2.5	U	NA	
1,1,2,2-Tetrachloroethane	79-34-5	NS		NS		ug/l	NA		NA		<0.5	U	NA		NA		<0.5	U	NA		NA		<0.5	U	NA	
1,1,2-Trichloroethane	79-00-5	NS		NS		ug/l	NA		NA		<1.5	U	NA		NA		<1.5	U	NA		NA		<1.5	U	NA	
1,1-Dichloroethane	75-34-3	NS		NS		ug/l	NA		NA		<2.5	U	NA		NA		<2.5	U	NA		NA		<2.5	U	NA	
1,1-Dichloroethene	75-35-4	NS		NS		ug/l	NA		NA		<0.5	U	NA		NA		<0.5	U	NA		NA		<0.5	U	NA	
1,1-Dichloropropene	563-58-6	NS		NS		ug/l	NA		NA		<2.5	U	NA		NA		<2.5	U	NA		NA		<2.5	U	NA	
1,2,3-Trichlorobenzene	87-61-6	5	a	NS		ug/l	NA		NA		<2.5	U	NA		NA		<2.5	U	NA		NA		<2.5	U	NA	
1,2,3-Trichloropropane	96-18-4	NS		NS		ug/l	NA		NA		<2.5	U	NA		NA		<2.5	U	NA		NA		<2.5	U	NA	
1,2,4,5-Tetramethylbenzene	95-93-2	NS		NS		ug/l	NA		NA		<2	U	NA		NA		<2	U	NA		NA		<2	U	NA	
1,2,4-Trichlorobenzene	120-82-1	5	a	NS		ug/l	NA		NA		<2.5	U	NA		NA		<2.5	U	NA		NA		<2.5	U	NA	
1,2,4-Trimethylbenzene	95-63-6	19	a	170	a	ug/l	NA		NA		<2.5	U	NA		NA		<2.5	U	NA		NA		<2.5	U	NA	
1,2-Dibromo-3-Chloropropane	96-12-8	NS		NS		ug/l	NA		NA		<2.5	U	NA		NA		<2.5	U	NA		NA		<2.5	U	NA	
1,2-Dibromoethane (Ethylene Dibromide)	106-93-4	NS		NS		ug/l	NA		NA		<2	U	NA		NA		<2	U	NA		NA		<2	U	NA	
1,2-Dichlorobenzene	95-50-1	5	a	NS		ug/l	NA		NA		<2.5	U	NA		NA		<2.5	U	NA		NA		<2.5	U	NA	
1,2-Dichloroethane	107-06-2	NS		NS		ug/l	NA		NA		<0.5	U	NA		NA		<0.5	U	NA		NA		<0.5	U	NA	
1,2-Dichloropropane	78-87-5	NS		NS		ug/l	NA		NA		<1	U	NA		NA		<1	U	NA		NA		<1	U	NA	
1,3,5-Trimethylbenzene (Mesitylene)	108-67-8	56	b	366	b	ug/l	NA		NA		<2.5	U	NA		NA		<2.5	U	NA		NA		<2.5	U	NA	
1,3-Dichlorobenzene	541-73-1	5	a	NS		ug/l	NA		NA		<2.5	U	NA		NA		<2.5	U	NA		NA		<2.5	U	NA	
1,3-Dichloropropane	142-28-9	NS		NS		ug/l	NA		NA		<2.5	U	NA		NA		<2.5	U	NA		NA		<2.5	U	NA	
1,4-Dichlorobenzene	106-46-7	5	a	NS		ug/l	NA		NA		<2.5	U	NA		NA		<2.5	U	NA		NA		<2.5	U	NA	
1,4-Diethyl Benzene	105-05-5	NS		NS		ug/l	NA		NA		<2	U	NA		NA		<2	UJ	NA		NA		<2	U	NA	
1,4-Dioxane (P-Dioxane)	123-91-1	NS		NS		ug/l	NA		NA		NA		NA		NA		NA		NA		NA		NA		NA	
2,2-Dichloropropane	594-20-7	NS		NS		ug/l	NA		NA		<2.5	U	NA		NA		<2.5	U	NA		NA		<2.5	U	NA	
2-Chlorotoluene	95-49-8	NS		NS		ug/l	NA		NA		<2.5	U	NA		NA		<2.5	U	NA		NA		<2.5	U	NA	
2-Hexanone (MBK)	591-78-6	NS		NS		ug/l	NA		NA		<5	U	NA		NA		<5	U	NA		NA		<5	U	NA	
4-Chlorotoluene	106-43-4	NS		NS		ug/l	NA		NA		<2.5	U	NA		NA		<2.5	U	NA		NA		<2.5	U	NA	
4-Ethyltoluene	622-96-8	NS		NS		ug/l	NA		NA		<2	U	NA		NA		<2	U	NA		NA		<2	U	NA	
Acetone	67-64-1	117629	b	355606	b	ug/l	NA		NA		<5	U	NA		NA		<5	U	NA		NA		<5	U	NA	
Acrylonitrile	107-13-1	NS		NS		ug/l	NA		NA		<5	U	NA		NA		<5	U	NA		NA		<5	U	NA	
Benzene	71-43-2	190	a	670	a	ug/l	NA		NA		<0.5	U	NA		NA		<0.5	U	NA		NA		<0.5	U	NA	
Bromobenzene	108-86-1	NS		NS		ug/l	NA		NA		<2.5	U	NA		NA		<2.5	U	NA		NA		<2.5	U	NA	
Bromochloromethane	74-97-5	NS		NS		ug/l	NA		NA		<2.5	U	NA		NA		<2.5	U	NA		NA		<2.5	U	NA	
Bromodichloromethane	75-27-4	NS		NS		ug/l	NA		NA		<0.5	U	NA		NA		<0.5	U	NA		NA		<0.5	U	NA	
Bromoform	75-25-2	NS		NS		ug/l	NA		NA		<2	U	NA		NA		<2	U	NA		NA		<2	U	NA	
Bromomethane	74-83-9	NS		NS		ug/l	NA		NA		<2.5	U	NA		NA		<2.5	U	NA		NA		<2.5	U	NA	
Carbon Disulfide	75-15-0	NS		NS		ug/l	NA		NA		<5	U	NA		NA		<5	U	NA		NA		<5	U	NA	
Carbon Tetrachloride	56-23-5	NS		NS		ug/l	NA		NA		<0.5	U	NA		NA		<0.5	U	NA		NA		<0.5	U	NA	
Chlorobenzene	108-90-7	5	a	NS		ug/l	NA		NA		<2.5	U	NA		NA		<2.5	U	NA		NA		<2.5	U	NA	
Chloroethane	75-00-3	NS		NS		ug/l	NA		NA		<2.5	U	NA		NA		<2.5	U	NA		NA		<2.5	U	NA	
Chloroform	67-66-3	NS		NS		ug/l	NA		NA		<2.5	U	NA		NA		<2.5	U	NA		NA		<2.5	U	NA	
Chloromethane	74-87-3	NS		NS		ug/l	NA		NA		<2.5	U	NA		NA		<2.5	U	NA		NA		<2.5	U	NA	
Cis-1,2-Dichloroethene	156-59-2	5	a	NS		ug/l	NA		NA		<2.5	U	NA		NA		<2.5	U	NA		NA		<2.5	U	NA	
Cis-1,3-Dichloropropene	10061-01-5	NS		NS		ug/l	NA		NA		<0.5	U	NA		NA		<0.5	U	NA		NA		<0.5	U	NA	
Cymene	99-87-6	21	b	187	b	ug/l	NA		NA		<2.5	U	NA		NA		<2.5	U	NA		NA		<2.5	U	NA	
Dibromochloromethane	124-48-1	NS		NS		ug/l	NA		NA		<0.5	U	NA		NA		<0.5	U	NA		NA		<0.5	U	NA	
Dibromomethane	74-95-3	NS		NS		ug/l	NA		NA		<5	U	NA		NA		<5	U	NA		NA		<5	U	NA	
Dichlorodifluoromethane	75-71-8	NS		NS		ug/l	NA		NA		<5	U	NA		NA		<5	U	NA		NA		<5	U	NA	
Diethyl Ether (Ethyl Ether)	60-29-7	NS		NS		ug/l	NA		NA		<2.5	U	NA		NA		<2.5	U	NA		NA		<2.5	U	NA	
Ethylbenzene	100-41-4	4.5	a	41	a	ug/l	NA		NA		<2.5	U	NA		NA		<2.5	U	NA		NA		<2.5	U	NA	
Isopropylbenzene (Cumene)	98-82-8	NS		NS		ug/l	NA		NA		<2.5	U	NA		NA		<2.5	U	NA		NA		<2.5	U	NA	
M,P-Xylene	179601-23-1	NS		NS		ug/l	NA		NA		<2.5	U	NA		NA		<2.5	U	NA		NA		<2.5	U	NA	
Methyl Ethyl Ketone (2-Butanone)	78-93-3	NS		NS		ug/l	NA		NA		<5	UJ	NA		NA		<5	U	NA		NA		<5	UJ	NA	
Methyl Isobutyl Ketone (4-Methyl-2-Pentanone)	108-10-1	NS		NS		ug/l	NA		NA		<5	U	NA		NA		<5	U	NA		NA		<5	U	NA	
Methylene Chloride	75-09-2	NS		NS		ug/l	NA		NA		<2.5	U	NA		NA		<2.5	U	NA		NA		<2.5	U	NA	
n-Butylbenzene	104-51-8	NS		NS		ug/l	NA		NA		<2.5	U	NA		NA		<2.5	U	NA		NA		<2.5	U	NA	
n-Propylbenzene	103-65-1	NS		NS		ug/l	NA		NA		<2.5	U	NA		NA		<2.5	U	NA		NA		<2.5	U	NA	
o-Xylene (1,2-Dimethylbenzene)	95-47-6	19	a	170	a	ug/l	NA		NA		<2.5	U	NA		NA		<2.5	U	NA		NA		<2.5	U	NA	
Sec-Butylbenzene	135-98-8	NS		NS		ug/l	NA		NA		<2.5	U	NA		NA		<2.5	U	NA		NA		<2.5	U	NA	
Styrene	100-42-5	NS		NS		ug/l	NA		NA		<2.5	U	NA		NA		<2.5	U	NA		NA		<2.5	U	NA	
T-Butylbenzene	98-06-6	NS		NS		ug/l	NA		NA		<2.5	U	NA		NA		<2.5	U	NA		NA		<2.5	U	NA	
Tert-Butyl Methyl Ether (MTBE)	1634-04-4	5000	b	38037	b	ug/l	NA		NA		<2.5	U	NA		NA		<2.5	U	NA		NA		<2.5	U	NA	
Tetrachloroethene (PCE)	127-18-4	NS		NS		ug/l	NA		NA		<0.5	U	NA		NA		<0.5	U	NA		NA		<0.5	U	NA	
Toluene	108-88-3	92	a	430	a	ug/l	NA		NA		<2.5	U	NA		NA		<2.5	U	NA		NA		<2.5	U	NA	
Total 1,2-Dichloroethene (Cis and Trans)	540-59-0	NS		NS		ug/l	NA		NA		<2.5	U	NA		NA		<2.5	U	NA		NA		<2.5	U	NA	
Volatile Organic Compounds																										
Total Xylenes	1330-20-7	19	a	NS		ug/l	NA		NA		<2.5	U	NA		NA		<2.5	U	NA		NA		<2.5	U	NA	
Total, 1,3-Dichloropropene (Cis And Trans)	542-75-6	NS		NS		ug/l	NA		NA		<0.5	U	NA		NA		<0.5	U	NA		NA		<0.5	U	NA	
Trans-1,2-Dichloroethene	156-60-5	NS		NS		ug/l	NA		NA		<2.5	U	NA		NA		<2.5	U	NA		NA		<2.5	U	NA	
Trans-1,3-Dichloropropene	10061-02-6	NS		NS		ug/l	NA		NA		<0.5	U	NA		NA		<0.5	U	NA		NA		<0.5	U	NA	
Trans-1,4-Dichloro-2-Butene	110-57-6	NS		NS		ug/l	NA		NA		<2.5	U	NA		NA		<2.5	U	NA		NA		<2.5	U	NA	
Trichloroethene (TCE)	79-01-6	NS		NS		ug/l	NA		NA		<0.5	U	NA		NA		<0.5	U	NA		NA		<0.5	U	NA	
Trichlorofluoromethane	75-69-4	NS		NS		ug/l	NA		NA		<2.5	U	NA		NA		<2.5	U	NA		NA		<2.5	U	NA	
Vinyl Acetate	108-05-4	NS		NS		ug/l	NA		NA		<5	U	NA		NA		<5	U	NA		NA		<5	U	NA	
Vinyl Chloride	75-01-4	NS		NS		ug/l	NA		NA		<1	U	NA		NA		<1	U	NA		NA		<1	U	NA	

Table 1
Remedial Investigation Report - Fish and Wildlife Resource Impact Analysis
Groundwater Sample Analytical Results

C Block
Brooklyn, New York
Langan Project No.: 170229030

Analyte	CAS Number	Fish Propagation (saline waters)		Fish Survival (saline waters)		Location	MW10		MW11		MW11		MW11		MW12		MW12		MW12		MW13		MW13		MW13	
						Sample Name	MW10_080522_FILTERED		MW11_011326		MW11_080322		MW11_080322_FILTERED		MW12_011226		MW12_080122		MW12_080122_FILTERED		MW13_011326		MW13_080322		MW13_080322_FILTERED	
						Sample Date	08/05/2022		01/13/2026		08/03/2022		08/03/2022		01/12/2026		08/01/2022		08/01/2022		01/13/2026		08/03/2022		08/03/2022	
						Unit	Result	Q	Result	Q	Result	Q	Result	Q	Result	Q	Result	Q	Result	Q	Result	Q	Result	Q	Result	Q
Semi-Volatile Organic Compounds - Dissolved																										
1,2,4,5-Tetrachlorobenzene	95-94-3	NS		NS		ug/l	<10	U	NA		NA		<10	U	NA		NA		<10	U	NA		NA		<10	U
1,2,4-Trichlorobenzene	120-82-1	5	a	NS		ug/l	<5	U	NA		NA		<5	U	NA		NA		<5	U	NA		NA		<5	U
1,2-Dichlorobenzene	95-50-1	5	a	NS		ug/l	<2	U	NA		NA		<2	U	NA		NA		<2	U	NA		NA		<2	U
1,3-Dichlorobenzene	541-73-1	5	a	NS		ug/l	<2	U	NA		NA		<2	U	NA		NA		<2	U	NA		NA		<2	U
1,4-Dichlorobenzene	106-46-7	5	a	NS		ug/l	<2	U	NA		NA		<2	U	NA		NA		<2	U	NA		NA		<2	U
2,4,5-Trichlorophenol	95-95-4	NS		NS		ug/l	<5	U	NA		NA		<5	U	NA		NA		<5	U	NA		NA		<5	U
2,4,6-Trichlorophenol	88-06-2	NS		NS		ug/l	<5	U	NA		NA		<5	U	NA		NA		<5	U	NA		NA		<5	U
2,4-Dichlorophenol	120-83-2	NS		NS		ug/l	<5	U	NA		NA		<5	U	NA		NA		<5	U	NA		NA		<5	U
2,4-Dimethylphenol	105-67-9	NS		NS		ug/l	<5	UJ	NA		NA		<5	U	NA		NA		<5	U	NA		NA		<5	U
2,4-Dinitrophenol	51-28-5	NS		NS		ug/l	<20	U	NA		NA		<20	U	NA		NA		<20	U	NA		NA		<20	U
2,4-Dinitrotoluene	121-14-2	NS		NS		ug/l	<5	U	NA		NA		<5	U	NA		NA		<5	U	NA		NA		<5	U
2,6-Dinitrotoluene	606-20-2	NS		NS		ug/l	<5	U	NA		NA		<5	U	NA		NA		<5	U	NA		NA		<5	U
2-Chloronaphthalene	91-58-7	NS		NS		ug/l	<0.2	U	NA		NA		<0.2	U	NA		NA		<0.2	U	NA		NA		<0.2	U
2-Chlorophenol	95-57-8	NS		NS		ug/l	<2	U	NA		NA		<2	U	NA		NA		<2	U	NA		NA		<2	U
2-Methylnaphthalene	91-57-6	4.2	a	38	a	ug/l	<0.1	U	NA		NA		<0.1	U	NA		NA		<0.1	U	NA		NA		<0.1	U
2-Methylphenol (o-Cresol)	95-48-7	NS		NS		ug/l	<5	U	NA		NA		<5	U	NA		NA		<5	U	NA		NA		<5	U
2-Nitroaniline	88-74-4	NS		NS		ug/l	<5	U	NA		NA		<5	U	NA		NA		<5	U	NA		NA		<5	U
2-Nitrophenol	88-75-5	NS		NS		ug/l	<10	U	NA		NA		<10	U	NA		NA		<10	U	NA		NA		<10	U
3 & 4 Methylphenol (m&p Cresol)	65794-96-9	NS		NS		ug/l	<5	U	NA		NA		<5	U	NA		NA		<5	U	NA		NA		<5	U
3,3'-Dichlorobenzidine	91-94-1	NS		NS		ug/l	<5	U	NA		NA		<5	UJ	NA		NA		<5	U	NA		NA		<5	UJ
3-Nitroaniline	99-09-2	NS		NS		ug/l	<5	U	NA		NA		<5	U	NA		NA		<5	U	NA		NA		<5	U
4,6-Dinitro-2-Methylphenol	534-52-1	NS		NS		ug/l	<10	U	NA		NA		<10	U	NA		NA		<10	U	NA		NA		<10	U
4-Bromophenyl Phenyl Ether	101-55-3	NS		NS		ug/l	<2	U	NA		NA		<2	U	NA		NA		<2	U	NA		NA		<2	U
4-Chloro-3-Methylphenol	59-50-7	NS		NS		ug/l	<2	U	NA		NA		<2	U	NA		NA		<2	U	NA		NA		<2	U
4-Chloroaniline	106-47-8	NS		NS		ug/l	<5	UJ	NA		NA		<5	U	NA		NA		<5	U	NA		NA		<5	U
4-Chlorophenyl Phenyl Ether	7005-72-3	NS		NS		ug/l	<2	U	NA		NA		<2	U	NA		NA		<2	U	NA		NA		<2	U
4-Nitroaniline	100-01-6	NS		NS		ug/l	<5	U	NA		NA		<5	UJ	NA		NA		<5	U	NA		NA		<5	UJ
4-Nitrophenol	100-02-7	NS		NS		ug/l	<10	U	NA		NA		<10	U	NA		NA		<10	U	NA		NA		<10	U
Acenaphthene	83-32-9	6.6	a	60	a	ug/l	<0.1	U	NA		NA		<0.1	U	NA		NA		<0.1	U	NA		NA		<0.1	U
Acenaphthylene	208-96-8	28	b	291	b	ug/l	<0.1	U	NA		NA		<0.1	U	NA		NA		<0.1	U	NA		NA		<0.1	U
Acetophenone	98-86-2	NS		NS		ug/l	<5	U	NA		NA		<5	U	NA		NA		<5	U	NA		NA		<5	U
Anthracene	120-12-7	0.43	b	1.8	b	ug/l	<0.1	UJ	NA		NA		<0.1	U	NA		NA		<0.1	U	NA		NA		<0.1	U
Benzo(a)anthracene	56-55-3	0.35	b	4.6	b	ug/l	<0.1	U	NA		NA		<0.1	U	NA		NA		<0.1	U	NA		NA		<0.1	U
Benzo(a)pyrene	50-32-8	0.02	b	0.64	b	ug/l	<0.1	UJ	NA		NA		<0.1	U	NA		NA		<0.1	U	NA		NA		<0.1	U
Benzo(b)fluoranthene	205-99-2	0.06	b	1.4	b	ug/l	<0.1	U	NA		NA		<0.1	U	NA		NA		<0.1	U	NA		NA		<0.1	U
Benzo(g,h,i)Perylene	191-24-2	0.012	b	0.19	b	ug/l	<0.1	UJ	NA		NA		<0.1	U	NA		NA		<0.1	U	NA		NA		<0.1	U
Benzo(k)fluoranthene	207-08-9	0.06	b	1.3	b	ug/l	0.01	J	NA		NA		<0.1	U	NA		NA		<0.1	U	NA		NA		<0.1	U
Benzoic Acid	65-85-0	NS		NS		ug/l	<50	UJ	NA		NA		<50	U	NA		NA		10	J	NA		NA		<50	U
Benzyl Alcohol	100-51-6	NS		NS		ug/l	<2	U	NA		NA		<2	U	NA		NA		<2	U	NA		NA		<2	U
Benzyl Butyl Phthalate	85-68-7	NS		NS		ug/l	<5	U	NA		NA		<5	U	NA		NA		<5	U	NA		NA		<5	U
Biphenyl (Diphenyl)	92-52-4	NS		NS		ug/l	<2	U	NA		NA		<2	U	NA		NA		<2	U	NA		NA		<2	U
Bis(2-chloroethoxy) methane	111-91-1	NS		NS		ug/l	<5	U	NA		NA		<5	U	NA		NA		<5	U	NA		NA		<5	U
Bis(2-chloroethyl) ether (2-chloroethyl ether)	111-44-4	NS		NS		ug/l	<2	U	NA		NA		<2	U	NA		NA		<2	U	NA		NA		<2	U
Bis(2-chloroisopropyl) ether	108-60-1	NS		NS		ug/l	<2	U	NA		NA		<2	UJ	NA		NA		<2	U	NA		NA		<2	UJ
Bis(2-ethylhexyl) phthalate	117-81-7	NS		NS		ug/l	<3	U	NA		NA		<3	UJ	NA		NA		<3	U	NA		NA		<3	UJ
Carbazole	86-74-8	NS		NS		ug/l	<2	U	NA		NA		<2	UJ	NA		NA		<2	U	NA		NA		<2	UJ
Chrysene	218-01-9	0.35	b	4.2	b	ug/l	<0.1	UJ	NA		NA		<0.1	U	NA		NA		<0.1	U	NA		NA		<0.1	U
Dibenz(a,h)anthracene	53-70-3	NS		NS		ug/l	<0.1	UJ	NA		NA		<0.1	U	NA		NA		<0.1	U	NA		NA		<0.1	U
Dibenzofuran	132-64-9	61	b	242	b	ug/l	<2	U	NA		NA		<2	U	NA		NA		<2	U	NA		NA		<2	U
Dibutyl phthalate	84-74-2	NS		NS		ug/l	<5	U	NA		NA		<5	UJ	NA		NA		<5	U	NA		NA		<5	UJ
Diethyl phthalate	84-66-2	NS		NS		ug/l	<5	U	NA		NA		<5	U	NA		NA		<5	U	NA		NA		<5	U
Dimethyl phthalate	131-11-3	NS		NS		ug/l	<5	U	NA		NA		<5	U	NA		NA		<5	U	NA		NA		<5	U
Dioctyl phthalate	117-84-0	NS		NS		ug/l	<5	U	NA		NA		<5	U	NA		NA		<5	U	NA		NA		<5	U
Fluoranthene	206-44-0	0.82	b	3.4	b	ug/l	<0.1	UJ	NA		NA		<0.1	U	NA		NA		<0.1	U	NA		NA		<0.1	U
Fluorene	86-73-7	2.5	a	23	a	ug/l	<0.1	U	NA		NA		<0.1	U	NA		NA		<0.1	U	NA		NA		<0.1	U
Hexachlorobenzene	118-74-1	NS		NS		ug/l	<0.8	UJ	NA		NA		<0.8	U	NA		NA		<0.8	U	NA		NA		<0.8	U
Hexachlorobutadiene	87-68-3	0.3	a	3	a	ug/l	<0.5	U	NA		NA		<0.5	U	NA		NA		<0.5	U	NA		NA		<0.5	U
Semi-Volatile Organic Compounds - Dissolved																										
Hexachlorocyclopentadiene	77-47-4	0.07	a	0.7	a	ug/l	<20	U	NA		NA		<20	U	NA		NA		<20	U	NA		NA		<20	U
Hexachloroethane	67-72-1	NS		NS		ug/l	<0.8	U	NA		NA		<0.8	U	NA		NA		<0.8	U	NA		NA		<0.8	U
Indeno(1,2,3-cd)pyrene	193-39-5	0.012	b	0.27	b	ug/l	0.01	J	NA		NA		<0.1	U	NA		NA		<0.1	U	NA		NA		<0.1	U
Isophorone	78-59-1	NS		NS		ug/l	<5	U	NA		NA		<5	U	NA		NA		<5	U	NA		NA		<5	U
Naphthalene	91-20-3	16	a	140	a	ug/l	<0.1	U	NA		NA		<0.1	U	NA		NA		0.05	J	NA		NA		<0.1	U
Nitrobenzene	98-95-3	NS		NS		ug/l	<2	U	NA		NA		<2	U	NA		NA		<2	U	NA		NA		<2	U
n-Nitrosodi-N-Propylamine	621-64-7	NS		NS		ug/l	<5	U	NA		NA		<5	U	NA		NA		<5	U	NA		NA		<5	U
n-Nitrosodiphenylamine	86-30-6	NS		NS		ug/l	<2	U	NA		NA		<2	U	NA		NA		<2	U	NA		NA		<2	U
Pentachlorophenol	87-86-5	NS		NS		ug/l	<0.8	UJ	NA		NA		<0.8	UJ	NA		NA		<0.8	UJ	NA		NA		<0.8	UJ
Phenanthrene	85-01-8	1.5	a	14	a	ug/l	<0.1	U	NA		NA		<0.1	U	NA		NA		0.03	J	NA		NA		<0.1	U
Phenol	108-95-2	NS		NS		ug/l	6.2		NA		NA		6.9		NA		NA		8		NA		NA		11	
Pyrene	129-00-0	0.11	b	0.45	b	ug/l	<0.1	UJ	NA		NA		<0.1	U	NA		NA		<0.1	U	NA		NA		<0.1	U

Table 1
Remedial Investigation Report - Fish and Wildlife Resource Impact Analysis
Groundwater Sample Analytical Results

C Block
Brooklyn, New York
Langan Project No.: 170229030

Analyte	CAS Number	Fish Propagation (saline waters)		Fish Survival (saline waters)		Location	MW10		MW11		MW11		MW11		MW12		MW12		MW12		MW13		MW13		MW13	
						Sample Name	MW10_080522_FILTERED		MW11_011326		MW11_080322		MW11_080322_FILTERED		MW12_011226		MW12_080122		MW12_080122_FILTERED		MW13_011326		MW13_080322		MW13_080322_FILTERED	
						Sample Date	08/05/2022		01/13/2026		08/03/2022		08/03/2022		01/12/2026		08/01/2022		08/01/2022		01/13/2026		08/03/2022		08/03/2022	
						Unit	Result	Q	Result	Q	Result	Q	Result	Q	Result	Q	Result	Q	Result	Q	Result	Q	Result	Q	Result	Q
Semi-Volatile Organic Compounds - Total																										
1,2,4,5-Tetrachlorobenzene	95-94-3	NS		NS		ug/l	NA		NA		<10	U	NA		NA		<10	U	NA		NA		<10	U	NA	
1,2,4-Trichlorobenzene	120-82-1	5	a	NS		ug/l	NA		NA		<5	U	NA		NA		<5	U	NA		NA		<5	U	NA	
1,2-Dichlorobenzene	95-50-1	5	a	NS		ug/l	NA		NA		<2	U	NA		NA		<2	U	NA		NA		<2	U	NA	
1,3-Dichlorobenzene	541-73-1	5	a	NS		ug/l	NA		NA		<2	U	NA		NA		<2	U	NA		NA		<2	U	NA	
1,4-Dichlorobenzene	106-46-7	5	a	NS		ug/l	NA		NA		<2	U	NA		NA		<2	U	NA		NA		<2	U	NA	
1,4-Dioxane (P-Dioxane)	123-91-1	NS		NS		ug/l	NA		NA		<0.142	U	NA		NA		<0.15	U	NA		NA		<0.153	U	NA	
2,4,5-Trichlorophenol	95-95-4	NS		NS		ug/l	NA		NA		<5	U	NA		NA		<5	U	NA		NA		<5	U	NA	
2,4,6-Trichlorophenol	88-06-2	NS		NS		ug/l	NA		NA		<5	U	NA		NA		<5	U	NA		NA		<5	U	NA	
2,4-Dichlorophenol	120-83-2	NS		NS		ug/l	NA		NA		<5	U	NA		NA		<5	U	NA		NA		<5	U	NA	
2,4-Dimethylphenol	105-67-9	NS		NS		ug/l	NA		NA		<5	U	NA		NA		<5	U	NA		NA		<5	U	NA	
2,4-Dinitrophenol	51-28-5	NS		NS		ug/l	NA		NA		<20	U	NA		NA		<20	U	NA		NA		<20	U	NA	
2,4-Dinitrotoluene	121-14-2	NS		NS		ug/l	NA		NA		<5	U	NA		NA		<5	U	NA		NA		<5	U	NA	
2,6-Dinitrotoluene	606-20-2	NS		NS		ug/l	NA		NA		<5	U	NA		NA		<5	U	NA		NA		<5	U	NA	
2-Chloronaphthalene	91-58-7	NS		NS		ug/l	NA		NA		<0.2	U	NA		NA		<0.2	U	NA		NA		<0.2	U	NA	
2-Chlorophenol	95-57-8	NS		NS		ug/l	NA		NA		<2	U	NA		NA		<2	U	NA		NA		<2	U	NA	
2-Methylnaphthalene	91-57-6	4.2	a	38	a	ug/l	NA		NA		<0.1	U	NA		NA		0.02	J	NA		NA		<0.1	U	NA	
2-Methylphenol (o-Cresol)	95-48-7	NS		NS		ug/l	NA		NA		<5	U	NA		NA		<5	U	NA		NA		<5	U	NA	
2-Nitroaniline	88-74-4	NS		NS		ug/l	NA		NA		<5	U	NA		NA		<5	U	NA		NA		<5	U	NA	
2-Nitrophenol	88-75-5	NS		NS		ug/l	NA		NA		<10	U	NA		NA		<10	U	NA		NA		<10	U	NA	
3 & 4 Methylphenol (m&p Cresol)	65794-96-9	NS		NS		ug/l	NA		NA		<5	U	NA		NA		<5	U	NA		NA		<5	U	NA	
3,3'-Dichlorobenzidine	91-94-1	NS		NS		ug/l	NA		NA		<5	UJ	NA		NA		<5	U	NA		NA		<5	UJ	NA	
3-Nitroaniline	99-09-2	NS		NS		ug/l	NA		NA		<5	U	NA		NA		<5	U	NA		NA		<5	U	NA	
4,6-Dinitro-2-Methylphenol	534-52-1	NS		NS		ug/l	NA		NA		<10	U	NA		NA		<10	U	NA		NA		<10	U	NA	
4-Bromophenyl Phenyl Ether	101-55-3	NS		NS		ug/l	NA		NA		<2	U	NA		NA		<2	U	NA		NA		<2	U	NA	
4-Chloro-3-Methylphenol	59-50-7	NS		NS		ug/l	NA		NA		<2	U	NA		NA		<2	U	NA		NA		<2	U	NA	
4-Chloroaniline	106-47-8	NS		NS		ug/l	NA		NA		<5	U	NA		NA		<5	U	NA		NA		<5	U	NA	
4-Chlorophenyl Phenyl Ether	7005-72-3	NS		NS		ug/l	NA		NA		<2	U	NA		NA		<2	U	NA		NA		<2	U	NA	
4-Nitroaniline	100-01-6	NS		NS		ug/l	NA		NA		<5	UJ	NA		NA		<5	U	NA		NA		<5	UJ	NA	
4-Nitrophenol	100-02-7	NS		NS		ug/l	NA		NA		<10	U	NA		NA		<10	U	NA		NA		<10	U	NA	
Acenaphthene	83-32-9	6.6	a	60	a	ug/l	NA		NA		<0.1	U	NA		NA		0.03	J	NA		NA		<0.1	U	NA	
Acenaphthylene	208-96-8	28	b	291	b	ug/l	NA		NA		<0.1	U	NA		NA		<0.1	U	NA		NA		<0.1	U	NA	
Acetophenone	98-86-2	NS		NS		ug/l	NA		NA		<5	U	NA		NA		<5	U	NA		NA		<5	U	NA	
Anthracene	120-12-7	0.43	b	1.8	b	ug/l	NA		NA		<0.1	U	NA		NA		0.02	J	NA		NA		<0.1	U	NA	
Benzo(a)anthracene	56-55-3	0.35	b	4.6	b	ug/l	NA		NA		<0.1	U	NA		NA		0.03	J	NA		NA		<0.1	U	NA	
Benzo(a)pyrene	50-32-8	0.02	b	0.64	b	ug/l	NA		NA		<0.1	U	NA		NA		<0.1	U	NA		NA		<0.1	U	NA	
Benzo(b)fluoranthene	205-99-2	0.06	b	1.4	b	ug/l	NA		NA		<0.1	U	NA		NA		<0.1	U	NA		NA		<0.1	U	NA	
Benzo(g,h,i)Perylene	191-24-2	0.012	b	0.19	b	ug/l	NA		NA		<0.1	U	NA		NA		<0.1	U	NA		NA		<0.1	U	NA	
Benzo(k)fluoranthene	207-08-9	0.06	b	1.3	b	ug/l	NA		NA		<0.1	U	NA		NA		<0.1	U	NA		NA		<0.1	U	NA	
Benzoic Acid	65-85-0	NS		NS		ug/l	NA		NA		<50	U	NA		NA		<50	UJ	NA		NA		<50	U	NA	
Benzyl Alcohol	100-51-6	NS		NS		ug/l	NA		NA		<2	U	NA		NA		<2	U	NA		NA		<2	U	NA	
Benzyl Butyl Phthalate	85-68-7	NS		NS		ug/l	NA		NA		<5	U	NA		NA		<5	U	NA		NA		<5	U	NA	
Biphenyl (Diphenyl)	92-52-4	NS		NS		ug/l	NA		NA		<2	U	NA		NA		<2	U	NA		NA		<2	U	NA	
Bis(2-chloroethoxy) methane	111-91-1	NS		NS		ug/l	NA		NA		<5	U	NA		NA		<5	U	NA		NA		<5	U	NA	
Bis(2-chloroethyl) ether (2-chloroethyl ether)	111-44-4	NS		NS		ug/l	NA		NA		<2	U	NA		NA		<2	U	NA		NA		<2	U	NA	
Bis(2-chloroisopropyl) ether	108-60-1	NS		NS		ug/l	NA		NA		<2	UJ	NA		NA		<2	U	NA		NA		<2	UJ	NA	
Bis(2-ethylhexyl) phthalate	117-81-7	NS		NS		ug/l	NA		NA		<3	UJ	NA		NA		<3	U	NA		NA		<3	UJ	NA	
Carbazole	86-74-8	NS		NS		ug/l	NA		NA		<2	UJ	NA		NA		<2	U	NA		NA		<2	UJ	NA	
Chrysene	218-01-9	0.35	b	4.2	b	ug/l	NA		NA		<0.1	U	NA		NA		<0.1	U	NA		NA		<0.1	U	NA	
Dibenz(a,h)anthracene	53-70-3	NS		NS		ug/l	NA		NA		<0.1	U	NA		NA		<0.1	U	NA		NA		<0.1	U	NA	
Dibenzofuran	132-64-9	61	b	242	b	ug/l	NA		NA		<2	U	NA		NA		<2	U	NA		NA		<2	U	NA	
Dibutyl phthalate	84-74-2	NS		NS		ug/l	NA		NA		<5	UJ	NA		NA		<5	U	NA		NA		<5	UJ	NA	
Diethyl phthalate	84-66-2	NS		NS		ug/l	NA		NA		<5	U	NA		NA		<5	U	NA		NA		<5	U	NA	
Dimethyl phthalate	131-11-3	NS		NS		ug/l	NA		NA		<5	U	NA		NA		<5	U	NA		NA		<5	U	NA	
Dioctyl phthalate	117-84-0	NS		NS		ug/l	NA		NA		<5	U	NA		NA		<5	U	NA		NA		<5	U	NA	
Fluoranthene	206-44-0	0.82	b	3.4	b	ug/l	NA		NA		<0.1	U	NA		NA		0.03	J	NA		NA		<0.1	U	NA	
Fluorene	86-73-7	2.5	a	23	a	ug/l	NA		NA		<0.1	U	NA		NA		0.03	J	NA		NA		<0.1	U	NA	
Hexachlorobenzene	118-74-1	NS		NS		ug/l	NA		NA		<0.8	U	NA		NA		<0.8	U	NA		NA		<0.8	U	NA	
Hexachlorobutadiene	87-68-3	0.3	a	3	a	ug/l	NA		NA		<0.5	U	NA		NA		<0.5	U	NA		NA		<0.5	U	NA	
Semi-Volatile Organic Compounds - Total																										
Hexachlorocyclopentadiene	77-47-4	0.07	a	0.7	a	ug/l	NA		NA		<20	U	NA		NA		<20	U	NA		NA		<20	U	NA	
Hexachloroethane	67-72-1	NS		NS		ug/l	NA		NA		<0.8	U	NA		NA		<0.8	U	NA		NA		<0.8	U	NA	
Indeno(1,2,3-cd)pyrene	193-39-5	0.012	b	0.27	b	ug/l	NA		NA		<0.1	U	NA		NA		<0.1	U	NA		NA		<0.1	U	NA	
Isophorone	78-59-1	NS		NS		ug/l	NA		NA		<5	U	NA		NA		<5	U	NA		NA		<5	U	NA	
Naphthalene	91-20-3	16	a	140	a	ug/l	NA		NA		0.06	J	NA		NA		<0.1	U	NA		NA		<0.1	U	NA	
Nitrobenzene	98-95-3	NS		NS		ug/l	NA		NA		<2	U	NA		NA		<2	U	NA		NA		<2	U	NA	
n-Nitrosodi-N-Propylamine	621-64-7	NS		NS		ug/l	NA		NA		<5	U	NA		NA		<5	U	NA		NA		<5	U	NA	
n-Nitrosodiphenylamine	86-30-6	NS		NS		ug/l	NA		NA		<2	U	NA		NA		<2	U	NA		NA		<2	U	NA	
Pentachlorophenol	87-86-5	NS		NS		ug/l	NA		NA		<0.8	UJ	NA		NA		<0.8	UJ	NA		NA		<0.8	UJ	NA	
Phenanthrene	85-01-8	1.5	a	14	a	ug/l	NA		NA		<0.1	U	NA		NA		0.09	J	NA		NA		<0.1	U	NA	
Phenol	108-95-2	NS		NS		ug/l	NA		NA		<5	U	NA		NA		<5	U	NA		NA		<5	U	NA	
Pyrene	129-00-0	0.11	b	0.45	b	ug/l	NA		NA		<0.1	U	NA		NA		0.03	J	NA		NA		<0.1	U	NA	

Table 1
Remedial Investigation Report - Fish and Wildlife Resource Impact Analysis
Groundwater Sample Analytical Results

C Block
Brooklyn, New York
Langan Project No.: 170229030

Analyte	CAS Number	Fish Propagation (saline waters)		Fish Survival (saline waters)		Location	MW10		MW11		MW11		MW11		MW12		MW12		MW12		MW13		MW13		MW13	
						Sample Name	MW10_080522_FILTERED		MW11_011326		MW11_080322		MW11_080322_FILTERED		MW12_011226		MW12_080122		MW12_080122_FILTERED		MW13_011326		MW13_080322		MW13_080322_FILTERED	
						Sample Date	08/05/2022		01/13/2026		08/03/2022		08/03/2022		01/12/2026		08/01/2022		08/01/2022		01/13/2026		08/03/2022		08/03/2022	
						Unit	Result	Q	Result	Q	Result	Q	Result	Q	Result	Q	Result	Q	Result	Q	Result	Q	Result	Q	Result	Q
Pesticides																										
4,4'-DDD	72-54-8	NS		NS		ug/l	NA		NA		<0.029	U	NA		NA		<0.029	U	NA		NA		<0.029	U	NA	
4,4'-DDE	72-55-9	NS		NS		ug/l	NA		NA		<0.029	U	NA		NA		<0.029	U	NA		NA		<0.029	U	NA	
4,4'-DDT	50-29-3	NS		NS		ug/l	NA		NA		<0.029	U	NA		NA		<0.029	U	NA		NA		<0.029	U	NA	
Aldrin	309-00-2	NS		NS		ug/l	NA		NA		<0.014	U	NA		NA		<0.014	U	NA		NA		<0.014	U	NA	
Alpha BHC (Alpha Hexachlorocyclohexane)	319-84-6	NS		NS		ug/l	NA		NA		<0.014	U	NA		NA		<0.014	U	NA		NA		<0.014	U	NA	
Alpha Chlordane	5103-71-9	NS		NS		ug/l	NA		NA		<0.014	U	NA		NA		<0.014	U	NA		NA		<0.014	U	NA	
Alpha Endosulfan	959-98-8	NS		NS		ug/l	NA		NA		<0.014	U	NA		NA		<0.014	U	NA		NA		<0.014	U	NA	
Beta Bhc (Beta Hexachlorocyclohexane)	319-85-7	NS		NS		ug/l	NA		NA		<0.014	U	NA		NA		<0.014	U	NA		NA		<0.014	U	NA	
Beta Endosulfan	33213-65-9	NS		NS		ug/l	NA		NA		<0.029	U	NA		NA		<0.029	U	NA		NA		<0.029	U	NA	
Chlordane (alpha and gamma)	57-74-9	NS		NS		ug/l	NA		NA		<0.143	U	NA		NA		<0.143	U	NA		NA		<0.143	U	NA	
Delta Bhc (Delta Hexachlorocyclohexane)	319-86-8	NS		NS		ug/l	NA		NA		<0.014	U	NA		NA		<0.014	U	NA		NA		<0.014	U	NA	
Dieldrin	60-57-1	NS		NS		ug/l	NA		NA		<0.029	U	NA		NA		<0.029	U	NA		NA		<0.029	U	NA	
Endosulfan Sulfate	1031-07-8	NS		NS		ug/l	NA		NA		<0.029	U	NA		NA		<0.029	U	NA		NA		<0.029	U	NA	
Endrin	72-20-8	NS		NS		ug/l	NA		NA		<0.029	U	NA		NA		<0.029	U	NA		NA		<0.029	U	NA	
Endrin Aldehyde	7421-93-4	NS		NS		ug/l	NA		NA		<0.029	U	NA		NA		<0.029	U	NA		NA		<0.029	U	NA	
Endrin Ketone	53494-70-5	NS		NS		ug/l	NA		NA		<0.029	U	NA		NA		<0.029	U	NA		NA		<0.029	U	NA	
Gamma Bhc (Lindane)	58-89-9	NS		NS		ug/l	NA		NA		<0.014	U	NA		NA		<0.014	U	NA		NA		<0.014	U	NA	
Gamma Chlordane (Trans)	5103-74-2	NS		NS		ug/l	NA		NA		<0.014	U	NA		NA		<0.014	U	NA		NA		<0.014	U	NA	
Heptachlor	76-44-8	NS		NS		ug/l	NA		NA		<0.014	U	NA		NA		<0.014	U	NA		NA		<0.014	U	NA	
Heptachlor Epoxide	1024-57-3	NS		NS		ug/l	NA		NA		<0.014	U	NA		NA		<0.014	U	NA		NA		<0.014	U	NA	
Methoxychlor	72-43-5	0.03	a	NS		ug/l	NA		NA		<0.143	U	NA		NA		<0.143	U	NA		NA		<0.143	U	NA	
Toxaphene	8001-35-2	0.005	a	0.07	a	ug/l	NA		NA		<0.143	U	NA		NA		<0.143	U	NA		NA		<0.143	U	NA	
Herbicides																										
2,4,5-T (Trichlorophenoxyacetic Acid)	93-76-5	NS		NS		ug/l	NA		NA		<2	U	NA		NA		<2	U	NA		NA		<2	U	NA	
2,4-D (Dichlorophenoxyacetic Acid)	94-75-7	NS		NS		ug/l	NA		NA		<10	U	NA		NA		<10	U	NA		NA		<10	U	NA	
Silvex (2,4,5-Tp)	93-72-1	NS		NS		ug/l	NA		NA		<2	U	NA		NA		<2	U	NA		NA		<2	U	NA	
Polychlorinated Biphenyl																										
PCB-1016 (Aroclor 1016)	12674-11-2	NS		NS		ug/l	NA		NA		<0.071	U	NA		NA		<0.071	U	NA		NA		<0.071	U	NA	
PCB-1221 (Aroclor 1221)	11104-28-2	NS		NS		ug/l	NA		NA		<0.071	U	NA		NA		<0.071	U	NA		NA		<0.071	U	NA	
PCB-1232 (Aroclor 1232)	11141-16-5	NS		NS		ug/l	NA		NA		<0.071	U	NA		NA		<0.071	U	NA		NA		<0.071	U	NA	
PCB-1242 (Aroclor 1242)	53469-21-9	NS		NS		ug/l	NA		NA		<0.071	U	NA		NA		<0.071	U	NA		NA		<0.071	U	NA	
PCB-1248 (Aroclor 1248)	12672-29-6	NS		NS		ug/l	NA		NA		<0.071	U	NA		NA		<0.071	U	NA		NA		<0.071	U	NA	
PCB-1254 (Aroclor 1254)	11097-69-1	NS		NS		ug/l	NA		NA		<0.071	U	NA		NA		<0.071	U	NA		NA		<0.071	U	NA	
PCB-1260 (Aroclor 1260)	11096-82-5	NS		NS		ug/l	NA		NA		<0.071	U	NA		NA		<0.071	U	NA		NA		<0.071	U	NA	
PCB-1262 (Aroclor 1262)	37324-23-5	NS		NS		ug/l	NA		NA		<0.071	U	NA		NA		<0.071	U	NA		NA		<0.071	U	NA	
PCB-1268 (Aroclor 1268)	11100-14-4	NS		NS		ug/l	NA		NA		<0.071	U	NA		NA		<0.071	U	NA		NA		<0.071	U	NA	
Total PCBs	1336-36-3	NS		NS		ug/l	NA		NA		<0.071	U	NA		NA		<0.071	U	NA		NA		<0.071	U	NA	
Metals - Dissolved																										
Aluminum	7429-90-5	1500	b	NS		ug/l	NA		NA		8.52	J	NA		NA		3.96	J	NA		NA		<200	U	NA	
Antimony	7440-36-0	4300	b	NS		ug/l	NA		NA		0.62	J	NA		NA		<4	U	NA		NA		<80	U	NA	
Arsenic	7440-38-2	36	a	120	a	ug/l	NA		NA		0.2	J	NA		NA		6.97		NA		NA		5.19	J	NA	
Barium	7440-39-3	4	b	110	b	ug/l	NA		NA		**69.46**		NA		NA		**56.65**		NA		NA		**40.43**		NA	
Beryllium	7440-41-7	0.13	b	NS		ug/l	NA		NA		<0.5	U	NA		NA		<0.5	U	NA		NA		<10	U	NA	
Cadmium	7440-43-9	7.7	a	21	a	ug/l	NA		NA		<0.2	U	NA		NA		<0.2	U	NA		NA		<4	U	NA	
Calcium	7440-70-2	NS		NS		ug/l	NA		NA		289,000		NA		NA		115,000		NA		NA		341,000		NA	
Chromium, Total	7440-47-3	50	b	1100	b	ug/l	NA		NA		<1	U	NA		NA		<1	U	NA		NA		<20	U	NA	
Cobalt	7440-48-4	NS		NS		ug/l	NA		NA		0.67		NA		NA		0.32	J	NA		NA		9.33	J	NA	
Copper	7440-50-8	5.6	a	7.9	a	ug/l	NA		NA		0.5	J	NA		NA		<1	U	NA		NA		<20	U	NA	
Iron	7439-89-6	300	b	NS		ug/l	NA		NA		**9,890**		NA		NA		55.7	J	NA		NA		<1,000	U	NA	
Lead	7439-92-1	8	a	204	a	ug/l	NA		NA		0.8	J	NA		NA		<1	U	NA		NA		<20	U	NA	
Magnesium	7439-95-4	NS		NS		ug/l	NA		NA		410,000		NA		NA		59,000		NA		NA		1,010,000		NA	
Manganese	7439-96-5	100	b	NS		ug/l	NA		NA		**298.6**		NA		NA		87.42		NA		NA		42.07		NA	
Mercury	7439-97-6	0.94	a,b	1.8	a,b	ug/l	NA		NA		<0.2	U	NA		NA		<0.2	U	NA		NA		<0.2	U	NA	
Nickel	7440-02-0	8.2	a	74	a	ug/l	NA		NA		1.03	J	NA		NA		0.93	J	NA		NA		**20.7**	J	NA	
Potassium	7440-09-7	NS		NS		ug/l	NA		NA		142,000		NA		NA		22,900		NA		NA		329,000		NA	
Selenium	7782-49-2	71	b	290	b	ug/l	NA		NA		<5	U	NA		NA		<5	U	NA		NA		<100	U	NA	
Silver	7440-22-4	NS		2.3	a	ug/l	NA		NA		<0.4	U	NA		NA		<0.4	U	NA		NA		<8	U	NA	
Sodium	7440-23-5	NS		NS		ug/l	NA		NA		3,570,000		NA		NA		133,000		NA		NA		8,260,000		NA	
Thallium	7440-28-0	NS		NS		ug/l	NA		NA		<1	U	NA		NA		<1	U	NA		NA		3.2	J	NA	
Vanadium	7440-62-2	NS		NS		ug/l	NA		NA		<5	U	NA		NA		<5	U	NA		NA		<100	U	NA	
Zinc	7440-66-6	66	a	95	a	ug/l	NA		NA		14.69		NA		NA		<10	U	NA		NA		<200	U	NA	

Table 1
Remedial Investigation Report - Fish and Wildlife Resource Impact Analysis
Groundwater Sample Analytical Results

C Block
Brooklyn, New York
Langan Project No.: 170229030

Analyte	CAS Number	Fish Propagation (saline waters)		Fish Survival (saline waters)		Location	MW10		MW11		MW11		MW11		MW12		MW12		MW12		MW13		MW13		MW13	
						Sample Name	MW10_080522_FILTERED		MW11_011326		MW11_080322		MW11_080322_FILTERED		MW12_011226		MW12_080122		MW12_080122_FILTERED		MW13_011326		MW13_080322		MW13_080322_FILTERED	
						Sample Date	08/05/2022		01/13/2026		08/03/2022		08/03/2022		01/12/2026		08/01/2022		08/01/2022		01/13/2026		08/03/2022		08/03/2022	
						Unit	Result	Q	Result	Q	Result	Q	Result	Q	Result	Q	Result	Q	Result	Q	Result	Q	Result	Q	Result	Q
Metals - Total																										
Aluminum	7429-90-5	NS		NS		ug/l	NA		NA		103		NA		NA		11.5		NA		NA		213		NA	
Antimony	7440-36-0	NS		NS		ug/l	NA		NA		<4	U	NA		NA		<4	U	NA		NA		<40	U	NA	
Arsenic	7440-38-2	36	a	120	a	ug/l	NA		NA		1.37		NA		NA		8.9		NA		NA		2.94	J	NA	
Barium	7440-39-3	NS		NS		ug/l	NA		NA		73.08		NA		NA		66.3		NA		NA		43.05		NA	
Beryllium	7440-41-7	NS		NS		ug/l	NA		NA		<0.5	U	NA		NA		<0.5	U	NA		NA		<5	U	NA	
Cadmium	7440-43-9	7.7	a	21	a	ug/l	NA		NA		<0.2	U	NA		NA		<0.2	U	NA		NA		0.75	J	NA	
Calcium	7440-70-2	NS		NS		ug/l	NA		NA		151,000		NA		NA		109,000		NA		NA		274,000		NA	
Chromium, Hexavalent	18540-29-9	50	a	1200	a	ug/l	NA		NA		<10	U	NA		NA		<10	U	NA		NA		<10	U	NA	
Chromium, Total	7440-47-3	NS		NS		ug/l	NA		NA		0.35	J	NA		NA		<1	U	NA		NA		<10	U	NA	
Chromium, Trivalent	16065-83-1	NS		NS		ug/l	NA		NA		<10	U	NA		NA		<10	U	NA		NA		<10	U	NA	
Cobalt	7440-48-4	NS		NS		ug/l	NA		NA		0.95		NA		NA		0.44	J	NA		NA		9.96		NA	
Copper	7440-50-8	5.6	a	7.9	a	ug/l	NA		NA		1.11	J	NA		NA		<1	U	NA		NA		**7.59**	J	NA	
Cyanide	57-12-5	1	a	1	a	ug/l	NA		NA		<5	U	NA		NA		<5	U	NA		NA		<5	U	NA	
Iron	7439-89-6	NS		NS		ug/l	NA		NA		10,100		NA		NA		1,320		NA		NA		1,040		NA	
Lead	7439-92-1	8	a	204	a	ug/l	NA		NA		4.98		NA		NA		<1	U	NA		NA		<10	U	NA	
Magnesium	7439-95-4	NS		NS		ug/l	NA		NA		427,000		NA		NA		58,900		NA		NA		964,000		NA	
Manganese	7439-96-5	NS		NS		ug/l	NA		NA		298		NA		NA		92.75		NA		NA		48.53		NA	
Mercury	7439-97-6	NS		NS		ug/l	NA		NA		<0.2	U	NA		NA		<0.2	U	NA		NA		<0.2	U	NA	
Nickel	7440-02-0	8.2	a	74	a	ug/l	NA		NA		2.34	J	NA		NA		0.77	J	NA		NA		**33**		NA	
Potassium	7440-09-7	NS		NS		ug/l	NA		NA		87,100		NA		NA		21,000		NA		NA		275,000		NA	
Selenium	7782-49-2	NS		NS		ug/l	NA		NA		<5	U	NA		NA		<5	U	NA		NA		<50	U	NA	
Silver	7440-22-4	NS		2.3	a	ug/l	NA		NA		<0.4	U	NA		NA		<0.4	U	NA		NA		<4	U	NA	
Sodium	7440-23-5	NS		NS		ug/l	NA		NA		3,890,000		NA		NA		130,000		NA		NA		8,020,000		NA	
Thallium	7440-28-0	NS		NS		ug/l	NA		NA		<1	U	NA		NA		<1	U	NA		NA		<10	U	NA	
Vanadium	7440-62-2	NS		NS		ug/l	NA		NA		<5	U	NA		NA		<5	U	NA		NA		<50	U	NA	
Zinc	7440-66-6	66	a	95	a	ug/l	NA		NA		17.89		NA		NA		<10	U	NA		NA		58.26	J	NA	
Per- and Polyfluoroalkyl Substances																										
11-Chloroeicosafluoro-3-Oxaundecane-1-Sulfonic Acid (11Cl-PF3OUdS)	763051-92-9	NS		NS		ug/l	NA		<0.00743	U	NA		NA		<0.00764	U	NA		NA		<0.00758	U	NA		NA	
1H,1H,2H,2H-Perfluorodecane Sulfonic Acid (8:2 FTS)	39108-34-4	NS		NS		ug/l	NA		<0.00754	U	<0.00186	U	NA		<0.00776	U	<0.00181	U	NA		<0.0077	U	<0.00181	U	NA	
1H,1H,2H,2H-Perfluorohexane Sulfonic Acid (4:2 FTS)	757124-72-4	NS		NS		ug/l	NA		<0.00737	U	NA		NA		<0.00756	U	NA		NA		<0.00752	U	NA		NA	
1H,1H,2H,2H-Perfluorooctane Sulfonic Acid (6:2 FTS)	27619-97-2	NS		NS		ug/l	NA		<0.00747	U	<0.00186	U	NA		<0.00768	U	<0.00181	UJ	NA		<0.00762	U	0.00133	J	NA	
2H,2H,3H,3H-Perfluorooctanoic Acid (5:3 FTCA)	914637-49-3	NS		NS		ug/l	NA		<0.0491	U	NA		NA		<0.0505	U	NA		NA		<0.0501	U	NA		NA	
3-Perfluoroheptyl Propanoic Acid (7:3 FTCA)	812-70-4	NS		NS		ug/l	NA		<0.0491	U	NA		NA		<0.0505	U	NA		NA		<0.0501	U	NA		NA	
3-Perfluoropropyl Propanoic Acid (3:3 FTCA)	356-02-5	NS		NS		ug/l	NA		<0.00982	U	NA		NA		<0.0101	U	NA		NA		<0.01	U	NA		NA	
4,8-Dioxa-3H-perfluorononanoic Acid (ADONA)	919005-14-4	NS		NS		ug/l	NA		<0.00743	U	NA		NA		<0.00764	U	NA		NA		<0.00758	U	NA		NA	
9-Chlorohexadecafluoro-3-Oxanonane-1-Sulfonic Acid (9Cl-PF3ONS)	756426-58-1	NS		NS		ug/l	NA		<0.00735	U	NA		NA		<0.00756	U	NA		NA		<0.00749	U	NA		NA	
Hexafluoropropylene Oxide Dimer Acid (HFPO-DA)	13252-13-6	NS		NS		ug/l	NA		<0.00786	U	NA		NA		<0.00808	U	NA		NA		<0.00802	U	NA		NA	
N-ethyl Perfluorooctanesulfonamide (NEtFOSA)	4151-50-2	NS		NS		ug/l	NA		<0.00196	U	NA		NA		<0.00202	U	NA		NA		<0.002	U	NA		NA	
N-ethyl Perfluorooctanesulfonamidoacetic Acid (NEtFOSAA)	2991-50-6	NS		NS		ug/l	NA		<0.00196	U	<0.00186	U	NA		<0.00202	U	<0.00181	U	NA		<0.002	U	<0.00181	U	NA	
N-ethyl Perfluorooctanesulfonamidoethanol (NEtFOSE)	1691-99-2	NS		NS		ug/l	NA		<0.0196	U	NA		NA		<0.0202	U	NA		NA		<0.02	U	NA		NA	
N-methyl Perfluorooctanesulfonamide (NMeFOSA)	31506-32-8	NS		NS		ug/l	NA		<0.00196	U	NA		NA		<0.00202	U	NA		NA		<0.002	U	NA		NA	
N-methyl Perfluorooctanesulfonamidoacetic Acid (NMeFOSAA)	2355-31-9	NS		NS		ug/l	NA		<0.00196	U	<0.00186	U	NA		<0.00202	U	<0.00181	U	NA		<0.002	U	<0.00181	U	NA	
N-methyl Perfluorooctanesulfonamidoethanol (NMeFOSE)	24448-09-7	NS		NS		ug/l	NA		<0.0196	U	NA		NA		<0.0202	U	NA		NA		<0.02	U	NA		NA	
Nonafluoro-3,6-dioxaheptanoic Acid (NFDHA)	151772-58-6	NS		NS		ug/l	NA		<0.00393	U	NA		NA		<0.00404	U	NA		NA		<0.00401	U	NA		NA	
Perfluoro(2-ethoxyethane)sulfonic Acid (PFEESA)	113507-82-7	NS		NS		ug/l	NA		<0.0035	U	NA		NA		<0.0036	U	NA		NA		<0.00357	U	NA		NA	
Perfluoro-3-methoxypropanoic Acid (PFMPA)	377-73-1	NS		NS		ug/l	NA		<0.00393	U	NA		NA		<0.00404	U	NA		NA		<0.00401	U	NA		NA	
Perfluoro-4-methoxybutanoic Acid (PFMBA)	863090-89-5	NS		NS		ug/l	NA		<0.00393	U	NA		NA		<0.00404	U	NA		NA		<0.00401	U	NA		NA	
Perfluorobutanesulfonic Acid (PFBS)	375-73-5	NS		NS		ug/l	NA		0.00336		0.00212		NA		0.00236		0.00163	J	NA		0.000783	J	0.00209		NA	
Perfluorobutanoic Acid (PFBA)	375-22-4	NS		NS		ug/l	NA		<0.00786	U	0.00704		NA		0.00585	J	0.00545		NA		<0.00802	U	0.00285		NA	
Perfluorodecanesulfonic Acid (PFDS)	335-77-3	NS		NS		ug/l	NA		<0.0019	U	<0.00186	U	NA		<0.00195	U	<0.00181	U	NA		<0.00193	U	<0.00181	U	NA	
Perfluorodecanoic Acid (PFDA)	335-76-2	NS		NS		ug/l	NA		<0.00196	U	<0.00186	U	NA		<0.00202	U	<0.00181	U	NA		<0.002	U	0.000778	J	NA	
Perfluorododecanesulfonic Acid (PFDoS)	79780-39-5	NS		NS		ug/l	NA		<0.00191	U	NA		NA		<0.00196	U	NA		NA		<0.00194	U	NA		NA	
Perfluorododecanoic Acid (PFDoA)	307-55-1	NS		NS		ug/l	NA		<0.00196	U	<0.00186	U	NA		<0.00202	U	<0.00181	U	NA		<0.002	U	<0.00181	U	NA	
Perfluoroheptanesulfonic Acid (PFHpS)	375-92-8	NS		NS		ug/l	NA		<0.00188	U	<0.00186	U	NA		<0.00193	U	<0.00181	U	NA		<0.00191	U	<0.00181	U	NA	
Perfluoroheptanoic Acid (PFHpA)	375-85-9	NS		NS		ug/l	NA		0.00111	J	0.00224		NA		0.000876	J	0.00136	J	NA		<0.002	U	0.00214		NA	
Perfluorohexanesulfonic Acid (PFHxS)	355-46-4	NS		NS		ug/l	NA		<0.0018	U	0.00159	J	NA		<0.00185	U	0.000457	J	NA		<0.00183	U	0.00102	J	NA	
Perfluorohexanoic Acid (PFHxA)	307-24-4	NS		NS		ug/l	NA		0.00122	J	0.00241		NA		0.00265		0.00348		NA		0.00071	J	0.0033		NA	
Perfluorononanesulfonic Acid (PFNS)	68259-12-1	NS		NS		ug/l	NA		<0.00189	U	NA		NA		<0.00194	U	NA		NA		<0.00192	U	NA		NA	
Perfluorononanoic Acid (PFNA)	375-95-1	NS		NS		ug/l	NA		<0.00196	U	<0.00186	U	NA		<0.00202	U	<0.00181	U	NA		<0.002	U	0.00153	J	NA	
Perfluorooctanesulfonamide (PFOSA)	754-91-6	NS		NS		ug/l	NA		<0.00196	U	<0.00186	U	NA		<0.00202	U	<0.00181	U	NA		<0.002	U	<0.00181	U	NA	
Perfluorooctanesulfonic Acid (PFOS)	1763-23-1	160	a	190	a	ug/l	NA		0.00269		0.00434		NA		0.00158	J	0.0024		NA		0.00163	J	0.0056		NA	
Perfluorooctanoic Acid (PFOA)	335-67-1	NS		NS		ug/l	NA		0.00697		0.011		NA		0.00506		0.00726		NA		0.00107	J	0.00493	J	NA	
Perfluoropentanesulfonic Acid (PFPeS)	2706-91-4	NS		NS		ug/l	NA		<0.00185	U	NA		NA		<0.0019	U	NA		NA		<0.00188	U	NA		NA	
Perfluoropentanoic Acid (PFPeA)	2706-90-3	NS		NS		ug/l	NA		0.00163	J	0.00372		NA		0.00593		0.00719		NA		0.000915	J	0.00361		NA	
Perfluorotetradecanoic Acid (PFTeDA)	376-06-7	NS		NS		ug/l	NA		<0.00196	U	<0.00186	U	NA		<0.00202	U	<0.00181	U	NA		<0.002	U	<0.00181	U	NA	
Perfluorotridecanoic Acid (PFTrDA)	72629-94-8	NS		NS		ug/l	NA		<0.00196	U	<0.00186	U	NA		<0.00202	U	<0.00181	U	NA		<0.002	U	<0.00181	U	NA	
Perfluoroundecanoic Acid (PFUnA)	2058-94-8	NS		NS		ug/l	NA		<0.00196	U	<0.00186	U	NA		<0.00202	U	<0.00181	U	NA		<0.002	U	0.000409	J	NA	
Total PFOA and PFOS	TOTPFOAPFOS	NS		NS		ug/l	NA		NA		0.0153		NA		NA		0.00966		NA		NA		0.0105		NA	

Table X
Remedial Investigation Report
Groundwater Sample Analytical Results

Greenpoint Landing Parcel C
Brooklyn, New York
NYSDEC BCP Site No.: C224435
Langan Project No.: 170229030

Notes:
CAS - Chemical Abstract Service
NS - No standard
ug/l - microgram per liter
NA - Not analyzed
RL - Reporting limit
<RL - Not detected

The following sources were consulted for identification of saline surface water criteria for screening purposes:

a - New York State Department of Environmental Conservation (NYSDEC) Division of Water Technical and Operational Guidance Series (TOGS) for the protection of aquatic life surface water standards for chronic and acute exposure

b - Region 4 Ecological Risk Assessment Supplemental Guidance- March 2018 (Table 1a -Region 4 Surface Water Screening Value for Hazardous Waste Sites).

NYSDEC TOGS Fish Propagation (saline waters) screening level is considered a chronic screening level and NYSDEC TOGS Fish Survival (saline waters) screening level is considered an acute screening level.

Qualifiers:

J - The analyte was positively identified and the associated numerical value is the approximate concentration of the analyte in the sample.

UJ - The analyte was not detected at a level greater than or equal to the RL; however, the reported RL is approximate and may be inaccurate or imprecise.

U - The analyte was analyzed for, but was not detected at a level greater than or equal to the level of the RL or the sample concentration for results impacted by blank contamination.

Exceedance Summary:

10 - Result exceeds the New York Department of Environmental Conservation (NYSDEC) Division of Water Technical and Operational Guidance Series (TOGS) Fish Propagation (saline waters) screening levels

10 - Result exceeds the New York Department of Environmental Conservation (NYSDEC) Division of Water Technical and Operational Guidance Series (TOGS) Fish Survival (saline waters) screening levels